ENCLOSURE 2

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

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Report No.:	50-275/97-04 50-323/97-04
Licensee:	Pacific Gas and Electric Company
Facility:	Diablo Canyon Nuclear Power Plant, Units 1 and 2
Location:	7 1/2 miles NW of Avila Beach Avila Beach, California
Dates:	July 7 through August 26, 1997
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ATTACHMENT: Supplemental Information

EXECUTIVE SUMMARY

Diablo Canyon Nuclear Power Plant, Units 1 and 2
NRC Inspection Report 50-275/97-04; 50-323/97-04

This inspection included a review of the licensee's implementation of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," [the Maintenance Rule]. This report covers a 1-week onsite period of inspection followed by inoffice inspection.

Operations

- The licensed operators interviewed understood the philosophy of the Maintenance Rule and their limited responsibilities for its implementation (Section O4).

Maintenance

- The present scoping of structures, systems, and components was appropriate. The failure of the licensee to have included 20 systems (5 safety-related) in the scope of the program from July 10, 1996, until June 30, 1997, was a violation of 10 CFR 50.65(b)(2). The Maintenance Rule Program Document, Appendix C, "Mapping of Maintenance Rule Performance Criteria Functions From Scoping Functions" was an excellent reference document (Section M1.1).

- The level of detail of the probabilistic risk assessment, the truncation limits, and the quality of the probabilistic risk assessment were satisfactory to perform the risk ranking of those structures, systems, and components within the scope of the Maintenance Rule (Section M1.2).

- The licensee's probabilistic risk assessment updating methodology was technically sound (Section M1.2).

- The licensee's development process for performance criteria for structures, systems, and components was acceptable (Section M1.2).

- The overall knowledge of the expert panel members was sufficient for the members to perform their duties and responsibilities for implementation of the Maintenance Rule (Section M1.2).

- Sufficient procedural guidance had been established for performing periodic evaluations of the Maintenance Rule Program (Section M1.3).

- The team determined that the method used by the licensee in determining unavailability on a 24-month rolling average had the potential to mask increased unavailability data. The licensee's proposed methodology to balance unavailability and reliability, if properly implemented, would achieve proper balancing (Section M1.4).

- The licensee's on-line risk matrix did not include all of the risk-significant systems and the licensee did not have a procedure addressing the risk of on-line maintenance during Mode 4. These shortcomings were considered program weaknesses. The licensee's shutdown risk management program appeared to be effective (Section M1.5).

- The failure to monitor unavailability of the 125V dc from July 10, 1996, to June 30, 1997, was a noncited violation (Section M1.6).

- The failure to monitor at least one performance criterion function for the main steam (PC-04B-02), reactor coolant (PC-07A-01), and the 4kV systems (PC-63A-01) for unavailability from July 10, 1996, to June 30, 1997, was a noncited violation (Section M1.6).

- The failure to adequately monitor the performance of preventive maintenance for the solid state protection and the nuclear instrumentation systems from July 10, 1996, to July 11, 1997, was a violation (Section M1.6).

- The failure to justify or demonstrate the effective performance of preventive maintenance for the control rod drive ventilation system from May 30 to July 9, 1997, was a violation (Section M1.6).

- The program for monitoring the Maintenance Rule-related performance of structures was comprehensive. Documentation indicated that the scoping and risk-significance determination efforts had been detailed and thorough. The condition monitoring was supported by good inspection guidance and excellent inspection records (Section M1.6).

- The material condition of the plant areas toured was good with minor exceptions (Section M2.1).

- Overall, procedures developed for implementation of the Maintenance Rule were adequate. However, the data base was incorrect in some areas, but none of these inconsistencies constituted a regulatory concern (Section M3.1).

- The scope of self assessments were comprehensive, the identification of issues was thorough, and meaningful feedback and suggested corrective actions were provided to management (Section M7.1).

Engineering

- The knowledge of the system engineers with respect to the Maintenance Rule was weak and not commensurate with procedure requirements (Section E4.1).

Report Details

Summary of Plant Status

Both units were at full power during the inspection.

I. Operations

O4 Operator Knowledge and Performance

O4.1 Operator Knowledge of the Maintenance Rule

a. Inspection Scope (62706)

The team interviewed a shift supervisor, shift foreman, and shift technical advisor to determine if they understood the general requirements of the Maintenance Rule and their particular duties and responsibilities for its implementation.

b. Observations and Findings

The team found that the shift supervisor, shift foreman, and shift technical advisor understood the philosophy of the Maintenance Rule and their responsibilities associated with the Maintenance Rule. All indicated a good knowledge of the risk-significant computer software for conducting safety assessments of risk-significant structures, systems, and components. The team found that the shift supervisor made the determinations of what systems were allowed to be taken out-of-service based on the risk assessment performed. They did not, however, fully understand the Maintenance Rule-related terms of scoping, risk-significance, monitoring period, and performance criteria as related to the program. These findings were not unexpected because of the heavy reliance on the Maintenance Rule coordinator, the system engineers, and the way the licensee implemented the Maintenance Rule Program. The operators had received limited overview training of the Maintenance Rule during their requalification.

