

Palo Verde 1

2Q/2012 Plant Inspection Findings

Initiating Events

Significance: G Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Obtain NRC Approval for a Change Adverse to Safe Shutdown

The inspectors identified a Severity Level IV non-cited violation of License Conditions 2.C.7, 2.C.6, and 2.F for Palo Verde Units 1, 2, and 3, respectively, for the licensee's failure to maintain the reactor coolant pumps in compliance with fire protection requirements. Specifically, the licensee failed to evaluate changes to a maintenance procedure that resulted in the addition of oil in excess of the capacity of the oil collection system, which was a condition adverse to fire protection.

The failure to perform a fire protection program impact evaluation of changes to a maintenance procedure to add oil to the reactor coolant pumps was a performance deficiency. The performance deficiency is more than minor and therefore a finding, because it adversely affected the external factors attribute of the Initiating Events Cornerstone and its objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Screening under IMC 0609, Appendix F, "Fire Protection Significance Determination Process," the condition represented a low degradation of the fire protection program element of fire prevention through control of combustible materials because of the over flow of oil spilling out of the reservoir. However, the problem impacted the NRC's ability to perform its oversight function and was assessed using the traditional enforcement process. In accordance with Section 6.1.d.2 of the NRC Enforcement Policy, dated July 12, 2011, this violation is categorized as Severity Level IV because the resulting changes were evaluated by the Significance Determination Process as having very low safety significance (Green).

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

Significance: G 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)

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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)

Mitigating Systems

Significance: N/A Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Provide Complete and Accurate Information Regarding Safety Related Roof Drainage Capabilities

The inspectors identified a Severity Level IV violation of 10 CFR 50.9, "Completeness and Accuracy of Information," for the failure of the licensee to provide complete and accurate information in all material respects in response to Generic Letter 88-20, Supplement 4. Specifically, the licensee asserted that roofs are equipped with roof drains and scuppers as backup. As a result, the licensee concluded roof ponding considerations were not applicable to the Palo Verde Nuclear Generating Station site. Inspectors determined that there are no roof drains installed. The licensee initiated corrective actions to provide an accurate depiction of the roof drainage capabilities to the NRC. This finding has been entered into the licensee's corrective action program as Palo Verde Action Request 3952605.

The failure of the licensee to provide complete and accurate information for safety related building roof drainage was a performance deficiency. The Significance Determination Process is not suited to assess the significance of the performance deficiency because it affected the ability of the NRC to perform its regulatory oversight function and as such, it was assessed using traditional enforcement. This issue was determined to be a Severity Level IV violation in accordance with NRC Enforcement Policy examples provided in Section 6.9. No crosscutting aspect was assigned because the performance deficiency was assessed using traditional enforcement.

Inspection Report# : [2012003](#) (pdf)

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Significance: Mar 31, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Promptly Identify and Correct a Condition Adverse to Quality Associated with Essential Chilled Water System Gas Accumulation

The inspectors reviewed a self-revealing non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to promptly identify and correct a condition adverse to quality associated with essential chilled water system gas accumulation in all three units. Specifically, more frequent biocide additions to the essential chilled water systems resulted in significant bacterial off gassing and voiding in the systems in all three units. The licensee entered the issue into the corrective action program as Condition Report Disposition Request 3850945, initiated corrective actions to vent the systems and monitor for gas accumulation, and is evaluating further corrective actions for the issue.

The inspectors determined the failure of the licensee to promptly identify and correct a condition adverse to quality associated with essential chilled water system gas accumulation in all three units 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: (1) is not a design or qualification issue; (2) did not represent an actual loss of safety function of the system or train; (3) did not result in the loss of one or more trains of non-technical specification equipment; and (4) 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 problem identification and resolution associated with the corrective action program component because the licensee failed to trend and assess information from the corrective action program and other assessments to identify this common cause problem [P.1(b)].

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

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Significance: Mar 31, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Provide an Adequate Operating Procedure for Cold-Leg Boration

The inspectors reviewed a self-revealing non-cited violation of 10 CFR 50 Appendix B, Criterion V, for the failure of the licensee to provide an adequate operating procedure for cold leg boration. Specifically, on November 19, 2011, Unit 1 operators exceeded the allowed maximum pressure of the low pressure safety injection system during cold-leg boration of the safety injection piping. Pressure instrument errors caused by the specific valve lineup in the operating procedure caused the operators to exceed the pressure limits. The licensee placed the procedure for cold leg boration on administrative hold as a corrective action to restore compliance. The licensee entered the issue into the corrective action program as Condition Report Disposition Request 3989295 and is evaluating further corrective actions.

