



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

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

November 8, 2017

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

**SUBJECT: LASALLE COUNTY STATION, UNITS 1 AND 2—NRC INTEGRATED  
INSPECTION REPORT 05000373/2017003, 05000374/2017003 AND  
07200070/2017001**

Dear Mr. Hanson:

On September 30, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your LaSalle County Station, Units 1 and 2. On October 4, 2017, the NRC inspectors discussed the results of this inspection with Mr. W. Trafton and other members of your staff. The results of this inspection are documented in the enclosed report.

Based on the results of this inspection, the NRC has identified one issue that was evaluated under the risk significance determination process as having very low safety significance (Green). The NRC has also determined that a violation is associated with this issue. Because the licensee initiated condition reports to address this issue, this violation is being treated as a Non-Cited Violation (NCV), consistent with Section 2.3.2 of the Enforcement Policy. The NCV is described in the subject inspection report.

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

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

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

*/RA/*

Laura Kozak, Acting Chief  
Branch 1  
Division of Reactor Projects

Docket Nos. 50-373; 50-374; 72-070  
License Nos. NPF-11; NPF-18

Enclosure:  
IR 05000373/2017003; 05000374/2017003;  
07200070/2017001

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Letter to B. Hanson from L. Kozak, dated November 8, 2017

SUBJECT: LASALLE COUNTY STATION, UNITS 1 AND 2—NRC INTEGRATED INSPECTION REPORT 05000373/2017003, 05000374/2017003 AND 07200070/2017001

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 05000373; 05000374; 07200070  
License Nos: NPF-11; NPF-18

Report No: 05000373/2017003; 05000374/2017003;  
07200070/2017001

Licensee: Exelon Generation Company, LLC

Facility: LaSalle County Station, Units 1 and 2

Location: Marseilles, IL

Dates: July 1, 2017, through September 30, 2017

Inspectors: R. Ruiz, Senior Resident Inspector  
J. Havertape, Resident Inspector  
J. Wojewoda, Acting Resident Inspector  
M. Learn, Reactor Engineer, Materials Control, ISFSI, and  
Decommissioning Branch (MCID), Division of Nuclear  
Materials Safety (DNMS)  
N. Fields, Health Physicist, MCID, DNMS  
J. Beavers, Health Physicist, MCID, DNMS  
C. Phillips, Project Engineer, Division of Reactor Projects  
R. Zuffa, Resident Inspector (Illinois Emergency  
Management Agency),

Approved by: L. Kozak, Acting Chief  
Branch 1  
Division of Reactor Projects

Enclosure

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## SUMMARY

Inspection Report 05000373/2017003, 05000374/2017003, 07200070/2017001;  
07/01/2017 – 09/30/2017; LaSalle County Station, Units 1 & 2; Maintenance Effectiveness.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. One Green finding was identified by the inspectors. The finding involved a Non-Cited Violation (NCV) of the U.S. Nuclear Regulatory Commission (NRC) requirements. 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 November 1, 2016. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6.

### **Cornerstone: Mitigating Systems**

Green. The inspectors identified a Green NCV of Title 10 of the *Code of Federal Regulation* (CFR) 50.65(a)(1) for the failure to monitor the performance of the Unit 1 low pressure core spray (LPCS) system against licensee-established goals. Specifically, the licensee did not identify and properly account for a maintenance rule functional failure (MRFF) of the Unit 1 LPCS min-flow valve differential pressure switch, which demonstrated that performance of the Unit 1 LPCS system was not being controlled in accordance with the maintenance rule. The Licensee's immediate corrective actions included entering this issue into their corrective action program (CAP), re-evaluating and classifying the LPCS min-flow valve differential pressure switch failure as a MRFF, and entering the system into (a)(1) status. This finding was entered into the licensee's CAP as action request (AR) 4029999.

The performance deficiency was determined to be more-than-minor in accordance with IMC 0612 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 to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee did not properly classify the May 17, 2017, failure of the LPCS min-flow valve differential pressure switch as a MRFF. When properly classified, this failure caused the maintenance rule performance criteria for the LPCS system to be exceeded—causing the system to receive additional remedial station attention. In accordance with IMC 0609, Attachment 4, "Initial Characterization of Findings," issued October 16, 2016, and Exhibit 2 of IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, the inspectors determined that this maintenance rule program-based finding is of very low safety significance (Green) since it was not a deficiency affecting the design or qualification of a mitigating structure, system, or component, it did not represent the loss of a system and/or function, it did not represent an actual loss of function of at least a single train or two separate safety systems out-of-service for greater than its technical specifications allowed outage time, and it did not represent an actual loss of a non-technical specification 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 Problem Identification and Resolution in the aspect of Evaluation, where 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 failure of the Unit 1 LPCS min-flow valve differential pressure switch on May 17, 2017 [P.2]. (Section 1R12)

## REPORT DETAILS

### Summary of Plant Status

#### **Units 1 and 2**

With the exception of planned minor power changes for rod pattern adjustments and turbine valve surveillance testing, both units remained at or near full-power throughout the inspection period.

#### **1. REACTOR SAFETY**

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

#### 1R04 Equipment Alignment (71111.04)

##### .1 Quarterly Partial System Walkdowns

##### a. Inspection Scope

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

- Unit 1 A residual heat removal (RHR); and
- Unit 1 Division II emergency diesel generator (DG) with opposite-unit Division II DG inoperable.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Updated Final Safety Analysis Report (UFSAR), Technical Specification (TS) requirements, outstanding work orders (WOs), condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions 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 and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

These activities constituted two partial system walkdown samples as defined in Inspection Procedure (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 4D1, Unit 1 - Cable Spreading Room 749' 0";
- Fire Zone 2H4, Unit 1 reactor core isolation cooling (RCIC)/low pressure core spray (LPCS) Cubicle 694' 6";
- Fire Zone 5B1, Unit 1 - Heater Bay Zone 728' 0", 731' 0" and 662' 4";
- Fire Zone 4D2, Unit 2 - Cable Spreading Room 749' 0"; and
- Fire Zone 5A4, Cable Zone 749' 0".

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

The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to impact equipment which could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event.

Using the documents listed in the Attachment to this report, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's CAP.

Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program (71111.11)

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

a. Inspection Scope

On September 19, 2017, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator regualification training. The inspectors verified that operator performance was adequate, evaluators were identifying and documenting

crew performance problems, and that 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. Documents reviewed are listed in the Attachment to this report.

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 During Periods of Heightened Activity or Risk (71111.11Q)

a. Inspection Scope

On September 10, 2017, the inspectors observed control room operators performing Unit 2 load drop and sequence exchange. This was an activity that required heightened awareness or was related to increased risk. The inspectors evaluated the following areas:

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

The performance in these areas was compared to pre-established operator action expectations, procedural compliance and task completion requirements. Documents reviewed are listed in the Attachment to this report.

