



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
2443 WARRENVILLE RD. SUITE 210
LISLE, IL 60532-4352

February 6, 2015

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

**SUBJECT: RE-ISSUED INSPECTION REPORT: CLINTON POWER STATION
NRC INTEGRATED INSPECTION REPORT 05000461/2014005**

Dear Mr. Hanson:

On January 29, 2015, the U.S. Nuclear Regulatory Commission (NRC) issued Inspection Report 05000461/2014005 and this report is publicly available under Agencywide Documents Access and Management System (ADAMS) Accession Number ML15029A719. After the inspection report was issued, the NRC identified that a report input documenting performance of inspection activities conducted in accordance with Inspection Procedure 71111.11 was inadvertently omitted from this report. The cover letter and the enclosed inspection report are being re-issued to correct the inspection record.

On December 31, 2014, the NRC completed an inspection at your Clinton Power Station. The enclosed report documents the results of this inspection, which were discussed on January 15, 2015, with Mr. M. Newcomer, and other members of your staff.

Based on the results of this inspection, three NRC-identified and one self-revealed findings of very low safety significance were identified. The findings involved violations of NRC requirements. However, because of their very low safety significance, and because the issues were entered into your corrective action program, the NRC is treating the issues as non-cited violations (NCVs) in accordance with Section 2.3.2 of the NRC Enforcement Policy. Additionally, a licensee-identified violation is listed in Section 4OA7 of this report.

If you contest the subject or severity of the NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission-Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office 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 (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/

Charles Phillips, Acting Chief
Branch 1
Division of Reactor Projects

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

Enclosure:
Inspection Report 05000461/2014005
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 05000461/2014005

Licensee: Exelon Generation Company, LLC

Facility: Clinton Power Station

Location: Clinton, IL

Dates: October 1 through December 31, 2014

Inspectors: W. Schaup, Senior Resident Inspector
E. Sanchez-Santiago, Resident Inspector
S. Bell, Health Physicist
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Management Agency

Approved by: C. Phillips, Acting Chief
Branch 1
Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

Inspection Report 05000461/2014005; 10/01/14–12/31/14; Clinton Power Station; Adverse Weather Protection, Identification and Resolution of Problems, and Follow-Up of Events and Notices of Enforcement Discretion.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. Four Green findings were identified by the inspectors. The findings were considered non-cited violations (NCVs) of NRC regulations. The significance of inspection findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process (SDP)" dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Aspects Within the Cross Cutting Areas" effective date January 1, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy issued July 9, 2013. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process" Revision 5, issued February 2014.

NRC-Identified and Self-revealed Violations

Cornerstone: Initiating Events

- Green. The inspectors identified a Green finding and an associated non-cited violation of Technical Specification 5.4.1, "Procedures," for a failure to provide controls for material near the station transformers. Specifically, station procedure CPS 4302.01, "Tornado/High Winds," Revision 21b, did not include guidelines or examples of the types of materials to control as potential missiles in high velocity winds or tornadoes, and did not include triggers to perform walkdowns when high winds were predicted, prior to off-normal entry, to control material adjacent to the offsite power transformers that could result in the loss of offsite power. The licensee entered this issue into the corrective action program (CAP) as action request (AR) 2388608. The licensee is currently preparing a transformer exclusion zone map for incorporation into the station house keeping procedure. Additionally the licensee has an operator that checks for potential missiles near the transformer yard as part of their rounds.

The failure to provide guidelines or examples of the types of materials to control as potential missiles in high velocity winds or tornadoes and provide triggers to perform walkdowns when high winds are predicted 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, it was associated with the equipment performance attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations and is therefore a finding. Using IMC 0609, Attachment 4, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process 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 involve the complete or partial loss of a support system that contributes to the likelihood of, or caused, an initiating event and did not affected mitigation equipment. The inspectors determined this finding affected the cross-cutting area of problem identification and resolution in the

aspect of operating experience where the organization systematically and effectively collects, evaluates, and implements relevant internal and external operating experience in a timely manner. Specifically, the licensee operating experience program failed to ensure evaluation and implementation of internal operating experience in a timely manner after previous identification in the CAP (P.5). (Section 1R01.1.b)

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green finding and an associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, Design Control, for the failure to adequately translate seismic requirements from a design calculation into applicable procedures. Specifically the licensee failed to incorporate the seismic requirements for the division III 4.16 Kilovolt (KV) switchgear as described in calculation IP-Q-0391, "Seismic Qualification of 480V ABB Unit Sub Switchgears, Div I & II Westinghouse Switchgears and Div III GE 4.16 KV Switchgears," into procedure CPS 1014.11, "6900/4160/480V Switchgear/Circuit Breaker Operability Program," resulting in the licensee incorrectly declaring division III switchgear operable when in a seismically unanalyzed condition. The licensee entered this issue into their CAP as AR 2386676 and restored the switchgear to an operable condition by removing the breaker completely. The licensee also revised the procedure to incorporate the design requirements described in the seismic design calculation for the division III switchgear.

The inspectors determined that the failure to adequately incorporate the seismic requirements of the design calculation into the applicable procedure was a performance deficiency. The finding is more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, because, because it is associated with the design control attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Based on a detailed risk evaluation, the inspectors determined that the finding was of very low safety significance. The inspectors determined that there was no cross-cutting aspect associated with this finding because the cause of the performance deficiency occurred more than fifteen years ago, and was not representative of current licensee performance. (Section 4OA2.6.b)

- Green. A Green finding and an associated non-cited violation of Technical Specification 5.4.1, "Procedures," were self-revealed when the licensee failed to establish instructions in station procedure CPS 9059.01, "Reactor Coolant System Leakage Test," Revision 9b. Specifically, the licensee failed to provide instructions to ensure that the main steam piping between the reactor vessel and the inboard main steam isolation valves were completely drained of water at the completion of testing. The licensee entered this issue into the corrective action program as AR 01590671 and provided operations personnel involved in startups just in time training.

The inspectors determined that the licensee's failure to establish instructions to ensure that the main steam piping between the reactor vessel and the inboard main steam isolation valves were completely drained of water prior to starting up the reactor 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, it was associated with the equipment performance attribute of the mitigating systems cornerstone and adversely affected the

cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and is therefore a finding. The finding was screened against the Mitigating Systems cornerstone and determined to be of very low safety significance because the finding was/did not: (1) a deficiency affecting the design or qualification of a mitigating structure, system or component, (2) represent a loss of system and/or function, (3) represent an actual loss of function of a single train for greater than its technical specification allowed outage time, (4) represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours and (5) did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding or severe weather event. The inspectors determined this finding affected the cross-cutting area of human performance in the aspect of work management where the organization implements a process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority. Specifically, the licensee failed to have a plan or provide a control method to ensure the main steam piping was drained prior to commencing reactor start up (H.5). (Section 4OA3.1.b)

Cornerstone: Barrier Integrity

- Severity Level IV. The inspectors identified a Severity Level IV non-cited violation of 10 CFR 50.71(e), Periodic Update of the Updated Safety Analysis Report (USAR), and an associated Green finding for the licensee's failure to update the USAR with the correct description of the function of the combustible gas control system supply fan motor, 1VR08C. Specifically the licensee did not update Section 9.4.5.5 of the USAR to include the correct function of 1VR08C as described in a commitment made to the NRC in the licensee's letter U-600850. Consequently the licensee performed a 10 CFR 50.59 evaluation for abandoning a portion of the system that did not consider the correct function of the component. The licensee entered this issue into their corrective action program as AR 1692665, removed 1VR08C from the modification plan and is updating the USAR with the correct function for this component.

The inspectors determined that the failure to update the USAR with the correct function of 1VR08C was a performance deficiency. The performance deficiency was determined to be 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 would have the potential to lead to a more significant safety concern and is therefore a finding. Specifically, failure to update the USAR with the correct safety related function of 1VR08C could result in the licensee making operability and functionality determinations based on incorrect assumptions. Additionally, the failure to update the USAR with the correct function of the fan was more than minor because it was associated with the Barrier Integrity cornerstone attribute of design control, plant modifications and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. The finding was screened against the Barrier Integrity cornerstone and determined to be of very low safety significance because the finding does not represent an actual open pathway in the physical integrity of reactor containment, containment isolation system, and heat removal components and it did not involve an actual reduction in function of hydrogen igniters in reactor containment. The performance deficiency associated with this finding did not reflect current licensee performance; therefore, no cross cutting aspect was identified with this finding.

Additionally, in accordance with Section 6.1.d.3 of the NRC Enforcement Policy, this violation was categorized as Severity Level IV because the licensee's failure to update the USAR as required by 10 CFR 50.71(e) had not yet resulted in any unacceptable change to the facility or procedures. (Section 40A2.7.b)

Licensee-Identified Violations

- A violation of very low safety significance that was identified by the licensee has been reviewed by inspectors. Corrective actions planned or taken by the licensee have been entered into the licensee's corrective action program. The violation and corrective action tracking numbers are listed in Section 40A7 of this report.

REPORT DETAILS

Summary of Plant Status

Clinton Power Station, Unit 1 was operated at or near 98 percent power during the inspection period with the following exceptions:

- On December 14, 2014, control room operators reduced power to approximately 70 percent to perform control rod sequence exchanges, and to perform surveillances on main steam isolation valves. The unit returned to full power on December 15, 2014.

1. **REACTOR SAFETY**

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

1R01 Adverse Weather Protection (71111.01)

.1 Readiness for Impending Adverse Weather Condition—High Wind Conditions

a. Inspection Scope

Since thunderstorms with potential high winds were forecast in the vicinity of the facility for the 48 hours following September 18, 2014, and the 48 hours following September 30, 2014, the inspectors reviewed the licensee's overall preparations and protection for the expected weather conditions. On September 18, 2014, and September 30, 2014, the inspectors walked down the transformer yard, because the "B" reserve auxiliary transformer and emergency reserve auxiliary transformers function could be affected as a result of high winds or tornado-generated missiles resulting in the loss of offsite power. The inspectors evaluated the licensee's preparations against the site's procedures and determined whether the licensee's actions were adequate. During the inspection, the inspectors focused on plant-specific design features and the licensee's procedures used to respond to specified adverse weather conditions. The inspectors also toured the plant grounds to look for any loose debris that could become missiles during a high wind condition or a tornado. The inspector's evaluated operator staffing and accessibility of controls and indications for those systems required to control the plant. Additionally, the inspectors reviewed the USAR and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant specific procedures. The inspectors also reviewed a sample of CAP items to verify that the licensee identified adverse weather issues at an appropriate threshold and dispositioned them through the CAP in accordance with station corrective action procedures.

This inspection constituted one readiness for impending adverse weather condition sample as defined in inspection procedure (IP) 71111.01-05.

b. Findings

Station Procedures Failed to Provide Controls for Material Near Transformers

Introduction. The inspectors identified a Green finding and an associated NCV for a failure to provide controls for material near the station transformers. Specifically, station

procedure CPS 4302.01, "Tornado/High Winds," Revision 21b, did not include guidelines or examples of the types of materials to control as potential missiles in high velocity winds or tornadoes and did not include triggers to perform walkdowns when high winds were predicted, prior to off-normal entry, to control material adjacent to the offsite power transformers that could result in the loss of offsite power.

Description. On September 18, 2014, while performing walkdowns near the reserve auxiliary transformer and the emergency reserve auxiliary transformer due to anticipated severe weather over the next few days, the inspectors identified material adjacent to the transformers which could become potential missiles in high velocity winds or tornadoes. This issue was documented in AR 02383156. The licensee assessed the material and determined that even though the material was left unattended at times, it was acceptable since personnel would secure it at the end of the shift.

On September 30, 2014, while performing walkdowns near the reserve auxiliary transformer and the emergency reserve auxiliary transformer due to anticipated severe weather over the next few days, the inspectors again identified material adjacent to the transformers which could become potential missiles in high velocity winds or tornadoes. This issue was documented in AR 02388608. The inspectors questioned the control room operators on what the site's definition was for potential missiles in high velocity winds or tornadoes that could impact the auxiliary transformer and the emergency reserve auxiliary transformer and where it was defined. The inspectors also asked when the walkdowns specified in procedures would be performed. The licensee determined that there was no definition or examples of potential missile hazards and that no specific triggers to perform the walkdowns existed until entry into the off-normal procedure.

