

La Salle 2

4Q/2013 Plant Inspection Findings

Initiating Events

Significance: **W** Apr 25, 2013

Identified By: NRC

Item Type: FIN Finding

Failure to Follow Procedures Led to Scram with Complications

A self-revealed finding was identified for the licensee's failure to follow procedure LOP-CW-10, "Dewatering the Circulating Water System," Revision 32, on Unit 2. Specifically, on April 25, 2013, while operating at 56 percent power, operators appointed to plan and execute the waterbox dewatering evolution did so in a manner inconsistent with procedural guidance by manually adjusting the circulating water isolation valves while the manways were still open. The subsequent loss of isolation led to the flooding of the condenser pit and a resultant circulating water pump trip, loss of the normal heat sink, and reactor scram. The licensee entered this issue into its corrective action program as AR 01506809 and performed a root cause analysis to identify the root and contributing causes of the event as well as to determine the appropriate corrective actions, such as training and procedure revision.

The inspectors determined that the licensee's failure to follow the prescribed steps of procedure LOP-CW-10 was a performance deficiency warranting a significance determination. The inspectors used Inspection Manual Chapter (IMC) 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power" Exhibit 1, dated June 19, 2012, for the Initiating Events cornerstone. Because the finding caused a reactor trip AND the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition, a detailed risk evaluation was required. The Senior Reactor Analysts (SRAs) used the LaSalle Standardized Plant Analysis Risk (SPAR) model to perform the detailed risk evaluation. In accordance with Risk Assessment of Operational Events (RASP) handbook guidance, the initiating event "Loss of Condenser Heat Sink" was set to 1.0 using the events and condition assessment (ECA) module of the Systems Analysis Program for Hands-On Integrated Reliability Evaluations (Saphire), version 8. The calculated CCRP for the event was 1.6E-6, which represents a finding of low to moderate safety significance (White). The finding had a cross cutting aspect in the area of human performance, decision making, because the licensee failed to use conservative assumptions when planning and executing the dewatering evolution. Specifically, the incorrect assumption that this at power evolution could be treated the same as when performed in a shutdown condition allowed operators to stray from strict procedure adherence and into knowledge space [H.1(b)].

Inspection Report# : [2013004](#) (*pdf*)

Inspection Report# : [2014007](#) (*pdf*)

Mitigating Systems

Significance: **G** Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Maintain a Testing Program that Ensured RCIC Components Will Perform Satisfactorily in Service

The inspectors identified a finding of very low safety significance (Green) and associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for the licensee's failure to ensure that the surveillance testing program was sufficient to demonstrate that safety-related reactor core isolation cooling (RCIC) system components would perform satisfactorily in service. Specifically, the Unit 1 and Unit 2 RCIC steam supply differential pressure switches were not tested at a frequency that assured that they could perform satisfactorily in service, as evidenced by the repeated failures of the components at their quarterly surveillance interval. Corrective actions included the adjustment of the testing periodicity to 46 days, and accelerating the timeline for switch design replacements to address the water intrusion issue.

The inspectors determined the finding could be evaluated using the significance determination process (SDP) in accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At Power," Exhibit 2, dated June 19, 2012. The inspectors reviewed the Mitigating Systems screening questions in Appendix A, Exhibit 2 and answered "No" to all the questions, which screened the issue as Green. This finding had a cross cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, for the failure to take appropriate corrective actions to address adverse trends in a timely manner. Specifically, in the three-year period from September 2010 to October 2013, these switches failed their surveillances 18 times, primarily due to water intrusion into the switch housing, and corrective actions to increase the frequency or address the water intrusion problem were not taken in a timely manner, commensurate with the safety significance of the issue (P.1(d)).

Inspection Report# : [2013005](#) (pdf)

Significance:  Oct 25, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Pump Test Instruments Were Not Maintained Within Required Accuracy Limits

The inspectors identified a finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for the failure to use instrumentation that met the data collection requirements of America Society of Mechanical Engineers Operation and Maintenance Code. Specifically, the licensee did not maintain the pressure instruments used during pump comprehensive in-service testing within the required Code accuracy limits. This finding was entered into the licensee's Corrective Action Program to evaluate operability of the affected pumps and revise the calibration procedures of the affected instruments to reflect the Code accuracy requirements.

The performance deficiency was determined to be more than minor because, if left uncorrected, it would have the potential to lead to a more significant safety concern. Specifically, inaccurate test instrumentation could reasonably result in an unrecognized degraded condition of safety equipment. In addition, recent test results required to be reanalyzed taking into account the actual as-left calibration data of the instruments to ensure the affected safety pumps remained operable. The finding screened as of very low safety significance (Green) because it did not result in loss of operability or functionality of mitigating systems. Specifically, the licensee reviewed recent as-found in-service test (IST) calibration data of the affected pumps, adjusted the as-found IST collected data using the actual calibration data, and reasonably determined the applicable IST acceptance criteria were met. In addition, the finding example associated with the spent fuel pool cooling did not result in actual adverse spent fuel pool conditions such as excessive temperatures, fuel clad damage, and inadequate water inventory. The inspectors did not identify a cross-cutting aspect associated with this finding because it did not reflect current performance due to the age of the performance deficiency.

