



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION III  
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LISLE, IL 60532-4352

May 9, 2016

Mr. Bryan C. Hanson  
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President and CNO, Exelon Nuclear  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: CLINTON POWER STATION—NRC INTEGRATED INSPECTION REPORT  
05000461/2016001

Dear Mr. Hanson:

On March 31, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Clinton Power Station. The enclosed report documents the results of this inspection, which were discussed on April 13, 2016, with Mr. T. Stoner, and other members of your staff.

Based on the results of this inspection, the NRC evaluated one self-revealed issue and three NRC-identified issues under the risk significance determination process as having very low safety significance (Green). The inspectors also evaluated two NRC-identified issues under the traditional enforcement process as having very low safety significance (Severity Level IV). All six issues involved a violation of NRC requirements. These violations are being treated as Non-Cited Violations (NCVs), consistent with Section 2.3.2 of the Enforcement Policy. These NCVs are described in the subject inspection report. Additionally, a licensee-identified violation is listed in Section 4OA7 of this report.

If you contest the violations or significance of these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to: (1) the Regional Administrator, Region III; (2) the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and (3) the NRC Resident Inspector at the Clinton Power Station.

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

B. Hanson

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

Sincerely,

**/RA/**

Karla Stoedter, Chief  
Branch 1  
Division of Reactor Projects

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

Enclosure:  
IR 05000461/2016001

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-461

License No: NPF-62

Report No: 05000461/2016001

Licensee: Exelon Generation Company, LLC

Facility: Clinton Power Station

Location: Clinton, IL

Dates: January 1 through March 31, 2016

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

Enclosure

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## SUMMARY

Inspection Report 05000461/2016001, 01/01/16–03/31/16, Clinton Power Station, Unit 1; Equipment Alignment, Operability Determinations and Functionality Assessments, Identification and Resolution of Problems, Follow-up of Events and Notices of Enforcement Discretion, and Other Activities.

This report covers a 3-month period of inspection by resident inspectors, an inspection of an independent spent fuel storage installation pad design and construction at the Clinton Power Station by regional inspectors and a follow up inspection for three or more Severity Level IV Traditional Enforcement Violations in the same area in a 12-month period. Four Green Non-Cited Violations (NCV) and two Severity Level IV Violations of the U.S. Nuclear Regulatory Commission (NRC) requirements were identified. The significance of inspection findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," dated April 29, 2015. Cross-cutting aspects are determined using IMC 0310, "Aspects within the Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated February 4, 2015. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," dated February 2014.

### Cornerstone: Mitigating Systems

Green. The inspectors identified a finding of very low safety significance and an associated non-cited violation of Title 10 of the *Code of Federal Regulations* (CFR) Part 50, Appendix B, Criterion V, "Instructions Procedures and Drawings," for the failure to follow Station Procedure OP-AA-108-115, "Operability Determinations," Revision 16. Specifically, after valve 1SX027C, a valve required for residual heat removal operability, failed a surveillance test, the licensee did not base the operability determination on a detailed examination of the deficiency and did not document a basis for why a reasonable expectation of operability existed. The licensee entered this issue into their corrective action program (CAP) as Action Request (AR) 02553168 and AR 02558101. The licensee revised the in-service testing program evaluation for valve 1SX027C and documented additional details to support declaring the valve operable.

The inspectors determined the failure to follow Station Procedure OP-AA-108-115 was more than minor 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. Specifically, the failure to correctly perform an operability evaluation for valve 1SX027C had the potential to allow an inoperable condition to go undetected. 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 because the finding: was not a deficiency affecting the design or qualification of a mitigating system; did not represent a loss of system and/or function; did not represent an actual loss of function of a single train for greater than its Technical Specification (TS) allowed outage time; and did not represent an actual loss of function of one or more non-TS trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. The inspectors

determined this finding affected the cross-cutting area of human performance, in the aspect of resources, where leaders ensure that personnel, equipment, procedures, and other resources are available and adequate to support nuclear safety. Specifically, Station Procedure CPS 9053.04, provided guidance that the valve could remain operable for 96 hours without providing an appropriate basis. (H.1) (Section 1R15.1.b(1))

Green. The inspectors identified a finding of very low safety significance and an associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion II, "Quality Assurance Program," for the failure to follow a Quality Assurance Program implementing procedure. Specifically, the licensee failed to perform an adequate extent of condition review as required by PI-AA-125, "Corrective Action Program," while evaluating a lack of proficiency in applying the licensing basis for structures, systems and components (SSCs) when implementing the 50.59 process. The licensee documented this issue in their CAP as AR 02641397. Immediate corrective actions included a review of the extent of condition performed by the engineering department and a recommended action of expanding the scope of the review to include additional 50.59 evaluations.

The inspectors determined the failure to follow a Quality Assurance Program implementing procedure was more than minor because if left uncorrected it had the potential to lead to a more significant safety concern. Specifically, if the extent of condition review is too narrowly assessed there is the potential for other safety significant systems to have been impacted by a lack of proficiency in applying the licensing basis. As a result, the SSCs may not perform their intended safety function as defined in the Updated Safety Analysis Report. 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 all cornerstones and determined to be of very low safety significance because there was no reasonable indication that the criteria in Appendix A were met. The inspectors determined this finding affected the cross-cutting area of human performance, in the aspect of procedure adherence, where individuals follow processes, procedures and work instructions. Specifically, the licensee did not effectively adhere to all available portions of CAP procedures, which led to a narrowly focused extent of condition. (H.8) (Section 4OA5)

#### **Cornerstone: Barrier Integrity**

Green. The inspectors identified a finding of very low safety significance and an associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure to identify a condition adverse to quality. Specifically, the licensee failed to identify that a safety-related support associated with control room ventilation 'B' was degraded to the point it no longer conformed to the seismic analysis and required an evaluation to determine whether it was still capable of performing its safety function during a seismic event. This issue was entered into the licensee's CAP as AR 2639317. The licensee's immediate corrective actions included performing an evaluation that concluded the remaining three supports would be able to withstand the stresses imposed during a seismic event and creating an action to update the seismic calculation to incorporate the evaluation performed for the degraded support. The licensee also planned to re-apply a coating to the supports as well as research and install insulation that was more breathable to minimize moisture accumulation and preclude any further degradation.

The inspectors determined that the failure to identify a condition adverse to quality in accordance with 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was more than minor because if left uncorrected it had the potential to lead to a more significant safety concern. Specifically, by failing to identify the support was degraded, and correct the condition, the loss of material due to corrosion could potentially progress to the point where the remaining supports would no longer be able to perform their safety function. 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 because the finding did not represent a degradation of the barrier function of the control room against radiological conditions or a smoke or toxic atmosphere. The inspectors determined this finding affected the cross-cutting area of problem identification and resolution, in the aspect of evaluation, which states, "The organization thoroughly evaluates issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance." Specifically, the licensee failed to thoroughly evaluate the issue identified by the inspectors and therefore did not recognize the degradation on the supports constituted a condition adverse to quality. (P.2) (Section 1R04)

Green. A self-revealed finding of very low safety significance and an associated non-cited violation of 10 CFR 50.65 (a)(4) was identified on January 20, 2016, due to the licensee's failure to assess and manage the risk increase from a proposed maintenance activity. Specifically, the licensee failed to manage the risk associated with racking out the continuous containment purge (CCP) 'A' breaker, which resulted in the loss of both CCP trains, and led to an increase in primary to secondary containment differential pressure which exceeded the Technical Specification (TS) value. The licensee entered this issue into their CAP as AR 02614832. The proposed corrective actions to address this issue included creating a checklist to ensure validation of initial conditions is performed and providing training that reinforces the need to properly screen work order tasks with the appropriate risk factors.

The inspectors determined that the failure to assess and manage the risk increase of a proposed maintenance activity, as required by 10 CFR 50.65 (a)(4), was more than minor because it was associated with the maintenance procedure quality attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, by not properly assessing the risk of racking out the CCP 'A' breaker the licensee did not recognize the CCP 'B' train would be impacted, which resulted in exceeding the TS value for primary to secondary containment differential pressure. 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 because the finding did not represent an actual open pathway in the physical reactor containment, containment isolation system or heat removal components and it did not involve an actual reduction in function of hydrogen igniters in the reactor containment. The inspectors identified a cross-cutting aspect in the area of human performance, in the aspect of challenging the unknown, which states, "individuals stop when faced with uncertain conditions; risks are evaluated and managed before proceeding." Specifically, when the licensee was preparing the work package for maintenance on the CCP system

it was uncertain what activities had already been completed as part of a concurrent evolution. Instead of stopping and validating the configuration of plant equipment, assumptions were made, and the risk of the activity was not properly assessed or managed. (H.11) (Section 4OA3)

#### **Cornerstone: Miscellaneous**

Severity Level IV. The inspectors identified a Severity Level IV non-cited violation of 10 CFR 50.72(b)(3)(v) for failing to report an event or condition, that at the time of discovery could have prevented the fulfillment of a safety function, to the NRC within eight hours. Specifically, control room operators placed both divisions of reactor water cleanup differential flow instruments in bypass, which rendered the instruments inoperable and resulted in a loss of the isolation function. The licensee entered this issue into the CAP as AR 02645140 and created an action to submit a licensee event report under 10 CFR 50.73(a)(2)(v).

The inspectors determined that the failure to report an event or condition, that at the time of discovery could have prevented the fulfillment of a safety function, to the NRC within 8 hours as required by 10 CFR 50.72(b)(3)(v) was a performance deficiency. The inspectors reviewed this issue in accordance with IMC 0612 and the Enforcement Manual. Violations of 10 CFR 50.72 are dispositioned using the traditional enforcement process because they are considered to be violations that potentially impede or impact the regulatory process. The inspectors reviewed Section 6.9.d.9 of the NRC Enforcement Policy and determined this violation was Severity Level IV because the licensee's failure to make the report, as required by 10 CFR 50.72, did not cause the NRC to reconsider a regulatory position or undertake substantial further inquiry. No cross-cutting aspect was assigned because cross-cutting aspects are not assigned to traditional enforcement only violations. (Section 1R15.1.b(2))

Severity Level IV. The inspectors identified a Severity Level IV non-cited violation of 10 CFR 50.73(a)(2)(i)(B) for failing to report to the NRC, within 60 days of discovery, a condition prohibited by the plant's TS. Specifically, the licensee failed to notify the NRC of two instances where they failed to comply with TS 3.3.6.1 and TS 3.3.6.2 and enter the limiting condition for operation action statements when required. The licensee entered this issue into their CAP as AR 02619114 and subsequently issued a licensee event report on March 16, 2016.

The inspectors determined that the failure to report a condition prohibited by the plant's TS as required by 10 CFR 50.73(a)(2)(i)(B), within 60 days of discovery, was a performance deficiency. The inspectors reviewed this issue in accordance with IMC 0612 and the Enforcement Manual. Violations of 10 CFR 50.73 are dispositioned using the traditional enforcement process because they are considered to be violations that potentially impede or impact the regulatory process. The inspectors reviewed Section 6.9.d.9 of the NRC Enforcement Policy and determined this violation was Severity Level IV because the licensee's failure to make the report, as required by 10 CFR 50.73, did not cause the NRC to reconsider a regulatory position or undertake substantial further inquiry. No cross-cutting aspect was assigned because cross-cutting aspects are not assigned to traditional enforcement only violations. (Section 4OA2)



**Licensee-identified Violations**

Violations of very low safety or security significance or Severity Level IV that were identified by the licensee have been reviewed by the NRC. Corrective actions taken or planned by the licensee have been entered into the licensee's CAP. These violations and CAP tracking numbers are listed in Section 4OA7 of this report.

