



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
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February 4, 2016

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
05000461/2015004

Dear Mr. Hanson:

On December 31, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Clinton Power Station. The enclosed report documents the results of this inspection which were discussed on January 14, 2016, and finalized on January 27, 2016, with Mr. Ted Stoner, and other members of your staff.

Based on the results of this inspection, the NRC identified two issues that were evaluated under the risk significance determination process as having very low safety significance (Green) and one issue that was evaluated under the traditional enforcement process as having very low safety significance (Severity Level IV). Two of the findings involved a violation of NRC requirements. The violations are being treated as Non-Cited Violations (NCVs), consistent with Section 2.3.2 of the Enforcement Policy. The 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: (1) the Regional Administrator, Region III; (2) the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001; and (3) the NRC Resident Inspector at the Clinton Power Station.

In addition, if you disagree with the cross-cutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region III, and the NRC Resident Inspector at the Clinton Power Station.

B. Hanson

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In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records System (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Karla Stoedter, Chief
Branch 1
Division of Reactor Projects

Docket No. 50-461
License No. NPF-62

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-461

License No: NPF-62

Report No: 05000461/2015004

Licensee: Exelon Generation Company, LLC

Facility: Clinton Power Station

Location: Clinton, IL

Dates: October 1 through December 31, 2015

Inspectors: W. Schaup, Senior Resident Inspector
E. Sanchez-Santiago, Resident Inspector
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Branch 1
Division of Reactor Projects

Enclosure

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SUMMARY

Inspection Report 05000461/2015004, 10/01/2015 – 12/31/2015, Clinton Power Station, Unit 1; Plant Modifications and Problem Identification and Resolution.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. One Green finding, one Green Non-Cited Violation, and one Severity Level IV Violation of the U.S. Nuclear Regulatory Commission (NRC) requirements were identified. The significance of inspection findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," dated April 29, 2015. Cross-cutting aspects are determined using IMC 0310, "Aspects Within the Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated February 4, 2015. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," dated February 2014.

Cornerstone: Initiating Events

Green: The inspectors identified a finding of very low safety significance for the failure to ensure that activities were accomplished in accordance with prescribed procedures as required by station procedure HU-AA-104-101 "Procedure Use and Adherence." Specifically, the inspectors identified two examples where the licensee failed to adhere to prescribed station procedures when performing activities in the plant. The licensee placed both issues in their corrective action program as Action Request (AR) 02600726 and addressed the nonconformances created by the failure to follow the procedures. The licensee planned to perform an apparent cause evaluation to determine why there was an adverse trend related to procedure adherence.

The inspectors determined that the failure to perform activities in accordance with prescribed procedures as required by station procedure HU-AA-104-101, "Procedure Use and Adherence," was a performance deficiency. The performance deficiency was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, because, if left uncorrected it had the potential to lead to a more significant safety concern. Specifically, by not performing activities in accordance with a procedure the licensee could manipulate equipment, challenge the operators, and cause unexpected transients. Using IMC 0609, Attachment 4, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process (SDP) for Findings at Power," issued June 19, 2012, the finding was screened against the Initiating Events cornerstone and determined to be of very low safety significance because the finding did not cause a reactor trip or the loss of mitigation equipment, and it did not involve the complete or partial loss of a support system that contributes to the likelihood of, or cause, an initiating event. The inspectors determined this finding affected the cross-cutting area of human performance in the aspect of challenging the unknown which stated, "Individuals stop when faced with uncertain conditions. Risks are evaluated and managed before proceeding." Contrary to this, when challenged with unknown conditions, the licensee did not stop and properly evaluate the issues before proceeding, resulting in adverse impacts to station equipment. (H.11) (Section 4OA2)

Cornerstone: Mitigating Systems

Green: The inspectors identified a finding of very low safety significance and an associated Non-Cited Violation of Title 10 *Code of Federal Regulations* (CFR), Appendix B, Criterion V, "Instructions Procedures and Drawings," for the failure to ensure that activities affecting quality were accomplished in accordance with the appropriate instructions, procedures and drawings. Specifically, the inspectors identified two examples where the licensee failed to perform activities affecting quality in accordance with prescribed procedures. The licensee entered this issue into their corrective action program as AR 02600726 and planned to perform an apparent cause evaluation to address the trend. Separate action requests were also written and immediate corrective actions were taken for each identified example to address the nonconformances created by the failure to follow procedures.

The inspectors determined that the failure to ensure that activities affecting quality were accomplished in accordance with the appropriate instructions, procedures and drawings as required by 10 CFR 50, Appendix B, Criterion V, was a performance deficiency. The performance deficiency was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, because, if left uncorrected the performance deficiency had the potential to lead to a more significant safety concern. Specifically, by not performing activities affecting quality in accordance with a procedure the licensee could manipulate equipment and challenge the operators by causing unexpected transients or impact safety-related equipment. Using IMC 0609, Appendix G, "Shutdown Operations Significance Determination Process," Attachment 1, issued May 9, 2014, the finding was screened against the Mitigating Systems cornerstone and determined to be of very low safety significance because the finding did not represent a loss of system safety function, it did not represent an actual loss of function of a single train or two separate trains for greater than its allowed outage time, it did not represent an actual loss of safety function of one or more non-TS trains of equipment during shutdown for equipment designated as risk significant for greater than 24 hours, and it did not degrade a functional auto-isolation of residual heat removal on low reactor vessel level. The inspectors determined this finding affected the cross-cutting area of human performance in the aspect of challenging the unknown which states, "Individuals stop when faced with uncertain conditions. Risks are evaluated and managed before proceeding." Contrary to this, when challenged with uncertain conditions, the licensee did not stop and properly evaluate the issues before proceeding, resulting in adverse impacts to safety-related equipment and activities. (H.11) (Section 4OA2)

Cornerstone: Miscellaneous

- Severity Level IV: The inspectors identified a Severity Level IV Violation of 10 CFR 50.71(e), "Periodic Update of the FSAR [Final Safety Analysis Report]," for the licensee's failure to update the FSAR after installing a hydrogen water chemistry system into the plant to reduce rates of intergranular stress corrosion cracking in recirculation system piping and reactor vessel internals. Specifically, the licensee did not update Section 5.4.15, "Hydrogen Water Chemistry System," of the FSAR to include a design basis and description of the process and the system used to periodically injection noble metals. The licensee entered this issue into the corrective action program as AR 02594259 and planned to revise the FSAR to include a design basis and description of the process and the system used to periodically injection noble metals.

The inspectors determined that the failure to update the FSAR in accordance with 10 CFR 50.71(e), "Periodic Update of the FSAR," with the design basis and description of the process and the system used to periodically injection noble metals was a performance deficiency warranting a significance evaluation. The inspectors reviewed this issue in accordance with NRC IMC 0612 and the NRC Enforcement Manual. Violations of 10 CFR 50.71(e) are dispositioned using the traditional enforcement process because they are considered to be violations that potentially impede or impact the regulatory process. The inspectors reviewed Section 6.1.d.3 of the NRC Enforcement Policy and determined this violation was Severity Level IV because the licensee's failure to update the FSAR as required by 10 CFR 50.71(e) had not yet resulted in any unacceptable change to the facility or procedures. No cross cutting aspect was assigned because cross cutting aspects are not assigned to traditional enforcement only violations. (Section 1R18)

Licensee-identified Violations

None.

REPORT DETAILS

Summary of Plant Status

The unit was operated at or near full power during the inspection period with the following exception:

- On December 13, 2015, power was reduced to approximately 80 percent to perform a rod sequence exchange, turbine valve testing and main steam line isolation valve testing. The unit was returned to full power that same day.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity and Emergency Preparedness

1R01 Adverse Weather Protection (71111.01)

.1 Winter Seasonal Readiness Preparations

a. Inspection Scope

The inspectors conducted a review of the licensee's preparations for winter conditions to verify that the plant's design features and implementation of procedures were sufficient to protect mitigating systems from the effects of adverse weather. Documentation for selected risk-significant systems was reviewed to ensure that these systems would remain functional when challenged by inclement weather. During the inspection, the inspectors focused on plant specific design features and the licensee's procedures used to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Final Safety Analysis Report (FSAR) and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant specific procedures. Cold weather protection, such as heat tracing and area heaters, was verified to be in operation where applicable. The inspectors also reviewed corrective action program (CAP) items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their CAP in accordance with station corrective action procedures. The inspectors' reviews focused specifically on the following plant systems due to their risk significance or susceptibility to cold weather issues:

- Fire Protection System
- Emergency Diesel Generator Ventilation System
- Control Room Ventilation System

This inspection constituted one winter seasonal readiness preparations sample as defined in Inspection Procedure (IP) 71111.01-03.

b. Findings

No findings were identified.

.2 External Flooding

a. Inspection Scope

The inspectors reviewed flood protection barriers and procedures for coping with external flooding at the plant. The Clinton Power Station has limited susceptibility to external flooding as described in Section 3.4.1.1 of the FSAR and Section 5.2 of the Individual Plant Examination for External Events Report. The inspectors reviewed CPS 4303.02, "Abnormal Lake Level," Revision 10, to assess the adequacy of the licensee response to external flooding conditions.

The inspectors conducted a walkdown of the Lake Screen House, including the shutdown service water pump rooms. The inspectors assessed the condition of water tight door seals; the sealing of equipment floor plugs, electrical conduits, holes or penetrations in floors and walls between the pump rooms; and the condition of room floor drains, sumps, and sump pumps. The inspectors also performed a walkdown of the dam and reviewed the latest inspection report related to the inspection of the dam.

Additionally, the inspectors verified that external flooding protection issues were entered into the licensee's corrective action program with the appropriate characterization and significance. Selected action requests were reviewed to verify that corrective actions were appropriate and implemented as scheduled.

This inspection constituted one external flooding sample as defined in IP 71111.01-04.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04Q)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- Division 1 Emergency Diesel Generator while maintenance was being performed on the Division 2 Emergency Diesel Generator;
- Division 1 Emergency Diesel Generator fuel oil transfer and storage system with the Division 2 Fuel Oil Storage Tank drained;
- Reserve Auxiliary Transformer B with maintenance being performed on the Division 2 Emergency Diesel Generator;
- High Pressure Core Spray train after system maintenance.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones. The inspectors reviewed operating procedures, system diagrams, Technical Specification (TS) requirements, and the impact of ongoing work activities on redundant trains of equipment. The inspectors verified that conditions did not exist that could have rendered the systems incapable of performing their intended

functions. The inspectors also walked down accessible portions of the systems to verify system components were aligned correctly and available as necessary.

In addition, the inspectors verified that equipment alignment problems were entered into the licensee's corrective action program with the appropriate characterization and significance. Selected action requests were reviewed to verify that corrective actions were appropriate and implemented as scheduled.

These activities constituted four partial system walkdowns sample as defined in IP 71111.04-01.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

.1 Routine Resident Inspector Tours (71111.05Q)

a. Inspection Scope

The inspectors conducted fire protection walkdowns which were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- Fire Zone A-3f; Division 2 Switchgear Rooms—elevations 781' and 790';
- Fire Zone D-3; Division 2 Fuel Tank Room—elevation 712';
- Fire Zones D-6; 6a, and 6b, Division 2 Diesel Generator and day tank room—elevation 737'; and
- Fire Zone D-10; diesel generator heating and air conditioning (HVAC) equipment area and Unit 2 rooms—elevation 762'.

The inspectors reviewed areas to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and implemented adequate compensatory measures for out-of-service, degraded or inoperable fire protection equipment, systems, or features in accordance with the licensee's fire plan.

The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to impact equipment which could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the Attachment to this report, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's CAP.

These activities constituted four quarterly fire protection inspection samples as defined in IP 71111.05-05.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program (71111.11)

.1 Resident Inspector Quarterly Review of Licensed Operator Regualification (71111.11Q)

a. Inspection Scope

On October 14, 2015, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator regualification training to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- licensed operator performance;
- crew's clarity and formality of communications;
- ability to take timely actions in the conservative direction;
- prioritization, interpretation, and verification of annunciator alarms;
- correct use and implementation of abnormal and emergency procedures;
- control board manipulations;
- oversight and direction from supervisors; and
- ability to identify and implement appropriate TS actions and Emergency Plan actions and notifications.

