

Palo Verde 1

1Q/2012 Plant Inspection Findings

Initiating Events

Significance:  Dec 31, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify and Perform Testing for the Gaseous Radwaste System

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for the failure of the licensee to assure that all required testing for the gaseous radwaste (GR) system was identified and performed in accordance with written test procedures which incorporated the requirements and acceptance limits contained in applicable design documentation. Specifically, from May 1995 to October 26, 2011, the licensee did not identify nor perform functional testing on GR system equipment which is credited in the Updated Final Safety Analysis Report (UFSAR) to preclude the internal hydrogen explosion event. The licensee developed written test procedures and successfully completed appropriate functional tests on all three units as a corrective action to restore compliance. The licensee documented their corrective actions for this issue in Palo Verde Action Requests 3440072, 3931118, and 4004489.

The licensee's failure to perform functional testing on GR system equipment was a performance deficiency. The performance deficiency is more than minor, and therefore a finding, because it is associated with the Initiating Events Cornerstone attribute of procedure quality in the area of testing procedure adequacy and it adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, the lack of having functional testing on GR system components could result in a credible hydrogen explosion event which could initiate a radiological release. Using Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," the finding was determined to have very low safety significance (Green) because the condition represented a low degradation rating due to the fact that nitrogen dilution valves and compressor auto trip features all passed recent functional testing successfully. This finding has no cross-cutting aspect assigned because the finding is not reflective of current performance.

Inspection Report# : [2011005](#) (*pdf*)

Significance:  Dec 31, 2011

Identified By: NRC

Item Type: FIN Finding

Failure of Unit 1 Reactor Coolant Pump 2A Motor Junction Box Due to Inadequate Maintenance

The inspectors reviewed a self-revealing finding that occurred during maintenance associated with the Unit 1 reactor coolant pump 2A 13.8 kilovolt motor termination enclosure. Specifically, work instructions were inadequate to ensure the enclosure maintained the highest degree of availability and reliability as required by Procedure 30DP-0AP01, "Maintenance Work Order Writer's Guide." As a result, on October 8, 2011, water leakage from an open nuclear cooling system vent valve entered the enclosure, resulting in a ground fault on the energized 13.8 kilovolt electrical conductors, explosion inside the enclosure, and subsequent declaration of an Unusual Event. The licensee replaced the enclosure and satisfactorily retested reactor coolant pump 2A. The licensee entered this issue into the corrective action program as Condition Report Disposition Request 3905265 and has not completed all corrective actions.

The failure of the licensee to provide adequate work instructions to maintain the Unit 1 reactor coolant pump 2A motor termination enclosure to the highest degree of availability and reliability was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because if left uncorrected, it could lead to a more significant safety concern. Specifically, had the event occurred while the unit was in full power operations, a significant plant transient due to a reactor trip and loss of forced circulation could have occurred. Using Inspection Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process," the inspectors concluded that the finding is of very low safety significance (Green) because it did not require a quantitative assessment. This finding had a cross-cutting aspect in the area of problem identification and resolution associated with

the operating experience component because the licensee failed to implement and institutionalize internal operating experience through changes in station work instructions related to RCP motor termination enclosures. Specifically, the licensee has experienced previous issues with water penetration in electrical enclosures and missing seals, and maintenance personnel have consistently had difficulty restoring the electrical terminations due to various factors. This internal operating experience was not incorporated into revised work instructions.

Inspection Report# : [2011005](#) (pdf)

Significance: G Jun 30, 2011

Identified By: Self-Revealing

Item Type: FIN Finding

Failure of 13.8kV Splice due to Inadequate Maintenance

Inspectors reviewed a Green self-revealing finding for failure to properly repair a 13.8kV cable associated with the AENANX02 startup transformer. Specifically, the work performed failed to achieve an acceptable level of quality as required by Procedure 30DP-9MP01 “Conduct of Maintenance,” and as a result the splice failed causing valid actuations of the emergency diesel generators due to a partial loss of offsite power to both Unit 1 and Unit 3. The licensee plans to revise Specification 13-EN-306, “Installation Specification for Cable Splicing and Terminations for PVNGS,” to remove the use of taped splices for 13.8kV cable. The licensee entered this issue into the corrective action program as Condition Report / Disposition Requests 3616634.

The failure of the licensee to perform work with an acceptable level of quality for 13.8kV cable splicing was a performance deficiency. The performance deficiency is more than minor, and therefore a finding, because it adversely affected the equipment reliability attribute of the Initiating Events 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. Using Inspection Manual Chapter 0609, Attachment 4, “Initial Screening and Characterization of Findings,” the inspectors concluded that the finding is 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. This finding had a cross-cutting aspect in the area of human performance associated with the resources component because the licensee failed to provide complete, accurate and up-to-date procedures and work packages for splicing of 13.8kV electrical cable.

