

Palo Verde 2 1Q/2006 Plant Inspection Findings

Initiating Events

Significance:  Apr 03, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

INADVERTENT SAFETY INJECTION DURING INTEGRATED SAFEGUARDS TESTING

A self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified for an inadequate surveillance procedure which resulted in an inadvertent safety injection and subsequent reactor coolant system level transient. Specifically, an integrated safeguards test procedure cautioned operations personnel to evaluate the pressure difference between the reactor coolant system and safety injection tanks prior to any actuation that opened the safety injection tank outlet isolation valves. The procedure was inadequate in that it failed to caution the operator to consider level differences which could potentially impact the total pressure head of the system. This issue involved human performance crosscutting aspects associated with inadequate operations procedures. This issue was entered into the corrective action program as Condition Report/Disposition Request 2786378.

The finding is determined to be greater than minor because it affected the procedure quality attribute of the initiating events cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown operations. Using Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process," this finding is determined to have very low safety significance because the event did not constitute a loss of level control and did not represent a finding requiring quantitative assessment. The finding did not increase the likelihood of loss or cause a degradation in the ability to restore decay heat removal, reactor coolant system inventory, offsite power, alternate core cooling, or containment
Inspection Report# : [2005003\(pdf\)](#)

Mitigating Systems

Significance:  Feb 03, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

UNTIMELY CORRECTIVE ACTIONS FOR FEEDWATER PUMP RESISTOR FAILURES

A self-revealing, noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified for failure to correct, and preclude repetition of, a significant condition adverse to quality involving the failure of the turbine driven auxiliary feedwater pump. Specifically, the licensee failed to perform a timely evaluation to determine the cause of the Units 2 and 3 turbine driven auxiliary feedwater pump governor power supply resistor failures. Approximately 7 months following the Unit 2 and 3 failures, the Unit 2 turbine driven auxiliary feedwater pump governor failed again due to the same resistor failure. The licensee entered the deficiency into their corrective action program for resolution.

The finding is more 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 of systems that respond to initiating events. The failure of the Unit 2 turbine driven auxiliary feedwater pump governor power supply resistor affected the availability of the auxiliary feedwater system. Using the Phase 1 worksheet in Manual Chapter 0609, "Significance Determination Process," the finding is determined to have very low safety significance because it only affected the mitigating systems cornerstone and did not result in an actual loss of safety function. The cause of the finding is related to the cross-cutting element of problem identification and resolution, in that, delays in the evaluation of the resistors failures allowed a subsequent failure prior to completion of the corrective actions. (Section 40A2e(2)(i)
Inspection Report# : [2006008\(pdf\)](#)

Significance:  Feb 03, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROMPTLY CORRECT AN ADVERSE TREND OF CONTAMINATED OIL SAMPLES

A noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified for the failure to correct an adverse trend of contaminated oil samples in a timely manner. Specifically, on April 1, 2005, the licensee identified an increasing trend of incorrect lubricant oil additions and contaminated oil samples and entered the deficiency in their corrective action program. As of January 2006, the inspectors concluded that the corrective actions taken as a result of the identified oil control deficiency were untimely, in that, 9 months later

the frequency of new instances of oil control problems documented in the corrective action program remained unchanged. The licensee entered the deficiency into their corrective action program for resolution.

The finding is more than minor because it is associated with the equipment performance attribute of the mitigating systems cornerstone and affects the associated cornerstone objective to ensure the reliability and availability of systems that respond to initiating events. Using Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding was determined to have very low safety significance because it only affected the mitigating systems cornerstone and did not result in the loss-of-safety function of a single train or system. The cause of the finding is related to the cross-cutting element of problem identification and resolution, in that, poor work practices resulted in multiple oil contamination events and the corrective actions taken were ineffective in promptly correcting the condition. (Section 40A2e(2)(ii))

Inspection Report# : [2006008\(pdf\)](#)

Significance:  Feb 03, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MEET MAINTENANCE TEST REQUIREMENTS

A noncited violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," was identified for failure to perform required testing of the Unit 3 essential cooling water system Pump EWP01 breaker in accordance with requirements and acceptance limits. Pump EWP01 breaker test procedure established tolerances and acceptance criteria for the breaker sub-component clearances that were documented as not being met. The licensee entered the deficiency into their corrective action program for resolution.