## **REPORT DETAILS**

### **Summary of Plant Status**

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

- On January 9, 2016, power was reduced to approximately 77 percent to perform a control rod sequence exchange and feedwater heater repairs. The unit was returned to full power that same day.
- On February 7, 2016, power was reduced to approximately 77 percent to perform a control rod pattern adjustment. The unit was returned to full power that same day.
- On March 9, 2016, power was reduced to approximately 95 percent to perform a control rod pattern adjustment. The unit was returned to full power that same day.
- On March 13, 2016, power was reduced to approximately 70 percent to perform a control rod sequence exchange, control rod testing, main steam line valve testing, turbine stop valve/combined intermediate valve testing, and turbine control valve testing. The unit was returned to full power that same day.
- On March 31, 2016, power was reduced to approximately 77 percent power to perform a control rod pattern adjustment and planned repairs to the turbine generator hydrogen cooling system. The unit was returned to full power on April 1, 2016.

### **1. REACTOR SAFETY**

#### **Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity**

#### **1R01 Adverse Weather Protection (71111.01)**

##### **.1 Readiness for Impending Adverse Weather Condition—Tornado/High Winds**

##### **a. Inspection Scope**

Since thunderstorms with potential tornados and high winds were forecast in the vicinity of the facility for February 2, 2016, the inspectors reviewed the licensee's overall preparations/protections for the expected conditions. The inspectors toured the plant grounds in the vicinity of the main power transformers, unit auxiliary transformer, reserve auxiliary transformers, emergency reserve auxiliary transformer, and static volt amp reactive compensators to look for loose debris, which if present could become missiles during a tornado or with high winds. During the inspections, the inspectors focused on plant-specific design features and the licensee's procedure used to respond to tornado and high winds conditions.

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

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04Q)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

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

- Standby gas treatment (VG) system 'A' while maintenance was being performed on VG system 'B';
- Control room ventilation (VC) system 'B' while maintenance was being performed on VC system 'A';
- Residual heat removal (RHR) system 'B' following maintenance on the system; and
- Division 3 diesel generator (DG) following maintenance on the system.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones. The inspectors reviewed operating procedures, system diagrams, Technical Specification (TS) requirements, and the impact of ongoing work activities on redundant trains of equipment. The inspectors verified that conditions did not exist that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components were aligned correctly and available as necessary.

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

These activities constituted four partial system walkdown samples as defined in IP 71111.04–05.

b. Findings

(1) Failure to Identify a Degraded Safety-Related Support

Introduction: The Inspectors identified a finding of very low safety significance and an associated non-cited violation (NCV) of Title 10 of the *Code of Federal Regulations* (CFR) Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure to identify a condition adverse to quality. Specifically, the licensee failed to identify that a safety-related support associated with VC 'B' was degraded to the point it no longer conformed to the seismic analysis and required an evaluation to determine whether it was still capable of performing its safety function during a seismic event.

Description: On February 24, 2016, during a walkdown of the VC 'B' system, the inspectors identified corrosion on various supports associated with the VC 'B' chiller. Specifically, the inspectors identified corrosion on the I-beam that supports the VC 'B' chiller, the support for the VC 'B' motor/compressor assembly and the pump down unit

supports. Of these three areas, the most significant corrosion was associated with the pump down unit supports. The inspectors informed the licensee of their observations and pointed out the specific areas in question. The licensee entered this issue into their CAP and performed a walkdown of the area to determine whether the corrosion was an issue of concern. The licensee concluded there were only indications of surface corrosion and leftover debris from a maintenance activity. The shift manager declared the VC 'B' system operable based on this information. Specifically, the licensee concluded that a degraded or non-conforming condition did not exist and the only item identified was some residue from past maintenance. The engineering comments included in the AR stated that they did not identify any credible rust that could cause any adverse effect to the chiller foundation or other steel members from the identified issue. The licensee created only one action in the CAP, which was to clean up the debris. Otherwise, the licensee considered this issue closed.

On February 25, 2016, the inspectors reviewed the information documented in the AR and, after further discussion with the licensee, did not have any additional concerns associated with the I-beam or the motor/compressor unit. They did have additional concerns associated with the pump down unit supports. The inspectors questioned whether the condition identified was leftover debris from maintenance and, more importantly, whether there was material loss due to corrosion. Since the pump down unit was mounted to the safety-related chillers, the four supports were safety-related and were required to meet Seismic Category I requirements. The inspectors performed an additional walkdown of the equipment with the shift manager to point out the specific areas of concern and to explain why they did not agree it represented leftover debris from a maintenance activity. Upon further inspection the shift manager, as well as the engineers that performed the initial assessment, agreed there was material loss associated with at least one of the four supports for the pump down unit. A work request was created to clean the support in order to determine the extent of the degradation. The initial thickness of the support was 1/4 inch. After the support was cleaned, it was identified that it had degraded down to 1/16 inch. The licensee performed an evaluation and determined the three remaining supports would be able to carry the seismic load and remain within the bounds of the original stress analysis. However, the condition was still nonconforming to the existing seismic analysis. In addition, this conclusion assumed the three remaining supports were in good condition.

The inspectors subsequently performed a walkdown of the three remaining supports to verify the assumptions made by the licensee. The inspectors identified the insulation covering the bottom portion of the supports had not been removed and therefore the other supports had not been fully inspected. One of the supports showed signs of corrosion, and without removing the insulation, the licensee could not confirm that there was no significant material loss. The inspectors informed the licensee of this concern and questioned how the assumptions used in the calculation and the operability determination could be made without verifying the integrity of the remaining supports. The licensee subsequently removed the insulation and performed an inspection, concluding two of the three remaining supports were in good condition, while the third support showed signs of corrosion amounting to approximately 1/16 inch material loss. The licensee incorporated this information into the engineering change document generated for this issue and concluded the condition was still within the bounds of the original stress analysis. The licensee planned to incorporate this information into the seismic analysis performed for this structure.

Analysis: The inspectors determined that the failure to identify a condition adverse to quality in accordance with 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was a performance deficiency. Specifically, the licensee failed to identify that a safety-related support associated with VC 'B' was degraded to the point it no longer conformed to the seismic analysis and required an evaluation to determine whether it was still capable of performing its safety function during a seismic event. The performance deficiency was more than minor in accordance with Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, because if left uncorrected it had the potential to lead to a more significant safety concern. Specifically, by failing to identify the support was degraded, and correct the condition, the loss of material due to corrosion could potentially progress to the point where the remaining supports would no longer be able to perform their safety function. 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 did not represent a degradation of the barrier function of the control room against radiological conditions or a smoke or toxic atmosphere.

The inspectors determined this finding affected the cross-cutting area of problem identification and resolution, in the aspect of evaluation, which states, the organization thoroughly evaluates issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. Specifically, the licensee failed to thoroughly evaluate the issue identified by the inspectors and therefore did not recognize the degradation on the supports constituted a condition adverse to quality. (P.2)

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

Contrary to the above, as of February 25, 2016, the licensee had failed to identify a condition adverse to quality. Specifically, although the licensee entered an issue identified by the resident inspectors into the CAP, they failed to identify in the CAP document the condition adverse to quality associated with the degraded safety-related VC 'B' support that was nonconforming to the existing seismic analysis. This condition adverse to quality required an evaluation to determine whether the VC 'B' support was still capable of performing its safety function during a seismic event.

The licensee performed an evaluation that concluded the remaining three supports would have been able to withstand the stresses imposed during a seismic event and created an action to update the seismic calculation to incorporate the evaluation performed for the degraded support. The licensee also created an action to re-apply a coating to the support to minimize further degradation, as well as research insulation types and install an insulation that was more breathable to minimize water accumulation and additional degradation. Because this violation is of very low safety significance and was entered into the licensee's CAP as AR 02639317, this violation is being treated as an NCV consistent with Section 2.3.2 of the U. S. Nuclear Regulatory Commission (NRC) Enforcement Policy (**NCV 05000461/2016001-01: Failure to Identify a Degraded Safety-Related Support**).

## .2 Semi-Annual Complete System Walkdown

### a. Inspection Scope

On March 10, 2016, the inspectors performed a complete system alignment inspection of the standby liquid control 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 (WOs) 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.

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 F–1a, Fuel building general access area–elevation 712'–0";
- Fire Zone A–3b, RHR 'C' pump room–elevation 707'–6";
- Fire Zone A–4, Division 1 battery room–elevation 781'–6";
- Fire Zone CB–5 and CB–5b, Division 3 switchgear room and Division 3 battery room–elevation 781'–0"; and
- Fire Zone D–4, D–4a and D–4b, Division 3 DG room and Division 3 DG day tank room–elevation 737'–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 the following:

- fire hoses and extinguishers were in their designated locations and available for immediate use;
- fire detectors and sprinklers were unobstructed;
- transient material loading was within the analyzed limits;
- fire doors, dampers, and penetration seals appeared to be in satisfactory condition; and
- minor issues identified during the inspection were entered into the licensee's CAP.

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

b. Findings

No findings were identified.

1R07 Annual Heat Sink Performance (71111.07)

.1 Heat Sink Performance

a. Inspection Scope

The inspectors reviewed the licensee's inspection of the RHR 'B' heat exchanger 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 inspection results as compared against acceptance criteria, the correlation of scheduled testing and the frequency of testing, and the impact of instrument inaccuracies on inspection results. Inspectors also verified that inspection acceptance criteria considered differences between inspection conditions, design conditions, and testing conditions.

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

a. Inspection Scope

On February 3, 2016, 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.

b. Findings

No findings were identified.

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

a. Inspection Scope

On March 13, 2016, the inspectors observed control room operators perform a down power to support control rod sequencing and main steam line valve testing. This was an activity that required heightened awareness or was related to increased risk. The inspectors evaluated the following areas:

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

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:

- fuel pool cooling and cleanup system (FC); and
- self-test system.

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

- implementing appropriate work practices;
- identifying and addressing common cause failures;
- scoping of systems in accordance with 10 CFR 50.65(b) of the maintenance rule;
- characterizing system reliability issues for performance;
- charging unavailability for performance;
- trending key parameters for condition monitoring;
- ensuring 10 CFR 50.65(a)(1) or (a)(2) classification or re-classification; and
- verifying appropriate performance criteria for structures, systems, and components (SSCs)/functions classified as (a)(2), or appropriate and adequate goals and corrective actions for systems classified as (a)(1).

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

This inspection constituted 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 during FC 'A' system outage window system outage window (SOW);
- planned yellow during reactor core isolation cooling (RCIC) planned maintenance;
- planned yellow during FC 'B' SOW;
- planned yellow during VG 'B' maintenance;
- planned yellow during VG 'A' maintenance; and
- unplanned orange due to Division 3 shutdown service water (SX) pump and Division 3 DG SOW concurrent with an adverse weather condition.

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

These maintenance risk assessments and emergent work control activities constituted six 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:

- AR 02617974: RCIC 9054.01C002 Step 8.4.30 E51DC001 Did Not Go High;
- AR 02553168: 1SX027C Stroked Outside Acceptance Criteria Within Limit Value;
- AR 02592557: Revised Sulzer Division 3 SX Pump Failure Analysis;
- AR 02639317: NRC Question On VC 'B' Operability Determination;
- AR 02626144: 1SX01PC Oil Level Found 1/16" Below Oil Level Line; and
- Placement of reactor water cleanup (RT) flow instruments in bypass.

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 (USAR) 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.