Inspection Report# : [2013008](#) (pdf)

Significance:  Oct 25, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Ensure Battery Margin Maintained for Station Blackout

The inspectors identified a finding of very low safety significance (Green) and associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to ensure that 5 percent battery margin would be maintained for station blackout (SBO). Specifically, the capacity value used for an acceptance criterion by the battery test procedure did not ensure that battery capacity was sufficient to maintain the required 5 percent remaining battery margin through the next surveillance test. This finding was entered into the licensee's Corrective Action Program. The licensee planned to revise their battery test procedure to ensure the required 5 percent margin would be maintained.

The finding was determined to be more than minor because, if left uncorrected, it would become a more significant safety concern. Specifically, the battery performance test procedure criteria would not ensure that the batteries retained sufficient margin to support SBO loads through the next scheduled surveillance test. The finding screened as of very low safety significance (Green) because it did not result in loss of operability or functionality of mitigating systems. Specifically, the most recent test results showed that the capacity of the battery was sufficient to supply the calculated load demands under SBO conditions at the time of this inspection. The inspectors determined that this finding had a cross-cutting aspect in the area of problem identification and resolution, operating experience because the licensee did not properly evaluate relevant operating experience, i.e., NRC Information Notice 2013-05, "Battery Expected Life and its Potential Impact on Surveillance Requirements."

Inspection Report# : [2013008](#) (*pdf*)

Significance: G Sep 30, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inadequate Procedures Led to Pin Hole Leaks in High Pressure Core Spray Piping

A self revealed finding of very low safety significance and associated non cited violation of Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified for the failure to have procedures adequate for the circumstances during long-term operation of the high pressure core spray (HPCS) system on minimum flow. Specifically, three small holes developed in the Unit 2 HPCS minimum flow line elbow due to cavitation and other flow related wear caused by inconsistent procedural guidance regarding operation in the minimum flow mode.

The licensee promptly repaired the system leak and entered the issue into its CAP as ARs 1503825 and 1530682, which included the performance of an apparent cause evaluation. Further corrective actions included the revision of the affected procedures.

The finding was determined to be more than minor because it was associated with the Mitigating Systems and Barrier Integrity cornerstone attributes of Procedure Quality and adversely affected the cornerstone objectives of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences and providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the procedural guidance given to operate the HPCS system was inadequate to prevent long-term operation of the system in the minimum flow mode of operation, which led to cavitation and flow-induced wear, causing the failure of the Unit 2 HPCS minimum flow line and inoperability of the HPCS system as well as the primary containment boundary. The inspectors determined that the finding could be evaluated in accordance with

IMC 0609, Appendix A, "The Significance Determination for Findings At Power," and Appendix H, "Containment Integrity Significance Determination Process." Further, it was determined that a phase two risk assessment was necessary because the finding impacted suppression pool integrity, and through that process, this issue screened as Green. The inspectors did not identify a cross-cutting aspect associated with this finding.

Inspection Report# : [2013004](#) (*pdf*)

Significance:  Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Properly Implement Steps Outlined in Technical Specification Surveillance Procedure

A finding of very low safety significance and associated NCV of Technical Specification 5.4.1, "Procedures," was self-revealed on March 14, 2013, when an unexpected isolation of the Reactor Core Isolation Cooling (RCIC) system occurred as a result of the licensee's failure to properly implement the steps outlined in Technical Specification Surveillance Procedure LIS-RI-201, "Unit 2 RCIC Steam Line High Flow Isolation Calibration." Specifically, during performance of the surveillance for the testing and calibration of RCIC instrumentation, a conditional step was inappropriately answered which led to bypassing the remaining sections in the applicable surveillance procedure for resetting the RCIC high steam flow isolation signal and resulted in the Unit 2 RCIC steam supply outboard isolation valve (2E51-F008) going shut upon closure of its associated breaker, 2AP71E-B4.

The finding was determined to be more than minor because the performance deficiency of failing to properly implement the steps in the procedure impacted the Mitigating Systems Cornerstone attribute of equipment performance and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was determined to be of very low safety significance (Green). This finding has a cross-cutting aspect in the area of human performance, work practices, for failing to communicate human error prevention techniques, such as, performing the proper self and peer checks. Specifically, the licensee committed a human performance error by inappropriately performing a procedural step without performing the proper self and peer checks, which resulted in an isolation of the RCIC system.

