

Palo Verde 1 3Q/2013 Plant Inspection Findings

Initiating Events

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: FIN Finding

Failure to Include Requirements in Preventative Maintenance Basis

The inspectors identified a Green finding for the failure of licensee personnel to follow Procedure 30DP-9MP08, "Preventive Maintenance Program." Specifically, plant personnel did not ensure that requirements for performing inspection and replacement of degraded tie-wraps in electrical cubicles were contained in preventative maintenance basis documents. Consequently, degraded cable tie-wraps in Unit 1 load center L02 were not inspected prior to a catastrophic electrical fault on July 2, 2013. The licensee rebuilt the load center cubicle and has entered this issue into their corrective action program as PVAR 4454845.

The failure to follow established procedures for updating preventive maintenance basis documents with requirements and recommendations from previous component failures was a performance deficiency. This performance deficiency is more than minor because it was associated with the procedure quality attribute of the Initiating Events Cornerstone and adversely affects the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, by not including the requirements and recommendations from the history of previous failures in the preventative maintenance basis, pertinent operating experience was not considered when evaluating changes to the preventative maintenance program. Consequently, degraded cable tie-wraps in Unit 1 load center L02 were not inspected prior to experiencing a catastrophic electrical fault on July 2, 2013 that upset plant stability. The inspectors used the NRC Inspection Manual Chapter 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," to determine the significance. The inspectors determined that the finding was of very low safety significance (Green) because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. The inspectors also determined the issue had a cross-cutting aspect in the area problem identification and resolution associated with the operating experience component because the licensee did not implement and institutionalize operating experience through changes to the station's preventative maintenance program [P.2(b)].

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

Mitigating Systems

Significance:  Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Multiple Failures to Identify Conditions Adverse to Quality

The inspectors identified two examples of a Green NCV of 10 CFR Part 50, Appendix B, Criterion XVI "Corrective Action," for the failure of the licensee to promptly identify and correct conditions adverse to quality. Specifically, on July 19, 2012, personnel failed to follow Procedure 01DP-0AP12, "Palo Verde Action Request Processing," and enter into the corrective action process a failure to comply with technical specifications to enter limiting condition for

operation 3.0.3 when maintenance activities rendered safety related inverters inoperable. In addition, on May 2, 2011, the licensee also failed to enter an unanalyzed diversion of emergency core cooling system flow into the corrective action process, despite procedural guidance to the contrary. The licensee entered the issues into the corrective action program as Palo Verde Action Request (PVAR) 4347283 and PVAR 4389514 and is assessing corrective actions.

The inspectors concluded that the failure to promptly identify and correct conditions adverse to quality was a performance deficiency. The inspectors determined the performance deficiency is more than minor, and therefore a finding, because it adversely affected the equipment performance attribute of the Mitigating Systems Cornerstone and its objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors determined the two issues had similar causal factors and should be documented as one NCV in accordance with NRC enforcement guidance. The inspectors evaluated the significance of each issue under the SDP, as defined in Inspection Manual Chapter 0609.04, "Initial Characterization of Findings," and IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." For the issue associated with inoperable safety related inverters, the inspectors determined the finding to be of very low safety significance (Green) because all questions in Exhibit 2.A could be answered no. For the issue associated with an unanalyzed condition of the high pressure safety injection system, the inspectors determined that the finding represented a loss of system function and needed a detailed evaluation. The inspectors used the Palo Verde Standardized Plant Analysis Risk model, Revision 8.20, with a truncation limit of E-11 and performed a bounding significance determination and found the finding to be of very low safety significance (Green). The bounding change to the core damage frequency was $2.4E-9$ /year. The dominant core damage sequences included: medium break loss of coolant accident, system transient, and steam generator tube rupture. The very short exposure period minimized the significance. A Region IV senior reactor analyst reviewed the results and agreed with the conclusions. This finding has a cross-cutting aspect in the area of human performance associated with the decision making component because the licensee failed to use a systematic process for dealing uncertain conditions adverse to quality [H.1(a)].

