

# San Onofre 3

## 2Q/2009 Plant Inspection Findings

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### Initiating Events

**Significance:**  Apr 16, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Assess and Manage Risk for Electrical Switchyard Impacting Maintenance**

The inspectors identified a noncited violation of 10 CFR 50.65(a)(4) for the failure of work control and operations personnel to include maintenance activities in or near the electrical switchyard and offsite power components in the on-line risk assessment. This finding was entered into the licensee's corrective action program as Nuclear Notification 200402733.

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 or associated with offsite power sources and the electrical switchyard. This finding is associated with the Initiating Events Cornerstone. In accordance with Inspection Manual Chapter 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," step 4.1.1, the inspectors had the licensee reperform the assessment, correcting the errors that rendered the original risk assessment inadequate. The finding is determined to have very low safety significance because the incremental core damage probability deficit and the incremental large early release probability deficit, used to evaluate the magnitude of the error in the licensee's inadequate risk assessment, were less than 1E-6 and 1E-7, respectively. This finding has a crosscutting aspect in the area of human performance associated with resources because the licensee did not ensure that procedures and processes were adequate to properly assess and manage the risk associated with on-line maintenance [H.2(c)]

Inspection Report# : [2009003](#) (*pdf*)

**Significance:**  Sep 11, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Inadequate Corrective Actions for Reactivity Events**

The team identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," for the failure of operations management, operations training, and engineering to ensure that conditions adverse to quality are promptly identified and corrected. Specifically, multiple reactivity excursions occurred in the plant over the past two years, where corrective actions have been ineffective at addressing blended flow evolutions. The licensee has entered this into their corrective action program as Notifications NN 200062659 (addresses procedure change) and NN 200006366 (addresses common cause evaluation).

The finding is more than minor because it is associated with the initiating events cornerstone (human performance attribute) and affects the associated cornerstone objective to limit the likelihood of those events that upset plant stability and challenge the critical safety functions during shutdown as well as power operations. If left uncorrected, the conditions would continue to contribute to additional operator errors or significantly impact the operator's ability to perform blended flow evolutions. Using the Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance (Green) because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions will not be available. This finding has a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program because the licensee did not thoroughly evaluate problems such that resolutions address causes and extent of condition [P.1(c)] (Section 4OA2).

Inspection Report# : [2008010](#) (*pdf*)

**Significance:**  Aug 26, 2008

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Failure to Follow Procedure to Move Nuclear Fuel in the Spent Fuel Pool**

Two examples of a self-revealing noncited violation of 10 CFR 50, Appendix B, Criterion V, were identified for the failure of engineering personnel to follow procedures for the movement of nuclear fuel in the spent fuel pool. Specifically, on July 3, 2008, and again on August 26, 2008, spent fuel assemblies were placed into storage locations that were different than the evaluated and approved locations specified on Procedure SO23-X-7.2, Attachment 4. This finding was entered into the licensee's corrective action program as Nuclear Notification 200116680.

The finding is greater than minor because it would become a more significant safety concern if left uncorrected in that nuclear fuel could be inadvertently placed in an unanalyzed location. 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 initiating events cornerstone and is determined to have very low safety significance by NRC management review because the incorrect fuel storage locations were determined to be acceptable storage locations for the fuel assemblies in question. This finding has a crosscutting aspect in the area of human performance associated with work practices because engineering personnel failed to use human error prevention techniques commensurate with the risk of the assigned task, such that work activities were performed safely [H.4(a)].

Inspection Report# : [2008004](#) (*pdf*)

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## **Mitigating Systems**

**Significance:**  Jun 05, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Maintain Written Procedures Covered in Regulatory Guide 1.33**

The inspectors identified 54 examples of a noncited violation of Technical Specification 5.5.1, "Procedures," for the failure of operations and maintenance personnel to maintain written procedures covered in Regulatory Guide 1.33. Specifically, from plant startup to June 2009, no process requirement or procedure existed to suspend or put an administrative hold on a procedure or work order when a technical change is required for the procedure. This resulted in 54 uncontrolled procedures and work instructions available to use on safety related systems without flagging the required changes. This finding was entered into the licensee's corrective action program as Nuclear Notification 200453351.

The finding is greater than minor because, if left uncorrected, the failure to maintain and control operations and maintenance procedures could lead to a more significant safety concern by having technically inaccurate procedures being used on safety-related systems. Using Manual Chapter 0609.04, "Phase 1 Initial Screening and Characterization of Findings," the finding was determined to have a very low safety significance because the finding did not result in 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 finding has a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program because problems were not thoroughly evaluated such that the resolutions addressed the causes and extent of conditions. This includes properly classifying and prioritizing conditions adverse to quality [P.1(c)].

