



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

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

August 20, 2015

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 - EVALUATIONS OF CHANGES,  
TESTS, AND EXPERIMENTS AND PERMANENT PLANT MODIFICATIONS  
BASELINE INSPECTION REPORT 05000373/2015009; 05000374/2015009**

Dear Mr. Hanson:

On July 16, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an Evaluations of Changes, Tests, and Experiments, and Permanent Plant Modifications inspection at your LaSalle County Station, Units 1 and 2. The enclosed inspection report documents the inspection results, which were discussed on July 16, 2015, with Mr. H. Vinyard, and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations, and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Two NRC-identified Severity Level IV violations, one of which was also associated with a finding of very-low safety significance (Green), were identified during this inspection. Both were determined to involve violations of NRC requirements. However, because of their very-low safety significance, and because the issues were entered into your Corrective Action Program, the NRC is treating the issues as Non-Cited Violations (NCVs) in accordance with Section 2.3.2 of the NRC Enforcement Policy.

If you contest the subject or severity of the Non-Cited-Violation, 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, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the LaSalle County 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 LaSalle County Station.

B. Hanson

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

Sincerely,

***/RA/***

Robert C. Daley, Chief  
Engineering Branch 3  
Division of Reactor Safety

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

Enclosure:  
IR 05000373/2015009; 05000374/2015009  
w/Attachment: Supplemental Information

cc w/encl: Distribution via LISTSERV®

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 50-373; 50-374  
License Nos: NPF-11; NPF-18

Report Nos: 05000373/2015009; 05000374/2015009

Licensee: Exelon Generation Company, LLC

Facility: LaSalle County Station, Units 1 and 2

Location: Marseilles, IL

Dates: June 29, 2015 – July 16, 2015

Inspectors: A. Dahbur, Senior Reactor Inspector (Lead)  
R. Winter, Reactor Inspector  
M. Jeffers, Reactor Inspector  
C. Jackel, Reactor Engineer (Observer)  
L. Smith, Reactor Engineer (Observer)

Approved by: Robert C. Daley, Chief  
Engineering Branch 3  
Division of Reactor Safety

Enclosure

## SUMMARY

Inspection Report (IR) 05000373/2015009; 05000374/2015009; 06/31/2015 - 07/16/2015; LaSalle County Station, Units 1 and 2; Evaluations of Changes, Tests, and Experiments and Permanent Plant Modifications.

This report covers a 2-week announced baseline inspection on evaluations of changes, tests, and experiments, and permanent plant modifications. The inspection was conducted by Region III based engineering inspectors. Two Severity Level IV violations were identified by the inspectors. One of these violations was also associated with a finding of very-low safety significance. Both of which were considered Non-Cited Violations (NCVs) of U.S. Nuclear Regulatory Commission (NRC) regulations. The significance of most findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process". Cross-cutting aspects were determined using IMC 0310, "Aspects within the Cross-Cutting Areas." Findings for which the Significance Determination Process does not apply may be Green, or be assigned a severity level after NRC management review. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated July 9, 2013. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5, dated February 2014.

### NRC-Identified and Self-Revealed Findings

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

Severity Level IV. The inspectors identified a Severity Level IV NCV of Technical Specification (TS) Section 5.6.5, for using an analytical method that was not previously reviewed and approved by the NRC. Specifically in 2013, the licensee used TRACG04P code to determine the Oscillation Power Range Monitor setpoints prior to NRC approval. The TRACG04P code was reviewed and approved in April 24, 2015. TS Section 5.6.5.b stated, in part that the analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the TS. The licensee entered this finding into their Corrective Action Program (CAP) as IR 02528609 and IR 02528612 to correct the issue.

The inspectors determined that this issue was a performance deficiency and because the issue had the potential to affect the NRC's ability to perform its regulatory function, the inspectors evaluated this performance deficiency in accordance with the traditional enforcement process. Using the Enforcement Manual, the inspectors characterized the violation as Severity Level IV because the underlying analytical method required NRC approval prior to use. The inspectors did not assign a cross-cutting aspect to this violation in accordance with IMC 0612, Section 07.03.c. (Section 1R17.1.b (1))

Severity Level IV/Green. The inspectors identified a Severity Level IV, NCV of Title 10, *Code of Federal Regulations* (CFR), Part 50.59, "Changes, Tests, and Experiments," and an associated finding of very-low safety significance (Green) for the failure to perform and maintain a written evaluation to demonstrate that a calculation revision did not require a license amendment. Specifically, calculation L-003263, "Volume Requirements for ADS Back-up Compressed Gas System (Bottle Banks)," was revised and resulted in new required time critical operator manual actions, procedure changes, UFSAR changes, and an update to the TS Surveillance Requirements; however, a 10 CFR 50.59 evaluation was not performed. The licensee entered this finding into their CAP as IR 2528988.