During review of the issue, the inspectors found AR 01486568 that had been closed in December 2013, which detailed a concern identified by NRC inspectors at another Exelon site associated with the station housekeeping procedure MA-AA-716-026, "Station Housekeeping/material Condition Program," Revision 12, for not establishing storage restrictions for the transformer areas at each Exelon site. The concern was based upon a previous event at another Exelon site where loose material near the transformer yard became airborne during a high wind condition resulting in the loss of one of the site's off-site power sources. The AR had an assignment for the Clinton Power Station to evaluate transformer exclusion areas and to determine if the site had similar issues with regards to using the transformer yards as a storage area. The response was to include recommended changes to the station housekeeping procedure.

The inspectors reviewed the actions taken to close the assignment which included: (1) a walkdown of the site transformer yard to determine if any loose materials existed at the time and (2) a review against some specific requirements from an Exelon site that utilized an exclusion zone to see if Clinton met the specific requirements for that exclusion zone. The licensee determined that no loose materials were noted during the walkdown and Clinton met the requirements for an exclusion zone. The assignment was then closed by the licensee. The inspectors asked the licensee if the actions completed above were sufficient to close the assignment. The licensee determined that the assignment to complete maps of an exclusion area, develop required actions, and revise the station housekeeping procedure had not been completed and documented these deficiencies in AR 02412731. The inspectors determined that the individuals tasked with

the assignment did not fully understand what was required to complete the task and did not seek additional clarification to complete the assignment.

Analysis. The failure to provide guidelines or examples of the types of materials to control as potential missiles in high velocity winds or tornadoes and provide triggers to perform walkdowns when high winds are predicted 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, it was associated with the equipment performance attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations and is therefore a finding. Using IMC 0609, Attachment 4, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process 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 involve the complete or partial loss of a support system that contributes to the likelihood of, or caused, an initiating event and did not affect mitigation equipment.

The inspectors determined this finding affected the cross-cutting area of problem identification and resolution in the aspect of operating experience where the organization systematically and effectively collects, evaluates, and implements relevant internal and external operating experience in a timely manner. Specifically, the licensee operating experience program failed to ensure evaluation and implementation of internal operating experience in a timely manner after previous identification in the CAP (P.5).

Enforcement. Technical Specification (TS) 5.4.1, "Procedures," requires in part that "written procedures be established, implemented, and maintained" as recommended in Regulatory Guide 1.33, Revision 2, Appendix A, dated February 1978. Regulatory Guide 1.33, Revision 2, Appendix A, Section 6, "Procedures for Combating Emergencies and Other Significant Events," states in part "that procedures for acts of nature (e.g., tornado, flood, dam failure earthquakes) are required."

Contrary to the above, on September 18, 2014, and on September 30, 2014, station procedure CPS 4302.01, "Tornado/High Winds," Revision 21b did not establish guidelines or examples of the types of materials to control as potential missiles in high velocity winds or tornadoes and did not establish triggers to perform walkdowns when high winds are predicted prior to off-normal entry. The licensee was preparing a transformer exclusion zone map for incorporation into the station house keeping procedure. Additionally the licensee has an operator that checks for potential missiles near the transformer yard as part of their rounds. Because this violation is of very low safety significance and was entered into the licensee's CAP as AR 02412731, this violation is being treated as a NCV consistent with Section 2.3.2 of the NRC Enforcement Policy. **(NCV 05000461/2014005-01, Station Procedures Failed to Provide Controls for Material Near Transformers)**

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 I emergency diesel generator after a planned major system outage;
- Reserve “B” auxiliary transformer and associated static variable compensator with the emergency reserve auxiliary transformer out-of-service for maintenance; and
- Reactor core isolation cooling after maintenance.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety cornerstones. The inspectors reviewed operating procedures, system diagrams, 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 CAP 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 three partial system walkdown samples as defined in IP 71111.04–05.

b. Findings

No findings were identified.

.2 Semi-Annual Complete System Walkdown

a. Inspection Scope

On December 13, 2014, the inspectors performed a complete system alignment inspection of the standby gas treatment system to verify the functional capability of the system. This system was selected because it was considered both safety significant and risk significant in the licensee’s probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment lineups; electrical power availability; system pressure and temperature indications, as appropriate; component labeling; component lubrication; component and equipment cooling; hangers and supports; operability of support systems; and to ensure that ancillary equipment or debris did not interfere with equipment operation. A review of a sample of past and outstanding work orders was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the CAP database to ensure that system equipment alignment problems were

being identified and appropriately resolved. Documents reviewed are listed in the Attachment to this report.

These activities constituted one complete system walkdown sample as defined in IP 71111.04–05.

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 D–4a–b–division 3 diesel generator and day tank room-elevation 737'0";
- Fire zone F–1n–fuel pool heat exchanger room-elevation 737'0";
- Fire zone F–1i–fuel pool cooling pump room-elevation 712'0";
- Fire zone CB–3f–division I nuclear system protection system inverter room-elevation 781'0"; and
- Fire zone CB–3e–division II nuclear system protection system inverter room-elevation 781'0".

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 corrective action program.

These activities constituted five quarterly fire protection inspection samples as defined in IP 71111.05–05.

b. Findings

No findings were identified.

1R06 Flooding (71111.06)

.1 Underground Vaults

a. Inspection Scope

The inspectors selected underground bunkers/manholes subject to flooding that contained cables whose failure could disable risk-significant equipment. The purpose of the inspection was to determine whether the cables were submerged, the splices intact, and that appropriate cable support structures were in place. In those areas where dewatering devices were used, such as a sump pump, the inspectors reviewed whether the device was operable and level alarm circuits were set appropriately to ensure that the cables would not be submerged, or that the cables were qualified for submergence conditions. The inspectors also reviewed the licensee's corrective action documents with respect to past submerged cable issues identified in the corrective action program to verify the adequacy of the corrective actions. The inspectors performed a walkdown of the following underground bunkers/manholes subject to flooding:

- OSHA1C for division III shutdown service water (SX);
- OSH1B for division II SX; and
- OSHC1D for division I SX.

Specific documents reviewed during this inspection are listed in the Attachment to this report. This inspection constituted one underground vaults sample as defined in IP 71111.06-05.

b. Findings

Potential Failure to Maintain Safety Related Cables in a Qualified Environment

Introduction. The inspectors identified an unresolved item (URI) associated with maintaining safety related cables in a qualified environment. Specifically, cable vaults that contain safety related SX cables were found to be full of water, when opened to perform cable vault inspections.

Description. On October 14, 2014, the licensee commenced their periodic inspection of safety related cable vaults. These cable vaults house cables related to all 3 divisions of SX and the division 3 emergency diesel generator. When the licensee opened the cable vaults, they found that 6 out of the 10 vaults contained water at a level that would cause the cables to be in a submerged condition.

In response to a violation from the 2007 NRC component design basis inspection, the licensee installed solar powered sump pumps in all of the cable vaults on site. The system included a float mechanism that would provide local indication when water was accumulating in the vaults; a yellow light would indicate water had reached a level requiring pump down of the vault. A red light would indicate water had reached the cables, and therefore immediate actions should be taken to pump down the cable vaults.

The licensee discovered the lights were not lit when the vaults were found to be full of water. After further investigation, the licensee concluded that in some cases the float switches that trigger the lights were not functioning properly and in other cases the light bulbs were not functional. The only maintenance performed on the sump pump stations was to replace light bulbs periodically.

The amount of time the cables were submerged is unknown. The licensee's cable monitoring program procedure ER-AA-300-150, "Cable Condition Monitoring Program," states that cables should not be submerged for greater than 2 months.

The inspectors questioned whether there was an evaluation for establishing a 2-month limit. Due to the probability the cables were submerged for greater than 2 months, the inspectors questioned whether the cables were still operable and what the technical justification was for operability. The licensee indicated the cables were currently operable because the SX pumps are tested periodically and have run without any issues.

The inspectors concluded the licensee's failure to maintain the safety related cable vaults in a dry condition is a performance deficiency. In order to determine whether the performance deficiency is more than minor the inspectors need to review additional information, such as the procurement documents, cable testing results, submergence qualification records and the evaluations performed in response to this issue. The URI is opened pending the inspectors' review of licensee document **(URI 05000461/2014005-02, Potential Failure to Maintain Safety Related Cables in a Qualified Environment)**

1R07 Annual Heat Sink Performance (71111.07)

.1 Heat Sink Performance

a. Inspection Scope

The inspectors reviewed the licensee's inspection of division 1 diesel generator heat exchangers, 1DG11AA and 1DG12AA, to verify that potential deficiencies did not mask the licensee's ability to detect degraded performance, to identify any common cause issues that had the potential to increase risk, and to ensure that the licensee was adequately addressing problems that could result in initiating events that would cause an increase in risk. The inspectors reviewed the licensee's observations as compared against acceptance criteria, the correlation of scheduled inspection and the frequency of inspection. Inspectors also verified that inspection acceptance criteria were adequate to the situation and properly evaluated to correct issues identified.

This annual heat sink performance inspection constituted one sample as defined in IP 71111.07-05.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Annual Operating Test Results (71111.11A)

a. Inspection Scope

The inspectors reviewed the overall pass/fail results of the Annual Operating Test, administered by the licensee from September 10, 2014, through October 10, 2014, required by 10 CFR 55.59(a). The results were compared to the thresholds established in Inspection Manual Chapter 0609, Appendix I, "Licensed Operator Requalification Significance Determination Process (SDP)," to assess the overall adequacy of the licensee's LORT Program to meet the requirements of 10 CFR 55.59. (02.02)

This inspection constituted one annual licensed operator requalification examination results sample as defined in IP 71111.11-05.

b. Findings

No findings were identified.

.2 Biennial Review (71111.11B)

a. Inspection Scope

The following inspection activities were conducted during the week of October 6, 2014, to assess: 1) the effectiveness and adequacy of the facility licensee's implementation and maintenance of its systems approach to training (SAT) based Licensed Operator Requalification Training (LORT) program, put into effect to satisfy the requirements of 10 CFR 55.59; 2) conformance with the requirements of 10 CFR 55.46 for use of a plant referenced 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. The documents reviewed are listed in the Attachment to this report.

- Licensee Requalification 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 are acceptable for meeting the requirements of 10 CFR 55.59(a).
 - The inspectors conducted a detailed review of five Job Performance Measures (JPMs) and simulator scenarios to assess content, level of difficulty, and quality of the operating test materials. (02.04)
 - The inspectors observed the administration of the annual operating to assess the licensee's effectiveness in conducting the examination(s), 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 in parallel with the facility evaluators during two dynamic simulator scenarios, and evaluated various licensed crew members

concurrently with facility evaluators during the administration of several JPMs. (02.05)

- 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 I/O controls) and integrity measures (e.g., security agreements, sampling criteria, bank use, and test item repetition) throughout the inspection period. (02.06)

IP 71111.11 Section(s) 2.03 and 2.07 through 2.10 were not performed during this inspection. This inspection did not constitute a sample as defined in IP 71111.11-05.

b. Findings

No findings were identified.

.3 Resident Inspector Quarterly Review of Licensed Operator Requalification (71111.11Q)

a. Inspection Scope

On October 2, 2014, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification 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 requalification program simulator sample as defined in IP 71111.11-05 and satisfied the inspection program requirement for the resident inspectors to observe a portion of an in-progress annual requalification operating test during a training cycle in which it was not observed by the NRC during the biennial portion of this IP.

b. Findings

No findings were identified.

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

a. Inspection Scope

On December 14, 2014, the inspectors observed the control room operating crew down power to 70 percent power for rod sequencing exchanges and the performance of reactor protection system main steam line isolation valve channel functional. 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 (if applicable);
- correct use and implementation of procedures;
- control board (or equipment) 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 71111.11-05.

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:

- 10 CFR 50.65 (a)(3) periodic assessment of maintenance rule program; and
- Control room ventilation (a)(1) to (a)(2) evaluation.

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/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 corrective action program with the appropriate significance characterization.

This inspection constituted two 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 due to emergency reserve auxiliary outage;
- Unplanned yellow risk due to loss of one source to the 345 KV ring bus;
- Planned yellow risk due to standby gas treatment system outage;
- Planned yellow risk due to Ameren rising line switching; and
- Planned yellow risk due to load testing of division 3 battery.

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.

In addition, the inspectors verified that problems associated with the effectiveness of plant maintenance were entered into the licensee's CAP with the appropriate

characterization and significance. Selected action requests were reviewed to verify that corrective actions were appropriate and implemented as scheduled.

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:

- “B” residual heat removal (RHR) test valve to suppression pool failed to open;
- “A” control room ventilation system snubber found out of specification; and
- “B” control room ventilation system chiller oil temperature high.

