

## Diablo Canyon 2

### Initiating Events

**Significance:**  Oct 06, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to perform a prompt operability assessment for an atmospheric dump valve**

The inspectors identified a violation for the licensee's failure to promptly initiate an operability assessment for a broken bonnet stud on the Unit 2 Atmospheric Dump Valve PCV-21. Procedure OM7.ID12, "Operability Determination," Revision 4C, Section 2.4.3, required the licensee to perform a prompt operability assessment within 72 hours of identifying a degraded condition. In this case the licensee identified the broken stud on August 31; however, the licensee failed to evaluate operability of Valve PCV-21 or the other seven atmospheric dump valves (Units 1 and 2) until September 6 (approximately 160 hours later). This violation is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy. This violation is in the corrective action program as Action Request A0542300. The inspectors also expressed concern with the effectiveness of the corrective action program in this instance. Personnel failed to recognize a significant condition adverse to quality and have it promptly corrected. The inspectors evaluated this issue 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 failure of the degraded studs could result in a loss of the main steam boundary and a direct release path following a postulated steam generator tube rupture. Subsequently, 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 failure of Valve PCV-21. No immediate operability concerns were identified for the other 7 atmospheric dump valves. Based on the determination that the valve body and bonnet would not have separated, the inspectors concluded this issue had very low safety significance (Section 1R13).

Inspection Report# : [2001007\(pdf\)](#)

**Significance:**  Jul 22, 2001

Identified By: NRC

Item Type: FIN Finding

#### **Licensee did not consider surveillance activities that placed reactor trip system bistables in trip as reactor trip risks**

The inspectors identified that the licensee had not included surveillance activities, which required placing the reactor trip system bistables in the tripped condition, in their maintenance activity risk evaluations. The licensee failed to categorize any surveillances that included tripping of reactor protection system bistables as trip risk significant on a programmatic basis, despite plant specific and industry events in which reactor trips occurred partially because of a reactor protection channel being in the tripped condition. The licensee's risk management procedure prohibited performing high trip risk evolutions concurrently with removing trip mitigation systems from service. This item was placed in the corrective action system as Action Request A0539532. The inspectors evaluated this finding using the significance determination process. The Phase 1 screening identified that Item 2 under Initiating Event was potentially impacted for a finding that contributed to the likelihood of a reactor trip and mitigating systems not being available. The inspectors noted that the finding did not lend itself to evaluation using Phase 2 of the significance determination process. This finding was evaluated by the inspectors, along with a senior reactor analyst, using the licensee's plant specific probabilistic risk assessment and determined that the risk increase of this finding was below the moderately risk significant threshold (by approximately a factor of 10). The inspectors determined, along with the senior reactor analyst, that the overall significance of this finding was very low (Section 1R13).

Inspection Report# : [2001006\(pdf\)](#)

**Significance:**  Nov 10, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

### **Two examples of failure to follow procedures for working on the wrong unit**

Technical Specification 5.4.1.a requires that procedures be implemented for those procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Appendix A recommends procedures for shutdown of offsite power sources and surveillance procedures. Procedures OP J-2:III (Unit 1), "Startup Bank-Shutdown and Clearing," Revision 10A, and STP I-19-L62 (Unit 1), "Reactor Cavity Sump Level Channel LT-62 Calibration," Revision 2, partially implemented this requirement. Procedure OP J-2:III, step 6.1.2 required the user to open Unit 1 Switch 211-1, however, on October 23, 2000, the operator opened Switch 211-2, which inadvertently resulted in the loss of the startup transformer for Unit 2. Procedure STP I-19-L62, Step 8.4.1 required lifting the lead at Unit 1 Panel POCV1, TB-35, but on October 22, the technician lifted a lead in Unit 2 Panel POCV2, causing an inadvertent loss of the reactor coolant system leakage detection system in Unit 2. These examples of violation are described in the corrective action program as ARs A0517849 and A0517720.