This finding was more than minor since 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 failure to meet recommended tolerances and acceptance limits specified was similar to Manual Chapter 0612, Appendix E, more than minor example 2.c., in that, the issue was repetitive and affected multiple breakers tested. Using Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding was determined to have very low safety significance because the condition was a qualification deficiency confirmed not to result in loss of function. The cause of the finding is related to the cross-cutting element of human performance in that maintenance personnel failed to properly implement maintenance procedures, and the deficient conditions were not identified by supervisory review of the completed procedures. (Section 40A2e(2)(iii))

Inspection Report# : [2006008\(pdf\)](#)

Significance:  Feb 03, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY A MAINTENANCE RULE FUNCTIONAL FAILURE

A noncited violation of 10 CFR 50.65(a)(2) was identified for failure to set goals and monitor the performance of the low pressure safety injection/shutdown cooling Pump 2A. Specifically, in May 2005, the licensee failed to accurately account for 15 hours of unavailability time for the low pressure safety injection/shutdown cooling Pump 2A, which when re-evaluated exceeded the performance trigger to enter (a)(1) monitoring. The licensee entered this deficiency into its corrective action program for resolution.

The finding is more than minor because it affects the equipment performance attribute of the mitigating systems cornerstone objective to maintain availability and reliability of structures systems and components needed to respond to initiating events and had a credible impact on safety. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the finding is determined to have very low safety significance because there was no design deficiency and the low pressure safety injection/shutdown cooling Pump 2A failure did not exceed the allowed technical specification outage time. The cause of the finding is related to the cross-cutting element of human performance in that the initial evaluation and subsequent supervisory reviews failed to identify the need for additional monitoring of the low pressure safety injection/shutdown cooling Pump 2A. (Section 40A2e(2)(v))

Inspection Report# : [2006008\(pdf\)](#)

Significance: N/A Feb 03, 2006

Identified By: NRC

Item Type: FIN Finding

PERFORMANCE DECLINE IN PROBLEM IDENTIFICATION AND RESOLUTION

The inspectors reviewed approximately 175 condition reports, 65 work orders, associated root and apparent cause evaluations, and other supporting documentation to assess problem identification and resolution activities. Performance had declined significantly when compared to the previous problem identification and resolution assessment. Significant delays in evaluation of the significance of an identified problem, as well as identification of appropriate corrective actions, created a condition of large corrective action backlogs, repeat events, and continued non-compliances. The delays in completion of corrective actions continued to result in a significant number of self-disclosing and NRC identified violations and findings. Further, the licensee initiated actions to address the substantive cross-cutting issues in human performance and problem identification and resolution, however, the majority of the corrective actions are not completed and some of the initial completed actions were not fully effective. The corrective action program processes and procedures were generally adequate, but weaknesses in those processes were significantly challenged with an increased backlog of corrective actions. Also, competing priorities between resources and the

backlog of corrective actions created a condition where many corrective actions were significantly delayed in their completion, contributing to failures to adequately implement the corrective action process.

Based on interviews conducted, the inspectors concluded that a positive safety conscious work environment exists at the Palo Verde Nuclear Station. Employees felt free to raise safety concerns to their supervision, to the employee concerns program, and to the NRC. The interviewees indicated their assurance that potential safety significant problems would be identified and addressed, although challenges existed in timely completion of identified actions. The interviewees did not have the same level of assurance that less significant problems would be adequately addressed

Inspection Report# : [2006008\(pdf\)](#)

Significance:  Dec 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROMPTLY CORRECT AN ADVERSE CONDITION WITH THE REFUELING WATER TANK INSTRUMENT PIT

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure to correct a condition adverse to quality involving the refueling water tank instrument pit. Specifically, in August 2003, the licensee inadvertently cancelled the work orders to correct deficiencies associated with flooding of the refueling water tank instrument pit. This error was identified by the licensee in October 2004; however, corrective actions were inadequate to ensure timely correction of the adverse condition. Additionally, two of the three work orders were inappropriately closed with no work performed following the inspectors' identification of the issue in August 2005. After identification by the inspectors, the licensee installed temporary modifications to prevent water intrusion into the pit. This issue was entered into the licensee's corrective action program as Condition Report/Disposition Request 2838845.

The finding is greater than minor because it is associated with the protection against external factors cornerstone attribute of the mitigating systems cornerstone and affects the associated cornerstone objective to ensure the reliability and availability of systems that respond to initiating events. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding required a Phase 3 analysis by a senior reactor analyst, since the finding was potentially risk significant due to external initiating event core damage sequences. A senior reactor analyst performed a qualitative assessment and concluded that the finding had very low safety significance. The cause of the finding is related to the crosscutting element of problem identification and resolution in that corrective actions lacked timeliness, adequacy, and thoroughness.