The inspectors determined this finding was more than minor because the finding was associated with the Mitigating Systems cornerstone attribute of design control. and affected the cornerstone objective of ensuring the capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the licensee failed to account for new required time critical operator manual actions, procedure changes, Updated Final Safety Analysis Report (UFSAR) changes, and an update to the TS Surveillance Requirements. This finding has a cross-cutting aspect in the area of Problem, Identification, and Resolution, in the area of evaluation because the licensee did not thoroughly evaluate the extent of condition of revising the design calculation Specifically, the licensee failed to evaluate revising design calculation L-003263 resulting in time critical operator manual actions, procedure changes, UFSAR changes, and an update to the TS Surveillance Requirements.

[P.2] (Section 1R17.1.b (2))

## REPORT DETAILS

### 1. REACTOR SAFETY

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

#### 1R17 Evaluations of Changes, Tests, and Experiments and Permanent Plant Modifications (71111.17T)

##### .1 Evaluation of Changes, Tests, and Experiments

###### a. Inspection Scope

The inspectors reviewed nine safety evaluations performed pursuant to Title 10, *Code of Federal Regulations* (CFR), Part 50.59 to determine if the evaluations were adequate and that prior U.S. Nuclear Regulatory Commission (NRC) approval was obtained as appropriate. The inspectors also reviewed 20 screenings and/or applicability determinations where licensee personnel had determined that a 10 CFR 50.59 evaluation was not necessary. The inspectors reviewed these documents to determine if:

- the changes, tests, and experiments performed were evaluated in accordance with 10 CFR 50.59, and that sufficient documentation existed to confirm that a license amendment was not required;
- the safety issue requiring the change, tests or experiment was resolved;
- the licensee conclusions for evaluations of changes, tests, and experiments were correct and consistent with 10 CFR 50.59; and
- the design and licensing basis documentation was updated to reflect the change.

The inspectors used, in part, Nuclear Energy Institute (NEI) 96-07, "Guidelines for 10 CFR 50.59 Implementation," Revision 1, to determine acceptability of the completed evaluations, and screenings. The NEI document was endorsed by the NRC in Regulatory Guide 1.187, "Guidance for Implementation of 10 CFR 50.59, Changes, Tests, and Experiments," dated November 2000. The inspectors also consulted Part 9900 of the NRC Inspection Manual, "10 CFR Guidance for 10 CFR 50.59, Changes, Tests, and Experiments."

This inspection constituted 9 samples of evaluations, and 20 samples of screenings and/or applicability determinations as defined in Inspection Procedure (IP) 71111.17-04.

###### b. Findings

###### (1) Use of an Analytical Method to Determine the Core Operating Limits without Prior NRC Approval

Introduction: The inspectors identified a Severity Level IV NCV of Technical Specification (TS), Section 5.6.5 "Core Operating Limits Report," for using an analytical method that was not previously reviewed and approved by the NRC. Specifically, in 2013, the licensee used TRACG04P code to determine the Oscillation Power Range Monitor (OPRM) setpoints prior to NRC approval. The TRACG04P code was reviewed and approved by the NRC in April 24, 2015. TS Section 5.6.5.b stated, in part that the analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC.

Description: TS Bases, Section B 3.3.1.3 “OPRM Instrumentation,” stated that it has been shown that boiling water reactor (BWR) cores may exhibit thermal-hydraulic reactor instabilities in high-power and low-flow portions of the core power to flow operating domain. General Design Criteria (GDC) 10 required the reactor core and associated coolant, control, and protection systems to be designed with appropriate margin to assure that acceptable fuel design limits were not exceeded during any condition of normal operation, including the effects of anticipated operational occurrences. GDC 12 required assurance that power oscillations which can result in conditions exceeding acceptable fuel design limits were either not possible or can be reliably and readily detected and suppressed. The OPRM System provided compliance with GDC 10 and GDC 12 by detecting the onset of oscillations and suppressing them by initiating a reactor scram. This assured that the minimum Critical Power Ratio (CPR) safety limit will not be violated for anticipated oscillations.

The nominal setpoints for the OPRM Period Based Trip Function were specified in the Core Operating Limits Report (COLR). The trip setpoints were treated as nominal setpoints and did not require additional allowances for uncertainty. Trip setpoints were those predetermined values of output at which an action should take place. The setpoints were compared to the actual process parameter value and when the measured output value of the process parameter exceeded the setpoint, the associated device (e.g., trip unit) changed state. The OPRM period based setpoint was determined by cycle specific analysis based on positive margin between the Safety Limit Minimum CPR and the Operating Limit Minimum CPR minus the change in CPR. This methodology was approved for use by the NRC in NEDO–32465–A, “BWR Owners Group Reactor Stability Detect and Suppress Solution Licensing Basis Methodology and Reload Application,” August 1996. This analytical method was also specifically referenced in the TS Section 5.6.5.b as the method which was reviewed and approved by the NRC used to determine the core operating limits.