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

Significance:  Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify and Correct a Condition Adverse to Fire Protection

The inspectors identified a Green non-cited violation of License Conditions 2.C.7, 2.C.6, and 2.F for Palo Verde Units 1, 2, and 3 for the licensee's failure to identify and correct a condition adverse to fire protection. Specifically, on November 19, 2012, inspectors questioned operations personnel and identified that operators did not know the locations of sound powered telephone equipment, were unfamiliar with their use, and unfamiliar with procedural guidance for their use. This is a communications device used for post-fire safe shutdown credited in the fire protection program and emergency plan. The lack of familiarity with location and use of these communication devices would have adversely affected operations personnel response to an emergency. The licensee completed a self-assessment of emergency preparedness communication on October 31, 2012, and did not identify these weaknesses. The licensee immediately issued a night order and informed operations personnel of the location of the sound powered phones and procedural guidance. The licensee entered this issue into the licensee's corrective action program as Palo Verde Action Request 4294407.

The failure to identify and correct a condition adverse to fire protection was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it adversely affected the human performance attribute of the Mitigating Systems Cornerstone and its objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the significance of the issue under the Significance Determination Process, as defined in Inspection Manual Chapter 0609.04, "Initial Characterization of Findings," and Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process." The finding was determined to be a low degradation of the post-fire

safe shutdown program element and screens to Green using Step 1.3.1. The inspectors determined this finding has a crosscutting aspect in the area of problem identification and resolution associated with the self and independent assessments component because the licensee failed to conduct a self-assessment of sufficient depth, that was comprehensive and self-critical, which failed to recognize that operator knowledge was lacking for the use of some communication device [P.3(a)].

Inspection Report# : [2012005](#) (*pdf*)

Significance:  Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Maintain Licensed Operator Examination Integrity

The inspectors identified a non-cited violation of 10 CFR 55.49, “Integrity of Examinations and Tests,” for the failure of the licensee to ensure the integrity of the licensed operator biennial written examinations. During the 2012 biennial written examination cycle, the exams were administered in a simulator environment that lacked positive controls to ensure that operators could not observe the reference material or examinations of other operators. Operators were allowed to review engineering schematics while standing at a table which allowed an angle to observe the computer screen and desk of another examinee approximately 5 feet away. Having the ability to view exam reference material being displayed on the computer screen during exam administration is considered an exam integrity compromise. However, an evaluation of the written exam results and interviews with the licensed operators signed in on an exam security agreement showed that the compromise did not have an actual effect on the equitable and consistent administration of the examination. The licensee entered the finding into the corrective action program as Action Request PVAR-4238204.

The failure of the licensee’s training staff to maintain the integrity of examinations administered to licensed operations personnel was a performance deficiency. The performance deficiency was more than minor because it adversely affected the Human Performance attribute of the Mitigating Systems Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Additionally, if left uncorrected, the performance deficiency could have become more significant in that allowing licensed operators to return to the control room without valid demonstration of appropriate knowledge on the biennial written examinations could be a precursor to a more significant event. Using NRC Inspection Manual Chapter 0609, “Significance Determination Process,” Attachment 4, Table 1 and 2 worksheets; and the corresponding Appendix I, “Licensed Operator Requalification Significance Determination Process,” the finding was determined to have very low safety significance (Green). Although the 2012 finding resulted in a compromise of the integrity of biennial written examinations, compensatory actions were immediately taken, and the equitable and consistent administration of the biennial written examination was not actually affected by this compromise. This finding has a cross-cutting aspect in the area of human performance associated with the work control component because the licensee failed to adequately plan work activities that incorporated job site conditions, including environmental conditions [H.3(a)].

Inspection Report# : [2012005](#) (*pdf*)

Significance:  Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Classify and Evaluate a Condition Adverse to Quality

The inspectors identified a Green non-cited violation of Palo Verde Unit 1 License Condition 2.C.7 for the failure of plant personnel to follow station procedures to classify and evaluate a condition adverse to quality. Specifically, after identifying movement of the corridor building as a result of ground saturation from a domestic service water line break, the licensee failed to classify the issue as a condition adverse to quality and perform a functional assessment of the corridor building. The licensee entered the issue into the corrective action program as Condition Report

Disposition Request 4301801. To restore compliance, the licensee classified the Unit 1 corridor building movement as a Condition Adverse to Quality and performed a functional assessment, concluding the building was functional. The licensee is evaluating further corrective actions associated with this issue.