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 evaluations 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 updated safety analysis report to the licensee’s evaluations 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.

In addition, the inspectors verified that problems related to the operability or functionality of safety-related plant equipment was entered into the licensee’s CAP with the appropriate characterization and significance. Selected condition reports were reviewed to verify that corrective actions were appropriate and implemented as scheduled.

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

b. Findings

No findings were identified.

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 over crank delay timer;
- Testing of division 1 diesel generator room temperature damper/hydrator;
- Testing of division 1 diesel generator fuel priming pumps;
- Testing of division 1 diesel generator "A" and "B" air start systems; and
- Testing on reactor water cleanup to condenser outboard isolation valve.

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 USAR, 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 corrective action program and that the problems were being corrected commensurate with their importance to safety.

This inspection constituted five 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 9031.10, “RPS Main Steam Line Isolation Valve Channel Functional” (In-service Test);
- CPS 9000.01, “Control Room Surveillance Log” (RCS Leak Rate);
- CPS 9432.51, “Containment Pressure Channel Calibration” (Routine);
- CPS 9080.12, “Diesel Generator Fuel Oil Transfer Pump Operability” (Routine);
- CPS 9066.01, “Secondary Containment Isolation Damper Operability” (Routine);
- CPS 9067.01, “SGTS Train A Flow/Heater Operability” (Routine); and
- CPS 9030.01C014, “ADS Reactor Pressure B21–N668A and B21–N669A Checklist” (Routine).

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 setpoints were within required ranges; and the calibration frequency was in accordance with TSs, the USAR, 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 inservice 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 corrective action program.

This inspection constituted five routine surveillance testing samples, one inservice testing sample, and one reactor coolant system leak detection inspection sample, as defined in IP 71111.22-05.

b. Findings

No findings were identified.

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

a. Inspection Scope

The regional inspectors performed an in-office review of the latest revisions to the emergency plan, emergency plan annex, and emergency plan implementing procedures as listed in the Attachment to this report.

The licensee transmitted the emergency plan and emergency action level 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. The specific documents reviewed during this inspection are listed in the Attachment to this report.

This emergency action level and emergency plan change inspection constituted one sample as defined in IP 71114.04–06.

b. Findings

No findings were identified.

2. RADIATION SAFETY

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

This inspection constituted one complete sample as defined in IP 71124.01–05.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed all licensee performance indicators for the Occupational Exposure cornerstone for follow-up. The inspectors reviewed the results of radiation protection program audits (e.g., licensee's quality assurance audits or other independent audits). The inspectors reviewed any reports of operational occurrences related to occupational radiation safety since the last inspection. The inspectors reviewed the results of the audit and operational report reviews to gain insights into overall licensee performance.

b. Findings

No findings were identified.

.2 Radiological Hazard Assessment (02.02)

a. Inspection Scope

The inspectors determined if there have been changes to plant operations since the last inspection that may result in a significant new radiological hazard for onsite workers or members of the public. The inspectors evaluated whether the licensee assessed the potential impact of these changes and has implemented periodic monitoring, as appropriate, to detect and quantify the radiological hazard.

The inspectors reviewed the last two radiological surveys from selected plant areas and evaluated whether the thoroughness and frequency of the surveys were appropriate for the given radiological hazard.

The inspectors conducted walkdowns of the facility, including radioactive waste processing, storage, and handling areas to evaluate material conditions and performed independent radiation measurements to verify conditions.

The inspectors selected the following radiologically risk significant work activities and associated radiation work permits (RWP) that involved exposure to radiation:

- RWP 10017058; Pick and Weigh FP/FD Liner; Revision 1;
- RWP 10015814; Steam Affected Area Work; Revision 2; and
- RWP 10015812; RW HRA/LHRA; Revision 1.

For these work activities, the inspectors assessed whether the pre-work surveys performed were appropriate to identify and quantify the radiological hazard and to establish adequate protective measures. The inspectors evaluated the radiological survey program to determine if hazards were properly identified, including the following:

- identification of hot particles;
- the presence of alpha emitters;
- the potential for airborne radioactive materials, including the potential presence of transuranics and/or other hard-to-detect radioactive materials (This evaluation may include licensee planned entry into non-routinely entered areas subject to previous contamination from failed fuel.);
- the hazards associated with work activities that could suddenly and severely increase radiological conditions and that the licensee has established a means to inform workers of changes that could significantly impact their occupational dose; and
- severe radiation field dose gradients that can result in non-uniform exposures of the body.

The inspectors observed work in potential airborne areas and evaluated whether the air samples were representative of the breathing air zone. The inspectors evaluated whether continuous air monitors were located in areas with low background to minimize false alarms and were representative of actual work areas. The inspectors evaluated the licensee's program for monitoring levels of loose surface contamination in areas of the plant with the potential for the contamination to become airborne.

b. Findings

No findings were identified.

.3 Instructions to Workers (02.03)

a. Inspection Scope

The inspectors selected various containers holding non-exempt licensed radioactive materials that may cause unplanned or inadvertent exposure of workers, and assessed whether the containers were labeled and controlled in accordance with 10 CFR 20.1904, "Labeling Containers," or met the requirements of 10 CFR 20.1905(g), "Exemptions To Labeling Requirements."

The inspectors reviewed the following RWPs used to access high radiation areas and evaluated the specified work control instructions or control barriers:

- RWP 10017058; Pick and Weigh FP/FD Liner; Revision 1;
- RWP 10015814; Steam Affected Area Work; Revision 2; and
- RWP 10015812; RW HRA/LHRA; Revision 1.

For these RWPs, the inspectors assessed whether allowable stay times or permissible dose (including from the intake of radioactive material) for radiologically significant work under each RWP were clearly identified. The inspectors evaluated whether electronic personal dosimeter alarm set-points were in conformance with survey indications and plant policy.

The inspectors reviewed selected occurrences where a worker's electronic personal dosimeter noticeably malfunctioned or alarmed. The inspectors evaluated whether workers responded appropriately to the off-normal condition. The inspectors assessed whether the issue was included in the CAP and dose evaluations were conducted as appropriate.

For work activities that could suddenly and severely increase radiological conditions, the inspectors assessed the licensee's means to inform workers of changes that could significantly impact their occupational dose.

b. Findings

No findings were identified.

.4 Contamination and Radioactive Material Control (02.04)

a. Inspection Scope

The inspectors observed locations where the licensee monitors potentially contaminated material leaving the radiological control area and inspected the methods used for control, survey, and release from these areas. The inspectors observed the performance of personnel surveying and releasing material for unrestricted use and evaluated whether the work was performed in accordance with plant procedures and whether the procedures were sufficient to control the spread of contamination and prevent unintended release of radioactive materials from the site. The inspectors

assessed whether the radiation monitoring instrumentation had appropriate sensitivity for the type(s) of radiation present.

The inspectors reviewed the licensee's criteria for the survey and release of potentially contaminated material. The inspectors evaluated whether there was guidance on how to respond to an alarm that indicates the presence of licensed radioactive material.

The inspectors reviewed the licensee's procedures and records to verify that the radiation detection instrumentation was used at its typical sensitivity level based on appropriate counting parameters. The inspectors assessed whether or not the licensee has established a *de facto* "release limit" by altering the instrument's typical sensitivity through such methods as raising the energy discriminator level or locating the instrument in a high-radiation background area.

The inspectors selected several sealed sources from the licensee's inventory records and assessed whether the sources were accounted for and verified to be intact.

The inspectors evaluated whether any transactions, since the last inspection, involving nationally tracked sources were reported in accordance with 10 CFR 20.2207.

b. Findings

No findings were identified.

.5 Radiological Hazards Control and Work Coverage (02.05)

a. Inspection Scope

The inspectors evaluated ambient radiological conditions (e.g., radiation levels or potential radiation levels) during tours of the facility. The inspectors assessed whether the conditions were consistent with applicable posted surveys, radiation work permits, and worker briefings.

The inspectors evaluated the adequacy of radiological controls, such as required surveys, radiation protection job coverage (including audio and visual surveillance for remote job coverage), and contamination controls. The inspectors evaluated the licensee's use of electronic personal dosimeters in high noise areas as high radiation area monitoring devices.

The inspectors assessed whether radiation monitoring devices were placed on the individual's body consistent with licensee procedures. The inspectors assessed whether the dosimeter was placed in the location of highest expected dose or that the licensee properly employed a NRC-approved method of determining effective dose equivalent.

The inspectors reviewed the application of dosimetry to effectively monitor exposure to personnel in high-radiation work areas with significant dose rate gradients.

The inspectors reviewed RWPs, as applicable, for work within airborne radioactivity areas with the potential for individual worker internal exposures.

For these RWPs, the inspectors evaluated airborne radioactive controls and monitoring, including potential for significant airborne levels (e.g., grinding, grit blasting, system

breaches, and entry into tanks, cubicles, and reactor cavities). The inspectors assessed barrier (e.g., tent or glove box) integrity and temporary high efficiency particulate air ventilation system operation.

The inspectors examined the licensee's physical and programmatic controls for highly activated or contaminated materials (i.e., nonfuel) stored within spent fuel and other storage pools. The inspectors assessed whether appropriate controls (i.e., administrative and physical controls) were in place to preclude inadvertent removal of these materials from the pool.

The inspectors examined the posting and physical controls for selected high radiation areas and very high radiation areas to verify conformance with the occupational performance indicator.

b. Findings

No findings were identified.

.6 Risk Significant High Radiation Area and Very High Radiation Area Controls (02.06)

a. Inspection Scope

The inspectors discussed with the radiation protection manager the controls and procedures for high-risk, high radiation areas and very-high radiation areas. The inspectors discussed methods employed by the licensee to provide stricter control of very high radiation area access as specified in 10 CFR 20.1602, "Control of Access to Very High Radiation Areas," and Regulatory Guide 8.38, "Control of Access to High and Very High Radiation Areas of Nuclear Plants." The inspectors assessed whether any changes to licensee procedures substantially reduce the effectiveness and level of worker protection.

The inspectors discussed the controls in place for special areas that have the potential to become very high radiation areas during certain plant operations with first-line health physics supervisors (or equivalent positions having backshift health physics oversight authority). The inspectors assessed whether these plant operations require communication beforehand with the health physics group, so as to allow corresponding timely actions to properly post, control, and monitor the radiation hazards including re-access authorization.

The inspectors evaluated licensee controls for very high radiation areas and areas with the potential to become very high radiation areas to ensure that an individual was not able to gain unauthorized access to the very high radiation areas.

b. Findings

No findings were identified.

.7 Radiation Worker Performance (02.07)

a. Inspection Scope

The inspectors observed radiation worker performance with respect to stated radiation protection work requirements. The inspectors assessed whether workers were aware of the radiological conditions in their workplace and the radiation work permit controls/limits in place, and whether their performance reflected the level of radiological hazards present.

The inspectors reviewed radiological problem reports since the last inspection that found the cause of the event to be human performance errors. The inspectors evaluated whether there was an observable pattern traceable to a similar cause. The inspectors assessed whether this perspective matched the corrective action approach taken by the licensee to resolve the reported problems. The inspectors discussed with the radiation protection manager any problems with the corrective actions planned or taken.

b. Findings

No findings were identified.

.8 Radiation Protection Technician Proficiency (02.08)

a. Inspection Scope

The inspectors observed the performance of the radiation protection technicians with respect to all radiation protection work requirements. The inspectors evaluated whether technicians were aware of the radiological conditions in their workplace and the radiation work permit controls/limits, and whether their performance was consistent with their training and qualifications with respect to the radiological hazards and work activities.

The inspectors reviewed radiological problem reports since the last inspection that found the cause of the event to be radiation protection technician error. The inspectors evaluated whether there was an observable pattern traceable to a similar cause. The inspectors assessed whether this perspective matched the corrective action approach taken by the licensee to resolve the reported problems.

b. Findings

No findings were identified.

.9 Problem Identification and Resolution (02.09)

a. Inspection Scope

The inspectors evaluated whether problems associated with radiation monitoring and exposure control were being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee's CAP. The inspectors assessed the appropriateness of the corrective actions for a selected sample of problems documented by the licensee that involve radiation monitoring and exposure controls. The inspectors assessed the licensee's process for applying operating experience to their plant.

b. Findings

No findings were identified.

