Diablo Canyon 2
1Q/2003 Plant Inspection Findings

Initiating Events

Significance: G Mar 29, 2003
Identified By: NRC
Item Type: FIN Finding
Failure to Control Work Activities Resulted in False Reactor Vessel Level Indication Changes
A self-revealing finding was identified for failing to consider the impact of filling the pressurizer relief tank during midloop operations, which resulted in an indicated decrease in reactor vessel level. The finding was more than minor because it affects an attribute and objective of the Initiating Events Cornerstone in that configuration control of shutdown equipment lineup was inadequate. The inspectors found that the procedural requirements were met in that no initiation of transient conditions were induced while at midloop operation. However, the finding was more than minor because an initiating event cornerstone attribute, involving shutdown instrumentation alignment, was potentially affected. Specifically, two reactor vessel level instrument indications, used to support shutdown cooling in midloop operation, indicated that a prompt decrease in reactor coolant inventory had occurred. NRC Manual Chapter 0609, Appendix G, "Shutdown Operations - Significance Determination Process," dated February 27, 2001, was utilized to assess the overall safety significance. Table 1 for Reactor Coolant System Open and Refueling Cavity Level < 23', Section II.B , Inventory Control Guidelines-Procedures/Training, considers that training procedures and administrative controls are implemented to avoid operations that could lead to perturbations in reactor coolant system level control or decay heat removal flow. The issue was determined to involve change in indication only and therefore was assessed as having very low safety significance.
Inspection Report# : 2003005*(pdf)*

Significance: G Mar 29, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Implement Procedure to Control Bucket Truck Next to Single Supply of Offsite Power During Hot Midloop Operations
The inspectors identified a noncited violation of Technical Specification 5.4.1.a for implementation of procedures for operation of offsite power source access. Procedure AD8.DC51 was not followed in that a bucket truck was operated next to Startup Transformer 2-2 that could have directly or indirectly affected the single source of offsite power without approval of the shift foreman and a detailed schedule review having been performed by the outage organization. The finding was more than minor since a significant outage work activity was not approved by the shift foreman during Unit 2 midloop operation, a period when industry experience has demonstrated the potential for significant events to occur. NRC Manual Chapter 0609, Appendix G, Shutdown Operations - Significance Determination Process," dated February 27, 2001, was utilized to assess the overall safety significance. Table 1 for Reactor Coolant System Open and Refueling Cavity Level< 23', Section III.A , Power Availability Guidelines-Procedures/Training/Administrative Controls, considers that work activities do not have significant potential to affect existing operable power supplies and that there is control over switchyard and transformer yard activities. The finding is of very low risk significance since a safety assessment was performed prior to the outage work activity beginning and the shift foreman subsequently approved the work to continue without revision to the work safety assessment or the work plan.
Inspection Report# : 2003005*(pdf)*

Mitigating Systems

Significance: Mar 29, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Perform Testing To Assure Valve Performance
A self-revealing, noncited violation of 10 CFR Part 50, Appendix B, Criterion XI, was identified for failure to verify by testing the ability of Component Cooling Water Valve CCW-2-18 to meet its design basis function of isolating a postulated leak between trains of component cooling water. This valve was credited for ensuring that a single passive failure of the component cooling water system, that resulted in a 200 gallon-per-minute leak, could be isolated within 20 minutes. However, for several years, the valve had a damaged liner that precluded any effective isolation capability that had not been identified because the licensee had not established a leak testing program for the valve. The failure to provide adequate testing to ensure that Valve CCW-2-18 could meet its design basis function affected the Mitigating Systems Cornerstone and is more than minor because it had an actual impact on safety. Specifically, the lack of a test program allowed the existence of the damaged valve liner for a significant period of time. A Phase 3 significance determination process assessment was performed for a similar condition that occurred on Unit 1 (NRC Integrated Inspection Report 50-275/00-16; 50-323/00-16, Section 1R14.2). The Phase 3 assessment considered that a passive failure of one train of component cooling water (a low energy system) would have to occur prior to calling upon a comparable valve (to Valve CCW-2-18) to perform its isolation function, a very low probability failure. The assessment also considered that a safety-related 250 gpm makeup source was available to replenish the component cooling water system. Two other nonsafety-related makeup sources were also available. The inspectors noted that although the ability to split the trains was compromised, the component cooling water system could have met its intended safety function despite the condition, with adequate normal and backup makeup systems available. This finding was determined to be of very low safety significance.
Inspection Report# : 2003005*(pdf)*