The crew's performance in these areas was compared to pre-established operator action expectations and successful critical task completion requirements.

This inspection constituted one quarterly licensed operator regualification program simulator sample as defined in IP 71111.11

b. Findings

No findings were identified.

.2 Resident Inspector Quarterly Observation of Heightened Activity or Risk (71111.11Q)

a. Inspection Scope

On December 13, 2015, the inspectors observed the control room staff perform a down power of the unit to approximately 80 percent power and perform turbine valve testing and main steam line isolation valve testing. This was an activity that required heightened awareness or was related to increased risk. The inspectors evaluated the following areas:

- licensed operator performance;
- crew's clarity and formality of communications;
- ability to take timely actions in the conservative direction;
- prioritization, interpretation, and verification of annunciator alarms;
- correct use and implementation of procedures;
-

- control board manipulations; and
- oversight and direction from supervisors.

The performance in these areas was compared to pre-established operator action expectations, procedural compliance and task completion requirements.

This inspection constituted one quarterly licensed operator heightened activity/risk sample as defined in IP 71111.11.

b. Findings

No findings were identified.

.3 Biennial Written and Annual Operating Test Results (71111.11A)

a. Inspection Scope

The inspectors reviewed the overall pass/fail results of the Annual Operating Test and Written Examination administered by the licensee between October 22, 2015, and November 23, 2015, required by Title 10 of the *Code of Federal Regulations* (10 CFR) 55.59(a). The results were compared to the thresholds established in Inspection Manual Chapter (IMC) 0609, Appendix I, "Licensed Operator Requalification Significance Determination Process," to assess the overall adequacy of the licensee's Licensed Operator Requalification Training (LORT) program to meet the requirements of 10 CFR 55.59.

This inspection constituted one annual licensed operator requalification inspection sample as defined in IP 71111.11A.

b. Findings

No findings were identified.

.4 Biennial Review (71111.11B)

a. Inspection Scope

The following inspection activities were conducted during the week of October 5, 2015, to assess: (1) the effectiveness and adequacy of the facility licensee's implementation and maintenance of its Systems Approach to Training (SAT) based LORT program implemented to satisfy the requirements of 10 CFR 55.59; (2) conformance with the requirements of 10 CFR 55.46 for use of a plant reference simulator to conduct operator licensing examinations and for satisfying experience requirements; and (3) conformance with the operator license conditions specified in 10 CFR 55.53. Documents reviewed are listed in the Attachment to this report.

- Problem Identification and Resolution (10 CFR 55.59(c); SAT Element 5 as Defined in 10 CFR 55.4): The inspectors evaluated the licensee's ability to assess the effectiveness of its LORT program and their ability to implement appropriate corrective actions to maintain its LORT program up to date. The inspectors reviewed documents related to the plant's operating history and associated responses (e.g., Plant Issues Matrix and Plant Performance Review

reports; recent examination and inspection reports; and Licensee Event Reports). The inspectors reviewed the use of feedback from operators, instructors, and supervisors, as well as the use of feedback from plant events and industry experience information. The inspectors reviewed the licensee's quality assurance oversight activities, including licensee training department self-assessment reports.

- Licensee Regualification Examinations (10 CFR 55.59(c); SAT Element 4 as Defined in 10 CFR 55.4): The inspectors reviewed the licensee's program for development and administration of the LORT biennial written examination and annual operating tests to assess the licensee's ability to develop and administer examinations that were acceptable for meeting the requirements of 10 CFR 55.59(a).
 - The inspectors reviewed the methodology used to construct the examination including content, level of difficulty, and general quality of the examination/ test materials. The inspectors also assessed the level of examination material duplication from week-to-week of the operating tests conducted during 2015. The inspectors reviewed the written examination given during the inspection week and associated answer keys to check for consistency and accuracy.
 - The inspectors observed the administration of the annual operating test to assess the licensee's effectiveness in conducting the examinations, including the conduct of pre-examination briefings, evaluations of individual operator and crew performance, and post-examination analysis. The inspectors evaluated the performance of one crew Group 1 and Group 2, in parallel with the facility evaluators during four dynamic simulator scenarios, and evaluated various licensed crew members concurrently with facility evaluators during the administration of several job performance measures.
 - The inspectors assessed the adequacy and effectiveness of the remedial training conducted since the last requalification examination and the training planned for the current examination cycle to ensure that the licensee addressed weaknesses in licensed operator or crew performance identified during training and plant operations. The inspectors reviewed remedial training procedures and individual remedial training plans.
- Conformance with Examination Security Requirements (10 CFR 55.49): The inspectors conducted an assessment of the licensee's processes related to examination physical security and integrity (e.g., predictability and bias) to verify compliance with 10 CFR 55.49, "Integrity of Examinations and Tests." The inspectors reviewed the facility licensee's examination security procedure, and observed the implementation of physical security controls (e.g., access restrictions and simulator input/output (I/O) controls) and integrity measures (e.g., security agreements, sampling criteria, bank use, and test item repetition) throughout the inspection period.
- Conformance with Simulator Requirements (10 CFR 55.46): The inspectors assessed the adequacy of the licensee's simulation facility (simulator) for use in operator licensing examinations and for satisfying experience requirements.

The inspectors reviewed a sample of simulator performance test records (e.g., transient tests, malfunction tests, scenario based tests, post-event tests, steady state tests, and core performance tests), simulator discrepancies, and the process for ensuring continued assurance of simulator fidelity in accordance with 10 CFR 55.46. The inspectors reviewed and evaluated the discrepancy corrective action process to ensure that simulator fidelity was being maintained. Open simulator discrepancies were reviewed for importance relative to the impact on 10 CFR 55.45 and 55.59 operator actions, as well as on nuclear and thermal hydraulic operating characteristics.

- Conformance with Operator License Conditions (10 CFR 55.53): The inspectors reviewed the facility licensee's program for maintaining active operator licenses to assess compliance with 10 CFR 55.53 (e) and (f). The inspectors reviewed the procedural guidance and the process for tracking on-shift hours for licensed operators, and which control room positions were granted watch-standing credit for maintaining active operator licenses. Additionally, medical records for 10 licensed operators were reviewed for compliance with 10 CFR 55.53(l).

This inspection constitutes one biennial licensed operator requalification inspection sample as defined in IP 71111.11B.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Routine Quarterly Evaluations

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk-significant systems:

- Self-test system
- Emergency diesel generators
- Flex equipment scoped into maintenance rule
- Service water system

The inspectors reviewed events such as where ineffective equipment maintenance had resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- implementing appropriate work practices;
- identifying and addressing common cause failures;
- scoping of systems in accordance with 10 CFR 50.65(b) of the maintenance rule;
- characterizing system reliability issues for performance;
- charging unavailability for performance;
- trending key parameters for condition monitoring;
- ensuring 10 CFR 50.65(a)(1) or (a)(2) classification or re-classification; and

- verifying appropriate performance criteria for structures, systems, and components (SSCs)/functions classified as (a)(2), or appropriate and adequate goals and corrective actions for systems classified as (a)(1).

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the CAP with the appropriate significance characterization.

This inspection constituted four quarterly maintenance effectiveness samples as defined in IP 71111.12–05.

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

.1 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors reviewed the licensee's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- Planned yellow risk during Division 2 Shutdown Service Water and Emergency Diesel Generator maintenance;
- Planned yellow risk during high pressure core spray system maintenance;
- Unplanned loss of Latham line to ring bus and repairs leaving only one power source to ring bus;
- Planned yellow risk during Division 2 Shutdown Service Water Pump replacement; and
- Planned yellow risk during Standby Gas Treatment Train B maintenance.

These activities were selected based on their potential risk significance relative to the Reactor Safety Cornerstones. As applicable for each activity, the inspectors verified that risk assessments were performed as required by 10 CFR 50.65(a)(4) and were accurate and complete. When emergent work was performed, the inspectors verified that the plant risk was promptly reassessed and managed. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed TS requirements and walked down portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

These maintenance risk assessments and emergent work control activities constituted five samples as defined in IP 71111.13–05.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functional Assessments (71111.15)

.1 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following issues:

- Action Request (AR) 02566881–Indications found during Division 2 Fuel Oil Tank inspection (EC403488)
- Annual review of the cumulative effects of operator workarounds

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluation to ensure that TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TS and FSAR to the licensee's evaluation to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations.

This operability inspection constituted two samples as defined in IP 71111.15–05.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

.1 Plant Modifications

a. Inspection Scope

The inspectors reviewed the following modification:

- Online noble chemical injection

The inspectors reviewed the configuration changes and associated 10 CFR 50.59 safety evaluation screening against the design basis, the FSAR, and the TS, as applicable, to verify that the modification did not affect the operability or availability of the affected system. The inspectors observed ongoing and completed work activities to ensure that the modifications were installed as directed and consistent with the design control documents; the modifications operated as expected; post-modification testing adequately demonstrated continued system operability, availability, and reliability; and

that operation of the modifications did not impact the operability of any interfacing systems. As applicable, the inspectors verified that relevant procedure, design, and licensing documents were properly updated. Lastly, the inspectors discussed the plant modification with operations, engineering, and training personnel to ensure that the individuals were aware of how the operation with the plant modification in place could impact overall plant performance.

This inspection constituted one permanent plant modification sample as defined in IP 71111.18-05.

b. Findings

Failure to Update the FSAR–Hydrogen Water Chemistry System

Introduction: The inspectors identified a Severity Level IV Violation of 10 CFR 50.71(e), “Periodic Update of the FSAR,” for the licensee’s failure to update the FSAR after installing a hydrogen water chemistry system into the plant to reduce rates of intergranular stress corrosion cracking (IGSCC) in recirculation piping and reactor vessel internals. Specifically, the licensee did not update Section 5.4.15, “Hydrogen Water Chemistry System,” of the FSAR to include a design basis and description of the process and the system used to periodically inject noble metals.

Description: In 2002, the licensee implemented hydrogen water chemistry controls to mitigate IGSCC in the reactor recirculation piping and reactor internals. This consisted of a hydrogen delivery system that adds hydrogen to the feedwater system to reduce oxygen and other oxidants in the reactor coolant. In addition, it included a system installed during periods when the reactor was shut down (mode 4 or 5) to inject noble metals that increased the effectiveness of the hydrogen addition by acting as a catalyst allowing more recombination of the hydrogen and oxidants on the surface of the piping and reactor internals. Additionally, to determine a measure of how much noble metal remained in plant systems, a durability monitor was permanently installed in the reactor water cleanup system.

In 2014, the licensee implemented a change to hydrogen water chemistry control that would perform the noble metal injection while the plant was at power (mode 1, 2 or 3). The change would allow addition of noble metals under different plant conditions and would be injected directly into the feed water system through a permanent plant modification.

On November 12, 2015, after reviewing the supporting documentation for installation and performance of noble metal injection both at power and during shutdown conditions, the inspectors identified that the licensee failed to update the FSAR with a design basis and description of the system used to periodically injection noble metals.

The licensee entered this issue into the CAP as AR 02594259 and is revising the FSAR to include a design basis and description of the process and the system used to periodically injection noble metals.

Analysis: The inspectors determined that the failure to update the FSAR in accordance with 10 CFR 50.71(e), “Periodic Update of the FSAR,” with the design basis and description of the process and the system used to periodically injection noble metals was a performance deficiency warranting a significance evaluation. The inspectors reviewed

this issue in accordance with NRC IMC 0612 and the NRC Enforcement Manual. Violations of 10 CFR 50.71(e) are dispositioned using the traditional enforcement process because they are considered to be violations that potentially impede or impact the regulatory process. The inspectors reviewed Section 6.1.d.3 of the NRC Enforcement Policy and determined this violation was Severity Level IV because the licensee's failure to update the FSAR as required by 10 CFR 50.71(e) had not yet resulted in any unacceptable change to the facility or procedures. No cross cutting aspect was assigned because cross cutting aspects are not assigned to traditional enforcement only violations.