2RS5 Radiation Monitoring Instrumentation (71124.05)

This inspection constituted one complete sample as defined in IP 71124.05–05.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed the plant USAR to identify radiation instruments associated with monitoring area radiological conditions including airborne radioactivity, process streams, effluents, materials/articles, and workers. Additionally, the inspectors reviewed the instrumentation and the associated TS requirements for post-accident monitoring instrumentation, including instruments used for remote emergency assessment.

The inspectors reviewed a listing of in-service survey instrumentation including air samplers and small article monitors, along with instruments used to detect and analyze workers' external contamination. Additionally, the inspectors reviewed personnel contamination monitors and portal monitors, including whole-body counters, to detect workers' internal contamination. The inspectors reviewed this list to assess whether an adequate number and type of instruments were available to support operations.

The inspectors reviewed licensee and third-party evaluation reports of the radiation monitoring program since the last inspection. These reports were reviewed for insights into the licensee's program and to aid in selecting areas for review ("smart sampling").

The inspectors reviewed procedures that govern instrument source checks and calibrations, focusing on instruments used for monitoring transient high radiological conditions, including instruments used for underwater surveys. The inspectors reviewed the calibration and source check procedures for adequacy and as an aid to smart sampling.

The inspectors reviewed the area radiation monitor alarm set-point values and set-point bases as provided in the TS and the USAR.

The inspectors reviewed effluent monitor alarm set-point bases and the calculation methods provided in the offsite dose calculation manual (ODCM).

b. Findings

No findings were identified.

.2 Walkdowns and Observations (02.02)

a. Inspection Scope

The inspectors walked down effluent radiation monitoring systems, including at least one liquid and one airborne system. Focus was placed on flow measurement devices and all accessible point-of-discharge liquid and gaseous effluent monitors of the selected systems. The inspectors assessed whether the effluent/process monitor configurations

aligned with ODCM descriptions and observed monitors for degradation and out-of-service tags.

The inspectors selected portable survey instruments that were in use or available for issuance and assessed calibration and source check stickers for currency as well as instrument material condition and operability.

The inspectors observed licensee staff performance as the staff demonstrated source checks for various types of portable survey instruments. The inspectors assessed whether high-range instruments were source checked on all appropriate scales.

The inspectors walked down area radiation monitors and continuous air monitors to determine whether they were appropriately positioned relative to the radiation sources or areas they were intended to monitor. Selectively, the inspectors compared monitor response (via local or remote control room indications) with actual area conditions for consistency.

The inspectors selected personnel contamination monitors, portal monitors, and small article monitors and evaluated whether the periodic source checks were performed in accordance with the manufacturer's recommendations and licensee procedures.

b. Findings

No findings were identified.

.3 Calibration and Testing Program (02.03)

Process and Effluent Monitors

a. Inspection Scope

The inspectors selected effluent monitor instruments (such as gaseous and liquid) and evaluated whether channel calibration and functional tests were performed consistent with radiological effluent TS/ODCM. The inspectors assessed whether; (a) the licensee calibrated its monitors with National Institute of Standards and Technology traceable sources; (b) the primary calibrations adequately represented the plant nuclide mix; (c) when secondary calibration sources were used, the sources were verified by the primary calibration; and (d) the licensee's channel calibrations encompassed the instrument's alarm set-points.

The inspectors assessed whether the effluent monitor alarm set-points were established as provided in the ODCM and station procedures.

For changes to effluent monitor set-points, the inspectors evaluated the basis for changes to ensure that an adequate justification existed.

b. Findings

No findings were identified.

Laboratory Instrumentation

a. Inspection Scope

The inspectors assessed laboratory analytical instruments used for radiological analyses to determine whether daily performance checks and calibration data indicated that the frequency of the calibrations was adequate and there were no indications of degraded instrument performance.

The inspectors assessed whether appropriate corrective actions were implemented in response to indications of degraded instrument performance.

b. Findings

No findings were identified.

Whole Body Counter

a. Inspection Scope

The inspectors reviewed the methods and sources used to perform whole body count functional checks before daily use of the instrument and assessed whether check sources were appropriate and aligned with the plant's isotopic mix.

The inspectors reviewed whole body count calibration records since the last inspection and evaluated whether calibration sources were representative of the plant source term and that appropriate calibration phantoms were used. The inspectors looked for anomalous results or other indications of instrument performance problems.

b. Findings

No findings were identified.

Post-Accident Monitoring Instrumentation

a. Inspection Scope

Inspectors selected containment high-range monitors and reviewed the calibration documentation since the last inspection.

The inspectors assessed whether an electronic calibration was completed for all range decades above 10 rem/hour; and whether at least one decade at or below 10 rem/hour was calibrated using an appropriate radiation source.

The inspectors assessed whether calibration acceptance criteria were reasonable; accounting for the large measuring range and the intended purpose of the instruments.

The inspectors selected effluent/process monitors that were relied on by the licensee in its emergency operating procedures as a basis for triggering emergency action levels and subsequent emergency classifications, or to make protective action recommendations during an accident. The inspectors evaluated the calibration and availability of these instruments.

The inspectors reviewed the licensee's capability to collect high-range, post-accident iodine effluent samples.

As available, the inspectors observed electronic and radiation calibration of these instruments to assess conformity with the licensee's calibration and test protocols.

b. Findings

No findings were identified.

Portal Monitors, Personnel Contamination Monitors, and Small Article Monitors

a. Inspection Scope

For each type of these instruments used on site, the inspectors assessed whether the alarm set-point values were reasonable under the circumstances to ensure that licensed material is not released from the site.

The inspectors reviewed the calibration documentation for each instrument selected and discussed the calibration methods with the licensee to determine consistency with the manufacturer's recommendations.

b. Findings

No findings were identified.

Portable Survey Instruments, Area Radiation Monitors, Electronic Dosimetry, and Air Samplers/Continuous Air Monitors

a. Inspection Scope

The inspectors reviewed calibration documentation for at least one of each type of instrument. For portable survey instruments and area radiation monitors, the inspectors reviewed detector measurement geometry and calibration methods and had the licensee demonstrate use of its instrument calibrator as applicable. The inspectors conducted comparison of instrument readings versus a NRC survey instrument if problems were suspected.

As available, the inspectors selected portable survey instruments that did not meet acceptance criteria during calibration or source checks to assess whether the licensee had taken appropriate corrective action for instruments found significantly out of calibration (e.g., greater than 50 percent). The inspectors evaluated whether the licensee had evaluated the possible consequences of instrument use since the last successful calibration or source check.

b. Findings

No findings were identified.

Instrument Calibrator

a. Inspection Scope

As applicable, the inspectors reviewed the current output values for the licensee's portable survey and area radiation monitor instrument calibrator unit(s). The inspectors assessed whether the licensee periodically measures calibrator output over the range of the instruments used through measurements by ion chamber/electrometer.

The inspectors assessed whether the measuring devices had been calibrated by a facility using National Institute of Standards and Technology traceable sources and whether corrective factors for these measuring devices were properly applied by the licensee in its output verification.

b. Findings

No findings were identified.

Calibration and Check Sources

a. Inspection Scope

The inspectors reviewed the licensee's 10 CFR Part 61, "Licensing Requirements for Land Disposal of Radioactive Waste," source term to assess whether calibration sources used were representative of the types and energies of radiation encountered in the plant.

b. Findings

No findings were identified.

.4 Problem Identification and Resolution (02.04)

a. Inspection Scope

The inspectors evaluated whether problems associated with radiation monitoring instrumentation were being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee's CAP. The inspectors assessed the appropriateness of the corrective actions for a selected sample of problems documented by the licensee that involve radiation monitoring instrumentation.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

Cornerstones: Mitigating Systems and Barrier Integrity

4OA1 Performance Indicator Verification (71151)

.1 Mitigating Systems Performance Index–Emergency Alternating Current Power System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI)–Emergency alternating current (AC) Power System performance indicator (PI) third quarter of 2013 through the second quarter of 2014. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99–02, “Regulatory Assessment Performance Indicator Guideline,” Revision 7, dated August 2012, was used. The inspectors reviewed the licensee’s operator narrative logs, MSPI derivation reports, issue reports, event reports and NRC integrated inspection reports for the period of July 1, 2013, through June 30, 2014, to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. 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. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI emergency AC power system sample as defined in IP 71151–05.

b. Findings

No findings were identified.

.2 Mitigating Systems Performance Index–Cooling Water Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI–Cooling Water Systems PI for the period from the third quarter of 2013 through the second quarter of 2014. 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 2012, was used. The inspectors reviewed the licensee’s operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC integrated inspection reports for the period of July 1, 2013, through June 30, 2014, to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. 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. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI cooling water system sample as defined in IP 71151–05.

b. Findings

No findings were identified.

.3 Reactor Coolant System Leakage

a. Inspection Scope

The inspectors sampled licensee submittals for the reactor coolant system (RCS) Leakage PI for the period from the fourth quarter of 2013 through the third quarter of 2014. 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 2012, 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, 2013, through September 30, 2014, 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. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

40A2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

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.

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 4OA2.2 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the 6-month period of July 1, 2014, through December 31, 2014, although some examples expanded beyond those dates where the scope of the trend warranted.

The reviews 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.

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

b. Assessment and Observations

(1) Adverse Trend in Evaluating Degraded/Nonconforming Plant Conditions for Operability, Functionality and/or Reportability

The inspectors had previously noted an adverse trend with the licensee's evaluation of degraded/nonconforming plant conditions for operability, functionality and/or reportability. During the beginning of this assessment period additional examples were identified by the inspectors resulting in an NRC-identified non-cited violation issued in the third quarter NRC integrated report associated with operations personnel failing to properly document operability and functionality basis used to determine the operability or functionality of safety related or important to safety equipment used at the site.

The licensee has entered the issue into the CAP and is developing and completing corrective actions to address the issues involved. The resident inspectors will review the actions taken by the licensee and ensure that they are effective by continuing to focus inspection in the area of operability and functionality assessments to ensure the station is improving in this area.

.4 Annual Review of Operator Workarounds

a. Inspection Scope

The inspectors performed an in-depth review of operator workarounds and assessed the cumulative effect of existing workarounds and other operator burdens. The inspectors reviewed operator workarounds, control room deficiencies, temporary modifications and lit annunciators. The inspectors verified that operator workarounds were being identified at an appropriate threshold; that the workarounds did not adversely impact operators' ability to implement abnormal and emergency operating procedures; and, that the cumulative effect of operator burdens did not adversely impact mitigating system functions. The inspectors also reviewed action requests to verify that appropriate corrective actions were proposed or implemented in a timely manner commensurate with the significance of the issue.

This inspection constituted one annual operator workaround review inspection sample as defined in IP 71152-05.

b. Findings

No findings were identified.

.5 Selected Issue Follow Up Inspection: 1SX027C Small Packing Leak Work Order Inappropriately Coded as Condition Based Monitoring

a. Inspection Scope

On November 11, 2013, after touring the "C" RHR pump room, the inspectors inquired about the valve packing leakage from the "C" RHR pump room cooler shut down service water return isolation valve, 1SX027C. The leakage was determined to be 15 drops per minute by the licensee. This was documented in AR 01587400. The control room staff indicated that the leakage had been previously identified and documented in AR 01289480 in November 2011, and that the valve had an outstanding work order to

repair the leakage, but the work order was currently coded condition based monitoring and repairs would not occur any time soon.

The inspectors inquired as to what condition based monitoring meant and the operations staff directed the inspectors to station procedure WC-AA-106, "Work Screening and Processing", Appendix A, "Condition Based Monitoring Program". Step 4.3 of the appendix discusses inconsequential leaks and states in part that the leakage meets the following criteria: for valve packing, leak is no greater than one drop per minute or is determined to be an inconsequential leak by the system engineer.

The inspectors then inquired as to how the system engineer had determined that the leak was inconsequential. The licensee could not provide the information and therefore concluded based on the valve packing leakage exceeding the one drop per minute criteria that the valve was inappropriately coded as condition based monitoring. This was documented in AR 01689394.

WC-AA-106, "Work Screening and Processing," Appendix A was not followed after AR 01289480 was written, documenting a 12 drop per minute leak identified on the packing of 1SX027C. The existing work order 1318901 for the valve had been placed in condition based monitoring even though the leakage did not meet the requirements to remain in condition based monitoring per appendix A and no documentation that the system engineer determined the leak to be inconsequential was found. This is a minor violation of station TS 5.4.1 "Procedures" for failing to implement the procedure. The issue was entered into the licensee's CAP as AR 01689394.

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

b. Findings

No findings were identified.