The failure of the licensee to provide an adequate operating procedure was a performance deficiency. The performance deficiency is more than minor, and therefore a finding, 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: (1) is not a design or qualification issue; (2) did not represent an actual loss of safety function of the system or train; (3) did not result in the loss of one or more trains of non-technical specification equipment; and (4) 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 problem identification and resolution associated with the corrective action program component because the licensee failed to

thoroughly evaluate a problem such that the resolution addressed cause and extent of condition. Specifically, the 2009 engineering evaluation identified the pressure instrument inaccuracies but did not consider the extent of condition and potential impact on plant operating procedures [P.1(c)].

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

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Significance: Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Perform Functionality Assessment for Safety-Related Buildings

The inspectors identified a 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, plant personnel failed to perform a functional assessment and failed to assess the non-conforming condition to the current licensing basis. The licensee performed the functional assessment and later revised the assessment after the inspectors challenged assumptions used in the assessment. The licensee entered the issue into the corrective action program as Palo Verde Action Requests 3958463 and 3952605.

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 performance deficiency is more than minor, and therefore a finding, because it adversely 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 cross-cutting 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 [H.1(b)].

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

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Significance: Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Translate Design Basis Into Drawings and Calculations for Safety-related Roof Drainage Capability

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” for the failure of the licensee to translate the safety-related roof drainage capability design basis into drawings and calculations. Specifically, inspectors determined that there were no roof drains installed, although the plant was designed to have roof drains as the primary means for removing water from safety-related building roofs, and the licensee could not provide any design documentation to support adequacy of the roof drainage capacity without roof drains. The licensee performed an engineering evaluation to support the structural integrity of the safety-related buildings in the event of a design basis probable maximum precipitation event and is evaluating further corrective action. The licensee entered the issue into the corrective action program as PVARs 3958463 and 3952605.

The inspectors concluded that the failure of the licensee to translate design basis information into drawings for safety-related building roof drainage was a performance deficiency. The inspectors concluded the performance deficiency was 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 performance deficiency 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. No cross-cutting aspect was assigned because the performance deficiency was not indicative of current performance.

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Significance: Aug 18, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Operability Determination for Essential Chilled Water System Gas Voids

The inspectors identified a 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 and complete a prompt operability determination for the essential chilled water system commensurate with system safety significance. Specifically, after identifying gas voids in the essential chilled water system in Unit 2, and subsequently Units 1 and 3, plant personnel failed to meet timeliness and quality requirements for a prompt operability determination of the essential chilled water systems. The licensee developed an Operational Decision Making Issue Plan and has maintained gas volumes below established limits. The licensee entered the issue into the corrective action program as PVAR 3886168 and has not completed all corrective actions.

The inspectors concluded that the failure of the operations and engineering 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 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: (1) is not a design or qualification issue; (2) did not represent an actual loss of safety function of the system or train; (3) did not result in the loss of one or more trains of non-technical specification equipment; and (4) did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. 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 make safety-significant or risk-significant decisions using a systematic process, especially when faced with uncertain or unexpected plant conditions, to ensure safety is maintained.

Inspection Report# : [2011004](#) (pdf)

Barrier Integrity

Emergency Preparedness

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Significance: Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure in the Choice of Protective Actions Consistent with Federal Guidance

The inspectors identified a non-cited violation of 10 CFR 50.47(b)(10) for the licensee’s failure to develop and have in-place guidelines for the choice of protective actions during an emergency that were consistent with federal guidance. Specifically, the licensee’s procedure EP-0905, “Protective Actions,” Revision 2, did not implement the guidance of EPA-400-R-92-001, “Manual of Protective Action Guides and Protective Actions for Nuclear Incidents,” which states, in part, that evacuation is rarely justified when the projected dose does not exceed 1 rem (Total Effective Dose Equivalent). This issue is documented in the licensee’s corrective action program as Condition Report Disposition Request-3403829.

The licensee’s automatic process that extended protective action during plant conditions and changes in wind direction without considering radiation dose was identified as a performance deficiency. This performance deficiency

is more than minor, and therefore a finding, because it adversely affects the Emergency Preparedness Cornerstone objective of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency, and is associated with the cornerstone attributes of emergency response organization performance and procedure quality. This finding was determined to be of very low safety significance (Green) because it was a failure to comply with NRC requirements, was associated with risk significant planning standard 10 CFR 50.47(b)(10), and was not a risk significant planning standard functional failure or a planning standard degraded function. The finding was not a functional failure or degraded planning standard function because appropriate protective action recommendations for the public would have been made for all areas where protective action guides were exceeded. The finding is related to the corrective action program component of the problem identification and resolution cross-cutting area because the licensee failed take appropriate corrective actions to address the safety issue in a timely manner.

