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Comanche Peak 1 – Quarterly Plant Inspection Findings

2Q/2017 – Plant Inspection Findings

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Initiating Events

Significance: G Sep 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Manage Risk During Refueling Outages

Green. The inspectors identified a non-cited violation of 10 CFR 50.65(a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," for the licensee's failure to adequately manage the increase in risk associated with the potential for a loss of decay heat removal during refueling outages. Specifically, the licensee implemented a risk management action that did not reduce the risk, but instead called for placing a safety injection pump in service during periods where this action is prohibited by plant's technical specifications for low temperature over pressure protection. The inspectors determined this was an ineffective risk management action because the use of a safety injection pump during low pressure and temperature conditions would place the plant in an unanalyzed condition, resulting in an increase in risk. As an immediate corrective action, the licensee initiated Condition Report CR-2015-009109 to evaluate appropriate risk management actions. This finding was entered into the licensee's corrective action program as Condition Report CR-2015-009109.

The failure to manage the increase in risk associated with the potential for a loss of decay heat removal during refueling activities is a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it was associated with the procedure quality attribute of the Initiating Events Cornerstone and 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. Using Inspection Manual Chapter 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," dated May 19, 2005, Flowchart 1, "Assessment of Risk Deficit," the inspectors determined the need to calculate the risk deficit to determine the significance of this issue. A senior reactor analyst performed a bounding qualitative assessment and determined the incremental core damage probability deficit was less than 1E-6 and the incremental large early release probability deficit was less than 1E-7, based on the availability of additional equipment to mitigate the loss of decay heat removal.

In accordance with Flowchart 1 in Appendix K, because incremental core damage probability deficit was less than 1E-6 and incremental large early release probability deficit was less than 1E-7, the finding screened as having very low safety significance (Green). The finding has a human performance cross-cutting aspect associated with bases for decisions, in that, the licensee failed to ensure that operations leadership adequately communicate potential problems with the risk management action to start a safety injection pump when in a mode of applicability for low temperature over pressure protection [H.10].

Inspection Report# : 2016003 (*pdf*)

Significance:  Sep 15, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Evaluate the Suitability of Teflon Gaskets in a Safety-Related Pressure Boundary

The inspectors identified a Green, non-cited violation of 10 CFR 50 Appendix B, Criterion III, "Design Control," which requires, in part, that measures shall also be established for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety related functions of the structures, systems and components. Specifically, from November 25, 2014, to September 15, 2016, the licensee failed to appropriately evaluate the suitability of polytetrafluoroethylene (PTFE) gaskets in pressure indication diaphragm assemblies that form the pressure boundary of the chemical and volume control system. In response to this issue, the licensee immediately isolated all affected diaphragm seal assemblies from the safety-related pressure boundary of the chemical and volume control system. This condition was entered into the corrective action program as Condition Reports CR-2016-008180 and CR-2016-008215.

The inspectors determined that the failure to meet 10 CFR 50, Appendix B, Criterion III, "Design Control" was performance deficiency. The performance deficiency was more than minor because the finding is associated with the equipment performance attribute of the Initiating Events cornerstone and adversely affects the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown. Specifically, in the event of an accident with 1% core damage, the high radiation environment of the centrifugal charging pump rooms would cause degradation to Teflon gaskets in pressure indication diaphragm assemblies, which would potentially cause an intersystem loss-of-coolant accident through the safety-related chemical and volume control system pressure boundary. Using the Manual Chapter 0609, Appendix A, Significance Determination Process for Findings At-power, Exhibit 1, "Initiating Events Screening Questions," the finding screens to a detailed risk evaluation because, after a reasonable assessment of degradation, the finding could have an effect on systems used to mitigate a loss-of-cooling accident resulting in a total loss of their function (e.g. intersystem loss-of-coolant accident). A senior reactor analyst performed a qualitative detailed risk evaluation. The analyst determined that the finding was of very low safety significance (Green). The inspectors determined that the most significant contributor to this finding had an Evaluation cross-cutting aspect in the area of problem identification and resolution because the licensee failed to thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. Specifically, in November 2014, the licensee's engineering department failed to properly evaluate the effects of radiation on the PTFE gasket, as documented in Condition Report CR 2014 012353. [P.2] (Section 1R17.2.b)