In February 2013, the licensee performed a 50.59 safety evaluation (L13–017) to evaluate an upgrade of the thermal hydraulic transient code from TRACG02A to TRACG04P, Version 4.2.69.0. The TRACG02A version of the TRACG thermal-hydraulic code was approved by the NRC, and used in the preparation of NEDO–32465–A during the original design and licensing of the General Electric (GE) OPRM system. In 2006 the TRACG code was upgraded to TRACG04 to support coupling with an improved kinetics model resulting from GE's transition to the PANACI 1 version of the 3-dimensional core simulator program PANACEA. In 2009 GE implemented a PC–based version of the TRACG-04 Program, TRACG04P, Version 4.2.57.11. In 2010 GE implemented an updated version of the TRACG04P Program, Version 4.2.60.3. The TRACG04P, Version 4.2.69.0 implemented fixes to several programming deficiencies. At the time the licensee used this code, Version 4.2.69.0 of TRACG04P had not been generically approved by the NRC for OPRM setpoint determination. The licensee concluded in the safety evaluation that using Version 4.2.69.0 of TRACG04P to evaluate LaSalle cycle specific OPRM setpoints did not result in a departure from a method of evaluation described in the Update Final Safety Analysis Report (UFSAR) used in establishing the design bases or in the safety analysis, therefore, the licensee incorrectly concluded that prior NRC approval for the use of this method was not required. The inspectors identified that the licensee should not have used the 50.59 evaluation process to approve the use of the upgrade version of the code because TS 5.6.5.b required that analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC. Specifically, the licensee used the TRACG04P

analytical method to determine the OPRM setpoints, which were specified in the COLR; however, that particular analytical method had not been previously reviewed and approved by the NRC prior to the licensee use at LaSalle. The inspectors verified that the NRC subsequently reviewed and approved TRACG04P on April 2014, and, as such, the inspectors concluded that there were no operability concerns regarding the use of this method. The licensee entered this issue into their Corrective Action Program (CAP) as IR 02528609 and IR 02528612 to correct this issue.

Analysis: The inspectors determined the failure to use a previously approved analytical method in determining the OPRM setpoints was contrary to TS 5.6.5, and was a performance deficiency. Specifically, in 2013, the licensee used TRACG04P code to determine the OPRM setpoints prior to NRC approval. The TRACG04P code was reviewed and approved in April of 2015.

Because the issue had the potential to affect the NRC's ability to perform its regulatory function, the inspectors evaluated the performance deficiency in accordance with the traditional enforcement process. In accordance with the NRC Enforcement Manual, Part II, 2.1.3, "Enforcement of 10 CFR 50.59 and Related Final Safety Analysis Report," the inspectors characterized the violation as Severity Level IV because the underlying analytical method required NRC approval prior to use.

In accordance with Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports," Section 07.03.c, the inspectors did not assign a cross-cutting aspect to this violation because the violation involved a traditional enforcement process, and did not have an underlying technical finding that would be considered more-than-minor within the Reactor Oversight Process. The TRACG04P was reviewed and technically accepted by the NRC.

Enforcement: TS Section 5.6.5.b, required that analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC.

Contrary to the above, from February 2013, through October 24, 2014, the licensee used analytical method in determining the core operating limit that was not previously reviewed and approved by the NRC. Specifically, the licensee used an analytical method (TRACG04P) to determine the OPRM setpoints which was identified in the COLR; however, that particular method was not previously reviewed and approved by the NRC prior to use. Because this violation was Severity Level IV, was not repetitive or willful, and was entered into the licensee's CAP as IR 02528609 and IR 02528612, this violation is being treated as a NCV, consistent with Section 2.3.2.a of the NRC Enforcement Policy. (NCV 05000373/2015009-01; 05000374/2015009-01; Use of an Analytical Method to Determine the Core Operating Limits without Prior NRC Approval)

(2) Failure to Perform a Required 50.59 Evaluation

Introduction: The inspectors identified a Severity Level IV, NCV of 10 CFR 50.59, "Changes, Tests, and Experiments," and an associated finding of very-low safety significance (Green) for the licensee's failure to perform and maintain a written safety evaluation to demonstrate that a change involving a new operator action that supported a design function credited in the safety analysis did not require a license amendment. Specifically, calculation L-003263, "Volume Requirements for [Automatic Depressurization Systems] ADS Back-up Compressed Gas System (Bottle Banks)," was revised to address a non-conservative design input identified by GE regarding the



quantity of compressed gas (nitrogen) that the ADS Accumulator Back-up Compressed Gas System (Bottle Banks) must provide to support operation of the Safety Relief Valves (SRVs) during a design bases accident. The calculation revision resulted in new required time critical operator manual actions to change out/replace the installed bottles.

