Palo Verde 1
4Q/2008 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance: G Dec 31, 2008
Identified By: NRC
Item Type: FIN Finding
Failure to Promptly Identify and Correct Degraded Hydrostatic Penetration Seals
The inspectors identified a finding of Palo Verde Nuclear Generating Station Procedure 01DP 0AP10, "Corrective Action Program," Revision 1, for the failure of operations and engineering personnel to promptly identify and correct a condition adverse to quality. Specifically, between February 13, 2007 and July 18, 2008, operations and engineering personnel failed to identify and correct degraded hydrostatic flood penetration seals which provide protection to safety-related equipment during internal flooding events. This resulted in over 100 hydrostatic penetration seals in the control, diesel, and main steam support structure buildings being left degraded for greater than 12 months. This issue was entered into the licensee's corrective action program as Palo Verde Action Request 3264501.

The finding is greater than minor because it is associated with the protection against external factors (i.e. flood hazard) attribute of the mitigating systems cornerstone and affects the cornerstone objective of ensuring the reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to have a very low safety significance because the finding did not result in a loss of system safety function, an actual loss of safety function of a single train for greater than its Technical Specification allowed outage time, or screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of problem identification and resolution associated with operating experience because operations and engineering personnel failed to implement and institutionalize operating experience through changes to station processes, procedures, equipment, and training programs [P.2(b)].

Inspection Report# : 2008005 *(pdf)*

Significance: G Sep 30, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Provide an Adequate Procedure to Control Essential Spray Pond Missile Hazards
The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for the failure of engineering personnel to establish adequate procedures to ensure evaluation and approval of transient missile structure hazards that have an effect on the operability of the essential spray ponds. Specifically, since January 15, 1997, civil engineering personnel failed to develop an adequate procedure to verify missile density criteria are not exceeded to ensure operability of the essential spray ponds during severe weather. This resulted in approximately 40 transient missile hazards being placed around Unit 1 spray Pond A without an approval or evaluation to ensure continued operability of the essential spray ponds. The licensee determined the spray pond was operable following a walkdown and evaluation of the missile hazards. This issue was entered into the licensee's corrective action program as Condition Report/Disposition Request 3224028.

The finding is greater than minor because it is associated with the external factors attribute of the mitigating systems

cornerstone and affects the cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to have a very low safety significance because the finding did not result in a loss of system safety function, an actual loss of safety function of a single train for greater than its technical specification allowed outage time, or screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program because appropriate corrective actions were not taken to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity [P.1(d)].
Inspection Report# : 2008004 *(pdf)*

Significance: G Sep 30, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Correct a Condition Adverse to Quality with the RWT Instruments in a Timely Manner
The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure of the licensee to correct a deficiency associated with the refueling water tank instrument pit in a timely manner. Specifically, between June 16, 2006, and July 2, 2008, maintenance and engineering personnel failed to ensure the openings of the pit covers were adequately sealed to prevent rain water intrusion. This issue was entered into the licensee's corrective action program as Palo Verde Action Request 3194904.

The performance deficiency associated with this finding involved the failure of maintenance personnel to correct a condition adverse to quality in a timely manner. The finding is greater than minor because it is associated with the protection against external factors cornerstone attribute of the mitigating systems cornerstone and affects the associated cornerstone objective to ensure the reliability and availability of systems that respond to initiating events. Using the Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterizations of Findings," the finding required a Phase 3 analysis by a Senior Reactor Analyst, since the finding is potentially risk significant due to external initiating event core damage sequences. Based on the analysis performed, the analyst concluded that the finding had very low safety significance (Green) because of the very small probability of a large rainfall event and a loss of coolant accident occurring at the same time. This finding was evaluated as not having a crosscutting aspect because the performance deficiency is not indicative of current performance.
Inspection Report# : 2008004 *(pdf)*

Significance: G Jun 30, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Take Timely Corrective Actions for a Condition Adverse to Quality Resulting in the '1A' Safety Injection Tank being declared Inoperable
The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure of operations and maintenance personnel to promptly identify and correct a condition adverse to quality. Specifically, from August 2007 till June 2008, operations and maintenance personnel failed to ensure that work management process procedures were followed for a degraded condition affecting Safety Injection Tank 1A. This issue was entered into the licensee's corrective action program as Condition Report/Disposition Request 3185716.