Inspection Report# : [2005005\(pdf\)](#)

Significance:  Dec 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO DEMONSTRATE EFFECTIVE MAINTENANCE OF HOT LEG RESISTANCE TEMPERATURE DETECTORS

The inspectors identified a noncited violation of 10 CFR 50.65(a)(2) for the failure to demonstrate that the performance or condition of three reactor coolant system resistance temperature detectors had been effectively controlled and monitored against licensee-established goals. Specifically, the licensee failed to identify, and properly account for, three detector functional failures occurring from May 31, 2004 to June 23, 2005. Consequently, the licensee did not establish appropriate goal setting and monitoring for the detectors. This issue was entered into the licensee's corrective action program as Condition Report/Disposition Request 2856282.

The finding is greater than minor because it is associated with the equipment performance attribute of the mitigating systems cornerstone and affects the associated cornerstone objective to ensure the reliability and availability of systems that respond to initiating events. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding is determined to have very low safety significance because the condition only affected the mitigating systems cornerstone and did not represent an actual loss of safety function. The cause of the finding is related to the crosscutting element of problem identification and resolution in that the licensee failed to identify the need to perform a maintenance rule functional failure review for failed resistance temperature detectors.

Inspection Report# : [2005005\(pdf\)](#)

Significance:  Dec 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO CORRECT AN IDENTIFIED ADVERSE CONDITION ASSOCIATED WITH MAINTENANCE DEPARTMENT GUIDELINES

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure to correct a condition adverse to quality involving the use of Maintenance Department Guidelines. Specifically, instrumentation and controls personnel did not complete actions used as a basis for closure for Condition Report/Disposition Request 2715129. In addition, the extent of condition review did not identify the continued active use of Maintenance Department Guidelines to perform quality related activities. This issue was entered into the licensee's corrective action program as Condition Report/Disposition Request 2830633.

The finding is greater than minor because it is associated with the procedure quality cornerstone attribute of the mitigating systems cornerstone and affects the associated cornerstone objective to ensure the reliability and availability of systems that respond to initiating events. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding is determined to have very low safety significance because the finding did not result in the loss of safety function of any component, train, or system. The cause of the finding is related to the crosscutting element of problem identification and resolution in that maintenance personnel did not implement timely corrective actions and performed a poor extent of condition review.

Inspection Report# : [2005005\(pdf\)](#)

Significance: SL-IV Dec 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO SUBMIT LER TO REPORT SHUTDOWN REQUIRED BY TECHNICAL SPECIFICATIONS

The inspectors identified a noncited Severity Level IV violation of 10 CFR 50.73 for the failure to submit a licensee event report within 60 days to report the completion of a plant shutdown required by the Technical Specifications. A second similar example of a violation of the same regulation was identified by the licensee. Specifically, the licensee was required to submit a licensee event report by May 17, 2005, to report the completion of a plant shutdown required by the Technical Specifications that occurred on March 18, 2005. This licensee event report was submitted on November 7, 2005. Additionally, the licensee was required to submit a licensee event report by April 10, 2005, to report the completion of a plant shutdown that occurred on February 9, 2005. A revised licensee event report was submitted on January 6, 2006. This issue was entered into the licensee's corrective action program as Condition Report/Disposition Requests 2829976 and 2844019.

The finding was determined to be applicable to traditional enforcement because the NRC's ability to perform this regulatory function was potentially impacted by the licensee's failure to report the event. The finding was determined to be a Severity Level IV violation in accordance with Section D.4 of Supplement I of the NRC Enforcement Policy. The finding is not suitable for evaluation using the significance determination process, but has been reviewed by NRC management and is determined to be a finding of very low safety significance. The cause of the finding is related to the crosscutting element of problem identification and resolution in that the transportability review, conducted by regulatory affairs personnel, failed to identify an additional example of a missed reportable event that was subsequently identified by the NRC.

Inspection Report# : [2005005\(pdf\)](#)

G

Significance: Dec 16, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

IMPROPER DESIGN CONTROL FOR EMERGENCY CORE COOLING SYSTEM SUMP AND REFUELING WATER TANK SWAPOVER

The inspectors identified a noncited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," related to potential air entrainment into the emergency core cooling system suction header from the refueling water tank. Specifically, the inspectors determined that the water level in the refueling water tank could fall below the level of the tank discharge pipe and associated vortex breaker during the transfer from the refueling water tank to the containment sump during design basis accidents. As a result, air could be drawn into the emergency core cooling system piping under accident conditions. This issue was applicable to both trains of all three units. Contrary to proper design control, engineering personnel failed to effectively implement design requirements to prevent potential air entrainment into the emergency core cooling system.