Description: The nitrogen bottle banks were designed to accommodate both ADS requirements and Low-Low Setpoint (LLS) requirements. For ADS, the bottle banks augment the drywell pneumatic system to maintain pressure above 150 psig, thereby enabling ADS operation following a loss of the non-safety related drywell pneumatic supply. For LLS, the bottle banks are designed to accommodate, without operator action, the number of actuations expected to occur prior to ADS. At 100 percent reactor power, the calculated value is 15 actuations of the SRVs.

The licensing basis event, as identified in the UFSAR Section 15.6.4, that establishes the number of SRV actuations that would occur prior to initiation of ADS is a Main Steam Line Break (MSLB) outside of containment with a single failure of the High-Pressure Core Spray (HPCS) system. Should a MSLB outside containment occur concurrent with a single failure of HPCS, the Main Steam Isolation Valves (MSIVs) would close, the SRVs would actuate, and the reactor inventory level would drop until it reaches the level at which ADS automatically initiates. Until ADS initiates, the bottle banks would be required to supply nitrogen to support LLS operation of the SRVs, provide make-up for design leakage, and maintain the ADS accumulators pressurized. The bottle banks have 4 normally valved-in nitrogen bottles that can accommodate 15 SRV actuations with no operator action. Calculation L-003263, Revision 3, specified the quantity of nitrogen to support the required number of SRV actuations.

In 2013, GE released a study (GEH 0000-0151-7500-R0) that identified that at lower power levels, the number of SRV actuations required is greater than the 100 percent power value of 15. The study identified that the number of SRV actuations following a MSLB outside of containment would increase at a lower power since the decay heat would be lower, causing the SRVs to remain open for a shorter duration. Additionally, steam would be generated at a lower rate with a lower decay heat, causing a longer period of time for the reactor water level to reach Level 1 followed by ADS initiation.

As a result of the GE study, the licensee updated calculation L-003263 under Engineering Change (EC) 395842. The results of the calculation revision identified that the capacity of the installed, valved-in bottle bank was insufficient to accommodate an increased number of SRV actuations. Therefore, when the pressure of the bottle bank dropped below 800 psig, an operator action was identified to replace the nitrogen bottles with spare bottles of 2400 psig nitrogen within an hour of the accident. With the addition of the operator action, the calculation concluded that the supply of nitrogen was adequate to accommodate the increased number of SRV actuations at lower power levels. The time critical operator action was placed into administrative procedure LOP-IN-05, "Replacing Nitrogen Bottles on Instrument Nitrogen System."

The inspectors walked down procedure LOP-IN-05 with the licensee. During the walkdown it was noted that the new requirement to have four replacement bottles, with at least 2400 psig nitrogen, was not pre-staged. Multiple bottle locations were in the general vicinity of the supply header; however, some of the bottles were empty and were being stored in the area with full bottles. Also, the required tools and hand cart required to move and replace the bottles were not clearly identified or located in an area readily

accessible to perform the time critical action. As a result of the inspectors concern, the licensee created a staging location for the replacement bottles that was clearly labeled to aid the time critical operator action.

Additionally, the inspectors identified that the licensee had failed to incorporate the new design requirement of having four replacement bottles with at least 2400 psig nitrogen into a surveillance procedure. Currently, the only surveillance procedure regarding the back-up nitrogen supply is governed by TS Surveillance Requirement 3.5.1.4, which requires the licensee to verify ADS accumulator back up compressed gas system bottle pressure is greater than or equal to 500 psig. The Surveillance Requirement does not include verifying the pressure in the replacement bottles to be at least 2400 psig. Consequently, the inspectors determined that the licensee failed to evaluate the existed TS Surveillance Requirement to ensure that the design basis accident requirements were incorporated and translated correctly into the TS.

Furthermore, the inspectors identified that the UFSAR accident analysis had not been updated to include the updated results from the GE study and revision to calculation L-003263. UFSAR Section 15.6.4.2 identified the sequence of events and systems operations following a MSLB outside of containment. The UFSAR identified operator actions required and states that assuming a HPCS failure, ADS will auto initiate to ensure termination of the accident without fuel damage. However, the UFSAR section was not updated to include the additional time critical manual action required to ensure the backup nitrogen supply maintains the ADS accumulators pressurized.

The inspectors concluded that the licensee also failed to perform and maintain a 10 CFR 50.59 evaluation regarding the revision to calculation L-003263. The licensee had performed a 10 CFR 50.59 Screening under EC 395842. However, the screening incorrectly concluded that a full 10 CFR 50.59 evaluation was not required because the screening did not identify any adverse changes to the UFSAR. Specifically, the licensee failed to screen in the new operator action to replace the nitrogen bottles and evaluate the new operator action as specified in the NEI 96-07, Section 4.2.1.2 and 4.3.2. The licensee entered this into their CAP under IR 2528988 with the action to complete the 10 CFR 50.59 evaluation.