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

b. Findings

(1) Operability Determination Failed to Examine Test Failures

Introduction: The inspectors identified a finding of very low safety significance and an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions Procedures and Drawings," for the failure to follow Station Procedure OP-AA-108-115, "Operability Determinations," Revision 16. Specifically, after valve 1SX027C failed a surveillance test, the licensee did not base the subsequent operability determination on a detailed examination of the deficiency nor did they document a basis for why a reasonable expectation of operability existed.

Description: On September 10, 2015, the licensee performed a surveillance test per Station Procedure CPS 9053.04C003, "RHR Loop C Valve Operability," Revision 2a, Section 8.2, concurrently with Station Procedure CPS 9053.04, "RHR A/B/C Valve Operability Checks," Revision 45c. The purpose of the surveillance test was to verify valve 1SX027C was capable of performing its safety function by opening to provide a flow path for SX through the RHR room cooler coil cabinet. Flow through the RHR pump room cooler coil is required during RHR pump operation in order to remove heat from the pump room during safe shutdown and accident conditions.

The licensee verified valve 1SX027C was in the closed position prior to starting the surveillance test. The operators provided an open signal to the valve and measured the time it took the valve to stroke to the full open position. The measured stroke time was 4.2 seconds, which was above the upper acceptance criteria of 4.1 seconds, listed in procedure CPS 9053.04D003, "RHR Loop C Valve Operability Data Sheet," Revision 1. The operators determined it was procedurally acceptable to perform a subsequent retest and the valve stroked at 4.3 seconds, which again was above of the upper acceptance criteria. This issue was documented in AR 02553168.

Station Procedure CPS 9053.04, Section 9.1, "Operability Requirements," states in part, "failure to meet the Acceptance Criteria shall constitute a failure to comply with the applicable TS limiting condition for operation (LCO)." Procedure 9053.04, Section 9.1.1, "Power Operated Valves," further states in part, "If the second set of data does not meet the acceptance range, but is less than the limiting value, then the test shall be analyzed by the Nuclear Station Engineering Department within 96 hours of the test to verify the new stroke test represents acceptable valve operation or the valve shall be declared inoperable. The valve may remain operable during the 96 hour analysis period." The operations staff used this statement as the basis for the operability of the valve, as documented in AR 02553168. Additionally on September 10, 2015, the Operations staff

documented the following in the operations log: "Exited applicable LCO actions. Residual heat removal 'C' is now operable and available tracking 96 hour analysis per separate log entry."

Station Procedure OP-AA-108-115, "Operability Determinations," Revision 16, Step 4.1.5 stated, in part, "Immediately determine operability from a detailed examination of the deficiency and in most cases the decision can be made immediately and appropriately documented on the issue report." Step 4.1.7 stated, in part, "Document the operability determination results on the issue report and the basis provided in the issue report." Upon review of AR 02553168 and the operations log entry stating that RHR 'C' was operable, the inspectors determined that the licensee did not base the operability determination on a detailed examination of the deficiency nor did they document a basis why a reasonable expectation of operability existed. This issue was documented in AR 02554047.

On September 11, 2015, the licensee completed an in-service testing (IST) program evaluation of valve 1SX027C. This documented the valve test results that deviated from the acceptable range of performance parameters and evaluated acceptance criteria. The evaluation was additionally used to support the operability determination of the valve. Under this evaluation the licensee reviewed previous maintenance activities and quarterly test results. The licensee did not identify any anomalies and concluded that due to the wider change in response time engineering recommends that additional data be collected prior to any re-baseline of the valve. The licensee determined the valve was representative of a valve that was degraded but functional and was operating acceptably after reviewing applicable licensing documents including the USAR, design calculations, and TS. As a result of the evaluation, the licensee implemented a corrective action to increase the test frequency from 3 months to 45 days.

The inspectors reviewed valve trend data from previous tests and noted the licensee's corrective actions failed to ensure the proposed increase in testing frequency would assure the valve was retested prior to the valve potentially exceeding the limiting stroke time value for operability. Based on the inspector's concerns, the licensee further decreased the time between testing to 30 days. Additionally, the inspectors determined the licensee failed to determine the cause of the deviation in stroke time, as required by CPS Procedure 9053.04, in order to ensure adequate corrective actions could be implemented. Specifically, Step 9.1.1.5, stated in part, that "deviations in stroke time which can be attributed to factors external to the valve would not INOP the valve," however, "if the reason for the deviation cannot be determined, then declare the valve inoperable and initiate corrective actions." The inspectors noted that the licensee's IST program evaluation for 1SX027C failed to attribute the deviation in valve stroke time to any specific internal or external cause and therefore failed to provide justification for why the corrective action would address the potentially degrading condition.

The inspectors further noted that Step 9.1.1.6, of Procedure 9053.04, stated, "analyses provided by engineering which determine acceptable valve operation shall be documented and a copy attached to the test report." The licensee concluded that the valve was operating acceptably but stated that additional data was necessary before re-baselining the valve's performance. The inspectors determined that the need for additional data did not support the conclusion that the valve was operating acceptably. This issue was documented in their CAP as AR 02558101.

The licensee revised the IST program evaluation to address the inspectors' concerns. The revision included additional details to support the operability of the valve. The inspectors reviewed the revised evaluation and did not identify any additional concerns.

Analysis: The inspectors determined the failure to follow Station Procedure OP-AA-108-115 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. Specifically, the failure to correctly perform an operability evaluation for valve 1SX027C, which was required in order for the RHR 'C' pump room cooler to perform its safety function, had the potential to allow an inoperable condition to go undetected. 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: (1) was not a deficiency affecting the design or qualification of a mitigating system; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of a single train for greater than its TS allowed outage time; and (4) did not represent an actual loss of function of one or more non-TS trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours.

The inspectors determined this finding affected the cross-cutting area of human performance, in the aspect of resources where leaders ensure that personnel, equipment, procedures, and other resources are available and adequate to support nuclear safety. Specifically, Station Procedure Clinton Power Station (CPS) 9053.04, provided guidance that the valve could remain operable for 96 hours without including an adequate basis for operability. (H.1)

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

The licensee established Station Procedure OP-AA-108-115, "Operability Determinations," Revision 16, as the implementing procedure for assessing operability of SSCs, an activity affecting quality.

Step 4.1.5 stated, in part, "Immediately determine operability from a detailed examination of the deficiency and in most cases the decision can be made immediately and appropriately documented on the issue report."

Step 4.1.7 stated, in part, "Document the operability determination results on the issue report and the basis provided in the issue report." Additionally, the inspectors concluded the licensee failed to determine the cause of the deviation in stroke time, as required by CPS Procedure 9053.04, in order to ensure adequate corrective actions could be implemented. Specifically, Step 9.1.1.5, stated in part, that "deviations in stroke time which can be attributed to factors external to the valve would not INOP the valve,"

however, “if the reason for the deviation cannot be determined, then declare the valve inoperable and initiate corrective actions.” The inspectors noted that the licensee’s in-service testing program evaluation for 1SX027C failed to attribute the deviation in valve stroke time to any specific internal or external cause and therefore failed to provide justification for why the corrective action would address the potentially degrading condition.

Contrary to the above, on September 10, 2015, the licensee failed to immediately determine operability from a detailed examination of valve 1SX027C when the time it took for the valve to stroke open was above the acceptance range criteria two consecutive times during a surveillance test. Additionally, the licensee failed to provide the basis for operability for valve 1SX027C as part of the operability determination results.

Because this violation is of very low safety significance and was entered into the CAP as ARs 02553168 and 0558101, this violation is being treated as an NCV consistent with Section 2.3.2 of the NRC Enforcement Policy (**NCV 05000461/2016001–02: Operability Determination Failed to Examine Test Failures**). Corrective actions for this issue included revising the in-service testing program evaluation for valve 1SX027C and documenting additional details to support declaring the valve operable.

(2) Failure to Report a Condition that Could Have Prevented Fulfillment of a Safety Function

Introduction: The Inspectors identified a Severity Level IV NCV of 10 CFR 50.72(b)(3)(v) for failing to report an event or condition, that at the time of discovery could have prevented the fulfillment of a safety function, to the NRC within eight hours. Specifically, control room operators placed both divisions of RT differential flow instruments in bypass, which rendered the instruments inoperable and resulted in a loss of the isolation function.

Description: On January 25, 2016, control room personnel placed the RT ‘A’ filter demineralizer in hold for backwash and pre-coat per Station Procedure CPS 3303.01, “Reactor Water Cleanup,” Section 8.1.3, and Station Procedure CPS 3302.02, “Reactor Water Cleanup Filter Demineralizer ‘A’ Operating Procedure,” Sections 8.2 and 8.5.

While placing the RT ‘A’ filter demineralizer back into service per Station Procedure CPS 3302.02, Section 8.6, the control room received an RT differential flow alarm. The control room operators placed both divisions of RT differential flow instruments in bypass per Station Procedure CPS 3303.01, which rendered the instruments inoperable and resulted in a loss of the isolation function. The licensee entered TS 3.3.6.1, action D.1, which stated to place channel in trip in 24 hours and action E.1, which stated to restore RT isolation capability in 1 hour.

The procedure section to place the RT ‘A’ filter demineralizer in service was completed and the control room operators placed both divisions of RT differential flow instruments in normal, performed a channel check, and exited TS 3.3.6.1, actions D.1 and E.1.

The operations logs documented that the licensee reviewed NRC’s guidance for reporting events, NUREG–1022, Section 3.2.7, “Event or Condition that Could Have Prevented Fulfillment of a Safety Function.” The operators determined that the condition was not reportable to the NRC based on the statement that “reports are not required

when systems are declared inoperable as part of a planned evolution for maintenance or surveillance testing when done in accordance with an approved procedure and the plant's TS (unless a condition is discovered that would have resulted in the system being declared inoperable)."

After reviewing the logs on the following day the inspectors asked the control room operators why the activity was considered a planned evolution for maintenance and not considered routine operation of the RT system. The licensee did not provide information to support the activity was a maintenance activity, so the inspectors reviewed the requirements of 10 CFR 50.72 and NUREG-1022 and determined that the condition was reportable under 10 CFR 50.72(b)(3)(v). The licensee documented the issue in their CAP as AR 02652522 and created an action to submit a licensee event report (LER) under 10 CFR 50.73(a)(2)(v).

This inspectors' review focused on the reportability aspect of placing the RT differential flow switches in bypass. The inspectors have not reviewed the technical justification or analyses associated with putting the differential flow switches in bypass while the system is in operation, therefore, they have not determined whether this action is in compliance with regulatory requirements. The inspectors planned to review the technical justification and analyses following the receipt of the licensee's LER.

Analysis: The inspectors determined that the failure to report an event or condition, that at the time of discovery could have prevented the fulfillment of a safety function, to the NRC within eight hours as required by 10 CFR 50.72(b)(3)(v) was a performance deficiency. Specifically, the licensee failed to notify the NRC after placing both divisions of RT differential flow instrumentation in bypass, which rendered the instruments inoperable and resulted in a loss of the isolation function. The inspectors reviewed this issue in accordance with IMC 0612 and the Enforcement Manual. Violations of 10 CFR 50.72 are dispositioned using the traditional enforcement process because they are considered to be violations that potentially impede or impact the regulatory process. The inspectors reviewed Section 6.9.d.9 of the NRC Enforcement Policy and determined this violation was a Severity Level IV violation because the licensee's failure to make the report as required by 10 CFR 50.72 did not cause the NRC to reconsider a regulatory position or undertake substantial further inquiry. No cross-cutting aspect was assigned because cross-cutting aspects are not assigned to traditional enforcement only violations.

