San Onofre 2
4Q/2006 Plant Inspection Findings

Initiating Events

Significance: G Mar 19, 2006
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Inadvertent Reactor Coolant System Drainage while in Mode 5
A self revealing, noncited violation of Technical Specification 5.5.1.1 was identified for the failure of operations personnel to operate reactor coolant pump system vent valves with the use of approved procedures. This failure resulted in the inadvertent drainage of approximately 200 gallons of Unit 2 reactor coolant system water to the containment sump. This issue has been entered into the licensee's corrective action program as Action Request 060301125.

The finding was determined to be more than minor because, if left uncorrected, the inadvertent loss of reactor coolant would become a more significant safety concern, as it could compromise core cooling capability. The finding affected the initiating events cornerstone. Using the Manual Chapter 0609, "Significance Determination Process," Appendix G, "Shutdown Operations Significance Determination Process," the finding is determined to have very low safety significance because the finding did not result in a major loss of reactor coolant system inventory. The finding had crosscutting aspects in the area of human performance because the failure of operations personnel to ensure that plant equipment was properly operated in accordance with approved procedures contributed to the cause of the finding.
Inspection Report# : 2006003 *(pdf)*

Mitigating Systems

Significance: G Dec 31, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO PREVENT RECURRENCE OF PREMATURE TRIPPING OF SQUARE D THERMAL OVERLOADS
The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure to prevent recurrence of a significant condition adverse to quality involving the premature tripping of Square D thermal overloads used for equipment protection on safety-related equipment. This deficiency had not been properly evaluated or corrected since 2001. This issue was entered into the licensee's corrective action program as Action Request 061000859.

The finding was determined to be more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone and it affected the cornerstone objective by challenging the availability and capability of safety-related components. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the finding was determined to have very low safety significance because it did not result in an actual loss of safety function for affected systems. This finding also had crosscutting aspects in the area of problem identification and resolution associated with the corrective action program because the licensee failed to thoroughly evaluate and correct the problem in a timely manner
Inspection Report# : 2006005 *(pdf)*

Significance: G Nov 30, 2006
Identified By: NRC
Item Type: NCV NonCited Violation

Inadequate Diesel Ground Alarm Procedure
The team identified a noncited violation of Technical Specification 5.5.1.a for an inadequate emergency diesel generator ground fault alarm response procedure. Specifically, the procedure had operators check for grounds associated with the emergency diesel generator itself but did not specify actions to address the more likely ground locations, which included components on the 4.16kV bus. Since other plant procedures permit cross-tying the safety-related buses on the opposite unit in the event of a loss of an emergency diesel generator, the failure to properly consider grounds in other locations could result in additional equipment failures. The licensee captured this finding in their corrective action program as Action Request 060700753.

The failure to provide an adequate alarm response procedure was a performance deficiency. This issue 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. Specifically, under certain circumstances, the emergency diesel generators may not have functioned following a seismic event. Using the Manual Chapter 0609, Significance Determination Process, Phase 1 screening worksheet, the issue screened as having very low safety significance 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.

Inspection Report# : 2006009 *(pdf)*

Significance: G Nov 30, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Identify Air Voids in Safeety Injection Suction Piping
The team identified a noncited violation of the Code of Federal Regulations, Title 10, Part 50, Appendix B, Criterion XVI, Corrective Actions, for the failure to promptly identify a condition adverse to quality (trapped air in the safety injection suction lines). Each suction line contained approximately 11.5 cubic feet of trapped air, but the licensee's official design calculations assumed the lines were full of water. Additionally, industry operating experience notified the licensee that air in the safety injection system suction lines could cause operational problems (a condition adverse to quality) but the licensee failed to promptly identify the condition at San Onofre Nuclear Generating Station. The licensee's engineering evaluation erroneously determined that San Onofre Nuclear Generating Station was not vulnerable to the condition identified in the operating experience. The licensee captured this finding in their corrective action program as Action Request 060700747.

