

## La Salle 2

### 4Q/2015 Plant Inspection Findings

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#### Initiating Events

**Significance:**  Mar 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

##### **Liquid Penetrant Testing Procedure Was Not Qualified for Its Full Applicability Range**

The inspectors identified a Green NCV of Title 10, Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion IX, "Control of Special Processes," for the licensee's failure, as of February 13, 2015, to properly qualify a non-destructive testing procedure in accordance with applicable codes. Specifically, a liquid penetrant test (PT) procedure was not qualified for its full applicability temperature range in accordance with American Society of Mechanical Engineers (ASME) Code, Section V, "Non-Destructive Examination." The licensee entered this issue into its corrective action program as Action Request 02451872.

The failure to qualify a liquid PT procedure in accordance with ASME Section V was a performance deficiency. The performance deficiency was determined to be more than minor because, if left uncorrected, it had the potential to lead to a more significant safety concern. Specifically, since the liquid PT procedure was not qualified for its full applicability temperature range, liquid penetrant examinations would not be assured to detect flaws in the unqualified temperature range. As a consequence, the potential would exist for a rejectable flaw to go undetected affecting the operability of the affected system. This finding affected the Initiating Events, Mitigating Systems, and Barrier Integrity cornerstones. The finding screened as of very low safety significance (Green) because it did not result in the loss of operability or functionality; thus, the inspectors answered 'No' to all of the screening questions. Specifically, the licensee review completed liquid penetrant examination records and did not find an example where the procedure was implemented at the unqualified temperature ranges. The inspectors determined that the primary cause of the failure to properly qualify the PT procedure was related to the Problem Identification and Resolution cross-cutting area, Operating Experience aspect (P.5). Specifically, the organization failed to effectively implement external operating experience in a timely manner.

Inspection Report# : [2015001](#) (*pdf*)

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#### Mitigating Systems

**Significance:**  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

##### **Failure to Perform Required Monthly Fire Extinguisher Inspections per National Fire Protection Association Code**

The inspectors identified a finding of very low safety significance (Green) and an associated non-cited violation of LaSalle Unit 1 and Unit 2 operating licenses, NFP 11 section 2.C.(25) and NFP 18 section 2.C.(15), respectively, for failing to ensure that the inspection requirements of National Fire Protection Association (NFPA) 10 for portable fire extinguishers were satisfied. Specifically, on two separate occasions, the licensee failed to perform the required

monthly inspection on all applicable portable fire extinguishers in the reactor building due to a deficiency in station procedure, LMS FP 21, "Monthly Inspection of Portable Fire Extinguishers." The licensee entered this issue into the corrective action program (CAP) as action request (AR) 02574270, AR 02574457, and AR 02604244.

The failure to meet the inspection requirements of NFPA 10 for portable fire extinguishers was a performance deficiency. The performance deficiency was determined to be more than minor because it is associated with the Mitigating Systems cornerstone attribute of protection against external factors, including fire, and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, this performance deficiency could have led to the failure of a fire extinguisher to perform when called upon by station personnel or the fire brigade. The inspectors determined the finding was of very low safety significance (Green) in accordance with IMC 0609 Appendix F, "Fire Protection Significance Determination Process." This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Evaluation, because the licensee failed to initially evaluate the issue thoroughly in order to determine the root cause and extent of condition to prevent subsequent inspections from being missed after the issue was brought to their attention by the NRC inspectors.

Inspection Report# : [2015004](#) (*pdf*)

**Significance:** N/A Jul 17, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Use of an Analytical Method to Determine the Core Operating Limits without Prior NRC Approval (Section 1R17.1.b.(1))**

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))

Inspection Report# : [2015009](#) (*pdf*)

**Significance:**  Jul 17, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Perform a Required 50.59 Evaluation (Section 1R17.1.b.(2))**

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))

Inspection Report# : [2015009](#) (*pdf*)

**Significance:**  Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Inadvertent Operation of Breaker for Unit 2 Train A Residual Heat Removal Suppression Chamber Spray Isolation Valve**

A finding of very low safety significance (Green) and associated non-cited violation of Technical Specification 5.4.1, "Procedures," was self revealed when the licensee failed to properly preplan and perform maintenance in accordance with written procedures and instructions appropriate to the circumstances. Specifically, on May 14, 2015, the Work Order (WO 1643222) for testing of the motor for the Unit 2 reactor core isolation cooling water leg pump and involving operation of the motor's breaker did not include precautions or restrictions to prevent the inadvertent operation, by bumping, of the adjacent breaker for the safety-related Unit 2 "A" residual heat removal suppression chamber spray isolation valve. Workers inadvertently bumped and opened the breaker for the residual heat removal valve and rendered the system inoperable.