The team noted that balance-of-plant structures, systems, and components were not included in the risk assessment software. Procedure AD7.DC6, "Online Maintenance Risk Assessment," Revision 0, stated in a caution note that operations personnel should consider other structures, systems, and components (e.g., balance-of-plant) based on their judgment and experience. The team noted that this process could lead to inconsistent risk determinations by operations personnel.

c. Conclusions

The operations personnel interviewed understood the philosophy of the Maintenance Rule and their limited role and responsibilities for implementation of the Rule.

II. Maintenance

M1 Conduct of Maintenance

M1.1 Scope of the System, Structure, and Component Functions Included Within the Maintenance Rule

a. Inspection Scope (62706)

The team reviewed the licensee's procedure for initial scoping, applicable portions of the Diablo Canyon Updated Final Safety Analysis Report, Q-List, and emergency operating procedures. The team developed an independent list of structures, systems, and components that they determined should be included within the scope of the licensee's Maintenance Rule Program. The team used this list to verify the adequacy of the licensee's program implementation.

b. Observations and Findings

The team was informed by the licensee that NUMARC 93-01 was endorsed by their Maintenance Rule Program. The team determined that the present scoping of structures, systems, and components had been appropriately incorporated in the Maintenance Rule Program. The team noted during review of the licensee's Quality Assurance Assessment 962990004, "Scoping," dated August 27, 1996, through November 5, 1996, that approximately 20 structures, systems, and components had not been included in the scope of the Maintenance Rule on July 10, 1996. During the licensee expert panel meeting on June 30, 1997, these structures, systems, and components were officially included in the Maintenance Rule Program. The subject structures, systems, and components were: long-term cooling, extraction steam, auxiliary steam, nuclear steam system supplier sampling (safety-related), service cooling water, fire detection, nitrogen and hydrogen, fuel handling system, cranes (safety-related), digital rod position, communications (safety-related), non vital 4kV, non vital 480V ac, non vital 125V dc, non vital 120V ac, emergency lighting, cathodic protection, fire barrier penetrations, containment purge (safety-related) and main steam blowdown (safety-related).

Inclusion of these structures, systems, and components into the licensee's program was not timely. The team found the failure of the licensee staff to include the 20 structures, systems, and components within the scope of the Maintenance Rule Program from July 10, 1996, to June 30, 1997, was a violation of

10 CFR 50.65(b)(1) (50-275;-323/9704-01). The failure indicated a program deficiency, especially because some safety-related structures, systems, and components had not been included within the original scope of the licensee's program. The team found that the licensee's corrective actions upon identifying the omission of the systems were appropriate, although untimely.

The team found that the Maintenance Rule Program Document, Appendix C, "Mapping of Maintenance Rule Performance Criteria Functions From Scoping Functions," listed a series of tables that provided a description of the Maintenance Rule performance criteria functions, and the associated structures, systems, and components scoping functions. This document also summarized whether the Maintenance Rule performance criteria functions and the structures, systems, and components scoping functions were risk-significant or nonrisk-significant. This document was an excellent reference document.

c. Conclusions

The failure of the licensee to have included the 20 structures, systems, and components (5 safety-related) in the scope of the program from July 10, 1996, to June 30, 1997, was a violation of 10 CFR 50.65(b)(2). The Maintenance Rule Program Document, Appendix C, "Mapping of Maintenance Rule Performance Criteria Functions From Scoping Functions" was an excellent reference document.

M1.2 Safety or Risk Determination

a. Inspection Scope (62706)

The team reviewed the methods and calculations that the licensee had established for making goals commensurate with safety and for taking safety into account when setting performance criteria and monitoring. The team also reviewed the safety determinations that were made for the functions that were reviewed in detail during this inspection.

b. Observations and Findings

b.1 Risk-Ranking Methodology

The team noted that the licensee had used a full-scope Level 1 probabilistic risk assessment originally performed for Unit 1 in 1988. It had been updated to reflect plant design and operation and to include a Level 2 containment performance analysis. The probabilistic risk assessment was considered to be applicable to Unit 2 also because of the substantial similarities in design between the two units. The probabilistic risk assessment model used a large event tree and small fault tree.

The reported core damage frequency was 8.8E-05 per year due to internal initiating events (including flood events). As a result of the individual plant evaluation and other issues, the licensee had installed a sixth emergency diesel generator which reduced the core damage frequency by approximately 20 percent.

The licensee had implemented a policy of updating the probabilistic risk assessment every 18 months. At the time of this inspection, the licensee's staff stated that the mean core damage frequency was 4.4E-05 per year, based on incorporating plant-specific data using Bayesian updating techniques.