Enforcement: Title 10 CFR 50.71(e) required, in part, that licensees shall periodically update the FSAR, originally submitted as part of the application for the operating license, to assure that the information included in the report contains the latest information developed. This submittal shall include the effects of all the changes necessary to reflect information and analysis submitted to the Commission by the licensee or prepared by the licensee pursuant to Commission requirement since the submittal of the original FSAR, or as appropriate, the last update to the FSAR under this section.

Contrary to the above, as of December 31, 2015, the licensee had not updated the FSAR to reflect the design basis and description of the process and system used to periodically injection noble metals as part of the hydrogen water chemistry controls used a Clinton Power Station. The licensee planned to revise the FSAR to include additional design basis and additional system description for noble metal injection. In accordance with the Enforcement Policy, Section 6.1.d.3, the violation was classified as a Severity Level IV Violation. Because this violation was of very low safety significance, was not repetitive or willful, and was entered into the licensee's corrective action program as issue report AR 02594259, it is being treated as a Severity Level IV Violation, consistent with Section 2.3.2 of the NRC Enforcement Policy. **(NCV 05000461/2015005-01; Failure to Update the FSAR-Hydrogen Water Chemistry System)**

1R19 Post-Maintenance Testing (71111.19)

.1 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed the following post-maintenance (PM) activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- Testing of 1SX008B, Shutdown Service Water Strainer 1B Bypass Valve;
- Testing of 1SX010B, Shutdown Service Water 1B Room Cooler Heat Exchanger Discharge Valve;
- Testing of the Division 2 Diesel Generator;
- Testing of the Division 2 Shut Down Service Water Pump;
- Testing of the residual heat removal two way buffer card; and
- Testing of Control Room Ventilation Train 'B'.

These activities were selected based upon the structure, system, or component's ability to impact risk. The inspectors evaluated these activities for the following (as applicable): the effect of testing on the plant had been adequately addressed; testing was adequate

for the maintenance performed; acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate; tests were performed as written in accordance with properly reviewed and approved procedures; equipment was returned to its operational status following testing (temporary modifications or jumpers required for test performance were properly removed after test completion); and test documentation was properly evaluated. The inspectors evaluated the activities against TSs, the FSAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with post-maintenance tests to determine whether the licensee was identifying problems and entering them in the CAP and that the problems were being corrected commensurate with their importance to safety.

This inspection constituted six post-maintenance testing samples as defined in IP 71111.19–05.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

.1 Surveillance Testing

a. Inspection Scope

The inspectors reviewed the test results for the following activities to determine whether risk-significant systems and equipment were capable of performing their intended safety function and to verify testing was conducted in accordance with applicable procedural and TS requirements:

- CPS 3315.02; “Leak Detection,” Revision 14e (reactor coolant system (RCS) leak rate);
- CPS 9054.06; “RCIC [reactor core isolation cooling] Discharge Header Filled and Flow Path Verification, and Flow Controller Checks,” Revision 27b (Routine Test); and
- CPS 9170.02; “Control Room HVAC Chilled Water Valve Operability Test,” Revision 32c (In-service Test).

The inspectors observed in-plant activities and reviewed procedures and associated records to determine the following:

- did preconditioning occur;
- the effects of the testing were adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- acceptance criteria were clearly stated, demonstrated operational readiness, and were consistent with the system design basis;
- plant equipment calibration was correct, accurate, and properly documented;
- as-left set points were within required ranges; and the calibration frequency was in accordance with TSs, the FSAR, procedures, and applicable commitments;
- measuring and test equipment calibration was current;

- test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied;
- test frequencies met TS requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; jumpers and lifted leads were controlled and restored where used;
- test data and results were accurate, complete, within limits, and valid;
- test equipment was removed after testing;
- where applicable for in-service testing activities, testing was performed in accordance with the applicable version of Section XI, American Society of Mechanical Engineers code, and reference values were consistent with the system design basis;
- where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure;
- where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished;
- prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test;
- equipment was returned to a position or status required to support the performance of its safety functions; and
- all problems identified during the testing were appropriately documented and dispositioned in the CAP.

This inspection constituted one routine surveillance testing sample, one in-service testing sample, and one reactor coolant system leak detection inspection sample as defined in IP 71111.22, Sections –02 and –05.

b. Findings

No findings were identified.

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

.1 Emergency Action Level and Emergency Plan Changes

a. Inspection Scope

The regional inspectors performed an in-office review of the latest revisions to the Emergency Plan and Emergency Action Levels (EALs).

The licensee transmitted the Emergency Plan and EAL revisions to the NRC pursuant to the requirements of 10 CFR Part 50, Appendix E, Section V, “Implementing Procedures.” The NRC review was not documented in a Safety Evaluation Report, and did not constitute approval of licensee-generated changes; therefore, this revision is subject to future inspection.

This EAL and Emergency Plan Changes inspection constituted one sample as defined in IP 71114.04.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on December 8, 2015, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator and technical support center to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the corrective action program. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the attachment to this report.

This emergency preparedness drill inspection constituted one sample as defined in IP 71114.06–05.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety and Public Radiation Safety

2RS2 Occupational As-Low-As-Reasonably-Achievable Planning and Controls (71124.02)

This inspection constituted one complete sample as defined in IP 71124.02–05.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed pertinent information regarding plant collective exposure history, current exposure trends, and ongoing or planned activities in order to assess current performance and exposure challenges. The inspectors reviewed the plant's 3-year rolling average collective exposure.

The inspectors reviewed the site-specific trends in collective exposures and source term measurements.

The inspectors reviewed site-specific procedures associated with maintaining occupational exposures as-low-as-reasonably-achievable (ALARA), which included a review of processes used to estimate and track exposures from specific work activities.

b. Findings

No findings were identified.

.2 Radiological Work Planning (02.02)

a. Inspection Scope

The inspectors selected the following work activities of the highest exposure significance.

- Radiation Work Permit (RWP) 10016214; Drywell Scaffold;
- RWP 10016282; Reactor Cavity Work; and
- RWP 10016283; Refuel Floor Work.

The inspectors reviewed the ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements. The inspectors determined whether the licensee reasonably grouped the radiological work into work activities based on historical precedence, industry norms, and/or special circumstances.

The inspectors assessed whether the licensee's planning identified appropriate dose mitigation features, considered alternate mitigation features, and defined reasonable dose goals. The inspectors evaluated whether the licensee's ALARA assessment has taken into account decreased worker efficiency from use of respiratory protective devices and/or heat stress mitigation equipment (e.g., ice vests). The inspectors determined whether the licensee's work planning considered the use of remote technologies (e.g., tele dosimetry, remote visual monitoring, and robotics) as a means to reduce dose and the use of dose reduction insights from industry operating experience and plant-specific lessons learned. The inspectors assessed the integration of ALARA requirements into work procedure and RWP documents.

The inspectors compared the results achieved (dose rate reductions and person-rem used) with the intended dose established in the licensee's ALARA planning for these work activities. The inspectors compared the person-hour estimates provided by maintenance planning and other groups to the radiation protection group with the actual work activity time requirements and evaluated the accuracy of these time estimates. The inspectors assessed the reasons (e.g., failure to adequately plan the activity and failure to provide sufficient work controls) for any inconsistencies between intended and actual work activity doses.

The inspectors determined whether post-job reviews were conducted and if identified problems were entered into the licensee's CAP.

b. Findings

No findings were identified.

.3 Verification of Dose Estimates and Exposure Tracking Systems (02.03)

a. Inspection Scope

The inspectors reviewed the assumptions and basis (including dose rate and man-hour estimates) for the current annual collective exposure estimate for reasonable accuracy for select ALARA work packages. The inspectors reviewed applicable procedures to determine the methodology for estimating exposures from specific work activities and the intended dose outcome.

The inspectors evaluated whether the licensee established measures to track, trend, and, if necessary, to reduce occupational doses for ongoing work activities. The inspectors assessed whether trigger points or criteria were established to prompt additional reviews and/or additional ALARA planning and controls.

The inspectors evaluated the licensee's method of adjusting exposure estimates, or re-planning work, when unexpected changes in scope or emergent work were encountered. The inspectors assessed whether adjustments to exposure estimates (intended dose) were based on sound radiation protection and ALARA principles or if they were just adjusted to account for failures to control the work. The inspectors evaluated whether the frequency of these adjustments called into question the adequacy of the original ALARA planning process.

b. Findings

No findings were identified.

.4 Source Term Reduction and Control (02.04)

a. Inspection Scope

The inspectors used licensee records to determine the historical trends and current status of significant tracked plant source terms known to contribute to elevated facility aggregate exposure. The inspectors assessed whether the licensee had made allowances or developed contingency plans for expected changes in the source term as the result of changes in plant fuel performance issues or changes in plant primary chemistry.

b. Findings

No findings were identified.

.5 Radiation Worker Performance (02.05)

a. Inspection Scope

The inspectors observed radiation worker and radiation protection technician performance during work activities being performed in radiation areas, airborne radioactivity areas, or high-radiation areas. The inspectors evaluated whether workers demonstrated the ALARA philosophy in practice (e.g., workers are familiar with the work activity scope and tools to be used, workers used ALARA low-dose waiting areas), and whether there were any procedure compliance issues (e.g., workers are not complying

with work activity controls). The inspectors observed radiation worker performance to assess whether the training and skill level was sufficient with respect to the radiological hazards and the work involved.

b. Findings

No findings were identified.

.6 Problem Identification and Resolution (02.06)

a. Inspection Scope

The inspectors evaluated whether problems associated with ALARA planning and controls are being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee's CAP.

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment (71124.04)

The inspection activities supplement those documented in Inspection Report (IR) 05000461/2014002; IR 05000461/2015002, and constitute one complete sample as defined in IP 71124.04–05.

.1 External Dosimetry (02.02)

a. Inspection Scope

The inspectors assessed the use of active dosimeters (electronic personal dosimeters) to determine if the licensee used a "correction factor" to address the response of the electronic personal dosimeter as compared to the passive dosimeter for situations when the electronic personal dosimeter must be used to assign dose. The inspectors also assessed whether the correction factor was based on sound technical principles.

The inspectors reviewed dosimetry occurrence reports or CAP documents for adverse trends related to electronic personal dosimeters, such as interference from electromagnetic frequency, dropping or bumping, failure to hear alarms, etc. The inspectors assessed whether the licensee had identified any trends and implemented appropriate corrective actions.

b. Findings

No findings were identified.

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)

This inspection constituted one complete sample as defined in IP 71124.06–05.

.1 Inspection Planning and Program Reviews (02.01)

(1) Event Report and Effluent Report Reviews

a. Inspection Scope

The inspectors reviewed the Radiological Effluent Release Reports issued since the last inspection to determine if the reports were submitted as required by the Offsite Dose Calculation Manual (ODCM)/Technical Specifications (TSs). The inspectors reviewed anomalous results, unexpected trends, or abnormal releases identified by the licensee for further inspection to determine if they were evaluated, were entered in the CAP, and were adequately resolved.

The inspectors selected radioactive effluent monitor operability issues reported by the licensee as provided in effluent release reports, to review these issues during the onsite inspection, as warranted, given their relative significance and determine if the issues were entered into the CAP and adequately resolved.

b. Findings

No findings were identified.

(2) Offsite Dose Calculation Manual and Final Safety Analysis Report Review

a. Inspection Scope

The inspectors reviewed FSAR descriptions of the radioactive effluent monitoring systems, treatment systems, and effluent flow paths so they could be evaluated during inspection walkdowns.

The inspectors reviewed changes to the ODCM made by the licensee since the last inspection against the guidance in NUREG-1301, 1302 and 0133, and Regulatory Guides (RGs) 1.109, 1.21 and 4.1. When differences were identified, the inspectors reviewed the technical basis or evaluations of the change during the onsite inspection to determine whether they were technically justified and maintain effluent releases ALARA.