Analysis: The inspectors determined that the failure to perform an adequate 10 CFR 50.59 evaluation for the new operator action required to support a design function credited in safety analysis was contrary to 10 CFR 50.59(d)(1), and was a performance deficiency. Specifically, the licensee failed to demonstrate that the new operator action to replace the installed nitrogen bottles to support the SRV function did not result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, and component important to safety. In addition, the licensee failed to update the UFSAR to include the new operator actions, and to ensure that the TS surveillance requirements included the replacement bottles.

This finding is more than minor because it is associated with the Mitigating Systems cornerstone attribute of design control, and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the licensee's failure to adequately evaluate and translate the new operator action into procedure did not assure the reliability and capability of the bottle banks to provide adequate supply of nitrogen to support LLS operation of the SRVs.

Violations of 10 CFR 50.59 are dispositioned using the traditional enforcement process because they are considered to be violations that potentially impede or impact the NRC's ability to perform its regulatory oversight function. However, if possible, the underlying technical issue is evaluated under the Significance Determination Process (SDP) to determine the severity of the violation. The inspectors evaluated this finding in accordance with IMC 0609, "SDP," Attachment 0609.04, "Initial Characterization of Findings," issued June 19, 2012, and Appendix A, "The SDP for Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions," issued June 19, 2012, the inspectors answered "No" to all of the questions. Therefore, this finding was of very-low safety significance (Green).

Although the finding described above has been evaluated by the SDP and communicated with a SDP color reflective of the safety impact of the deficient licensee performance. However, the SDP does not specifically consider regulatory process impact, and it is necessary to address the violation and finding using different processes to correctly reflect both the regulatory importance of the violation and the safety significance of the associated finding.

In accordance Subsection d.2 of Section 6.1, "Reactor Operations," of the NRC Enforcement Policy, the inspectors determined that this issue was a Severity Level IV violation because the associated finding was determined to be of very-low safety significance as discussed above.

This finding has a cross-cutting aspect in the area of Problem, Identification, and Resolution, in the area of evaluation because the licensee did not thoroughly evaluate the extent of condition of revising the design calculation. Specifically, the licensee failed to thoroughly evaluate the new operator action to replace the nitrogen bottles and its impact on the licensing and design basis specifically, the need to revise the UFSAR, and to ensure that the existed TS surveillance requirements for the included the replacement bottles. [P.2]

Enforcement: In 10 CFR Part 50.59, "Changes, Tests, and Experiments," Section (d)(1) requires the licensee to maintain records of changes in the facility, of changes in procedures, and of tests and experiments made pursuant 10 CFR 50.59(c). These records must include a written evaluation which provides the bases for the determination that the change, test, or experiment does not require a license amendment.

Contrary to the above, on October 30, 2013, the licensee failed to perform and maintain a written evaluation to demonstrate that a change which involved a new operator action that supported a design function credited in safety analysis did not require a license amendment. Specifically, calculation L-003263 was revised to address a non-conservative design input identified by GE regarding the quantity of compressed gas (nitrogen) the ADS Accumulator Back-up Compressed Gas System (Bottle Banks) must provide to support operation of the SRVs. The calculation revision resulted in new required time critical operator manual actions. The licensee failed to perform a safety evaluation to demonstrate that the new operator action to replace the installed nitrogen bottles to support the SRV function did not result in more than minimal increase in the likelihood of occurrence of a malfunction of an SSC important to safety. In addition, the licensee failed to update the UFSAR to include the new operator actions, and to ensure that the TS surveillance requirements included the replacement bottles.

This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy because it was a Severity Level IV violation and was entered into the licensee's CAP as IR 2528988 with the action to perform the 10 CFR 50.59 evaluation. (NCV 05000373/2015009-02; 05000374/2015009-02, Failure to Perform a Required 50.59 Evaluation).

.2 Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed five permanent plant modifications that had been installed in the plant during the last 3-years. This review included in-plant walkdowns for portions of EC 394010, "Spent Fuel Pool Level Instrumentation," EC 396069, "FLEX U2 Primary Strategy—Electrical," and EC 396060, "FLEX Primary and Alternate Strategy—Mechanical." System walkdowns were performed on the Instrument Nitrogen system to review modifications performed under EC 395842, "Increased Number SRV Actuations that the ADS Accumulator Back-Up Compressed Gas System (Bottle Banks) Must Support," and procedure changes to LOP-IN-05, "Replacing Nitrogen Bottles on Instrument Nitrogen System." The modifications were selected based upon risk significance, safety significance, and complexity. The inspectors reviewed the modifications selected to determine if:

- the supporting design and licensing basis documentation was updated;
- the changes were in accordance with the specified design requirements;
- the procedures and training plans affected by the modification have been adequately updated;
- the test documentation as required by the applicable test programs has been updated; and
- post-modification testing adequately verified system operability and/or functionality.