Inspection Report# : 2016007 (*pdf*)

Mitigating Systems

Significance:  Mar 27, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Maintain B.5.b Equipment in a State of Readiness to Support Mitigation Strategies

The inspectors identified a non-cited violation of 10 CFR 50.54(hh)(2), "Conditions of License," involving the licensee's failure to maintain available equipment needed to implement mitigating strategies to provide makeup to steam generators following loss of large areas of the plant due to explosions or fire. Specifically, the licensee failed to maintain available a portable alternate mitigation equipment pump related to the steam generator makeup strategy. The licensee entered this issue into their corrective action program as Condition Report CR-2016-010832.

The failure to maintain all necessary equipment available to implement mitigating strategies as required by regulations and conditions of the operating license was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it was associated with the design control attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609, Appendix L, "B.5.b Significance Determination Process," dated December 24, 2009, the inspectors determined the finding was of very low safety significance (Green) because it resulted in an unrecoverable unavailability of an individual mitigating strategy; but did not result in multiple unavailable mitigating strategies, or loss of all on-site, self-powered, portable pumping capability. The inspectors determined that no cross-cutting aspect was assigned because the performance deficiency was not reflective of present performance.

Inspection Report# : 2017001 (*pdf*)

Significance:  Mar 27, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Evaluate Heat Loads on Control Room Air Conditioning System

The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to properly evaluate heat loads on the control room air conditioning system. Specifically, the licensee used a non-conservative assumption of the number of persons in the control room envelope when calculating the required capacity of the system. The licensee had only assumed there would be six personnel to be in the technical support center (which is included in the control room envelope) during a design basis event. However, the emergency plan nominally staffed the technical support center with 25 station personnel, and an additional five NRC personnel. The licensee entered this issue into their corrective action program as Condition Report CR-2017-000744.

The failure to evaluate heat loads to determine the required system capacity is a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it was associated with the design control attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," dated October 7, 2016, and Inspection Manual Chapter 0609, Appendix A, "Significance Determination Process for Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions," the inspectors determined the finding was of very low safety significance (Green) because the finding: (1) was not a deficiency affecting the design and qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality, (2) did not represent a loss of system and/or function, (3) did not represent an actual loss of function of at least a single train for longer than its allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time, and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours in accordance with the licensee's maintenance rule program. The inspectors determined that no cross-cutting aspect was assigned because the performance deficiency was not reflective of present performance.

Inspection Report# : 2017001 (*pdf*)

Significance:  Mar 27, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Use of Non-Design Fouling Factor for Component Cooling Water Heat Exchanger in Station Service Water Tornado Missile Calculation

The team identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," involving the use of a non-design fouling factor for the component cooling water heat exchanger in a design basis calculation evaluating a tornado missile strike of station service water system piping. The licensee entered this issue into their corrective action program as Issue Report IR-2017-001465.

The team determined that the failure to use the design fouling factor for the component cooling water heat exchanger in the tornado missile analysis of the station service water system discharge piping was a performance deficiency. This finding was more-than-minor because it was associated with the design control 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, the use of a non-conservative heat exchanger fouling factor in a design basis accident analysis resulted in a more restrictive temperature limit (i.e., less than the technical specification allowed value) of the safe shutdown impoundment. 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 (1) did not represent a loss of operability or functionality; (2) did not represent an actual loss of safety function of the system or train; (3) did not result in the loss of one or more trains of non-technical specification equipment; and (4) did not screen as potentially risk-significant due to seismic, flooding, or severe weather. The team 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 licensee performed the calculation in 1988, therefore, the performance deficiency occurred outside of the nominal three-year period for "present performance."

Inspection Report# : 2017001 (*pdf*)

Significance:  Mar 27, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Promptly Correct a Condition Adverse to Quality

The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," associated with the licensee's failure to take timely corrective actions for a previously identified condition adverse to quality. Specifically, the licensee failed to verify the adequacy of the design of the unit 1 120 VAC vital bus inverter 1PC1 with respect to use of alternate AC power to the inverter. The 120 VAC calculation did not properly account for low voltage when the buses are supplied from their alternate source. This issue does not represent an immediate safety concern because, following the inspectors identification, the licensee performed an operability evaluation which established a reasonable expectation of operability. The licensee entered this issue into their corrective action program as CR-2017-001296.