Inspection Report# : [2009003](#) (*pdf*)

**Significance:**  Jun 02, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Evaluate the Impact of Temporary Scaffolding on Installed Fire Protection Systems**

The inspectors identified a noncited violation of License Condition 2.C.(14), "Fire Protection," for the failure of licensee personnel to evaluate scaffolding for its impact on fire protection systems. Specifically, the licensee failed either (1) to demonstrate that obstructed sprinkler heads in the Unit 2 emergency diesel generator building train B, the Unit 3 emergency diesel generator building train A, and the Unit 2 saltwater cooling pump room were operable; or (2) to generate a fire protection impairment and establish an hourly firewatch for inoperable sprinkler heads in the Unit 2 emergency diesel generator building train B, the Unit 3 emergency diesel generator building train A, and the Unit 2 saltwater cooling pump room. This finding was entered into the licensee's corrective action program as Nuclear Notification 200449046.

This finding is greater than minor because the identified programmatic deficiencies could lead to a more significant safety concern if left uncorrected. This finding is associated with the Mitigating Systems Cornerstone. Using Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," Attachment 2, this finding was determined to have a LOW degradation rating because fewer than 10 percent of the sprinkler heads were nonfunctional, there was a functional sprinkler head within 10 feet of the combustibles of concern, and the system was nominally code compliant. Therefore, this finding was determined to be of very low safety significance. This finding has a crosscutting aspect in area of human performance associated with work practices because the licensee failed to ensure personnel work practices support human performance. Specifically, the licensee failed to effectively communicate human error prevention techniques such as proper documentation of activities and failed to ensure personnel do not proceed in the face of uncertainty [H.4(a)].

Inspection Report# : [2009003](#) (pdf)

**G**

**Significance:** Apr 17, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

### **Improper Controls for Electrical Test Equipment**

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure of maintenance planning personnel to provide adequate work instructions to control the connection of electrical monitoring devices on operable plant equipment. Specifically, the work instructions failed to require verification and functional testing after installation and removal, compliance with seismic requirements, and controls to ensure removal within the allowed time limit for a temporary installation. This finding was entered into the licensee's corrective action program as Nuclear Notification 200396106.

The finding is greater than minor because the improper controls for installation of test equipment is associated with the design control attribute of the Mitigating Systems Cornerstone and adversely affects the associated cornerstone objective to ensure the availability, reliability, and capability 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 the finding did not affect both trains of any single mitigating system or represent an actual loss of a safety function. The finding has a crosscutting aspect in the area of human performance associated with work practices because maintenance planning personnel failed to follow procedures to develop adequate work instructions for safety-related maintenance [H.4(b)].

Inspection Report# : [2009003](#) (pdf)

**G**

**Significance:** Apr 13, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

### **Risk Assessment Performed Using Risk Assessment Tools with Known Errors**

The inspectors identified a noncited violation of 10 CFR 50.65(a)(4) involving the failure of work control and operations personnel to assess and manage the increase in risk associated with planned maintenance activities. Specifically, the risk assessment for planned maintenance on emergency chiller ME336 was performed using risk assessment tools that had known errors that had the potential to change the outcome of the assessment. This finding was entered into the licensee's corrective action program as Nuclear Notification 200389219.

This finding is greater than minor because the risk assessment had known errors that had the potential to change the

outcome of the assessment. This finding is associated with the Mitigating Systems Cornerstone. In accordance with Inspection Manual Chapter 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," step 4.1.1, the inspectors had the licensee reperform the assessment, correcting the errors that rendered the original risk assessment inadequate. The finding is determined to have very low safety significance because the incremental core damage probability deficit and the incremental large early release probability deficit, used to evaluate the magnitude of the error in the licensee's inadequate risk assessment, were less than 1E-6 and 1E-7, respectively. The finding has a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program because engineering personnel failed to take appropriate corrective actions to address identified errors in the risk assessment tools in a timely manner [P.1(d)].