.6 Selected Issue Follow Up Inspection: Seismic Qualification of Division III Switchgear Breakers

a. Inspection Scope

On September 30, 2014, the inspectors noted during a review of operator logs that the licensee had entered a 48 hour seismic clock due to racking out division III switchgear breakers in accordance with procedure CPS 1014.11, "6900/4160/480V Switchgear/Circuit Breaker Operability Program," Revision 4a. The 48 hour seismic clock was a delay in declaring the switchgear inoperable when the breaker is racked out, but not fully removed from the cubicle. The inspectors requested the basis and evaluation to justify the 48 hour time clock. Additionally, the inspectors reviewed logbook entries, the USAR, calculations, procedures, TS and their bases, any previous corrective actions, and evaluations performed related to this issue.

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

b. Findings

Failure to Translate Seismic Design Requirements into Applicable Procedures

Introduction. The inspectors identified a Green finding and an associated NCV of 10 CFR 50, Appendix B, Criterion III, Design Control, for the failure to adequately translate seismic requirements from a design calculation into applicable procedures. Specifically the licensee failed to incorporate the seismic requirements for the division III 4.16 KV switchgear as described in calculation IP–Q–0391, “Seismic Qualification of 480V ABB Unit Sub Switchgears, Div I & II Westinghouse Switchgears and Div III GE 4.16KV Switchgears”, into procedure CPS 1014.11, “6900/4160/480V Switchgear/Circuit Breaker Operability Program,” resulting in the licensee incorrectly declaring division III switchgear operable when in a seismically unanalyzed condition.

Description. On September 30, 2014, the license was performing planned maintenance on the emergency reserve auxiliary transformer (ERAT) system. During routine review of operator logbook entries, the inspectors noted the following entry:

“For ERAT system outage window, 4160V 1C1 bus reserve feed breaker (ERAT feed) is not racked in, but the breaker remains in the cubicle. This is a seismically unanalyzed configuration per CPS 1014.11, step 6.1.5. Commence 48 hour clock for restoring Div 3 4160V bus seismic configuration.”

Procedure CPS 1014.11, “6900/4160/480V Switchgear/Circuit Breaker Operability Program,” provides operating guidance for the operability impact assessments resulting from operation of certain breakers in what is considered a seismically unanalyzed configuration. Section 6.1.1 stated, “When a breaker is placed in a ‘Seismically Unanalyzed Configuration’ on an OPERABLE switchgear (e.g., during operation/on-line maintenance/PMT/surveillance, etc.), the switchgear need not be declared INOPERABLE, provided the time in this configuration is limited to 48 hours per occurrence, and appropriate personnel remain at the breaker cubicle (when the cubicle door is open) in order to return the breaker cubicle to a ‘Seismically Analyzed Configuration’ when directed.”

The inspectors questioned the bases for allowing a 48 hour delay clock in declaring the switchgear inoperable. In response to the inspector’s questions, the licensee provided the design calculation (IP–Q–0391) and associated safety evaluation, as the bases for the procedure.

Design calculation IP–Q–0391, “Seismic Qualification of 480V ABB Unit Sub switchgears, Div. I & II Westinghouse switchgears (4.16 & 6.9 KV) and Div. III GE 4.16 KV switchgears,” Revision 0, issued March 26, 1997 describes the seismic requirements for various switchgear configurations. This calculation concluded that the 480V ABB switchgears and the division I & II Westinghouse switchgears are seismically qualified with the breakers in various positions. However, the calculation also concluded that the division III GE switchgear was only qualified with the breakers in the racked-in position. When any of the division III breakers are racked-down or in the test position, the entire switchgear is put into a seismically unanalyzed (unqualified) configuration, therefore the 48 hour time limitation could not be applied to the division III switchgear.

Analysis. The inspectors determined that the failure to adequately incorporate the seismic requirements of the design calculation into the applicable procedure was a performance deficiency. The finding is more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," issued September 7, 2012, because it is associated with the design control attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

In accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Initial Characterization of Findings," issued June 19, 2012, and Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 4, "External Events Screening Questions," issued June 19, 2012, the inspectors answered "Yes" to question 1 of External Events screening questions, because the finding could potentially degrade one train of the emergency power system. Thus the inspectors consulted the regional senior reactor analyst (SRA).

The SRA used the NRC's Standardized Plant Analysis Risk (SPAR) Model for Clinton, Revision 8.17, and the guidance of the Risk Assessment for Operational Events (RASP) Handbook for External Events, Revision 1.01, to estimate the risk significance of the inspection finding. The SRA used the seismic initiating event frequency and the seismically-induced loss of offsite power (LOOP) frequency for Clinton from the RASP Handbook. The SRA combined these frequencies with a conditional core damage probability calculated using the SPAR model for a transient with division III switchgear failed and separately for a switchyard LOOP event with the division III switchgear failed. Finally, the SRA factored in the exposure period of 48 hours of a one year period (8760 hours). The calculations for both a seismic transient event and a seismically-induced event were significantly below the $1E-6$ /yr threshold for a finding of very low safety significance. The finding is of very low risk significance due to the very short duration of the condition and the relatively low frequency of a seismic event. The dominant sequence for the seismically-induced LOOP was a LOOP with failure of the reactor core isolation cooling system, failure of division III high pressure core spray system, and the failure to depressurize the reactor.

Based on the detailed risk evaluation, the inspectors determined that the finding was of very low safety significance (Green). The inspectors determined that there was no cross-cutting aspect associated with this finding because the cause of the performance deficiency occurred more than 15 years ago, and was not representative of current licensee performance.

Enforcement. 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions.

Contrary to the above, as of September 30, 2014, the licensee failed to assure that applicable regulatory requirements and the design basis were correctly translated into procedures. Specifically, the licensee failed to translate the seismic requirements of the division III 4160V switchgear into procedure CPS 1014.11, "6900/4160/480V Switchgear/Circuit Breaker Operability Program."

This violation is being treated as a NCV, consistent with Section 2.3.2 of the Enforcement Policy. The licensee documented this issue in the CAP as AR 2386676 and restored the switchgear to an operable condition by removing the breaker completely. The licensee also revised the procedure to incorporate the design requirements described in the seismic design calculation for the division III switchgear. **(NCV 0500461/2014005-03, Failure to Translate Seismic Design Requirements into Applicable Procedures)**

.7 Selected Issue Follow Up Inspection: Combustible Gas Control System Supply Fan Motor Failed to Run During Hydrogen Re-combiner Surveillance

a. Inspection Scope

On June 23, 2014, the licensee documented in AR 01684967 that during the performance of procedure CPS 9068.01, "Hydrogen Mixing System Operability Test," the combustible gas control system supply fan motor, 1VR08C, did not run and appeared to have no power. The AR also documented the 1VR08C fan had failed to run during the previous two performances of the mentioned surveillance. The inspectors reviewed past ARs, work orders, USAR, surveillance procedures, modification evaluations and technical specifications to determine whether the actions taken by the licensee were adequate in addressing this issue.

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

b. Findings

Failure to Update the Updated Safety Analysis Report-Combustible Gas Control System Supply Fan Motor 1VR08C Function

Introduction: The inspectors identified a Severity Level IV NCV of 10 CFR 50.71(e), periodic update of the USAR, and an associated Green finding for the licensee's failure to update the USAR with the correct description of the function of 1VR08C. Specifically the licensee did not update Section 9.4.5.5 of the USAR to include the correct function of 1VR08C as described in a commitment made to the NRC in the licensee's letter U-600850. Consequently, the licensee performed a 50.59 evaluation for abandoning a portion of the system that did not consider the correct function of the component.

Description: On June 23, 2014, during the performance of CPS 9068.01 "Hydrogen Mixing System Operability Test," the combustible gas control system supply fan motor, 1VR08C, did not start automatically as expected and appeared to have no power. This issue was documented in AR 01684967, which stated that the function of the fan was to maintain cooling in the room; therefore, the operability of the system was not impacted because the loss of the fan represents a minimal loss of cooling to the mixing compressor room. The AR also mentioned in the operability basis that SX was already blanked off and the doors were removed as part of a previous modification.

The inspectors noted that the failure of 1VR08C to auto-start was a repetitive issue. The licensee continued to track the issue within the CAP as well as the maintenance rule program, but would base decisions on the fan being part of a partially abandoned

system as well as the USAR documented function. Section 9.4.5.5 of the USAR stated that the function of the fan was for room cooling.

The inspectors requested additional information associated with the modification that partially abandoned the system. While researching the modification in response to the inspector's question, the licensee found a letter from Clinton Power Station to the NRC. The licensee's letter, U-600850, "Clinton Power Station Hydrogen Mixing Compressor Room Design," documented a modification to the two hydrogen mixing system compressor rooms located inside containment. The document stated that the site will be taking credit for mixing of the room atmosphere to prevent hydrogen stratification via the room coolers. Subsequent to this letter, the licensee did not update the USAR to reflect the function of 1VR08C as described in the commitment letter.

In April of 2014, the licensee performed a 10 CFR 50.59 evaluation for the abandonment of the hydrogen compressor room coolers that did not consider their function as described in the commitment letter, due to the failure to update the USAR. The licensee had not yet implemented the modification and has subsequently removed 1VR08C from the modification plan. The licensee also documented this issue in AR 01692665 to ensure the USAR is updated with the correct function for this component.

Analysis: The inspectors determined that the failure to update the USAR with the correct function of 1VR08C was a performance deficiency. The performance deficiency was determined to be more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," issued September 7, 2012, because, if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern and is therefore a finding. Specifically, failure to update the USAR with the correct safety related function of 1VR08C could result in the licensee making operability and functionality determinations based on incorrect assumptions. Additionally, the failure to update the USAR with the correct function of the fan was more than minor because it was associated with the Barrier Integrity cornerstone attribute of design control, and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events.

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. This violation was also associated with a finding that has been evaluated by the SDP and communicated with a SDP color reflective of the safety impact of the deficient licensee performance. The SDP, however, does not specifically consider regulatory process impact. Thus, although related to a common regulatory concern, it is necessary to address the violation and finding using different processes to correctly reflect both the regulatory importance of the violation and the safety significance of the associated finding.

Using IMC 0609, Attachment 4, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process for Findings at Power," issued June 19, 2012, the finding was screened against the Barrier Integrity cornerstone and determined to be of very low safety significance (Green) because the finding does not represent an actual open pathway in the physical integrity of reactor containment, containment isolation

system, and heat removal components and it did not involve an actual reduction in function of hydrogen igniters in reactor containment.

The performance deficiency associated with this finding did not reflect current licensee performance; therefore, no cross cutting aspect was identified with this finding.

Additionally, in accordance with Section 6.1.d.3 of the NRC Enforcement Policy, this violation was categorized as Severity Level IV because the licensee's failure to update the USAR as required by 10 CFR 50.71(e) had not yet resulted in any unacceptable change to the facility or procedures.

Enforcement: 10 CFR 50.71(e) requires in part, that licensees shall periodically update the USAR, 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 USAR, or as appropriate, the last update to the USAR under this section.

Contrary to the above, as of September 24, 2014, the licensee did not update the USAR to reflect information submitted to the Commission on March 11, 1987. Specifically, the licensee failed to update the USAR with the correct function of 1VR08C. In accordance with Section 6.1.d.3 of the Enforcement Policy, the violation was classified as a Severity Level IV violation. The licensee entered this issue into the CAP as AR 01692665 and was evaluating the USAR for revision to include the correct function of 1VR08C.

Because this violation was of very low safety significance, was not repetitive or willful, and was entered into the licensee's CAP, this violation is being treated as a Severity Level IV NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy.

(NCV 0500461/2014005-04, Failure to Update the Updated Safety Analysis Report-Combustible Gas Control System Supply Fan Motor 1VR08C Function)

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153)

.1 (Closed) Licensee Event Report 05000461/2013-007-00: Failed to Enter Technical Specification Action for Exceeding Reactor Coolant Heat up Rate

a. Inspection Scope

On October 28, 2013, control room operators were starting up the reactor and had just reached the point of adding heat. The operators attempted to open the main steam isolation valves but were unsuccessful and reactor vessel pressure and temperature continued to rise. Operators attempted to slow the coolant heat up rate by inserting a control rod but this was also unsuccessful. At 9:30 p.m., the shift manager was notified of the heat up trend and that reactor coolant temperature had increased by 111 degrees Fahrenheit over a 1-hour period.

The shift manager incorrectly interpreted the TS requirement for reactor pressure vessel coolant heat up rate as to the rate of change to the metal temperatures and not that of the coolant. As a result, the licensee did not enter the required TS actions for exceeding

the reactor pressure vessel coolant heat up rate of 100 degrees Fahrenheit per hour (°F/hr).