The licensee's failure to take timely and adequate corrective actions to correct a condition adverse to quality was a performance deficiency. The performance deficiency is more than minor, and therefore a finding, because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and 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 correct the low voltage susceptibility resulted in delayed restoration of a bus following the failure of the swing inverter to sync. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," dated October 7, 2016, and Inspection Manual Chapter 0609, Appendix A, "Significance Determination Process for Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions," the inspectors determined the finding was of very low safety significance (Green) because the finding: (1) was not a deficiency affecting the design and qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality, (2) did not represent a loss of system and/or function, (3) did not represent an actual loss of function of at least a single train for longer than its allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time, and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours in accordance with the licensee's maintenance rule program. The finding has a human performance cross-cutting aspect associated with resources, in that, the licensee failed to ensure that resources were adequate to support nuclear safety [H.1].

Inspection Report# : 2017001 (*pdf*)

Significance:  Dec 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Scope the Containment Ventilation System in the Maintenance Rule Program

The inspectors identified a non-cited violation of 10 CFR 50.65(b)(2) associated with the licensee's failure to scope the containment ventilation system into the maintenance rule program. Specifically, the containment ventilation system, a non-safety related system that is relied upon to mitigate accidents or transients and used in emergency operating procedures, was not included in the scope of the monitoring program specified in 10 CFR 50.65(a)(1). In response to this issue the licensee scoped the system in the plants' maintenance rule monitoring program, and placed the equipment under 10 CFR 50.65(a)(1) monitoring requirements pending further review. The licensee entered this issue into the corrective action program as CR-2016-008491.

The failure to monitor the performance and condition of a system that meets the maintenance rule scoping criteria of 10 CFR 50.65(b)(2) is the performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," dated July 1, 2012, and Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated October 7, 2016, Exhibit 2, "Mitigating Systems Screening Questions," the inspectors determined the finding affected the Mitigating Systems cornerstone and was of very low safety significance (Green), because the finding did not represent a loss of system function and the system was not designated as high safety-significant in accordance with the licensee's maintenance rule program. The finding has a human performance cross-cutting aspect associated with avoiding complacency, in that, the licensee failed to ensure that individuals recognized and planned for the possibility of mistakes and latent issues when re-evaluating the basis for excluding the system [H.12].

Inspection Report# : 2016004 (*pdf*)

Significance:  Nov 13, 2015

Identified By: NRC

Item Type: VIO Violation

Failure to Evaluate the Lack of Missile Protection on the Turbine Driven Auxiliary Feedwater Pumps' Steam

Exhaust Piping

Green. The team identified a cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to evaluate the lack of missile protection on the turbine driven auxiliary feedwater pumps' steam exhaust piping. Specifically, since June 13, 2012, the licensee failed to verify the adequacy of design of the turbine driven auxiliary feedwater pumps' steam exhaust piping to withstand impact from a tornado driven missile hazard, or to evaluate for exemption from missile protection requirements using an approved methodology. This issue does not represent an immediate safety concern because the licensee performed an operability evaluation, which established a reasonable expectation of operability. The licensee entered this issue into the corrective action program for resolution as Condition Report CR-2015-007869.

The licensee's failure to analyze the effects of a tornado missile strike on the turbine driven auxiliary feedwater pumps' steam exhaust piping was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external events factors attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee failed to evaluate a design nonconformance on the turbine driven auxiliary feedwater pumps' steam exhaust piping for lack of missile protection. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions," dated June 19, 2012, the team determined that the finding is of very low safety significance (Green) because (1) the finding was not a deficiency affecting the design or qualification of a mitigating system; (2) the finding did not represent a loss of system and/or function; (3) the finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) the finding does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. The finding has a human performance cross-cutting aspect associated with conservative bias because individuals failed to use decision making practices that emphasize prudent choices over those that are simply allowable [H.14]. (Section 4OA2.5a)

Inspection Report# : 2015008 (*pdf*)

Barrier Integrity

Significance: G Dec 31, 2016

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Failure to Evaluate Inservice Testing Results of Power Operated Relief Valve

The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control," for the licensee's failure to evaluate inservice testing results of a power operated relief valve (PORV). Specifically, the licensee restored a unit 1 PORV to service that did not meet its specified opening time, which resulted in the inoperability of the low temperature overpressure protection (LTOP) system. Following maintenance on PORV 1-PCV-455A during October 2014, the licensee performed stroke time testing on the valve, but failed to recognize that the valve exceeded its test acceptance criteria until it failed again in May 2016. The licensee entered this issue into the corrective action program as CR-2016-003920.