The inspectors reviewed licensee documentation to determine if the licensee had identified any non-radioactive systems that have become contaminated as disclosed either through an event report or the ODCM since the last inspection. This review provided an intelligent sample list for the onsite inspection of any 10 CFR 50.59 evaluations and allowed a determination if any newly contaminated systems had an unmonitored effluent discharge path to the environment, whether any required ODCM revisions were made to incorporate these new pathways and whether the associated effluents were reported in accordance with RG 1.21.

b. Findings

No findings were identified.

(3) Groundwater Protection Initiative Program

a. Inspection Scope

The inspectors reviewed reported groundwater monitoring results and changes to the licensee's written program for identifying and controlling contaminated spills/leaks to groundwater.

b. Findings

No findings were identified.

(4) Procedures, Special Reports, and Other Documents

a. Inspection Scope

The inspectors reviewed Licensee Event Reports, event reports and/or special reports related to the Effluent Program issued since the previous inspection to identify any additional focus areas for the inspection based on the scope/breadth of problems described in these reports.

The inspectors reviewed Effluent Program implementing procedures, particularly those associated with effluent sampling, effluent monitor set-point determinations, and dose calculations.

The inspectors reviewed copies of licensee and third party (independent) evaluation reports of the Effluent Monitoring Program since the last inspection to gather insights into the licensee's program, and aid in selecting areas for inspection review (smart sampling).

b. Findings

No findings were identified.

.2 Walkdowns and Observations (02.02)

a. Inspection Scope

The inspectors walked down selected components of the gaseous and liquid discharge systems to evaluate whether equipment configuration and flow paths align with the documents reviewed in 02.01 above, and to assess equipment material condition. Special attention was made to identify potential unmonitored release points (such as open roof vents in boiling water reactor turbine decks, temporary structures butted against turbine, auxiliary or containment buildings), building alterations which could impact airborne or liquid effluent controls, and ventilation system leakage that communicated directly with the environment.

For equipment or areas associated with the systems selected for review that were not readily accessible due to radiological conditions, the inspectors reviewed the licensee's material condition surveillance records, as applicable.

The inspectors walked down filtered ventilation systems to assess for conditions such as degraded high-efficiency particulate air/charcoal banks, improper alignment, or system

installation issues that would impact the performance or the effluent monitoring capability of the effluent system.

As available, the inspectors observed selected portions of the routine processing and discharge of radioactive gaseous effluent (including sample collection and analysis) to evaluate whether appropriate treatment equipment was used and the processing activities align with discharge permits.

The inspectors determined if the licensee had made significant changes to their effluent release points (e.g., changes subject to a 10 CFR 50.59 review or require NRC approval of alternate discharge points).

As available, the inspectors observed selected portions of the routine processing and discharging of liquid waste (including sample collection and analysis) to determine if appropriate effluent treatment equipment is being used and that radioactive liquid waste is being processed and discharged in accordance with procedure requirements and aligns with discharge permits.

b. Findings

No findings were identified.

.3 Sampling and Analyses (02.03)

a. Inspection Scope

The inspectors selected effluent sampling activities, consistent with smart sampling, and assessed whether adequate controls have been implemented to ensure representative samples were obtained (e.g., provisions for sample line flushing, vessel recirculation, composite samplers, etc.).

The inspectors selected effluent discharges made with inoperable (declared out-of-service) effluent radiation monitors to assess whether controls were in place to ensure compensatory sampling was performed consistent with the radiological effluent TSs/ODCM, and that those controls were adequate to prevent the release of unmonitored liquid and gaseous effluents.

The inspectors determined whether the facility was routinely relying on the use of compensatory sampling in lieu of adequate system maintenance, based on the frequency of compensatory sampling since the last inspection.

The inspectors reviewed the results of the Inter-Laboratory Comparison Program to evaluate the quality of the radioactive effluent sample analyses, and assessed whether the Inter-Laboratory Comparison Program includes hard-to-detect isotopes as appropriate.

b. Findings

No findings were identified.

.4 Instrumentation and Equipment (02.04)

(1) Effluent Flow Measuring Instruments

a. Inspection Scope

The inspectors reviewed the methodology the licensee used to determine the effluent stack and vent flow rates to determine if the flow rates were consistent with Radiological Effluent Technical Specifications (RETS)/ODCM or FSAR values, and that differences between assumed and actual stack and vent flow rates did not affect the results of the projected public doses.

b. Findings

No findings were identified.

(2) Air Cleaning Systems

a. Inspection Scope

The inspectors assessed whether surveillance test results since the previous inspection for TS required ventilation effluent discharge systems (high-efficiency particulate air and charcoal filtration), such as the standby gas treatment system and the containment/auxiliary building ventilation system, met TS acceptance criteria.

b. Findings

No findings were identified.

.5 Dose Calculations (02.05)

a. Inspection Scope

The inspectors reviewed all significant changes in reported dose values compared to the previous Radiological Effluent Release Report (e.g., a factor of five, or increases that approach Appendix I criteria) to evaluate the factors which may have resulted in the change.

The inspectors reviewed radioactive liquid and gaseous waste discharge permits to assess whether the projected doses to members of the public were accurate and based on representative samples of the discharge path.

Inspectors evaluated the methods used to determine the isotopes that are included in the source term to ensure all applicable radionuclides are included within detectability standards. The review included the current Part 61 analyses to ensure hard-to-detect radionuclides are included in the source term.

The inspectors reviewed changes in the licensee's offsite dose calculations since the last inspection to evaluate whether changes were consistent with the ODCM and RG 1.109. Inspectors reviewed meteorological dispersion and deposition factors used in the ODCM and effluent dose calculations to evaluate whether appropriate factors were being used for public dose calculations.

The inspectors reviewed the latest Land Use Census to assess whether changes (e.g., significant increases or decreases to population in the plant environs, changes in critical exposure pathways, the location of nearest member of the public, or critical receptor, etc.) have been factored into the dose calculations.

For the releases reviewed above, the inspectors evaluated whether the calculated doses (monthly, quarterly, and annual dose) are within the 10 CFR Part 50, Appendix I, and TS dose criteria.

The inspectors reviewed, as available, records of any abnormal gaseous or liquid tank discharges (e.g., discharges resulting from misaligned valves, valve leak-by, etc.) to ensure the abnormal discharge was monitored by the discharge point effluent monitor. Discharges made with inoperable effluent radiation monitors, or unmonitored leakages were reviewed to ensure that an evaluation was made of the discharge to satisfy 10 CFR 20.1501 so as to account for the source term and projected doses to the public.

b. Findings

No findings were identified.

.6 Groundwater Protection Initiative Implementation (02.06)

a. Inspection Scope

The inspectors reviewed monitoring results of the Groundwater Protection Initiative to determine if the licensee had implemented its program as intended and to identify any anomalous results. For anomalous results or missed samples, the inspectors assessed whether the licensee had identified and addressed deficiencies through its CAP.

The inspectors reviewed identified leakage or spill events and entries made into 10 CFR 50.75 (g) records. The inspectors reviewed evaluations of leaks or spills and reviewed any remediation actions taken for effectiveness. The inspectors reviewed onsite contamination events involving contamination of ground water and assessed whether the source of the leak or spill was identified and mitigated.

For unmonitored spills, leaks, or unexpected liquid or gaseous discharges, the inspectors assessed whether an evaluation was performed to determine the type and amount of radioactive material that was discharged by:

- Assessing whether sufficient radiological surveys were performed to evaluate the extent of the contamination and the radiological source term and assessing whether a survey/evaluation had been performed to include consideration of hard-to-detect radionuclides; and
- Determining whether the licensee completed offsite notifications, as provided in its Groundwater Protection Initiative implementing procedures.

The inspectors reviewed the evaluation of discharges from onsite surface water bodies that contain or potentially contain radioactivity, and the potential for ground water leakage from these onsite surface water bodies. The inspectors assessed whether the licensee was properly accounting for discharges from these surface water bodies as part of their effluent release reports.

The inspectors assessed whether onsite ground water sample results and a description of any significant onsite leaks/spills into ground water for each calendar year were documented in the Annual Radiological Environmental Operating Report for the Radiological Environmental Monitoring Program or the Annual Radiological Effluent Release Report for the RETS.

For significant, new effluent discharge points (such as significant or continuing leakage to ground water that continues to impact the environment if not remediated), the inspectors evaluated whether the ODCM was updated to include the new release point.

b. Findings

No findings were identified.

.7 Problem Identification and Resolution (02.07)

a. Inspection Scope

The inspectors assessed whether problems associated with the Effluent Monitoring and Control Program were being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee CAP. In addition, the inspectors evaluated the appropriateness of the corrective actions for a selected sample of problems documented by the licensee involving radiation monitoring and exposure controls.

b. Findings

No findings were identified.

3. OTHER ACTIVITIES

40A1 Performance Indicator Verification (71151)

Cornerstones: Barrier Integrity, Public Radiation Safety and Occupational Radiation Safety

.1 Reactor Coolant System Specific Activity

a. Inspection Scope

The inspectors sampled licensee submittals for the RCS specific activity Performance Indicator (PI) for Clinton Power Station for the period from the third quarter 2014 through the third quarter 2015. The inspectors used PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment PI Guideline," Revision 7, dated August 2013, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's RCS chemistry samples, TS requirements, issue reports, event reports and NRC Integrated IRs to validate the

accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator. In addition to record reviews, the inspectors observed a chemistry technician obtain and analyze a RCS sample.

This inspection constituted one RCS specific activity sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.2 Reactor Coolant System Leakage

a. Inspection Scope

The inspectors sampled licensee submittals for the RCS Leakage PI for Clinton Power Station for the period from the fourth quarter 2014 through the third quarter 2015. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 2013, were used. The inspectors reviewed the licensee's operator logs, RCS leakage tracking data, issue reports, event reports and NRC Integrated Inspection Reports for the period of October 1, 2014, through September 30, 2015, to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified.

This inspection constituted one reactor coolant system leakage sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.3 Occupational Exposure Control Effectiveness

a. Inspection Scope

The inspectors sampled licensee submittals for the Occupational Exposure Control Effectiveness PI for the period from the third quarter 2014 through the third quarter 2015. The inspectors used PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment PI Guideline," Revision 7, dated August 2013, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's assessment of the PI for occupational radiation safety to determine if indicator related data was adequately assessed and reported. To assess the adequacy of the licensee's PI data collection and analyses, the inspectors discussed with radiation protection staff, the scope and breadth of its data review and the results of those reviews. The inspectors independently reviewed electronic personal dosimetry dose rate and accumulated dose alarms and dose reports and the dose assignments for any intakes that occurred during the time period reviewed to determine if there were potentially unrecognized occurrences. The inspectors also conducted walkdowns of numerous locked high and very-high radiation area entrances to determine the

adequacy of the controls in place for these areas. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one occupational exposure control effectiveness sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.4 Radiological Effluent Technical Specification/Offsite Dose Calculation Manual
Radiological Effluent Occurrences

a. Inspection Scope

The inspectors sampled licensee submittals for the RETS/ODCM radiological effluent occurrences PI for the period from the third quarter 2014 through the third quarter 2015. The inspectors used PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment PI Guideline," Revision 7, dated August 2013, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's issue report database and selected individual reports generated since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous effluent summary data and the results of associated offsite dose calculations for selected dates to determine if indicator results were accurately reported. The inspectors also reviewed the licensee's methods for quantifying gaseous and liquid effluents and determining effluent dose. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one RETS/ODCM radiological effluent occurrences sample as defined in IP 71151-05.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

Cornerstone: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Physical Protection

.1 Routine Review of Items Entered into the Corrective Action Program

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify they were being entered into the licensee's CAP at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Attributes reviewed included: identification of the problem was complete and accurate; timeliness was commensurate with the safety significance; evaluation and disposition of performance

issues, generic implications, common causes, contributing factors, root causes, extent-of-condition reviews, and previous occurrences reviews were proper and adequate; and that the classification, prioritization, focus, and timeliness of corrective actions were commensurate with safety and sufficient to prevent recurrence of the issue. Minor issues entered into the licensee's CAP as a result of the inspectors' observations are included in the Attachment to this report.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished through inspection of the station's daily condition report packages.