The finding is greater than minor because it is associated with the equipment performance attribute of the mitigating systems cornerstone and affects the cornerstone objective of ensuring the reliability, availability and capability of systems that respond to initiating events to prevent undesirable consequences. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to have a very low safety significance because the finding did not result in a loss of system safety function, an actual loss of safety function of a single train for greater than its technical specification allowed outage time, or screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of human performance associated with work control because the licensee failed to plan work activities to support long-term equipment reliability by limiting operator work-arounds, safety systems unavailability, and reliance on manual actions [H.3 (b)].

Inspection Report# : 2008003 *(pdf)*

Significance: G Mar 31, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Establish Preventative Maintenance Procedures for Emergency Diesel Generator Fuel Oil Injection Pump O-Rings
The inspectors identified a non-cited violation of Technical Specification 5.4.1.a for the failure of operations and engineering personnel to establish and implement maintenance procedures for inspection and replacement of items that have a specific lifetime. Specifically, between February 12, 2007 and March 7, 2008, operations and engineering personnel failed to inspect or replace the emergency diesel generators fuel oil injection pump upper O-rings prior to the end of their service life resulting in fuel leakage and increased unavailability and unreliability of Unit 1 Train A, Unit 2 Train B, and Unit 3 Train B emergency diesel generators. This issue was entered into the licensee's corrective action program as Palo Verde Action Request 3143422.

This finding is greater than minor because it is associated with the equipment performance attribute of the mitigating systems cornerstone and affects the cornerstone objective of ensuring the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because it did not represent a loss of system safety function, an actual loss of safety function of a single train for greater than its technical specification allowed outage time, or screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of problem identification and resolution associated with operating experience because the licensee failed to use available operating experience, including vendor recommendations, to implement and institutionalize operating experience through changes to station processes, procedures, equipment, and training programs [P.2(b)].

Inspection Report# : 2008002 *(pdf)*

Significance: G Mar 31, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Maintain Adequate Staffing Levels Results in Heavy Use of Overtime to Maintain Adequate Shift Coverage
The inspectors identified a non-cited violation of Technical Specification 5.2.2.d involving the routine use of excessive overtime for operations personnel that performed safety-related functions. Specifically, between January 1 and December 31, 2007, operations personnel routinely used excessive overtime. This issue was entered into the licensee’s corrective action program as Condition Report/Disposition Request 3112231.

The finding is greater than minor because if left uncorrected the finding would become a more significant safety concern in that the routine use of excessive work hours increases the likelihood of operator errors. Using the IMC 0609, "Significance Determination Process," Appendix M, the finding is determined to have very low safety significance because there were no recent instances where findings of low to moderate (White) or greater significance were attributed to the increased use of overtime by operating personnel. The finding has a crosscutting aspect in the area of human performance associated with resources because the licensee failed to maintain sufficient qualified operations personnel to maintain working hours within guidelines without the excessive use of overtime [H.2(b)].

Inspection Report# : 2008002 *(pdf)*

Significance: G Mar 31, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Properly Implement Corrective Action Process for Potential Operability Issues with the Class 1E

125 V DC System
The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure of engineering personnel to ensure that potentially nonconforming conditions associated with the Class 1E 125 Vdc system were reviewed for operability. Specifically, between September 29, 2007 and March 7, 2008, engineering personnel failed to ensure all relevant information was reviewed for operability when it was determined that vendor recommended preventative maintenance tasks were not being performed on the Class 1E 125 Vdc system. This issue was entered into the licensee's corrective action program as Palo Verde Action Request 3144707.

This finding is greater than minor because it is associated with the equipment performance attribute of the mitigating systems cornerstone and affects the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because it did not represent a loss of system safety function, an actual loss of safety function of a single train for greater than its technical specification allowed outage time, or screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of human performance associated with decision making because safety significant decisions were not verified to validate underlying assumptions and identify unintended consequences [H.1(b)].

Inspection Report# : 2008002 *(pdf)*

Significance: N/A Sep 30, 2006
Identified By: NRC
Item Type: FIN Finding
SUMMARY FINDING. 95002 TEAMS ASSESSMENT OF IR 2004-14 (YELLOW) 10 CFR PART 50, APPENDIX B, CRITERION III, VIOLATION
The NRC performed a followup supplemental inspection to assess the licensee’s corrective actions associated with a Yellow design control finding involving the potential for air entrainment into the emergency core cooling system. The team concluded that the technical issues specifically associated with the voided emergency core cooling system piping have been addressed. However, the Yellow finding will remain open because the licensee did not implement effective corrective actions for all of the causes associated with the Yellow finding. Specifically, the licensee’s actions to improve questioning attitude, technical rigor, and technical review were not fully effective. Also, the implementation of performance measures and metrics to monitor the effectiveness of corrective actions associated with the Yellow finding were not adequate to assess effectiveness. This performance issue was previously characterized as a 10 CFR Part 50, Appendix B, Criterion III, violation having substantial safety significance (Yellow), and was originally identified in NRC Inspection Report 05000528; 05000529; 05000530/2004014.