Significance: Mar 29, 2003
Identified By: NRC
Item Type: FIN Finding
Ineffective corrective action in placement of ventilation louvers on 12 kv grounding transformer fuse boxes
The inspectors identified a finding involving ineffective corrective action in placement of ventilation louvers on 12 kV grounding transformer fuse boxes. The placement of the louvers introduced a new failure mechanism, which resulted in a recurrence of a previous event. On August 4, 2001, Units 1 and 2 experienced a loss of startup power as a result of multiple electrical faults in the Startup Transformer 1-1 grounding transformer fuse box. Nonconformance Report N0002130, "Loss of Unit 1 and 2 Startup Power," documented that the primary cause of the electrical faults was condensation inside the fuse box. The ventilation louvers contributed to the event by allowing outside (salty) air to be drawn into the fuse box. The ventilation louver was installed as a corrective action after the November 22, 1996, Auxiliary Transformer 1-1 grounding transformer fuse box event. The SDP Phase 3 analysis was performed by the Office of Nuclear Reactor Regulation Probabilistic Safety Assessment Branch. The analysis indicated that the estimated change in core damage probability for internal and external events probabilities was approximately 6E-7, and the change in large early release probability was approximately 6E-8. The conclusion of the analysis characterized the performance deficiency as an issue of very low safety significance.
Inspection Report# : 2003005*(pdf)*

Significance: G Oct 05, 2002
Identified By: NRC
Item Type: NCV NonCited Violation
Willful violation of maintenance procedure when torquing atmospheric dump valve nuts.
A violation of Technical Specification 5.4.1.a occurred for failure to follow a maintenance procedure for torquing atmospheric dump Valve PCV-21 bonnet cover bolts. The maintenance procedure required incrementally torquing the studs and nuts using a calibrated torque wrench. However, the mechanics willfully violated the procedure by using a hammer and extender to tighten the bolts, resulting in cracking of 7 out of 8 of the stud and nut combinations. This Severity Level IV violation is being treated as a noncited violation consistent with Section VI.A.1of the NRC Enforcement Policy. Although this violation was willful, the licensee promptly reported the results of the investigation to the NRC, the acts were committed by low level individuals, management was not involved nor was the action due to lack of management oversight, and the licensee took significant remedial action. This violation is in the corrective action program as Nonconformance Report N0002134. The inspectors evaluated the as-found condition of the studs and nuts on Atmospheric Dump Valve PCV-21 using the Significance Determination Process. The inspectors determined that the multiple stud and nut failures represented a credible impact on safety in that their failure could have resulted in the body-to-bonnet separation of Valve PCV-21. The failure would have been similar to a failed open atmospheric dump or secondary safety relief valve. The inspectors considered that the failure of the degraded studs would result in a potential loss of the main steam boundary and a direct release path following a postulated Unit 2 Steam Generator 3 tube rupture. Although the condition resulted in a minor steam leak, the licensee completed a metallurgical analysis that demonstrated the remaining studs and nuts had sufficient strength, along with the stud configuration around the valve bonnet, to prevent catastrophic failure of Valve PCV-21. No immediate operability concerns were identified for any of the other atmospheric dump valves. Based on the determination that the valve body and bonnet would not have separated, the inspectors concluded the issue had very low safety significance.
Inspection Report# : 2002004*(pdf)*

Significance: G Jul 11, 2002
Identified By: NRC
Item Type: FIN Finding
Grounding resistor vulnerability
The plant electrical distribution consisted of a design where the three redundant 4160 V safety buses and a non-safety bus were supplied from a common transformer winding during both normal and emergency operation. The 4160 V buses were interconnected by conductors so that a voltage disturbance on any part of the system would affect the entire system. The system had a high resistance grounding design to limit the magnitude of ground faults and to enable continued operation of a faulted load. The grounding resistor admits sufficient fault current to prevent severe over-voltages that could occur. However, if the grounding resistor developed an open circuit, the entire system would be susceptible to over-voltage. The licensee was periodically checking the continuity, but not the actual resistance of the grounding resistors and, thus, assumptions in the design were not being verified. The licensee issued Action Request A0561002 to evaluate the preventive maintenance program of the high resistance grounding program. This issue did not involve a violation of NRC requirements, but was considered to be a finding because it revealed a vulnerability in the licensee's design and maintenance that could result in a safety problem. However, the finding was determined to be of very low safety significance because there was no evidence that the grounding resistor had ever been degraded and that the probability of a grounding resistor failure in combination with a sparking ground fault was very small.
Inspection Report# : 2002006*(pdf)*