Inspection Report# : [2000014\(pdf\)](#)

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## Mitigating Systems

**Significance:**  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:**  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 40A2).

Inspection Report# : [2002002\(pdf\)](#)

**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 40A2).

Inspection Report# : [2002002\(pdf\)](#)

**Significance:**  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:**  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:** 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:** 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 40A2.a.(2) and 5].

Inspection Report# : [2002007\(pdf\)](#)

**Significance:**  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.1 of 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:**  Aug 25, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

**Violation of 10 CFR 50 Appendix B, Criterion III for failure to implement design control measures for changes that impacted diesel fuel oil capacity calculations (Section 40A7)**

Green. The licensee identified a failure to implement design control measures for changes to postaccident operations as described in the Final Safety Analysis Report Update. The licensee changed the loading sequence of the diesel engine generators as described in the Final Safety Analysis Report for several items but did not input these changes into the diesel fuel oil storage capacity calculations. This issue required significant revisions to the calculations to resolve the fuel oil storage requirement. The inspectors determined this to be a violation of 10 CFR 50, Appendix, Criterion III for failure to implement design control measures to changes to postaccident operations. This violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy. This item was entered into the corrective action program as AR A0540317. This issue could become a more significant safety concern if not corrected based on less than the required amount of diesel fuel oil onsite if additional revisions to the loading sequence occurred

without input to the fuel oil storage capacity requirements. The inspectors evaluated the issue using the Significance Determination Process Phase 1 worksheet. Each of the questions related to mitigating systems was answered no resulting in the issue screening out as having very low safety significance.

Inspection Report# : [2001006\(pdf\)](#)

**Significance:**  May 19, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**Technical Specification 3.0.3 violation for rendering all three emergency power sources for Unit 2 Vital Bus H inoperable**

A violation of Technical Specification 3.0.3 and 3.8.1.1 occurred because operators rendered two sources of offsite power and a diesel engine generator inoperable simultaneously for approximately 7 hours, but did not take the required actions. Because of inadequate planning and procedure guidance, operators placed the load tap changer for Unit 2 Startup Transformer 2-1 to an inappropriate tap setting, but did not declare Startup Transformer 2-1 inoperable. These actions, coupled with 500 kV auxiliary power inoperable for breaker cubicle inspections, and Diesel Generator 2-2 inoperable because of degraded wiring, rendered all three emergency power sources for Vital Bus H inoperable in excess of the Technical Specification 3.0.3 allowed outage time of 1 hour. This violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy. This item was placed in the corrective action program as Action Request A0528007. The inspectors evaluated this issue using the Significance Determination Process. The inspectors noted that this finding had potential impact because a total loss of Unit 2 Vital Bus H would have resulted from several initiating events, including a reactor trip. (Vital Busses F and G and their associated diesel engines remained operable.) This finding involved three mitigating systems, the 500 kV Auxiliary Transformer, the 230 kV Startup Transformer, and Diesel Engine Generator 2-2. Using Phase 1 of the Significance Determination Process, this item could be considered an item in which systems were unavailable in excess of the Technical Specification action statement (3.8.1.1), requiring a Phase 2 Significance Determination Process evaluation. However, the inspector noted that although Startup Transformer 2-1 was inoperable as defined by its Technical Specification 3.8.1.1 function to automatically pick up loads following a loss of 500 kV offsite power, operators could have easily recovered Startup Transformer 2-1 and returned the load tap changer to automatic control. Thus, Startup Transformer 2-1 is considered available for most accident sequences (except those involving loss of the startup transformer). Auxiliary power and Diesel Engine Generator 2-2 were readily recoverable. This violation was determined to be of very low risk significance, as evaluated under the transient and loss of offsite power Significance Determination Process worksheets and as independently verified by an NRC senior reactor analyst (Green) (Section 1R13).

