Palo Verde 1
1Q/2008 Plant Inspection Findings

Initiating Events

Significance: G Nov 02, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Implementation of Risk Management Actions and Risk Assessments for the Switchyard
Green. The team identified a noncited violation of 10 CFR 50.65(a)(4) for the failure to adequately assess the increase in risk and effectively implement risk mitigation actions for maintenance activities in the switchyard. Specifically, the switchyard was not being protected by controlling access and movement as required and the risk modeling did not include all work being performed. The Unit 1 shift manager and the switchyard coordinator were unaware of the movement of multiple vehicles and pieces of equipment in or near restricted areas and not all maintenance was included in the schedule provided to the switchyard coordinator for risk review. This issue was entered into the licensee's corrective action program as Palo Verde Action Request 3078392.

This finding is greater than minor because the licensee's risk assessment failed to consider maintenance activities that could increase the likelihood of initiating events such as work in the switchyard and failed to effectively manage compensatory measures. Inspection Manual Chapter 0609, "Significance Determination Process," Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," was used to assess the significance. Using data from the licensee's probabilistic risk assessment, a NRC Region IV senior reactor analyst calculated the risk deficit. Based on the magnitude of the calculated risk deficit being less than 1E-6/year, this finding is determined to be of very low safety significance. The cause of this finding has crosscutting aspects associated with work control of the human performance area in that the licensee did not appropriately coordinate switchyard activities incorporating risk insights (H.3.(a)) and did not communicate with each other during activities in which coordination is necessary to assure plant and human performance (H.3.(b)).

Inspection Report# : 2007012 *(pdf)*

Significance: G Sep 30, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO FOLLOW PROCEDURE RESULTS IN PARTIAL VACUUM OF THE RCS
. A self-revealing noncited violation of Technical Specification 5.4.1.a was identified for the failure of operations personnel to follow procedures to establish appropriate conditions prior to lowering pressurizer level, resulting in a partial vacuum condition in the reactor coolant system. Specifically, on July 7, 2007, operations personnel failed to perform Procedure 40OP-9ZZ06, "Mode 5 Operations," Revision 15, Step 5.3.16.9, prior to lowering pressurizer level to 25 percent resulting in a partial vacuum condition in the reactor coolant system as the pressurizer was drained. This issue was entered into the licensee's corrective action program as Condition Report/Disposition Request 3038774.

The finding is greater than minor because it is associated with the human performance attribute of the initiating events cornerstone and affects the associated cornerstone objectives to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using the Manual Chapter 0609, "Significance Determination Process," Appendix G, "Shutdown Operations Significance Determination Process," Checklist 4, a phase 2 analysis is required since the finding increased the likelihood of a loss of reactor coolant system inventory and could have impacted the operability of reactor coolant system level instrumentation. Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," was used since the Significance Determination Process methods and tools were not adequate to determine the significance of the finding. The finding is determined to have very low safety significance through management review because the finding does not degrade the licensee's ability to terminate a leak path, add reactor coolant system inventory, recover decay heat removal once it is lost, or establish an alternate core cooling path. Given the reactor coolant system drain rate, it would have taken over 15 hours to drain the reactor coolant system to midloop conditions, and due to the low

decay heat load, the time to boil was greater than 2 hours. This finding has a crosscutting aspect in the area of human performance, associated with work practices, since the pre-job brief and self/peer checking for the evolution were inadequate
Inspection Report# : 2007004 *(pdf)*

Significance: G Jun 30, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO SCOPE CONDENSATE DEMINERALIZER VALVE INTO MAINTENANCE RULE
A self-revealing noncited violation of 10 CFR 50.65(b) was identified for the failure of engineering personnel to place some components of the condensate demineralizer system into the scope of its program for monitoring the effectiveness of maintenance. Specifically, on October 19, 2006, Unit 3 reactor was manually tripped when condenser vacuum was degraded due to the failure of condensate demineralizer vessel waste drain Valve 3JSCNUV0232. Prior operating experience at Palo Verde demonstrated that the failure of Valve 3JSCNUV0232 could result in a reactor trip. However, the licensee did not appropriately scope Valve 3JSCNUV0232 into its program for monitoring the effectiveness of maintenance. This issue was entered into the corrective action program as Condition Report/Disposition Request 3035444.

The finding is greater than minor because it is associated with the initiating events cornerstone attribute of equipment performance and 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. Using Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding is determined to have very low safety significance since it does not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available.
Inspection Report# : 2007003 *(pdf)*

Significance: G Jun 30, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO APPLY INDUSTRY OPERATING EXPERIENCE TO MAINTENANCE ACTIVITIES RESULTS IN A PLANT TRANSIENT
The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," for the failure of inservice inspection personnel to promptly identify and correct a condition adverse to quality. Specifically, since April 19, 2006, floor-welded spray pond pipe Supports 13-SP-030-H-007 and 13-SP-030-H-008 in the essential pipe density tunnel became degraded at the weld due to long term standing water in the tunnel. The licensee thought these supports had been previously identified and placed in the corrective action program, but that was not the case. This issue was entered into the corrective action program as Palo Verde Action Request 2989960.