Enforcement: Title 10 CFR 50.72 (b)(3)(v) requires, in part, that the licensee report within eight hours any event or condition, that at the time of discovery, could have prevented the fulfillment of a safety function needed to mitigate the consequence of an accident.

Contrary to the above, on January 25, 2016, the licensee failed to report, within eight hours, a condition that, at the time of discovery, could have prevented the fulfillment of a safety function needed to mitigate the consequence of an accident. Specifically, control room personnel placed both divisions of RT differential flow instrumentation in bypass, which rendered the instruments inoperable and resulted in a loss of the isolation function needed to mitigate the consequences of an accident. In accordance with the Enforcement Policy, Section 6.9.d.9, the violation was classified as a Severity Level IV violation. Because this violation was of very low safety significance, was not repetitive or willful, and was entered into the licensee's CAP as AR 02652522, it

is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy (**NCV 05000461/2016001-03: Failure to Report a Condition that Could Have Prevented Fulfillment of a Safety Function**). Corrective actions included creating an action to submit an LER under 10 CFR 50.73(a)(2)(v).

1R19 Post-Maintenance Testing (71111.19)

.1 Post-Maintenance Testing

a. Inspection Scope

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

- testing of RHR heat exchanger 'B';
- testing of FC valve 1FC004A;
- testing of FC pump 1A;
- testing of SX valve 1SX001C;
- testing of the Division 3 DG K15 relay;
- testing of the Division 3 DG; and
- testing of RHR valve 1E12F006A.

These activities were selected based upon the SSC'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 CAP and that the problems were being corrected commensurate with their importance to safety.

This inspection constituted seven 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 9070.01: Control Room HVAC Filter Package Operability Test Run, Revision 27F (routine test);
- CPS 9080.30: Diesel Generator Overspeed Trip Test, Revision 4C (routine test);
- CPS 9069.01: Shutdown Service Water Division 1 Operability, Revision 48E (routine test);
- CPS 9432.21: Reactor Core Isolation Cooling Steam Supply Line Pressure E31–N085A Channel, Revision 37 (routine test); and
- CPS 9061.10: Fuel Pool Cooling Valve Operability, Revision 47A (IST).

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 IST activities, testing was performed in accordance with the applicable version of Section XI, American Society of Mechanical Engineers code, and reference values were consistent with the system design basis;
- where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure;
- where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished;

- prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test;
- equipment was returned to a position or status required to support the performance of its safety functions; and
- all problems identified during the testing were appropriately documented and dispositioned in the CAP.

This inspection constituted four routine surveillance testing samples and one IST sample as defined in IP 71111.22, Sections –02 and –05.

b. Findings

No findings were identified.

#### 4. **OTHER ACTIVITIES**

##### 4OA1 Performance Indicator Verification (71151)

##### .1 Unplanned Scrams per 7000 Critical Hours

##### a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams per 7000 Critical Hours performance indicator (PI) for the period from the first quarter 2015 through the fourth quarter 2015. 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 2013, was used. The inspectors reviewed the licensee’s operator narrative logs, issue reports, event reports, and NRC integrated inspection reports for the period of January 1, 2015, through December 31, 2015, to validate the accuracy of the submittals. The inspectors also reviewed the licensee’s issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator, and none were identified.

This inspection constituted one unplanned scrams per 7000 critical hours sample as defined in IP 71151–05.

##### b. Findings

No findings were identified.

##### .2 Unplanned Scrams with Complications

##### a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams with Complications PI for the period from the first quarter 2015 through the fourth quarter 2015. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99–02, “Regulatory Assessment Performance Indicator Guideline,” Revision 7, dated August 2013, was used. The inspectors reviewed the licensee’s operator narrative logs, issue reports, event reports and NRC integrated inspection reports for the period of January 1, 2015,

through December 31, 2015, to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator, and none were identified.

This inspection constituted one unplanned scrams with complications sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.3 Unplanned Transients per 7000 Critical Hours

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Transients per 7000 Critical Hours PI for the period from first quarter 2015 through the fourth quarter 2015. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 2013, was used. The inspectors reviewed the licensee's operator narrative logs, issue reports, maintenance rule records, event reports and NRC integrated inspection reports for the period of January 1, 2015, through December 31, 2015, to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator, and none were identified.

This inspection constituted one unplanned transients per 7000 critical hours sample as defined in IP 71151-05.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

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

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

a. Inspection Scope

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

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

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

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

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

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

b. Findings

No findings were identified.

.3 Selected Issue Follow-Up Inspection: Failure to Enter TS Actions During Operations with the Potential to Drain the Reactor Vessel

a. Inspection Scope

During a review of items entered in the licensee's CAP, the inspectors recognized AR 02619114, documenting NCV 2015003-04, "Failure to Enter TS Actions During [operations with the potential to drain the reactor vessel] OPDRV." The inspectors recalled the violation documented was a condition prohibited by the site's TS and was therefore reportable under 10 CFR Part 50.72 and 10 CFR Part 50.73. Shortly after November 6, 2015, the date the inspection report documenting the violation was issued, the inspectors discussed reportability with the regulatory assurance staff. The staff stated that AR 02619114 had documented a recommendation to revise the LER submitted as part of the OPDRVs enforcement guidance memorandum (EGM) requirements and that action would be tracked under that AR. The inspectors decided to follow up to ensure the reporting requirements were evaluated properly by the licensee and required reports were made as prescribed in the regulations. The inspectors reviewed the requirements for 10 CFR 50.72 and determined that since the licensee was not in the current condition prohibited by the site TS that a report under these requirements was not required. The inspectors then reviewed the requirements of

10 CFR 50.73 and determined that the condition was reportable under these requirements. Details of this portion of the review are described in detail in the finding below.

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

b. Findings

(1) Failure to Report Condition Prohibited by Technical Specifications

Introduction: The inspectors identified a Severity Level IV NCV of 10 CFR 50.73(a)(2)(i)(B) for failing to report, within 60 days of discovery, a condition prohibited by the plant's TS. Specifically, the licensee failed to notify the NRC of two instances where they failed to comply with TS 3.3.6.1 and TS 3.3.6.2 by entering the LCO action statements when required.

Description: On November 6, 2015, NRC Integrated Inspection Report 05000461/2015003 was issued. This report detailed a finding of very low safety significance, and an associated NCV of TS 3.3.6.1, "Primary Containment and Drywell Isolation Instrumentation," and TS 3.3.6.2, "Secondary Containment Isolation Instrumentation," for the licensee's failure to enter the appropriate TSs and take the required actions associated with having inoperable containment radiation monitoring instrumentation during OPDRV activities. Specifically, with the containment ventilation dampers closed, the containment radiation monitoring instrumentation would not be able to perform its safety function of sending a containment isolation signal for elevated containment radiation levels as required during OPDRV activities.

The licensee did not recognize that the radiation monitors were inoperable during this timeframe. The licensee based their operability determination on the radiation monitor instrumentation being able to pass its surveillance tests, which consisted of channel checks, channel calibrations and logic functional tests. They did not take into consideration the impact of the ventilation dampers being closed on the monitor's ability to detect elevated radiation levels in containment.

From May 3, 2015, through May 6, 2015, the licensee executed two OPDRV windows in excess of 1 hour. During this timeframe the affected penetrations were not isolated, VG was not in service and the OPDRVs were not suspended immediately. Therefore, the inspectors determined that the licensee did not comply with TS 3.3.6.1 and TS 3.3.6.2 LCO action statements.

The NRC issued EGM 11-003, Revision 2, "Dispositioning BWR Licensee Noncompliance with TS Containment Requirements during OPDRVs," to exercise enforcement discretion and not cite licensees for TS violations related to conduct of OPDRVs with secondary containment inoperable provided that certain criteria were met. One criterion was that the licensee must follow all other TS applicability and action requirements for Mode 5. With the radiation monitor instrumentation inoperable, TS 3.3.6.1 and TS 3.3.6.2 required initiation of actions to suspend OPDRVs immediately; however, CPS conducted OPDRVs during the time the radiation monitor instrumentation was inoperable, which was a condition prohibited by TS. This resulted in CPS not meeting the criteria in EGM 11-003, and the staff did not consider exercising discretion from May 3 to May 6, 2015.

Despite the information provided in NCV 05000461/2015003–04, clearly stating that the condition was prohibited by the plant's TS, as of January 5, 2016, the licensee had not issued an LER within 60 days of discovery to report the condition.

Analysis: The inspectors determined that the failure to report a condition prohibited by the plant's TS as required by 10 CFR 50.73(a)(2)(i)(B), within 60 days of discovery, was a performance deficiency. The inspectors reviewed this issue in accordance with IMC 0612 and the Enforcement Manual. Violations of 10 CFR 50.73 are dispositioned using the traditional enforcement process because they are considered to be violations that potentially impede or impact the regulatory process. The inspectors reviewed Section 6.9.d.9 of the Enforcement Policy and determined this violation was Severity Level IV because the licensee's failure to make the report as required by 10 CFR 50.73 did not cause the NRC to reconsider a regulatory position or undertake substantial further inquiry. No cross-cutting aspect was assigned because cross-cutting aspects are not assigned to traditional enforcement, only violations.

Enforcement: Title 10 CFR 50.73 (a)(2)(i)(B) requires, in part, that the licensee report, within 60 days, any operation or condition which was prohibited by the plant's TS.

Contrary to the above, as of January 5, 2016, the licensee failed to report the discovery of a condition prohibited by TS within 60 days. Specifically, the licensee failed to notify the NRC of two instances between May 3 and May 6, 2015, where they failed to comply with TS 3.3.6.1 and TS 3.3.6.2 by not completing the required LCO action statements.

In accordance with the NRC Enforcement Policy, Section 6.9.d.9, the violation was classified as a Severity Level IV violation. Because this violation was of very low safety significance, was not repetitive or willful, and was entered into the licensee's CAP as AR 02619114, it is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy (**NCV 05000461/2016001–04: Failure to Report Condition Prohibited by Technical Specifications**). Corrective actions included submitting the required LER on March 16, 2016.

.4 Selected Issue Follow-Up Inspection: RHR 'A' Fill and Vent Performed Prior to Non-Destructive Examination

a. Inspection Scope

During a review of items entered in the licensee's CAP, the inspectors recognized a corrective action item documenting the performance of a fill and vent activity on RHR 'A' prior to performing ultrasonic testing (UT) of the system piping. Work Order 1887754 "NDE [non-destructive examination] UT of RHR 'A'," contained a note within the instructions, which stated, in part, "the UT is required to be performed in the as found configuration." The UT examination was to be performed in order to meet the surveillance requirement of verifying the RHR system locations susceptible to gas accumulation were sufficiently filled with water. This surveillance requirement was included in various TS sections that covered the different RHR functions such as, shutdown cooling, containment spray, reactor pressure vessel injection and spray, and suppression pool cooling.

The inspectors evaluated the actions taken by the licensee in response to this issue by reviewing completed WOs, corrective action documents, operator logs, station procedures and the completed work group evaluation performed to further investigate

this issue. Based on the information reviewed, the inspectors concluded the licensee completely and accurately identified the problem in a timely manner commensurate with the problem significance and ease of discovery. The licensee also adequately addressed operability and reportability of this issue and classified and prioritized the resolution of the problem, commensurate with its safety significance. When addressing the extent of condition associated with this issue, the licensee stated this occurrence was an isolated incident. However, the station did not perform any document reviews to support this assumption, such as a review of operation logs or WO start and completion times. Rather, the licensee based this assumption on the lack of other ARs generated for similar issues. As a result of the inspectors' questions, the licensee performed a review to verify the stated assumption that the identified instance was an isolated occurrence. The inspectors performed an independent review and did not identify any additional occurrences. When establishing corrective actions, the licensee proposed a procedure change for the fill and flow verification procedures for all emergency core cooling systems, to add a step for verifying UTs are current prior to performance of the procedure. Through their investigation, the licensee identified various valve operability procedures also had the potential to impact the ability to ensure the UTs were performed in an as found configuration. The corrective actions proposed did not include updating the valve operability procedures with a step similar to the one that was being added to the fill and flow path verification procedure. Rather, the proposed corrective action was to perform a tailgate, which was a one-time briefing on the requirement to perform the UT in an as found configuration. The inspectors communicated these observations to the licensee, which they documented in AR 02650703. The failure to perform a UT in the as found condition was documented in Section 4OA7 of this report as a licensee identified violation.