The inspectors concluded that the failure of plant personnel to classify the Unit 1 corridor building movement as a condition adverse to quality and perform a functional assessment was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it affected the protection against external factors attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the significance of the issue under the Significance Determination Process, as defined in Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," and concluded the finding was of very low safety significance (Green) because it is assigned a low degradation rating because no significant degradation of the fire protection features of the corridor building occurred. The inspectors determined this finding has a crosscutting aspect in the area of human performance associated with the work practices component because the licensee failed to ensure supervisory and management oversight of work activities, such that nuclear safety is supported [H.4(c)].

Inspection Report# : [2012005](#) (*pdf*)

Barrier Integrity

Significance:  Jun 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow Operability Determination Procedure for Maintaining Administrative Limits

The inspectors identified a Green noncited violation of 10 CFR Part 50 Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure of operations and engineering personnel to follow station procedures to perform operability determinations and functional assessments. Specifically, plant personnel did not maintain appropriate controls to ensure that the temperature limit established in the operability determination for the spent fuel pool criticality analysis was maintained. The licensee entered the issue into their corrective action program as PVAR 4380424, began taking more frequent readings of spent fuel pool temperature indicators, and lowered the spent fuel pool temperature alarm setpoint.

The failure to follow Procedure 40DP-9OP26 for performing operability determinations is a performance deficiency. This performance deficiency is more than minor, and therefore a finding, because it is associated with the Barrier Integrity Cornerstone attribute of procedure quality and it adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accident or events. The inspectors evaluated the significance of the finding using Inspection Manual Chapter 0609.04, "Initial Characterization of Findings," and IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The inspectors reviewed all Barrier Integrity screening questions in IMC 0609, Appendix A, Exhibit 3 Section D, and all questions were answered "No." Therefore, the finding was determined to be of very low safety significance. The inspectors determined that the finding has a cross-cutting aspect in the area of human performance associated with decision making. Specifically, the licensee did not communicate the administrative limits established in the spent fuel pool criticality operability determination to appropriate operations personnel [H.1(c)].

Inspection Report# : [2013003](#) (*pdf*)

Significance:  Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Perform Pressure Testing of the Reactor Vessel Flange Leak-Off Lines

Inspectors identified a non-cited violation of 10 CFR 50.55a(g)(4) involving the licensee's failure to perform a system pressure test of the reactor vessel flange leak off-line of Units 1, 2, and 3 in accordance with the applicable edition of Section XI of the ASME Code. Contrary to the above, prior to October 10, 2012, the licensee failed to perform the required pressure test of the reactor vessel flange seal leak-off line for all three units. Specifically, the licensee failed to implement the ASME Code, Section XI, Class 2 requirements for pressure retaining components as provided by Article IWC-5220, "System Leakage Test." The licensee entered the finding into their corrective action program as Palo Verde Action Request 4269674.

The inspectors determined that the licensee's failure to perform a pressure test of the reactor vessel flange leak-off line was a performance deficiency. The performance deficiency was more than minor because it is associated with the Barrier Integrity Cornerstone attribute of systems, structures and components and barrier performance, and adversely affects the cornerstone objective to provide a reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Using Manual Chapter 0609, Attachment A, "The Significant Determination Process (SDP) for Findings At-Power," the finding was determined to be of very low safety significance (Green) because the finding did not result in exceeding the reactor coolant system leak rate for a small loss-of-coolant accident, and did not affect other systems used to mitigate a loss-of-coolant accident resulting in a total loss of their function. This issue did not have a cross-cutting aspect associated with it because it is not indicative of current performance.

