# Palo Verde 1
# 1Q/2014 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 preventive maintenance basis, pertinent operating experience was not considered when evaluating changes to the preventive 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 preventive maintenance program [P.2(b)].

Inspection Report# : 2013004 *(pdf)*

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## Mitigating Systems

**Significance:** G Mar 31, 2014
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
**Failure to Follow Protected Equipment Procedures**
The inspectors reviewed a Green self-revealing non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure of Projects personnel to follow station procedures which required obtaining permission from either the work control or operations department prior to performing work in the vicinity of protected train equipment. As a result, Projects personnel inadvertently tripped a breaker to the emergency

diesel generator A essential fan, rendering the emergency diesel generator inoperable and requiring entry into Condition B of Technical Specification 3.8.1, "AC Sources – Operating." Operations personnel subsequently reset the breaker, returned the emergency diesel generator to operable status and exited Condition B of Technical Specification 3.8.1. The licensee entered this issue in the corrective action program as Condition Report Disposition Request 4495126.

The failure of plant personnel to follow station procedures for protected equipment was a performance deficiency. The performance deficiency is more than minor and therefore is a finding, because it was associated with the Mitigating Systems Cornerstone attribute of equipment performance and adversely affected 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." The inspectors determined that the finding was of very low safety significance (Green) because all questions in Exhibit 2 could be answered in the negative. The inspectors determined the finding had a cross-cutting aspect in the area of human performance associated with the training aspect, because the station did not provide adequate training to supplemental workers to ensure an understanding of standards and work requirements, in that the workers did not recognize either the safety significance of the equipment located in the vicinity of the work area or the potential impact of their actions.
Inspection Report# : 2014002 *(pdf)*

**Significance:** G Mar 31, 2014
Identified By: NRC
Item Type: NCV NonCited Violation
**Failure to Comply with Technical Specification 3.7.2**
The inspectors identified a non-cited violation of Technical Specification Limiting Condition for Operation 3.7.2, Condition G, for the failure of plant personnel to follow the actions specified in Technical Specification 3.7.2 for one main steam isolation valve inoperable in Mode 1. Specifically, following the failure of main steam isolation valve 170 on November 6, 2013, Unit 1 operators exceeded the Technical Specification time requirement to place the Unit in Mode 2 before restoring operability of the equipment. The licensee entered this issue into the corrective action program as Action Request 4521714.

The failure of plant personnel to perform the actions specified in Technical Specification 3.7.2, Condition G, was a performance deficiency. The performance deficiency is more than minor and therefore is a finding, because it affected the human performance 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 performed the initial significance determination for the failed MSIV-170. For this evaluation, the valve was failed in the open position. The inspectors used NRC Inspection Manual Chapter 0609, Attachment 0609.04, "Initial Characterization of Findings," and NRC Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," to determine that the finding screened to a detailed risk evaluation because it involved a potential loss of one train of safety-related equipment for longer than the technical specification allowed outage time. A Region IV senior reactor analyst performed the detailed risk evaluation, which determined that the finding was of very low safety significance. This finding had a cross-cutting aspect in the area of human performance, associated with the aspect of consistent process, because the licensee did not use a consistent, systematic approach to make decisions regarding the operability of main steam isolation valve 170.
Inspection Report# : 2014002 *(pdf)*

**Significance:** G Mar 31, 2014
Identified By: Self-Revealing
Item Type: NCV NonCited Violation

**Failure to Establish Adequate Procedures for Performing Nitrogen Pre-Charge Checks**
The inspectors reviewed a self-revealing, non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to prescribe activities affecting quality by documented procedures of a type appropriate to the circumstances. Specifically, the licensee failed to establish appropriate procedures for performing nitrogen pre-charge checks of the main steam isolation valve (MSIV) accumulators. As a result of the licensee's failure to establish appropriate procedures, the Unit 1, main steam isolation valve 170 hydraulic oil reservoir catastrophically failed on November 6, 2013, rendering the main steam isolation valve and both of its accumulators inoperable. The licensee entered this issue in the corrective action program as Condition Report Disposition Request 474316.