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:

- Unit 1 LPCS system;
- Unit 1 reactor building ventilation; and
- Quality Control aspects of hardened containment ventilation system (HCVS) modification and its effect on secondary containment. [QC]

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 Title 10 *Code of Federal Regulations* (CFR) Part 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 inspector performed a quality review of the HCVS installation and its effect on secondary containment, as discussed in IP 71111.12, Section 02.02.

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. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two quarterly maintenance effectiveness samples and one quality control sample as defined in IP 71111.12–05.

b. Findings

Inadequate Maintenance Rule Monitoring of the Low Pressure Core Spray System

Introduction. The inspectors identified a Green Non-Cited Violation (NCV) of 10 CFR 50.65(a)(1) for the failure to monitor the performance of the Unit 1 LPCS system

against licensee-established goals. Specifically, the licensee did not identify and properly account for a maintenance rule functional failure (MRFF) of the Unit 1 low pressure core spray (LPCS) min-flow valve differential pressure switch, which demonstrated that performance of the Unit 1 LPCS system was not being controlled in accordance with the maintenance rule.

Description. The inspectors performed a routine review of the licensee's maintenance rule program for the Unit 1 LPCS system. The inspectors noted a discrepancy associated with a failure of the LPCS min-flow differential pressure switch 1E21-N004, on May 17, 2017. The switch failure caused the min-flow valve to close resulting in the licensee declaring LPCS inoperable; however, the licensee did not classify this failure as a MRFF.

The reliability functional criteria for LPCS was to provide cooling water to the reactor in the event of a loss-of-coolant accident. The number of acceptable reliability failures for LPCS was zero. Therefore, had the licensee determined this failure to be a MRFF it would have resulted in the requirement for an expert panel to determine if the system should have been moved into (a)(1) status. The licensee documented the inspectors' concerns in AR 4028879, "NRC Question Regarding Maintenance Rule Classification" and subsequently determined that the instrument failure was a MRFF. The licensee documented the determination in AR 4029999, "U1 LPCS Exceeded Maintenance Rule Reliability Criteria." The LPCS system was subsequently entered into (a)(1) status.

Analysis. The inspectors determined that the failure to ensure that the performance of the Unit 1 LPCS system was being effectively controlled in accordance with maintenance rule program requirements was a performance deficiency. The finding was determined to be more-than-minor in accordance with IMC 0612 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 to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the reliability of the system was adversely affected when the licensee failed to properly classify the May 17, 2017, failure of the LPCS min-flow valve differential pressure switch as a MRFF. When properly classified, this failure caused the maintenance rule performance criteria for the LPCS system to be exceeded—causing the system to receive additional remedial station attention by being in (a)(1) status.

In accordance with IMC 0609, Attachment 4, "Initial Characterization of Findings," dated October 7, 2016, and Exhibit 2 of IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, the inspectors determined that this maintenance rule program-based finding is of very low safety significance (Green) since it was not a deficiency affecting the design or qualification of a mitigating SSC, it did not represent the loss of a system and/or function, it did not represent an actual loss of function of at least a single train or two separate safety systems out-of-service for greater than its technical specifications allowed outage time, and it did not represent an actual loss of a non-technical specification 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 Problem Identification and Resolution in the aspect of Evaluation, where 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 failure of the Unit 1 LPCS min-flow valve differential pressure switch on May 17, 2017 [P.2].

Enforcement. Title 10 CFR 50.65 (a)(1), requires, in part, that the holders of an operating license shall monitor the performance or condition of SSCs against licensee-established goals, in a manner sufficient to provide reasonable assurance that these SSCs, as described in paragraph (b) of this section [50.65], are capable of fulfilling their intended functions.

Contrary to the above, from May 17, 2017, until July 9, 2017, the licensee failed to monitor the performance of the Unit 1 LPCS equipment against licensee-established goals. Specifically, the licensee did not identify and properly account for a MRFF of the LPCS min-flow valve differential pressure switch failure on May 17, 2017. The Licensee's immediate corrective actions included entering this issue into their CAP, re-evaluating and classifying the LPCS min-flow valve differential pressure switch failure as a MRFF, and entering the system into (a)(1) status. Because this finding was of very low safety significance and was entered into Licensee's CAP as AR 4029999, this violation is being treated as a NCV, consistent with Section 2.3.2 of the U.S. Nuclear Regulatory Commission (NRC) Enforcement Policy. **(NCV 05000373/2017003-01, Inadequate Maintenance Rule Monitoring of the Low Pressure Core Spray System)**

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:

- reactor water clean-up room high temperature alarm annunciator indicator;
- 2VX01C Division I switchgear ventilation supply train trip;
- Unit 1 Division III work window; and
- Unit 1 fire protection water leak in low pressure heater bay.

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. Documents reviewed during this inspection are listed in the Attachment to this report.

These maintenance risk assessments and emergent work control activities constituted four 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 4028855, Unit 1 residual heat removal system void;
- operability evaluation 16–003, essential cooling water coolers;
- AR 4032510, off-gas ventilation nonfunctional;
- operability evaluation 16–004, Revision 1 (2VX01C);
- diesel generator (DG) starting air pin hole leak;
- compressor cycling (OVE04CB); and
- Unit 1 mean sea level radiation monitors degraded.

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 UFSAR 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 CAP documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

.1 Plant Modifications

a. Inspection Scope

The inspectors reviewed a modification to the secondary containment structure via the HCVS installation.

The inspectors reviewed the configuration changes and associated 10 CFR 50.59 safety evaluation screening against the design basis, the UFSAR, and the TS, as applicable, to verify that the modification did not affect the operability or availability of the affected systems. The inspectors, as applicable, observed ongoing and completed work activities to ensure that the modifications were installed as directed and consistent with the design control documents; the modifications operated as expected; post-modification testing adequately demonstrated continued system operability, availability, and reliability; and that operation of the modifications did not impact the operability of any interfacing systems. As applicable, the inspectors verified that relevant procedure, design, and licensing documents were properly updated. Lastly, the inspectors discussed the plant modification with operations and engineering to ensure that the individuals were aware of how the installation of the plant modification could impact overall plant performance. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

.1 Post-Maintenance Testing

a. Inspection Scope

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

- 1C RHR min flow valve differential pressure instrument replacement;
- Unit 2 Division II RHR lake makeup and blowdown pump breaker replacement;
- Unit 1 Division II DG air start valve replacement; and
- Unit 1 LPCS motor air cooler valve maintenance.

These activities were selected based upon the structure, system, or component's ability to impact risk. The inspectors evaluated these activities for the following (as applicable): the effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed; acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate; tests were performed as written in accordance with properly reviewed and approved procedures; equipment was returned to its operational status following testing (temporary modifications or jumpers required for test performance were properly removed after test completion); and test documentation was properly evaluated. The inspectors evaluated the activities against TSs, the UFSAR, 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 CAP 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. Documents reviewed are listed in the Attachment to this report.