These daily reviews were performed by procedure as part of the inspectors' daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screening discussed in Section 40A2.2 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the 6-month period of July 1, 2015, through December 31, 2015, although some examples expanded beyond those dates where the scope of the trend warranted.

The review also included issues documented outside the normal CAP in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self-assessment reports, and Maintenance Rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's

CAP trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

From May 2015 through December 2015 through in field observations as well as reviews of corrective action documents, the inspectors identified a trend related to procedure adherence. The procedural adherence trend encompassed both safety-related components and activities as well as non-safety-related components and activities. The issues identified as part of the trend, associated with the safety-related components and activities represent a violation of NRC requirements; therefore, those issues will be documented under NCV 05000461/2015004-02 of this report. The issues identified as part of the trend, associated with the non-safety-related components and activities do not represent a violation of NRC requirements; therefore, those issues will be documented under FIN 05000461/2015004-03 of this report.

This review constituted one semi-annual trend inspection sample as defined in IP 71152-05.

b. Findings

(1) Failure to Perform Activities Affecting Quality in Accordance with Prescribed Procedures

Introduction: The inspectors identified a finding of very low safety significance (Green) and an associated Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V, "Instructions Procedures and Drawings," for the failure to ensure that activities affecting quality were accomplished in accordance with the appropriate instructions, procedures and drawings. Specifically, the inspectors identified two examples where the licensee failed to perform activities affecting quality in accordance with prescribed procedures.

Description: On May 2, 2015, during a refueling outage, the licensee implemented an alternate shutdown cooling method (natural circulation) using their fuel pool cooling system. In accordance with Procedure 3312.02, "Alternate Shutdown Cooling Methods," and Engineering Change Request 385105, reactor coolant temperature was to be determined by alternate means using containment pool bulk temperature plus 25 degrees Fahrenheit (F). Bulk temperature would be determined by the average of the refueling pool and the upper spent fuel storage pool temperatures. This required a temporary temperature probe to be installed in each pool. On May 4, 2015, during hourly monitoring of the bulk temperature, the control room operators noticed a step increase in bulk temperature from 119.0 degrees F to 127.3 degrees F. Upon investigation it was discovered that one of the probes had just been installed in the pool. The step increase occurred because the temperature read by the probe changed from ambient air temperature to the pool water temperature.

The inspectors determined that the bulk temperature monitoring to support the alternate shutdown cooling method began May 2, 2015, at 5:00 a.m. and the probe was installed on May 4, 2015, at 9:00 a.m. Due to the failure to insert the probe on May 2, 2015, bulk temperature monitoring during that time was not indicative of the actual containment pool bulk temperature. When the actual temperature of 127.3 degrees F was determined on May 4, 2015, that temperature exceeded a licensee established control band but did not exceed the threshold imposed by the station procedure or the TSs. Through additional review, the inspectors determined that the control room operators made the assumption the probe was properly installed on May 2, 2015, and did not challenge or verify the assumption prior to monitoring bulk temperature to ensure the

RCS temperature remained within the control band. The licensee entered this issue into their corrective action program as AR 02495871, took actions to ensure the probes were installed properly, and performed additional checks to confirm the probes remained installed. After reviewing the action request and subsequent actions taken, the inspectors determined that the licensee had failed to identify that the procedure for installing the probes was not followed as evidenced by the uninstalled probe.

On May 11, 2015, during the performance of Procedure CPS 9080.25 "DG 1B Test Mode Override, Load Reject Operability, and Idle Speed Override," Step 8.6.2, the Division 2 Emergency Diesel Generator (EDG) unexpectedly auto started. Based on the result of a prompt investigation performed by the licensee, the cause of the auto-start was determined to be the inappropriate manipulation of a temporary toggle switch in a manner that was not described in the procedure. Procedure CPS 9080.25 was a continuous use procedure, therefore, each individual step in the procedure was required to be performed as written and in the specified sequence. Step 8.6.2 stated, "Remove the temporary switch installed." When the technicians read this step, they questioned whether the switch needed to be placed in the open position prior to removal. Without performing any reviews or verifications of the impact of toggling the switch, the technicians decided to place the switch in the open position not recognizing the switch was already in the open position in accordance with CPS 9080.25, Step 8.3.1.8. When they toggled the switch, rather than placing it in the open position, they placed it in the closed position, causing the Division 2 EDG to auto start. The action to reposition the toggle switch had a direct impact on the EDG, which was a safety-related piece of equipment. In addition, the decision to manipulate the switch was not performed in accordance with a qualified procedure. The licensee entered this issue into their CAP as AR 02498674. The licensee performed an apparent cause evaluation that determined the cause of the issue to be poor human performance and verification practices by both technicians involved leading to not following the job steps. Corrective actions included emphasizing the importance of procedure adherence with group leads and technicians, briefing maintenance managers, briefing first line supervisors and the instrumentation maintenance department (IMD) staff on the event and the importance of the need to challenge assumptions and procedure adherence, conducting training on the gaps identified from the event, and providing expectations for use of switchable jumpers to the IMD.

In addition to these examples, the inspectors identified an additional example of the licensee's failure to perform activities affecting quality in accordance with prescribed procedures. On May 15, 2015, the licensee was performing local leak rate testing (LLRT) on the drywell personnel airlock seals to support final closeout of the drywell. This test was performed in accordance with Procedure CPS 9861.03D012, "Drywell Air Lock Seal Leak rate Test Data Sheet." During the test, the test pressure used was 9.2 psig which was significantly above the testing conditions stated in Step 8.2.3 of the procedure. The procedure stated the test pressure shall be 3.2 psig minimum and 3.9 psig maximum. When the inspectors followed up on the issue they noted that an action request had not been initiated on the performance of the test at the incorrect pressure and no evaluation was documented regarding the impact that the higher test pressure may have had on the door seal. After discussions with the licensee, the issue was documented in the CAP as AR 2501695. The licensee assessed the impact of the higher test pressure on the airlock seals by performing an engineering evaluation that determined the elevated test pressure did not create a degraded or non-conforming condition. The inspectors determined this issue was not more than minor because the

licensee was able to successfully perform the LLRT and the evaluation determined that initially performing the test at the higher pressure did not adversely impact the drywell personnel airlock seal's ability to perform its safety function.

Analysis: The inspectors determined that the failure to ensure that activities affecting quality were accomplished in accordance with the appropriate instructions, procedures and drawings as required by 10 CFR 50, Appendix B, Criterion V, was a performance deficiency. Specifically, the inspectors identified two instances where the licensee failed to follow procedures resulting in impacts to safety-related equipment and processes. The performance deficiency was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, because, if left uncorrected the performance deficiency had the potential to lead to a more significant safety concern. Specifically, by not performing activities affecting quality in accordance with a procedure the licensee could manipulate equipment and challenge the operators by causing unexpected transients or impact safety-related equipment.

Using IMC 0609, Appendix G, "Shutdown Operations Significance Determination Process," Attachment 1, issued May 9, 2014, the finding was screened against the Mitigating Systems cornerstone and determined to be of very low safety significance (Green) because the finding did not represent a loss of system safety function, it did not represent an actual loss of function of a single train or two separate trains for greater than its allowed outage time, it did not represent an actual loss of safety function of one or more non-TS trains of equipment during shutdown for equipment designated as risk significant for greater than 24 hours, and it did not degrade a functional auto-isolation of RHR on low reactor vessel level.

The inspectors determined this finding affected the cross-cutting area of human performance in the aspect of challenging the unknown which states, individuals stop when faced with uncertain conditions. Risks are evaluated and managed before proceeding. Contrary to this, when challenged with uncertain conditions, the licensee did not stop and properly evaluate the issues before proceeding, resulting in adverse impacts to safety-related equipment and activities. (H.11)

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings" requires, in part, that activities affecting quality be prescribed by documented instructions, procedures or drawings appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures or drawings.

Station Procedure CPS 3312.02, "Alternate Shutdown Cooling Methods," Step 5.5 stated, in part, initiate hourly temperature monitoring. Reactor coolant temperature is determined by alternate means: containment pool bulk temperature plus 25 degrees Fahrenheit. Bulk temperature was the average of both the refueling pool and the upper spent fuel storage pool temps.

Station Procedure CPS 9080.25 "DG 1B Test Mode Override, Load Reject Operability, and Idle Speed Override" Step 8.6.2 stated, in part, remove the temporary toggle switch installed.

Contrary to the above, between May 2 and May 4, 2015, a temperature probe required to calculate pool bulk temperature was not installed and therefore the temperature was

not being monitored as required by CPS3312.02. In addition, on May 11, 2015, the licensee repositioned a toggle switch prior to removal in CPS 9080.25, Step 8.6.2, causing the Division 1 EDG to auto start. The action to reposition the toggle switch prior to removal was not an instruction provided in the section of the procedure that was being implemented.

The licensee entered this issue into their corrective action program and was performing an apparent cause evaluation to address the trend. Separate action requests were also written and immediate corrective actions were taken for each identified example to address the nonconformance created by the failure to follow procedures. Because this violation is of very low safety significance and was entered into the licensee's CAP as IR 02600726, this violation is being treated as a NCV consistent with Section 2.3.2 of the NRC Enforcement Policy. **(NCV 05000461/2015004-02; Failure to Perform Activities Affecting Quality in Accordance with Prescribed Procedures)**

(2) Failure to Follow Station Procedures for Plant Activities

Introduction: The inspectors identified a finding of very low safety significance (Green) for the failure to ensure that activities were accomplished in accordance with prescribed procedures as required by station procedure HU-AA-104-101 "Procedure Use and Adherence." Specifically, the inspectors identified two examples where the licensee failed to adhere to prescribed station procedures when performing activities in the plant.

Description: Station Procedure HU-AA-104-101, "Procedure Use and Adherence," provides the requirements on how approved procedures, including work instructions within a work package, are to be used and adhered to by all onsite personnel. Step 3.1 stated that the procedure user was responsible for understanding the impact on personnel and /or equipment of actions being taken. Station Procedure HU-AA-104-101 also stated to follow the procedure being used exactly as written.

During routine walkdowns on June 13, 2015, and October 5, 2015, the inspectors identified unsecured equipment and materials within the material exclusion zones around the main power transformer, the reserve auxiliary transformer and the emergency reserve auxiliary transformer. Station Procedure MA-AA-716-026, "Station Housekeeping/Material Condition Program," Attachment 11, "CPS Exclusion and Secured Material Zones," stated, in part, "that any materials capable of entering the exclusion/ transformer zone during normal wind conditions and adverse weather conditions shall be secured or removed." Additionally it stated, in part, "that no material may be brought into or stored inside the Transformer Material Exclusion Zone areas unless prior permission is received from the shift manager." The inspectors questioned the operations staff to determine if the unsecured material placed in both the Secured Material Zones and the Transformer Material Exclusion Zones had been approved or evaluated. The operations staff stated that the materials had not been approved or evaluated. These issues were entered into the corrective action program as AR 02527455 and AR 02566423, and the items were removed from both areas. The inspectors reviewed the corrective actions documents for this issue and determined that the licensee had not challenged whether the material placement was performed in accordance with site requirements. In addition, licensee personnel failed to consider the risk to the transformers prior to proceeding.