The inspectors considered this finding to be more than minor, in accordance with NRC Manual Chapter 0612, "Power Reactor Inspection Reports," since it potentially affected the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and it affected the attributes of design and configuration control. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the inspectors determined that the issue was of very low safety significance (Green) because there was no actual loss of safety function. Because the violation was determined to be of very low safety significance and has been entered into the corrective action program as condition report/disposition request (CRDR 2835132), this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy. The inspectors also determined this issue had cross-cutting aspects of human performance. Specifically, the licensee's attention to detail was lacking and there was poor inter- and intra-group coordination.

Inspection Report# : [2005012\(pdf\)](#)

G

Significance: Dec 16, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

IMPROPER DESIGN CONTROL FOR CONDENSATE STORAGE TANK AND REACTOR WATER MAKEUP TANK USABLE VOLUME TO AUXILIARY FEEDWATER

The inspectors identified two examples of a noncited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," for failure to translate the design basis volume of 300,000 gallons of usable volume in the condensate storage tank (CST) and reactor water makeup tank (RWMT) into the station's instructions, procedures, or drawings. Without this information, operators were unaware that Technical Specification minimum levels, specified in feet, may not provide sufficient usable volumes of water for auxiliary feedwater pump operation. Contrary to proper design control, the licensee failed to effectively implement design requirements to ensure operability of the auxiliary feedwater system.

These two examples of a violation affect the Mitigating Systems cornerstone and are more than minor because they were similar to Example 3.I of Manual Chapter 0612, and design calculations were required to be re-performed to assure accident requirements were met. In both instances, the originally calculated available inventory was less than the actual required design basis inventory of 299,700 gallons. Subsequent calculations by engineering personnel, including significant reduction in margins, demonstrated that minimum required volumes in the CST and RWMT were maintained. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the inspectors determined that the issue was of very low safety significance (Green) because there was no actual loss of safety function. Because the violation was determined to be of very low safety significance and has been entered into the corrective action program as condition report/disposition requests (CRDRs 2839337, 2840186, and 2841773), this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy. The inspectors also determined this issue had cross-cutting aspects of human performance. Specifically, the licensee's attention to detail was lacking and there was poor inter- and intra-group coordination.

Inspection Report# : [2005012\(pdf\)](#)

Significance:  Dec 16, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

IMPROPER DESIGN CONTROL FOR REFUELING WATER TANK LEVEL INSTRUMENT CALIBRATION

The inspectors identified a noncited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," for failure to translate design basis information into the calibration of refueling water tank level instruments. Without this information, operators were unaware that a Technical Specification listed minimum level in this tank may not provide sufficient usable volume of water for emergency core cooling system operation. Specifically, engineers failed to density compensate these instruments for allowable ranges of both temperature and boric acid concentration of the tank. Contrary to proper design control, the licensee failed to effectively implement design requirements to ensure operability of the refueling water tank.

This issue was determined to affect the Mitigating Systems cornerstone and was more than minor based upon review of Example 3.j of Manual Chapter 0612, Appendix E. The errors were considered more than a minor calculation error because the deficiencies required re-performance of the calculations, significantly reduced the overall margin, and could be applicable to other such instrumentation calculations. However, engineering personnel demonstrated that while there was a loss of margin, there was no actual loss of function because of the inaccuracies in the RWT level instrument calibrations. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the inspectors determined that the issue was of very low safety significance (Green) because there was no actual loss of safety function. Because the violation was determined to be of very low safety significance and has been entered into the corrective action program as condition report/disposition request (CRDR 2840920), this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy.

Inspection Report# : [2005012\(pdf\)](#)

Significance:  Dec 16, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROPERLY IMPLEMENT STATION PROCEDURE FOR EQUIPMENT OPERABILITY (TECHNICAL SPECIFICATION 5.4.1.a)

The inspectors identified three examples of a (Green) noncited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." Specifically, these examples involved the licensee's failure to follow a procedure and to provide appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished, consistent with the facility's administrative procedure for the operability determination process. In the first case an engineer evaluated a concern in a condition report/disposition request without notifying the control room so an operability assessment could be performed. In the other cases, there was inadequate guidance given to operators to address when an operability assessment would be required.