The finding is greater than minor because if left uncorrected the degradation would have led to a more significant safety concern. The finding is associated with the mitigating systems cornerstone. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding is determined to have very low safety significance since it only affected the mitigating systems cornerstone and did not represent a loss of system safety function, an actual loss of safety function of a single train for greater than its Technical Specification allowed outage time, or screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. The cause of the finding is also related to the crosscutting aspect of problem identification and resolution with a corrective action program causal factor because the threshold for identifying issues was not sufficiently low and the degraded supports were not identified completely, accurately, and in a timely manner commensurate with their safety significance (P.1. (a)).
Inspection Report# : 2007003 *(pdf)*

Mitigating Systems

Significance: G Mar 31, 2008

Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Establish Preventative Maintenance Procedures for Emergency Diesel Generator Fuel Oil Injection Pump O-Rings
The inspectors identified a non-cited violation of Technical Specification 5.4.1.a for the failure of operations and engineering personnel to establish and implement maintenance procedures for inspection and replacement of items that have a specific lifetime. Specifically, between February 12, 2007 and March 7, 2008, operations and engineering personnel failed to inspect or replace the emergency diesel generators fuel oil injection pump upper O-rings prior to the end of their service life resulting in fuel leakage and increased unavailability and unreliability of Unit 1 Train A, Unit 2 Train B, and Unit 3 Train B emergency diesel generators. This issue was entered into the licensee's corrective action program as Palo Verde Action Request 3143422.

This finding is greater than minor because it is associated with the equipment performance attribute of the mitigating systems cornerstone and affects the cornerstone objective of ensuring the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because it did not represent a loss of system safety function, an actual loss of safety function of a single train for greater than its technical specification allowed outage time, or screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of problem identification and resolution associated with operating experience because the licensee failed to use available operating experience, including vendor recommendations, to implement and institutionalize operating experience through changes to station processes, procedures, equipment, and training programs [P.2(b)].

Inspection Report# : 2008002 *(pdf)*

Significance:  Mar 31, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Maintain Adequate Staffing Levels Results in Heavy Use of Overtime to Maintain Adequate Shift Coverage
The inspectors identified a non-cited violation of Technical Specification 5.2.2.d involving the routine use of excessive overtime for operations personnel that performed safety-related functions. Specifically, between January 1 and December 31, 2007, operations personnel routinely used excessive overtime. This issue was entered into the licensee’s corrective action program as Condition Report/Disposition Request 3112231.

The finding is greater than minor because if left uncorrected the finding would become a more significant safety concern in that the routine use of excessive work hours increases the likelihood of operator errors. Using the IMC 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because no specific human performance issues due to personnel fatigue were identified that resulted in the degradation or loss of safety function of equipment important to safety. The finding has a crosscutting aspect in the area of human performance associated with resources because the licensee failed to maintain sufficient qualified operations personnel to maintain working hours within guidelines without the excessive use of overtime [H.2(b)].

Inspection Report# : 2008002 *(pdf)*

Significance:  Mar 31, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Properly Implement Corrective Action Process for Potential Operability Issues with the Class 1E 125 V DC System
The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure of engineering personnel to ensure that potentially nonconforming conditions associated with the Class 1E 125 Vdc system were reviewed for operability. Specifically, between September 29, 2007 and March 7, 2008, engineering personnel failed to ensure all relevant information was reviewed for operability when it was determined that vendor recommended preventative maintenance tasks were not being performed on the Class 1E 125 Vdc system. This issue was entered into the licensee's corrective action program as Palo Verde Action Request 3144707.

This finding is greater than minor because it is associated with the equipment performance attribute of the mitigating systems cornerstone and affects the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because it did not represent a loss of system safety function, an actual loss of safety function of a single train for greater than its technical specification allowed outage time, or screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of human performance associated with decision making because safety significant decisions were not verified to validate underlying assumptions and identify unintended consequences [H.1(b)].

Inspection Report# : 2008002 *(pdf)*

Significance: G Dec 31, 2007
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
FAILURE TO TAKE ADEQUATE CORRECTIVE ACTIONS TO PREVENT RECURRENCE OF A SIGNIFICANT CONDITION ADVERSE TO QUALITY
A self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," was identified for the failure of engineering personnel to promptly correct a significant condition adverse to quality. Specifically, on September 17, 2007, steam supply to auxiliary feedwater Pump A bypass Valve SGA-UV-138A failed to open as required during the performance of the quarterly surveillance test. The cause of the failure was determined to be foreign material on the valve's internal components. Corrective actions were implemented but the source of the debris was not definitively identified. Subsequently, on October 15, 2007, the valve failed to close. Further investigation indicated that the failure was caused by foreign material on the valve's internal components. This issue was entered into the corrective action program as Condition Report/Disposition Request 3078032.