This inspection constituted four 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:

- Unit 1 125 Vdc Battery (Routine);
- Unit 2 RCIC (Routine);
- Unit 2 high pressure core spray (HPCS) stem rotation checks of minimum flow valve (Routine); and
- Unit 1C RHR Comprehensive (in-service test).

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

- did preconditioning occur;
- the effects of the testing were adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- acceptance criteria were clearly stated, demonstrated operational readiness, and were consistent with the system design basis;
- plant equipment calibration was correct, accurate, and properly documented;
- as-left setpoints were within required ranges; and the calibration frequency was in accordance with TSs, the UFSAR, procedures, and applicable commitments;
- measuring and test equipment calibration was current;
- test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied;
- test frequencies met TS requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; jumpers and lifted leads were controlled and restored where used;
- test data and results were accurate, complete, within limits, and valid;
- test equipment was removed after testing;
- where applicable for in-service testing (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.

Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

.1 Training Observation

a. Inspection Scope

The inspector observed a simulator training evolution for licensed operators on August 30, 2017, which required emergency plan implementation by a licensee operations crew. This evolution was planned to be evaluated and included in performance indicator (PI) data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the post-evolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that the licensee evaluators noted the same issues and entered them into the CAP. As part of the inspection, the inspectors reviewed the scenario package and other documents listed in the Attachment to this report.

This inspection of the licensee's training evolution with emergency preparedness drill aspects constituted one sample as defined in IP 71114.06–05.

b. Findings

No findings were identified.

#### 4. OTHER ACTIVITIES

##### Cornerstones: Mitigating Systems

##### 40A1 Performance Indicator Verification (71151)

##### .1 Mitigating Systems Performance Index—Emergency AC Power System

##### a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI)—Emergency AC Power System PI for Units 1 and 2 from the third quarter 2016 through the second quarter 2017. 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 31, 2013, were used. The inspectors reviewed the licensee’s operator narrative logs, MSPI derivation reports, issue reports, event reports and NRC Integrated Inspection Reports for the third quarter 2016 through the second quarter 2017 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee’s issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

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

##### b. Findings

No findings were identified.

##### .2 Mitigating Systems Performance Index—High Pressure Injection Systems

##### a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index—High Pressure Injection Systems PI for Units 1 and 2 from the third quarter 2016 through the second quarter 2017. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in NEI 99–02, Revision 7 were used. The inspectors reviewed the licensee’s operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the third quarter 2016 through the second quarter 2017 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee’s issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two MSPI high pressure injection system samples as defined in IP 71151–05.

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index—Residual Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index—Residual Heat Removal System PI for Units 1 and 2 from the third quarter 2016 through the second quarter 2017. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in NEI 99–02, Revision 7 were used. The inspectors reviewed the licensee’s operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the third quarter 2016 through the second quarter 2017 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee’s issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two MSPI residual heat removal system samples as defined in IP 71151–05.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

.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.

b. Findings

No findings were identified.

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

.1 (Closed) Licensee Event Report 05000373/2017006–00, Low Pressure Core Spray Inoperable Due to Minimum Flow Valve Failure in Closed Position

a. Inspection Scope

This event occurred on May 17, 2017, during Unit 1 full-power operations, when operators received an unexpected alarm for the low pressure core spray pump injection high flow and automatic closure of the low pressure core spray minimum flow valve. The valve was determined to have a faulty diaphragm which allowed water intrusion into the device. There were no impacts on plant operations. Technical Specification 3.5.1, “ECCS — Operating” and TS 3.3.5.1, “Emergency Core Cooling System Instrumentation” were entered. The differential pressure switch was replaced and the LPCS system tested. The system was fully restored on May 17, 2017.

The related topic of static-o-ring flow element degradation was discussed in LaSalle’s second quarter-2017 integrated inspection report, sections 4OA2.2 and .3, with an associated Green finding being issued at that time (FIN 05000373/2017002–01). The corrective actions associated with this component failure appear reasonable to prevent recurrence. An additional NCV associated with the licensee’s failure to implement certain requirements of the maintenance rule associated with this component/system failure can be found in section 1R12 of this inspection report. Documents reviewed are listed in the Attachment to this report.

This LER is closed.

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

b. Findings

No findings were identified.

4OA5 Other Activities

.1 Operation of an Independent Spent Fuel Storage Installation at Operating Plants (60855.1)

a. Inspection Scope

The inspectors reviewed documents, interviewed plant personnel, and performed in-field observations to assess the licensee’s performance as it relates to the operation of the independent spent fuel storage installation (ISFSI). The inspectors evaluated whether changes made to the programs and procedures since the last inspection were consistent with the license or Certificate of Compliance. The inspectors also reviewed whether

changes were evaluated in accordance with the requirements stated in Title 10 of the *Code of Federal Regulations* (CFR) 72.212(b), 10 CFR 50.59, and 10 CFR 72.48. The inspectors independently assessed whether dry cask storage activities were performed in a safe manner and in compliance with approved procedures. The inspectors verified that the licensee has identified each fuel assembly placed in the ISFSI, and has recorded the parameters and characteristics of each fuel assembly.

Specifically, the inspectors observed the licensee perform the following activities: place the transfer cask in the spent fuel pool; load the cask with spent fuel; remove the transfer cask from the spent fuel pool; remove water from the cask; decontaminate the cask; perform closure welding operations; perform nondestructive evaluations; conduct vacuum drying; backfill with helium; and conduct radiological field surveys. The inspectors also reviewed the following documents: periodic radiological surveys; environmental monitoring reports that demonstrate radiological conditions were in accordance with the TSs and 10 CFR 72.104 limits; and records of fuel assemblies and physical inventories. The inspectors performed a walkdown of the licensee's ISFSI pad and haul path.

A review of CAP reports written since the last ISFSI inspection indicated that the licensee was effectively identifying and correcting conditions adverse to quality.

b. Findings

No violations were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On October 4, 2017, the inspectors presented the inspection results to Mr. W. Trafton, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

.2 Interim Exit Meetings

Interim exits were conducted for:

- results of the ISFSI operational inspection, which were presented on July 28, 2017, to Mr. W. Trafton and other members of the licensee's staff.

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.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee

W. Trafton, Site Vice President  
H. Vinyard, Plant Manager  
J. Kowalski, Maintenance Director  
J. Keenan, Engineering Director  
J. Ward, Work Control Director  
J. Stovall, Operations Director  
G. Ford, Regulatory Assurance Manager  
J. Moser, Radiation Protection Manager  
A. Schierer, Programs Engineering Manager  
M. Hayworth, Emergency Preparedness Manager  
J. Van Fleet, Operations Manager  
S. Tanton, Design Engineering Manager  
R. Conley, Radiation Engineering Manager  
D. Wright, Operations Training Manager  
D. Anthony, Exelon Non-Destructive Examination Specialist Manager West  
D. Bakalar, Security Manager  
E. Stein, Dry Cask Storage (DCS) Program Manager  
G. Chavez, DCS Senior Manager  
T. Lanc, Regulatory Assurance  
M. Cichon, DCS Project Manager  
L. Simpson, Corporate Licensing  
G. Brumbelow, Emergency Preparedness Coordinator  
M Venaas, Organizational Effectiveness  
W. Buinickas, Chemistry

#### U.S. Nuclear Regulatory Commission

K.Stoedter, Chief, Reactor Projects Branch 1  
L Kozak, Acting Chief, Reactor Projects Branch 1

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

05000373/2017003-01	NCV	Inadequate Maintenance Rule Monitoring of the Low Pressure Core Spray System (Section 1R12)
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### Closed

05000373/2017003-01	NCV	Inadequate Maintenance Rule Monitoring of the Low Pressure Core Spray System (Section 1R12)
05000373/2017006-00	LER	Low Pressure Core Spray Inoperable Due to Minimum Flow Valve Failure in Closed Position (Section 4OA3)

### Discussed

None.