The team noted in the licensee's "Maintenance Rule Technical Basis Document," in Section 3, "Risk Significance Evaluation Process and Disposition of SSC Functions," that the risk-significance determination of functions was both quantitative and qualitative. The probabilistic risk assessment was used to identify those structures, systems, and components that were risk-significant with respect to core damage.

The DC1993 RISKMAN model was the probabilistic risk assessment model that was used in the Maintenance Rule risk-significance determinations. That model used data which contained the cumulative experience of Unit 1 through December 31, 1991. The more recent update of the probabilistic risk assessment model, DC1995 RISKMAN, used data which contained the cumulative experience of Unit 1 through December 31, 1994, and the experience of Unit 2 for the period of January 1, 1992, through December 31, 1994.

The team concluded that the risk-significance ranking was reasonable and comprehensive in nature, applying to both Level 1 core damage mitigation and Level 2 containment integrity, and in conformance with the NUMARC 93-01 guidance.

b.2 Truncation

The licensee's staff indicated that for importance ranking, the probabilistic risk assessment was quantified with a truncation limit of 2.5E-10.

Given the overall core damage frequency of 4.4E-05, the team considered the licensee's truncation point, which was more than four orders of magnitude below the baseline core damage frequency, to be conservative and acceptable.

b.3 Performance Criteria

In the "Maintenance Rule Technical Basis Document," Section 4, "Performance Criteria Assigned to Maintenance Rule Performance Criteria Functions," the licensee provided the process used for selecting the applicable and appropriate performance criteria for the Maintenance Rule performance criteria functions. The licensee identified several different performance criteria, as follows:

PC1 - Unavailability Hours for Maintenance Rule Performance Criteria Function (Planned and Unplanned)
PC2 - Number of Maintenance Preventable Functional Failures
PC3 - Failure Rates (Component Groups)
PC4 - Condition Monitoring Consisted of Several Parts:

a. Erosion/Corrosion
b. Steam Generator Tube Integrity
c. RCS Operational Leakage
d. ECCS Post-LOCA Recirculation Leakage
e. Cathodic Protection System Operability
f. Spent Fuel Rack Integrity
g. Combined Type B & C Leakage Evaluation

The licensee's staff indicated to the team that the PC4 values were consistent with existing programs and that the existing targets and prescribed actions would continue to be administered under the existing programs, but that they were to be monitored also within the Maintenance Rule Program.

PL1 - PL5 Plant Level consisted of five parts:

PL1 - SCRAMS/ 7000 Hours Critical
PL2 - Unplanned Safety System Actuations
PL3 - Adjusted Unplanned Capacity Factor
PL4 - Unplanned Outage Events in Shutdown Modes
PL5 - Abnormal Radiological Releases

The licensee's staff also indicated that the plant level performance criteria were used to monitor the plant performance relative to nonrisk-significant, normally operating, structures, systems, and components functions and that these criteria could also be used to detect problems in certain risk-significant structures, systems, and components. If a Maintenance Rule performance criteria function was determined to be either risk-significant, nonrisk-significant standby, or nonrisk-significant normally operating, but could not be adequately monitored at the plant level, the associated structure, system, or component was monitored at the system-specific level.

In a self assessment dated April 11, 1997, the licensee identified numerous deficiencies with the performance criteria in the Maintenance Rule Program. In response to the findings in the self assessment, the licensee performed a calculation, [Pacific Gas & Electric Company, Nuclear Regulatory Services, Probabilistic Risk Assessment, Calculation File PRA97-10, Maintenance Rule Performance Criteria Investigation, Revision 0, dated July 2, 1997 (supersedes Calculation 95-006, Revision 0)]. The calculation determined the estimated core damage frequency at the train level and also the aggregate impact on the

probabilistic risk assessment results. Originally, in January 1995, the licensee had evaluated the impact of the availability criteria (PC1) on the core damage frequency based on a draft version of the Electric Power Research Institute Probabilistic Safety Assessment Applications Guide (EPRI TR-105396, August 1995). The calculation reviewed by the team at the time of the inspection was based on the latest revision of the probabilistic risk assessment, and also based on the screening methodology in the published version of the Guide.

The actual screening criteria used by the licensee were as follows. Individual system unavailabilities producing an increase in core damage frequency less than a factor of 1.1 were considered nonrisk-significant. If the increases in core damage frequency above the latest probabilistic risk assessment value calculated with all unavailabilities at their PC1 values was less than a factor of 3, the aggregate impact of the PC1s was considered acceptable.