The inspectors considered this finding to be more than minor, in accordance with Manual Chapter 0612, since it potentially affected the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and it affected the attributes of procedure quality and human performance. However, subsequent evaluations completed by the licensee verified that actual safety functions were not lost in any of these examples. The inspectors performed a Phase 1 significance determination, using NRC Manual Chapter 0609, and determined this issue screens out as having very low safety significance (Green) because a safety function was not lost. Because the violation was determined to be of very low safety significance and has been entered into the corrective action program as Condition Report/Disposition Request 2838626, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy. The inspectors also determined this issue had cross-cutting aspects of human performance. Specifically, the licensee's attention to detail was lacking and there was poor inter- and intra-group coordination.

The inspectors identified an additional example of the Green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," described in NRC Supplemental Inspection Report 05000528; 05000529; 05000530/2005012, for the failure to establish an adequate procedure and implement existing procedures involving implementation of the operability determination process. The inspectors also identified examples where information provided to operations from engineering was not sufficiently accurate or complete to support operational decision making with respect to capacitor service life and the overall impact of the identified degraded or non-conforming capacitors. On November 1, 2005, the licensee inappropriately determined that the operability determination process was not applicable for a degraded capacitor condition that had the potential to impact Class 1E inverter operability. Consequently, the degraded condition was evaluated

outside the operability determination process. Because the finding is of very low safety significance and has been entered into the corrective action program as Condition Report/Disposition Request 2838626. The cause of the finding is related to the crosscutting element of human performance in that communications between the engineering and operations organizations was inadequate.

Inspection Report# : [2005012\(pdf\)](#)

Significance: N/A Dec 16, 2005

Identified By: NRC

Item Type: FIN Finding

SUMMARY FINDING. 95002 INSPECTORS ASSESSMENT OF IR2004-14 SEVERITY LEVEL III VIOLATION FOR 50.59 ISSUE

The U.S. Nuclear Regulatory Commission (NRC) performed this supplemental inspection, in part, to assess the licensee's evaluation and corrective actions associated with an inappropriate change to an emergency core cooling system procedure without prior NRC approval. This procedure change rendered portions of the system inoperable because of voiding. This performance issue was previously characterized as a Severity Level III violation of 10 CFR 50.59 and was originally identified in NRC Inspection Report 05000528; 529; 530/2004014. During this supplemental inspection, performed in accordance with Inspection Procedure 95002, the inspectors determined that the licensee's evaluation identified the primary root causes of the performance issue to be: (1) The site procedure revision process (01AC-0AP02) was inadequate, in that, the procedure allowed 'pre-screening' of changes that could potentially bypass performing a 10 CFR 50.59 screening for changes to the facility as described in the licensing basis; and (2) The corrective action program implementation was ineffective. The licensee also identified overlap and interface problems between the corrective action program, the engineering evaluation request program, and the instruction change request program. These issues, in conjunction with inadequate training to recognize a corrective action condition, contributed to the failure of station personnel to initiate a corrective action program input document in 1992 for the potential pipe voiding concern. The inspectors concluded that the licensee's evaluation and implemented corrective actions were appropriate to reasonably prevent repetition of the 10 CFR 50.59 violation.

Given the licensee's acceptable performance in addressing the inappropriate procedure change and 10 CFR 50.59 program deficiencies, the Severity Level III violation is closed.

Inspection Report# : [2005012\(pdf\)](#)

Significance: N/A Dec 16, 2005

Identified By: NRC

Item Type: FIN Finding

SUMMARY FINDING. 95002 INSPECTORS ASSESSMENT OF IR2004-14 (YELLOW) 10CFR50, APP B, CRITERION III VIOLATION

The NRC performed this supplemental inspection, in part, to assess the licensee's evaluation and corrective actions associated with potential air entrainment into the emergency core cooling system. The licensee failed to incorporate original design requirements into the plant to maintain piping between the containment sump isolation valves filled with water. This performance issue was previously characterized as a 10 CFR 50, Appendix B, Criterion III, violation having substantial safety significance (Yellow), and was originally identified in NRC Inspection Report 05000528; 529; 530/2004014. The inspectors determined that the licensee's evaluation identified a direct cause, nine root causes, and nine contributing causes of the performance issue. The evaluation was also used to develop an extensive list of corrective actions. The inspectors found the licensee's methods of evaluation to be appropriate.