Inspection Report# : [2001003\(pdf\)](#)

**Significance:**  May 19, 2001

Identified By: NRC

Item Type: FIN Finding

**Insufficient integration of training and new instrumentation for Mid-loop operations**

The inspectors identified that the licensee had not properly integrated the instrumentation, training and procedures relied on for mid-loop operation. Specifically, the inspectors noted that: several issues occurred with respect to instrumentation that resulted in operator distractions during mid-loop operations; the licensee did not perform full dynamic simulator training on mid-loop operations; and, mid-loop procedures were not enhanced to address the newly installed reactor vessel level instrumentation and associated alarms. The failure to adequately address instrumentation, training and procedures for the monitoring of mid-loop operations was determined to be a cross-cutting issue. The inspectors evaluated this finding using the significance determination process. Specifically, Manual Chapter 0609, Appendix G, Shutdown Operations Significance Determination Process, was considered. The finding did not result in a loss of control as defined by Appendix G, TABLE 1, Losses of Control for Loss of Thermal Margin or Loss of Level PWRs. The inspectors, along with a senior reactor analyst reviewed PWR Hot Shutdown operation with a time to core boiling less than 2 hours. The core heat removal guidelines and inventory control guidelines were considered. Item II of the Core Heat Removal Guidelines, A. Instrumentation specifying 2 independent pressurizer level instruments with a Hi/Lo alarm or level deviation annunciator was determined to be impacted requiring a Phase 2 evaluation. The senior reactor analyst reviewed the actual conditions, observed the control room and plant simulator instrumentation and

discussed the finding with the cognizant inspectors who observed the mid-loop operation. The inspectors determined, along with the senior reactor analyst, that adequate reactor vessel level was available such that the overall significance of this finding was very low (Section 1R20.1).

Inspection Report# : [2001006\(pdf\)](#)



**Significance:** Jan 26, 2001

Identified By: NRC

Item Type: FIN Finding

**Failure to properly evaluate a maintenance preventable functional failure because of incorrectly set corrective action system defaults**

The corrective action system defaults were incorrectly applied such that maintenance rule reviews to determine if a maintenance preventable functional failure occurred would be bypassed. The inspectors identified that the maintenance preventable functional failure review did not occur when Unit 2 Startup Transformer 2-1 was inadvertently de-energized for maintenance, instead of Unit 1 Startup Transformer 1-1, and the action request was closed. The licensee subsequently determined that a maintenance preventable functional failure had occurred; however, the system would not be placed into goal setting following a human performance error. The inspectors evaluated this issue using the Significance Determination Process. The inspectors noted that Startup Transformer 2-1 remained inoperable for less than 1 hour and the Unit 2 diesel engine generators started as required. The condition did not result in an increase to an initiating event frequency. The offsite power supply, as a mitigating system, was unavailable for a short period of time with the respective diesel engine generators available. Therefore, adequate sources of power remained available to mitigate a reactor trip or loss of offsite power event. The inspectors determined that this issue had very low risk significance (Green)

Inspection Report# : [2001002\(pdf\)](#)

**Significance:** N/A Aug 24, 2000

Identified By: NRC

Item Type: FIN Finding

**Evaluation of Scrams w/Loss of Normal Heat Removal white performance indicator**

The inspectors performed a supplemental inspection to examine a change from green to white in the Scrams With Loss of Normal Heat Removal performance indicator. This change in performance resulted from Unit 2 experiencing three scrams with loss of normal heat removal over the previous 12 quarters. Following each event, NRC had evaluated operator response, plant and equipment response, and immediate corrective actions. During this supplemental inspection, performed in accordance with Procedure 95001, the inspectors evaluated the adequacy of the root cause evaluation and long-term corrective actions for each individual event. The inspectors also evaluated the effectiveness of the licensee review into the collective events. The inspectors determined that the licensee had performed comprehensive root cause evaluations and corrective actions for each individual scram and the events collectively. The licensee determined that one scram occurred because condensate/feedwater flow problems were exacerbated by a control circuit problem (poor design and dirty slide wire) in Valve TCV-23, generator hydrogen cold gas temperature control, combined with throttling Valve CND-2-165, steam jet air ejector outlet isolation. The licensee did not identify a definite root cause for the event initiator. Operators initiated the other two scrams because debris in the circulating water system intake had increased the differential pressure across the traveling screens above the setpoint that required them to be secured prior to being damaged. The licensee determined that the onset of ocean storms, combined with the end of the growing season (peak amounts of marine growth), established conditions that exceeded the ability of the traveling screens to remove the marine growth and remain within acceptable operating parameters. The licensee established plans to upgrade the traveling screens, formalized their process for predicting conditions affecting the ability of the intake components to remove marine growth, and initiated efforts to raise the turbine trip/reactor trip setpoint to optimize withstanding this condition yet conducting an orderly shutdown of the plants. The inspectors concluded that the licensee addressed the Scrams With Loss of Normal Heat Removal for Unit 2 in an acceptable manner. No further evaluations are required. This is in accordance with the guidance in IMC 0305, "Operating Reactor Assessment Program."