The results of the unavailability calculation were that no single system resulted in an increase of core damage frequency of more than 6 percent and the aggregate calculation of all risk-significant systems operating in excess of their performance criteria resulted in an 11 percent increase in core damage frequency. It should be noted that the licensee had reduced the PC1 values to achieve these small increases in core damage frequency and these new reduced PC1 values only recently were set into the licensee's Maintenance Rule Program. The Maintenance Rule coordinator informed the team that action requests would be initiated documenting these issues.

The evaluation results showed that the unavailability performance criteria as a group were commensurate with safety.

For the reliability performance criteria, PC2, the licensee had established generally either 1 maintenance preventable functional failure in 24 months for each risk-significant system or 2 maintenance preventable functional failures in 24 months for nonrisk-significant systems. For standby systems, the binomial distribution method as specified in Electric Power Research Institute Technical Bulletin 96-11-01, "Monitoring Reliability for the Maintenance Rule - Failure to Start" was used. For normally operating systems which alternate the train(s) in standby, the Poisson distribution was used as specified in Electric Power Research Institute Technical Bulletin 97-3-01, "Monitoring Reliability for the Maintenance Rule - Failures to Run."

The licensee performed a sampling calculation of the reliability performance criteria of selected risk-significant systems and compared the results to the probabilistic risk assessment assumed failure rates. The calculation results indicated that no sampled system affected the core damage frequency by more than 2 percent.

The team considered the licensee's development process for performance criteria to be acceptable.

b.4 Updating Methodology

The licensee staff updated the probabilistic risk assessment using the Pickard, Lowe, and Garrel DATAMAN module of RISKMAN, Release 6.01. The component failure rate distributions were developed by combining two pieces of information: generic distributions and plant-specific failure data. Bayes' theorem was applied to develop plant-specific failure rate distributions. The team considered the licensee's updating methodology to be technically sound.

b.5 Expert Panel Observations

The team reviewed the expert panel members' qualifications. The expert panel members were from the operations, system engineering, probabilistic risk assessment, and maintenance organizations. The team interviewed and questioned the expert panel on scoping, performance criteria, program implementation, and risk ranking. During the interview, the team noted that the newest member of the panel, a system engineer on the panel since April 1997, did not fully understand that the expert panel was supposed to rank systems not identified by the probabilistic risk assessment for impact on core damage and also to rank systems for importance to containment integrity.

The team determined that the panel members were well qualified individuals.

c. Conclusions

The level of detail of the probabilistic risk assessment, the truncation limits, and the quality of the probabilistic risk assessment were satisfactory to perform the risk ranking of those structures, systems, and components within the scope of the Maintenance Rule Program. The licensee's development process for performance criteria were acceptable. The licensee's probabilistic risk assessment updating methodology was technically sound. The expert panel members were well qualified to perform their required tasks.

M1.3 Periodic Evaluation

a. Inspection Scope (62706)

The team reviewed the plans and procedures the licensee had established to ensure this evaluation would be completed when it will be required.

b. Observations and Findings

The team reviewed Procedure MA1.ID17, "Maintenance Rule Monitoring Program," Revision 3, which contained the guidance for performing periodic evaluations. This procedure stated that the periodic evaluation would address both units and would be performed on a refueling cycle basis as required.

The guidance in Procedure MA1.ID17 addressed the need to evaluate maintenance effectiveness, consider industry operating experience, and balance reliability and availability. The guidance was sufficient to perform the periodic evaluation; however, no periodic evaluation had been required or performed at the time of the inspection. A specific date for the periodic evaluation to be completed had not been established.

c. Conclusions

Sufficient procedural guidance had been established for performing periodic evaluations of the Maintenance Rule Program.

M1.4 Balancing Reliability and Unavailability

a. Inspection Scope (62706)

The team reviewed the plans and procedures the licensee had established to ensure that the improvements in reliability resulting from preventive maintenance were appropriately balanced against the losses in availability. Discussions were also held with licensee personnel, who were responsible for performing these evaluations.

b. Observations and Findings

The team was informed by the licensee's staff that efforts associated with: (a) their reliability centered maintenance program, (b) conversion to 24-month refueling cycles, and (c) implementation of Standardized Technical Specifications had provided a high level of confidence that the routine maintenance program could identify the appropriate type, amount, and frequency of maintenance. Additionally, recent efforts reducing the PC1 (unavailability performance criteria) and PC2 (reliability performance criteria) provided a technically valid link to the probabilistic risk assessment. The licensee also considered the definition of Maintenance Rule *functional failure and maintenance preventable functional failure and the* PC2 reliability criteria to be conservative, thereby, ensuring that proper balancing of unavailability and reliability could be achieved.

The team found that the licensee's approach for balancing unavailability and reliability consisted of monitoring performance against the established performance criteria. The process considered that a balance was achieved if the performance criteria were met.