## LIST OF DOCUMENTS REVIEWED

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

### 1R04 Equipment Alignment

- AR 2707627; "Deferred Replacement of 2VD04C KM on 2A Diesel"
- DG-2; Training Diagram: HPCS and Non-HPCS Fuel Oil Systems; Revision 1
- DG-3; Training Diagram: Lubricating Oil System; Revision 0
- DG-4; Training Diagram: Cooling Water System; Revision 0
- DG-5; Training Diagram: D/G Air Start System; Revision 1
- LOP-DG-04E; Unit 2 A Diesel Generator Electrical Checklist; Revision 9
- M-83; P & ID Diesel Generator Auxiliary System; Revision BB
- M-83; P & ID Diesel Generator Lube Oil System; Revision G
- M-87; P & ID Core Standby Cooling System Equipment Cooling Water System; Revision O

### 1R05 Fire Protection

- "Sample" Pre-Fire Plan Legend, Quad Cities Generating Station
- 1E-1-4609AA; Internal/External Wiring Diagram RPS Trip System "B" Vertical Board 1H13-P611 Part 1; Revision BA
- 1E-1-4609AD; Internal/External Wiring Diagram RPS Trip System "B" Vertical Board 1H13-P611 Part 4
- 1E-1-4619AA; Internal Wiring Diagram Outboard Valve Relay vertical Board 1H13-P623; Revision AB
- 1E-1-4619AB; Internal (*sic*)/External Wiring Diagram Outboard Valve Relay Vertical Board Panel 1H13-P623
- AR 1603204; LaSalle County Station License Renewal Commitments
- AR 2527620; "Cable Areas Above Lab Sprinkler Actuation"
- AR 3955375; "Fire Proofing Issue Identified at Aux Building 731'0"
- AR 4017866; "Fire Alarm Associated with 1B DG Operation"
- AR 4043253; "FP FASA Inadvertent Tripping of the Overlab Preaction System"
- AR 4051091; "NOS ID: Fire Inspection Plan Does Not Align with Fire Analysis (*sic*)"
- Calc L-000776, Combustible Load; Revision 8
- Corrective Action Search Keyword "Actuation" 1/1/2010-9/11/2017
- Corrective Action Search Keyword "Pre-Action" 1/1/2010-9/11/2017
- FZ 2H4; LaSalle Pre-Fire Plan RX Bldg. 694' 6" Elev. U1 RCIC/LPCS Cubicle
- FZ 2I4; LaSalle Pre-Fire Plan Unit 1 Elevation 673' 4" LPCS/RCIC Pump Cubicle
- FZ 4D1; LaSalle Pre-Fire Plan Aux. Bldg. 749' 0" Elev. U1 Cable Spreading Room
- H.4-30; LSCS-FPR; Fire Zones; Revision 7
- LaSalle Station Fire Protection report Revision 7; LaSalle NFPA Code Deviation Summary matrix; *undated*
- LOA-FP-101; Safe Shutdown System/Potential Manual Actions: Cable Spreading Room; Page 87, Revision 32
- LOP-FP-03; Viking Automatic Deluge Valve Actuation and Reset; Revision 29
- LSCS-FPR; Combustible Loading and Extinguishing Capability; Table H.3-2; Revision 7
- LSCS-FPR; Table H.4-54; Safe Shutdown Equipment Located in Fire SubZone 4D1-1



- LTS-1000-41; Electrical Fire Penetration Inspections; Revision 13
- LTS-1000-42; Fire Assembly Integrity Inspection; Revision 15
- LTS-1000-42; U-1 Fire Rated Assemblies; Revision 15
- M-1387; Auxiliary Bay Ventilation and Auxiliary Electrical Equipment Room Air Conditioning System El. 749' 0"; Revision AE
- M-1542; Duct Penetration Details; Revision K
- OP-AA-201-004; Fire Prevention for Hot Work; Revision 14
- OP-AA-201-006; Control of Temporary Heat Generating Equipment; Revision 8
- OP-AA-501-1027; How Work Precautions and Safety Practices; Revision 2

#### 1R11 Licensed Operator Regualification Program

- AR 4035180; "NRC Question Regarding Quality of Top Hat for HCVS"
- EC 397691; Work Planning Instructions; Revision 1
- Email from M. Entwistle to R. Caputo; Two New PCIVs Installation: Safety-related
- L2C17; Unit 2 September 2017 Sequence Exchange (Ticket 1146839), Gross MWe/Hr; 9/9/2017-9/10/2017
- LAP-1800-8; Attachment D, ODCM Surveillance Gaseous Effluents Check List; 9/10/2017
- LAP-1800-8; ODCM Guide For Changing Plant Conditions; Revision 19
- LIS-RP-205AA; Unit 2 Turbine Control Valve Fast Closure Trip Oil Pressure RPS Channels A1 and B1 and EOC-RPT-System; Revision 8
- LIS-RP-205AB; Unit 2 Turbine Control Valve Fast Closure Trip Oil Pressure RPS Channels A1 and B1 and EOC-RPT-System; Revision 8
- LIS-RP-205BA; Unit 2 Turbine Control Valve Fast Closure Trip Oil Pressure RPS Channels A2 and B2 and EOC-RPT-System; Revision 9
- LIS-RP-205BB; Unit 2 Turbine Control Valve Fast Closure Trip Oil Pressure RPS Channels A2 and B2 and EOC-RPT-System; Revision 9
- LOP-RR-07; Operation of the Reactor Recirculation Flow Control System; Revision 45
- LOS-FW-SR1, Turbine Feedwater Pump Surveillance; Revision 25
- LOS-RP-Q2; Turbine Stop Valve SCRAM and EOC-RPT Functional Test; Revision 24
- LOS-RP-Q3; Main Steam Isolation Valve SCRAM Functional Test; Revision 24
- LOS-RP-Q5; Turbine Control Valve Quarterly Surveillance; Revision 24
- LS-AA-104; 50.59 Procedure Basis; Revision 10
- NEI 13-02; Industry Guidance for Compliance with Order EA-13-109: BWR Mark I & II Reliable Hardened Containment vents Capable of Operation Under Severe Accident Conditions; November 2013
- NSWP-M-05; Pressure Testing; Revision 9
- OP-AA-101-111; Roles and Responsibilities of On-Shift Personnel; Revision 6
- OP-AA-101-113; Operator Fundamentals; Revision 7
- PBI Rupture disk HCVS U-1.00r11/WO 1879061-93; Plant barrier Impairment Permit: 12" Pipe Cap Installed in HCVS Piping; 6/22/2017
- WO 1879061-13; Install Top Hat / Drill Core Hole / Install Support 1PC01-1403A; Document 1A