The NRC concluded that, while the licensee performed an adequate root cause evaluation of the Design Control violation, certain corrective actions were incomplete at the time of this inspection. Specifically, the team determined that for each of the root and contributing causes, not all corrective actions were sufficiently developed to ensure that the identified performance deficiencies were adequately addressed. In addition, some of the corrective actions were narrowly focused, or the implementation of those actions was not fully effective. Also, the team concluded that criteria and reviews were not established, for auditing or followup, to ensure that corrective actions were effective in improving performance in the affected areas. Consequently, the team did not have assurance that the planned corrective actions were sufficient to address the causes for the performance deficiencies associated with the violation. Therefore, the (Yellow) violation (VIO 2004/014-01) will remain open for further NRC review.

Inspection Report# : [2005012\(pdf\)](#)

Significance:  Sep 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

IMPROPER VISUAL ANALYSIS OF BEARING OIL SAMPLE

The inspectors identified a noncited violation of Technical Specification 5.4.1.a for the failure of maintenance personnel to follow Procedure 31DP-9ZZ01, "Lubricant Sampling," and Work Order 2724849. Specifically, a maintenance technician incorrectly determined that the oil sample taken from the Unit 2 high pressure safety injection (HPSI) pump was satisfactory, when the oil sample did not meet the acceptance criteria. Consequently, immediate actions to address potential equipment deficiencies were not taken until the samples were analyzed by a lubrication engineer approximately two weeks later. This finding involved human performance crosscutting aspects associated with maintenance personnel following procedures and attention to details. This issue was entered into the licensee's corrective action program as Condition Report/Disposition Request 2828545.

The finding is greater than minor since the failure to follow the lubricant sampling process, if left uncorrected, would become a more

significant safety concern in that degraded equipment conditions may not be identified and corrected in a timely manner. A Phase 2 analysis was required because the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, determined that there was a loss of the long term cooling safety function of a single train of HPSI for greater than the Technical Specification allowed outage time. A senior reactor analyst determined that the HPSI pump was only required to operate for 24 hours to meet the assumptions necessary in the risk model to preclude sequences that result in core damage. Consequently, this finding is determined to have very low safety significance (Section 1R19) Inspection Report# : [2005004\(pdf\)](#)

Significance:  Sep 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO FOLLOW PROCEDURES DURING CORE PROTECTION CALCULATOR SOFTWARE INSTALLATION AND TESTING

The inspectors identified two examples of a noncited violation of Technical Specification 5.4.1.a for the failure to follow Procedure 77ST-9SB19, "CPCS Channel Functional Test," and Work Order 2824743 during core protection calculator software installation. Specifically, maintenance technicians: (1) failed to change the software loading instructions of Work Order 2824743 prior to proceeding with the core protection calculator software installation when it could not be used as written, and (2) failed to follow the surveillance test procedure used to perform a core protection calculator functional test. This finding involved human performance crosscutting aspects associated with instrumentation and controls personnel following procedures. This finding also involved problem identification and resolution crosscutting aspects associated with instrumentation and controls personnel identifying degraded or nonconforming conditions. This issue was entered into the licensee's corrective action program as Condition Report/Disposition Request 2825189.

The finding is greater than minor since it could become a more significant safety concern in that the failure to follow procedures when performing maintenance and testing on safety related equipment could result in an unintentional actuation or impact the ability of the equipment to perform its required function. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding is determined to have very low safety significance because it only affected the mitigating systems cornerstone and did not result in the loss of safety function of a single train or system for greater than the Technical Specification allowed outage time (Section 1R19). Inspection Report# : [2005004\(pdf\)](#)

Significance:  Sep 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PERFORM LICENSING DOCUMENT CHANGE REQUEST AND 10 CFR 50.59 SCREENING FOR ABANDONMENT OF THE BORONOMETER

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure to correct a discrepancy between the current condition of the boronometer and the required configuration described in the Updated Final Safety Analysis Report. Specifically, in April 2003 the licensee identified the need to perform a Licensing Document Change Request and a corresponding 10 CFR 50.59 screening due to the abandonment of the Updated Final Safety Analysis Report required boronometer, but failed to implement corrective actions to ensure that the Licensing Document Change Request and 10 CFR 50.59 screening were performed. This issue involved problem identification and resolution crosscutting aspects associated with engineering personnel implementing timely corrective actions. This issue was entered into the licensee's corrective action program as Condition Report/Disposition Request 2823704.