On August 31, 2015, the area radiation and process radiation monitor (AR/PR) LAN screens went blank unexpectedly. Upon further investigation it was discovered that

power was secured to the LAN by maintenance personnel in contact with an offsite vendor. The technician followed verbal instructions from the vendor to operate plant equipment including resetting a power supply that secured the power to the AR/PR LAN screens. The technician did not stop and consider the risks of resetting the power supply or engage the appropriate individuals prior to performing the action. The specific activity that resulted in securing the LAN was performed without a procedure, a pre-job brief, a work order or any other instructions and without informing the control room operators of the activity that was being performed. This resulted in the licensee declaring the AR/PR LAN non-functional, which required them to perform additional actions in accordance with the ODCM until power was restored to the AR/PR LAN. Station Procedure HU-AA-104-101, Step 4.5.1 stated, in part, "actions may be performed by trained, qualified individuals as user capability without a procedure provided that the task is simple, short, and routine where the consequences of improper performance are not significant." The evolution being performed by the technician did not meet the requirements for allowing an action to be taken on plant equipment without a procedure because it was not a routine evolution, the consequences of the action were not understood, and impacted a monitor used for emergency response functions. The licensee did not lose emergency assessment capability because they had other means to monitor total noble gas release rates. This issue was entered into their corrective action program as AR 02549001.

The inspectors identified a procedure that was inappropriately used to develop instructions for use as a contingency for complying with emergency preparedness requirements in the case of a loss of the AR/PR LAN. On May 14, 2015, the AR/PR LAN experienced an unexpected loss of power due to the de-energization of plant equipment to support a planned bus outage. The licensee determined this event was reportable as a result of the inability to determine total noble gas release rates without any viable compensatory measures in place. The licensee subsequently used Procedure OP-CL-108-101-1003, "Operations Department Standards and Expectations," Attachment 5, "Equipment Availability Briefing Sheet," to develop instructions to maintain assessment capability in the case of a loss of the AR/PR LAN. The purpose of the attachment was to establish proceduralized guidance to maintain equipment availability where there were no other written guidance or restoration checklists in place. Procedure OP-CL-108-101-1003, Attachment 5, did not have a provision for creating instructions to maintain assessment capability for emergency response functions. On May 23, 2015, the AR/PR LAN became unavailable again due to a communication line problem. The licensee determined this issue was not reportable due to the instructions they had developed. The inspectors questioned whether the attachment to the procedure used to develop the instructions was appropriate. The licensee agreed that Station Procedure OP-CL-108-101-1003, Attachment 5, could not be used to develop the instructions to maintain assessment capability in the case of a loss of the AR/PR LAN. The licensee later determined the instructions were not necessary because other qualified means of complying with the requirements for maintaining assessment capability existed. The inappropriate use of the procedure was documented in the corrective action program as AR 02552248. The inspectors determined the significance of this issue was minor because the licensee did not lose assessment capability and the failure to adequately follow their procedure did not result in any adverse impacts.

On November 12, 2014, while performing a triaxial time-history accelerometer channel calibration in accordance with Station Procedure CPS 9437.21, "Triax Time – History Accelerometer Channel Calibration," the licensee identified an issue with the seismic

system power supply voltage. Step 8.1.2, instructed the licensee to record a voltmeter reading and provided an acceptable range. Step 8.1.4 provided instructions to be performed if the data was unacceptable, including adjusting the voltage until it was within tolerance. The licensee could not make an adjustment in accordance with the procedure to bring the value back into tolerance, and with the approval of a supervisor decided to mark the step as not applicable (N/A) and move on. Procedure HU-AA-104-101, Step 3.1.8 stated, in part, "stop if there are questions regarding expected results and obtain resolution before proceeding and to notify a supervisor if the procedure cannot be performed as written." Step 3.2.1.1 stated in part, "if the procedure cannot be performed as written, per 3.8.1, then initiate a procedure change request or other appropriate action and revise the procedure prior to continuing." Contrary to this, the licensee continued to perform the procedure without completing the step to bring the voltage back into tolerance, as written. The inspectors' review of this issue continued into December 2015, due to outstanding questions and discussions with the licensee on when it is appropriate to mark a step N/A during the performance of a test or surveillance. The inspectors determined the significance of this issue was minor because it did not impact the functionality of the seismic monitor.

Analysis: The inspectors determined that the failure to perform activities in accordance with prescribed procedures as required by station procedure HU-AA-104-101, "Procedure Use and Adherence," was a performance deficiency. Specifically, the inspectors identified two instances where the licensee failed to follow procedures when performing activities in the plant. The performance deficiency was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, because, if left uncorrected the performance deficiency had the potential to lead to a more significant safety concern. Specifically, by not performing activities in accordance with a procedure the licensee could manipulate equipment and challenge the operators, and cause unexpected transients.

Using IMC 0609, Attachment 4, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process (SDP) for Findings at Power," issued June 19, 2012, the finding was screened against the Initiating Events cornerstone and determined to be of very low safety significance (Green) because the finding did not cause a reactor trip, or the loss of mitigation equipment and it did not involve the complete or partial loss of a support system that contributes to the likelihood of, or cause, an initiating event.

The inspectors determined this finding affected the cross-cutting area of human performance in the aspect of challenging the unknown which stated, individuals stop when faced with uncertain conditions. Risks are evaluated and managed before proceeding. Contrary to this, when challenged with unknown conditions, the licensee did not stop and properly evaluate the issues before proceeding, resulting in adverse impacts to station equipment. (H.11)

Enforcement: This finding did not involve enforcement action because a violation of regulatory requirement was not identified. The procedures in question were neither safety-related nor were they procedures described in Regulatory Guide 1.33, Appendix A. The licensee placed both issues in their corrective action program and addressed the nonconformances created by the failure to follow the procedures. The licensee planned to perform an apparent cause evaluation to determine why there was an adverse trend related to procedure adherence. The licensee placed this into the CAP

as AR 02600726. Because this finding did not involve a violation and was of very low safety significance, it was identified as a FIN. **(FIN 05000461/2015004–03; “Failure to Follow Station Procedures for Plant Activities”)**

.4 Selected Issue Follow-Up Inspection: High water level indications in safety related cable vaults

a. Inspection Scope

During a review of items entered in the licensee’s CAP, the inspectors recognized multiple corrective action items documenting high water level indications in the safety-related cable vaults. There are ten safety related cable vaults onsite, nine of which contain service water (SX) cables, and one contains cables related to the Division 3 EDG. The inspectors had previously issued a violation related to submerged safety-related cables in Inspection Report 2015001. As a follow-up to that issue, the inspectors reviewed the corrective actions taken to date to address water intrusion into the cable vaults. These actions included the installation of a light check as a method to verify the level indication lights were functional as well as procedure changes and training to ensure the water is promptly removed from the vaults to preclude the cables becoming submerged. There were two level indications per vault; one yellow light for high level and one red light for high-high level. Both were expected to indicate prior to the level reaching the cables. The actions taken were dependent on which light indicating. The inspectors focused their review on what actions the licensee was taking when the red light was indicating. The inspectors noted that the licensee was taking prompt action to remove water from the cable vaults. The inspectors questioned how the licensee knew whether the cables were submerged when the red light was indicating since there was no additional indication above the red light and no visual inspections were being performed. If the cables were submerged the licensee would be required to perform an operability determination. Subsequent to the inspectors questions the licensee proceeded to perform visual verifications of the actual level to determine whether the cables had been submerged and performed an operability evaluation if the cables had been submerged. The inspectors concluded that overall the actions taken by the licensee demonstrated they recognized the importance of maintaining the cables in a dry condition and continued to pursue improvements to their level monitoring and water removal systems.

This review constituted one in-depth problem identification and resolution sample as defined in IP 71152–05.

b. Findings

No findings were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On January 14, 2016, the inspectors presented the inspection results to Mr. T. Stoner, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary. The results of this inspection were finalized with the licensee on January 27, 2016.

.2 Interim Exit Meetings

Interim exits were conducted for:

- The inspection results from the biennial licensed operator requalification program area assessment with Mr. M. Newcomer, Site Vice President, on October 23, 2015.
- The 2015 licensed operator annual operator test results with Mr. S. Minya, Operator Training Manager, via telephone on December 3, 2015.
- The inspection results for the areas of occupational ALARA planning and controls, occupational dose assessment, radioactive gaseous and liquid effluent treatment, and RCS specific activity, occupational exposure control effectiveness, and RETS/ODCM radiological effluent occurrences PI verification with Mr. T. Stoner, Site Vice President, on December 3, 2015.
- The Annual Review of EAL and Emergency Plan Changes with the Licensee's Emergency Preparedness Manager, Mr. M. Friedmann, on December 17, 2015.

The inspectors confirmed that none of the potential report inputs discussed were considered proprietary. Proprietary material received during the inspection was returned to the licensee.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

R. Bair, Chemistry Manager
B. Kapellas, Plant Manager
M. Friedmann, Emergency Preparedness Manager
B. Brooks, Security Manager
J. Cunningham, Maintenance Director
C. Dunn, Training Director
N. Hightower, Radiation Protection Manager
R. Champley, Shift Operations Superintendent
D. Kemper, Operations Director
J. Blount, Acting Senior Manager Design Engineering
M. Newcomer, Site Vice President
C. Propst, Work Management Director
J. Ward, Nuclear Oversight Manager
D. Shelton, Regulatory Assurance Manager
S. Gackstetter, Engineering Director
S. Minya, Operations Training Manager
T. Stoner, Site Vice President
M. Heger, Senior Manager Plant Engineering
D. Anthony, Exelon NDE Services
M. Baig, In-Service Inspection Program Engineer
D. Reoch, Radiation Protection General Supervisor
R. Campbell, Effluent Chemist

U. S. Nuclear Regulatory Commission

K. Stuedter, Chief, Reactor Projects Branch 1
W. Schaup, Clinton Senior Resident Inspector
E. Sanchez-Santiago, Clinton Resident Inspector
B. Palagi, Senior Operations Engineer
D. Reeser, Operations Engineer

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened/Closed

05000461/2015004-01	SLIV	Failure to Update the Final Safety Analysis Report (FSAR) – Hydrogen Water Chemistry System (Section 1R18)
05000461/2015004-02	NCV	Failure to Perform Activities Affecting Quality in Accordance with Prescribed Procedures (Section 4OA2)
05000461/2015002-03	FIN	Failure to Follow Station Procedures for Plant Activities (Section 4OA2)

LIST OF DOCUMENTS REVIEWED

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

1R01 Adverse Weather Protection (71111.01)

- CPS 1893.06; "Fire Protection Maintenance and Testing Program," Revision 12b
- CPS 1860.01E001; "Cold Weather Heat Tracing System Electrical Lineup," Revision 2
- CPS 1860.01C003; "Cold Weather Heater and Heat Trace Operability Checklist," Revision 1b
- CPS 1860.01C005; "Blizzard/Severe Weather Preparation Checklist," Revision 0a
- CPS 1860.01; "Cold Weather Operation," Revision 8c
- CPS 4303.02; "Abnormal Lake Level," Revision 12b
- CPS 1860.01C001; "Operations Department Cold Weather Preparations Checklist," Revision 7d
- Certificate of 2015 Winter Readiness, November 13, 2015
- WC-AA-107; "Seasonal Readiness," Revision 15
- ER-CL-450-2000; "Lake Monitoring," Revision 2
- NO-AA-220-1009-F-WIN; "Winter Readiness MDA Template," Revision 1
- AR 2443546; 2014 DAM Inspection Report Recommendations by MWH – Enhancement
- AR 2582801; EOID Fire Pump 'B' 0FP01PB Block Heater Not Warm
- AR 2548982; Winter Readiness-SPFH Heater Temp Switch 1TSSH020 Broken
- AR 2555641; New Winter Readiness WO's Need a Higher Priority than Normal
- AR 2571837; Winter Readiness Insulation of Chem Feed Lines Screen House

1R04 Equipment Alignment (71111.04)

- CPS 3506.01E001; "Diesel Generator and Support Systems Electrical Lineup," Revision 18c
- CPS 3506.01V001; "Diesel Generator and Support Systems Valve Lineup," Revision 13a
- CPS 3506.01V002; "Diesel Generator and Support Systems Instrument Valve Lineup," Revision 11b
- CPS 3503.05E001; "Switchyard Electrical Lineup," Revision 11c
- CPS 3503.05V001; "Switchyard Valve Lineup," Revision 8c
- CPS 3503.03E001; "RAT SVC Electrical Lineup," Revision 1e
- CPS 3503.03V001; "RAT SVC Cooling System Valve Lineup," Revision 1a
- CPS 3309.01E001; "High Pressure Core Spray Electrical Lineup," Revision 8
- CPS 3309.01V002; "High Pressure Core Spray Instrument Valve Lineup," Revision 9
- CPS3309.01V001; "High Pressure Core Spray Valve Lineup," Revision 11b