Significance: TBD May 31, 2002
Identified By: NRC
Item Type: FIN Finding
The installation of the ventilation louver, and the subsequent electrical fault associated with Startup

Transformer 1-1 Grounding Transformer Fuse Box.
The inspectors identified a finding with respect to the placement of ventilation louvers on 12 kV grounding transformer fuse boxes. On August 4, 2001, Units 1 and 2 experienced a loss of startup power as a result of multiple electrical faults in Startup Transformer 1-1 Grounding Transformer Fuse Box. Nonconformance Report N0002130, "Loss of Unit 1 and 2 Startup Power," determined the primary cause of the electrical faults to be condensation inside the fuse box. The contributory cause of the event was the ventilation louver, which allowed outside (salty) air to be drawn into the fuse box. The inspectors' Phase 2 evaluation of this issue using the Significance Determination Process indicated a condition that was potentially greater than green. The inspectors determined that the installation of the ventilation louver, and the subsequent electrical fault associated with Startup Transformer 1-1 Grounding Transformer Fuse Box represented an actual impact on safety since the preferred offsite power was momentarily lost from both units. Subsequently, auxiliary power continued to supply power to plant loads during the loss of startup power, and diesel generators were also available to supply power to safety-related equipment. This issue will remain as an unresolved issue (URI 50-275; 323/2002-02-01) pending completion of the significance determination process (Section 4OA2).
Inspection Report# : 2002002*(pdf)*

Significance: G May 31, 2002
Identified By: NRC
Item Type: NCV NonCited Violation
The failure to initiate an operability assessment for a nonconforming condition associated with adequate fuel storage capacity to address increases of diesel generator loads in Calculation M-786.
The inspectors identified a violation of Technical Specification 5.4.1.a for the failure to initiate an operability assessment for a nonconforming condition associated with adequate fuel storage capacity to address increases of diesel generator loads in Calculation M-786. The licensee, contrary to the procedural requirements, placed the issue in a process to validate the initial perception that diesel fuel oil tank capacity would meet design requirements. The licensee documented on July 19, 2001, that Calculation M-786 had not been updated with regard to changes that would affect diesel fuel usage in the Technical Specifications, Design Criteria Memorandum, the Final Safety Analysis Report Update, and the Emergency Operating Procedures. The licensee determined that such changes could have an adverse impact on the design and licensing basis related to adequate diesel fuel oil storage. The issue was determined to be of very low risk significance during Phase 1 of the NRC Significance Determination Process, because the Calculation M-786 was found to be conservative with respect to diesel generator loads and, therefore, the diesels remained operable. The failure to adequately address operability of potentially nonconforming conditions, if left uncorrected, could become a more significant safety concern, therefore, the issue was determined to be more than minor. This violation is being treated as a noncited violation consistent with Section VI.A.1 of the NRC Enforcement Policy. This violation is in the corrective action program as Action Request A0553285. (Section 4OA2).
Inspection Report# : 2002002*(pdf)*

Significance: G Apr 11, 2002
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to limit the proximity of transient equipment near safety-related systems due to seismic interaction concerns
The inspectors identified a violation of Technical Specification 5.4.1.a for the failure to adequately limit the proximity of transient equipment from safety-related systems that may be required during a seismic event. Technical Specification 5.4.1.a requires that written procedures be implemented for equipment control. Procedure AD4.ID3, "SISIP Housekeeping Activities," Revision 4A, Section 5.1.1, required that transient equipment not create a potential seismically induced system interaction. Contrary to the above, on January 14, 2002, the inspectors discovered an unsecured portable welding machine staged approximately 8 inches from the normal and Class 1 air supply lines for Unit 2 atmospheric dump Valve MS-2-PCV-21. This violation is being treated as a noncited violation consistent with