#### 1R12 Maintenance Effectiveness

- AD-AA-2001; Job Start Checklist; Revision 17
- AR 2624511; "1VR05YA Indication Failed Dual"
- AR 2741412; "Unit 2 Post-LOCA Exceeded Maintenance Rule A(1) Criteria"
- AR 4011747; "Unexpected Main Control Room Alarm"
- AR 4028879; "NRC Question Regarding Maintenance Rule Classification"

- AR 4028896; “NRC Question Regarding a Component Classification”
- AR 4029999; “U1 LPCS Exceeded Maintenance Rule Reliability Criteria”
- CR 4011747; Corrective Action Program Evaluation Report—Unexpected Alarm “LPCS Pump Injection Flow Hi” and Inadvertent Closing of the Min-Flow Valve; 6/22/2017
- M09-PC01-1403A; Hanger; Revision --WP 1879061-13; Through-bolt Installation Checklist; Revision 0
- M-1201; Reactor Building Sleeve Schedule; Revision M
- MR AR 2624511; Maintenance Rule Failure Classification, Unit 1 Reactor Building Exhaust Isolation Damper Dual Indication Caused Exhaust Fans To Trip; 4/4/2016
- MR AR 2662876; Maintenance Rule Failure Classification, 1VR01CB Trip During VR Fan Swap; 6/23/2016
- MR LAS-1-VR; Maintenance Rule Function Evaluation; 2/2016 and 5/2016
- NO-AA-300-1001; Nuclear Oversight Independent Inspection Plan; Revision 9
- S&ME WP 1879061-28; Certified Materials Test Report: Compressive Strength Summary Masterflow 928 Grout Cubes; 8/4/2017
- Vol. 3C NSWP-S-02; Non-Shrink grout Installation and Inspection; Revision 9
- WO 1879061-13; Install Top Hat / Drill Core Hole / Install Support 1PC01-1403A; Document 1A
- WO 1879061-28; CM—Grout 20” Core Hole in RB Wall; 7/18/2017
- WO 215103; Quality Receipt Inspection Grout, Nonshrink, Masterflow 928; Revision 1
- WO 4573336-05; EM 392353 — U2 Hardened Containment Vent System (HCVS); 12/20/2016
- WP 01879061-13; ASME Weld Map, Document 2.1, 2.0, 2.3; Revision 5

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

- Current Installed Protected Pathway List; 9/27/2017
- LOA-FLD-001; Flooding; Revision 20
- AR 04056931; “NRC Question on Division 3 Protected Pathways”
- AR 4037236; “2VX01C Div 1 Swgr Room Supply Fan Trip”
- AR 4056713; “FP Piping Rupture Requires Repair”
- AR 4056764; “1HD048A Spuriously Opened Due to DC Grounding Issue”
- AR 4055998; “U2 RWCU Valve Aisle Hot Spot”

#### 1R15 Operability Evaluations

- 1E-1-4218AA; Schematic Diagram Process Radiation Monitor System “PR” (D18) Part 1; Revision R
- 1E-1-4218AE; Schematic Diagram Process Radiation Monitor System “PR” (D18) Part 5; Revision G
- 5.0/5.5; Administrative Controls, Programs and Manuals; Amendment 147/133
- 9.4-50; LSCS-UFSAR, Off-Gas Building HVAC System; Revision 14
- AR 02717041; “Per ODCM 12.4.5 RA C.1, Submit a Report to the NRC w/ 30 Day”
- AR 1041547; “Monitor Failed During Calibration”
- AR 1063871; Failed Electronic Calibration Per LIP-MS-503
- AR 2665463; “NRC Id’d CDBI Tube Plugging in 2VY04A”
- AR 4028855; “Void Discovered Curing UT of 1B RHR LPCI”
- AR 4029715; “NRC Question on Void Calculations”
- AR 4030361; “2VY04A Cooling Water Flows Out of Band”
- AR 4032510; “Inability to Open Door 553 Due to High DP”
- AR 4033242; “NRC Question on OG BLDG Pressurization Impact on ODCM”

- AR 4033244; "Trip of B VO Exhaust Fan 0VO03CB"
- AR 4047182; "Unit 1 MSL Rad Monitors are Degraded"
- CY-La-170-301; Radiological Effluent Controls; Revision 8
- EC 372452; GL2008-01 Void Calculation and Acceptance Criteria; Revision 3
- EC 405711; Reevaluation of VY Cooler Performance for OpEval 16-003, After Cleaning Results and Recommendations; Revision 9
- LOR-1H13-P601-E403; MSL C/D Radiation Monitor Hi—Hi
- LOR-1H13-P601-F403; MSL A/B Radiation Monitor HI—HI; Revision 8
- LOR-1N62-P600-B502; Off Gas Pre-Treatment Radiation Monitor High Radiation; Revision 8
- LOS-DG-SR5; 0 DG Cooling Water System Flow Test; Revision 28
- LOS-ZZ-Q1; Miscellaneous Ventilation Exhaust Treatment Systems Operability Check; Revision 18
- LSCS UFSAR 1.2-20; Main Steamline Radiation Monitoring System
- Operations Log, Wednesday, July 19, 2017, Day Shift
- OpEval 16-003; Unit 2 RCIC/LPCS Room Cooler 2 VY04A; Revision 6
- OpEval 16-004; Additional degraded MCC cubicles 1AP78E-D2 and 2AP78E-D2 added to OE Scope; Revision 1
- OP-LA-102-106; LaSalle Station Operator Response Time Program; Revision 8

#### 1R18 Plant Modifications

- 2014 Hilti North American Product Tech Guide, Anchor Fastening
- AR 4035180; "NRC Question Regarding Quality of Top Hat for HCVS"
- EC 394211; Engineering Change Material List; Revision 2
- EC 397691; Engineering Change Material List; Revision 1
- EC 397691; Install Core Holes Through Aux Bldg; Revision 001
- EC 397691; Work Planning Instructions, CC-AA-103; Revision 1
- Email from M. Entwistle to R. Caputo; re EC to install two new PCIVs, Safety-Related; Undated
- LS-AA-104; Motherhood 50.59 Procedure; Revision 10
- M-859; Primary Containment and Reactor Vessel Isolation Piping System, Unit 1; Revision 0
- M-92; P & ID Primary Containment Vent and Purge, Revision 0;
- NEI 13-02; Industry Guidance for Compliance with Order EA-13-109: BWR Mark I & II Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions; 11/2013
- NSWP-M-05 Pressure Testing; Revision 9
- PBI Rupture Disk HCVS U-1, 00r11; Plant Barrier Impairment Permit, 12" Pipe Cap Installed in HCVS Piping, WO 1879061-93; 7/3/2017
- SK-EC394211-S01; Temporary Core Hole Penetration Seal; Revision 0
- SK-EC397691-S01; Temporary Core Hole Penetration Seal; Revision 0
- WO 1879061-13; Install Top Hat / Drill Core Hole / Install Support 1PC01-1403A; Document 1A; 8/2017