The inspectors also used applicable industry standards to evaluate acceptability of the modifications. The list of modifications and other documents reviewed by the inspectors is included as an Attachment to this report.

This inspection constituted five permanent plant modification samples as defined in IP 71111.17-04.

b. Findings

No findings were identified.

**4. OTHER ACTIVITIES**

4OA2 Problem Identification and Resolution

.1 Routine Review of Condition Reports

a. Inspection Scope

The inspectors reviewed several corrective action process documents that identified or were related to 10 CFR 50.59 evaluations and permanent plant modifications. The

inspectors reviewed these documents to evaluate the effectiveness of corrective actions related to permanent plant modifications and evaluations of changes, tests, and experiments. In addition, corrective action documents written on issues identified during the inspection were reviewed to verify adequate problem identification, and incorporation of the problems into the corrective action system. The specific corrective action documents that were sampled and reviewed by the inspectors are listed in the Attachment to this report.

b. Findings

No findings were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On July 16, 2015, the inspectors presented the inspection results to Mr. H. Vinyard 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.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee

H. Vinyard, Plant Manager  
J. Kowalski, Engineering Manager  
A. Ali, Design Engineering  
S. Tanton, Design Engineering  
M. Martin, Chemistry Manager  
M. Peltier, Maintenance Programs  
J. Houston, Nuclear Oversight Manager  
J. Williams, Work Management Director  
L. Blunk, Regulatory Assurance  
S. Shields, Regulatory Assurance  
J. Shea, Reactor Engineering Manager

#### U.S. Nuclear Regulatory Commission

J. Robbins, Acting Senior Resident Inspector

### LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

#### Opened and Closed

05000373/2015009-01; 05000374/2015009-01	NCV	Use of an Analytical Method to Determine the Core Operating Limits without Prior NRC Approval (Section 1R17.1.b.(1))
05000373/2015009-02; 05000374/2015009-02	NCV	Failure to Perform a Required 50.59 Evaluation (Section 1R17.1.b.(2))

#### Discussed

None

## 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.

<b>10 CFR 50.59 EVALUATIONS</b>		
<b><u>Number</u></b>	<b><u>Description or Title</u></b>	<b><u>Date or Revision</u></b>
L12-229	SAT TR242 Open Phase Detection Protective Relay Circuit Installations	January 18, 2013
L12-241	Temporary Substitution of LS-1 for LS-2 of Inboard MSIV 1B22-F022A (RPS B1 Scram Channel)	December 12, 2012
L13-002	NEDC-33106P Revision 4 GEXL97 Correlation for ATRIUM-10 Fuel	January 14, 2013
L13-016	Remove Check Valve Air Actuators 1E12-F041A/B/C, 1E12-F050A/B, 1E22-F005 And 1E21-F006	February 4, 2013
L13-017	Application of TRACG04P Version 4.	June 18, 2013
L13-084	SAT TR142 Open Phase Detection Protective Relay Circuit Installation	October 8, 2013
L13-117	Ultimate Heat Sink Fish Mortality Evaluation	June 28, 2013
L13-124	Chemical Separation Building for Chemical Injection System	August 16, 2013
L14-117	Removal of offgas Vulnerabilities on Valve 2N62-F057	August 16, 2014

<b>10 CFR 50.59 SCREENINGS</b>		
<b><u>Number</u></b>	<b><u>Description or Title</u></b>	<b><u>Date or Revision</u></b>
L12-184	On-Line Noble Chem Injection for System Equipment Instruction	October 9, 2012
L12-191	Change Allows The Starting of SBGT Train To Maintain a Negative Secondary Pressure When VR is Lost	October 19, 2012
L12-196	Revision to UFSAR Appendix B Regulatory Guide 1.9 Commitments	November 19, 2012
L12-200	Diesel Generator Startup and Operation	October 31, 2015
L13-006	Revision to the UFSAR Section 7.6.2.2.6	January 16, 2013
L13-028	Fill and Drain of Main Steam Lines	February 4, 2013
L13-037	TCCP to Remove 10 of 20 Bonnet Bolts From Valve 2B33-F067B Prior To Placement of Clearance Order	February 13, 2013
L13-040	These Procedures have Been Revised To Provide Deep Load Shedding Strategy To Achieve an 8 Hour Coping Capacity of the DC System During Extended SBO	February 17, 2013
L13-045	Heater Drain System Trouble	February 21, 2013
L13-056	LGA-003 Revision 13 Primary Containment Control	March 1, 2013
L13-057	Install Temporary Gag on Valve 2B21-F011B to Keep Valve in the Open Position	March 2, 2013
L13-066	Bypass the Unit 1 Reactor Recirculation (RR) 1B Flow Control Valve (FCV) LVDT to RVDT Mismatch Alarm	March 12, 2013