Inspection Report# : [2012005](#) (*pdf*)

Significance: G Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Tracking of a Functional Assessment for Spent Fuel Pool Heat Load

The inspectors identified a Green non-cited violation of 10 CFR Part 50 Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure of operations and engineering personnel to follow station procedures to perform operability determinations and functional assessments. Specifically, plant personnel did not maintain appropriate controls to ensure that the heat load and temperature limits established in the functional assessment for the spent fuel pools were monitored. This issue is captured in Palo Verde Action Request 4251108. To restore compliance, the licensee issued a technical specification component condition record to prohibit entry into Mode 4 following a refueling outage, until decay heat load in the spent fuel pool is verified to be less than the more restrictive limit established in the functional assessment.

The failure to follow Procedure 40DP-9OP26 for performing functional assessments is a performance deficiency. This performance deficiency was more than minor because it is associated with the Barrier Integrity Cornerstone attribute of design control and it adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accident or events. Using Inspection Manual Chapter 0609.04, "Initial Characterization of Findings," and Manual Chapter 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," the inspectors determined that the finding had very low safety significance (Green) because the finding was confirmed not to adversely affect decay heat removal capabilities from the spent fuel pool causing the pool temperature to exceed the maximum analyzed temperature limit specified in the site-specific licensing basis. The inspectors determined that the finding had a cross-cutting aspect in the area of human performance associated with decision making. Specifically, Palo Verde did not communicate the procedural limits established in the spent fuel pool functional assessment to appropriate operations personnel [H.1(c)].

Inspection Report# : [2012005](#) (*pdf*)

Emergency Preparedness

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Maintain an effective Emergency Plan for a Seismic Event

The inspectors identified a non-cited violation of 10 CFR 50.54 (q)(2) for the failure to maintain an effective emergency plan action level scheme in accordance with 50.47(b)(4). Specifically, the Alert threshold for HA1.1, "Natural or Destructive Phenomena Affecting VITAL AREAS," requires a declaration of an Alert for a seismic event greater than operating basis earthquake as indicated by any force balance accelerometer reading greater than 0.10g. Operators rely on alarms to verify the acceleration beyond the operating basis earthquake and the inspectors determined the seismic monitor alarm set point was 0.13g. This could result with the inability of operations personnel to classify an event at the Alert level. A design change modified the seismic monitoring set point to 0.1g and restored compliance. The licensee entered the issue into their corrective action program as Palo Verde Action Request 3624077.

The inspectors determined that the failure to maintain an effective emergency action level scheme was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it adversely affected the Emergency Response Organization Performance attribute of the Emergency Preparedness Cornerstone and its objective to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, the licensee's ability to declare an Alert based on Natural Phenomenon at the correct threshold was degraded. The inspectors assessed the significance of the finding in accordance with NRC Inspection Manual Chapter (IMC) 0609, Appendix B, "Emergency Preparedness Significance Determination Process," Figure 5.4-1, and determined the finding to be of very low safety significance because compensatory measures were available for emergency response organization personnel to perform the classification duties. The inspectors determined this finding is not indicative of current performance and therefore no cross-cutting aspect is assigned.

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

Significance:  Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to identify weak performance during an exercise

The inspectors identified a Green NCV of 10 CFR 50.47(b)(14) for the licensee's failure to identify and correct a performance deficiency during an evaluated exercise. Specifically, the licensee failed to identify that the Emergency Director in the Simulator Control Room did not evaluate emergency action level RS-1 when information was available indicating a need to upgrade the emergency classification because of offsite radiation dose.

