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South Texas 1 – Quarterly Plant Inspection Findings

2Q/2017 – Plant Inspection Findings

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Initiating Events

Significance: G Jun 30, 2017

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Failure to Establish Procedures to Remove Reactor Vessel Head Vent Rig Results In Loss of Reactor Coolant System Inventory

The inspectors documented a self-revealed, non-cited violation of Technical Specification 6.8.1.a, Regulatory Guide 1.33, Revision 2, February 1978, Appendix A, Section 9.d.(4). Specifically, inadequate written work instructions to remove the reactor vessel head vent rig and install a breathable foreign material exclusion cover resulted in installing a blind flange and a loss of reactor coolant system water while at lowered inventory. The licensee developed proper instructions and the blind flange was promptly removed to restore the vent path for the reactor vessel head. Reactor coolant system inventory was restored. This issue was entered into the licensees' corrective action program as Condition Report 2017-13155.

The failure of the licensee to provide appropriate written work instructions to install a breathable foreign material exclusion cover following the removal of the reactor vessel head vent rig was a performance deficiency. The performance deficiency is more than minor because it was associated with the configuration control attribute of the Initiating Events Cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the licensee installed a blind flange, instead of a breathable foreign material exclusion cover on the reactor vessel head vent piping, which resulted in an inadvertent loss of reactor coolant during lowered inventory operations. Using Inspection Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process," dated May 9, 2014, Attachment 1, Exhibit 2, "Initiating Events Screening Questions," the finding was determined to be of very low safety significance (Green) because the finding would not have resulted in a loss of decay heat removal if undetected for 24 hours, AND was determined to be self-limiting because level would have only lowered to the point at which it would have vented to the pressurizer and not lowered to the point of challenging decay heat removal function.

The inspectors determined that the finding had a cross-cutting aspect in the area of human performance associated with work management. The licensee failed to implement an adequate process to execute work activities such that nuclear safety is the overriding priority. Specifically, contractors were supplied generic work instructions to remove the reactor coolant system head vent rig which resulted in a loss of reactor coolant system inventory [H.5].

Inspection Report# : 2017002 (*pdf*)

Mitigating Systems

Significance:  Jun 30, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Establish Procedures for Control of High-Energy Line Break Barriers

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for failure to establish adequate procedures for the control of high-energy line break barriers. Specifically, on July 21, 2016, the inspectors identified that Procedure OPGP03 ZA-0514, "Controlled System or Barrier Impairment," Revision 14, did not have any guidance on the control of barriers used for high energy line breaks, despite the fact that the auxiliary feedwater pump room watertight doors are credited in the safety analyses for protection against such breaks. After discussing the acceptability of having both doors open simultaneously, the licensee shut the watertight door to auxiliary feedwater pump room for train A, and entered this condition into the licensee's corrective action program as Condition Report 2016-9006.

The failure to prescribe procedures for the control of high-energy line break doors was a performance deficiency. This finding was more than minor because it was associated with the procedure quality attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, Procedure OPGP03 ZA-0514, "Controlled System or Barrier Impairment," Revision 14, did not provide adequate procedures for the control of hazard barriers, which called the operability of the train A auxiliary feedwater system into question. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions," the issue screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk significant due to seismic, flooding, or severe weather. The NRC determined that this finding did not have a cross-cutting aspect because the most significant contributor to the performance deficiency did not reflect current licensee performance. Specifically, the auxiliary feedwater pump evaluation was performed in 2000; therefore, the performance deficiency occurred outside of the nominal 3-year period for "present performance."

Inspection Report# : 2017002 (*pdf*)

Significance:  Jun 30, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure To Establish Adequate Procedures To Ensure Emergency Diesel Generator Access Flood Panels Would Meet Their Safety Function

The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to provide adequate written instructions for performing preventative maintenance to ensure the emergency diesel generator building access flood panels remain capable of performing their safety function. Specifically, the preventative maintenance work order model number 61046 was not adequate to detect degraded seal conditions, which were revealed during the flooding event on March 17, 2017. This issue was entered into the

licensees' corrective action program as Condition Report 2017-12897. The licensee assembled a panel of individuals who were familiar with the design, and individuals responsible for the maintenance of these access panels and is still considering options to prevent future leakage.