The finding is greater than minor because a failure to open is associated with the equipment performance attribute of the mitigating systems cornerstone and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Additionally, a failure to close is associated with the structure, system, and component and barrier performance attribute of the barrier integrity cornerstone and affects the associated cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, this finding is determined to have very low safety significance because the finding did not result in a loss of safety function under the mitigating systems cornerstone and did not result in an actual open pathway in the physical integrity of the reactor containment under the containment barrier cornerstone. This finding has a crosscutting aspect in the area of human performance associated with work control because the facility did not dedicate the manpower and expertise necessary to coordinate work activities to incorporate actions to support long term equipment reliability and safety system availability (H.3(b)).
Inspection Report# : 2007005 *(pdf)*

Significance: G Oct 26, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Eight Examples of the Failure to Implement the operability Determination Process
Green. The team identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," with eight examples for the failure of the licensee to adequately evaluate degraded and unanalyzed conditions to support operability decision making between May 2006 and October 26, 2007. The team noted a significant number of weak or non-existent operability evaluations of degraded conditions affecting safety-related equipment. There was a lack of understanding of the need to assess operability for some conditions adverse to quality and a lack of knowledge or skills necessary to conduct quality operability assessments. The examples of the violation involved two instances of conditions adverse to quality documented in databases outside of the corrective action program, missile hazards near the essential spray pond, two issues effecting essential cooling water system heat exchangers, 480V and 4160V motor terminations, oil leaks on the emergency diesel generators, and high lead content in a Unit 3 low pressure safety injection pump. Each of the individual technical issues was entered into the licensee's corrective action program.

These examples associated with this finding are greater than minor because they were associated with the mitigating systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Using the Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the examples associated with this finding are determined to have very low safety significance since they only affected the mitigating systems cornerstone and did not represent a loss of system safety function. The causes of the examples of this finding have crosscutting aspects associated with decision making of the human performance area in that operations and engineering personnel (1) did not make safety significant decisions using a systematic process (H.1.(a)), and (2) failed to use conservative assumptions for operability decision-making when evaluating degraded and nonconforming conditions (H.1.(b)). The causes of the examples of this finding also have crosscutting aspects associated with evaluation and corrective action of the problem identification and resolution area in that licensee personnel (1) did not assess conditions adverse to quality for impacts to the operability of safety- related equipment (P.1.(c), and (2) did not address safety issues in a timely manner P.1.(d)). The causes of the examples of this finding also related to the safety culture component of accountability in that workers and managers failed to demonstrate a proper safety focus and reinforce safety principles (O.1.(b) and O.1.(c)).

Inspection Report# : 2007012 *(pdf)*

Significance: G Oct 25, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Establish maintenance Rule Goals for the Safety Injection System
Green. The team identified a noncited violation of 10 CFR 50.65, for the failure of engineering personnel to establish goals and monitor the performance of the safety injection system. Specifically, on March 22, 2007, engineering personnel failed to establish goals to properly monitor system performance, or provide a technical justification to demonstrate that monitoring under 10 CFR 50.65(a)(1) was not required for the safety injection system following the system changing status from 10 CFR 50.65(a)(2) to 10 CFR 50.65(a)(1). This issue was entered into the corrective action program as Palo Verde Action Requests 3074255 and 3076699.

This finding is greater than minor because it was associated with the mitigating systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Using the Inspection Manual Chapter 0609, "Significant Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance since there was no loss of safety function. The cause of this finding has crosscutting aspects associated with (1) corrective actions of the problem identification and resolution area in that engineering personnel failed to take appropriate actions to address safety issues and adverse trends in a timely manner (P.1.(d)) and self assessment of the problem identification and resolution area in that engineering personnel did not perform self assessments that were comprehensive, objective, and self critical (P.3.(a)).

Inspection Report# : 2007012 *(pdf)*

Significance: G Oct 10, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Six Examples of a Failure to Implement the Corrective Action Program Requirements
Green. The team identified a noncited violation of 10 CFR 50, Appendix B, Criterion XVI, “Corrective Action,” with six examples for the failure of the licensee to identify, evaluate, or correct conditions adverse to quality between 1988 and October 10, 2007. The corrective actions implemented by the licensee to address the substantive human performance and problem identification and resolution crosscutting issues were ineffective in sustaining performance improvement as noted by licensee self assessments, external industry reviews, and NRC inspections. The team also identified several examples of poor and inconsistent implementation of corrective action program behaviors. The examples of the violation involved not entering the use of unqualified tape in containment in the corrective action process, evaluating the condition, or taking timely actions to remove the tape from all three units; not identifying, evaluating, or implementing timely corrective actions associated with operating experience applicable to the auxiliary feedwater pump trip and throttle valve; not implementing timely corrective actions for water intrusion and flooding of underground manholes and cable vaults; inadequate evaluation for nonconforming Target Rock reed switches; not

evaluating and correcting a degraded condition with post accident monitoring instrument chart recorders, and not correcting a degraded/nonconforming condition associated with 3 inch Borg-Warner check valves. Each of the individual technical issues was entered into the licensee's corrective action program.

The examples associated with this finding are greater than minor because they were associated with the mitigating systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Using the Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the examples associated with this finding are determined to have very low safety significance since they only affected the mitigating systems cornerstone and did not represent a loss of system safety function. The causes of the examples of this finding have crosscutting aspects associated with decision making of the human performance area in that operations and engineering personnel failed to use conservative assumptions for operability decision-making when evaluating degraded and nonconforming conditions (H.1.(b)). The causes of the examples of this finding have crosscutting aspects associated with (1) corrective actions of the problem identification and resolution area because the licensee failed to evaluate previous issues such that resolutions addressed all conditions affecting operability (P.1.(c)), (2) operating experience of the problem identification and resolution area in that engineering personnel failed to ensure implementation and institutionalization of operating experience through changes to station processes, procedures, equipment, and training programs (P.2.(b)), and (3) self assessment of the problem identification and resolution area in that the licensee did not follow their benchmarking and self assessment guide to ensure findings were evaluated in their corrective action program (P.3.(c)). The causes of the examples of this finding also related to the safety culture component of accountability in that workforce and management personnel failed to demonstrate a proper safety focus and reinforce safety principles (O.1.(b) and O.1.(c)).