Inspection Report# : [2013002](#) (*pdf*)

Barrier Integrity

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Maintain and Report UFSAR Revisions for Safety Analysis and Methodology Changes

The inspectors identified a finding of very low safety significance (Green) and associated Severity Level IV (SL IV) non-cited violation of 10 CFR 50.71, "Maintenance of records, making of reports." Specifically, 50.71(e) requires that the licensee periodically update the Updated Final Safety Analysis Report (UFSAR), and by letter dated April 12, 2012, the licensee provided the most recent periodic update; however, certain information contained in the update failed to accurately present changes made since the previous submittal and failed to reflect current design and licensing basis. As corrective actions, the licensee has captured the issue in the corrective action program for resolution and plans to review the UFSAR, ensure information is accurately reflected where historical, incorporate the required UFSAR content, and make necessary changes to enhance oversight of future UFSAR revisions.

Consistent with the guidance in Inspection Manual Chapter 0612, "Power Reactor Inspection Reports, Appendix B, "Issue Screening," dated September 7, 2012, because the issue had the potential to affect the NRC's ability to perform its regulatory function, the violation was reviewed under the traditional enforcement process. Consistent with the guidance in Section 6.9, Paragraph d.9, of the NRC Enforcement Policy, the violation associated with this finding was determined to be a SL IV violation. Additionally, the significance of the underlying technical issue (i.e., failure to reflect the current licensing basis in the UFSAR, failure to remove obsolete methodology for determining design and operating limits; and, failure to supervise how individuals control and modify information presented in LaSalle's UFSAR) was evaluated using the Significance Determination Process (SDP). The finding was determined to be more

than minor because, if left uncorrected, it could lead to a more significant safety concern. Specifically, methodologies could be utilized without properly performing 50.59 reviews, leading to revisions to operating ranges, such as those found in the power to flow map, which may not have been reflected in the subsequent safety analyses, the failure to update also reduced the ability of the licensee and the NRC to review the station's licensing basis to assess design changes or assess facility safety. The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, Appendix A, "The Significance Determination Process for Findings At Power," Exhibit 3, dated June 19, 2012. The inspectors reviewed the Barrier Integrity Screening Questions in Appendix A, Exhibit 3 and answered "No" to all the questions, which screens the issue as Green. The finding had a cross cutting aspect in the area of Human Performance, Work Practices, because the licensee failed to supervise and manage the oversight of UFSAR changes with LaSalle station staff, corporate nuclear fuels, and contractors (H.4(c)).
Inspection Report# : [2013005](#) (*pdf*)

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Improper Classification of Secondary Containment Doors as Nonsafety-Related

The inspectors identified a finding of very low safety significance (Green) and associated non-cited violation of 10 CFR 50, Appendix B, Criterion II, "Quality Assurance Program," for the licensee's failure to classify secondary containment doors with a quality status of safety related. Specifically, the licensee's failure to classify various secondary containment doors as safety related was contrary to CC-AA-304, "Component Classification," Revision 5, and was a performance deficiency. The licensee's corrective actions were to upgrade the affected doors to the proper safety classification. The licensee entered this issue into its corrective action program as AR 01557738.

The finding was determined to be more than minor because, if left uncorrected, it would become a more significant safety concern. Specifically, by failing to establish and maintain the appropriate quality assurance requirements for these components, the licensee reduced the assurance that initial design, maintenance, and replacement of parts were of sufficient quality to assure reliable service during and following design basis events. The inspectors determined the finding could be evaluated using the Significance Determination Process in accordance with Inspection Manual Chapter 0609, "Significance Determination Process," Appendix A, Exhibit 3, "Barrier Integrity Screening Questions." The inspectors answered both questions in Section C, "No", therefore, the finding screened as Green because the finding was a qualification deficiency confirmed not to result in loss of operability or functionality. The inspectors did not identify a cross cutting aspect associated with this finding because the original classification error occurred more than three years ago and is not representative of current performance.

Inspection Report# : [2013005](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Comply with Radiation Work Permit Requirements

The inspector identified a finding of very low safety significance (Green) and associated non-cited violation of

Technical Specification (TS) 5.7.1.b for the failure to comply with the requirements of the radiation work permit (RWP) during the loading of the multipurpose canister (MPC) containing spent fuel at the refuel floor. The MPC containing the spent fuel bundles was shielded by a HI TRAC outer shell that also served as the lifting yoke of the loaded MPC. Specifically, the HI TRAC containing the MPC was serviced by the reactor services personnel and during the preparation of non destructive dye penetrant testing process, the trunnions part of the lifting yoke device were removed from the HI TRAC. A worker from the reactor services group on the refuel floor removed the trunnions without the approval of radiation protection (RP) personnel. This constituted a breach of the shielding of the HI TRAC and MPC. As a result, the worker encountered radiation levels greater than those anticipated, and received unintended dose. The licensee's corrective actions included counseling of the involved workers and conducting a stand down with the reactor services department to reinforce radiological requirements along with communication expectations. The licensee completed an apparent cause evaluation to formulate additional actions to prevent recurrence.