The failure to provide adequate written instructions for performing preventative maintenance to ensure diesel generator building access flood panels remain capable of performing their safety function was a performance deficiency. Specifically, preventative maintenance work order model number 61046 was not adequate to detect degraded seal conditions, which were revealed during the flooding event on March 17, 2017. The performance deficiency is more than minor, and therefore a finding, because it is associated with the protection against external factors attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to identify degrading flood barriers could result in emergency diesel generator inoperability or failure during a design basis flooding event. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) For Findings At-Power," dated July 1, 2012, Exhibit 2, "Mitigating System Screening Questions," the finding was determined to be of very low safety significance (Green). Specifically, the finding was not a deficiency affecting the design or qualification of a mitigating structure, system, and component; did not represent a loss of system and/or function; did not represent an actual loss of function of at least a single train for greater than its technical specification allowed outage time; and did not represent an actual loss of function of one or more than non-technical specification trains of equipment designated as high-risk significance for greater than 24 hours. The inspectors determined that this finding did not have a cross-cutting aspect because the most significant contributor to the performance deficiency did not reflect current licensee performance. Specifically, the emergency diesel generator access panels had not allowed water intrusion due to flooding within the last 3 years and, therefore, the licensee did not have a recent opportunity to understand that the preventative maintenance work order instructions were inadequate.

Inspection Report# : 2017002 (*pdf*)

Significance:  Feb 10, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Provide 8-hour Emergency Lighting for All Alternative Shutdown Manual Actions

The team identified a non-cited violation of License Condition 2.E for the failure to provide 8-hour emergency lighting in all areas where operators perform manual actions required during an alternative shutdown. As a compensatory measure, the licensee added flashlights to the procedure box in the essential cooling water intake structure. The team noted that operators were also required to carry a flashlight while on shift. The licensee entered this issue into their corrective action program as Condition Report 17-1741.

The failure to provide 8-hour emergency lighting in all areas where operators perform manual actions required during an alternative shutdown was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external events (fire) attribute of the Mitigating Systems Cornerstone and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to provide 8-hour emergency lighting could adversely affect the ability of operators to perform the manual actions required for an alternative shutdown.

The team determined this finding affected the Mitigating Systems Cornerstone. The team evaluated this finding using Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," dated September 20, 2013, because it affected the ability to reach and maintain safe shutdown conditions in case of a fire. The team determined this finding was of very low safety significance (Green) in Task 1.3.1 because it had a low degradation rating.

The finding did not have a cross-cutting aspect since it was not indicative of present performance in that the performance deficiency occurred more than three years ago. Specifically, the team determined that the performance deficiency existed since original construction.

Inspection Report# : 2017007 (*pdf*)

Barrier Integrity

Significance: G Aug 26, 2016

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Failure to Update Procedure Reference Leads to Non-functional Unit 1 Technical Support Center Diesel Generator

The team is documenting a self-revealing Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to follow Procedure OPGP04-ZE-0309, "Design Change Package," Revision 2. Specifically, on January 16, 1996, the licensee failed to identify and correct changes to drawing and breaker overhaul procedures, which resulted from Design Change Package 93-3409-4, "Circuit Breaker Replacement-Load Center 1W," in accordance with Step 4.2.2.5 of the procedure. This resulted in electrical maintenance personnel using an incorrect drawing and procedure during a technical support center diesel generator supply breaker overhaul, on July 16, 2014, which left in place internal jumper cables that prevented the supply breaker from automatically closing.