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

b. Findings

No findings were identified.

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

.1 Partial Loss of Feedwater Heating

a. Inspection Scope

The inspectors reviewed the plant's response to an isolation of extraction steam to the 2A, 3A, and 4A low pressure feedwater heaters when a Moore trip card that controlled the position of the 2A feedwater heater extraction steam inlet valve failed on February 29, 2016. The inspectors reviewed station procedures, operator logs, walked down the control room panels, and interviewed control room operators. The licensee documented the event in AR 02633269.

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

b. Findings

No findings were identified.

## .2 Rise in Primary to Secondary Containment Differential Pressure

### a. Inspection Scope

The inspectors reviewed the plant's response to a rise in primary to secondary containment differential pressure due to the inadvertent trip of the continuous containment purge (CCP) fans on January 20, 2016. The inspectors reviewed station procedures, corrective action documents and operator logs, and interviewed control room operators and other site personnel. The licensee documented the event in AR 02614832.

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

### b. Findings

#### (1) Failure to Assess and Manage Risk Increase for a Proposed Maintenance Activity

Introduction: A self-revealed finding of very low safety significance and an associated NCV of 10 CFR 50.65 (a)(4) was identified on January 20, 2016, due to the failure to assess and manage the risk increase from a proposed maintenance activity that impacted the CCP system. Specifically, the licensee failed to manage the risk associated with racking out the CCP 'A' breaker, which resulted in the loss of both CCP trains and led to an increase in primary to secondary containment differential pressure which exceeded the TS value.

Description: On January 17, 2016, the licensee de-energized 480 V unit substation 'K' due to a loud cracking noise heard coming from the unit substation. The licensee put together a WO to inspect the substation and determine the cause of the noise. Because the unit substation 'K' was taken out-of-service, on January 19, 2016, the licensee decided to bundle the troubleshooting activity with a planned maintenance activity which was originally scheduled for July 2016. The planned maintenance was to clean and inspect unit substation 'K'. When planning the maintenance activity, the licensee reviewed which activities had already been performed as part of the troubleshooting WO and compared them to the model WO for the clean and inspect activity to determine which actions could be credited as complete. One of the steps from the WO was to coordinate with Operations to ensure all breakers were open/racked out. The planner saw a similar step in the troubleshooting WO and assumed the step had already been completed. Therefore, the planner decided against adding this step to the task for the clean and inspect activity. There was a step in the troubleshooting WO for racking out breakers, but it did not include the CCP 'A' breaker; a necessary evolution for performing the clean and inspect activity. Since this was not recognized during planning, the risk for this activity was not assessed.

On January 20, 2016, electrical maintenance personnel prepared to perform the clean and inspect activity for unit substation 'K' in accordance with WO 1892378, task 9. When the licensee reached Step 15, they proceeded to rack out the breakers associated with unit substation 'K', which included the breaker for CCP 'A'. The step did not specifically state to rack out the breaker for CCP 'A', rather it stated, "Label and remove circuit breakers from Unit Sub 0AP52E as needed to clean inside cubicles." The clean and inspect activity for unit substation 'K' could not have been performed without racking out the breaker for CCP 'A', therefore the technicians assumed it was included in the step.



As soon as the technicians racked out the breaker associated with CCP 'A' (0AP52E-5D) the main control room received an unexpected annunciator which indicated there was an automatic trip of the running CCP supply fan or the exhaust fan. The licensee determined that racking out the breaker for CCP 'A' disconnected the CCP 'B' auxiliary contact that was used to provide the start permissive signal for the CCP 'B' exhaust fan. This caused the CCP exhaust fan 'B' to trip, resulting in the control room annunciator. The loss of both trains of CCP caused the primary to secondary containment differential pressure to rise and exceed the TS limiting value of 0.25 pounds per square inch differential (psid). The differential pressure reached a value of .411 psid. The licensee entered the action statement for TS 3.6.1.4 which required the restoration of primary to secondary containment differential pressure to within limits in 1 hour. The differential pressure was restored within 40 minutes of the event.

The licensee subsequently performed a walkdown of the breakers at unit substation 'K' and noticed a label on the panel for the CCP 'A' breaker that stated, "The removal or rack out of this breaker will cause the alternate fan breaker to trip if running." The licensee initiated AR 02614832 and performed a root cause analysis that concluded the cause of the event was that the work activity was not properly screened for risk and there was no reference ensuring validation of initial conditions prior to commencing an activity. The proposed corrective actions included updating the planner checklist to ensure steps are created to validate initial conditions and provide training to reinforce the need to properly screen WOs with appropriate risk factors.

Analysis: The inspectors determined that the failure to assess and manage the risk increase of a proposed maintenance activity that impacted CCP, in accordance with 10 CFR 50.65 (a)(4), was a performance deficiency. Specifically, the licensee failed to manage the risk associated with racking out the CCP 'A' breaker, which resulted in the loss of both CCP trains, and led to an increase in primary to secondary containment differential pressure which exceeded the TS value. The performance deficiency was more than minor in accordance with NRC IMC 0612 because it was associated with the maintenance procedure quality attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, by not properly assessing the risk of racking out the CCP 'A' breaker the licensee did not recognize the CCP 'B' system would be impacted which resulted in exceeding the TS value for primary to secondary containment differential pressure. This constituted an unanalyzed condition and placed the site in a one hour TS action statement. If the station would not have been able to restore the differential pressure within one hour, they would have been required to shut down the plant per TS 3.6.1.4. 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 did not represent an actual open pathway in the physical reactor containment, containment isolation system or heat removal components and it did not involve an actual reduction in function of hydrogen igniters in the reactor containment.

The inspectors identified a cross-cutting aspect in the area of human performance, in the aspect of challenging the unknown, which states, individuals stop when faced with uncertain conditions. Risks are evaluated and managed before proceeding. Specifically, when the licensee was preparing the work package for maintenance on the

CCP system, it was uncertain which activities had already been completed as part of a concurrent evolution. Instead of stopping and validating the configuration of plant equipment, assumptions were made and the risk of the activity was not properly assessed or managed. (H.11)

Enforcement: Title 10 CFR Part 50.65 (a)(4) states, in part, before performing maintenance activities the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activity.

Contrary to the above, on January 19, 2016, before performing the maintenance activity on the unit substation 'K', the licensee did not assess and manage the increase in risk from a proposed maintenance activity. Specifically, the licensee failed to assess and manage the risk associated with racking out the CCP 'A' breaker, which resulted in the loss of both CCP trains and led to an increase in primary to secondary containment differential pressure exceeding the TS value.

The licensee restored the primary to secondary containment differential pressure to within limits within 40 minutes of the event. The licensee also performed a root cause evaluation that determined the cause was that the work activity was not properly screened for risk and there was no reference for ensuring validation of initial conditions prior to commencing a task. The proposed corrective actions to address this issue included creating a checklist to ensure validation of initial conditions is performed and training that reinforces the need to properly screen WO tasks with the appropriate risk factors. Because this violation is of very low safety significance and was entered into the licensee's CAP as AR 02614832, this violation is being treated as an NCV consistent with Section 2.3.2 of the NRC Enforcement Policy (**NCV 05000461/2016001-05: Failure to Assess and Manage Risk Increase for a Proposed Maintenance Activity**).

#### 4OA5 Other Activities

##### .1 Review of 10 CFR 72.212(b) Evaluations at Operating Plants (60856.1)

###### a. Inspection Scope

The licensee has planned to place its first loaded spent fuel dry storage casks on its independent spent fuel storage installation (ISFSI) pad in late summer or early fall of this year. Title 10 CFR 72.212(b)(5)(ii) requires that licensees perform written evaluations, before use, which establish that cask storage pads and areas have been designed to adequately support the static and dynamic loads of the stored casks, considering potential amplification of earthquakes through soil-structure interaction, and soil liquefaction potential or other soil instability due to vibratory ground motion.

The inspectors evaluated the licensee's soil and ISFSI pad engineering design evaluations to verify the licensee's compliance with the cask Certificate of Compliance, 10 CFR Part 72 requirements, and industry standards.

The licensee planned to utilize the Holtec HI-STORM FW dry cask storage system. A single three-foot-thick reinforced concrete pad is capable of supporting 6 HI-STORM casks in a 6-by-6 array. The pad is 104 feet wide and 104 feet long. The licensee designed and constructed the ISFSI pad as an important-to-safety structure.

The inspectors reviewed the licensee's soil investigation reports and calculations documenting the engineering properties and design soil profile of the ISFSI site based on new geotechnical investigations of the ISFSI areas combined with the data in the plant USAR. The inspectors reviewed documents to verify that the pad design duly addressed geological and hydrological considerations using the information from the earlier and the new soil investigations. The inspectors reviewed licensee's liquefaction analysis to verify seismic input and safety factors were consistent with Regulatory Guidance 1.198, "Procedures and Criteria for Assessing Seismic Soil Liquefaction at Nuclear Power Plant Sites."

The inspectors reviewed documents for the generation of new seismic acceleration time histories from the seismic ground motion spectra for the reactor site to be used as inputs for the ISFSI analyses. The inspectors reviewed the soil structure interaction analysis methodology and calculations to verify adequacy of the soil / pad / cask analytical model, the soil profile, modeling for interfaces, boundary conditions, and consideration of uncertainties of the soil investigation data. The inspectors reviewed the ISFSI pad structural design to verify the methodology, load factors and acceptance criteria, consideration of long term total and differential settlements, adequacy of safety factors under static and dynamic loading, and consideration for sequential and partial loading. The inspectors reviewed evaluations for determination of static and ultimate soil bearing capacities, and safety factors under worst case static and dynamic loads.

The inspectors reviewed the licensee's cask haul path evaluations to verify that maximum expected loads were considered. Inspectors interviewed licensee personnel and performed walkdowns of the haul path and the ISFSI areas to verify that licensee had reviewed the haul path for the right-of-way requirements and potential interferences from nearby structures and overhead lines. The inspectors also reviewed documentation evaluating buried utilities beneath or near the haul path, staging areas, and the ISFSI pad area to verify that affected utilities were identified, evaluated, and protected through design of additional reinforcements where needed.

b. Findings

No findings were identified.

.2 Onsite Fabrication of Components and Construction of an ISFSI (60853)

a. Inspection Scope

The inspectors evaluated whether construction activities for the ISFSI concrete storage pad complied with specifications contained in the licensee's approved design evaluation, approved design drawings, WOs, and applicable industry standards. The inspectors also reviewed select material documentation, concrete documentation, and personnel certification records.

The inspectors reviewed HI-2135703, "Clinton Power Station [ISFSI] Construction Specifications," Revision 4. HI-2135703 described the minimum requirements for construction activities related to installation of the ISFSI pad. The inspectors also reviewed HSP-186, "Aggregate and ready mixed concrete testing requirements for [important-to-safety] ITS "B" Applications," Revision 20, which further established cast-in-place concrete construction and material testing requirements for the ISFSI pad.