<b>10 CFR 50.59 SCREENINGS</b>		
<b><u>Number</u></b>	<b><u>Description or Title</u></b>	<b><u>Date or Revision</u></b>
L13-095	Temporary Modification Via EC 393420 To Install A Section of Pipe In Place Of The 1G33-F042 Valve	April 20, 2013
L13-120	Update UFSAR and Tech Spec Bases 3.8.1 for Offsite Power Sources	August 26, 2013
L13-147	Update The Combustible Loading Calculation For Ice Vests and Their Plastic Container	August 5, 2015
L13-183	Revise Loss of Voltage (LOV) Setting for Unit 1 (2) 4160 ESF Buses	October 2, 2013
L13-198	Increased # SRV Actuators that the ADS Back-up Compressed Gas System (Bottle Banks) must Support	October 30, 2013
L13-223	U2 Replace TDRFP Overspeed Trip Switch With Maintained Contact SBM Switch	December 11, 2013
L14-023	Filling the Main Steam Lines with Reactor Vessel Head in Place	February 2, 2014
L14-068	Correction to UFSAR Table 3.2.1	April 11, 2014
L14-079	Spent Fuel Pool Level Instrumentation	June 23, 2014
L14-084	Diesel Generator Trouble	May 3, 2014
L14-101	U2 Div. 1 and 2 DG Feed Breaker Logic Mod Due to C RHR and LPCS Anti-Pump Logic	June 10, 2014
L14-127	U2 FLEX Primary Strategy – Electrical	July 24, 2014
L14-133	LGP-1-SI Revision 74	August 2, 2014
L14-170	Transferring Oil to the Diesel Fire Pump Day Tanks	October 2, 2014

<b>CORRECTIVE ACTION PROGRAM DOCUMENTS INITIATED DURING INSPECTION</b>		
<b><u>Number</u></b>	<b><u>Description or Title</u></b>	<b><u>Date or Revision</u></b>
02527953	Maintaining Fish Removal Equipment at UHS	July 14, 2015
02524764	50.59 Inspection Typo in UFSAR Section 2.5.5.2.5.A	July 7, 2015
02528394	Online Noble Metal Activity Needs 50.59 Evaluation	July 15, 2015
02528988	Documentation not Completed for Revision to LOP-IN-05	July 16, 2015
02522561	50.59 Screening L14-170 Missing Number	July 1, 2015
02528612	Technical Specification 5.6.5 Update	July 15, 2015
02528609	50.59 L13-017 Evaluation Issue	July 15, 2015
2528988	Documentation Not Completed for Revision to LOP-IN-05	July 16, 2015
2529091	NRC Identified: UFSAR 8.3.1.1.2(f) Update for EC 395217	July 16, 2015

<b>CORRECTIVE ACTION PROGRAM DOCUMENTS REVIEWED</b>		
<b><u>Number</u></b>	<b><u>Description or Title</u></b>	<b><u>Date or Revision</u></b>
01689571	2CW01PA Pump Trip On Bus Transfer	August 05, 2014
01593840	Classification of EDG Starting Air System	December 6, 2013
01509247	2A RR FCV Closed Unexpectedly	May 1, 2013



<b>CORRECTIVE ACTION PROGRAM DOCUMENTS REVIEWED</b>		
<b><u>Number</u></b>	<b><u>Description or Title</u></b>	<b><u>Date or Revision</u></b>
01621877	Issues During KM Breakers Mod Testing	February 16, 2014
01628642	Generate An ACE Associated With IR 1621877	March 3, 2014
02468669	Orifice Sizes Incorrect For Jet Pump Plug Seal Modification	March 14, 2015
01380048	UFSAR - Tornado Missile Protection	June 20, 2012

<b>DRAWINGS</b>		
<b><u>Number</u></b>	<b><u>Description or Title</u></b>	<b><u>Date or Revision</u></b>
1E-0-3333	Cable in Raceway Segregation Chart	H
1E-0-3333A	Cable Separation Criteria	C
1E-0-4412AB	Schematic Diagram 4160V Switchgear 242Y (2AP06E) Diesel Generator "0" Feed ACB 2413 System "DG" Part 2	AD
1E-2-3433	Electrical Installation Auxiliary Building Plan Elevation 710'-6"	AR
1E-2-3437	Electrical Installation Auxiliary Building Sections	AG
1E-2-3439	Electrical Installation Auxiliary Building Sections	A
1E-2-4009AA	Schematic Diagram 4160V Switchgear 242Y (2AP06E) Diesel Generator "2A" Feed ACB 2423 System "DG" Part 1	Y
M-94	Low pressure Core Spray	AZ
M-95	High pressure Core Spray	AQ
M-96 sht.1 & 2	Residual Heat Removal System	AZ