Inspection Report# : [2000013\(pdf\)](#)

**Significance:**  Aug 09, 2000

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

**Work on wrong equipment resulted in failure to follow procedures (Section 1R13.2)**

Personnel failed to follow maintenance procedures on two occasions in working on the wrong component or wrong unit. These errors resulted in the control room ventilation system and the main annunciator systems being inadvertently unavailable for time periods less than the Technical Specification allowed outage times. These errors were two examples of a violation of Technical Specification 5.4.1.a. This violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy. Several similar occurrences were noted in which personnel performed work on the wrong trains or wrong unit, indicating that a continuing adverse trend existed with respect to human performance. These errors were placed in the corrective action program as Action Requests A0512713 and A0512203. The inspectors assessed the risk significance of these errors using the significance determination process. The inspectors determined that these issues were of very low risk significance, and thus constituted a green finding. The inspectors used the significance determination process Phase 1 screening worksheet and noted that the control room ventilation was considered a support system for the unavailability of the solid state protection system. However, only one train of the control room ventilation system was inadvertently inoperable for a time period less than the Technical Specification limiting condition for operation. The main annunciator system was inoperable for only a short time and the system is designed with redundant annunciation that was available. Thus, these items screened to green

Inspection Report# : [2000010\(pdf\)](#)

**Significance:**  May 06, 2000

Identified By: NRC

Item Type: FIN Finding

**Multiple Control Room Light Socket Failures**

Green. On August 1, 1999, the licensee reported a design weakness in the control room lamp sockets in both units resulted in multiple failures during 1998 and 1999. The failure of lamp sockets could have resulted in shorting the control power to affected safety-related components during a seismic event. The affected light sockets were replaced. The licensee performed a detailed risk analysis and concluded that the increased risk was small. Simultaneous failure of multiple sockets in a manner that would result in electrical shorts that prevented function of all of the affected components was considered highly unlikely. An NRC Senior Reactor Analyst reviewed the licensee's seismic risk analysis and concluded that the analysis was adequate to demonstrate that the increased risk (delta core damage and large early release frequencies) was small and of very low risk significance (Closes LER 1/2-99-007)

Inspection Report# : [2000006\(pdf\)](#)

**Significance:**  Apr 07, 2000

Identified By: NRC

Item Type: FIN Finding

**Degraded 1-hour fire-rated ceiling in Fire Area 4A and degraded 2-hour fire-rated barrier between Fire Areas 4A and 4B.**

The team identified that the 1-hour fire-rated ceiling in Fire Area 4A (counting and chemistry laboratory) and the 2-hour fire-rated barrier between Fire Areas 4A and 4B (radiologically controlled area access) were degraded. Specifically, the team identified that the 1-hour fire-rated ceiling in the chemistry laboratory contained holes, non-fire-rated dampers, and gaps around the lighting fixtures. The NRC relied on the 1-hour fire rating of this ceiling as a basis for granting an exemption from the requirement to enclose redundant trains of safe shutdown equipment in a 1-hour fire-rated enclosure as described in 10 CFR Part 50, Appendix R, Section III.G.2.c. In addition, the team observed concrete spalling, holes, and a non-fire-rated penetration in the 2-hour fire-rated barrier between Fire Areas 4A and 4B. Upon further review, the team found that the licensee had previously identified most of these conditions and had taken appropriate compensatory measures. Although the team identified additional minor discrepancies, no additional compensatory measures were warranted. The conditions not previously identified by the licensee were entered into the licensee's corrective action program as Action Requests A05050857, A0505861, and A0505892. This issue was