The NRC inspectors reviewed the design drawings of the ISFSI pad. Following placement and satisfactory compaction of the engineered fill, placement of rebar, and securing of formwork, the NRC inspectors performed inspections of the ISFSI pad prior to concrete placement.

The inspectors reviewed the licensee's concrete mix design to ensure compliance with the applicable codes and standards committed to in the licensee's design. The inspectors reviewed the licensee's exposure classifications of the ISFSI pad to ensure compliance with the durability requirements of American Concrete Institute 318, "Building Code Requirements for Structural Concrete." The inspectors reviewed the licensee's specified strength, water-to-cement ratio, slump, and air content. The inspectors reviewed the licensee's selection and testing of mix design components, including cement, potable water, fine aggregate, coarse aggregate, and admixtures.

The ISFSI pad was constructed in three segments allowing separate continuous placements of concrete. The inspectors observed concrete placement for the second segment of the storage pad and reviewed curing operations for the first segment of the storage pad. The inspectors observed the licensee's process for performing concrete testing in the field and sampling concrete for laboratory break testing.

The inspectors reviewed the 28-day concrete compressive strength test results taken from the storage pad to ensure they met the minimum strength of 4,500 pounds per square inch (psi) and maximum of 5,500 psi as specified by the design requirements. The inspectors verified that the licensee documented in the CAP when tests did not meet the specified design requirements.

b. Findings

No findings were identified.

.3 Follow Up Inspection for Three or More Severity Level IV Traditional Enforcement Violations in the Same Area in a 12-Month Period (92723)

a. Inspection Scope

The inspectors assessed the licensee's evaluation of five SL IV violations, which occurred within the area of impeding the regulatory process, from July 1, 2014, through September 30, 2015. These violations were documented in NRC Inspection Reports as: (1) NCV 05000461/2014004-05; (2) NCV 05000461/2014004-06; (3) NCV 05000461/2014005-04; (4) NCV 05000461/2015008-01; and (5) NCV 05000461/2015003-03.

The inspection objectives were to provide assurance that:

- The licensee understood the causes of multiple SL IV traditional enforcement violations;
- The licensee identified the extent of condition and extent of cause of multiple SL IV traditional enforcement violations; and
- The licensee's corrective actions to address the traditional enforcement violations were sufficient to address the causes.

The inspectors reviewed: (1) the various licensee CAP documents including Apparent Cause Evaluation (ACE) 2511697, "Severity Level IV Violations Cause Evaluation," and ACE 2552999, "NRC Debrief Potential Violation on Railroad Bay and Secondary Containment"; (2) the licensee's Check-In Self-Assessment Report 02552387, "Pre-IP 92723 Inspection—Follow up Inspection for Three or More Severity Level IV Traditional Enforcement Violations in the Same Area in a 12-Month Period"; (3) the licensee's CAP; and (4) the licensee's condition reports associated with the violations.

b. Findings

Inadequate Extent of Condition Associated with an Apparent Cause Evaluation

Introduction: The inspectors identified a finding of very low safety significance and an associated NCV of 10 CFR Part 50, Appendix B, Criterion II, "Quality Assurance Program," for the failure to follow a Quality Assurance Program implementing procedure. Specifically, the licensee failed to identify the extent of a lack of proficiency in applying the licensing basis for SSCs when performing 10 CFR 50.59 evaluations.

Description: On October 9, 2015, the licensee completed ACE 2552999, "NRC Debrief Potential Violation on Railroad Bay and Secondary Containment," in accordance with Station Procedure PI-AA-125-1003, "Apparent Cause Evaluation Manual," Revision 2. The licensee documented the evaluation using Attachment 2 of PI-AA-125-1003. The ACE assessed the NRC identified violation regarding a deficient 10 CFR 50.59 evaluation that did not provide a basis describing why extending the secondary containment boundary to the fuel building outer railroad bay door would not result in a more than minimal increase in the likelihood of occurrence of a malfunction of an SSC important to safety as described in the USAR.

Section 4.4.1, Step 2 of PI-AA-125-1003 stated "analyze each causal factor to determine the apparent causes and contributing causes." The licensee determined the apparent cause to be "lack of proficiency in applying licensing properties as if they were technical properties."

Section 4.4.1, Step 3 of PI-AA-125-1003 stated "determine the extent of condition." The extent of condition review included the completed 10 CFR 50.59 evaluation related to the ISFSI project, CL-2014-E-011, for the rigging and floor loading evaluation to support upgrading the fuel building crane, and one 10 CFR 50.59 screening, CL-2015-S-018, which discussed a procedural change related to the extension of the secondary containment. The extent of condition review for the completed 10 CFR 50.59 evaluation concluded that it did "not relate to the misapplication of understanding for secondary containment" and the extent of condition review for the 10 CFR 50.59 screening simply stated that there was a standing order in place such that the procedural change was not yet implemented.

The ACE report quality checklist documented that the investigation team used Attachment 19 of PI-AA-125-1006, "The Investigation Techniques Manual," Revision 2, to adequately and accurately address the extent of condition. Attachment 19 provided instructions for performing adequate extent of condition reviews, stating to "focus on the actual condition and its existence in other places." In addition, Attachment 19 provided questions for the investigation team to consider when conducting an extent of condition

review. One group of questions under human performance asked: “is that all he/she did today? Or this week?” and “what other tasks did he/she do that we should be concerned about?”

Station Procedure PI-AA-125 defined extent of condition, in part, as the “extent to which the actual condition exists with other plant processes, equipment, or human performance.” The apparent cause evaluated for extent of condition was a lack of proficiency in the understanding of the licensing basis for secondary containment. The licensee’s extent of condition was narrowly focused on evaluations specific to secondary containment rather than a broader scope of evaluations for different SSCs or other evaluations performed by the individuals that performed the evaluation on secondary containment. Attachment 19 provided guidance for assessing other tasks performed by the individuals associated with the secondary containment evaluation; however, the licensee did not include a determination to assure licensing properties were applied appropriately in other 10 CFR 50.59 evaluations performed by those individuals.

The licensee documented this issue into their CAP as AR 02641397. Immediate corrective actions included a review of the extent of condition performed by the engineering department and a recommended action of expanding the scope of the review to include additional 10 CFR 50.59 evaluations.

Analysis: The inspectors determined the failure to follow a Quality Assurance Program implementing procedure and determine the extent of condition in accordance with procedure PI-AA-125, “Corrective Action Program,” Revision 2, was a performance deficiency. Specifically, the licensee failed to identify the extent of a lack of proficiency in applying the licensing basis for SSCs when performing 10 CFR 50.59 evaluations. The performance deficiency was more than minor in accordance with IMC 0612, “Power Reactor Inspection Reports,” Appendix B, “Issue Screening,” dated September 7, 2012, because if left uncorrected the performance deficiency has the potential to lead to a more significant safety concern. Specifically, if the extent of condition review is too narrowly assessed there is the potential for other safety significant systems to have been impacted by a lack of proficiency in applying the licensing basis for SSCs, and therefore, may not perform their intended safety function as defined in the USAR. 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 all cornerstones and determined to be of very low safety significance (Green) because there was no reasonable indication that the criteria in Appendix A requiring a detailed risk evaluation was met. The inspectors assessed all cornerstone screening questions within IMC 0609, Appendix A, based on guidance in IMC 0609 that states, in part, “If more than one cornerstone is affected, the screening questions in all the affected cornerstones apply” and because not knowing the extent of the lack of proficiency in applying of licensing basis with respect to 10 CFR 50.59 evaluations has the potential to affect all cornerstones.

The inspectors determined this finding affected the cross-cutting area of human performance, in the aspect of procedure adherence, where individuals follow processes, procedures and work instructions. Specifically, the licensee did not effectively adhere to all available portions of CAP procedures, which led to a narrowly focused extent of condition. (H.8)

Enforcement: Title 10 CFR 50, Appendix B, Criterion II, "Quality Assurance Program," requires, in part, that "the applicant shall establish at the earliest practicable time, consistent with the schedule for accomplishing the activities, a Quality Assurance Program which complies with the requirements of this appendix. This program shall be documented by written policies, procedures, or instructions and shall be carried out throughout plant life in accordance with those policies, procedures, or instructions."

Section 4.4.1, Step 3 of PI-AA-125-1003, Revision 2, "Apparent Cause Evaluation," states, in part, "determine the extent of condition." Step 2.18 of PI-AA-125, Revision 2, "Corrective Action Program," states, in part, that the extent of condition is "the extent to which the actual condition exists with other plant processes, equipment, or human performance."

Contrary to the above, on October 9, 2015, the licensee failed to carry out the corrective actions portion of their Quality Assurance Program in accordance with Procedure PI-AA-125-1003, Revision 2, "Apparent Cause Evaluation," Step 3 to "determine the extent of condition," and the "extent of condition as defined in Procedure PI-AA-125, Revision 2, "Corrective Action Program," Step 2.18 as "the extent to which the actual condition existed with other plant processes, equipment, or human performance." Specifically, the licensee failed to identify the extent of a lack of proficiency in applying the licensing basis for SSCs when performing 10 CFR 50.59 evaluations. The corrective actions in response to this issue included increasing the scope of the extent of condition to include other evaluations performed by the individuals associated with the "lack of proficiency." Because this finding was of very low safety significance and was entered into the licensee's CAP as AR 02641397, this violation is being treated as an NCV, in accordance with Section 2.3.2 of the NRC Enforcement Policy (**NCV 05000461/2016001-06: Inadequate Extent of Condition Associated with an ACE**).

c. Observations

During the inspection, the inspectors noted that the narrowly focused extent of condition review for ACE 02552999 had resulted in the development of similarly, narrowly focused corrective actions. The inspectors determined that the development of the narrowly focused corrective actions was not a violation of NRC requirements. However, the licensee's CAP procedure states, in part, that "if at any time (e.g., during an investigation, review of a CA closure, review of a previous CR) a SCAQ [significant condition adverse to quality] or CAQ [condition adverse to quality] or any question of either current or past Operability/Reportability arises, then initiate an Issue Report." Therefore, additional corrective actions may be needed once the licensee completed an expanded scope extent of condition review that included additional 10 CFR 50.59 evaluations/screenings.

4OA6 Management Meetings

.1 Exit Meeting Summary

On April 13, 2016, the inspectors presented the inspection results to Mr. T. Stoner, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

.2 Interim Exit Meetings

Interim exit was conducted for:

- The inspection results for the follow up inspection for three or more Severity Level IV traditional enforcement violations in the same area in a 12-month period with Mr. B. Kapellas, Plant Manager, on March 18, 2016.

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) was identified by the licensee and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as an NCV.

- Title 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," requires activities affecting quality be prescribed by documented instructions, procedures and drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with those instructions, procedures and drawings. The NDE task notes for WO 1887754, "NDE UT of RHR 'A'," stated that the UTs were to be performed as found, and therefore, "they were to be performed before hanging clearances, valve stroking, or other system manipulations such as fill and flow path verifications." Contrary to this, on January 20, 2016, the licensee failed to perform an as found UT of RHR 'A' prior to hanging clearances or performing valve stroking or other system manipulations such as fill and flow path verifications. The licensee documented the issue in their CAP as AR 02614744. The inspectors determined that this issue was of very low safety significance because the finding: (1) was not a deficiency affecting the design or qualification of a mitigating system; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of a single train for greater than its TS allowed outage time; and (4) does not represent an actual loss of function of one or more non-TS trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours.