The licensee’s corrective actions taken in response to the root causes and related programmatic concerns involving questioning attitude, technical rigor, and technical review have not been completely effective. Specifically, following implementation of corrective actions between September 2005 and March 2006, the licensee: (1) continued to conduct inadequate technical reviews of emerging issues; (2) did not routinely question the validity of engineering assumptions used to support operability decisions; (3) did not consistently implement a qualify, validate, and verify process; and (4) did not consistently notify operations personnel of immediate operability concerns.

The team concluded that adequate qualitative or quantitative measures for determining the effectiveness of the corrective actions to prevent recurrence have not been established. For example, not all relevant performance data was considered when performance monitoring measures were developed to assess the effectiveness of corrective actions. When the pertinent data was considered, or otherwise clarified, the performance measures suggested declining rather than improving performance in some areas.

The team also concluded that the licensee had not completed adequate reviews of the effectiveness of corrective actions prior to their notifying the NRC of their readiness for inspection of the Yellow finding. Specifically, several assessments were completed after the requested dated of the inspection (June 2006). Several of the assessments noted that insufficient progress in resolving some of the root and contributing causes had been made. Additionally, a standard guideline for metrics was not issued and implemented until July 2006.

Inspection Report# : 2006010 *(pdf)*

Significance: Y Dec 09, 2004
Identified By: NRC
Item Type: VIO Violation
FAILURE TO MAINTAIN DESIGN CONTROL OF CONTAINMENT SUMP RECIRCULATION PIPING
The team identified an apparent violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to establish measures to assure design basis information was translated into specifications, drawings, procedures, and instructions. Specifically, the licensee failed to maintain the safety injection sump suction piping full of water in accordance with the Updated Final Safety Analysis Report. This nonconformance had the potential to significantly affect the available net positive suction head described in the Updated Final Safety Analysis Report for the high pressure safety injection and containment spray pumps, since the analysis assumed the piping would be maintained full of water.
{Note: Finding remains open - IP 95002 results pending 12/16/2005}

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affects the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events. The NRC assessed this finding through Phase 3 of the Significance Determination Process and made a preliminary determination that the issue had substantial safety significance (Yellow). After considering the information developed during the inspection and the results of testing sponsored by the licensee, the NRC has concluded that this inspection finding is appropriately characterized as Yellow. The final Significance Determination Process letter was issued on April 8, 2005. This issue was inspected within the scope of a Supplemental 95002 Inspection in August - September 2005.

{NOTE: Yellow finding remains open because the corrective actions taken in response to the root causes and related programmatic concerns involving questioning attitude, technical rigor, and operability determinations have not been fully effective. - IP 95002 Supplemental Inspection completed December 2005, IR 05000528/20050112, 05000529/20050112 and 05000530/2005012, IP 95002 Followup Supplemental Inspection completed August 2006, IR 05000528/2006010, 05000529/2006010 and 05000530/2006010}
Inspection Report# : 2004014 *(pdf)*

Barrier Integrity

Significance: G Dec 31, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Implement Procedure Requirements for Refueling Machine Operation
A self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," was identified for the failure of refueling services personnel to follow procedures to address refueling machine fault indications. Specifically, during the Unit 1 refueling outage core offload, refueling services personnel had overridden interlocks that protect the fuel from damage. This issue has been entered into the licensee's corrective action program as Palo Verde Action Request 3235153 and Condition Report Disposition Request 3237465.

The finding is greater than minor because it is associated with the human performance attribute of the barrier integrity cornerstone and affects the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radio nuclide releases caused by accidents or events. Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," was used since the Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process," does not address the potential risk significance of refueling machine operation errors. The finding is determined to have very low safety significance because there was no apparent damage done to the fuel barrier and no radioactive release occurred. This finding has a crosscutting aspect in the area of human performance associated with decision making because refueling services personnel did not use a systematic process to make a risk significant decision when faced

with uncertain or unexpected plant conditions [H.1(a)].