evaluated using the significance determination process and was determined to be of low risk significance, because barrier degradation was moderate; detection, automatic suppression, and manual suppression met the conditions of the licensing basis for Fire Areas 4A and 4B; and a safe shutdown path remained

Inspection Report# : [2000003\(pdf\)](#)

**Significance:**  Mar 07, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to evaluate/ restrain a portable cart next to safety piping**

The licensee placed a top-heavy portable load center near component cooling water piping and failed to evaluate the condition. The portable load center was not restrained such that it would not strike and potentially damage the component cooling water piping. This violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy. A similar occurrence was discussed in Inspection Report 50-275; 323/9912. This item was placed in the corrective action program as Action Request A0506658. The inspectors assessed the risk significance of this item using the significance determination process. The inspectors determined that this issue was of very low risk significance, and thus was a Green finding. The inspectors used the significance determination process Phase I worksheet for seismic, fire, flooding, and severe weather screening criteria and determined that the portable load center would not damage more than one train of component cooling water, thus the item was screened to Green. The failure to implement a procedure for seismic interaction was a violation of Technical Specification 6.8.1.a..

Inspection Report# : [2000007\(pdf\)](#)

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## Barrier Integrity

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## Emergency Preparedness

**Significance:**  May 12, 2000

Identified By: NRC

Item Type: FIN Finding

#### **Critique failed to identify facility activation not completed in accordance with procedures**

The inspectors identified that the critique process failed to identify that two emergency response facilities were not activated in accordance with the emergency response plan and implementing procedures. The licensee entered the issue into its corrective action system as Action Request A0507922. This finding was determined to have very low risk significance because the affected planning standard was not risk significant (Section 1EP1).

Inspection Report# : [2000007\(pdf\)](#)

**Significance:**  Feb 17, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Unauthorized person reviewed emergency preparedness program (Closes URI 0002-02)**

The inspectors identified that a member of the emergency planning staff inappropriately reviewed part of the emergency preparedness program. 10 CFR 50.54(t) requires that emergency preparedness program elements be evaluated by individuals not responsible for program implementation. This was a violation of 10 CFR 50.54(t) for failure to conduct an appropriate review of the emergency preparedness program which is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy. The licensee entered the item into its corrective action system as Action Request A0503012.

Inspection Report# : [2000007\(pdf\)](#)

## Occupational Radiation Safety

**Significance:**  Jan 08, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

### **Airborne radiation monitor inoperable when required during work in spent fuel pool**

Technical Specification 5.4.1.a. requires the implementation of procedures listed in Regulatory Guide 1.33, Appendix A. Attachment 10.7 of Procedure RCP D-200, "Writing Radiation Work Permits," Revision 22A, states, in part, that radiation protection shall ensure that a constant air monitor is in operation in the fuel handling building while underwater work is being performed. On August 29, 2001, the licensee identified that underwater work was being performed in Unit 1 spent fuel pool without the required constant airborne monitor in operation. This event is described in the licensee's corrective action program, reference Action Request A0539922. The safety significance of this finding was determined to be very low by the Occupational Radiation Safety Significance Determination Process because there was no overexposure or substantial potential for an overexposure and the ability to assess dose was not compromised. Inspection Report# : [2001009\(pdf\)](#)