Inspection Report# : [2009003](#) (*pdf*)

**Significance:**  Mar 28, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Establish Adequate Scaffolding Erection Procedures**

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure of engineering personnel to establish adequate procedures for scaffolding erection in safety-related areas. Specifically, Procedure SO123-I-1.34 required a minimum separation distance of 1 inch from safety-related equipment which only considered the seismic displacements of scaffolding and not other movements, such as thermal expansion of piping, equipment vibrations, or component operation. Insufficient scaffolding to component separation could result in interactions that adversely affect the safety functions of safety-related equipment. This finding was entered into the licensee's corrective action program as Nuclear Notification 200366460.

The finding is greater than minor because, if left uncorrected, it would have the potential to lead to a more significant safety concern. The inspectors concluded this finding was associated with the Mitigating Systems Cornerstone. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because the finding did not affect both trains of any single mitigating system or represent an actual loss of a safety function. A crosscutting aspect is not assigned since the cause of the performance deficiency is not indicative of current performance.

Inspection Report# : [2009003](#) (*pdf*)

**Significance:**  Mar 17, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Properly Inspect Scaffolding in Safety-Related Areas**

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure of maintenance personnel to properly install and inspect scaffolding in safety-related areas in accordance with written procedural requirements. Four instances were found where the minimum separation distance between a scaffold and safety-related components was less than the minimum allowed by procedure and an approved engineering evaluation to justify the deviation was not performed. The licensee evaluated the scaffolds and modified them as necessary. This finding was entered into the licensee's corrective action program as Nuclear Notification 200356209.

The finding is greater than minor because if left uncorrected, it would have the potential to lead to a more significant safety concern. The inspectors concluded this finding was associated with the Mitigation Systems Cornerstone. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because the finding did not affect both trains of any single mitigating system or represent an actual loss of a safety function. This finding has a crosscutting aspect in the area of human performance associated with work practices because the licensee did not utilize appropriate human performance techniques to ensure that scaffold construction was performed safely [H.4(a)] (Section 1R18).

Inspection Report# : [2009002](#) (*pdf*)

**G****Significance:** Mar 11, 2009

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to Implement Corrective Actions to Prevent Repeat Safety-Related 480V Breaker Failures**

A self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified for the failure to implement timely corrective actions to preclude repetition of a significant condition adverse to quality involving the failure of a safety-related 480 volt circuit breaker. Specifically, the licensee did not properly evaluate the extent of condition for other risk significant breakers and promptly implement corrective actions following a previous failure of a safety-related 480 volt circuit breaker in March 2005 to preclude repetition of another safety-related 480 volt circuit breaker failure on March 28, 2009. This finding was entered into the licensee's corrective action program as Nuclear Notification 200378783.

This 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 of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Significance Determination Process Phase 1 Screening Worksheet for the Initiating Events, Mitigating Systems, and Barriers Cornerstones provided in Manual Chapter 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," the inspectors determined that this finding represented a loss of safety function of a single train for greater than its technical specification allowed outage time. This required that a Phase 2 estimate be completed using Manual Chapter 0609, "Significance Determination Process," Appendix A, "Determining the Significance of Reactor Inspection Findings for At Power Situations," and the Phase 2 Worksheets for San Onofre Nuclear Generation Station. The inspectors assumed that the performance deficiency affected the risk of operating the plant from March 11, 2009, when the last successful surveillance was completed through April 1, 2009, when the breaker was restored to a functional status. As a result, in accordance with Appendix A, Attachment 1, step 2.1.2, "Determine the Appropriate Exposure Time," the inspectors selected an exposure period of 3-30 days. Using the Risk Informed Inspection Notebook for SONGS Units 2 and 3, Revision 2.1a, the inspectors selected "One Containment Fan Cooling Unit," as the appropriate target for the subject finding in the presolved table. Based on the results of the Phase 2 analysis, the finding is determined to have very low safety significance. This finding has a crosscutting aspect in the area of human performance associated with decision-making because safety-significant decisions were not reviewed to verify the validity of the underlying assumptions and identify possible unintended consequences [H.1(b)].

Inspection Report# : [2009003](#) (*pdf*)**G****Significance:** Dec 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Justify Longer Completion Schedule for Degraded Equipment**

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for the failure of work control personnel to resolve degraded or nonconforming conditions at the first available opportunity or appropriately justify a longer completion schedule, as required by procedure. Specifically, work control personnel failed to follow their process to provide documented justification for equipment related degraded conditions not resolved within the current refueling cycle. After the conclusion of the Unit 3 refueling outage, the licensee completed the documentation to justify longer completion schedules for the degraded or nonconforming conditions. This finding was entered into the licensee's corrective action program as Nuclear Notification 200247395.