Inspection Report# : 2008005 *(pdf)*

Significance: G Sep 30, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Procedural Requirements to Implement Technical Specification 5.5.2.b
The inspectors identified a non-cited violation of Technical Specification 5.5.2.b, "Primary Coolant Sources Outside Containment," for the failure of engineering and maintenance personnel to implement a program to verify integrated leak test requirements for abandoned valves still connected to an active system. Specifically, between January 8, 1993 and September 30, 2008, engineering personnel failed to ensure portions of the containment spray system, which could be in contact with radioactive fluids outside containment, were included in the integrated leak test requirements. This issue was entered into the licensee's corrective action program as Condition Report/Disposition Request 3170965.

The performance deficiency associated with this finding was the failure of engineering and maintenance personnel to implement a program to verify integrated leak test requirements for abandoned valves still connected to an active system. The finding is greater than minor because it is associated with the design control and procedural quality attribute associated with maintaining radiological barrier functionality for the auxiliary building of the barrier integrity cornerstone and affects the cornerstone objective to provide reasonable assurance that the physical design barriers protect the public from radio nuclide releases caused by accidents or events. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the finding is determined to have very low safety significance because it only represented a degradation of the radiological barrier function of the auxiliary building. This finding was evaluated as not having a crosscutting aspect because the performance deficiency is not indicative of current performance.

Inspection Report# : 2008004 *(pdf)*

Significance: G Jun 30, 2008
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Adequately Implement Procedural Requirements for Open Doors, Hatches, and Floor Plugs
A self-revealing noncited violation of Technical Specification 5.4.1.a, "Procedures," was identified for the failure of maintenance personnel to adequately implement procedural guidance. Specifically, on May 9, 2008, maintenance personnel failed to ensure the permit requirements of Procedure 0DP-9ZZ17, "Control of Doors, Hatches, and Floor Plugs," were complete while accessing the tendon gallery access shaft, resulting in the control room determining that both trains of the pump room exhaust air cleanup system had been inoperable. This issue was entered into the licensee's corrective action program as Palo Verde Action Request 3172712 and as significant Condition Report/Disposition Request 3173930.

The finding is greater than minor because it is associated with the barrier performance attribute associated with maintaining radiological barrier functionality for the auxiliary building and affects the cornerstone objective to provide reasonable assurance that the physical design barriers protect the public from radio nuclide releases caused by accidents or events. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the finding is determined to have very low safety significance because it only affected the barrier integrity cornerstone and only represented a degradation of the radiological barrier function of the auxiliary building. This finding has a crosscutting aspect in the area of human performance associated with work practices because the licensee did not ensure supervisory and management oversight of work activities, including contractors, such that nuclear safety is supported [H.4(c)].

Inspection Report# : 2008003 *(pdf)*

Emergency Preparedness

Significance: G Jun 30, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Correct a Risk Significant Planning Standard
The inspectors identified a noncited violation (NCV) of 10 CFR 50.54(q) and 10 CFR Part 50, Appendix E.IV.F.2.g, for the licensee's failure to correct an identified risk significant planning standard weakness between May 2, 2007 and October 28, 2007. Specifically, the licensee failed to implement adequate corrective actions for identified weaknesses in the ability to correctly make a Site Area Emergency declaration for a steam generator tube rupture event. This issue was entered into the licensee's correction action program as Palo Verde Action Request 3083911.

The NRC determined that the inability to consistently implement an Emergency Action Level was a performance deficiency within the licensee's control. This finding is more than minor because it was associated with the Emergency Preparedness attribute of emergency response organization performance and affected the cornerstone objective to implement adequate measures to protect the health and safety of the public because the inability to properly recognize and classify an emergency condition affects the licensee's ability to implement adequate protective measures. This finding was preliminarily determined to be of low to moderate safety significance. After consideration of information provided during and after a Regulatory Conference held on March 25, 2008, the NRC has concluded that the knowledge deficiency identified among senior operators would not likely result in an incorrect emergency classification during a steam generator tube rupture event, and the NRC has concluded the significance of the inspection finding is appropriately characterized as Green (i.e., a finding of very low safety significance). This violation is being treated as an NCV, consistent with Section VI of the NRC Enforcement Policy. The cause of this finding has crosscutting aspects associated with the corrective action aspect of the problem identification and resolution area in that the licensee failed to thoroughly evaluate problems such that resolutions ensured correcting problems [P.1.(c)]. The cause of this finding was also related to the safety culture component of accountability in that the licensee failed to demonstrate a proper safety focus and reinforce safety principles [O.1.(c)].

Inspection Report# : 2008003 *(pdf)*

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the cover letters to security inspection reports may be viewed.

Miscellaneous

Last modified : April 07, 2009