Inspection Report# : 2007012 *(pdf)*

Significance: G Oct 10, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Evaluate Performance Monitoring Criteria for the Auxiliary Feedwater System
Green. The team identified a noncited violation of 10 CFR 50.65(a)(2) for the failure of maintenance rule and engineering personnel to demonstrate that the performance or condition of structures, systems, or components was being effectively controlled through appropriate preventive maintenance to ensure systems or components remained capable of performing their intended function. Specifically, between April and October 2007, an inadequate evaluation of maintenance rule performance criteria was performed and, even though the Unit 2 auxiliary feedwater Train A had exceeded its maintenance rule 10 CFR 50.65(a)(2) performance criteria, no goal setting and monitoring was performed as required by 10 CFR 50.65(a)(1) of the maintenance rule. This issue was entered into the corrective action program as Palo Verde Action Request 3075907.

This finding is greater than minor because it was associated with the mitigating systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Using the Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance since it only affected the mitigating systems cornerstone and did not represent a loss of system safety function. The cause of this finding has crosscutting aspects associated with self assessments of the problem identification and resolution area in that maintenance rule and engineering personnel failed to perform self assessments that were comprehensive, appropriately objective, and self-critical (P.3.(a)). The cause of this finding has crosscutting aspects associated with decision-making of the human performance area in that engineering personnel failed to make safety-significant or risk-significant decisions using a systematic process (H.1.(a)). The cause of this finding is also related to the safety culture component of accountability in that management did not reinforce safety standards and display behaviors that reflected safety as an overriding priority (O.1.(b)).

Inspection Report# : 2007012 *(pdf)*

Significance: G Oct 04, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Implement Adequate Design Controls for Condensate Storage Tank Temperature

Green. The team identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," with for the failure to translate design basis requirements into procedures to ensure the plant is operated within its design basis. Specifically, between 1985 and October 2007, the maximum condensate storage tank temperature requirements did not include the effect of recirculated hot condensate water from the main condenser. The issue was entered into the corrective action program as 3073243.

The examples associated with this finding are greater than minor because they were associated with the mitigating systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Using the Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the examples associated with this finding are determined to have very low safety significance since they only affected the mitigating systems cornerstone and did not represent a loss of system safety function. The causes of the examples of this finding have crosscutting aspects associated with corrective action of the problem identification and resolution area in that engineering personnel did not assess conditions adverse to quality for impacts to the operability of safety related equipment (P.1.(c)).

Inspection Report# : 2007012 *(pdf)*

Significance:  Aug 17, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate procedure for safe shutdown from outside the control room
Green. The team identified a noncited violation of License Conditions 2.C.(7), 2.F and 2.C.(6) for Units 1, 2, and 3, respectively. Specifically, procedures required by 10 CFR Part 50, Appendix R, Section III.G.3 and III.L.3 had deficiencies that might impact the ability to complete a number of time-critical steps required to safely shutdown the facility following a fire in the control room. This was because the licensee failed to provide a number of tools necessary to complete the procedure as written. The team determined that, although operators did not use the equipment during time-critical steps, the lack of tools could negatively impact the ability to accomplish subsequent time-critical steps.

This deficiency was more than minor because the finding is associated with the Protection Against External Factors attribute of the Mitigating Systems Cornerstone since it could affect the the availability, reliability, and capability of systems that respond to a fire events to prevent undesirable consequences. Using the guidance of Manual Chapter 0609, Appendix F, Attachment 2, the deficiency was determined to have a low degradation rating because it involved a procedural deficiency that was compensated by operator experience/familiarity, and revised calculations demonstrated that there was sufficient time margin available to complete the actions. Based on this, the finding screened as having very low safety significance (Green) during a Phase 1 significance determination. This finding had cross-cutting aspects in the area of human performance because the licensee failed to ensure that personnel, equipment, procedures, and other resources were available and adequate to assure nuclear safety. Specifically, the licensee did not ensure that adequate emergency equipment was available to support procedure completion. (H.2(d)).
Inspection Report# : 2007008 *(pdf)*

Significance:  May 25, 2007
Identified By: NRC
Item Type: FIN Finding
Ineffective Demonstration of Conformance to Design for the Alternate ac Power Sources
The team identified a finding involving the implementation of Regulatory Guide 1.155, Station Blackout, Appendix A, for the demonstration of the station backout generator design and system readiness requirements. Specifically, established preventive maintenance tasks did not demonstrate that the coping requirements for the station blackout generator would be met for the approved increase from the 4-hour to 16-hour coping duration that, at the time this finding was identified, would become effective the following month. The licensee has entered this finding into their corrective action program as Palo Verde Action Request PVAR 2982699.