<b>MODIFICATIONS</b>		
<b><u>Number</u></b>	<b><u>Description or Title</u></b>	<b><u>Date or Revision</u></b>
EC 387812	Evaluate Impact of Unit 2 Online Noble Chemistry Which will be Implemented by a Procedurally Controlled Temporary Configuration Change	0
EC 387237	Removal of Offgas Vulnerabilities on Valve 2N62-F057	002
EC 387695	Single Phase Fault Mitigation (Byron Event)	003
EC 387696	Single Phase Fault Mitigation (Byron Event)	002
EC 391664	Temporary Substitution of Limit Switch LS-1 for Valve 1B21-F022A	000
EC 394010	Spent Fuel Pool Level Instrumentation	001
EC 395217	U2 Div. 1 and 2 DG Feed Breaker Logic Mod Due to C RHR and LPCS Anti-Pump Logic	001
EC 395842	Increased # SRV Actuations that the ADS Accumulator Back-Up Compressed Gas System (Bottle Banks) Must Support	000
EC 396069	FLEX U2 Primary Strategy - Electrical	005
EC 396093	FLEX Instrumentation Power (AC to DC)	003
EC 400759	Location of FLEX Storage Equipment Inside the Plant	000

<b>CALCULATIONS</b>		
<b><u>Number</u></b>	<b><u>Description or Title</u></b>	<b><u>Date or Revision</u></b>
L-000776	Combustible Loading Calculation	7
L-003263	Volume Requirements for ADS Back-Up Compressed Gas System (Bottle Banks)	3
L-003750	LaSalle Offsite Power System Open Phase EMTP Evaluation	1
L-003803	EC 391664 (TMOD) Analysis for RPS Temporary Cable Installation	0
L-003884	Time to Manually Close the Off-gas Isolation Valve to Meet the Dose Limit at the Exclusion Area Boundary	0
L-003897	Setpoint Analysis for DG Feed Breaker Close Time Delay Relay	0

<b>OTHER DOCUMENTS</b>		
<b><u>Number</u></b>	<b><u>Description or Title</u></b>	<b><u>Date or Revision</u></b>
LUCR 233	Revision For Total Water Needed In HPCS or RCIC Mode At New MUR PU Power Level Removal of ECCS Check Valves Air Operators	March 2, 2011
LUCR 273	Revision For Removal of Air Actuators for Check Valves	January 21, 2013
LUCR 323	Revision For Loss Of Voltage Relay Settings In Technical Specifications	February 21, 2011
W/O 01718381-01	LOP-DW-01 U-2 Drywell Closeout (After Outage)	February 26, 2015
GEH-OLNC-0000-0112-1699-02-R0	On-Line Noble Chem (OLNC) Application Technical Safety Evaluation for LaSalle Unit 1	September 2010

<b>PROCEDURES</b>		
<b><u>Number</u></b>	<b><u>Description or Title</u></b>	<b><u>Date or Revision</u></b>
LOA-CW-101	Unit 1 Circulating Water System Abnormal	19
CC-MW-112-10	Installation/Removal Instructions and Test Requirements	11
LOA-DIKE-001	Lake Dike Damage/Failure	11
LOA-AP-201	Unit 2, Ac Power System Abnormal	38
LOA-VR-101	Unit 1 Recovery From A Group 4 Isolation Or Spurious Trip Of Reactor Building Ventilation	13
LOP-DO-03	Transferring Oil to the Diesel Fire Pump Day Tanks	21
LOP-IN-05	Replacing Nitrogen Bottles on Instrument Nitrogen System	24
LOP-MS-04	Filling the Main Steam Lines with Reactor Vessel Head in Place	08
LOP-MS-07	Fill and Drain of Main Steam Lines	18
LOS-AA-W1	Technical Specifications Weekly Surveillances	72

## LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
ADS	Automatic Depressurization System
BWR	Boiling Water Reactor
CAP	Corrective Action Program
CFR	<i>Code of Federal Regulations</i>
COLR	Core Operating Limits Report
CPR	Critical Power Ratio
DRS	Division of Reactor Safety
EC	Engineering Change
GDC	General Design Criteria
GE	General Electric
HPCS	High-Pressure Core Spray
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
LLS	Low-Low Setpoint
MSLB	Main Stem Line Break
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
OPRM	Oscillation Power Range Monitor
PARS	Public Available Records System
SRV	Safety Relief Valve
SDP	Significance Determination Process
SSC	Structure, System, and Component
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report

B. Hanson

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Sincerely,

*/RA/*

Robert C. Daley, Chief  
Engineering Branch 3  
Division of Reactor Safety

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