The finding was determined to be more than minor because it was associated with 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 failed to provide a work order appropriate to the circumstances of the juxtaposed breakers. The subsequent, inadvertent opening of the 2A residual heat removal suppression chamber spray isolation valve breaker, unexpectedly rendered the valve inoperable. This negatively impacted the residual heat removal suppression chamber spray system's ability to reduce suppression chamber pressure by removing one of the required two spray paths. The inspectors determined the finding to have very low safety significance (Green). This finding has a cross-cutting aspect in the area of Human Performance, Avoid Complacency, because configuration control and error prevention techniques (robust barriers) in an existing licensee procedure were not appropriately implemented due to the failure of individuals to recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes (H.12). Specifically, licensee staff failed to implement the guidance found in procedure HU AA 101, "Human Performance Tools and Verification Practices."

Inspection Report# : [2015002](#) (*pdf*)

**Significance:**  Mar 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Measure Interpass Temperature**

The inspectors identified a Green NCV of Title 10, CFR Part 50, Appendix B, Criterion IX, "Control of Special Processes," for a failure of the licensee on February 12, 2015, to measure the interpass temperature while performing welding on the 2 diesel generator cooling water (DGCW) piping system. Consequently, welding was performed without the Code-and procedure-required interpass temperature being

monitored on a number of welds, a parameter, which could have affected the mechanical properties of the material being welded. To restore compliance, the welders proceeded to measure the interpass temperatures on the balance of the welds, and verified that the interpass temperature did not exceed that allowed by procedure. The licensee entered this issue into its corrective action program as action report 02451583.

The inspectors determined that this issue was a performance deficiency that was more than minor because it had the potential to lead to a more significant safety concern. Specifically, absent NRC inspector intervention, the welders would have completed all of the welds without having measured the interpass temperature, a welding parameter which can affect the mechanical properties (e.g., impact properties) of some materials being welded, and, if left uncorrected could lead to a potential failure of the weld in service. The inspectors determined this finding was of very low safety significance (Green) because the DGCW system maintained its operability or functionality. The welders proceeded to measure the interpass temperatures on the balance of the welds, and verified that the interpass temperature did not exceed that allowed by procedure, and the issue did not result in the actual loss of the operability or functionality of a safety system. The inspectors determined that the primary cause of the failure to measure the interpass temperature while performing a manual welding process was related to the cross-cutting area of Human Performance, Procedure Adherence aspect (H.8). Specifically, the welders failed to follow procedures.

Inspection Report# : [2015001](#) (*pdf*)

**Significance:**  Jan 22, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Ensure Circuits associated with Alternate Shutdown Capability Free of Fire-induced Damage (Section 1R05.6.b)**

- Green. The inspectors identified a finding of very-low safety significance (Green) and associated NCV of the LaSalle County Station Operating License for the licensee's failure to ensure that the alternate shutdown capability was independent of the fire area. Specifically, in the event of a fire in the control room, the alternate shutdown capability for 16 motor operated valves (MOVs) associated with the Reactor Core Isolation Cooling (RCIC) may be affected, and may not be available due to lack of breaker fuse coordination. Fire-induced failures could result in tripping valve power supply breakers prior to tripping the control power fuses for several motor operated valves, thereby, potentially impairing the operation of RCIC from the Remote Shutdown Panel (RSP). The licensee entered this issue into their Corrective Action Program and established compensatory measures, and added steps to the safe shutdown procedures to reset the affected breakers if needed. In addition, the licensee intended to perform plant modifications to replace or revise existing breakers settings to correct the issue.

The inspectors determined that the issue was more than minor, because fire induced circuits could impair the operation of RCIC and complicated shutdown of the plant in the event of a fire in the control room. The finding affected the Mitigating Systems Cornerstone. The finding was determined to be of very-low safety significance based on a detailed risk-evaluation. This finding was not associated with a cross-cutting aspect because the finding was not representative of the licensee's current performance. (Section 1R05.6.b)

Inspection Report# : [2014008](#) (*pdf*)

## Barrier Integrity

**Significance:**  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Ensure that Painting Instructions were Appropriate to Preclude Challenging the Operability of Standby Gas Treatment and Control Room Ventilation Charcoal Filters**

The inspectors identified a finding of very low safety significance (Green) and an associated NCV of Title 10, Code of Federal Regulations (CFR), Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings" for the licensee's failure to have instructions or procedures that were appropriate to the circumstances for activities affecting quality. Specifically, procedure LAP-900-1, "LaSalle In Plant Painting," Revision 22, did not contain instructions or limitations to safeguard against the potential overloading of the charcoal absorber beds of the safety related standby gas treatment (SBGT) system or the control room ventilation/auxiliary electrical equipment room (VC/VE) due to the volatile organic compounds (VOC) present in painting products (e.g., paint, primer, thinner, etc.).