The finding is greater than minor because routinely failing to implement timely corrective action for degraded safety-related equipment would result in more significant safety consequences. The finding affected the mitigating systems cornerstone. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because it was not a design or qualification deficiency, did not result in a loss of safety function, and did not screen as potentially risk significant due to external events. The finding has a crosscutting aspect in the area of problem identification and resolution associated with corrective action program because work control personnel failed to thoroughly evaluate problems, including classifying and prioritizing conditions adverse to quality [P.1(c)].

Inspection Report# : [2008005](#) (*pdf*)



**Significance:**  Dec 09, 2008

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to Follow Procedures when Performing Maintenance on the Auxiliary Feedwater System**

A self-revealing non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," was identified for the failure of maintenance personnel to follow maintenance order instructions to fully remove fuses to establish conditions necessary to perform valve testing on the auxiliary feedwater system. Instead of removing the fuse entirely from the fuse holder, maintenance personnel only removed one side of the fuse and left the other side inserted. This inappropriate maintenance practice caused plastic deformation on the associated side of the fuse holder, which impacted the design configuration of the auxiliary feedwater control system, and its ability to perform its required design function under all design basis accident conditions. This finding was entered into the licensee's corrective action program as Nuclear Notification 200253911.

The finding is greater than minor because it is associated with the configuration control attribute of the Mitigating Systems Cornerstone and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the issue using the Significance Determination Process (SDP) Phase 1 Screening Worksheet for the Initiating Events, Mitigating Systems, and Barriers Cornerstones provided in Manual Chapter 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings." The inspectors determined that this finding represented a loss of the system safety function for the ability to provide secondary heat removal during a station blackout. This required that a Phase 2 estimation be completed. Because the Phase 2 assumptions significantly overestimated the risk related to this finding, the senior reactor analyst conducted a Phase 3 evaluation to provide a best-estimate risk assessment. The analyst calculated that a total delta CDF of  $4.4 \times 10^{-7}$ , therefore this finding is of very low risk significance (Green). The finding has a crosscutting aspect in the area of human performance associated with work practices because maintenance personnel did not comply with expectations regarding procedural compliance to follow the procedure as written without deviating from its intent [H.4(b)] (Section 1R12).

Inspection Report# : [2009002](#) (*pdf*)

**Significance:**  Nov 04, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Follow Procedures for Safety-Related Painting Activities**

The inspectors identified two examples of a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure of contract maintenance personnel to follow procedures while performing safety-related painting activities. Specifically, in October 2008, maintenance personnel failed to use appropriate test equipment and failed to detect defects in the disc coatings on two valves. Additionally, on November 4, 2008, maintenance personnel failed to adequately perform Maintenance Order 800077484 and left 17 blasting plugs in heat exchanger 3ME001 for approximately 7 months. This finding was entered into the licensee's corrective action program as Nuclear Notifications 200185228 and 200454875.

The finding is greater than minor because the failure to follow procedures when performing activities affecting quality, if left uncorrected, would have the potential to lead 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 Worksheets, the finding is determined to have very low safety significance because the finding did not affect both trains of any single mitigating system or represent an actual loss of a safety function. The finding has a crosscutting aspect in the area of human performance associated with work practices because the licensee failed to ensure supervisory oversight of work activities, including contractors, such that nuclear safety is supported [H.4(c)].

Inspection Report# : [2009003](#) (*pdf*)

**Significance:**  Oct 22, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Properly Implement Operability Determination Process**

The team identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for the failure of operations personnel to follow procedures and adequately evaluate a degraded condition. Specifically, on August 5, 2007, operations personnel failed to properly evaluate a degraded relay that affected the operability of the Unit 3 Train A emergency diesel generator. This issue was entered into the licensee's corrective action program as Nuclear Notification 200146292. The licensee began performing a failure analysis on the relay and initiated an apparent cause evaluation for this relay failure.

The performance deficiency associated with the finding was the failure of operations personnel to adequately implement the operability determination process. The finding was 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 availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to have a very low safety significance because it did not result in an actual loss of system safety function, did not result in a loss of a single train of safety equipment for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to seismic, flooding, or severe weather initiating events. The finding had a cross-cutting aspect in the area of human performance associated with decision-making because the licensee failed to use conservative assumptions for operability decision-making when evaluating a degraded and nonconforming condition [H.1(b)].