The finding was more than minor because it is associated with the program and process attribute of the Occupational Radiation Safety Cornerstone and adversely affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation, in that, access into high radiation areas whose radiological conditions were unknown placed the worker at risk for unnecessary radiation exposure. The finding was determined to be of very low safety significance because it was not an as low as is reasonably achievable (ALARA) planning issue, there was no overexposure or substantial potential for an overexposure, and the licensee's ability to assess worker dose was not compromised. The finding involved a cross cutting aspect in the area of Human Performance, Decision-Making, in that, the worker failed to comply with the RWP requirements for RP hold-points for breaching of a system. Specifically, the decision to remove the trunnions was made without the approval by the RP department and validation that the removal of its parts would not have caused unintended consequences, such as radiation levels greater than anticipated (H.1(b)).

Inspection Report# : [2013005](#) (*pdf*)

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Provide Station ALARA Committee With Necessary Information to Ensure Occupational Radiation Exposure Is Maintained ALARA

The inspectors identified a finding of very low safety significance (Green) and associated non-cited violation of NRC requirements for the licensee's failure to provide the Station ALARA Committee with information needed to ensure that occupational radiation exposure was maintained ALARA. Specifically, TS 5.4.1 requires, in part, that the licensee establish, implement, and maintain applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A. Section 7 of Appendix A specifies radiation protection procedures for the implementation of ALARA program. Licensee procedures RP AA 400 1006, "Outage Exposure Estimating and Tracking," and RP AA 401, "Operational ALARA Planning and Controls," required effective reviews of the accumulated dose at prescribed intervals to assess the established ALARA controls and to identify/implement prompt dose reduction strategies to minimize exposure to the workers. Contrary to this, the licensee failed to implement steps in these procedures to review the accumulated dose at prescribed intervals on multiple occasions during the L2R14 refueling outage. Corrective actions included instituting appropriate radiological controls and initiating apparent cause evaluations.

The inspectors reviewed Inspection Manual Chapter 0612, Appendix B, "Issue Screening" and determined that the issue was more than minor because it is associated with the program and process attribute of the Occupational Radiation Safety Cornerstone and adversely affected the associated cornerstone objective, in that, additional radiation exposure was expended during the refueling outage. The inspectors determined that the finding was of very low safety significance in accordance with Inspection Manual Chapter 0609, Appendix C, "Occupation Radiation Safety Significance Determination Process." This finding has a cross cutting aspect in the area of Human Performance, Work

Practices, because personnel did not follow procedures (H.4(b)).

Inspection Report# : [2013005](#) (*pdf*)

Significance:  Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Perform Radiological Surveys to Ensure Appropriate Control and Access to a High Radiation Area

The inspectors identified a finding of very low safety significance and associated NCV of 10 CFR 20.1501, and licensee Technical Specification(TS) 5.4, "Procedures." Specifically, the licensee failed to adequately identify, plan, evaluate, and control the radiological conditions and potential hazards associated with the system flow paths created by the reverse flow flushing of the Unit 2 low pressure core spray (LPCS) / emergency core cooling system (ECCS) in accordance with licensee procedures RP AA 401, "Operational ALARA Planning and Controls," and RP-AA-401-1002, "Radiological Risk Management." As an immediate corrective action, the licensee instituted appropriate controls and initiated an apparent cause evaluation of the event. The licensee documented the issue in its corrective action program (CAP) as action report (AR) 01475014.

The licensee's failure to plan, identify, assess, and control radiological hazards associated with the LPCS/ECCS system reverse flushing was a performance deficiency. The finding was more than minor because, if left uncorrected, the performance deficiency could have led to a more significant safety concern. Specifically, not evaluating the radiological impact and controlling personnel exposures associated with the LPCS/ECCS reverse flow flushing resulted in unnecessary and unplanned elevation of ambient radiation fields where workers were present. The transiting radioactive particle(s) caused unexpected dose rate alarms on electronic dosimeters worn by station personnel. The inspectors concluded that the finding was of very low safety significance (Green) using Inspection Manual Chapter 0609, Appendix C, as guidance. This finding had a cross-cutting aspect in the area of human performance, work-control for failing to appropriately plan work activities when developing the work package and authorizing the work. Specifically, the licensee assumed that the radiological conditions associated with reverse flow flushing of the LPCS/ECCS would have a nominal impact on general area radiation fields in the reactor building and the reactor drywell.

Inspection Report# : [2013002](#) (*pdf*)

Public Radiation Safety

Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

Miscellaneous

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