For the structures, systems, and components reviewed, system engineers were collecting the out-of-service times to determine unavailability to monitor against performance criteria and to evaluate the balancing of reliability and unavailability. Unavailability data was monitored, analyzed, and trended for monthly performance on a 24-month rolling average. The team questioned the use of "rolling average data" for monitoring unavailability instead of determining where the performance

criteria over a 24-month period were exceeded. The licensee's approach had the potential to mask increased unavailability data near the end of the 24-month monitoring period or make performance degradation more difficult to detect (see additional discussion in Section M1.6b).

c. Conclusions

The team determined that the method used by the licensee's staff in determining unavailability on a 24-month rolling average had the potential to mask increased unavailability data.

The licensee's methodology for balancing availability and reliability, if properly implemented, should achieve proper balancing.

M1.5 Plant Safety Assessments Before Taking Equipment Out-of-Service

a. Inspection Scope (62706)

The team reviewed the licensee's process for assessing the impact of removing equipment from service to support maintenance activities. The team reviewed the licensee's procedures and discussed the process with the Maintenance Rule coordinator, the expert panel members, operators, and maintenance schedulers. A sample of plant configuration changes that resulted from schedule changes and equipment failures were reviewed. The team then evaluated the licensee's assessment of the difference in risk as a result of the changes.

b. Observations and Findings

The licensee had two procedures in effect relevant to on-line maintenance activities. One was Administrative Procedure AD7.ID4, "On-Line Maintenance Scheduling," Revision 1A, which was intended to ensure that the necessary preplanning and preparations were performed by establishing and using maintenance target windows. The risk assessments identified as required by Procedure AD7.ID4, were performed in accordance with Procedure AD7.DC6, "On-Line Maintenance Risk Assessment," Revision 0.

Procedure AD7.ID4 assigned responsibility and authority to the work week coordinator for scheduling all work for a 7-day calendar week beginning 5 weeks in advance. The procedure was intended to take into account component maintenance windows, recurring surveillance tests, preventive and corrective maintenance, and design changes. The procedure distinguished between safety-related and nonsafety-related systems. The procedure indicated that structures, systems, and components that were not required by Technical Specifications or equipment control guidelines but used to mitigate accidents or place the plant in a safe shutdown condition would be assigned a 7-day allowed outage time and the

structures, systems, and components were to be handled the same way as safety-related structures, systems, and components. The procedure consisted of a 12-week rolling matrix of staggered surveillance tests. The operations shift supervisor and the operations scheduling shift supervisor were identified as responsible for determining whether emergent issues on safety-related structures, systems, and components posed additional risk based on the structures, systems, and components out-of-service at the time of discovery.

Procedure AD7.DC6 was intended to minimize the unavailability of safety-related and risk-significant structures, systems, and components by having only one at-power maintenance outage window (usually a week or less) per cycle per train or component.

A weighing factor was assigned in accordance with each function's importance in the emergency operating procedures. The safest combinations were considered green conditions, followed by yellow, orange, and red, the least safe.

In Self Assessment 971690001, "Operations Role in Implementing the Maintenance Rule," dated June 25, 1997, the licensee had identified several problems concerning adequacy of procedures, procedure compliance, operator knowledge of the Maintenance Rule and their responsibilities, and the training program.

The licensee's assessment personnel informed the team that operations department personnel relied upon the OLM.EXE computer program on the plant shared drive as the primary tool for evaluating plant risk before removing equipment from service. Since not all risk-significant structures, systems, and components were included in the OLM.EXE computer program, the licensee's assessment personnel concluded that operations personnel were not meeting the intent of Procedure AD7.DC6 to perform risk assessments prior to removing any risk-significant structures, systems, and components from service. The licensee initiated Action Request A0438079 to address this issue. The team determined that not including all risk-significant structures, systems, and components (e.g., auxiliary building ventilation and switchgear ventilation) in the risk matrix was a weakness.

The team was informed by the licensee's assessment personnel that operations personnel were currently performing a self assessment of all risk assessments performed and comparing them to Technical Specification sheets to verify that risk assessments had been performed. In particular, the assessment personnel had reviewed all completed Procedure AD7.DC6, Attachments 9.13, "Risk Assessment Checklists for Removing Risk Significant SSCs from Service," for the month of March 1997. Operations personnel had performed a total of 62 assessments.

The licensee identified two instances where a risk-significant structures, systems, and components had been declared inoperable and an Attachment 9.13 sheet could not be found. These two instances pertained to Auxiliary Saltwater Pump 1-1, once on March 10, 1997, and again on March 28, 1997. The Auxiliary

Saltwater Pump 1-1 was identified in Procedure AD7.DC6, paragraph 4.5, as an example of the highest risk, single-train structure, system, or component normally allowed to be removed from service. The team determined that the Auxiliary Saltwater Pump 1-1 was declared inoperable, but not removed from service for emergent maintenance needs on March 10, 1997. For the March 28, 1997, instance, Auxiliary Saltwater Pump 1-1 was removed from service for emergent maintenance needs only after a risk assessment had been performed. The team reviewed additional information on this issue provided by the licensee's staff included in Enclosure 4. The team found that the licensee's staff had adequately assessed risk in these two instances.