**Significance:**  Apr 30, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

### **Failure to survey a high radiation area**

10 CFR 20.1501(a) requires that each licensee shall make or cause to be made, surveys that may be necessary for the licensee to comply with the regulations in 10 CFR Part 20 and are reasonable under the circumstances to evaluate the radiation levels and the potential radiological hazards. On April 30, 2001, the licensee identified a high radiation area above the 2-1 Deborating Demineralize resin fill connection access port which had dose rates as high as 170 millirems/hour at 30 centimeters. The licensee's investigation determined that the conditions existed for as long as 24 hours. See Action Request A0530296. This is being treated as a noncited violation. Through the use of the Occupational Radiation Safety Significance Determination Process, the safety significance of this finding was determined to be very low because there was no overexposure or substantial potential for an overexposure and the ability to assess dose was not compromised. Inspection Report# : [2001005\(pdf\)](#)

**Significance:**  Mar 08, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

### **Failure to lock a high radiation area with dose rates greater than 1 rem/hour**

Technical Specification 5.7.2 states that for high radiation areas with dose rates greater than 1.0 rem/hour at 30 centimeters from the radiation source, each entryway to such an area shall be conspicuously posted as a high radiation area and shall be provided with a locked or continuously guarded door or gate that prevents unauthorized entry. On March 8, 2001, the keycard reader door to containment was not locked, allowing potential unauthorized entrance to high-high radiation areas within the containment building. See Action Request A0527032. This is being treated as a noncited violation. Through the use of the Occupational Radiation Safety Significance Determination Process, the safety significance of this finding was determined to be very low because there was no overexposure or substantial potential for an overexposure and the ability to assess dose was not compromised. Inspection Report# : [2001005\(pdf\)](#)

**Significance:**  Feb 16, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to survey**

On February 13, 2001, during a walkdown of the radiological effluent release monitors and tanks located on Elevation 64 foot of the auxiliary building, the inspectors identified a radiation area and a high radiation area near the Spent Resin Tank Filters that were not surveyed and controlled. Surveys revealed that general area radiation levels ranged from 7 millirems per hour to as high as 500 millirems per hour. 10 CFR 20.1501(a) states, in part, that each licensee shall make or cause to be made surveys that are reasonable under the circumstances to evaluate the extent of the radiation levels and the potential radiological hazards. The failure to survey the areas surrounding the Spent Resin Tank Filters to evaluate the extent of the radiation levels and potential radiological hazards is a violation of 10 CFR 20.1501. This violation is in the licensee's corrective action program as Action Request AO 525568. This issue was determined to have very low safety significance, because there was no overexposure or substantial potential for an overexposure, and the ability to assess dose was not compromised.

Inspection Report# : [2000016\(pdf\)](#)

**Significance:**  Nov 10, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**Violation of TS 5.7.1.e for entering High Radiation Areas without Knowledge of Dose Rates**

Technical Specification 5.7.1.e requires that entry into a high radiation area be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them. On October 10, 2000, four workers in two work groups entered a high radiation area without obtaining the dose rate information, as described in the corrective action program, reference ARs A0516173 and A0516174.

Inspection Report# : [2000014\(pdf\)](#)

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## Public Radiation Safety

**Significance:**  Jan 12, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

**Failure to control radioactive materials**

Technical Specification 5.4.1 requires procedures for the control of radioactivity. Section 7.1.1 of Procedure RCP D-614, "Release of Materials From the Radiologically Controlled Area," Revision 5A, states in part, that all material released from the radiologically controlled area shall have no detectable licensed radioactivity. On October 12, 1999, and August 29, 2000, detectable licensed radioactivity was released from the radiologically controlled area, as described in the licensee's corrective action program, reference Action Requests A0494102 and A0513515.