Inspection Report# : [2008012](#) (*pdf*)

**Significance:**  Oct 22, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **Inadequate Auxiliary Feedwater Pump Room Heat Load Analysis**

The team identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure of engineering personnel to ensure the auxiliary feedwater pump room heat load calculation was adequate. Specifically, since initial plant construction, engineering personnel failed to consider the impact to the auxiliary feedwater pump room's heat load design basis calculation for the most limiting scenario, in which all auxiliary feedwater pumps in the room have started and are running with only one emergency room cooler available. This issue was entered into the licensee's corrective action program as Nuclear Notification 200149442. The licensee plans to perform a revised auxiliary feedwater pump room heat load analysis.

The performance deficiency associated with this finding was the failure of engineering personnel to include the proper heat load scenarios and use of realistic assumptions for a design basis calculation. The finding was more than minor because it affected the design control attribute of the mitigating systems cornerstone and affected the objective to ensure the reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to have a very low safety significance because it did not result in an actual loss of system safety function, did not result in a loss of a single train of safety equipment for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to seismic, flooding, or severe weather initiating events. This finding was evaluated as not having a cross-cutting aspect because the performance deficiency was not indicative of current performance.

Inspection Report# : [2008012](#) (*pdf*)

**Significance:**  Sep 11, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **Inadequate Procedures for 480 VAC System Grounds**

The team identified a noncited violation of Technical Specification 5.5.1.a for inadequate procedures for 480 Volts Alternating Current system grounds. Specifically, the procedures do not identify the deleterious effects of 480 Volts Alternating Current system grounds on connected equipment, or the proper sense of urgency in removing grounds.

Due to inadequate procedures for alarm response and abnormal operations, the licensee was slow in responding to a ground alarm on Bus 3B04 in March of 2008. It took 19 hours to identify and remove the ground. This indicated a routine, rather than a prompt response and may have exposed connected equipment to overvoltage for an unnecessarily long period of time. The licensee has entered this into their corrective action program as Notifications NN 200057494 (addresses trending of ground faults) and NN 200057495 (addresses procedure change).

This finding was more than minor because the procedure deficiency affected the mitigating system cornerstone objective (procedure quality attribute) of ensuring availability, reliability, and capability of systems needed to respond to initiating events to prevent undesired consequences. Using the Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance (Green) because the finding was not a design or qualification deficiency, did not result in a loss of safety function, and did not screen as potentially risk significant due to external events. This finding was reviewed for cross-cutting aspects and none were identified (Section 1R21.2.16).

Inspection Report# : [2008010](#) (*pdf*)

**Significance:**  Sep 03, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Inadequate Design Control for Design Basis of CCW/CWR Heat Exchangers**

The team identified a noncited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," for failure to ensure that plant conditions were consistent with design calculation inputs and assumptions (rate of established component cooling water heat exchanger tube plugging). Specifically, there were no procedures to verify that the periodic heat treatments of the intake tunnel and intake structure were effective and that the population of shells available for plugging the component cooling water heat exchangers was consistent with the historical data used to develop the engineering calculation and operating instruction curves. As a result, the design basis calculation and operating instructions did not ensure the capability of the heat exchangers to perform their design function during anomalous conditions. The licensee has entered this into their corrective action program as Notification NN 200006369.

This finding is more than minor in that the performance of the component cooling water heat exchangers is essential in protecting the mitigating systems cornerstone objective (design control and equipment performance attributes) of ensuring the availability, reliability, and capability of systems needed to mitigate the consequences of an accident. Specifically, the existing design analyses did not adequately demonstrate that the component cooling water heat exchangers would perform adequately in the event of anomalous tube plugging events and plant procedures did not ensure that these anomalous events would be detected and mitigated prior to the heat exchangers being plugged. These deficiencies represented reasonable doubt regarding the operability of the component cooling water heat exchangers. Using the Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance (Green) because the deficiency did not result in a loss of safety function of component cooling water Train A for greater than the Technical Specification allowed outage time. Train B was not adversely affected by this event. This finding was reviewed for cross-cutting aspects and none were identified since the performance deficiency is long standing and is not indicative of current licensee performance (Section 1R21.2.11)

Inspection Report# : [2008010](#) (*pdf*)

**Significance:**  Sep 03, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Inadequate Design Control for 125VDC Control Circuits**

The team identified a noncited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," for failure to properly analyze voltage drop in 125 Volts Direct Current control circuits. Specifically, the licensee failed to consider and analyze the voltage drop that occurs in control circuit elements such as cables, relay contacts, and fuses that could result in considerably lower voltage at the devices than is available at the corresponding distribution panels. The



licensee has entered this into their corrective action program as Notifications NN 200051692 and NN 200059581.