#### 1R19 Post-Maintenance Testing

- AR 2560090; "2A DG Control Panel Sensitive Area Has Not 1 Light Bulb Lit"
- AR 2560759; "2A DG Window Sequencing"
- AR 2561831; "2A DG Air Regulator Testing"
- AR 2604763; "2A DG 'A' Air Bank Low Pressure PPC Alarm Failed to Reset"
- AR 2628070; "Indication Identified on 1DG02A-10"
- AR 2659650; "2A DG Oil Pressure Switch Leaking 3 Drops of Oil in 24 Hours"

- AR 2693750; "Received Unexpected 2A DG Cooling Water Strainer Hi DP Alarm"
- Calibration Certificate 0011001096, Asset 0003108378; Digital Thermometer; 12/16/2016
- Calibration Certificate 0011009931, Asset 0002608914; Digital Thermometer; 1/28/2017
- EC 337402; Design Considerations Summary, Flow Elements and Associated Locally Read Barton Flow Indicators; Revision 002
- EC 337402; Remove Abandoned MOV 1DG035 and Install Local Instrumentation; 9/8/2017
- LAS 01/DG; Completed Work Orders; Third Quarter 2017
- LIP-GM-946; Installation Procedure for S-O-R Series 102/131/141 Environmentally Qualified Differential Pressure Switches; Revision 15
- LIS-RH-103B; Unit 1 RHR B & C (LPCI Mode) Minimum Flow Bypass Calibration; Revision 13
- LOP-DG-02; A DG Pre-Start Checks; Revision 62
- LOP-DG-03; A DG Control Room Shutdown; Revision 34
- LOP-DG-04; Bank DG Air Start Motors; Revision 72
- LOP-DG-08M; Unit 0 Diesel Generator Cooling System Mechanical Checklist; 9/11/2017
- LOP-DG-08M; Unit 0 Diesel Generator Cooling System Mechanical Checklist; 9/18/2017
- LOP-RR-07; Calibration/Functional Test, 1A DG Room; 4/13/2010
- LOS-DG-M2; Attachment 1A-FAST, 1 A Diesel Generator Fast Start; Revision 100
- LOS-DG-SR5; 0 DG Cooling Water System Flow Balance; Revision 29
- M09-DG15-13003X; untitled drawing (piping); Revision E
- M09-DG15-13004X; untitled drawing (piping); Revision D
- M09-DG90-2001T; Pipe (*sic*) Support Detail; Revision A
- M-87; P&ID Core Standby Cooling System Equipment Cooling Water System; Revisions AY and O
- MA-AA-716-012; Post-Maintenance Testing; Revision 23
- MA-AA-716-012; Post-Maintenance Testing; Revision 23
- Material Request 2560875; Valve, Ball, 1-1/2 In. Female NPT, Brass or Bronze, for Air Start; undated
- Receipt 210393; Quality Receipt Inspection Package, Valve Ball 1 1/2, UTC 2920903; 7/17/2012
- WO 1598804-01; IM Replace C RHR Min Flow Valve Pressure Switch; 7/6/2017
- WO 1707945; 1A EDG 'A' Air Start Valve Replacement
- WO 1707945-01; EWP MM Replace the 1DG060A Valve; 9/6/2017
- WO 1707945-01; MM 1DG060A Valve Body Joint Leaking; 9/5/2017
- WO 430345-01; Unit 1 LPCS Air Cooler Valve Work
- WO 4674451; 1A EDG 'A' Air Start Valve Replacement
- WO 4674451-01; LRA LOS-DG-M2 1A Diesel Generator Att 1A-Idle; 9/7/2017

## 1R22 Surveillance Testing

- 1-RH-03; Pressure Test Component Walkdown Checklist, C RHR Loop Piping; 5/11/2017
- AR 1402260; "LOS-RI-Q5 PCR"
- AR 3995723; "2E51-F025 Did Not Auto Open"
- AR 4029280; "NRC Question RCIC Suction Impact During LPCS Operation"
- AR 4029280; "NRC Question"
- AR 4029601; "U-2 RCIC Governor Valve Has Steam Packing Leak."
- AR 4029628; "RCIC Turbine Speed Peak >4950 RPM During LOS-RI-Q5"
- AR 4033015; "UFSAR Discrepancies Relating to RCIC Safety Classification"
- AR 4033255; "NRC Question on U2 RCIC Quarterly Surveillance Trend"
- AR 4046514; "2E22-F012 Baseline Reference Stem Rotation Value Established"

- Fig. 063-01; Low Pressure Core Spray System; 2/1/2010
- Fig. 32-1; RCIC Piping Diagram; 9/2004
- HP-1 High Pressure Core Spray System; Training Diagram; Revision 2
- LOP-LP-04; Low Pressure Core Spray/System Normal Startup and Shutdown; Revision 14
- LOS-DC-Q2 Att B; Tech Spec Surveillance; Unit 1 Div 2 Battery; 7/5/2017
- LOS-DC-Q2; Battery Readings for Safety-Related 250 VDC and Div 1,2,3 125 VDC Batteries; Revision 35
- LOS-HP-Q1; Unit 2 HPCS System Operability and Inservice Test; Revision 71
- LOS-RH-Q1; Unit 1 C RHR System Operability and Inservice Test; Revision 90
- LOS-RI-Q5; Reactor Core Isolation Cooling (RCIC) System Pump Operability, Valve Inservice Tests in Modes 1,2,3 and Cold Quick Start; Revision 40
- LTS-600-47; "A/B/C" RHR 10 Year Pressure Test Requirements; Revision 0
- M-2096; P & ID / C & I Details Residual Heat Removal System "RH"; Revisions D, L
- M-91; P & ID Reactor Building Equipment Drains System; Revision AN
- M-96; P & ID Residual Heat Removal System (RHRS); Revisions AG, AU, BB
- VT-2, Visual Examination NDE Report; Test Block 1-RH-03; 8/7/2017
- WO 1791225-01; 1RH03—Extended boundary—C RHR LOOP Piping (VT-2); 8/8/2017
- WO 1854561-01; IST Comprehensive Pump Test for 1E12-C002C; 8/7/2017
- WO 1952448-01; LRA LOS-RI-Q5 U2 RCIC Cold-Quick Start Att. 2A; 12/29/2016
- WO 1952449-01; LOS-HP-Q1 U2 HPCS Att 2A; 12/3/2016
- WO 1958158-01 LOS-DC-Q2 U1 Div II 125VDC Batt Att B; 1/6/2017
- WO 4578367-01; LOS-HP-Q1 U2 HPCS Att 2A; 3/13/2017
- WO 4584683-01; LRA LOS-RI-Q5 U2 RCIC Cold-Quick Start Att. 2A; 4/8/2017
- WO 4587557-01; LOS-DC-Q2 U1 Div II 125 Batt Att B; 4/5/2017
- WO 4624569-01; LRA LOS-RI-Q5 U2 RCIC Cold-Quick Start Att. 2A; 7/5/2017
- WO 4624569-01; Task Instructions: LRA\_OP LOS-RI-Q5 U2 RCIC Cold-Quick Start ATT 2A; 7/5/2017
- WO 4656500-01; LOS-HP-Q1 U2 HPCS Att 2A; 8/28/2017
- WO 4660634-01; Perform Stem Rotation Check on 2E22-F012 Valve When Cycled During OP's Surveillance; undated