The finding is greater than minor because it would become a more significant safety concern if left uncorrected following the implementation of the 16-hour coping duration. The finding affected the mitigating systems cornerstone attributes to ensure the availability of the station blackout generators to respond to initiating events necessary to prevent undesirable consequences. Using the NRC Inspection Manual Chapter 0609, Significance Determination

Process, Phase 1 Worksheet, the team determined that this finding had very low safety significance because there was not a loss of system function and it did not involve an external event. The cause of the finding was related to the crosscutting element of decision making associated with human performance for the failure to adequately evaluate the design and system readiness requirements for the station blackout generators for the approved license amendment that, at the time the finding was identified, would, increase the coping period to 16-hours.
Inspection Report# : 2007011 *(pdf)*

Significance: G May 25, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Control of Design Information for the Station Blackout System
The team identified a noncited violation of very low safety significance for the failure to implement the design control requirements of Regulatory Guide 1.155, Station Blackout, Appendix A, Criterion 1, Design Control and Procurement Control, to 10 CFR 50.63, Loss of All Alternating Current. Specifically, approved Design Change DMWO 2827452 did not account for key station blackout generator performance parameters that included fuel and lubricating oil consumption rates and required station blackout battery capacity for an increase in the station blackout coping period from 4 to16-hours.

The finding is greater than minor because it would become a more significant safety concern if left uncorrected in that the critical performance parameters for ensuring the station blackout generators would meet the 16-hour coping requirement were not established. The finding affected the mitigating systems cornerstone attributes to ensure the availability of the station blackout generators to respond to initiating events necessary to prevent undesirable consequences. Using the NRC Inspection Manual Chapter 0609, Significance Determination Process, Phase 1 Worksheet, the team determined that this finding had very low safety significance because there was not a loss of system function and it did not involve an external event. The cause of the finding was related to the crosscutting element of decision making associated with human performance for the failure to evaluate the key performance parameters for the station blackout generators for the approved license amendment that increased the coping period to 16-hours. (Section 1R21b.2.)

Inspection Report# : 2007011 *(pdf)*

Significance: G May 25, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Non-conservative Containment Sump Level Analysis
The team identified a noncited violation of very low safety significance of 10 CFR Part 50, Appendix B, Criterion III, Design Control. Specifically, the design calculation that determined the minimum containment flood level following a loss-of-coolant accident was not based on the most limiting reactor coolant system break location. The calculated containment flood level was used to verify the adequacy of the available net positive suction head for the emergency core cooling pumps that would take suction from the containment sump during the recirculation phase of a postulated loss-of-coolant accident. The licensee has entered this issue into their corrective action program as Palo Verde Action Request PVAR 2981257.

This finding is greater than minor because this issue required accident analysis calculations to be re-performed to assure the accident requirements were met. The finding affected the mitigating systems cornerstone as related to the availability, reliability, and capability of the emergency core cooling system for post-loss-of-cooling accident. In accordance with Inspection Manual Chapter 0609, Significance Determination Process, Appendix A, Significance Determination of Reactor Inspection Findings for At-Power Situations, the team conducted a Phase 1 screening and determined the finding was of very low safety significance because it did not represent an actual loss of safety function. This deficiency would not have resulted in the emergency core cooling pumps becoming inoperable under the most limiting postulated accident conditions. This finding has cross-cutting aspects associated with corrective action of the problem identification and resolution area to ensure that issues potentially impacting nuclear safety are promptly identified, fully evaluated and that actions are taken to address safety issues in a timely manner.
Inspection Report# : 2007011 *(pdf)*

Significance: G May 25, 2007

Identified By: NRC
Item Type: NCV NonCited Violation
Ineffective Maintenance on Target Rock Solenoid-Operated Valves
The team identified a noncited violation of very low safety significance of 10 CFR Part 50, Criterion XVI, Corrective Actions, for the failure to identify and correct significant conditions adverse to quality involving Target Rock valve failures. The licensee has entered this issue into their corrective action program as Palo Verde Nuclear Generating Station Action Requests PVAR 2984832 and 2985372.

The failure to identify and correct the cause(s) of turbine-driven auxiliary feedwater pump Target Rock solenoid-operated valves was a performance deficiency. This issue is more than minor because it is associated separately with the mitigating systems cornerstone and on one occasion affected the containment barrier integrity cornerstone. This finding has cross-cutting aspects associated with corrective action of the problem identification and resolution area to ensure that issues potentially impacting nuclear safety are promptly identified, fully evaluated and that actions are taken to address safety issues in a timely manner.
Inspection Report# : 2007011 *(pdf)*

Significance: N/A Sep 30, 2006
Identified By: NRC
Item Type: FIN Finding
SUMMARY FINDING. 95002 TEAMS ASSESSMENT OF IR 2004-14 (YELLOW) 10 CFR PART 50, APPENDIX B, CRITERION III, VIOLATION
The NRC performed a followup supplemental inspection to assess the licensee's corrective actions associated with a Yellow design control finding involving the potential for air entrainment into the emergency core cooling system. The team concluded that the technical issues specifically associated with the voided emergency core cooling system piping have been addressed. However, the Yellow finding will remain open because the licensee did not implement effective corrective actions for all of the causes associated with the Yellow finding. Specifically, the licensee's actions to improve questioning attitude, technical rigor, and technical review were not fully effective. Also, the implementation of performance measures and metrics to monitor the effectiveness of corrective actions associated with the Yellow finding were not adequate to assess effectiveness. This performance issue was previously characterized as a 10 CFR Part 50, Appendix B, Criterion III, violation having substantial safety significance (Yellow), and was originally identified in NRC Inspection Report 05000528; 05000529; 05000530/2004014.