Corrective actions taken by the licensee included a stand down to review the event and reinforce expectations associated with making TS reviews. Performance management of the individuals involved was completed and the shift manager involved was removed from watch standing duties. The event will be reviewed and incorporated into the license operator requalification program and shift manager / shift technical advisor training programs. The inspectors reviewed the licensee's corrective actions and determined the corrective actions could be viewed as reasonable to prevent recurrence. This licensee event report (LER) is closed.

This event follow-up review constituted one sample as defined in IP 71153-05.

b. Findings

Failure to Provide Procedure Instructions Results in Exceeding Technical Specification Heat Up Rate During Plant Start Up

Introduction. A Green finding and an associated NCV of TS 5.4.1, "Procedures," were self-revealed when the licensee failed to establish instructions in station procedure CPS 9059.01, "Reactor Coolant System Leakage Test," Revision 9b. Specifically, the licensee failed to provide instructions to ensure that the main steam piping between the reactor vessel and the inboard main steam isolation valves were completely drained of water at the completion of testing.

Description. On October 28, 2013, reactor startup was in progress after the completion of refueling outage C1R14. The operations crew had taken the reactor critical and the reactor was at the point of adding heat. At this point reactor pressure begins to rise and the main steam inboard isolation valves are opened to align the pressure vessel to the turbine main condenser.

The operating crew attempted to open the main steam inboard isolation valves but the valves would not operate. Additionally, the control room operators noted that the differential pressure across the main steam isolation valve was 9 pounds per square inch differential.

The control room supervisor had previously directed a team of reactor operators to equalize pressure around and open the inboard main steam isolation valves when positive pressure was noted in the reactor pressure vessel. However, this had not been completed. The reactor operators continued to attempt to equalize around the inboard main steam isolation valves but were unsuccessful. Operators were dispatched to open drain valves along the main steam header. It was then discovered that excessive water existed in the piping between the reactor vessel and the inboard main steam isolation valves, preventing the valves from operating. The section of the main steam lines had not been drained prior to startup.

While water was being draining from the main steam lines, reactor pressure continued to rise to a maximum of 52 pounds per square inch gauge. The reactor coolant heat up rate reached a recorded rate of 110.6°F/hr at 9:30 p.m. with a peak value of 121°F/hr based on plant computer data. This rate exceeded the TS Limiting Condition for

Operation 3.4.11 requirement of maintaining heat up rates to less than 100°F/hr (this violation was documented in NRC Inspection Report 2013005).

The licensee performed a root cause investigation to determine why the TS heat up rate was violated. The licensee determined that procedure CPS 9059.01 did not provide instructions to ensure the main steam piping between the reactor vessel and the inboard main steam isolation valves were completely drained of water at the completion of testing. Second, procedures utilized by operations to startup the reactor did not have a prerequisite or verification step to ensure the main steam piping between the reactor vessel and the inboard main steam isolation valves were completely drained of water prior to starting up the reactor. Last, if the main steam lines had been available for immediate use during the event, the heat up rate would not have been exceeded.

Analysis. The inspectors determined that the licensee's failure to establish instructions to ensure that the main steam piping between the reactor vessel and the inboard main steam isolation valves were completely drained of water prior to starting up the reactor was a performance deficiency. The performance deficiency was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," issued September 7, 2012, because, it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences and is therefore a finding.

Using IMC 0609, Attachment 4, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process for Findings at Power," issued June 19, 2012, the finding was screened against the Mitigating Systems cornerstone and determined to be of very low safety significance (Green) because the finding was/did not: (1) a deficiency affecting the design or qualification of a mitigating structure, system or component, (2) represent a loss of system and/or function, (3) represent an actual loss of function of a single train for greater than its TS allowed outage time, (4) represent an actual loss of function of one or more non-TS trains of equipment designated as high safety-significant for greater than 24 hours and (5) did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding or severe weather event.

The inspectors determined this finding affected the cross-cutting area of human performance in the aspect of work management where the organization implements a process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority. Specifically, the licensee work management failed to have a plan or provide a control method to ensure the main steam piping was drained prior to commencing reactor start up (H.5).

Enforcement. Technical Specification 5.4.1, "Procedures," requires in part that "written procedures be established, implemented, and maintained" as recommended in Regulatory Guide 1.33, Revision 2, Appendix A, issued February 1978. Regulatory Guide 1.33, Revision 2, Appendix A, Section 9, "Procedures for Performing Maintenance," states in part that "maintenance affecting performance of safety-related equipment should be properly pre-planned and performed in accordance with procedures, instructions, or drawings appropriate to the circumstances."

Contrary to the above, on October 26, 2014, station procedure CPS 9059.01, "Reactor Coolant System Leakage Test," Revision 9b, lacked instructions to ensure that the main steam piping between the reactor vessel and the inboard main steam isolation valves were completely drained of water at the completion of testing.

Interim corrective actions included ensuring that operations personnel involved in startups have completed just in time training that includes briefings on this event and placing the issue into the CAP as AR 01590671. Because this violation is of very low safety significance this violation is being treated as a NCV consistent with Section 2.3.2 of the NRC Enforcement Policy. **(NCV 05000461/2014005-05, Failure to Provide Procedure Instructions Results in Exceeding Technical Specification Heat Up Rate During Plant Start Up)**

.2 (Closed) Licensee Event Report 05000461/2014-001-00: Premature Failure of Air Supply Solenoid Results in Isolation of Fuel Building Ventilation System and Loss of Secondary Containment Differential Pressure

a. Inspection Scope

On January 22, 2014, while performing normal startup of the "B" main control room ventilation supply fan, the in-service fuel building ventilation system supply fan tripped. This resulted in the fuel building and secondary containment differential pressure no longer being maintained negative. The operators declared secondary containment inoperable and entered the TS action statement. The cause of this event was a failure of the fuel building ventilation system exhaust isolation damper air supply solenoid that closed the exhaust damper and isolated the fuel building ventilation during the startup of the train "B" main control room ventilation supply fan. The licensee subsequently replaced the failed solenoid to correct the problem.

The licensee also performed an analysis in accordance with NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," and concluded that this event would not have prevented the secondary containment from performing its safety function. The inspectors reviewed the licensee's current design basis radiological consequences analysis and determined that the safety function of the secondary containment is not assumed until 12 minutes after a loss of coolant accident is initiated. The inspectors verified that the secondary containment drawdown time surveillance, which tested the secondary containment functionality, was successfully performed with an acceptance criterion of 78 seconds and there was no indication of any other degradation before this event. As a result, the inspectors concluded that the safety function of the secondary containment is maintained in accordance with the design basis analysis during this event. In addition, since the function of the fuel building exhaust isolation damper is to close during an accident, the safety function of the damper was also met. Therefore, the inspectors concluded that this event would not have counted as a safety system functional failure PI occurrence in accordance with NEI 99-02 guidance.

This LER is closed.

This event follow-up review constituted one sample as defined in IP 71153-05.

b. Findings

No findings were identified.

.3 (Closed) Licensee Event Report 05000461/2014-002-00: Lowering Condenser Vacuum Due to "B" Steam Jet Air Ejector Instability Results in Manual Reactor SCRAM

a. Inspection Scope

On March 25, 2014, while raising reactor power, after a planned maintenance outage, the operators in the main control room observed offgas flow rate lowering, condenser vacuum lowering and the condensate water temperature increasing. The "B" steam jet air ejector (SJAE) was in service at the time and was not adequately performing its function of maintaining condenser vacuum. Operators entered the loss of vacuum off-normal procedure and commenced a rapid power reduction. In parallel, they began preparations to place "A" SJAE in service. Prior to achieving this, based on the rate the condenser vacuum was lowering, the operators placed the mode switch in shutdown to manually scram the reactor.

The licensee determined the cause for this event was unstable pressure control of the "B" SJAE due to a resonance or instability. The licensee also performed a root cause evaluation for this issue and determined the cause of the system resonance is currently indeterminate. The corrective actions for this event included replacing the SJAE pressure controller and developing a comprehensive test plan with the purpose of dampening or eliminating the system resonance.

The inspectors reviewed the root cause evaluation as well as the proposed corrective actions to address this issue. The inspectors also reviewed procedures, USAR, logbook entries, completed work orders, post maintenance testing and previous corrective action documents related to this system. Based on this review the inspectors did not identify any performance deficiencies related to this event.

This LER is closed.

This event follow-up review constituted one sample as defined in IP 71153-05.

b. Findings

No findings were identified.

40A6 Management Meetings

.1 Exit Meeting Summary

On January 15, 2015, the inspectors presented the inspection results to Mr. M. Newcomer 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.

.2 Interim Exit Meetings

Interim exits were conducted for:

- The annual review of emergency action level and emergency plan changes with the licensee's Emergency Preparedness Coordinator, Mr. R. Freeman, via telephone on December 18, 2014.

- The inspection results for the areas of radiological hazard assessment and exposure controls and radiation monitoring instrumentation with Mr. R. Schenck, Work Management Director, on October 10, 2014.
- On October 10, 2014, the inspector presented the inspection results to Mr. D. Snook, Operations Training Manager, 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. Proprietary material received during the inspection was returned to the licensee.

4OA7 Licensee-Identified Violations

The following violation of very low significance (Green) or Severity Level IV was identified by the licensee and is a violation of NRC requirement which meet the criteria of the NRC Enforcement Policy, for being dispositioned as a NCV.

- 10 CFR 50 Part 50.65 (a)(3) requires that performance and condition monitoring activities and associated goals and preventive maintenance activities shall be evaluated at least every refueling cycle provided the interval between evaluations does not exceed 24 months. Contrary to the above, on February 4, 2014, the licensee determined that they had failed to perform the required evaluation during the previous refueling cycle. The licensee documented the issue in the CAP as AR 01620986. The inspectors determined that this issue was of very low safety significance (Green) because no degraded performance or condition of associated structure, system, and component functions within the scope of the Maintenance Rule was resulted from the performance deficiency.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

D. Anthony, Corporate NDE Services Manager
R. Bair, Chemistry Manager
K. Baker, Regulatory Assurance Manager
R. Bedford, Licensed Operator Requalification Lead
J. Bond, Emergency Preparedness Manager
B. Brooks, Security Manager
R. Campbell, RP Technical Manager
J. Cunningham, Acting Regulatory Assurance Manager
C. Dunn, Training Director
R. Freeman, Emergency Preparedness Manager
M. Friedman, Radiation Protection Operations Manager
N. Hightower, Radiation Protection Manager
T. Krawcyk, Shift Operations Superintendent
D. Kemper, Acting Plant Manager/Operations Director
S. Kowalski, Senior Manager Design Engineering
K. Leffel, Operations Support Manager
M. Mayer, Acting Security Manager
S. Mohundro, Engineering Programs Manager
M. Newcomer, Site Vice President
C. Propst, Nuclear Oversight Manager
R. Schenck, Work Management Director
D. Shelton, Operations Services Manager
J. Smith, Acting Site Engineering Director
D. Snook, Operations Training Manager
T. Stoner, Plant Manager
J. Stovall, Maintenance Director

NRC

C. Phillips, Acting Chief, Reactor Projects Branch 1
W. Schaup, Clinton Senior Resident Inspector
E. Sanchez-Santiago, Clinton Resident Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Open

05000461/2014005-02	URI	Potential Failure to Maintain Safety Related Cables in a Qualified Environment (1R06.1)
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Opened/Closed

05000461/2014005-01	NCV	Station Procedures Failed to Provide Controls for Material Near Transformers (1R01.1.b)
05000461/2014005-03	NCV	Failure to Translate Seismic Design Requirements into Applicable Procedures (4OA2.6.b)
05000461/2014005-04	NCV	Failure to Update the Updated Safety Analysis Report-Combustible Gas Control System Supply Fan Motor 1VR08C Function (4OA2.7.b)
05000461/2014005-05	NCV	Failure to Provide Procedure Instructions Results in Exceeding Technical Specification Heat Up Rate During Plant Start Up (4OA3.1.b)

Closed

05000461/2013-007-00	LER	Failed to Enter Technical Specification Action for Exceeding Reactor Coolant Heat up Rate
05000461/2014-001-00	LER	Premature Failure of Air Supply Solenoid Results in Isolation of Fuel Building Ventilation System and Loss of Secondary Containment Differential Pressure
05000461/2014-002-00	LER	Lowering Condenser Vacuum Due to B Train Steam Jet Air Ejector Instability Results in Manual Reactor Scram