Section VI.A.1 of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as Action Request A0547478. This violation was more than minor because there was a credible impact on safety because the atmospheric dump valve could not be remotely operated due to loss of air supply in a seismic event. This issue was determined to be of very low safety significance because the other three atmospheric dump valves on the steam generators could be used to adequately cool the reactor coolant system.
Inspection Report# : 2001011*(pdf)*

Significance: G Apr 11, 2002
Identified By: NRC
Item Type: NCV NonCited Violation
Exceeding the licensed power limit due to a failure to follow procedures
Technical Specification 5.4.1.a requires the implementation of procedures listed in Regulatory Guide 1.33, Appendix A. Procedures OP L-4, "Normal Operation at Power," Revision 39, Section 5.4 and OP B-9:I, "Primary Sampling System - Make Available and Place in Service," Revision 7, stated, in part, that when pressurizer steam space sampling to the volume control tank was initiated, two backup pressurizer heaters were to be placed in service. On December 28, 2001, operators initiated pressurizer steam space sampling to the volume control tank without placing two backup pressurizer heaters into service. This resulted in a dilution of the volume control tank that increased reactor power above 100 percent for approximately 2½ hours. This violation is being treated as a noncited violation consistent with Section VI.A.1 of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as Action Request A0546623. This violation was more than minor because it had credible impact on safety due to the unplanned change in reactivity. This issue was determined to be of very low safety significance (Green) because the reactivity addition was not of an appreciable amount to challenge the safety systems or operating limits, and operators were able to return reactor power to desired levels in a controlled manner.
Inspection Report# : 2001011*(pdf)*

Significance: G Apr 11, 2002
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to perform adequate postmaintenance test of a reactor protection system analog input card
Technical Specification 5.4.1.a requires the implementation of procedures listed in Regulatory Guide 1.33, Appendix A. Regulatory Guide 1.33 lists procedures for surveillance tests. Procedure STP I-33, "Reactor Trip and Engineered Safety Feature Response Time Test," Revision 6, partially implemented this requirement and stated in Section 3.3.3.b that replacement of an Eagle-21 card required time response testing of the appropriate channels. Contrary to the above, the licensee replaced Card 2 of Rack 13 of the Unit 2 Eagle 21 system on September 18, 2001, but did not perform time response testing as a postmaintenance test and returned the component to service. This card affected reactor trip and safety injection setpoints for Loop 3 reactor coolant system temperature, pressurizer pressure, and pressurizer level. Upon discovery, the time response test was successfully performed on March 7, 2002. This event is described in the licensee's corrective action program, reference Action Request A0550656. This violation is being treated as a noncited violation consistent with Section VI.A.1 of the NRC Enforcement Policy. This violation was more than minor because it had credible impact on safety due to the card affecting several mitigating systems and actuations. This issue was determined to be of very low safety significance (Green) because when the post maintenance testing was conducted, the applicable channels passed.
Inspection Report# : 2001011*(pdf)*

Significance: G Apr 05, 2002
Identified By: NRC
Item Type: NCV NonCited Violation