The failure to promptly identify and correct a condition adverse to quality in response to applicable operating experience was a performance deficiency. This finding was more than minor because it affected the mitigating system cornerstone objective (equipment performance attribute) to ensure the reliability and capability of equipment needed to respond to initiating events. Using the Manual Chapter 0609, Significance Determination Process, Phase 1 screening worksheet, the finding was of very low safety significance because it was a design deficiency confirmed not to result in loss-of-operability in accordance with NRC Manual Chapter Part 9900, Technical Guidance, Operability Determination Process for Operability and Functional Assessment. This finding has a cross-cutting aspect in the area of problem identification and resolution, in that the licensee failed to thoroughly evaluate applicable industry operating experience concerning air voids in recirculation piping suction lines.
Inspection Report# : 2006009 *(pdf)*

Significance: G Nov 30, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Identify Diesel Generator Seismic Nonconformance
The team identified a Code of Federal Regulations, Title 10, Part 50, Appendix B, Criterion XVI, Corrective Actions, violation for the failure to promptly identify a condition adverse to quality (Train A emergency diesel generators lost seismic qualification). The licensee had identified that a ground fault on a nonsafety-related uninterruptible power supply could cause the emergency diesel generator to trip during a fire but failed to further determine that the same scenario could occur during a seismic event. The licensee captured this finding in their corrective action program as Action Request 060600500.

The failure to promptly identify a condition adverse to quality was a performance deficiency. This finding is more than minor because it affected the mitigating system cornerstone objective (equipment performance attribute) of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, Train A emergency diesel generator operability was not assured for seismic events. Using the Manual Chapter 0609, Significance Determination Process, Phase 1 screening worksheet, the internal events portion of the worksheet did not apply, because the finding only involved an external seismic event with a loss of offsite power. Additionally, for external events, the finding screened as have very low safety significance because it did not involve the loss or degradation of equipment or function specifically designed to mitigate an external event (e.g., seismic snubbers, flooding barriers, tornado doors) and the safety function was not considered completely failed or unavailable, as the Train B emergency diesel generators were unaffected by the issue. This finding has a cross-cutting aspect in the area of problem identification and resolution, in that engineers failed to perform an appropriate extent of condition review and promptly identify the nonconforming emergency diesel generators, a condition adverse to quality.
Inspection Report# : 2006009 *(pdf)*

Significance: G Jul 12, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Follow Procedures Addressing Foreign Material Exclusion
The team identified a noncited violation of Part 50 of Title 10 of the Code of Federal Regulations, Appendix B, Criterion V, Procedures, for the failure to follow procedural requirements and establish the Units 2 and 3 CST-120 condensate storage tank enclosures as foreign material exclusion areas. The team found several pieces of foreign material in each enclosure. Foreign materials in these areas could have caused auxiliary feedwater system operational problems following a seismic event. In addition, the licensee failed to properly address industry operating experience related to foreign materials in auxiliary feedwater system water sources. Finally, a related condensate storage tank sizing calculation failed to consider the potential for reactor vessel head void formation during the cooldown to shutdown cooling conditions. The licensee captured this finding in their corrective action program as Action Requests 060700471 and 0601000172.

The failure to follow plant procedures was a performance deficiency. This finding is more than minor because it affected the mitigating system cornerstone objective (equipment performance attribute) of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The team determined that a Phase 3 significance determination was required because the finding screened as potentially risk significant due to a seismic initiating event. Region IV senior risk analysts performed a Phase 3 significance determination and determined that the issue represents a finding of very low safety significance.
Inspection Report# : 2006009 *(pdf)*

Significance: G Mar 25, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Safety Injection Tank Manway Gaskets
A self-revealing, noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified for the failure to select an appropriate replacement gasket for the Units 2 and 3 safety injection tank manways. The inadequate gaskets buckled during installation and began to unravel. The Unit 2 safety injection Tank 2T008 discharge check Valve 2MU040 failed to fully close when an unraveled gasket wrapped itself around the valve internals. This issue has been entered into the licensee's corrective action program as Action Request 060301594.

The finding was determined to be more than minor because, if left uncorrected, it would become a more significant safety concern in that the inadequate gaskets would likely continue to unravel, possibly introducing foreign material into the safety injection tanks. The finding affected the mitigating systems cornerstone. Using 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 actual loss of the safety function of either Units' emergency core cooling system.
Inspection Report# : 2006003 *(pdf)*