The licensee's corrective actions taken in response to the root causes and related programmatic concerns involving questioning attitude, technical rigor, and technical review have not been completely effective. Specifically, following implementation of corrective actions between September 2005 and March 2006, the licensee: (1) continued to conduct inadequate technical reviews of emerging issues; (2) did not routinely question the validity of engineering assumptions used to support operability decisions; (3) did not consistently implement a qualify, validate, and verify process; and (4) did not consistently notify operations personnel of immediate operability concerns.

The team concluded that adequate qualitative or quantitative measures for determining the effectiveness of the corrective actions to prevent recurrence have not been established. For example, not all relevant performance data was considered when performance monitoring measures were developed to assess the effectiveness of corrective actions. When the pertinent data was considered, or otherwise clarified, the performance measures suggested declining rather than improving performance in some areas.

The team also concluded that the licensee had not completed adequate reviews of the effectiveness of corrective actions prior to their notifying the NRC of their readiness for inspection of the Yellow finding. Specifically, several assessments were completed after the requested dated of the inspection (June 2006). Several of the assessments noted that insufficient progress in resolving some of the root and contributing causes had been made. Additionally, a standard guideline for metrics was not issued and implemented until July 2006.

Inspection Report# : 2006010 *(pdf)*

Significance: G Mar 16, 2005
Identified By: NRC
Item Type: FIN Finding
FAILURE TO TRACK CONTROL ROOM DISCREPANCIES
The inspectors identified a finding for the failure to follow administrative guidelines provided to operations personnel

for identifying, documenting, and tracking main control room deficiencies. Specifically, approximately 75 control room instrument and control room meter face plates in Units 1, 2, and 3 were degraded and were not individually tracked in the control room discrepancy log. Furthermore, discrepancy labels containing the control room discrepancy log number and description of the discrepancy were not placed adjacent to or as close as possible to each affected device. This issue was entered into the corrective action program as Condition Report/Disposition Request 2782501.

The finding is determined to be greater than minor because if left uncorrected, it could become a more significant safety concern in that the condition could cause an operator to take an inappropriate action based on expected plant response or conversely cause an operator not to take action when action is required. The senior reactor analyst determined that this finding was not appropriate to be evaluated using the significance determination process since this finding was associated with multiple human performance actions. Based on management review, the finding is determined to have very low safety significance because it only affected the mitigating systems cornerstone, and there was no adverse impact to plant equipment.

Inspection Report# : 2005002 *(pdf)*

Significance: Y Dec 09, 2004
Identified By: NRC
Item Type: VIO Violation
FAILURE TO MAINTAIN DESIGN CONTROL OF CONTAINMENT SUMP RECIRCULATION PIPING
The team identified an apparent violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to establish measures to assure design basis information was translated into specifications, drawings, procedures, and instructions. Specifically, the licensee failed to maintain the safety injection sump suction piping full of water in accordance with the Updated Final Safety Analysis Report. This nonconformance had the potential to significantly affect the available net positive suction head described in the Updated Final Safety Analysis Report for the high pressure safety injection and containment spray pumps, since the analysis assumed the piping would be maintained full of water.
{Note: Finding remains open - IP 95002 results pending 12/16/2005}

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affects the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events. The NRC assessed this finding through Phase 3 of the Significance Determination Process and made a preliminary determination that the issue had substantial safety significance (Yellow). After considering the information developed during the inspection and the results of testing sponsored by the licensee, the NRC has concluded that this inspection finding is appropriately characterized as Yellow. The final Significance Determination Process letter was issued on April 8, 2005. This issue was inspected within the scope of a Supplemental 95002 Inspection in August - September 2005.

{NOTE: Yellow finding remains open because the corrective actions taken in response to the root causes and related programmatic concerns involving questioning attitude, technical rigor, and operability determinations have not been fully effective. - IP 95002 Supplemental Inspection completed December 2005, IR 05000528/20050112, 05000529/20050112 and 05000530/2005012, IP 95002 Followup Supplemental Inspection completed August 2006, IR 05000528/2006010, 05000529/2006010 and 05000530/2006010}
Inspection Report# : 2004014 *(pdf)*

Barrier Integrity

Significance: G Dec 31, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
INADEQUAT DESIGN CONTROLS FOR REFUELING MACHINE
The inspectors identified two examples of a noncited violation of 10 CFR Part 50, Criterion III, "Design Control," for the failure of engineering personnel to ensure that the design bases of the refueling machine were adequately translated into specifications, drawings, procedures, or instructions. Specifically, for the first example, between

October 27, 2006, and October 25, 2007, the licensee inappropriately changed the facility as noted in the Updated Final Safety Analysis Report when a modification to the refueling machine introduced a single failure that could result in a failure of both the underload and overload protection features. This change resulted in more than a minimal increase in the consequences of a malfunction, in that the force limits on a fuel assembly grid strap could be exceeded. For the second example, between initial construction and December 5, 2007, procedures and instructions did not limit the stall torque of the hoist motor for the refueling machine. These issues were entered into the corrective action program as Condition Report/Disposition Requests 3030759 and 3068656.