The finding is greater than minor because it was associated with the design control performance attribute of the mitigating systems cornerstone and affects the cornerstone objective to ensure the reliability and availability of systems that respond to initiating events. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding is determined to have very low safety significance because there was no actual loss of safety function (Section 4OA2). Inspection Report# : [2005004\(pdf\)](#)

Significance:  Sep 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

IMPROPER CONTROL OF DESIGN PARAMETERS FOR THE EX-CORE SAFETY CHANNELS

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the improper control of design parameters for the ex-core nuclear instrument safety channels in that engineering personnel did not correctly translate design requirements, nor did they properly control design basis information regarding ex-core safety channels. Additionally, Technical Specification required values were maintained apart from design calculations and documents. This issue was entered into the licensee's corrective action program as Condition Report/Disposition Request 2612092.

This finding is greater than minor because if left uncorrected it could become a more significant safety concern in that failures to maintain design calculations could result in the incorrect setting of safety related devices. 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 because there was not an actual loss of safety function. Inspection Report# : [2005004\(pdf\)](#)

Significance: SL-IV Sep 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

INCOMPLETE AND INACCURATE INFORMATION ASSOCIATED WITH THE EX-CORE SAFETY CHANNELS.

The inspectors identified a noncited Severity Level IV violation of 10 CFR 50.9 for providing incomplete or inaccurate information to the NRC. Specifically, the licensee provided incomplete and inaccurate information regarding the design control of ex-core safety channel log power instrument setpoints. This information was determined to be material in that it affected the NRC's ability to determine compliance with NRC requirements. This issue was entered into the licensee's corrective action program as Condition Report/Disposition Request 2829051.

This finding was not assessed via NRC Manual Chapter 0609, "Significance Determination Process," because the licensee's actions impeded the regulatory process. Therefore, this finding is associated with the mitigating systems cornerstone. The inspectors determined that engineering personnel had additional information, including the subsequently corrected revision of the calculation going through final verification, and additional explanatory setpoint procedures, which were not referenced or provided during the original correspondence by the licensee. Had the complete and accurate information been supplied at the time of the original request in 2003, the NRC would have identified a design control violation at that time. The safety consequence of this issue is of very low safety significance, in that there was no actual loss of a safety function.

Inspection Report# : [2005004\(pdf\)](#)

G

Significance: May 17, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO CORRECT A CONDITION ADVERSE TO QUALITY

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure to identify and correct a deficiency in the method of testing the auxiliary feedwater pump discharge check valves. Specifically, in 1998 the licensee identified the need to test the auxiliary feedwater pump Train B discharge check valve for leak tightness, but failed to implement the appropriate corrective actions to incorporate testing into Procedure 73ST-9XI38, "AF Pumps Discharge Check Valves - Inservice Test." This issue involved problem identification and resolution crosscutting aspects associated with the failure to implement timely corrective actions. This issue was entered into the corrective action program as Condition Report/Disposition Request 2800972.

The finding is greater than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone and affects the cornerstone objective to ensure the reliability and availability of systems that respond to initiating events. Using Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding is determined to have very low safety significance because there was no actual loss of safety function.

Inspection Report# : [2005003\(pdf\)](#)

G

Significance: Apr 29, 2005

Identified By: Self-Revealing

Item Type: FIN Finding

INADVERTENT ESFAS ACTUATION

A self-revealing finding was identified for the failure to properly sequence work to maintain power to engineered safety features system cabinet Train B. Specifically, operations personnel prematurely implemented a tagout permit prior to restoring the redundant power supply following maintenance. The work sequencing performance deficiency resulted in the loss of vital power to the cabinet; thereby, initiating an inadvertent engineered safety features actuation. This issue involved human performance crosscutting aspects associated with inadequate communications between work control groups and a poor awareness of the plant configuration. This issue was entered into the corrective action program as Condition Report/Disposition Request 2796508.

The finding is greater than minor since it was associated with the configuration control attribute of the mitigating systems cornerstone and affects the cornerstone objective to ensure the reliability and availability of systems that respond to initiating events. This finding cannot be evaluated by the significance determination process because Manual Chapter 0609, "Significance Determination Process," Appendix G, "Shutdown Operations Significance Determination Process," do not apply when the reactor is defueled. This finding is determined to be of very low safety significance by NRC management review because it was a deficiency that did not result in actual safety consequences since the reactor was defueled and a majority of the Train B equipment was tagged out for maintenance.