Inspection Report# : [2011003](#) (pdf)

Mitigating Systems

Significance: G Jan 25, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Perform Functionality Assessment for Safety-Related Buildings

DRAFT:

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 provide a technical justification for continued operation of a degraded structure, system, or component. Specifically, after identifying a potential for insufficient drainage for safety related building roofs and no supporting documentation, plant personnel failed to perform a functional assessment and failed to assess the nonconforming condition to the current licensing basis. The licensee performed the functional assessment when notified one needed to be performed and revised the assessment to incorporate all relevant information to as corrective action to restore compliance. The licensee entered the issue into the corrective action program as Palo Verde Action Requests 3958463 and 3952605.

The inspectors concluded that the failure of the operations and engineering personnel to 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 it affected the equipment 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 concluded that the failure of the operations and engineering personnel to 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 it affected the equipment 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 evaluated the significance of the issue under the Significance Determination Process, as defined in Inspection Manual Chapter 0609.04, "Phase I – Initial Screening and Characterization of Findings," and concluded the finding was of very low safety significance (Green) because the finding is a design or qualification issue confirmed not to result in the loss of operability or functionality. The inspectors determined this finding has a crosscutting aspect in the area of human performance associated with the component of decision making because the licensee failed to use conservative assumptions in decision making and adopts a requirement to demonstrate that the proposed action is safe in order to proceed rather than a requirement to demonstrate that it is unsafe in order to disapprove the action.

Inspection Report# : [2012002](#) (*pdf*)

Significance:  Jun 30, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Complete an Immediate Operability Determination for Code System Leakage Test

The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," which states "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings." Contrary to the above, from March 11 through April 19, 2011, the licensee failed to complete an immediate operability determination in accordance with Procedure 01PR-0AP04, "Corrective Action Program," when the licensee discovered the system leakage test methodology for the diesel fuel oil transfer system did not conform to ASME Code, Section XI testing requirements. This condition was placed in the corrective action program as Palo Verde Action Requests 3704003.

The inspectors determined that the failure to complete an immediate operability determination in accordance with paragraph 3.2.1.5 of Procedure 01PR-0AP04 was a performance deficiency. The performance deficiency is more than minor because the nonconforming condition created a reasonable doubt on the operability of the diesel fuel oil transfer system. Using Phase 1 of NRC Manual Chapter 0609, "Significance Determination Process," the finding screens as having very low safety significance (Green) because the finding is a design or qualification deficiency confirmed not to result in the loss of operability or functionality of the system. The finding has a cross-cutting aspect in the area of problem identification and resolution, associated with the corrective action program component, because the licensee failed to identify issues completely, accurately, and in a timely manner commensurate with their safety significance. Specifically, the licensee failed to accurately document the nonconforming condition identified in Palo Verde Action Requests 3654452 which led to a failure to complete an immediate operability determination as required.

Inspection Report# : [2011003](#) (*pdf*)

Barrier Integrity

Significance:  Jun 30, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Include Screening Criteria in the Boric Acid Corrosion Control Program

The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," which states, in part, that "Instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished." Specifically, Procedure 70TI-9ZC01, "Boric Acid Walkdown Leak Detection," Revision 11 did not include appropriate screening criteria to satisfactorily evaluate boric acid leaks and deposits that may cause degradation of risk significant system barriers. The condition was placed in the corrective action program as Palo Verde Action Request 3691351.

The inspectors determined the failure to include appropriate screening criteria into Procedure 70TI-9ZC01 was a performance deficiency. The performance deficiency is more than minor because it is associated with the procedure quality attribute of the Barrier Integrity Cornerstone and adversely affects the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Using Phase 1 of NRC Manual Chapter 0609, "Significance Determination Process," the finding screens as having very low safety significance (Green) because the finding does not represent a degradation of a radiological barrier, does not represent a degradation of the control room toxic barrier functions, does not represent an actual open pathway of reactor containment, and does not involve an actual degradation of hydrogen igniters in the reactor containment. The finding includes a cross-cutting aspect in the area of problem identification and resolution, associated with the corrective action program component, because the licensee failed to take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity. Specifically, the licensee identified similar deficiencies in the self assessment of the boric acid program in September 2010 however, failed to take appropriate corrective actions to fully correct the identified deficiencies.

Inspection Report# : [2011003](#) (*pdf*)

Significance: SL-IV Jun 30, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Submit an LER for a Condition Prohibited by the Plant's Technical Specifications

The inspectors identified a Severity Level IV noncited violation of 10 CFR 50.73(a)(1) for failure to submit a Licensee Event Report within 60 days following discovery of a condition prohibited by Technical Specifications. The licensee made a procedure change in 1986 to Procedure 41OP-1HJ01, "Control Room Handswitch/Valve Checklist," to maintain control room outside air dampers normally closed instead of the normally open position stipulated in the final safety analysis report. The inspectors concluded that the incorrect alignment of the dampers was a condition prohibited by Technical Specification 3.3.9, "Control Room Essential Filtration Actuation Signal" and that the licensee failed to adequately evaluate the issue for reportability. The licensee entered the issue into the corrective action program as Palo Verde Action Request 3791486.