The failure to identify a deficiency occurring during a drill and ensure correction is a performance deficiency within the licensee's control. The finding is more than minor because the failure to identify a deficiency and ensure correction impacts the Emergency Preparedness cornerstone objective associated with the emergency response organization performance cornerstone attribute. The finding is a non-cited violation of 10 CFR 50.47(b)(14). The finding was evaluated using the Emergency Preparedness SDP and identified as having very low safety significance because it was a failure to comply with NRC requirements and was not a loss of the planning standard function because the classification deficiency was associated with a successful performance indicator opportunity. The Emergency Director declared the correct emergency classification within fifteen minutes of performing the dose assessment report using an emergency action level for which conditions currently existed, although this was not the first emergency action level that applied. This issue was entered into the CAP as PVAR 4365021. The finding was assigned a cross-cutting aspect of 'Low Threshold,' because the licensee failed to completely and accurately recognize

a performance deficiency [P.1.a]
Inspection Report# : [2013002](#) (*pdf*)

Significance: G Dec 31, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Technical Support Center Diesel Generator Not Restored Following Maintenance

A self revealing Green non-cited violation of 10 CFR 50.47(b)(8) was identified for the failure to maintain adequate facilities to support emergency response. Specifically, the licensee found the technical support center battery disconnect switch had not been restored following maintenance activities. This configuration would have rendered the diesel generator unable to start automatically as designed in the event of a loss of off-site power. The licensee initiated immediate corrective actions to restore the technical support center diesel generator to a functional configuration and has begun implementation of a more formal process for component configuration verification of critical technical support center equipment. The licensee has entered this issue into their corrective action program as Palo Verde Action Request 4165625.

The failure to follow Procedure 40OP-9NG01 for performing a functional test of 480V switchgear following maintenance activities is a performance deficiency. This performance deficiency was more than minor because it is associated with the Emergency Preparedness Cornerstone attribute of facilities and equipment and it adversely affected the cornerstone objective to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The inspectors evaluated the significance of the issue under the Significance Determination Process, as defined in Inspection Manual Chapter 0609.04, "Initial Characterization of Findings," and Manual Chapter 0609, Appendix B, "Emergency Preparedness Significance Determination Process." The finding was determined to be of very low safety significance (Green) because the degraded planning standard function did not result in the loss of technical support center functionality for longer than 7 days. The inspectors determined that the finding had a cross-cutting aspect in the area of human performance associated with resources. Specifically, the licensee's work control procedures did not include critical technical support center systems to ensure that technical support center configuration control was maintained commensurate with its significance [H.2(c)].

Inspection Report# : [2012005](#) (*pdf*)

Occupational Radiation Safety

Significance: N/A Mar 31, 2013

Identified By: NRC

Item Type: VIO Violation

Failure to Maintain the Updated Final Safety Analysis Report for Radwaste Systems and Processes

The inspectors identified a Severity Level IV violation of 10 CFR 50.71(e), "Maintenance of Records, Making of Reports," with two examples for the failure to restore compliance within a reasonable time after a previous Severity Level IV non-cited violation of 10 CFR 50.71(e) was identified. The violation was identified because the licensee failed to periodically update the Updated Final Safety Analysis Report (UFSAR) with all changes made in the facility or procedures. Specifically,

Example 1: From 1988 to 2013, the licensee did not update Chapter 11.2.2.3, "Liquid Radwaste System," with a description of the temporary adsorption tanks and their use. The licensee has entered this violation into their corrective action program as PVAR 3075089.

Example 2: From December 2003 to January 2013, the licensee made changes to the facility and procedures as described in the UFSAR, and performed safety analyses and evaluations in support of these changes, but failed to

update the UFSAR to include these changes. Specifically, the licensee built the old steam generator storage facility used for long-term storage of radioactive waste (six replaced steam generators and three reactor vessel heads) on the owner controlled site until decommissioning. The licensee has entered this violation into their corrective action program as Condition Report (CR) 3398042 and PVAR 4330483.

This violation is more than minor because the NRC relies on licensees to identify and report conditions or events meeting the criteria specified in the regulations in order to perform its regulatory function. Because this issue affected the NRC's ability to perform its regulatory function, it was evaluated using the traditional enforcement process. The issue was characterized as a Severity Level IV violation in accordance with Section 6.1.d.3 of the NRC Enforcement Policy because the erroneous information in the UFSAR was not used to make an unacceptable change to the facility or procedures. A cross-cutting aspect was not assigned because the violation was handled through traditional enforcement.

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

Public Radiation Safety

Security

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

Miscellaneous

Last modified : December 03, 2013