The team requested that licensee personnel use the plant information management system to determine whether any other risk-significant systems were out-of-service during the same times as the auxiliary saltwater pump. No other risk-significant systems were identified as being out-of-service at the same time. The team also reviewed the control room assistant's logs for Unit 1 and Unit 2, on a sample basis, for the period April 19 to 26, 1997. No examples of combinations of risk-significant systems out of service were found.

The team noted that the resident inspectors had identified a potential maintenance rule deficiency with the auxiliary salt water vault drain line check valves. This deficiency is addressed in NRC Inspection Report 50-275;-323/9714.

The team also noted a weakness in that Procedure AD7.DC6 did not provide for risk assessments during Mode 4, hot shutdown, nor did it require any formal risk assessments for risk-significant balance-of-plant equipment out-of-service.

The team interviewed a shift supervisor, shift foreman, and shift technical advisor. The shift supervisor and the shift foreman were both knowledgeable in the requirements of the Maintenance Rule and the need to perform risk assessments for risk-significant balance-of-plant equipment out-of-service, as well as, for Technical Specification required equipment. Because of the limited responsibility, the shift technical advisor's knowledge of the Maintenance Rule was limited to understanding that risk assessments were required for structures, systems, and components identified in the OLM.EXE computer program (i.e., Technical Specification structures, systems, and components). This finding corresponded to the licensee's self-assessment finding that there was no evidence that new training requirements, with respect to the Maintenance Rule, had been developed for either the senior reactor operators or shift technical advisors.

Several procedures were in effect which addressed shutdown safety. These included Administrative Procedure AD8.DC51, "Outage Safety Management Control of Off-Site Power Supplies to Vital Buses," Revision 5A; AD8.DC52, "Outage Safety Management Outage Planning and Management During Increased Risk Periods," Revision 3; and AD8.DC55, "Outage Safety Scheduling," Revision 6. Another administrative procedure (AD8.ID1) required that outage safety plans be

developed. The 1R8 Outage Safety Plan (Revision March 17, 1997) was reviewed by the team. The plan provided detailed instructions and contingency actions for protecting the key safety functions of decay heat removal, reactor coolant system inventory, reactivity control, electrical power sources, spent fuel pool cooling, and containment closure. The outage safety plan was supplemented with outage safety checklists which were similar to the safety function assessment trees. There were separate checklists for Modes 5 and 6, and core off-load. Modes 5 and 6 checklists covered vital dc and ac, inventory control, reactivity control, core cooling, spent fuel pool cooling, and decay heat removal.

Based on the discussions with the licensee's staff and the various types of charts maintained by the outage schedulers, the licensee's shutdown risk management program was found to be effective, with the exception that risk assessments were not being performed in Mode 4.

c. Conclusions

The licensee's on-line risk matrix did not include all of the risk-significant systems, and the licensee did not have a procedure addressing the risk of on-line maintenance during Mode 4. These shortcomings were considered weaknesses in the licensee's Maintenance Rule Program. The shutdown safety risk management program appeared to be effective.

M1.6 Goal Setting and Monitoring and Preventive Maintenance

a. Inspection Scope (62706)

The team reviewed program documents and records in order to evaluate the process that had been established to set goals and monitor under Section (a)(1) and to verify that preventive maintenance was effective under Section (a)(2) of the Maintenance Rule. The team also discussed the program with the Maintenance Rule coordinator, system engineers, and plant operators.

The team reviewed the systems and components listed below to verify that goals or performance criteria were established with safety taken into consideration; that industry-wide operating experience was considered for goal setting, where practical; that appropriate monitoring and trending was performed; and, that corrective action was taken when a structure, system, or component function failed to meet its goal or performance criterion, or experienced a maintenance preventable functional failure.

- Auxiliary Salt Water
- Feedwater
- Turbine Steam Supply (Upstream of MSIV)
- Component Cooling Water
- Diesel Generators
- 125V dc (vital and nonvital)
- Reactor Coolant System
- 480V (vital)
- Chemical Volume Control
- Auxiliary Feedwater
- Safety Injection
- Containment Isolation Valves
- Containment Heating, Ventilation, and Air Conditioning
- Residual Heat Removal
- 4kV (vital)
- Solid State Protection System/Nuclear Instrumentation
- Civil Structures

b. Observations and Findings

The team determined that the licensee had properly established goals for those structures, systems, and components that were either in, or had been in, Section (a)(1).

Fourteen of the systems listed above were risk-significant. Eight of the systems listed above were being monitored in accordance with Section a(1). The licensee did not use the run to failure or inherently reliable classification for any structure, system, or component.