The finding is greater than minor because it would become a more significant safety concern if left uncorrected in that refueling equipment malfunctions could result in damaged fuel. Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," was used since the Significance Determination Process methods and tools were not adequate to determine the significance of the finding. This finding affects the barrier integrity cornerstone and is determined to have very low safety significance by NRC management review because it was a deficiency that did not result in the actual degradation of fuel.
Inspection Report# : 2007005 *(pdf)*

Significance: G Sep 27, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Meet Technical Specification Surveillance Requirement 3.6.6.6
Green. The team identified a noncited violation of Technical Specification Surveillance Requirement 3.6.6.6, for the failure to verify that each containment spray nozzle was unobstructed. Specifically, the last completed surveillance test conducted on each unit, identified that one nozzle in each unit was obstructed and that the nozzles were not retested in accordance with the approved retest requirement. This issue was entered into the corrective action program as Palo Verde Action Requests 3075026, 3075059, 3068647 and, 3048511.

The finding is more than minor because it affected the configuration control attribute of the barrier integrity cornerstone, and affected the associated cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Using the Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to be of very low safety significance because it did not involve an actual reduction in defense-in-depth for the atmospheric pressure control function of the reactor containment.

Inspection Report# : 2007012 *(pdf)*

Significance: G Sep 27, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Meet Technical Specification Surveillance Requirement 3.0.3
Green. The team identified a noncited violation of Technical Specification Surveillance Requirement 3.0.3 for the failure of operations personnel to conduct an assessment and manage the risk for a missed surveillance test. On September 27, 2007, the team identified that the requirements for testing the containment spray nozzles in Units 1, 2, and, 3 did not meet Technical Specifications Surveillance Requirement 3.6.6.6. Operations personnel did not enter Technical Specification Surveillance Requirement 3.0.3 until prompted by the team on October 30, 2007. This issue was entered into the corrective action program as Palo Verde Action Request 3085708.

The finding is determined to be more than minor because it affected the configuration control attribute of the barrier integrity cornerstone, and affected the associated cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because it did not involve an actual reduction in defense-in-depth for the atmospheric pressure control function of the reactor containment. The cause of this finding has crosscutting aspects associated with work practices of the human performance area in that operations personnel failed to ensure supervisory and management oversight of work activities that resulted in a missed Technical Specification surveillance requirement (H.4(c)). The cause of this finding is also related to the safety culture component of accountability in that operations personnel failed to demonstrate a proper safety focus and reinforce safety principles (O.1.(c)).

Inspection Report# : 2007012 *(pdf)*

Significance: G Jun 30, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO PERFORM EVENT RECOVERY CHECKLIST
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 refueling personnel to follow Procedure 40DP-9OP02, "Conduct of Shift Operations," Revision 37, when a load error condition occurred during core reloading. Specifically, on June 18, 2007, operations and refueling personnel failed to recognize that the load error condition was the result of a degraded refueling machine control system and could have resulted in fuel damage, a condition that required an Event Recovery Checklist. Another event occurred in the spent fuel pool on May 3, 2007, that involved human performance errors by refueling personnel that calls into question the effectiveness of corrective actions associated with past identified deficiencies (See NCVs 05000528/2004003-04 and 05000529/2005003-03). This issue was entered into the corrective action program as Palo Verde Action Request 3029781.

The finding is greater than minor because it would become a more significant safety concern if left uncorrected in that handling fuel with a degraded refueling machine could result in fuel barrier damage. This finding cannot be evaluated by the significance determination process because Manual Chapter 0609, "Significance Determination Process," Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," and Appendix G, "Shutdown Operations Significance Determination Process," do not apply to the refueling cavity for the plant conditions that existed during the event. This finding affects the barrier integrity cornerstone and is determined to be of very low safety significance by NRC management review because it was a deficiency that did not result in the actual degradation of spent fuel. This finding has a crosscutting aspect in the area of human performance associated with decision-making because operations and refueling personnel did not make safety significant decisions using a systematic process, when faced with uncertain or unexpected equipment performance, to ensure safety is maintained (H.1(a)).
Inspection Report# : 2007003 *(pdf)*

Emergency Preparedness

Significance: TBD Oct 28, 2007
Identified By: NRC
Item Type: AV Apparent Violation
Failure to Correct a Risk Significant Planning Standard
TBD. The team identified an apparent violation of 10 CFR 50.54(q) and Appendix E IV.F.2.g, with the significance yet to be determined, for the licensee's failure to correct an identified risk significant planning standard weakness between May 2, 2007 and October 28, 2007. Specifically, the licensee failed to implement adequate corrective actions for identified weaknesses in the ability to correctly make a Site Area Emergency declaration for a steam generator tube rupture event. This issue was entered into the licensee's correction action program as Palo Verde Action Request 3083911.

The team determined that the inability to consistently implement an EAL was a performance deficiency within the licensee's control. This finding more than minor because it was associated with the Emergency Preparedness attribute of emergency response organization performance and affected the cornerstone objective to implement adequate measures to protect the health and safety of the public because the inability to properly recognize and classify an emergency condition affects the licensee's ability to implement adequate protective measures. This finding was evaluated using the Emergency Preparedness SDP and was preliminarily determined to be of low to moderate safety significance because it was a failure to comply with NRC requirements; it was an issue associated with the requirements of Appendix E of 10 CFR Part 50; it was not an issue with a risk significant planning standard as described in Manual Chapter 0609, Appendix B, Section 2.0; and it was a functional failure of the requirements of Appendix E IV.F.2.g because the licensee failed to correct a weakness associated with Risk Significant Planning Standard 10 CFR 50.47(b)(4). The cause of this finding has crosscutting aspects associated with the corrective action aspect of the problem identification and resolution area in that the licensee failed to thoroughly evaluate problems such that resolutions ensured correcting problems (P.1.(c)). The cause of this finding was also related to the safety

culture component of accountability in that the licensee failed to demonstrate a proper safety focus and reinforce safety principles (O.1.(c)).