ATTACHMENT: SUPPLEMENTAL INFORMATION



## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee

R. Bair, Chemistry Manager  
B. Kapellas, Plant Manager  
M. Friedmann, Emergency Preparedness Manager  
B. Brooks, Security Manager  
J. Cunningham, Maintenance Director  
C. Dunn, Operations Director  
N. Hightower, Radiation Protection Manager  
R. Champley, Shift Operations Superintendent  
C. Propst, Work Management Director  
J. Ward, Performance Improvement Manager  
D. Shelton, Regulatory Assurance Manager  
S. Gackstetter, Engineering Director  
S. Minya, Operations Training Manager  
T. Stoner, Site Vice President  
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#### U. S. Nuclear Regulatory Commission

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## LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

### Opened/Closed

05000461/2016001-01	NCV	Failure to Identify a Degraded Safety-Related Support (Section 1R04)
05000461/2016001-02	NCV	Operability Determination Failed to Examine Test Failures (Section 1R15.1.b(1))
05000461/2016001-03	SLIV	Failure to Report a Condition that Could Have Prevented Fulfillment of a Safety Function (Section 1R15.1.b(2))
05000461/2016001-04	SLIV	Failure to Report a Condition Prohibited by Technical Specifications (Section 4OA2)
05000461/2016001-05	NCV	Failure to Assess and Manage Risk Increase for a Proposed Maintenance Activity (Section 4OA3)
05000461/2016001-06	NCV	Inadequate Extent of Condition Associated with an ACE (Section 4OA5)

## LIST OF DOCUMENTS REVIEWED

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

### 1R01 Adverse Weather Protection

- MA-AA-716-026, "Station Housekeeping/Material Condition Program," Revision 13
- CPS 1860.01, "Cold Weather Operation," Revision 8b
- CPS 1860.01C005, "Blizzard/Severe Weather Preparation Checklist," Revision 0
- CPS 4302.01, "Tornado High Winds," Revision 21F
- OP-AA-108-111-1001, "Severe Weather and Natural Disaster Guidelines," Revision 12
- SY-AA-101-146, "Severe Weather Preparation and Response," Revision 1

### 1R04 Equipment Alignment

- AR 02627171, "NRC ID: Question on VG'A' Train Walkdown"
- AR 02631298, "NRC Questions Regarding VC-B Chiller"
- AR 02651870, "NRC Identified Incorrect Detail in 0VC13CB Seismic Evaluation"
- CPS 3312.01, "Residual Heat Removal," Revision 45b
- CPS 3312.01E001, "Residual Heat Removal Electrical Lineup," Revision 17
- CPS 3312.01V001, "Residual Heat Removal Valve Lineup," Revision 17b
- CPS 3312.01V002, "Residual Heat Removal Instrument Valve Lineup," Revision 9a
- CPS 3314.01, "Standby Liquid Control," Revision 11c
- CPS 3314.01E001, "Standby Liquid Control Electrical Lineup," Revision 9a
- CPS 3314.01V001, "Standby Liquid Control Valve Lineup," Revision 10a
- CPS 3314.01V002, "Standby Liquid Control Instrument Valve Lineup," Revision 6
- CPS 3319.01E001, "Standby Gas Treatment Electrical Lineup," Revision 11
- CPS 3319.01V001, "Standby Gas Treatment Valve Lineup," Revision 8
- CPS 3319.01V002, "Standby Gas Treatment Instrumentation Valve Lineup," Revision 6a
- CPS 3402.01E001, "Control Room HVAC Electrical Lineup," Revision 10c
- CPS 3402.01V001, "Control Room HVAC Valve Lineup," Revision 17
- CPS 3402.01V002, "Control Room HVAC Instrument Valve Lineup," Revision 6
- CPS 3506.01E001, "Diesel Generator and Support Systems Electrical Lineup," Revision 18c
- CPS 3506.01V001, "Diesel Generator and Support Systems Valve Lineup," Revision 13a
- CPS 3506.01V002, "Diesel Generator and Support Systems Instrument Valve Lineup," Revision 11b
- EC 405028, "Accept VC-B Chiller Pump Down Unit Support As-Is," Revision 0

### 1R05 Fire Protection

- CPS 1893.04M105, "707 Auxiliary: RHR 'C' Pump Room Prefire Plan," Revision 5
- CPS 1893.04M134, "781 Auxiliary (East): Div 1 Battery Room Prefire Plan," Revision 5
- CPS 1893.04M353, "781 Control: Div 3 Switchgear and Battery Room Prefire Plan," Revision 6
- CPS 1893.04M400, "712 Fuel: Basement Prefire Plan," Revision 5
- CPS 1893.04M510, "737 Diesel Generator: Div 3 Diesel Generator and Day Tank Room Prefire Plan," Revision 6a

### 1R07 Heat Sink Performance

- AR 02639223, "RHR B HX Tube Plugging, 2016 Inspection"
- EC 358633, "Document Tube Plugging Criteria and the Number of Tubes Plugged in 1E12B001B," Revision 0
- Master Lee Eddy Current Examination Report 1B RHR, March 2009
- ML-NDE-017, "Eddy Current Examination of Non-Ferromagnetic Heat Exchanger Tubing," Revision 2

### 1R11 Licensed Operator Regualification Program

- C16-01, "Reactivity Maneuver Plan," March 4, 2016
- OP-AA-101-111-1001, "Operations Standards and Expectations," Revision 17
- OP-AA-300, "Reactivity Management," Revision 9
- OP-CL-108-101-1003, "Operations Department Standards and Expectation," Revision 35
- TQ-AA-150, "Operator Training Programs," Revision 12
- TQ-AA-155, "Conduct of Simulator Training and Evaluation," Revision 5

### 1R12 Maintenance Effectiveness

- AR 01615913, "1FC060 Failed to Stay Open During FC Filter Precoat"
- AR 01619945, "Test Failures While Performing 9030.05 STS Manual Testing"
- AR 01638281, "1FC02PA, FC A Pump Outboard Bearing Oil Bubbler Has No Oil"
- AR 01674162, "Encoder Failure While Racking FC A Pump Breaker Out"
- AR 01680233, "EOID A FC Pump Outboard Oil Bubbled Emptied in 11 Hours"
- AR 01682287, "Received Unexpected Annunciator 5004-3H, STS Failure"
- AR 01688693, "Received Unexpected Annunciator 5004-3H, STS Failure"
- AR 02424982, MCR STS Failure, Err Code 23 Div 2 Power Monitor Failure"
- AR 02425717, "2FX-FC017C Failed During FC Mod Testing"
- AR 02438906, "1PIFC015A not Indicating Properly when Operating FC FPDF"
- AR 02473570, "Received Unexpected Annunciator 504-3H STS Failure"
- AR 02496697, "1FC014A FC Pump A Discharge Isolation Hard to Operate"
- AR 02560770, "1FC004B, FC F/D Bypass to HX 1B Stroked Shut"
- AR 02571685, "Div 3 Ground Alarm When HPCS Breaker Closes Fuses Installed"
- AR 02572631, "Unexpected Annunciator 5004-3H STS Failure"
- AR 02574765, "Division 1 Self Test Will not Run in Automatic"
- AR 02607250, "1FC004B Failed to Open While Placing 1B FP/FD in Service"
- AR 02613238, "SP System Exceeds Maintenance Rule Availability Criteria"
- ER-AA-310, "Implementation of Maintenance Rule," Revision 9
- ER-AA-310-1001, "Maintenance Rule Scoping," Revision 4
- ER-AA-310-1002, "Maintenance Rule Functions—Safety Significance Classification," Revision 3
- ER-AA-310-1003, "Maintenance Rule—Performance Criteria Selection," Revision 4
- ER-AA-310-1004, "Maintenance Rule—Performance Monitoring," Revision 13
- ER-AA-310-1005, "Maintenance Rule—Dispositioning Between (a)(1 and (a)(2)," Revision 7
- ER-AA-310-1006, "Maintenance Rule—Expert Panel Roles and Responsibilities," Revision 5

### 1R13 Maintenance Risk Assessments and Emergent Work Control

- AD-AA-3000, "Nuclear Risk Management Process," Revision 1
- AR 02640771, "Entered 4302.01 Tornado High Winds Off Normal"

- AR 02640852, "Plant Risk Went to Orange Due to Sever Weather"
- CPS 4302.01, "Tornado High Winds," Revision 21F
- ER-AA-440, "Emergency Diesel Generator Reliability Program," Revision 1
- ER-AA-600, "Risk Management," Revision 7
- ER-AA-600-1011, "Risk Management Program," Revision 14
- ER-AA-600-1012, "Risk Management Documentation," Revision 12
- ER-AA-600-1014, "Risk Management Configuration Control," Revision 7
- ER-AA-600-1042, "On-line Risk Management," Revision 9
- OP-AA-108-117, "Protected Equipment Program," Revision 4
- WC-AA-101, "On-Line Work Control Process," Revision 25
- WC-AA-104, "Integrated Risk Management," Revision 23

#### 1R15 Operability Evaluations

- AR 02386704, "NRC Interface Draining of RCIC Exhaust Drain Pot Line"
- AR 02553168, "1SX027C Stroke Outside Acceptance Criteria within Limit Value"
- AR 02554047, "NRC SRI Question on Use of 96-hour ISTC Analysis Time"
- AR 02557202, "Follow-up Documentation Required on 1SX027C"
- AR 02558101, "NRC Question on Evaluation for 1SX027C"
- AR 02593694, "NRC Question Regarding Operability"
- AR 02617874, "RCIC 9054.01C002 Step 8.4.30 E51DC001 Did Not Go High"
- AR 02620350, "Unnecessary Div 3 SX Pump Run"
- AR 02620386, "NRC Question About RCIC Drain Pot Operability"
- AR 02626144, "1SX01PC Oil Level Found 1/16" below "Oil Level" Line"
- AR 02642140, "Procedure Enhancement for RCIC Surveillance"
- AR 02644712, "RT Differential Flow Calibration Conditions"
- AR 02645140, "NRC Potential Issue on Bypassing RT LD"
- AR 02652522, "Bypassing Both Divisions of RT LDs is Reportable"
- CPS 3303.01, "Reactor Water Cleanup," Revision 35g
- CPS 3303.02P001, "Reactor Water Cleanup Filter Demineralizer 'A' Operating Procedure," Revision 2b
- CPS 3303.02P002, "Reactor Water Cleanup Filter Demineralizer 'B' Operating Procedure," Revision 2a
- CPS 9054.01, "RCIC System Operability Check," Revision 43d
- CPS 9054.01C002, "RCIC High Pressure Operability Checks," Revision 8b
- EC 400011, "Evaluate RCIC Exhaust Drain Time," Revision 1
- EC 401647, "Division 3SX Pump Lower Bearing Failure," Revision 1
- ER-AA-321, "Administrative Requirements for Inservice Testing," Revision 12
- IST Evaluation #144, "Valve 1SX027C," Revision 2
- IST Evaluation #144, "Valve 1SX027C," Revision 3
- MA-AA-716-010, "Maintenance Planning," Revision 23
- OP-AA-108-115, "Operability Determinations," Revision 16

#### 1R19 Post-Maintenance Testing

- AR 02641032, "Div 3 Cooling Water Heat Exchanger Dimensions"
- CPS 3506.01, "Diesel Generator and Support Systems," Revision 37a
- CPS 3506.01P003, "Division 3 Diesel Generator Operations," Revision 5a
- CPS 9053.04C001, "RHR Loop A Valve Operability," Revision 3c
- CPS 9061.10, "Fuel Pool Cooling Pump and Valve Operability Data Sheet," Revision 41a
- CPS 9061.10, "Fuel Pool Cooling Valve Operability," Revision 47a