Discussed

None

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

- LS-AA-115, "Operating Experience Program," Revision 19
- PI-AA-127, "Passport Action Tracking Management Procedure," Revision 0
- PI-AA-125, "Corrective Action Program (CAP) Procedure," Revision 0
- PI-AA-120, "Issue Identification And Screening Process," Revision 1
- MA-AA-716-026, "Station Housekeeping/material Condition Program," Revision 12
- SY-AA-101-146, "Severe Weather Preparation And Response," Revision 1
- OP-AA-108-111-1001, "Severe Weather And Natural Disaster Guidelines," Revision 12
- CPS 1860.01, "Cold Weather Operation," Revision 8a
- CPS 4302.01, "Tornado/High Winds," Revision 21b
- AR 01486568, "Concern Identified in Issue Report 225948 May Not Have Been Fully Addressed"
- AR 02383156, "Staging Area Near RAT A Needs an Evaluation for Missile Hazard"
- AR 02388608, "NRC Concern for Loose Material Onsite"
- AR 02412731, "NRC Identified Incomplete Closure of Action 148656802"

1R04 Equipment Alignment

- CPS 3506.01, "Diesel Generator and Support Systems," Revision 37a
- CPS 3506.01V001, "Diesel Generator and Support System Valve Lineup," Revision 13a
- CPS 3506.01V002, "Diesel Generator and Support Systems Instrument Valve Lineup," Revision 11b
- CPS 3506.01E001, "Diesel Generator and Support Systems Electrical Lineup," Revision 18c
- CPS 3506.01P001, "Division 1 Diesel Generator Operations," Revision 5
- CPS 3310.01V002, "Reactor Core Isolation Cooling Instrument Valve Lineup," Revision 9e
- CPS 3310.01V001, "Reactor Core Isolation Cooling Valve Lineup," Revision 12e
- CPS 3310.01E001, "Reactor Core Isolation Cooling Electrical Lineup," Revision 16
- CPS 3319.01E001, "Standby Gas Treatment Electrical Lineup," Revision 11
- CPS 3319.01V002, "Standby Gas Treatment Instrument Valve Lineup," Revision 6
- CPS 3319.01V01, "Standby Gas Treatment Valve Lineup," Revision 8
- CPS 3319.01, "Standby Gas Treatment," Revision 17
- AR 02387200, "Emergency Reserve Auxiliary Transformer Static Variable Compensator Did Not Freeze During Division 2 Bus Transfer"
- AR 02388125, "Emergency Reserve Auxiliary Transformer Deluge Nozzles Clogged During 3822.15"
- AR 02388709, "Cracked Insulator on Emergency Reserve Auxiliary Transformer Static Variable Compensator Switch 0AP102E"

1R0 Fire Protection

- OP-AA-201-009, "Control of Transient Combustible Material," Revision 13
- CPS 1019.05, "Transient Equipment/Materials," Revision 21

- Clinton Power Station Updated Final Safety Analysis Report, Appendix E, "Fire Protection Evaluation Report–Clinton Power Station Unit 1," Revision 16
- Clinton Power Station Updated Final Safety Analysis Report, Appendix F, "Fire Protection Safe Shutdown Analysis–Clinton Power Station Unit 1," Revision 16
- CPS 1893.04M351, "Auxiliary Electrical Equipment, Inverter and Battery Rooms Pre-Fire Plan," Revision 7b
- CPS 1893.04M510, "Division 3 Diesel Generator and Day Tank Room Pre-Fire Plan," Revision 6a
- CPS 1893.04M410, "737' Fuel Building Grade Level Pre-Fire Plan," Revision 4b
- CPS 1893.04M400, "712' Fuel Building Basement Pre-Fire Plan," Revision 5

1R06 Flooding

- CY–CL–3221–02, Operating Cable Vault Pumping Stations, Revision 1
- ER–AA–300–150, Cable Condition Monitoring Program, Revision 0
- Work Order WO 1538110–01, "Perform Manhole Cable Tray Inspections"
- Work Order WO 01778369–01, "EODI–Cable Vault OSHA–1D Will Not Pump with Generator"
- AR 02399572, "OSH1C: Cable Vault Water Valve"
- AR 02401966, "NRC Resident Inspector Question Regarding Cable Vaults"
- AR 02398273, "Cable Vault Flooding"
- AR 02397296, "Cable Vault Inspections"
- AR 02398424, "EODI–Cable Vault OSHA–1D Will Not Pump With Generator"
- AR 02398630, "Water in Cable Vault"
- AR 00692997, "CDBI – Submerged Cable Long Term Asset Management Strategy"

1R07 Annual Heat Sink Performance

- ER–AA–340–1002, "Service Water Heat Exchanger Inspection Guide," Revision 6
- ER–AA–340, "GL–89–13 Program Implementing Procedure," Revision 7
- CPS 2602.01, "Heat Exchanger Performance of Shutdown Service Water Coolers Covered by NRC Generic Letter 89–13," Revision 16b
- CPS 1003.10, "Clinton Power Station Program for NRC Generic Letter 89–13 (Service Water Problems Affecting Safety-Related Equipment)," Revision 7
- ER–AA–340–1002, "Service Water Heat Exchanger Inspection Guide," Attachment 1, Heat Exchanger Report for Division 1 Diesel Generator Heat Exchangers 1DG11AA and 1DG12AA," Revision 6
- Work Order WO 01629956, "Inspect/Clean Heat Exchangers, Boroscope/Eddy Current 100%"
- AR 02386481, "Gasket Sealing Surface Degraded"

1R11 Licensed Operator Requalification Program

- TQ–AA–155, "Conduct of Simulator Training and Evaluation," Revision 2
- EP–AA–125–1002, "Emergency Response Organization Performance Indicators Guidance," Revision 9
- OP–AA–101–111–1001, "Operations Standards and Expectations," Revision 14
- OP–CL–108–101–1003, "Operations Department Standards and Expectations," Revision 34
- TQ–AA–150, "Operator Training Programs," Revision 10
- CPS 3005.01, "Unit Power Changes," Revision 42c
- CPS 9031.10, "RPS Main Steam Line Isolation Valve Channel Functional," Revision 25d
- ESG-LOR-08, "Loss of IA/ATWS," Revision 24
- ESG-LOR-57, "RR Pump Trip, RHR A Suction Line Break," Revision 6

- JPM203, "ADS Manual Initiation (Alternate Path)," Revision 2
- JPM251, "Manually Perform a Group 4 Isolation," Revision 2
- JPM253, "Place an IA Ring Header Automatic Isolation Valve into Service," Revision 2
- JPM267, "EAL Determination with NARS," Revision 1
- JPM286, "RR FCV Runback Reset (Alternate Path No. 2)," Revision 2
- JPM293, "Manually Open the HPCS Injection Valve (Alternate Path)," Revision 0

1R12 Maintenance Effectiveness

- NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Revision 2
- 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 11
- ER-AA-310-1005, "Maintenance Rule – Dispositioning Between (a)(1 and (a)(2)," Revision 6
- 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
- 10 CFR 50.65 (a)(3) Periodic Assessment of Maintenance Rule Program, Approved May 30, 2014

1R13 Maintenance Risk Assessments and Emergent Work Control

- ER-AA-600-1011, "Risk Management Program," Revision 13
- ER-AA-600-1042, "On-line Risk Management," Revision 9
- ER-AA-600, "Risk Management," Revision 7
- ER-AA-600-1012, "Risk Management Documentation," Revision 9
- ER-AA-600-1014, "Risk Management Configuration Control," Revision 6
- WC-AA-101, "On-Line Work Control Process," Revision 19
- WC-AA-104, "Integrated Risk Management," Revision 21
- AD-AA-3000, "Nuclear Risk Management Process," Revision 0
- OP-AA-108-117, "Protected Equipment Program," Revision 3
- WC-AA-104, Attachment 2, Integrated Risk Screening, Ameren Switchyard Activities
- OP-AA-109-107, "Switchyard Control," Revision 3
- WC-CL-8003-1002, "Clinton Power Station Unit 1 Nuclear Plant Interface Requirements," Revision 0
- OP-CL-109-107-1001, "Interface Between Amerenip and Clinton Power Station for Switchyard Operations, Maintenance and Engineering," Revision 25
- WC-AA-101, Attachment 9, "High Risk Evolution Determination," Revision 20

1R15 Operability Evaluations

- OP-AA-108-115, "Operability Determinations (CM-1)," Revision 13
- OP-AA-108-115-1002, "Supplemental Consideration for On-shift Immediate Operability Determinations (CM-1)," Revision 2
- OP-AA-108-104, "Technical Specification Compliance," Revision 1
- CC-AA-309-101, "Engineering Technical Evaluations," Revision 13
- CPS 3402.01, "Control Room Heating and Ventilation and Air Conditioning," Revision 27c
- AR 02401596, "0VC13CB Standby VC Chiller High Oil Temperature"

- CPS 3312.01, "Residual Heat Removal," Revision 45b
- AR 01881016, "1E12-F024B Residual Heat Removal B Test Valve to Suppression Pool Failed to Open"
- AR 01574263, "1E12-F024B Will Not Open"
- Work Order WO 01682501, "1E12-F024B Will Not Open"

1R19 Post-Maintenance Testing

- MA-AA-716-012, "Post Maintenance Testing," Revision 19
- CPS 9080.01, "Diesel Generator 1A Operability – Manual and Quick Start Operability," Revision 55a
- CPS 9080.31, "Diesel Generator individual Engine Overspeed Trip Test and Adjustment," Revision 3e
- CPS 3506.01C005, "Diesel Generator Start Log," Revision 1a
- Work Order WO 01631019, "Remove/Replace Air Start Motors 1DG16MB, C, M"
- Work Order WO 01584543, "Remove/Replace Air Start Motors 1DG16MA, D, L"
- Work Order WO 01631344, "Replace Air Start Solenoid Valves 1DG646 B/C"
- Work Order WO 01631345, "Replace Air Start Solenoid Valves 1DG646 A/D"
- Work Order WO 01631022, "Disassemble, Inspect/Clean Air Start Valves 1DG008 and 1DG008A"
- Work Order WO 01629955, "Disassemble, Inspect/Clean Air Start Valves 1DG008 and 1DG008B"
- Work Order WO 01346171, "8410.04 Molded Case Circuit Breaker Bucket"
- CPS 9080.24, "DG 1A Test Mode Override, Load Reject Operability, and Idle Speed Override"
- CPS 9061.03C006, Div 1 HG, RA, RT, RE. RF Isolation Valve Operability Checklist, Revision 37b
- CPS 3506.01D001, "Diesel Generator 1A Operating Log," Revision 5a
- CPS 9080.24D001, "DG 1A Test Mode Override, Load Reject Operability, and Idle Speed Override Data Sheet," Revision 0c
- CPS 3506.01P001, "Division 1 Diesel Generator Operations," Revision 5
- Work Order WO 01630292-01, "Inspect and Clean Fuel Prime Pump Motors/Starters"
- CPS 9080.18, "DG 1A Overcrank Delay Timer Test, Differential Overcurrent Trip Test and Trip Bypass Operability," Revision 1
- CPS 9080.18D001, "DG 1A Overcrank Delay Timer Test Data Sheet," Revision 0a
- Work Order WO 01630289, "Calibrate Time Delay Relays"
- CPS 3403.01, "Diesel Generator HVAC," Revision 8c
- Work Order WO 01631346, "1VD03YA Inspect Damper Seal Once Every 6 Years"
- AR 02408466, "1DG01KA Elevated Start Time to Rated Voltage"
- AR 02390636, "Check Division 2 Components for Extent of Condition"

1R22 Surveillance Testing

- CPS 9000.01, "Control Room Surveillance Logs," Revision 35c
- CPS 9031.10, "RPS Main Steam Line Isolation Valve Channel Functional," Revision 25d
- CPS 9080.12, " Diesel Generator Fuel Oil Transfer Pump Operability," Revision 37a
- CPS 9067.01, "Standby Gas Treatment System Train Flow/Heater Operability," Revision 31d
- CPS 9067.01F001, "SGTS Train Flow/Heater Operability Data Sheet," Revision 28b
- CPS 9066.01, "Secondary Containment Isolation Damper Operability," Revision 25c
- CPS 9030.01, "ATM Channel Functional and Calibration Check," Revision 33a
- CPS 9030.01C014, "ADS Reactor Pressure B21-N668A and B21-N669A Checklist," Revision 29b