Inspection Report# : [2012002](#) (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

Significance:  Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Verify a Transferee was Licensed to Receive Byproduct Material

The inspector identified a noncited violation of 10 CFR 30.41 because the licensee failed to verify a transferee was authorized to receive byproduct material before transferring it.

The failure to verify a transferee is licensed to receive the type, form, and quantity of byproduct being transferred is a performance deficiency. The significance was more than minor because radioactive material was actually transferred to an entity which was not licensed to receive the material. Thus, the performance deficiency was associated with the cornerstone attribute of Program & Process and adversely affected the associated cornerstone objective because the release of radioactive material to unlicensed entities could cause unplanned radiation dose or environmental contamination. Using Inspection Manual Chapter 0609, Appendix C, "Public Radiation Safety Significance Determination Process," December 12, 2008, page D 13, the inspectors determined the violation had very low safety significance because the violation involved a radioactive material control issue, was not a transportation issue, and did not result in a dose to public of greater than 0.005 rem. This finding had a crosscutting aspect in the human performance area, work practices component, because personnel did not follow procedures. [H.4(b)]

Inspection Report# : [2012003](#) (*pdf*)

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

Significance: N/A May 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Request an Experience Waiver for a Reactor Operator License Applicant

An NRC-identified non-cited violation of 10 CFR 50.9, "Completeness and Accuracy of Information," was identified for failure to request an experience waiver on NRC Form 398 for a Reactor Operator license applicant who did not have three years of responsible nuclear power plant experience as required by NUREG 1021, Revision 9, Supplement 1, ES-202.D.1.a.(1). Upon discovery, the facility licensee submitted a revised NRC Form 398, which included the waiver request, and entered this issue into their corrective action program as Condition Report 4080143.

The examiners evaluated this issue using the traditional enforcement process because the performance deficiency had the potential for impacting the NRC's ability to perform its regulatory function. This performance deficiency was determined to be Severity Level IV because it fits the SL-IV example of Enforcement Policy Section 6.4.d, "Violation Examples: Licensed Reactor Operators." This section states, "Severity Level IV violations involve, for example ... cases of inaccurate or incomplete information inadvertently provided to the NRC that does [sic] not contribute to the NRC making an incorrect regulatory decision as a result of the originally submitted information or an unqualified individual performing the functions of an operator or senior operator..." Because the performance deficiency was corrected before the issuance of a license and an experience waiver was ultimately granted, it did not cause the NRC to make an incorrect regulatory decision. There is no Cross-Cutting Aspect associated with this violation because it was processed using Traditional Enforcement.

Inspection Report# : [2012301](#) (*pdf*)

Significance: N/A May 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Inaccurate Identification of an Open-Reference Initial Licensing Exam Question as Closed-Reference

An NRC-identified non-cited violation of 10 CFR 50.9, “Completeness and Accuracy of Information,” was identified for submitting a final written exam question to the NRC which was identified and approved as “Closed Reference,” but administered by the licensee as “Open Reference” by supplying the applicants with an unapproved Technical Specification. On evaluation, the NRC determined that it would not have approved the question had it been properly identified as open-reference on submittal, because the reference made the question a direct lookup and the information in the reference was of a nature that licensed operators are expected to have memorized. No licensing decisions were affected and the facility licensee entered this issue into their corrective action program as Condition Report 4144197.

The examiners evaluated this issue using the traditional enforcement process because the performance deficiency impacted the NRC’s ability to perform its regulatory function. This performance deficiency was determined to be Severity Level IV because it fits the SL-IV example of Enforcement Policy Section 6.4.d, “Violation Examples: Licensed Reactor Operators.” This section states, “Severity Level IV violations involve, for example ... cases of inaccurate or incomplete information inadvertently provided to the NRC that does [sic] not contribute to the NRC making an incorrect regulatory decision as a result of the originally submitted information or an unqualified individual performing the functions of an operator or senior operator... .” The performance deficiency did not cause the NRC to make an incorrect regulatory decision because it did not affect the number of applicants who passed. There is no Cross-Cutting Aspect associated with this violation because it was processed using Traditional Enforcement.

Inspection Report# : [2012301](#) (*pdf*)

Last modified : September 12, 2012