#### 1EP6 Drill Evaluation

- NARS 1; (Exercise) Nuclear Accident Reporting System, Unusual Event, 08:14; 8/30/2017
- NARS 2; (Exercise) Nuclear Accident Reporting System, Unusual Event, 09:22; 8/30/2017
- NARS 3; (Exercise) Nuclear Accident Reporting System, Unusual Event, 09:41; 8/30/2017
- NARS 4; (Exercise) Nuclear Accident Reporting System, Unusual Event, 10:33; 8/30/2017

#### 40A1 Performance Indicator Verification

- AR 2708741; "1B DG AC Circ Oil Pump Tripped on Thermals"
- AR 2708972; "Pressure Switch Alarming Low With Normal Air Pressure"
- AR 2712695; "EDG SSPI Variance"
- AR 2713264; "Multiple minor Oil Leaks on 1DG01K"
- AR 2713556; "ODG034A Body Leaking Air"
- AR 2713560; "ODG034B Body Leaking Air"
- AR 2713703; "RCIC Trip and Throttle Valve Tripped"
- AR 2713722; "RCIC Barometric Condenser Pump tripped"
- AR 2715389; "ODG051VX Time Delay Relay Failed During Logic test"
- AR 2729757; "U-1 RCIC Trip on Low Suction Pressure"
- AR 3943018; "Sludge Found in RCIC Vacuum Tank"

- AR 3972910; "Valve Stem Appears to Have Separated From the Disc"
- AR 3984867; "HPCS Exceeded maintenance Rule Reliability Criteria"
- AR 3995221; "CSCS Exceeds maintenance Rule Reliability Criteria"
- AR 4027694; "Initial Inspection Information for 1E22-F004 Stem Wedge"
- LOP-DG-02; Diesel Generator Start and Run Log; 9/15/2016
- MSPI and WANO; Heat Removal System (RCIC); 9/2016
- MSPI P.8.3.1; Site Performance Indicator Validation; 7/2016
- MSPI P.8.3.1; Site Performance Indicator Validation; 8/2016
- MSPI P.8.3.1; Site Performance Indicator Validation; 9/2016
- MSPI P.8.3.1; Site Performance Indicator Validation; 10/2016
- MSPI P.8.3.1; Site Performance Indicator Validation; 11/2016
- MSPI P.8.3.1; Site Performance Indicator Validation; 12/2016
- MSPI P.8.3.1; Site Performance Indicator Validation; 1/2017
- MSPI P.8.3.1; Site Performance Indicator Validation; 2/2017
- MSPI P.8.3.1; Site Performance Indicator Validation; 3/2017
- MSPI P.8.3.1; Site Performance Indicator Validation; 4/2017
- MSPI P.8.3.1; Site Performance Indicator Validation; 5/2017
- MSPI P.8.3.1; Site Performance Indicator Validation; 6/2017
- MSPI, CW; Mitigating Systems Performance Index, Unit 1 Cooling Water System; 3<sup>rd</sup> Quarter 2015 – 2<sup>nd</sup> Quarter 2017
- MSPI, CW; Mitigating Systems Performance Index, Unit 1 Cooling Water System; 3<sup>rd</sup> Quarter 2015 – 2<sup>nd</sup> Quarter 2017
- MSPI, HR; Mitigating Systems Performance Index, Unit 1 Heat Removal System; 3<sup>rd</sup> Quarter 2015 – 2<sup>nd</sup> Quarter 2017
- MSPI, HR; Mitigating Systems Performance Index, Unit 1 Heat Removal System; 3<sup>rd</sup> Quarter 2015 – 2<sup>nd</sup> Quarter 2017
- Operator Log Entries; 3/30/2017
- Operator Log Entries; 9/28/2016
- PI O.6; Site Performance Indicator Validation, Safety System Performance; 2/2017
- SSPI; 2016 Safety System Performance; 9/2016

#### 40A2 Problem Identification and Resolution

##### Action Requests Generated from NRC or IEMA INSPECTION

- AR 2665463; "NRC Id'd CDBI Tube Plugging in 2VY04A"
- AR 4028879; "NRC Question Regarding Maintenance Rule Classification"
- AR 4028896; "NRC Question Regarding a Component Classification"
- AR 4029280; "NRC Question RCIC Suction Impact During LPCS Operation"
- AR 4029592; "NRC Questions Regarding RCIC System Safety-Related"
- AR 4029715; "NRC Question On Void Calculations"
- AR 4030322; "NRC Id: Incorrect Reference For The Torque Value In EQ-LS095"
- AR 4030532; "NRC Id: EQ-LS068 Justification of Acc. Qual. Not Adequate"
- AR 4030538; "NRC Id: EQ-LS057 Motor Bearing Grease Qualification Issue"
- AR 4032656; "NRC Observation— PM Program Needed For Critical Components"
- AR 4032656; "NRC Observation—PM Program Needed for Critical Components"
- AR 4033015; "NRC— UFSAR Discrepancies On RCIC Safety Classification"
- AR 4033070; "NRC Identified Packing Leak On 2E51-F038"
- AR 4033077; "NRC Questions During Walk Through"
- AR 4033242; "NRC Question on OG BLDG Pressurization Impact on ODCM"
- AR 4033242; "NRC Question On OG Bldg Pressurization Impact On ODCM"