1R05 Fire Protection (71111.05)

- Clinton Power Station Updated Final Safety Analysis Report, Appendix E, "Fire Protection Evaluation Report – Clinton Power Station Unit 1," Revision 17
- CPS 1019.05; "Transient Equipment/Materials," Revision 23a
- CPS 1893.01; "Fire Protection Impairment Reporting," Revision 20d
- CPS 3213.01; "Fire Detection and Protection," Revision 29d
- OP-AA-201-004; "Fire Prevention for Hot Work," Revision 12
- OP-AA-201-008; "Prefire Plan Manual," Revision 3

- OP-AA-201-009; "Control of Transient Combustible Material," Revision 13
- OP-MW-201-007; "Fire Protection System Impairment Program," Revision 7

1R11 Licensed Operator Regualification Program (71111.11Q)

- TQ-AA-155; "Conduct of Simulator Training and Evaluation," Revision 5
- EP-AA-125-1002; "Emergency Response Organization Performance Indicators Guidance," Revision 9
- OP-AA-101-111-1001; "Operations Standards and Expectations," Revision 17
- OP-CL-108-101-1003; "Operations Department Standards and Expectations," Revision 35
- TQ-AA-150; "Operator Training Programs," Revision 12
- CPS 9031.06; "Main Turbine Stop Valve and Combined Intermediate Valve Tests," Revision 34c
- CPS 9031.07; "Main Turbine Control Valve Tests," Revision 33d
- CPS 9031.10; "RPS Main Steam Line Isolation Valve Channel Functional," Revision 25d
- CPS 3005.01; "Unit Power Changes," Revision 42d
- CPS 3005.01F001; "Unit Power Changes Power Increase Flow Chart," Revision 0
- CPS 3005.01F002; "Unit Power Changes Power Decrease Flow Chart," Revision 0

1R11 Licensed Operator Regualification Program (71111.11B)

- OP-AA-105-102; "NRC Active License Maintenance," Revision 11
- OP-AA-105-101; "Administrative Process for NRC License and Medical Requirements," Revision 18
- OP-CL-102-106-1001; "Operator Response Time Program at CPS," Revision 2
- TQ-AA-150; "Operator Training Programs," Revision 12
- TQ-AA-150-J202; "LORT Annual Exam Development Job Aid," Revision 0
- TQ-AA-155; "Conduct of Simulator Training and Evaluation," Revision 5
- TQ-AA-201; "Examination Security and Administration," Revision 16
- TQ-AA-306; "Simulator Management," Revision 8
- TQ-AA-1002; "Training Committees," Revision 13
- Simulator Review Board Minutes, June 24, 2015
- Scenario-Based Testing; Scenario ESG-LOR- 19, September 21, 2015
- Scenario-Based Testing; Scenario ESG-LOR- 87, October 12, 2015
- Scenario-Based Testing; Scenario ESG-LOR- 88, October 5, 2015
- Simulator Core Performance Testing; April 3, 2015
- Simulator Test; Simultaneous Trip of All Feedwater Pumps, April 3, 2015
- Simulator Test; Simultaneous Closure of All MSIVs, April 3, 2015
- Simulator Digital Feedwater Acceptance Plan; December 3, 2012
- Simulator Reactivity Scenario Validation; Down Power 97 Percent to 80 Percent Using FCVs, December 10, 2014
- Simulator Reactivity Scenario Validation; Raise Power From 68 Percent to 80 Percent Using Rods, December 10, 2014
- AR 1571218; CPS 9061.04 Procedure Deficiency
- AR 1582434; Simulator Remote Shutdown Panel Procedures
- AR 1582631; 4410.00 EOP Staged Tools are Improper
- AR 1587188; TRNG-LVL 3 OPEX Review- Procedure Gap
- AR 1591635; Enhancements to CPS 4411.08–Alt. Control Rod Insertion
- AR 1605538; CPS 4410.00 EOP Defeating Interlocks Checklist Needs Updates
- AR 2438072; Procedure Enhancement for CPS 4302.01, Tornado/High Winds

- AR 2470083; TRNG: CCP: Procedure Enhancement Discovered During LORT March 17, 2015
- AR 2478559; CPS 5042.06 Requires Revision
- AR 2498513; CPS 9080.22/3512.02 Procedure Enhancement
- AR 2501432; CPS 9061.04 Procedure Enhancement Needed
- AR 2501446; CPS 9061.04 Procedure Enhancement
- AR 2501456; 9080.22 Procedure Enhancement
- AR 2516555; Procedure Enhancement From JPM Failure
- AR 2540891; LORT Cycle 15-4 Exam has an Error
- 2014 – 2015 Clinton Power Station Licensed Operator Requalification Program Annual Operating and Biennial Written Examination Sample Plan
- 2015 Clinton Power Station Licensed Operator Requalification Program Week 1 RO and SRO Biennial Written Examinations, October 2015
- 2015 Clinton Power Station Licensed Operator Requalification Program Weeks 1 and 2 RO and SRO Annual JPM Examination, October 2015
- 2015 Clinton Power Station Licensed Operator Requalification Program Weeks 1 and 2 Annual Simulator Evaluation Scenarios, October 2015
- Reactivation of License Log; Approved December 1, 2014
- Reactivation of License Log; Approved April 27, 2015
- Reactivation of License Log; Approved April 24, 2014
- Apparent Cause Report; WANO Identified Area for Improvement in Training Development, September 11, 2015
- Remedial Training Notification and Action on Failure, Four Remediation Plans, Cycle 14-7
- Remedial Training Notification and Action on Failure, Four Remediation Plans, Cycle 15-1
- Curriculum Review Committee Agenda/Minutes; Third Quarter of 2015
- Curriculum Review Committee Agenda/Minutes; Second Quarter of 2015
- Requalification Program and Licensed Operator Performance Assessment; July 24, 2015

1R12 Maintenance Effectiveness

- ER-AA-310; "Implementation of Maintenance Rule," Revision 9
- ER-AA-310-1001; "Maintenance Rule Scoping," Revision 4
- ER-AA-310-1002; "Maintenance Rule Functions – Safety Significance Classification," Revision 3
- ER-AA-310-1003; "Maintenance Rule – Performance Criteria Selection," Revision 4
- ER-AA-310-1004; "Maintenance Rule – Performance Monitoring," Revision 13
- ER-AA-310-1005; "Maintenance Rule – Dispositioning Between (a)(1 and (a)(2)," Revision 7
- ER-AA-310-1006; "Maintenance Rule – Expert Panel Roles and Responsibilities," Revision 5
- ER-AA-310-1007; "Maintenance Rule – Periodic (a)(3) Assessment," Revision 4
- NUMARC 93-01; "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Revision 2
- CPS 9030.05; "STS Manual Testing," Revision 5c
- CPS 3513.01; "NSPS – Self Test System (STS)," Revision 7c
- CPS 9030.01C003; "NS 4 Main Condenser Vacuum B21-N675 A-D Checklist," Revision 26b
- CPS 9030.01C014; "ADS Reactor Pressure B21-N668 A(E) and B21-N669 A(E) checklist," Revision 29c
- AR 2590543; Division 3 and 4 STS Failed during CPS 9030.01C003
- AR 2590930; STS Failure during CPS 9030.05
- AR 2591163; STS Failure Occurred During Daily System Status
- AR 2593337; STS Communications Failure During CPS 9030.01C014
- AR 2605513; Results of FLEX DG Inspection

- AR 2569721; Sprinkler System for FLEX Diesel Not Per Design
- AR 2596437; Upper Bearing Oil Cooler Leak 1WS01PB
- AR 2597499; CCW FLEX Hose Vulnerability

1R13 Maintenance Risk Assessments and Emergent Work Control

- AD-AA-3000; "Nuclear Risk Management Process," Revision 1
- ER-AA-600; "Risk Management," Revision 7
- ER-AA-600-1011; "Risk Management Program," Revision 14
- ER-AA-600-1012; "Risk Management Documentation," Revision 12
- ER-AA-600-1014; "Risk Management Configuration Control," Revision 7
- ER-AA-600-1042; "On-line Risk Management," Revision 9
- ER-AA-440; Emergency Diesel Generator Reliability Program; Revision 1
- OP-AA-108-117; "Protected Equipment Program," Revision 4
- WC-AA-101; "On-Line Work Control Process," Revision 25
- WC-AA-104; "Integrated Risk Management," Revision 23
- AR 2447334; Div 2 Diesel Generator Inop Due to Abnormal Voltage Control

1R15 Operability Evaluations

- CC-AA-309-101; "Engineering Technical Evaluations," Revision 14
- OP-AA-108-104; "Technical Specification Compliance," Revision 1
- OP-AA-108-115; "Operability Determinations (CM-1)," Revision 16
- OP-AA-108-115-1002; "Supplemental Consideration for On-shift Immediate Operability Determinations (CM-1)," Revision 3
- EC 403488; "Document acceptability of the existing coating deficiency identified in AR 02566881 for 1D001TB"
- AR 02566881; Indications Found During Fuel Oil tank Inspection

1R18 Plant Modifications

- DWG M05-1004; sheet 1, "Reactor Feedwater (FW) Clinton Power Station Unit 1" Revision F
- CY-CL-3302-03; "On-line noble Metal Chemical Injection," Revision 3
- LS-AA-107; "UFSAR Update Procedure," Revision 10
- LS-AA-104-1000; "50.59 Resource Manual," Revision 9
- EC 389558; "On-line Noble Chemistry injection Skid Connection" Revision 1
- AR 2594259; NRC Inspector Concerned About USAR 5.4.15 Level of Detail
- AR 2530998; Engineering Evaluate 50.59 Eval Prior to OLNC Reapplication

1R19 Post-Maintenance Testing

- MA-AA-716-012; "Post-Maintenance Testing," Revision 20
- CPS 9069.02; "Shutdown Service Water Valve Operability Test," Revision 35
- CPS 9170.02D001; "VC Chilled Water Valve Operability Data Sheet," Revision 30d
- CPS 9170.02; "Control Room HVAC Chilled Water Valve Operability Test," Revision 32c
- CPS 8501.05D001; "CV-2 Relay Calibration Data Sheet," Revision 6
- CPS 8501.07; "SA-1 Relay Inspection/Calibration," Revision 5
- CPS 8501.14D001; "CEH51 Relay Calibration Data Sheet," Revision 2b
- CPS 8501.15D001; "IAV Relay Calibration Data Sheet," Revision 3
- CPS 8501.16D001; "IFCV/IJCV Relay Calibration Data Sheet," Revision 3a