- CPS 9080.20, "DG 1C Differential Overcurrent Trip Test and Trip Bypass Operability," Revision 3a
- CPS 9843.02D001, "Generic Class 1, 2 and 3 Operational Pressure Test Data Sheet," Revision 44
- WO 1169386-07, "Ops PMT 1FC02PA"
- WO 1206114-03, "PMT Perform 9080.20 and Device Testing"
- WO 1206114-04, "PMT—Relay K15"
- WO 1675226-39, "OP 1E12B001B: PMT—No Leakage at NOP/NOT"
- WO 1675226-39, "RHR Heat Exchanger 1B PMT"
- WO 1695748-07, "OP 1FC004A PMT"
- WO 1757507-02, "1DG01KC PMT"
- WO 1786754-07, "VT2 Maintenance PMT—9843.02"
- WO 1796878-01, "1FC02PA Comprehensive Pump Test"
- WO 1844060-03, "OP-PMT Verify Proper Function of Pump 1FC02PA with No Leakage"
- WO 1891192-01, "OP Fuel Pool Cooling Pump 1B and 1A Valve IST testing"
- WO 544045-02, "RHR A Shutdown Cooling Suction Valve PMT"

#### 1R22 Surveillance Testing

- AR 02618430, "VC Chiller A Trim Charge Required—3402.01P001, Appendix A"
- AR 2634372, "Transmitter 1E31-N085 Data Out of Tolerance"
- CPS 3506.01C005, "Diesel Generator Start Log," Revision 1b
- CPS 3506.01D003, "Diesel Generator 1C Operating Log," Revision 6b
- CPS 9053.04C001, "RHR Loop A Valve Operability," Revision 3c
- CPS 9061.10, "Fuel Pool Cooling Pump and Valve Operability Data Sheet," Revision 41a
- CPS 9061.10, "Fuel Pool Cooling Valve Operability," Revision 47a
- CPS 9069.01, "Shutdown Service Water Operability Test," Revision 48e
- CPS 9070.01, "Control Room HVAC Filter Package Operability Run," Revision 27f
- CPS 9070.01D001, "Control Room HVAC Air Filter Package Operability Test Run," Revision 26a
- CPS 9080.03, "Diesel Generator 1C Operability—Manual and Quick Start Operability," Revision 34e
- CPS 9080.30, "Diesel Generator Overspeed Trip Test," Revision 4c
- CPS 9432.21, "RCIC Steam Supply Line Pressure E31-N085A(B) Channel," Revision 37
- WO 1399882-02, "9381.01FC2 MOV Thermal Overload Testing)
- WO 1864260-01, "9080.30C20 DG 1C Overspeed Trip Test"
- WO 1875241-01, "RHR A Valve operability"
- WO 1881224-01, "Perform UT Exams to Check"
- WO 1887751-02, "9070.01A21 OP Control Room Make-up Air Filter Flow/Heater Operation—Train A"
- WO 1891191-01, "OP Fuel Pool Cooling Pump 1A and 1B Valve IST Testing"
- WO 1891194-01, "OP 9061.10 FC HX CC 'A' Valves"
- WO 1891265-01, "9061.10A20 OP FC/CC 'B' Valves"
- WO 1896557-01, "SX Pump A Operability Test"
- WO 1901586-01, "9080.03A23 DG 1C Operability—Monthly Test"
- WO 1539503-01, "9432.21A21 CC MS Line RCIC Pressure E31-N085A"

#### 4OA2 Identification and Resolution of Problems

- AR 02614744, "RHR a Fill/Vent Performed Prior to NDE"
- AR 02619114, "NCV 2015003-04 Failure to Enter TS Actions During OPDRVS"

- AR 02649048, "UT Prior to Fill and Vent of RCIC"
- AR 2625530, "Missed Opportunity to Identify Violation"
- WO 1847775-01, "NDE Perform UT Exams to Check for Accumulated Air LPCI A"
- WO 1864151-01, "NDE Perform UT Exams to Check for Accumulated Air RHR A"
- WO 1872148-01, "NDE Perform UT Exams to Check for Accumulated Air RHR A"
- WO 1881224-01, "NDE Perform UT Exams to Check for Accumulated Air RHR A"

#### 4OA3 Follow-up of Events and Notices of Enforcement Discretion

- AR 02614832, "Unexpected 5043-2A Auto Trip VR System CCP Supply/Exhaust Fan"
- CPS 3005.01, "Unit Power Changes," Revision 42d
- CPS 3515.01, "Operation of 6900/4160/480v Circuit Breakers," Revision 7b
- CPS 4005.01, "Loss of Feedwater Heating," Revision 18b
- OP-CL-108-101-1003, "Operations Department Standards and Expectations," Revision 35
- WC-AA-104, "Integrated Risk Management," Revision 23
- WO 1575170-01, "Clean and Inspect Unit Sub K"
- WO 1892378-03, "Perform Megger Testing of Unit Sub K"
- WO 1892378-09, "Clean and Inspect Unit Sub K"

#### 4OA5 Other Activities

- ACE 2511697, "Severity Level IV Violations Cause Evaluations," Report Date 7/09/2015
- ACE 2552999, "NRC Debrief Potential Violation on Railroad Bay and Secondary Containment," Report Date 10/09/2015
- AR 02223135, "NRC Concern on Steam Dryer Structural Integrity"
- AR 02447577, "NCV 2014005.04, USAR CG Supply Fan 1VR08C Function"
- AR 02448868, "ISFSI Haul Path Design Criteria Clarification on SR/NSR"
- AR 02451516, "Uncontrolled Document Given to NRC"
- AR 02451836, "Incorrect Safety Factor for Cask Sliding in Calculation"
- AR 02458398, "Calculation Error – Wrong Seismic Acceleration Used"
- AR 02462066, "Insufficient Documentation of Soil Liquefaction Evaluation"
- AR 02471583, "NRC MOD/50.59 Inspection : Safety Eval 97-060 for CPS 1014.11"
- AR 02500162, "NRC Questions Time History Analysis Methodology"
- AR 02511697, "Severity Level IV Violations Cause Evaluation"
- AR 02531498, "NRC Questions about the ISFSI Storage Pad"
- AR 02534694, "NRC Position for FB BLDG Exterior RR Bay"
- AR 02535369, "Static Plate Test Did Not Meet Acceptance Criteria"
- AR 02552999, "NRC Debrief Potential Violation on RR Bay and Secondary CNMT"
- AR 02554933, "ISFSI—NRC Observations for Concrete Placement"
- AR 02555015, "ISFSI—Storage Pad Concrete Mix Design Violated"
- AR 02555050, "ISFSI Voids and Honeycombing in Concrete Placement for Pad"
- AR 02563162, "ISFSI—Error in Soil Liquefaction Analysis"
- AR 02641397, "NRC IP 92723—NRC Identified Issues on ACE for IR 2552999"
- Calculation HI-2135514, "Calculation Package of Seismic Analysis of Clinton ISFSI Pad Using LS-DYNA," Revision 5
- Calculation HI-2135614, "Generation of Time Histories for Clinton," Revision 5
- Calculation HI-2135713, "Clinton Dry Cask Storage Geotechnical Soil Parameters Recommendations Report," Revision 2
- Calculation HI-2135722, "Clinton Power Station Heavy Haul Path—Transfer Slab," Revision 2
- Calculation HI-2135723, "Clinton Power Station Heavy Haul Path—Approach Slab and Apron," Revision 2

- Calculation HI-2135724, "Clinton Power Station Heavy Haul Path—Underground Utility Evaluation," Revision 3
- Calculation HI-2135842, "Clinton Power Station—ISFSI Pad Bearing Capacity," Revision 3
- Calculation HI-2135843, "Structural Analysis of ISFSI Pad at Clinton," Revision 4
- Certificate No. 1032, "Certificate of Compliance for Spent Fuel Storage Casks" Issued to Holtec International, Amendment 0
- CL-2014-E-033, "50.59 Screening for EC 395976," Revision 0
- Concrete Batch Tickets, September 10, 2015
- Concrete Compressive Strength Test Report, October 8, 2015
- Concrete Inspection Report, Preliminary Trial Batch Test Results, June 30, 2014
- Concrete Quality Inspector Qualifications
- Drawing 8942, "Dry Fuel Storage Project Cask Storage Pad Details," Sheets 1–4, Revision 5
- Drawing 9360, "Underground Commodities Plan," Sheet 1 of 1, Revision 2
- EDCR 2226–87355–059, "Acceptable Mix Design for ISFSI Pad," Revision 2
- EDCR 2226–387355–062, "Field Addition Clarification for Water or Admixture," Revision 0
- Engineering Change 387355, "ISFSI Pad," Revision 001
- FCR 2226–0XX, "Less than Adequate Concrete Consolidation," September 4, 2015
- HI-2114830, "Holtec International HI-STORM FW System FSAR," Revision 2
- HI-2135700, "Clinton Power Station Haul Path and ISFSI Ancillary Design Criteria Document," Revision 1
- HI-2146326, "HI-STORM FW Cask Handling Weights at CPS," Revision 2
- HSP-186, "Aggregate and Ready Mixed Concrete Testing Requirements for ITS "B" Applications," Revision 20
- Letter from Prairie Materials to Kiewit, "Concrete Mix Designs," July 2, 2014
- LS-AA-101–1000, "License Amendment and Technical Specifications Change Request Process," Revision 11
- LS-AA-104, "Exelon 50.59 Review Process," Revision 10
- LS-AA-104–1000, "Exelon 50.59 Resource Manual," Revision 9
- PI-AA-125, "Corrective Action Program (CAP) Procedure," Revision 2
- PI-AA-125–1003, "Apparent Cause Evaluation Manual," Revision 2
- PI-AA-125–1006, "Investigation Techniques Manual," Revision 2
- PI-AA-126–1005–F-01, "Pre-IP 92723 Inspection—Follow Up Inspection For Three or More Severity Level IV Traditional Enforcement Violations In The Same Area In A 12-Month Period," Revision 0
- PSI Report No. 00201217–1, "PSI Geotechnical Services Report," June 5, 2013
- Specification HI-2135703, "Clinton Power Station Construction Specification," Revision 4



## LIST OF ACRONYMS USED

ACE	Apparent Cause Evaluation
ADAMS	Agencywide Document Access Management System
AR	Action Request
CAP	Corrective Action Program
CCP	Continuous Containment Purge
CFR	Code of Federal Regulations
CPS	Clinton Power Station
DG	Diesel Generator
EGM	Enforcement Guidance Memorandum
FC	Fuel Pool Cooling and Cleanup System
HIC	High Integrity Container
HI-STORM	Storage Cask
IMC	Inspection Manual Chapter
IP	Inspection Procedure
ISFSI	Independent Spent Fuel Storage Installation
IST	In-Service Test
LCO	Limiting Condition for Operation
LER	Licensee Event Report
NCV	Non-Cited Violation
NDE	Non-destructive Examination
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
OPDRV	Operations with the Potential to Drain the Reactor Vessel
PARS	Publicly Available Records System
PI	Performance Indicator
psid	Pounds Per Square Inch Differential
RCIC	Reactor Core Isolation Cooling
RHR	Residual Heat Removal
RT	Reactor Water Cleanup
SDP	Significance Determination Process
SOW	System Outage Window
SSC	Structure, System, and Component
SX	Shutdown Service Water
TS	Technical Specification
USAR	Updated Safety Analysis Report
UT	Ultrasonic Testing
VC	Control Room Ventilation
VG	Standby Gas Treatment
WO	Work Order

B. Hanson

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Sincerely,

/RA/

Karla Stoedter, Chief  
Branch 1  
Division of Reactor Projects

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