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance: G Dec 31, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO ADEQUATELY LABEL A CONTAINER OF RADIOACTIVE MATERIAL
The inspector identified a noncited violation of 10 CFR 20.1904(a) because the licensee failed to adequately label a container of radioactive material. On August 4, 2006, a vial of spent resin that had a dose rate of 5 millirem per hour on contact and contained 14 microcuries of fission and activation products (primarily cesium-137 and cobalt-60) was found in the reactor chemistry lab trash can designated for “clean” non-radioactive waste. The health physics department had previously determined that when the vial was transferred to the reactor chemistry lab, the vial was in a plastic bag that was appropriately labeled with the words “Caution Radioactive Material” and sufficient information about the radiation hazards as required by 10 CFR 20.1904(a). However, when the inspector questioned whether the vial was adequately labeled, the licensee conducted an apparent cause evaluation and determined that the vial was found in the “clean” trash without an adequate label. The licensee’s immediate corrective action was to place a radioactive material label with dose rate information on the bag and store it in a lead pig. This issue was entered into the licensee's corrective action program as Action Request 060800249.

The finding was greater than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of Exposure Control, and affected the cornerstone objective to ensure the adequate protection of a worker’s health and safety from exposure to radioactive materials because workers could have received additional exposure. The finding was processed through the Occupational Radiation Safety Significance Determination Process and was determined to be of very low safety significance because: (1) it was not an as low as reasonably achievable finding, (2) there was no personnel overexposure, (3) there was no substantial potential for personnel overexposure, and (4) the finding did not compromise licensee’s ability to assess dose. Additionally, this finding had a crosscutting aspect in the area of human performance related to work practices because the licensee’s staff did not perform self checking to ensure the container of radioactive material was adequately labeled
Inspection Report# : 2006005 *(pdf)*

Significance: G Mar 12, 2006
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Evaluate Radiological Conditions
The inspectors reviewed a self-revealing, noncited violation of 10 CFR Part 20.1501(a), resulting from the licensee's failure to adequately evaluate radiological conditions in a work area. While assisting in decontaminating the reactor cavity on March 12, 2006, four workers were exposed to concentrations of airborne radioactivity higher than anticipated, resulting in unplanned dose. The licensee was alerted to the problem when the four workers attempted to leave the radiological controlled area and caused the personnel contamination monitors to alarm. The licensee's immediate corrective actions included a review of the occurrence and assessment of the committed effective dose equivalents for each of the four workers. The highest dose received by a worker was approximately 60 millirem more than planned. Additional corrective action associated with the work planning process was still being evaluated.

This finding is greater than minor because it is associated with the occupational radiation safety program attribute of exposure control and affected the cornerstone objective, in that the lack of knowledge of radiological conditions led to an unplanned personnel dose. Using the Occupational Radiation Safety Significance Determination Process, the inspector

determined that the finding was of very low safety significance because it did not involve: (1) an ALARA finding, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess doses. Additionally, this finding has a crosscutting aspect in the area of human performance associated with resources because the work plan did not fully identify the job site controls and action plans necessary to do the job.
Inspection Report# : 2006004 *(pdf)*

Public Radiation Safety

Physical Protection

Physical Protection information not publicly available.

Miscellaneous

Significance: N/A Sep 22, 2006
Identified By: NRC
Item Type: FIN Finding
Corrective Action Program Assessment
The inspectors reviewed 260 action requests, work orders, associated root and apparent cause evaluations, and other supporting documentation to assess problem identification and resolution activities. Overall, the team concluded that the licensee was effective in identifying, evaluating, and correcting problems. Corrective actions, when specified, were generally implemented in a timely manner. The licensee continued to be proactive in performing self-assessments which were probing and self-critical, and in addressing negative behavior trends at a low level. However, the team concluded that the licensee's efforts to address a longstanding trend in human performance errors has not been completely effective because workers were not consistently using the error prevention techniques. The team noted that the licensee used bench marking of industry best practices to make numerous improvements to the corrective action program since the last PI&R inspection. While some of the changes were too recent to evaluate, the team concluded that improvements in the quality of evaluations, documentation of the decision making process, and scope and timing of corrective actions showed improvement. The team identified that the quality and documentation for operability assessments and operational decision-making improved over the course of the evaluation period. The licensee expanded review of operating experience during cause evaluations, however several root cause evaluations identified instances where applicable operating experience had not been addressed sufficiently to prevent subsequent events. On the basis of 41 interviews conducted during this inspection, workers at the site felt free to input safety findings into the corrective action program, raise safety concerns to their supervision or bring concerns to the employee concerns program. The team concluded that a positive safety-conscious work environment exists at San Onofre Nuclear Generating Station.
Inspection Report# : 2006013 *(pdf)*

Last modified : March 01, 2007