The performance deficiency was determined to be more than minor because if left uncorrected, it had the potential to lead to a more significant safety concern. Specifically, the failure to limit the quantity or type of paint used within the ventilation boundaries of the safety related SBGT or VC/VE emergency filtration systems could have caused those systems to be unable to perform their safety function in the presence of uncontrolled quantities of VOC. In accordance with IMC 0609, Appendix H, "Containment Integrity Significance Determination Process," the inspectors determined the finding to have very low safety significance (Green). This finding has a cross cutting aspect in the area of Human Performance, Design Margins, because design margins were not carefully guarded with special attention placed on safety related equipment. Specifically, licensee staff failed to recognize the importance of understanding the VOC loading limitations of the SBGT and VC/VE systems with respect to operability, given the large scale of the painting activities throughout the plant.

Inspection Report# : [2015004](#) (pdf)

**Significance:**  Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Inadequate 10 CFR 50.59 Evaluation for Jet Pump Plugs Affecting Fuel Bundle Cooling**

The inspectors identified a Severity Level IV non-cited violation of Title 10 of the Code of Federal Regulations (10 CFR) 50.59, "Changes, Tests, and Experiments," having very low safety significance (Green), for the licensee's failure to provide a written safety evaluation supporting the determination that a license amendment was not required for operation with jet pump seal plugs (lost in the reactor vessel in February 2015 during a refueling outage) that could negatively impact fuel bundle cooling during an anticipated operational occurrence (misplaced fuel bundle). The licensee entered this issue into the corrective action program as action report 02486215 and considered the core operable because additional testing demonstrated that with sufficient time (approximately 11 days) at operating temperature, the rubber plugs would degrade and pass through the affected flow orifices.

The finding was determined to be more than minor because the inspectors could not reasonably determine that the activity, to operate with jet pump plugs blocking peripheral fuel bundle flow, would not have required prior NRC approval. Specifically, if the licensee operated a peripheral blocked fuel bundle coincident with a misplaced fuel bundle, the minimum critical power ratio limits/margins may not have been assured. Additionally, this finding was more than minor because the underlying technical issue adversely affected the Barrier Integrity Cornerstone objective of design control and cladding performance. The finding involves the potential for a misplaced fuel bundle concurrent with complete flow blockage to a fuel assembly. Given standard refueling practices, an error that results in plant operation with a misplaced fuel bundle is very unlikely due to strict procedural controls and multiple verifications of fuel assembly placement. In addition, the misplaced fuel assembly would have to be located at a peripheral core location to be susceptible to a jet pump plug that could possibly block bundle cooling and this was very unlikely. Further, the inspectors considered the relatively short duration of time where the plug material parameters were sufficient to cause plugging of an orifice coincident with plant power levels that could challenge the fuel integrity limits. Given these factors, the inspectors determined that the likelihood of a misplaced fuel assembly combined with

a blocked orifice that could result in fuel clad damage was very low. Given the very low likelihood of the event scenario to occur and the low consequences if it were to occur, the inspectors concluded that the finding was of very low safety significance (Green). The inspectors identified a cross cutting aspect associated with this finding in the area of Human Performance, Conservative Bias, because the licensee staff did not use a decision-making practice that emphasized prudent choices over those that are simply allowable.

Inspection Report# : [2015002](#) (*pdf*)

**Significance:** G Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Include Limiting Conditions for Operation in the Technical Specifications**

The inspectors identified a Severity Level IV non-cited violation of 10 CFR 50.36, “Technical Specifications,” having very low safety significance (Green), for the licensee’s failure to ensure that limiting conditions for operation were contained in the station’s Technical Specifications. Specifically, as of March 15, 2015, through the Unit 2 Core Operating Limits Report (COLR), Cycle 16, Revisions 1 and 2, the licensee introduced new “Operating Limits for Lost Jet Pump Plug Seals Mitigation Strategy,” that created new limiting conditions of operation as defined by §50.36 (c)(2) but did not incorporate these limiting conditions of operation into the Technical Specifications. The licensee incorrectly believed that because the Core Operating Limits Report was revised via the 50.59 process and the special content that accounted for the existence of the plugs was developed using NRC approved methodologies, the change was acceptable and no change to the Technical Specification was obtained from the NRC.

This finding was considered more than minor because it was associated with the design control attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective of providing reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, the Unit 2 Core Operating Limits Report was revised in a manner that created new Limiting Condition of Operations and further, could have resulted in the operation of Unit 2 outside of its approved Technical Specification and license. Operating the unit in accordance with its NRC approved Technical Specifications could have resulted in the plant operating in an unanalyzed condition that could have resulted in fuel failure.