- Work Order WO 01765317, "9066.01 Secondary Containment Isolation Damper Operability"
- Work Order WO 01767598, "9030.01C14 CF ATM (RLF Valve & Lo-Lo Set N66AE669AE C014"
- Work Order WO 01778693, "9067.01A20 Op SGTS Train Flow/Heater Operability (Train A)"

1EP4 Emergency Action Level and Emergency Plan Changes

- EP-AA-1000, Exelon Standardized Radiological Emergency Plan, Revisions 24 and 25
- EP-AA-1003, Radiological Emergency Plan Annex for Clinton Station, Revisions 23 and 24
- EP-AA-110-200, "Dose Assessment," Revisions 4, 5, 6, and 7
- EP-AA-110-200-F-01, "Dose Assessment Input Form," Revision B
- EP-AA-110-201-F-01, "On-Shift Dose Assessment Input Sheet," Revision B
- EP-AA-120-F-01, "Core Damage Assessment BWR," Revisions 9 and 10
- NRC Amendment No. 191, "Emergency Plan Change," September 21, 2010

2RS1 Radiological Hazard Assessment and Exposure Controls

- RP-AA-210, Dosimetry Issue, Usage, and Control, Revision 23
- RP-AA-301, Radiological Air Sampling Program, Revision 8
- RP-AA-300-1001, Discrete Radioactive Particle Controls, Revision 3
- RP-AA-376, Radiological Postings, Labeling, and Marking, Revision 8
- RP-AA-460, Controls for High and Locked High Radiation Areas, Revision 26
- RP-AA-460-001, Controls for Very-High Radiation Areas, Revision 5
- RP-CL-460-1002, Drywell Entries, Revision 1
- RP-AA-800, Control, Inventory and Leak Testing of Radioactive Sources, Revision 7
- RP-AA-503, Unconditional Release Survey Method, Revision 7
- RWP 10017058, Pick and Weigh FP/FD Liner, Revision 1
- RWP 10015814, Steam Affected Area Work, Revision 2
- RWP 10015812, RW HRA/LHRA, Revision 1
- WO01650317, Perform Quarterly Walkdown of Restricted Areas
- AR 01494080, Self-Assessment Radiological Hazard Assessment and Exposure Controls
- AR 01567161, Emergent Dose Received
- AR 01569105, Individual Alarmed PM12 at MAF
- AR 01571348, Drywell Dose Alarm
- AR 01572947, Improper Rad Worker Practice
- AR 01573973, BRAC Survey Point No Longer Accessible
- AR 01574516, Unplanned Dose Rate Alarm
- AR 01574663, Unplanned ED Dose Rate Alarm
- AR 01577146, Near Miss High Radiation Area Boundary
- AR 01581336, RP Issues on 702' Radwaste
- AR 01607462, LHRA Locking Mechanism Malfunctioning
- AR 01609031, Worker Contaminated While Working in CT 755'
- AR 01609473, 2 Purple Painted (non-RAM) Tools Found Outside RCA
- AR 01619095, Dose Rate Alarm Received TB Bioshield
- AR 01638210, Post C1M15 30% Steam Walkdown Done at 21% Power
- AR 01654361, Dose Rates on Offgas Piping RW 702 Higher than Expected
- AR 01680374, PADS HP Active Not Accurate
- AR 01694548, Improper Disposal of Used Gripper Gloves at the R&S Line
- Radioactive Source Inventory and Leak Test Record, June 2014
- National Source Tracking System Reconciliation, January 2014
- Radiological Surveys, Various Records

- Air Sampling Analysis Records, Various Records

2RS5 Radiation Monitoring Instrumentation

- Radiation Protection Instrumentation Response Check Records, September 22, 2014
- Instrumentation Self-Assessment, June 17, 2014
- NOS Instrumentation Audit, July–August, 2013
- Exelon Powerlabs Self-Assessment, February 2010.
- Exelon Powerlabs Self-Assessment, December 2012
- AR 01291988, NRC Document Request for PR038 Setpoint Calc
- AR 01499489, NOS ID: Gap to Excellence for RP Source Storage Conditions
- AR 01519486, Out of Tolerance (Power Labs)
- AR 01542966, Received Equipment from Powerlabs that was Missing Parts
- AR 01553170, Possible Calibration Issue with Ludlum 3030P Scalers
- AR 01560660, Gamma Calibrator Data Sheets Out of Date
- AR 01571805, C1R14 LL Not Enough Friskers to Support Outage
- AR 01576275, Victoreen Source Not Working Properly
- AR 01580357, RM20 Found Out of Calibration
- AR 01599899, WBC Biweekly Checks Not Performed
- AR 01605167, Sheppard Calibrator Belt Frayed and Sticking Turn Wheel
- AR 01607080, Calibration Range for Rem Balls is Inadequate
- AR 01689549, Gamma Calibrator had an Electrical Spark
- SAM Calibration, Serial Number 106, August 24, 2013
- Whole Body Counter Calibration, February 4, 2014
- PM–12 Calibration, Serial Number 118, October 2, 2013
- AMP–100 Calibration, Serial Number 079679, April 28, 2014
- PNR4/NRD Remball Calibration, Serial Number 4350/376719, December 18, 2013
- PNR4 Out of Tolerance Report, January 10, 2014
- Ram Gam Calibration, Serial Number 077508, May 1, 2014
- RO–20 Calibration, Serial Number 078046, July 15, 2014
- Telepole Calibration, Serial Number 0010635, June 23, 2014
- Ludlum GM Calibration, Serial Number 0015873, May 27, 2014
- Eberline GM Calibration, Serial Number 076375, November 5, 2013
- Radeco Air Sampler Calibration, Serial Number 5208, July 19, 2014
- 1RIX–CM–060 Containment Radiation Monitor Electronic Calibration, November 2013
- 1RIX–CM–060 Containment Radiation Monitor Radiation Calibration, August 2013
- Shepherd Calibrator Verification, January 11, 2014
- Offsite Dose Calculation Manual, Revision 23
- Out of Tolerance Reports, Various Records
- RP–AA–700, Controls for Radiation Protection Instrumentation, Revision 3
- RP–AA–700–1215, Calibration of Low Vol. Air Samplers, Revision 0
- RP–AA–700–1216, Calibration of High Vol. Air Samplers, Revision 2
- RP–AA–700–1501, Operation and Calibration of the Model SAM 9/11 Small Article Monitor, Revision 1
- RP–AA–700–1239, Operation and Calibration of the Model SAM 12 Small Article Monitor, Revision 1
- CY–AA–130–201, Radiochemistry Quality Control, Revision 2
- CY–CL–6005–01, Post Accident Contingency Procedure, Revision 1
- Post-Accident Sampling Qualification Matrix, October 7, 2014
- CY–CL–6103, Gamma Spectroscopy, Revision 0

40A1 Performance Indicator Verification

- Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7
- ER-AA-2008, "Mitigating Systems Performance Index (MSPI) Monitoring and Margin Evaluations", Revision 3
- LA-AA-2200, "Mitigating System Performance Index Data Acquisition & Reporting," Revision 5
- CL-MSPI-01, "Clinton MSPI Basis Document," Revision 10
- MSPI Derivation Report, Unreliability Index, MSPI Emergency AC Power System, June 2014
- MSPI Derivation Report, Unreliability Index, MSPI Cooling Water System, June 2014
- MSPI Derivation Report, Unavailability Index, MSPI Emergency AC Power, June 2014
- MSPI Derivation Report, Unavailability Index, MSPI Cooling Water System, June 2014
- AR 1571294, "1SX014A: Unable to Perform As Found Diagnostic Testing"

40A2 Identification and Resolution of Problems

- ER-AA-2002, System Health Monitoring, Revision 17
- OP-AA-102-103-1001, Operator Burden and Plant Significant Decisions Impact Assessment Program, Revision 4
- OP-AA-102-103, Operator Work-Around Program, Revision 3
- WC-AA-101, On-Line Work Control Process, Revision 23
- WC-AA-106, Work Screening and Processing, Revision 13
- MM-AA-716-010-1103, Fluid Sealing Technology Program, Revision 3
- ER-AA-2030, Conduct of Plant Engineering Manual, Revision 15
- CPS 9068.01, Hydrogen Mixing System Operability Test, Revision 35d
- CPS 1014.11, 6900/4160/480V Switchgear/Circuit Breaker Operability Program, Revision 4a
- Letter U-601000, Hydrogen Mixing Compressor Room Modification
- Letter U-600850, Hydrogen Mixing Compressor Room Design
- IP-Q-0391, Seismic Qualification of 480V ABB Unit Sub Switchgears, Div I & II Westinghouse Switchgears and Div III GE 4.16KV Switchgears, Revision 0
- EC 333971, Install Blind Coupling Outside the Containment at SX Penetrations 1MC-204 and 1MC-205 On Lines 1SX93DB-3" and 1SX88BB-3", Revision 0
- EC 331444, Installation of Blind Coupling at SX Lines 1SX88BA-3" & 1SX93DA-3", Revision 0
- CL-2014-S-037, USAR Change 2014-008, Revision 00
- Drawing M05-1052, P&ID Shutdown Service Water (SX)
- AR 02345063, NRC Questions on Functional Basis in Specific Issue Reports
- AR 02386676, NRC SR Questions Bases for 48 Hour Seismic Clock
- AR 02409284, Aggregate Impact of Recorder Printers
- AR 02408104, MCR Rec'd Alarm 5013-4D, Hi Hi Level Flr/Equip Drm Sump TB
- AR 01631144, 1VR08C Did Not Run During DW Vent/Has No Power
- AR 01684967, 1VR08C Did Not Run During DW Vent/Has No Power
- AR 01578969, 1VR08C Did Not Run During 9068.01
- AR 01697403, Unexpected Alarm 5050-1C Not Available VY System Div 1
- AR 01685711, NRC Inspector Has Question on 1VR08C Room Cooling Fan
- AR 01692665, Error in USAR Change for CGCS Room Cooling
- AR 01289480, 1SX027C Has 12 dpm Packing Leak
- AR 01587400, 1SX027C; Leakage Rise to 15 dpm

- AR 01587486, Packing Leakage and Safety Concern
- AR 01587719, Document NRC Question Regarding CBM System
- AR 01592308, Degrading Condition on 1SX027C
- AR 01689394, Work Order Inappropriately Coded as CBM

4OA3 Follow-Up of Events and Notices of Enforcement Discretion

- EC 397217, Impact of VF Damper Failure on Secondary Containment Ability to Perform its Safety Function, Revision 0
- IR 1611216, Fuel building Ventilation Tripped, January 22, 2014
- Calculation C-020, Reanalysis of Loss of Coolant Accident Using Alternate Source Terms, Revision 3
- CPS 9059.01, "Reactor Coolant System Leakage Test," Revision 9b
- CPS 3001.01, "Preparation for Startup and Approach to Critical," Revision 26a
- CPS 3001.01C001, "Preparation for Startup Checklist," Revision 18b
- CPS 3002.01, "Heat up and Pressurization," Revision 30a
- CPS 3002.01C001, "Heat up and Pressurization Checklist," Revision 10
- AR 01580123, Incorrect Technical Specification Call Results in Missed Technical Specification Actions
- AR 01590671, Unexpected High Heat Up Rate During Plant Start Up

LIST OF ACRONYMS USED

AC	Alternating Current
AR	Action Request
ADAMS	Agencywide Document Access Management System
CAP	Corrective Action Program
CFR	Code of Federal Regulations
ERAT	Emergency Reserve Auxiliary Transformer
°F/hr	Degree Fahrenheit per Hour
KV	Kilovolt
IMC	Inspection Manual Chapter
IP	Inspection Procedure
JPM	Job Performance Measure
LER	Licensee Event Report
LOOP	Loss of Off-site Power
LORT	Licensed Operator Requalification Training
MSPI	Mitigating Systems Performance Index
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
ODCM	Occupational Dose Calculation Manual
PARS	Publicly Available Records System
PI	Performance Indicator
PM	Preventive Maintenance
RASP	Risk Assessment for Operational Events
RCS	Reactor Coolant System
RHR	Residual Heat Removal
RWP	Radiation Work Permit
SAT	Systems Approach to Training
SDP	Significance Determination Process
SJAE	Steam Jet Air Ejector
SPAR	Standardized Plant Analysis Risk
SRA	Senior Reactor Analyst
SX	Service Water
TS	Technical Specification
USAR	Updated Safety Analysis Report
URI	Unresolved Item

B. Hanson

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Sincerely,

/RA/

Charles Phillips, Acting Chief
Branch 1
Division of Reactor Projects

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