The team reviewed the 125V dc (risk-significant) system and identified that the licensee did not monitor the 125V dc system for unavailability until June 30, 1997, which was not in accordance with 10 CFR 50.65(a)(2). This deficiency (i.e., violation) was identified by the licensee during a self assessment. The team found the licensee's planned corrective actions to address this violation to be appropriate. This nonrepetitive, licensee-identified and corrected violation is being treated as a noncited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (50-275;-323/9704-02).

The licensee also identified that it had not monitored at least one Maintenance Rule risk-significant performance criterion function for unavailability for the main steam (PC-04B-02), reactor coolant (PC-07A-01), and the 4kV systems (PC-63A-01) on a system or train level from July 10, 1996, to June 30, 1997. On June 30, 1997, the licensee expert panel had determined that monitoring on the system/train level was required. The team noted that the licensee had provided adequate monitoring criteria upon identification of the issue, and had commenced monitoring of the systems. The team also noted that the licensee had reviewed, or was in the

process of reviewing, equipment histories to determine if any actions would be required to comply with their Maintenance Rule Program. This non repetitive, licensee-identified and corrected violation is being treated as a noncited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (50-275;-323/9704-03).

The team found that the nuclear instrumentation and solid state protection systems' performance criteria for monitoring unavailability had not been established as of July 11, 1997. The licensee identified this deficiency in a self assessment, but had not resolved this deficiency. The licensee informed the team that the guidance of NUMARC 93-01 does not require unavailability performance criteria for these systems. The team took exception to the licensee's position. The licensee's staff had documented through performance criteria worksheets that the unavailability for nuclear instrumentation and solid state protection systems were not necessary due to redundancy involving multiple channels, and placing channels in the trip position during required surveillance testing on the systems. The team considered this approach as nonconservative in that these systems were monitored at the system level instead of determining the individual channel unavailability for the respective automatic protective function. The team found the failure to demonstrate the effective preventive maintenance of these two systems was a violation of 10 CFR 50.65(a)(2) (50-275;-323/9704-04).

The containment ventilation systems (i.e., containment fan cooling, hydrogen control, and control rod drive mechanism ventilation) were in Section (a)(1) due to previous failures of the engineered safety features starting timers for the containment fan cooling units. Maintenance preventable functional failures were identified when the units did not start on time during 18-month system response testing. The corrective action was a planned modification to install more reliable timer units. The licensee was performing response testing at a greater frequency (quarterly) to assure continued operability. The modification was complete in Unit 1 and was scheduled for the upcoming Unit 2 outage.

The team noted that the licensee's goal was to attain three successful tests in three quarters following the modification, and return the system to Section (a)(2). The licensee's program did not identify this practice as an exception to the guidance in NUMARC 93-01. However, the team determined that this accelerated testing met the intent of the guidance and the regulation.

The containment fan cooler unit system was designated safety-related, standby, nonrisk significant. The documentation reviewed by the team did not indicate if the monitoring was performed at the train or system level. The program coordinator informed the team that train level monitoring was required. The two subsystems within the hydrogen control system were designated nonrisk significant and adequately monitored by reliability. According to the documentation, there were no monitoring criteria for the control rod drive mechanism ventilation system. The licensee stated that the performance criteria were identical to the containment fan

cooling units; however, there was no written documentation or basis to validate that performance criteria existed or that the system was being monitored. The licensee conducted an expert panel meeting on July 9, 1997, and approved a change to the data base indicating that the performance criteria for the control rod drive mechanism ventilation system would be identical to the containment fan cooling units for reliability only. The team found the failure to adequately monitor the performance of this system from May 30, 1997 to July 9, 1997 was a second example of violation 10 CFR 50.65(a)(2) (50-275;-323/9704-04).

The team also noted that the 480V vital ac system was not monitored for unavailability. However, the team determined that this was identified and corrected by the licensee's staff on June 30, 1997. This non repetitive, licensee-identified and corrected violation is being treated as a noncited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (50-275;-323/9704-05).

The team noted that the use of condition monitoring performance criteria was detailed. The use of existing maintenance programs, such as erosion/corrosion, steam generator tube inspection, leak rate testing, and the logic used to establish performance criteria for condition monitoring were well documented.

A review of the licensee's program for monitoring the Maintenance Rule-related performance of structures indicated that the program was comprehensive. Documentation indicated that the scoping and risk-significance determination efforts had been detailed and thorough. Condition monitoring was supported by good inspection guidance and excellent inspection records. The licensee's program for monitoring of structures was in accordance with the current revisions NUMARC 93-01 and Regulatory Guide 1.160 and complied with the applicable regulation. The licensee had identified continuing degradation of concrete and structural steel of the intake structure in 1991. The structure was placed in Section (a)(1) and goals were set. The team determined that the goals and corrective action plans were adequate. The monitoring program for the intake structure was in compliance with 10 CFR Part 50.65.