Licensee Restarted Unit 2 Before Recognizing Reactor Trip and Engineered Safety Features Actuation Associated with Lo-lo Steam Generator Water Level was Inoperable
The failure to promptly identify and correct the steam generator narrow range water level-low low reactor trip system and engineered safety system instrumentation nonconservative setpoint bias following the Unit 2 manual reactor trip on February 9, 2002, is a violation of 10 CFR Part 50, Criterion XVI. The licensee's event review failed to recognize that an engineered safety feature, including a reactor trip, failed to actuate when required during a loss of feedwater event to Steam Generator 2-4. This failure resulted in the licensee restarting Unit 2 with the reactor trip and engineered safety system instrumentation inoperable, and in the operation of both units with the same instrumentation inoperable, in violation of Technical Specification 3.3.1. This issue is being treated as a noncited violation, consistent with Section VI.A of the Enforcement Policy (50-275; 323/2002-07-01). The licensee documented this deficiency in Action Request A0549031. The failure to promptly recognize inoperable trip and actuation functions and comply with Technical Specification requirements had a credible impact on safety. The resulting delays in an automatic reactor trip and engineered safety features actuations would have delayed the plant's response to a loss of feedwater event and reduced the water mass available for the heat sink function in the affected steam generator(s). Further, this deficiency had the potential to affect the integrity of the reactor coolant system boundary. A Phase 3 Significance Determination Process evaluation concluded that the issue had very low safety significance (Green). The finding represents a condition that existed for 5-days. The significance of the steam generator narrow range water level-low low setpoint offset (bias) is reduced if feedwater flow is lost to two or more steam generators. Based on the short duration from the time a single steam generator would dryout (the limiting initiator is a loss of feedwater to a single generator) and actuation of auxiliary feedwater, the condition does not result in an appreciable increase in the probability of a steam generator tube rupture occurring. The licensee's analysis using the plant specific simulator showed that the engineered safety feature actuation and reactor trip on steam generator water level-low low would have initiated at or before steam generator dryout would occur. The reactor coolant system physical over pressure protective features (safety relief and power operated relief valves) should not be challenged and there were other protective trips in place (over temperature-delta temperature and over pressure delta-temperature) in place that would have protected the reactor coolant system and fuel integrity in the event a manual reactor trip is not initiated on a loss of feedwater flow to a steam generator [Sections 4OA2.a.(2) and 5].
Inspection Report# : 2002007*(pdf)*

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance: Mar 29, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Follow Radiation Work Permit Requirements
On February 13, 2003, the inspectors identified a violation of Technical Specification 5.4.1 for failure to follow radiation work permit requirements. Specifically, radiation workers failed to contact radiation protection personnel prior to working greater than 8 feet above the floor on Safety Injection Valve SI-2-8821B. This violation is being

treated as a noncited violation consistent with Section VI.A.1 of the NRC Enforcement Policy. The issue was more than minor because the failure to follow radiation work permit requirements has the potential for unplanned or unintended dose which could have been significantly greater as a result of higher radiation or contamination levels. The safety significance of this finding was determined to be very low by the Occupational Radiation Safety Significance Determination Process because it did not involve as low as reasonably achievable (ALARA) planning and controls, there was no personnel overexposure, there was no substantial potential for personnel overexposure, and the finding did not compromise the licensee's ability to assess dose.
Inspection Report# : 2003005*(pdf)*

Public Radiation Safety

Physical Protection

Significance: N/A Jan 10, 2003
Identified By: NRC
Item Type: FIN Finding
Verification of Compliance With Interim Compensatory Measures Order
On February 25, 2002, the NRC imposed by Order, Interim Compensatory Measures to enhance physical security. The inspectors determined that, overall, the licensee appropriately incorporated the Interim Compensatory Measures into the site protective strategy and access authorization program; developed and implemented relevant procedures; ensured that the emergency plan could be implemented; and established and effectively coordinated interface agreements with offsite organizations.
Inspection Report# : 2003003*(pdf)*

Miscellaneous

Significance: N/A May 31, 2002
Identified By: NRC
Item Type: FIN Finding
Identification and Resolution of Problems
The licensee was effective at identifying problems and placing them into the corrective action program with one exception in the area of operability determinations. Occasionally an operability determination being reviewed by engineering was not timely. For example, the licensee failed to identify and evaluate how differential pressure affected steam generator instrumentation and its affect on operability prior to starting the plant following a trip with unusual steam generator level indications. The licensee appropriately determined the extent of evaluation of individual problems and prioritized the schedule for implementation of corrective actions to address the safety significant issues. In general, corrective actions, when specified, were effective and were implemented in a timely manner. The licensee performed effective audits and assessments. Based on the interviews conducted during this inspection, workers at the site felt free to input safety issues into the problem identification and resolution program.
Inspection Report# : 2002002*(pdf)*

Significance: N/A Apr 05, 2002
Identified By: NRC

Item Type: FIN Finding
Identification and Resolution of Problems
The team determined that a critical opportunity was missed to promptly identify and correct a risk significant condition adverse to quality involving a nonconservative safety features set point. The licensee's post trip event review process did not ensure that the Unit 2 plant response to a loss of feedwater flow to Steam Generator 2-4 was appropriate in that the steam generator level lo-lo engineered safety features and automatic reactor trip actuations did not occur when required.
Inspection Report# : 2002007*(pdf)*

Last modified : May 30, 2003