The licensee's failure to prescribe nitrogen precharge checks by documented procedures of a type appropriate to the circumstances was a performance deficiency. The performance deficiency is more than minor and therefore is a finding, because it affected the procedure quality 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 performed the initial significance determination for the failed main steam isolation valve 170. For this evaluation, the valve was failed in the open position. The inspectors used the NRC Inspection Manual Chapter 0609, Attachment 0609.04, "Initial Characterization of Findings." The inspectors used the NRC Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions." The finding screened to a detailed risk evaluation because it involved a potential loss of one train of safety related equipment for longer than the technical specification allowed outage time. A Region IV senior reactor analyst performed the detailed risk evaluation, which determined that the finding was of very low safety significance. The inspectors determined this finding has a cross-cutting aspect in the area of problem identification and resolution, associated with the operating experience aspect, because the licensee did not effectively evaluate internal operating experience when establishing procedures for the main steam system.
Inspection Report# : 2014002 *(pdf)*

**Significance:**  Mar 28, 2014
Identified By: NRC
Item Type: NCV NonCited Violation
**Failure To Provide Adequate Technical Justification For Operability of Containment Spray and Diesel Fuel Oil Systems**
The inspectors identified multiple examples of a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure of operations personnel to follow station procedures used to perform operability determinations. Specifically, operations personnel failed to provide sufficient technical justification for the reasonable assurance of operability of a degraded condition involving one train of containment spray system and nonconforming conditions associated with diesel fuel oil piping.

The inspectors concluded the failure of operations personnel to follow station procedures to perform operability determinations was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it adversely affected the equipment performance attribute of the Mitigating Systems Cornerstone and affected 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." The inspectors concluded the finding was of very low safety significance (Green) because all questions in Exhibit 2 could be answered in the negative. The inspectors determined that the finding had a consistent process cross-cutting aspect in the area of human performance because the licensee did not use a consistent and systematic process to make decisions (H.13).

Inspection Report# : 2014007 *(pdf)*

**Significance:** G Mar 28, 2014
Identified By: NRC
Item Type: FIN Finding
**Failure to Follow Station Process for Root Cause Evaluation**
The inspectors identified a Green finding for the failure of station personnel to follow procedures to implement root cause evaluations. Specifically, approximately one third of the root cause evaluations reviewed by inspectors resulted in a probable cause with further information needed to validate the cause. Of this subset, eighty percent of the evaluations did not adhere to station processes.

The failure of station personnel to follow station procedures to implement root cause evaluations was a performance deficiency. The performance deficiency was more than minor, therefore a finding, because if left uncorrected the performance deficiency could become a more significant safety concern in that significant conditions adverse to quality could reoccur prior to the implementation of appropriate corrective action. The finding is associated with multiple cornerstones, though it is most closely associated with the Mitigating Systems Cornerstone and 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.” The inspectors concluded the finding was of very low safety significance (Green) because all questions in Exhibit 2 could be answered in the negative. The inspectors determined that the finding had a consistent process cross-cutting aspect in the area of human performance because the licensee did not use a consistent and systematic approach when making decisions (H.13).

Inspection Report# : 2014007 *(pdf)*

**Significance:** G Dec 31, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
**Inadequate Modification of Safety Related Accumulators**
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 on 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, and therefore is a finding, because it was associated with the Mitigating Systems Cornerstone attribute of equipment performance and adversely affects 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.” The inspectors concluded the finding was of very low safety significance (Green) because all questions in Exhibit 2 could be answered in the negative. The inspectors determined that 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)*

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# Barrier Integrity

**Significance:** G 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:** G Mar 31, 2014
Identified By: NRC
Item Type: NCV NonCited Violation
**Failure to Declare an Unusual Event**
The inspectors identified a non-cited violation of 10 CFR 50.54(q) for the failure of operations personnel to implement the emergency plan in response to a certain emergent event. Specifically, on November 6, 2013, after the hydraulic reservoir for main steam isolation valve 170 exploded during a nitrogen pre-charge pressure check, plant operators did not declare an Unusual Event as required by the emergency plan. The licensee entered the issue into the corrective action program as Action Request 4522120 and initiated an apparent cause evaluation to identify the cause and corrective actions.

The failure to implement the emergency plan and declare an Unusual Event is a performance deficiency. The performance deficiency is more than minor, and therefore is a finding, because not classifying an event potentially puts the public at risk and affected the Emergency Preparedness Cornerstone attribute of emergency response organization performance. The inspectors evaluated the finding using Manual Chapter 0609, Appendix B, "Emergency Preparedness Significance Determination Process," and determined to be of very low safety significance (Green). This finding was entered into the licensee's corrective action program as Action Request 4522120. This finding has a cross-cutting aspect in the area of human performance associated with the aspect of consistent process, because the licensee did not use a consistent, systematic approach to make decisions.
Inspection Report# : 2014002 *(pdf)*

**Significance:** G 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)*

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## Occupational Radiation Safety

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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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