

## Palo Verde 3

### 4Q/2013 Plant Inspection Findings

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## Initiating Events

**Significance:** G 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*)

**Significance:** G Jun 30, 2013

Identified By: Self-Revealing

Item Type: FIN Finding

### **Failure to Implement Corrective Action for Embedded Operator Work Around**

A self-revealing finding occurred because the licensee did not take action to correct an embedded operator work around in the condensate system. Specifically, the licensee did not evaluate and develop a plan to correct the practice of throttling the condensate polishing demineralizer bypass valve in manual control mode rather than automatic mode. As a result, a malfunction of the heater drain tank B level controller resulted in a feedwater pump B trip and a subsequent reactor power cutback. The licensee entered the issue into their corrective action program as PVAR 4330504 and revised operating procedures to allow the condensate polishing demineralizer bypass valve controller to operate in automatic control mode during full power operations.

The failure to evaluate and determine corrective actions in accordance with established corrective action program procedures is a performance deficiency. This performance deficiency is more than minor, and therefore a finding, 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 those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the practice of throttling the condensate polishing demineralizer bypass valve in manual control mode rather than automatic mode resulted in a reactor power cutback that upset plant stability. The inspectors used the NRC Inspection Manual Chapter 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," and IMC 0609, Appendix A, "The Significance Determination (SDP) for Findings At-Power" to determine the significance. The inspectors determined that the finding was of very low safety significance (Green) because it only contributed to the likelihood of a reactor trip and not the likelihood that mitigation equipment or functions would not be available. This issue did not have a cross-cutting aspect associated with it because it is not indicative of current performance.

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

## Mitigating Systems

**Significance:**  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

### Inadequate Modification of Safety Related Accumulators

DRAFT The inspectors identified a green non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," for the failure to assure that a modification to the main steam and main feedwater isolation valve accumulators was suitable for the reliable operation of these components. Specifically, on September 4, 2009, the licensee failed to assess the suitability of a small dead band for a thermal relief valve in the accumulator valve manifold assembly and the impact to reliable operation of the associated valves. The licensee entered this issue into the corrective action program as Palo Verde Action Request 4429273. The licensee isolated the thermal relief valve from the actuators.

The failure to assure that the modification of the main steam and main feedwater isolation valve accumulators was suitable for the reliable operation of these components was a performance deficiency. The performance deficiency is more than minor because it was associated with the Mitigating Systems Cornerstone attribute of equipment performance and it adversely affect the cornerstone objective of ensuring 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 0609 Appendix A, "The Significance Determination Process (SDP) for Findings at-Power." Inspectors concluded the finding was of very low safety significance (Green) because all questions in Exhibit 2 could be answered no. The finding had a cross-cutting aspect in the area of human performance associated with resources component because the licensee did not maintain design margins by minimizing long standing equipment issues.

Inspection Report# : [2013005](#) (*pdf*)

**Significance:**  Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

### Failure to Provide Adequate Technical Justification for Operability

The inspectors identified a Green NCV 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 provide an adequate technical justification for continued operation of a degraded structure, system, or component. After one channel of initiation logic inadvertently tripped for the Unit 3 containment spray actuation signal portion of the engineered safety features actuation system, plant operators declared the channel inoperable and entered Technical Specification 3.3.6, “Engineered Safety Features Actuation System Logic and Manual Trip,” Condition B. Before troubleshooting began, operators evaluated the condition, declared the channel operable, and exited the technical specification condition. Plant personnel subsequently restored the channel after troubleshooting. The inspectors concluded that plant personnel did not consider all required functions and design requirements of the system and should not have declared the channel operable before completing troubleshooting and restoring the system to normal operation. This issue is captured in the corrective action program as Condition Report Disposition Request 4350321.

The inspectors concluded that the failure of plant personnel to adequately evaluate the operability of a safety-related structure, system, or component was a performance deficiency. The inspectors concluded the performance deficiency is more than minor because, if left uncorrected, the performance deficiency had the potential to lead to a more significant safety concern. Specifically, a spurious signal or channel failure would have resulted in an inadvertent actuation of containment spray in Unit 3. The inspectors evaluated the significance of the issue under the SDP, as defined in Inspection Manual Chapter 0609.04, “Initial Characterization of Findings,” and 0609 Appendix A, “The Significance Determination Process for Findings at-Power.” Inspectors concluded that the finding was of very low safety significance (Green) because the finding is not a design or qualification issue, 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 a seismic, flooding, or severe weather initiating event. The inspectors determined this finding has a cross-cutting aspect in the area of human performance associated with the component of resources because the licensee failed to provide sufficient training to plant personnel to ensure all aspects of the current licensing basis and design requirements are considered when evaluating degraded and non-conforming conditions for operability [H.2(b)].

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

**Significance:** G 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*)

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## 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*)

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## 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 0.1 g 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*)

## 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*)

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## Public Radiation Safety

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### Security

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

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## Miscellaneous

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