The inspectors determined that the failure to follow Procedure OPGP04-ZE-0309, "Design Change Package," Revision 2, was a performance deficiency. In accordance with Inspection Manual Chapter 0612, Appendix B, "Issue Screening," the performance deficiency was determined to be more than minor, and therefore a finding, because it was associated with the structure, system, and component, and barrier performance - containment isolation, attribute of the Barrier Integrity Cornerstone, and affected the associated cornerstone objective to provide 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 finding adversely affected the Technical Support Center diesel generator's capability to supply ac power to the containment hatch hoists in order to close that hatch in the event of a loss of offsite power during outage conditions. Using Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the finding could be evaluated using the significance determination process. In accordance with Table 3, "SDP Appendix Router," the inspectors determined that the subject finding would be processed through Appendix G, "Shutdown Operations Significance Determination Process," dated May 9, 2014. In accordance with Appendix G, Exhibit 4, "Barrier Integrity Screening Questions," Question B.6, directs the inspectors to Appendix H if the finding degrades the ability to close or isolate the containment. In accordance with Inspection Manual Chapter 0609, Appendix H, "Containment Integrity Significance Determination Process," Section 4.1, "Types of Findings," the finding was a Type B finding because it had potentially important implications for the integrity of the containment, without affecting the likelihood of core damage. Appendix H, Section 6.2, "Approach for Assessing Type B Findings at Shutdown," Step 2.2.A directs the user to Table 6.3 with a containment status of intact. Table 6.3, "Phase 1 Screening - Type B Findings at Shutdown," requires a Phase 2 evaluation because South Texas Project has a large, dry containment and the finding affected containment isolation. Appendix H, Table 6.4, "Phase 2 Risk Significance - Type B Findings at Shutdown," provided an estimated risk significance of White because South Texas Project has a large, dry containment; the leakage from containment was greater than 100 percent volume/day; South Texas Project had in-depth shutdown mitigation capability; and for part of the exposure period, the plant was in Plant Operational State 2E.

In accordance with Appendix H, Section 2.0, "Limitations and Precautions," a more detailed assessment was performed in a Significant Determination Process Phase 3 evaluation.

The analyst performed a detailed risk evaluation of the subject performance deficiency. During the exposure period, from July 16, 2014, through October 29, 2015, the failure of the Technical Support Center diesel generator affected risk of the unit, while at power, because of the failure to provide power to the positive displacement pump for reactor coolant pump seal cooling following a postulated loss of all alternating current event. Additionally, the Technical Support Center diesel would not have fulfilled its function to provide backup power to close the containment hatch during the outage period from October 18, 2015, to October 29, 2015. These two impacts on plant risk were evaluated. Because the combined risk of the at-power and shutdown risk evaluations were lower than the threshold, the analyst determined that this non-cited violation was of very low safety significance (Green). This finding has no cross-cutting aspect assigned because the root cause of this issue occurred in 1996 and is not reflective of current licensee performance.

Inspection Report# : 2016009 (*pdf*)

Emergency Preparedness

Significance: G Sep 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Implementation of a Protective Action Recommendation Strategy That Can Recommend Unnecessary Protective Actions for the Public

The inspectors identified a Green non-cited violation of 10 CFR 50.47(b)(10) for the failure between July 16, 2015, and September 8, 2016, to develop a range of protective actions for the plume exposure emergency planning zone for the public, considering evacuation and sheltering. The licensee restored compliance by implementing procedure OERP01-ZV-IN07, "Offsite Protective Action Recommendations," Revision 17, effective September 28, 2016. This issue has been entered into the licensee's corrective action program as Condition Report 16-9135.

The implementation of a protective action scheme that recommends protective actions for members of the public who are not at radiological risk is a performance deficiency within the licensee's ability to foresee and correct. The finding is more than minor because it adversely affects the Emergency Planning cornerstone objective and is associated with the procedure quality and emergency response organization performance cornerstone objectives. The finding was evaluated using Inspection Manual Chapter 0609, Appendix B, "Emergency Preparedness Significance Determination Process," dated September 22, 2015, and was determined to be of very low safety significance (Green), because it was a failure to comply with NRC regulations and was not a lost or degraded risk-significant planning standard function. This finding has a cross-cutting aspect in the area of human performance associated with avoiding complacency, because the licensee did not challenge the basis for existing program elements in reviewing their program against the revised NUREG-0654, Supplement 3 [H.12].

Inspection Report# : 2016003 (*pdf*)

Occupational Radiation Safety

Public Radiation Safety

Security

The security cornerstone is an important component of the ROP, which includes various security inspection activities the NRC uses to verify licensee compliance with Commission regulations and thus ensure public health and safety. The Commission determined in the staff requirements memorandum (SRM) for SECY-04-0191, "Withholding Sensitive Unclassified Information Concerning Nuclear Power Reactors from Public Disclosure," dated November 9, 2004, that specific information related to findings and performance indicators associated with the security cornerstone will not be publicly available to ensure that security-related information is not provided to a possible adversary. Security

inspection report cover letters will be available on the NRC Web site; however, security-related information on the details of inspection finding(s) will not be displayed.

Miscellaneous

Current data as of : September 05, 2017

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