Inspection Report# : 2007012 *(pdf)*

Significance: G Oct 08, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Inability to Implement Two Emergency Action Levels
Green. The team identified a Green noncited violation of 10 CFR 50.54(q) and §50.47(b)(4), for the failure of the licensee to be able to implement EAL 3-12 and EAL7-1. Specifically, area radiation Monitor RU-18 could not be utilized in the vicinity of the remote shutdown panels and therefore, the emergency classification could not be declared at the Alert level as required in Procedure EPIP-99. In addition, the licensee improperly overclassified EAL 7-1 as an Alert when presented conditions warranting a classification of a Notification of Unusual Event. Specifically, the licensee did not develop a procedure to enable personnel to differentiate between an aircraft and an airliner and therefore, the proper emergency classifications could not be consistently determined. This finding was entered into the licensee's corrective action program as Condition Report Disposition Requests 3071570, 3071572, and 3085175.

The team determined that the inability to implement EALs was a performance deficiency. The finding was more than minor because it was associated with the Emergency Preparedness attribute of procedure quality and could affect the cornerstone objective associated with the licensee's ability to correctly classify an emergency condition which would affect the licensee's ability to implement adequate measures to protect the health and safety of the public. Using the Manual Chapter 0609, "Significance Determination Process," Appendix B, "Emergency Preparedness SDP," the finding was determined to have very low safety significance because the licensee would be unable to declare one EAL at the Alert and one EAL at the Notification of Unusual Event level. The cause of this finding had crosscutting aspects associated with the corrective action of the PI&R area in that the licensee had previous opportunities to identify the deficiencies (P.1.(a)).

Inspection Report# : 2007012 *(pdf)*

Significance: G Sep 30, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO IDENTIFY AND CRITIQUE AN EVENT CLASSIFICATION WEAKNESS
The inspectors identified a noncited violation of 10 CFR 50.54(q) for failure of the emergency planning organization's emergency exercise critique process to identify for correction an emergency plan weakness associated with a risk significant planning standard. Specifically, during the critique of the Emergency Preparedness portion of the August 22, 2007, Force-On-Force exercise, the licensee failed to identify for correction an event classification weakness. The weakness occurred during the exercise when the shift manager did not recognize a credible security threat notification was made to the facility. As a result, the shift manager did not declare a Notice of Unusual Event as required by EPIP-99, Appendix A, "Emergency Actions Levels - EAL 7-1." This issue was entered into the licensee's corrective action program as Condition Report/Disposition Request 3056153.

This finding is greater than minor because it is associated with the Emergency Response Organization Performance attribute of the Emergency Preparedness Cornerstone and affects the cornerstone objective to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. In accordance with Manual Chapter 0609, "Significance Determination Process," Appendix B, Emergency Preparedness Significance Determination Process, this finding is determined to have very low safety significance because, although it was a failure to comply with NRC requirements, it did not involve the risk-significant aspects of a planning standard as defined in Manual Chapter 0609, Appendix B, Section 2.0; and was not a planning standard functional failure because the critique failure occurred in a small scale drill with limited emergency response organization participation and evaluation. This finding has a crosscutting aspect in the area of problem identification and resolution associated with corrective action program because the threshold for identifying issues was not sufficiently low. Specifically, the emergency planning evaluator did not recognize the shift manager's failure to make the Notice of Unusual Event classification during the Force-On-Force exercise. Therefore, the exercise critique did not identify and correct the event classification deficiency as required (P.1(a)).
Inspection Report# : 2007004 *(pdf)*

Occupational Radiation Safety

Significance: G Dec 31, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO EVALUATE THE RADIOLOGICAL HAZARD CAUSED BY DECONTAMINATION
The inspectors identified a noncited violation of 10 CFR 20.1501(a) because the licensee failed to completely evaluate the radiological hazard associated with the decontamination of the temporary reactor head. This failure lead to internal exposure of two workers and personnel contamination of two other nearby individuals. The original apparent cause evaluation determined that the radiation protection technicians' decision not to rinse the underside of the temporary reactor head caused the uptakes and contaminations. Upon NRC documentation review and interviews with staff, the licensee determined that the total effective dose equivalent ALARA evaluation of the radiological conditions and appropriate protective equipment required did not fully evaluate the job site conditions or process of decontamination of the temporary reactor head. The issue was entered into the corrective action program as Condition Report/Disposition Request 3046953.

This finding is greater than minor because it is associated with the occupational radiation safety program and process attribute and affected the cornerstone objective, in that not completely evaluating the radiological conditions had the potential to increase personnel dose. This occurrence involved individual worker unplanned, unintended dose that resulted from actions or conditions contrary to licensee procedures, radiation work permit, and technical specifications, therefore this finding was evaluated using the Occupational Radiation Safety Significance Determination Process. The inspectors determined that this finding was of very low safety significance because it did not involve: (1) an ALARA planning or work control issue, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. This finding also has a crosscutting aspect in the area of human performance, work control component, because the work planning did not consider possible risk insights and job sight conditions.
Inspection Report# : 2007005 *(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

Last modified : June 05, 2008