The finding involves the potential for a failed safety/relief valve or turbine bypass valve concurrent with complete flow blockage to a peripheral fuel assembly, with a simultaneous breakdown of control room operator knowledge of the special steps required by the Core Operating Limits Report revision. Given standard operating practices and the significant amount of extra attention and sensitivity placed on the jet pump plugs and their potential effect, an error that results in licensed operators failing to comply with the restrictive limits of the Core Operating Limits Report would be very unlikely. Additionally, a read and sign was required of all Unit 2 control room operators and supervisors delineating the special compensatory measures to be taken in the event that a Core Operating Limits Report base case component, such as a safety/relief valve were to fail. Further, the inspectors considered the relatively short duration of time (March 15–23, 2015) where the plug material parameters were sufficient to cause plugging of an orifice coincident with plant power levels that could challenge the fuel integrity limits. Given these factors, the inspectors determined that the likelihood of a failed Core Operating Limits Report base case component, combined with the operation of the unit in an unanalyzed condition in accordance with the NRC approved Technical Specifications combined with a blocked orifice that could result in fuel clad damage was very low. Given the very low likelihood of the event scenario to occur and the low consequences if it were to occur, the inspectors concluded that the finding was of very low safety significance (Green). The inspectors determined that this finding had a cross cutting aspect in the area of Human Performance, Change Management, because the licensee leaders did not ensure the use of a systematic process for evaluating and implementing change so that nuclear safety remained the overriding priority.

Inspection Report# : [2015002](#) (*pdf*)

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## Emergency Preparedness

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## Occupational Radiation Safety

**Significance:**  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Follow Procedure Associated with Sealed Source Inventory and Leak Testing**

The inspectors identified a finding of very low safety significance (Green), and an associated non-cited violation of Technical Specification (TS) requirements for the failure to perform leak tests required by station procedures. The inspectors identified multiple discrepancies with the records that are required to demonstrate that sealed radioactive sources were leak tested to prevent the spread of radioactive contamination.

The inspectors determined that the finding was more than minor in accordance with Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening." Specifically, if left uncorrected, the performance deficiency had the potential to lead to a more significant safety concern, in that, the failure to ensure that the sources are free of external contamination could spread radioactive contamination, including alpha contamination that is not readily detected by personnel monitoring equipment, and result in increased exposure to radiation. The inspectors concluded that this activity was within the licensee's ability to foresee and should have been prevented. This finding was not subject to traditional enforcement since the incident did not result in a significant safety consequence, did not impact the NRC's ability to perform its regulatory function, and was not willful. The finding was assessed using the Occupational Radiation Safety Significance Determination Process, and was determined to be of very low safety significance (Green) because the problem was not an as-low-as-reasonably-achievable (ALARA) planning issue, there were no overexposures nor substantial potential for overexposures, and the licensee's ability to assess dose was not compromised. The inspectors determined that the cause of this incident involved a cross-cutting component in the area of problem identification and resolution. Specifically, the licensee did not conduct self-critical and objective assessment of the program and practice.

Inspection Report# : [2015004](#) (*pdf*)

**Significance:**  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Entry into an Area with Unknown Dose Rates**

The inspectors reviewed a finding of very low safety significance (Green) with an associated non-cited violation of Technical Specification (TS) 5.7.1, that was self-revealed when a worker received a dose rate alarm from an electronic dosimeter when he entered an area with an unknown dose rate.

The inspectors determined that the finding was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening." Specifically, in that the finding impacted the program and process attribute of the Occupational Radiation Safety Cornerstone, and adversely affected the cornerstone objective of ensuring adequate protection of worker's health and safety from exposure to radiation, in that, the unauthorized entry into an area where the dose rates were unknown removed a barrier intended to prevent the worker from receiving unexpected dose. The inspectors concluded that this activity was within the licensee's ability to foresee and should have been prevented. This finding was not subject to traditional enforcement since the incident did not result in

a significant safety consequence, did not impact the NRC's ability to perform its regulatory function, and was not willful. The finding was assessed using the Occupational Radiation Safety Significance Determination Process, and was determined to be of very low safety significance (Green) because the problem was not an as-low-as-reasonably-achievable (ALARA) planning issue, there were no overexposures nor substantial potential for overexposures, and the licensee's ability to assess dose was not compromised. The inspectors concluded that the cause of the issue involved a cross-cutting component in the human performance area of teamwork due to communication issues that were reported by the licensee during the pre-job brief for the job.

Inspection Report# : [2015004](#) (*pdf*)

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## Public Radiation Safety

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## 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.

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## Miscellaneous

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