Inspection Report# : [2000016\(pdf\)](#)

**Significance:**  Sep 20, 2000

Identified By: NRC

Item Type: FIN Finding

**Licensee failed to follow waste disposal facility site criteria requirement.**

On December 8, 1999, the Chem-Nuclear Systems radioactive waste disposal facility accepted radioactive waste Shipment RWS-99-004 without comment and buried the radioactive waste in a near-surface burial area. The licensee had shipped the Class C waste to the Chem-Nuclear Systems radioactive waste disposal facility in accordance with 10 CFR 61.55, Table 1. On April 21, 2000, a licensee audit identified a calculation error associated with the waste classification of Shipment RWS-99-004. This error resulted in the shipment not meeting Chem-Nuclear System's acceptance criteria. However, there was no violation of NRC requirements. Although not a violation of NRC requirements, the failure to meet Chem-Nuclear System's acceptance criteria in this instance was characterized as a

"green" finding. Based on the public radiation safety significance determination process, the issue had very low safety significance because the Carbon-14 concentration in the radioactive waste did not exceed the value in 10 CFR 61.55, Table 1, when calculated in accordance with 10 CFR 61.55 (a)(8). This finding is in the licensee's corrective action program as Action Requests A0506728 and A0508956.

Inspection Report# : [2000012\(pdf\)](#)

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## Physical Protection

**Significance:**  Dec 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

### Failure to Adequately Control Personnel Access at the Plant Warehouse

The licensee's secondary alarm station operator failed to use closed-circuit television cameras to determine that the warehouse access control security officer was present prior to opening the protected area personnel access door for an NRC inspector in the plant warehouse. In addition, the operator failed to determine that the security officer was not under duress prior to opening the personnel access door. The failure to adequately control personnel access was a violation of Paragraph 3.2.1.1 of the Physical Security Plan (Revision 18, Change 18). This violation is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy (275; 323/0015-01). The licensee entered the violation into the corrective action program as Action Request A0522821. This issue was determined to be of very low safety significance (green) by the significance determination process because there were not greater than two similar findings in the last four quarters

Inspection Report# : [2000015\(pdf\)](#)

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## 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\(pdf\)](#)

**Significance:** N/A Aug 25, 2001

Identified By: NRC

Item Type: FIN Finding

**Technical Specification limit for dose equivalent iodine was nonconservative**

The inspectors identified that the licensee had not taken action to docket a justification and schedule to correct a nonconservative Technical Specification. On March 4, 2000, the licensee identified that the reactor coolant system activity Technical Specification limit for dose equivalent iodine was nonconservative. Engineers determined that instead of the Technical Specification limit of 1  $\mu\text{Ci/g}$ , the licensee must control reactor coolant system activity to .71  $\mu\text{Ci/g}$  when normal letdown was in service and .47  $\mu\text{Ci/g}$  while excess letdown was in service. The licensee implemented administrative controls to prevent exceeding the new limits, but took no action to docket a justification and schedule to correct Technical Specification 3.4.12 until prompted by the inspectors in August of 2001. This item was entered into the corrective action program as Action Request A0540317. The safety significance of the finding was evaluated initially using Manual Chapter 0610 Group 2 Questions for Reactor Safety-Initiating Events, Mitigating Systems, and Barrier Integrity. A no color determination was made based on the finding was determined not to: cause or increase the frequency of an initiating event; affect the operability, availability, reliability, or function of a system or train in a mitigating system; affect the integrity of fuel cladding, the reactor coolant system, reactor containment or control room envelope; or, involve degraded conditions that could concurrently influence any mitigation equipment and an initiating event (Section 4OA1).

Inspection Report# : [2001006\(pdf\)](#)

**Significance:** N/A Mar 29, 2001

Identified By: NRC

Item Type: FIN Finding

**Identification and Resolution of Problems**

The inspectors concluded that the implementation of the corrective action program at Diablo Canyon was acceptable. The Diablo Canyon staff adequately identified problems and entered them into the corrective action system. The overall corrective action backlog and the specific engineering and maintenance backlogs appeared to be appropriately prioritized and adequately managed. There was a low threshold for initiation of deficiency documents, and they were properly classified at the correct significance level. The depth of the root cause analysis for problems were appropriate. Corrective actions were generally adequate and completed in a timely manner, and as necessary prevented recurrence.

Inspection Report# : [2001004\(pdf\)](#)

Last modified : December 02, 2002