The failure to evaluate test results to ensure they met test requirements is a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it was associated with the Reactor Coolant System Equipment and Barrier Performance attribute of the Barrier Integrity cornerstone and affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," dated October 7, 2016, Inspection Manual Chapter 0609, Appendix G, "Shutdown Operations Significance

Determination Process," dated May 9, 2014, and Appendix G Attachment 1, "Phase 1 Initial Screening and Characterization of Findings," Exhibit 4, "Barrier Integrity Screening Questions," the inspectors determined the finding affected the Barrier Integrity cornerstone and required a detailed risk evaluation because the finding involved the unavailability of a PORV during LTOP operations. Using the assumption that the slow opening time prevents the PORV from fulfilling its LTOP system function, a senior reactor analyst performed a bounding qualitative assessment, using Inspection Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process." The influential assumptions used by the senior reactor analyst included an exposure time of approximately 9 hours and that the licensee maintained the availability of a single additional relief valve with capability sufficient to mitigate an LTOP event as described in the final safety analysis report. Using these assumptions, the senior reactor analyst determined that a bounding increase in core damage frequency for this issue was 1.45E-8 per year and was therefore, of very low safety significance (Green). The finding has a human performance cross-cutting aspect associated with work management, in that, the licensee failed to ensure that the work process includes the need for coordination with different groups or job activities [H.5].

Inspection Report# : 2016004 (*pdf*)

Emergency Preparedness

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

Significance: N/A Sep 29, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Update FSAR Section 8.3.1.1.11

The inspectors identified a Severity Level IV non-cited violation of 10 CFR50.71(e) which requires, in part, that licensee shall update periodically the final safety analysis report originally submitted as part of the application for the license, to assure that the information included in the report contains the latest information developed. The submittal shall include the effects of all changes to the facility as described in the final safety analysis report, or all safety analyses and evaluation performed by the licensee either in support of approved license amendments or in support of conclusion that changes did not require a license amendment in accordance with 10 CFR 50.59 (c)(2). Specifically, from October 9, 2012 to September 29, 2016, the licensee did not include the effects of changes to the K300 voltage relay setpoint or the safety evaluation in submittals to the Final Safety Analysis Report, Section 8.3.1.1.11, that supported the conclusion that the changes did not require a license amendment. The licensee plans to initiate a Licensing Document Change Request to update the final safety analysis report. This is not an immediate safety

concern. The licensee entered this issue into their corrective action program as Condition Report CR-2016-008177.

The licensee's failure to initiate a Licensing Document Change Request, in accordance with procedure STA-116, "Maintenance of CPNPP Licensing Basis Documents, Operating License conditions and Technical Specifications," Revision 14, instruction 6.1, to update the Final Safety Analysis Report, Section 8.3.1.1.11, for the setpoint revision of voltage K300 voltage relays was a performance deficiency. This led to a violation of 10 CFR 50.71(e) for failing to update the final safety analysis report. Using NRC Inspection Manual Chapter 0612, Appendix B, "Issue Screening," dated September 7, 2012, this was determined to be a minor performance deficiency. This violation was evaluated using the traditional enforcement process because it impacted the NRC's ability to perform its regulatory oversight function. The reactor oversight process's significance determination process does not consider violations that impacts the NRC's regulatory oversight function. This violation was determined to be a Severity Level IV violation because it was consistent with the example in Paragraph 6.1.d.3 of the NRC Enforcement Policy, dated August 1, 2016. Specifically, the licensee failed to update the final safety analysis report as required by 10 CFR 50.71(e), but the lack of up-to-date information has not resulted in any unacceptable change to the facility or procedures. No cross-cutting aspect was assigned to this violation because there was no reactor oversight process finding associated with the performance deficiency.
(Section 1R17.2.b)

Inspection Report# : 2016007 (*pdf*)

Current data as of : August 03, 2017

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