Inspection Report# : [2005003\(pdf\)](#)

G

Significance: Apr 19, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

FAILURE TO TAKE ADEQUATE CORRECTIVE ACTIONS TO PREVENT BOLT FAILURES

A self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified for the failure to implement corrective actions to preclude repetition of a significant condition adverse to quality. Specifically, in 1988 the licensee identified that the gasket retaining bolts on several 16 inch butterfly valves were susceptible to stress corrosion cracking. The licensee only replaced bolts on the 16 inch valves with the identified failures and did not consider the need to replace bolts on similarly designed 10 inch and 24 inch valves. Consequently, in April 2005, the safety injection inboard and outboard containment sump isolation valves were discovered to have

missing or degraded bolts and the 10 inch containment spray to shut down cooling heat exchanger valves were determined to have suspect bolts. This issue involved problem identification and resolution crosscutting aspects associated with the failure to perform an adequate transportability review. This issue was entered into the corrective action program as Condition Report/Disposition Request 2791716.

The finding is greater than minor since it affects the equipment performance attribute of the mitigating systems cornerstone objective to ensure the reliability and availability of systems that respond to initiating events. Using Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding is determined to have very low safety significance because there was no actual loss of safety function
Inspection Report# : [2005003\(pdf\)](#)

Significance:  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:  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 will be inspected within the scope of a supplemental 95002 inspection in August - September, 2005.

Inspection Report# : [2004014\(pdf\)](#)

Barrier Integrity

Significance:  Jun 30, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT PROCEDURES FOR HANDLING SPENT FUEL

Three examples of a self-revealing noncited violation of 10 CFR Part 50, Criterion V, "Instructions Procedures, and Drawings," was identified for failing to properly implement procedures for refueling equipment. Specifically, refueling personnel did not: (1) complete a functional retest following maintenance on the spent fuel handling machine as required by Work Order 2781146, (2) ensure that spent fuel was in a safe condition, stop fuel handling operations, or contact the shift manager to determine the need to complete an event recovery checklist when a deficiency was identified with fuel handling equipment as required by Procedure 40DP-9OP02, "Conduct of Shift Operations," and (3) ensure

the material balance area short form was present on the spent fuel handling machine to perform proper independent verification or verify that the bridge and trolley were over the correct fuel assembly as required by Procedure 78OP-9FX03, "Spent Fuel Handling Machine." This issue involved human performance crosscutting aspects associated with operator decision making and not following procedures. This issue also involved problem identification and resolution crosscutting aspects associated with the failure to correct a condition adverse to quality since there have been similar occurrences where operators failed to recognize the need to perform the event recovery checklist. This issue was entered into the corrective action program as Condition Report/Disposition Requests 2791974 and 2792326.

The finding is greater than minor since it could become a more significant safety concern if left uncorrected in that handling spent fuel with degraded equipment impacts the ability to safely handle spent fuel and increases the likelihood of a fuel handling accident. 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 spent fuel pool. 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. Inspection Report# : [2005003\(pdf\)](#)

Emergency Preparedness

Significance: SL-III Mar 20, 2005

Identified By: NRC

Item Type: VIO Violation

CHANGE TO RADIOLOGICAL EMERGENCY ACTION LEVELS WHICH DECREASED THE EFFECTIVENESS OF THE EMERGENCY PLAN

The inspector identified an apparent violation of 10 CFR 50.54(q) for implementing a change to emergency action levels, which decreased the effectiveness of the emergency plan. Emergency Plan Implementing Procedure 99, "EPIP Standard Appendices," Revision 2, removed from two emergency action levels site boundary exposure rate as measured in the environment as a classifiable condition.

Implementation of changes to emergency action levels, which decreased the effectiveness of the emergency plan was a performance deficiency. The finding is more than minor because removal of a classifiable condition from licensee emergency action levels has the potential to impact safety, and licensee implementation of a change to their emergency plan, which decreases the effectiveness of the plan without prior NRC approval, impacts the regulatory process. This finding is an apparent violation of 10 CFR 50.54(q). The licensee has entered this issue into their corrective action system as Condition Report/Disposition Request 2774185.

The NRC informed Arizona Public Service Company of an apparent violation of emergency planning requirements by letter dated April 5, 2005. A predecisional Enforcement Conference was conducted with the licensee June 1, 2006. The licensee was subsequently informed of a Severity Level III Notice of Violation for a decrease in effectiveness of their emergency plan by a letter dated, June 27, 2005. An IP95001 supplemental inspection will be conducted during January 2006 to evaluate the licensee's root cause analysis and corrective actions.

Inspection Report# : [2005011\(pdf\)](#)

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

[Physical Protection](#) information not publicly available.

Miscellaneous

Last modified : May 25, 2006