This finding is more than minor because it is associated with the mitigating systems cornerstone objective (design control attribute) of ensuring the availability and reliability of safety systems, and closely parallels inspection manual chapter 0612, Appendix E, Example 3.j, in that there was reasonable doubt regarding the capability of the 125 Volts Direct Current system to perform its intended function pending reanalysis. Using the Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance (Green) because the 125 Volts Direct Current system was determined to have sufficient voltage margin to accommodate the additional voltage drop in the circuit elements that had not been considered. This finding was reviewed for cross-cutting aspects and none were identified (Section 1R21.2.14.1)

Inspection Report# : [2008010](#) (*pdf*)

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## Barrier Integrity

**Significance:**  Dec 31, 2008

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Inadequate Procedure Implementation for Corrective Action on Degraded Source Handling Tool**

A self-revealing Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified because Nuclear Fuel Services personnel did not properly implement procedural controls to adequately evaluate or repair a degraded source handling tool used in the spent fuel pool. An approved work plan was not used to modify the tool and the tool was returned to service in a degraded condition. Subsequently, on November 7, 2008, while moving a source element to its designated storage location, the neutron source slipped out of the tool and fell such that the bottom of the source element contacted the top of a spent fuel assembly. This finding was entered into the licensee's corrective action program as Nuclear Notification 200204667.

The finding is more than minor because if left uncorrected the performance of repairs without proper procedures or evaluations has the potential to lead to a more significant safety concern when critical tools are returned to service in a degraded condition. Degraded tools used in the spent fuel pool have the potential to adversely impact reactor safety barrier integrity because of potential damage to spent fuel assemblies or radioactive neutron source elements. Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," is used since the Significance Determination Process Appendix G methods and tools are not adequate to determine the significance of fuel handling findings. This finding affects the barrier integrity cornerstone and was determined to have very low safety significance by NRC management review because the deficiency did not cause actual degradation of fuel. The finding has a crosscutting aspect in the area of problem identification and resolution associated with corrective action program because Nuclear Fuel Services personnel did not thoroughly evaluate problems such that the resolution address causes and extent of condition associated with a degraded source handling tool [P.1(c)].

Inspection Report# : [2008005](#) (*pdf*)

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## Emergency Preparedness

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## Occupational Radiation Safety

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## Public Radiation Safety

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## 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.

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## Miscellaneous

**Significance:** N/A Oct 22, 2008

Identified By: NRC

Item Type: FIN Finding

### PI&R Assessment

The team selected and reviewed approximately 400 risk-informed action requests and notifications, work orders, associated root and apparent cause evaluations, and other supporting documentation to assess problem identification and resolution activities. The inspectors verified that the licensee had taken actions to address previous NRC findings. The team performed a five year review of the auxiliary feedwater system to determine whether problems were being effectively addressed and that the corrective action program was effective in identifying problems. As a result of these reviews, the team concluded that when site personnel identified problems, they entered them into the corrective action program at a low threshold; however, the team identified several issues with the quality of cause evaluations and overall documentation of corrective action documents. Corrective actions were generally implemented in a timely manner, although the team identified several corrective actions associated with conditions adverse to quality that were not completed in a timely manner. The team also identified that operability assessments and reportability reviews were not being implemented consistent with procedural guidance, and many of these assessments did not demonstrate the appropriate level of technical rigor to support conclusions made for operability or reportability.

The team determined that the licensee identified, reviewed, and applied industry operating experience relevant to the facility, and had entered applicable items into the corrective action program. The team noted that the licensee was evaluating industry operating experience when performing root cause and apparent cause evaluations. The team also noted that Quality Assurance audits and other self-assessment activities were generally effective.

The team reviewed the corrective action plans to address substantive cross-cutting issues in the areas of procedural adequacy and evaluations, and noted that both had recently been re-assessed and revised. The team concluded that the licensee made minimal progress in implementing corrective actions for these plans. The team further concluded that while the identified corrective actions should address the cross-cutting issues, the team could not assess and evaluate these corrective action plans because they were in the early stages of implementation.

Based on 56 interviews and six focus groups (consisting of approximately 50 people) conducted during this inspection, observations of plant activities, and reviews of the corrective action and nuclear safety concerns programs, the team determined that site personnel were willing to raise safety issues and document them in the corrective action program. The team observed that workers at the site felt free to report problems to their management, and were willing to use the Nuclear Safety Concerns program.

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