The inspectors concluded the failure of Arizona Public Service to report a condition prohibited by Technical Specifications was a performance deficiency. The inspectors evaluated this performance deficiency using the traditional enforcement process because the failure to submit a required report affected the NRC's ability to perform its regulatory function. Consistent with the guidance in Section 2.2.2 and Section 6.9.d of the NRC Enforcement Policy, the inspectors concluded the finding was a Severity Level IV violation because the licensee failed to make a timely written report that resulted in no or relatively inappreciable potential safety consequences.

Inspection Report# : [2011003](#) (*pdf*)

Significance:  Jun 30, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Have Adequate Documentation for Verification of ASME Code Compliance

The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion VII "Control of Purchased Material, Equipment, And Services" for the failure of licensee personnel to maintain radiographs onsite for the verification of ASME Code, Section III compliance. Specifically, radiographs for welds associated with the reactor head vent line were neither received nor reviewed as required. When the radiographs were obtained, reviews identified that welds for Units 1 and 2 did not meet the standards of Section III of the ASME Boiler and Pressure Vessel Code. The licensee corrected the non-conforming weld in Unit 2 during refueling outage 2R16 and Unit 1 welds will be restored to Section III standards during the next refueling outage beginning October 1, 2011. The licensee entered the issue into the corrective action program as Condition Report / Disposition Requests 3540575.

Inspectors determined that the failure to maintain radiographs onsite for review was a performance deficiency. The performance deficiency was more than minor because it adversely affected the RCS equipment and barrier performance attribute of the Barrier Integrity Cornerstone's objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Using Inspection Manual Chapter 0609, Attachment 4, "Initial Screening and Characterization of Findings," the inspectors concluded that the

finding is of very low safety significance (Green) because the reactor coolant system barrier remained intact, was not associated with the fuel barrier, and did not constitute a spent fuel pool issue. This finding had a cross-cutting aspect in the area of human performance associated with the work practices component because the licensee failed to communicate expectations regarding procedural compliance and personnel follow procedures.

Inspection Report# : [2011003](#) (*pdf*)

Emergency Preparedness

Significance:  Jun 30, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Critique a Weakness during a Biennial Exercise

The inspectors identified a Green noncited violation for failure to critique weak performance in the Technical Support Center during a biennial exercise conducted March 1, 2011, as required by 10 CFR Part 50, Appendix E, IV(F)(2)(g). Specifically, the licensee did not identify that the Technical Support Center did not understand the radiological release path and that they had developed ineffective mitigation strategies based on their inaccurate understanding.

This performance deficiency is more than minor because it affected the emergency preparedness cornerstone and was associated with the emergency response organization performance attribute. The finding had a credible impact on the emergency preparedness cornerstone objective because a lack of understanding of the release path for radioactive material affects the licensee's ability to implement adequate measures to protect the health and safety of the public. The finding was evaluated using the emergency preparedness significance determination process and was determined to be of very low safety significance (Green) because it was a failure to comply with NRC requirements, was associated with Emergency Planning Standard 50.47(b)(14), was not a risk significant planning standard issue, and was not a functional failure of the planning standard. The issue was entered into the licensee's corrective action program as Condition Report / Disposition Requests 3693235. This finding was assigned a cross-cutting aspect in the area of problem identification and resolution because the licensee failed to identify a performance issue completely and accurately.

Inspection Report# : [2011003](#) (*pdf*)

Occupational Radiation Safety

Significance:  Dec 31, 2011

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Evaluate a Radiological Hazard

The inspectors reviewed a self-revealing, non-cited violation of 10 CFR 20.1501(a), resulting from the licensee's failure to evaluate the hazard associated with breaching a contaminated system. On October 18, 2011, before and during work on Unit 1 in the letdown heat exchanger valve CHNV340, the licensee did not make or cause to be made surveys necessary for the licensee to comply with 10 CFR 20.1201(a), the occupational dose limits to adults. The violation resulted in four workers receiving unplanned internal dose. The licensee took corrective action to secure similar valve work pending review of the personnel contamination events; required the use of respiratory protection for subsequent work on the same valve; revised the governing radiation exposure permit; briefed outage personnel on the occurrence; and performed an apparent cause evaluation as part of Condition Report Disposition Request 3919188.

The failure to evaluate the radiological hazard was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it is associated with the Occupational Radiation Safety Cornerstone attribute of program and process and adversely affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation. Specifically, the failure to evaluate the radiological hazard

resulted in unplanned and unintended dose to personnel. Using Inspection Manual Chapter 0609, Appendix C, “Occupational Radiation Safety Significance Determination Process,” the inspectors determined the finding to be of very low safety significance because: (1) it was not an as low as is reasonably achievable finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. The inspectors determined this finding had a cross-cutting aspect in the area of human performance associated with the work control component. Specifically, the licensee did not appropriately plan a work activity by incorporating risk insights because the station lacked a systematic and rigorous process for risk assessment on alpha contamination.

Inspection Report# : [2011005](#) (*pdf*)

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

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