- AR 4033455; "NRC Question On U2 RCIC Quarterly Surveillance Trend"
- AR 4035180; "NRC Question Regarding Quality Of Top Hat For HCVS"
- AR 4035458; "DCs—Alarm Test Of H2 Monitor Not Within 2 Hrs Of Welding"
- AR 4035640; "NRC— DCS RP—LA—304—1003—F—01 Admin Limit Discrepancy"
- AR 4035850; "NRC Id— DCS RP—LA—304—1002—F—01 Admin Limit Discrepancy"
- AR 4039855; "IEMA Identified Degraded Gauge 2PDI—HD113C"
- AR 4039886; "NRC Identified— PA Speaker in Unit 2 RCIC Room Not Audible."
- AR 4040783; "NRC Question Related To ECCS Voids & U2 EHC"
- AR 4041807; "Level 3 OPEX Review Ices 326140 (NRC PI&R)"
- AR 4042344; "RCR 2637759 Correction Required"
- AR 4042586; "NRC Identified: 1PI—DG098B Gauge Sticks"
- AR 4042927; "IR 2629002 Evaluation Not Documented And EOC Question"
- AR 4043360; "RM— PI&R Identification On IR 2413875"
- AR 4045904; "NRC Id'ed: Fire Extinguishers Not Inspected"
- AR 4045916; "IEMA Identified Potential Interlock Door Improvement"
- AR 4048381; "Typographical Errors Found In License Amendment Documents"
- AR 4048569; "NRC Resident Questions Regarding U1 MSL Rad Monitors"
- AR 4049563; "NRC Question On Certification (sic) Of Temperature Monitor"
- AR 4051196; "NRC Id Violation For HCVS Top Hat"
- AR 4051714; "NRC Identified. Fire Coating Degradation"
- AR 4052192; "IEMA Identified: 2E51—F026 Air Line In Contact With Support"
- AR 4052197; "IEMA Identified: 1E51—F026 Air Line In Contact With Support"
- AR 4052616; "NRC Id'd: Possible Lead—Acid Stains Div 3 Battery Room Floor"
- AR 4052661; "NRC Identified: 1FP147 Emergency Trip Stop Leaking 1—2 DPM"
- AR 4053598; "NRC Id: WLP Location Corrections Needed In LMP—GM—26"
- AR 4053974; "NRC Questions On ILRT LAR"
- AR 4054663; "NRC I'd: Sediment In Bottom Of Battery #44 On Div 3 125 Vdc"
- AR 4056841; "NRC I'd Additional Questions On Div 3 125vdc Sediment"
- AR 4056931; "NRC Question On Division 3 Protected Pathways"
- AR 4057588; "NRC Identified: Door 129 Not Latching Properly"

#### 40A5 Other Activities

- 10 CFR 72.212 Evaluation Report; Revision 5
- 10 CFR 72.48 Screenings from 2015-2017
- 2016 ISFSI Pad Survey Data Sheet; 4/13/2016
- 2017 ISFSI Pad Survey Data Sheet; 5/18/2017
- AR 4035458; "DCS Alarm Test of Hydrogen Monitor Not Within Two Hours of Welding"
- AR 4035640; "DCS Procedure RP—LA—304—1003—F—01 Administrative Limit Discrepancy"
- AR 4035850; "DCS Procedure RP—LA—304—1002—F—01 Administrative Limit Discrepancy"
- AR 4039180; "Documentation of Annual ISFSI Inspection"
- Cask Loading Requirements Memorandum; 12/9/2016
- GQP—1.0; Project Organization and Documentation; Revision 20
- H2—MON—002; Hydrogen Monitoring for Holtec Canisters; Revision 6
- HI—2084236; HI-STORM CoC Radiation Protection Program Dose Rate Limits; Revision 0
- L—003497; Dose versus Distance from a HI-STORM 100s Version B Containing the MPC—68; Revision 0
- L—004156; LaSalle Cask Model Update for 2017 ISFSI Campaign – ISFSI; Revision 0
- L—004157; Fuel Selection Packages for LAS—0027 through LAS—0035 for the 2017 ISFSI Campaign; Revision 0

- LAP-300-18; Transportation of Loads Over Irradiated Fuel and Safety-related Equipment on the Refuel Floor; Revision 8
- LAS 033117; LaSalle Pre-NRC Inspection / 2017 Spent Fuel Loading Campaign Readiness Assessment; 3/31/2017
- LFP-400-6; Installation and Operation of Sipping Equipment; Revision 8
- LFP-800-65; Spent Fuel Cask Site Transportation; Revision 10
- LFP-800-69; HI-TRAC Movement Within the Reactor Building; Revision 19
- LFP-800-70; HI-TRAC Loading Operations; Revision 13
- LFP-800-71; MPC Processing; Revision 15
- LFP-800-72; HI-STORM Processing; Revision 15
- LFP-800-8; Spent Fuel Cask Contingency Actions; Revision 12
- LOS-AA-S101; Revision 100
- MA-AA-716-008-1008; Refuel Floor FME Plan; Revision 12
- MA-AA-716-021; Rigging and Lifting Program; Revision 28
- MA-AA-716-022; Control of Heavy Loads Program; Revision 13
- MRS-GEN-1185; Telescope Fuel Sipping Operating Procedure; Revision 8
- MSLT-MPC-EXELON-MW; Helium Mass Spectrometer Leak Test Procedure Multipurpose Canister; Revision 0
- NF-AA-622; Fuel Selection and Documentation for Dry Cask Loading; Revision 3
- NOSA-LAS-16-11; ISFSI Audit Report; 11/31/2016
- PI-AA-400; Exelon Observation Program; Revision 1
- PI-CNSTER-OP-EXE-H-01; Closure Welding of Holtec MPC at Exelon Facilities; Revision 14, Revision 15
- Qualification of ISFSI Staff for 2017 Spent Fuel Loading Campaign
- RP-LA-304-1003-F-01; HI-STORM Radiation Survey Data Sheet; Revision 1, Revision 2
- WO 1872872; [Overhead Crane] Annual Inspection per LMS-HC-01; 7/28/2016
- WO 1877039; DCS Lift Yoke Assembly Inspection; 12/20/2016
- WO 1877368; DCS HI-STORM Lift Bracket Inspection; 12/15/2016
- WO 1877369; DCS MPC Lift Cleat Inspection; 12/9/2016
- WO 1877370; DCS HI-TRAC Trunnion Inspection; 12/9/2016
- WO 1067780; L1R12 Fuel Sipping; 2/22/2008



## LIST OF ACRONYMS USED

AC	Alternating Current
AR	Action Request ( <i>also known as Issue Report</i> )
CAP	Corrective Action Program
CFR	<i>Code of Federal Regulations</i>
DC	Direct Current
DCS	Dry Cask Storage
DG	Diesel Generator
DNMS	Division of Nuclear Materials Safety
HCVS	Hardened Containment Ventilation System
HPCS	High Pressure Core Spray
IMC	Inspection Manual Chapter
IP	Inspection Procedure
ISFSI	Independent Spent Fuel Storage Installation
IST	In-Service Test
LER	Licensee Event Report
LPCS	Low Pressure Core Spray
MCID	Materials Control, ISFSI, and Decommissioning
MRFF	Maintenance Rule Functional Failure
MSPI	Mitigating Systems Performance Index
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
PI	Performance Indicator
PI&R	Problem Identification and Resolution
PM	Preventive Maintenance
RCIC	Reactor Core Isolation Cooling
RHR	Residual Heat Removal
SDP	Significance Determination Process
SSC	Structure, System and Component
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
Vdc	Volts Direct Current
WO	Work Order