- CPS 8501.18; "GGP Relay Inspection and Calibration with Doble Test Equipment," Revision 2a
- CPS 8801.17; "NSPS Card Test," Revision 37
- CPS 8501.50; "Division 2 DG 4.16KV Protective Relay Functional Test," Revision 4
- CPS 9069.01; "Shutdown Service Water Operability Test," Revision 48e
- CPS 3506.01C002; "Diesel Generator 1B Pre-start Checklist," Revision 12a
- CPS 3506.01D002; "Diesel Generator 1B Operating Logs," Revision 5a
- CPS 3506.01C005; "Diesel Generator Start Log," Revision 1b
- CPS 9080.19D001; "DG 1B Overcrank Delay Timer Test Data Sheet," Revision 0a
- CPS 9080.19; "DG 1B Overcrank Delay Timer Test, Differential Overcurrent Trip Test and Trip Bypass Operability," Revision 1
- CPS 9080.25; "DG 1B Test Mode Override, Load Reject Operability and Idle Speed Override," Revision 5c
- CPS 9080.25D001; "DG 1B Test Mode Override, Load Reject Operability and Idle Speed Override Data Sheet," Revision 0c
- CPS 9080.31; "Diesel Generator Individual Engine Overspeed Trip Test and Adjustment," Revision 4
- CPS 3506.01P002; "Division 2 Diesel Generator Operations," Revision 3a
- CPS 9069.01; "Shutdown Service Water Operability Test," Revision 48e
- CPS 9069.01D001; "SX System Operability Data Sheet," Revision 47
- CPS 2861.01D001; "Division 2 SX Pump Baseline Test Data Sheet," Revision 0
- CPS 9843.02D001; "Generic Class 1, 2 and 3 Operational Pressure Test Data Sheet," Revision 43
- CPS 9080.30; "Diesel Generator Overspeed Trip Test," Revision 4c
- CPS 9069.01D001; "SX System Operability Data Sheet," Revision 44e
- CPS 9069.02D001; "SX System Valve Operability Data Sheet," Revision 34
- SA-AA-129; "Electrical Safety," Revision 8
- WO 01682449; "Replace Auxiliary Relay 1UAYDG 292 and KL Relay in 1PL12JB"
- WO 01742915; "SX Valve Exercise"
- WO 01761924; "Perform flow Scan in Support of the AOV Program SX010B"
- WO 1705786; "Test/Replace Division 2 DG Protective Relays 1PL12JB"
- WO 1870715; "9170.02B20 Op VC B Valve Operability"
- WO 01681246; "Clean and Inspect Fuel Prime Pump Motor/Starters"
- WO 01550066; "Replace Relay 1PL12JB-K20A"
- WO 01689860; "Replace Normally De-energized Relay 1UAYDG858"
- WO 01689859; "Replace DG Exciter Fuse 1DG01JB-T1-F03"
- WO 01689865; "Replace DG Exciter Fuse 1DG01JB-PT1-F02"
- WO 01550062; "Replace Relay 1PL12JB-K41X"
- WO 01550062; "Replace Relay 1PL12JB-K41X"
- WO 1870694; "Unexpected Anunciator 5004-3hH STS Failure"
- WO 01681535; "Calibrate Time Delay Relays"
- WO 1870694; "IM Bench Test New Two Way Buffer Card"
- WO 01689861; "Replace Normally De-energized Relay 1UAYDG854"
- WO 01629368; "1SX01PB Planned Strategic Replacement Division 2 SX Pump"
- WO 00587009; "1SX01PB: Repair or Replace Pump Motor"
- AR 2566080; 1SX008B MOV HBC Has no Inspection Ports
- AR 2597536; VC 'B' Chiller Outlet Temp Reads Low

1R22 Surveillance Testing

- CPS 9080.31; "Diesel Generator Individual Engine Overspeed Trip Test and Adjustment," Revision 4
- CPS 9054.06; "RCIC Discharge Header Filled and Flow Path Verification, and Flow Controller Checks," Revision 27b
- CPS 9054.01C002; "RCIC (1E51-C001) High Pressure Operability Checks," Revision 8b
- CPS 3402.01P001; "Control Room HVAC Train Shifting," Revision 6
- WO 1850856; "9054.02A20 OP RCIC Valve Operability"
- WO 1863662; "9070.01A21 Op Control Room M/U Air Filter Flow/Heater Operability Train A"
- AR 2581046; 0VC010A Stroke Time Outside Acceptance Limit During 9170.02

1EP4 Emergency Action Level and Emergency Plan Changes

- EP-AA-1000; "Exelon Nuclear Standardized Radiological Emergency Plan," Revisions 26, 27, 28
- EP-AA-120; "Emergency Plan Administration," Revision 17
- EP-AA-120-1001; "10CFR50.54(q) Change Evaluation," Revision 7
- EP-AA-1003; "Exelon Nuclear Radiological Emergency Plan Annex for Clinton Station," Revision 25
- EP-AA-1003 Addendum 1; "Clinton Station On-Shift Staffing Technical Basis," Revision 1
- EP-AA-1003 Addendum 2; "Evacuation Time Estimates for Clinton Power Station Plume Exposure Pathway Emergency Planning Zone," Revision 1
- EP-AA-1003 Addendum 3; "Emergency Action Levels for Clinton Station," Revision 0
- 50.54(q) Evaluation No. 14-108; EP-AA-1000, "Exelon Nuclear Standardized Radiological Emergency Plan (Rev. 26) Evaluation and Effectiveness Review," December 8, 2014
- 50.54(q) Evaluation No. 14-11; "EP-AA-1003," "Exelon Nuclear Radiological Emergency Plan Annex for Clinton Station" (Revision 25), and EPAA-1003, Addendum 3, "Emergency Action Levels for Clinton Station" (Revision 0) Evaluation and Effectiveness Review, November 20, 2014
- 50.54(q) Evaluation No. 14-122; EP-AA-1002 Addendum 1, "Clinton Station On-Shift Staffing Technical Basis" Evaluation and Effectiveness Review, November 6, 2014
- 50.54(q) Evaluation No. 15-06; EP-AA-1000, "Exelon Nuclear Standardized Radiological Emergency Plan" (Revision 27) Evaluation and Effectiveness Review, April 30, 2015
- 50.54(q) Evaluation No. 15-70, EP-AA-1000, "Exelon Nuclear Standardized Radiological Emergency Plan" (Revision 28) Evaluation and Effectiveness Review, July 1, 2015

2RS2 Occupational ALARA Planning and Controls

- AR 1603405; 2013 Emergent Dose Exceeds 5 Percent
- AR 1661797; 2014 CPS Emergent Dose 34 Percent of Year to Date Station Dose, May 19, 2014
- AR 2385550; Self-Assessment Occupational ALARA Planning and Control
- C1R15 RWP Dose Summary
- C1R15 RP/ALARA Refuel Outage Report
- NOS Radiation Protection Performance Report, NOSCPA-CL-15-11, dated October 1, 2015

2RS4 Occupational Dose Assessment

- RP-AA-203-1001; Personnel Exposure Investigations; Revision 7 – 9

2RS6 Radioactive Gaseous and Liquid Effluent Treatment

- CY-AA-170-2000; "Annual Radioactive Effluent Release Report," Revision 7
- Main Stack Flow Monitor Calibration, May 6, 2014
- L63146; "2015 Dry Active Waste 10 CFR Analysis," April 30, 2015
- Offsite Dose Calculation Manual, Revision 24
- Offsite Dose Calculation Manual Revision Documentation, Revision 24
- Clinton Power Station 2014, Annual Radioactive Effluent Release Report, April 16, 2015
- Clinton Power Station 2013, Annual Radioactive Effluent Release Report, April 24, 2014
- NOSA-CPS-14-04; "Chemistry, Radwaste, Effluent and Environmental Monitoring Audit Report," May 2014
- CPS 9947.01; "Gaseous Effluent Monthly Composite Analysis," Revision 31a
- Land Use Census, 2014-2015
- Gaseous Effluent Data and Analysis, July 2015
- Charcoal Absorber Sample Checklist, August 27, 2013
- Radiological Cross Check Program Data, First Quarter 2014 through Third Quarter 2015
- AR 2526622; ODCM Trend IR
- AR 2553947; Clarification Needed for ODCM 3.1-1.2.A Action E.1

40A1 Performance Indicator Verification

- CY-CL-6721-01; "Reactor Water Radioisotopic Analysis," Revision 0
- CY-CL-3222-10; "Reactor Sample Station (1G33-Z020)," Revision 8
- CPS 1852634; "9000.01 Control Room Surveillance Log for Mode 1/2/3," October 2014 - September 2015
- Dose Equivalent Iodine Determination Data, Third Quarter 2014 through Third Quarter 2015
- Radiological Effluent Dose Summaries, Third Quarter 2014 through Third Quarter 2015
- AR 2530183; Scaffolds Inside the TDRFP Rooms Could Allow Access to LHRA
- AR 2570910; Individual Received Electronic Dosimeter Alarm
- AR 2572727; 750' Aux Building RT Mezz Door Clam Shell Failed

40A2 Problem Identification and Resolution

- HU-AA-104-101; "Procedure Use and Adherence," Revision 5
- MA-AA-716-026; "Station Housekeeping/Material Condition Program," Revision 13
- CY-CL-3221.02; "Operating Cable Vault Pumping Stations," Revision 6
- CPS 9861.03D012; "Drywell Air Lock Seal Leak Rate Test Data Sheet," Revision 24a
- CPS 9437.21; "Triax Time History Accelerometer Channel Calibration," Revision 39c
- CPS 2761.02; "Leak Rate Testing Equipment Operation," Revision 5g
- CPS 3312.02; "Alternate Shutdown Cooling Methods," Revision 9a
- CPS 9080.25; "DG 1B Test Mode Override, Load Reject Operability, and Idle Speed Override," Revision 5c
- CPS 9000.06D003; "Shutdown Cooling Temperature Data Sheet," Revision 30d
- CPS Aggregate Burden Assessment, 2015 – Fourth Quarter
- ECR 41971; "Document Why the Drywell Personnel Airlock Testing at Elevated Test Pressure as Described in AR 2501695 did Not Create degraded Non-conforming Condition"
- WO 1617661; "9437.21R21 CC Triax Time History Accelerometer CC"
- WO 1805689; "Perform DW Air Lock Door Seal LLRT Per 9861.03D012"
- AR 2410683; Seismic System Power Supply Voltage Found/Left Out of Spec
- AR 2501695; 9861.03D012 Reperformed Due to Invalid Test Conditions
- AR 2502655; 9861.03D012 Drywell Air Lock Seal LLRT Enhancement

- AR 2502655; 9861.03D012 Drywell Air Lock Seal LLRT Enhancement
- AR 2527455; NRC ID Unsecured Material Located Near Transformers
- AR 2521759; NRC Questions on Testing
- AR 2552248; NRC Questions Use of OP-CL-108-101-1003 Attachment 5
- AR 2495871; C1R15 LL: Alt Shutdown Cooling Temp Probe Not Installed
- AR 2566423; NRC-ID Material in Material Exclusion Zone
- AR 2498674; Div 22 DG Unexpected Auto-Start During 9080.25 Restoration
- AR 2600726; Trend IR for Procedure Adherence Issues
- AR 2549001; Unexpected Loss of AR/PR LAN
- AR 2483273; Unable to Sample Cable Vault OSHA-1C
- AR 2483238; Cable Vault OSHB1A Would Not Pump
- AR 2605094; Unable to Collect Sample for Cable Vault
- AR 2601033; High Level Light for OSHA-1B Sticks
- AR 2578491; Red Light Only Lit on OWM2 Cable Vault
- AR 2586249; OSHA-1D Cable Vault High High Level Red Light Illuminated
- AR 2546302; Work Around Board Results
- AR 2505807; 1RF021 Indicated Intermediate When Stroked During Surveillance
- AR 2504699; 1B21-RSDV2 Will Not Close From MCR
- AR 2593015; Cable Vault OSHA1D Has High and High-High Indications
- AR 2589889; NRC Questions Regarding Cable Vault Level Lights

LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access Management System
ALARA	As Low As Reasonably Achievable
AR	Area Radiation
CAP	Corrective Action Program
CFR	Code of Federal Regulations
EALs	Emergency Action Levels
EDG	Emergency Diesel Generator
FSAR	Final Safety Analysis Report
HVAC	Heating Ventilation and Air Conditioning
IMC	Inspection Manual Chapter
IMD	Instrumentation Maintenance Department
IGSCC	Intergranular Stress Corrosion Cracking
IR	Inspection Report
LAN	Local Area Network
LLRT	Local Leak Rate Testing
LORT	Licensed Operator Requalification Training
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
PARS	Publicly Available Records System
PI	Performance Indicator
PR	Process Radiation
PM	Planned or Preventative Maintenance
RETS	Radiological Effluent Technical Specification
RCIC	Reactor Core Isolation Cooling
RCS	Reactor Coolant System
RG	Regulatory Guide
RWP	Radiation Work Permit
SAT	Systems Approach to Training
SDP	Significance Determination Process
SSC	System, Structure, and Component
SX	Service Water
TS	Technical Specification

B. Hanson

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