The team determined that plant-level performance criteria were appropriately established for all other in-scope structures, systems, and components (i.e., non risk-significant, normally-operating systems). In addition, the team found that industry operating experience was considered for the establishment of goals and performance criteria.

c. Conclusions

The team concluded that, in general, the licensee properly established goals and performance criteria; performed appropriate monitoring and trending; and took appropriate corrective actions when required.

The failure to monitor unavailability of the 125V dc system was a noncited violation. The failure to monitor at least one performance criterion function for unavailability for the main steam (PC-04B-02), reactor coolant (PC-07A-01), the 4kV systems (PC-63A-01) was a noncited violation.

The failure to adequately monitor the performance of preventive maintenance for the solid state protection and nuclear instrumentation systems was a violation.

The failure to justify or demonstrate the effective performance of preventive maintenance for the control rod drive ventilation system was a violation.

The licensee's program for monitoring the Maintenance Rule-related performance of structures was comprehensive. Documentation indicated that the scoping and risk-significance determination efforts had been detailed and thorough. Condition monitoring was supported by good inspection guidance and excellent inspection records.

M2 Maintenance and Material Condition of Facilities and Equipment

M2.1 Observations from Walkdowns

a. Inspection Scope (62706)

In the course of verifying the implementation of the Maintenance Rule using Inspection Procedure 62706, the team performed in-plant walkdowns to examine the material condition of the systems listed in Section M1.6a., above.

b. Observations and Findings

The team found that the structures, systems, and components observed were visually free of corrosion. There were some minor oil and water leaks; however, based on their external condition, the structures, systems, and components were well maintained.

Boric acid transfer Pump 2-1 was coated with boric acid crystals in the chamber adjacent to the pump seal, indicating, a leaking pump shaft seal. The area adjacent to the Pump 2-2 mechanical seal was partially concealed from view by a poorly fitted and installed thermal insulation pad.

The team and the licensee identified some minor deteriorated grout pads and fireproofing in the diesel generator rooms. The licensee initiated Action Requests 4A0439237, AO439238, and A0439239 on these findings.

The team observed some concrete repairs to the intake structure. The team noted that the licensee had placed this structure on increased monitoring.

c. Conclusions

In general, with the exceptions discussed above, the material condition of the plant areas toured by the team was good.

M3 Maintenance Procedures and Documentation

M3.1 Maintenance Rule-Related Procedures

a. Inspection Scope (62706)

The team reviewed Maintenance Rule procedures and the data base that was maintained by the Maintenance Rule coordinator.

b. Observations and Findings

The licensee had made several revisions to procedures that implemented the Maintenance Rule Program at Diablo Canyon, just before the inspection.

The team identified a procedural inconsistency in Procedure MA1.ID17, "Maintenance Rule Monitoring Program," Revision 3. Procedure MA1.ID17 stated that structures, systems, and components should remain in Section (a)(1) for a minimum of three quarters. This was inconsistent with NUMARC 93-01, which stated that performance must be acceptable for three surveillance periods where the surveillance interval is equal to or less than a 6-month interval; performance is acceptable for two surveillances where the surveillance interval is greater than 6 months; or, an approved and documented technical assessment assures the cause is known and corrected and, thus, monitoring against goals is unnecessary. Therefore, the licensee's procedure had the potential of being less conservative than NUMARC 93-01, although the team identified no cases where the licensee had returned structures, systems, and components to Section (a)(2) sooner than recommended by NUMARC 93-01. The team identified this inconsistency to the licensee's staff. On July 10, 1997, the licensee issued Action Request A0439322 to revise Procedure MA1.ID17 to be consistent with NUMARC 93-01.

The team found that the Maintenance Rule data base contained errors, omissions, and inconsistencies (e.g., auxiliary feedwater). However, none of these deficiencies constituted a regulatory concern. For example, the data base described the second function of the auxiliary feedwater system as nonrisk-significant, when it was risk-significant. The Maintenance Rule coordinator indicated to the team that these deficiencies would be corrected.

Also, the Technical Basis Document, Appendix D, otherwise known as the "PC Worksheets" did not define the condition monitoring criteria for the containment isolation system, local leak rate testing. The licensee corrected the references in "PC Worksheet" to identify the criteria.

c. Conclusions

The team concluded that overall, procedures developed for the implementation of the Maintenance Rule were adequate. The team determined that the data base was incorrect in some areas.

M7 Quality Assurance in Maintenance Activities

M7.1 Licensee Self Assessment

a. Inspection Scope (62706)

The team reviewed the assessments that had been performed on the licensee's Maintenance Rule Program from its inception to the time of the inspection.

b. Observations and Findings

The licensee's quality assurance organization conducted an audit and several quality assurance assessments of the Diablo Canyon Maintenance Rule Program implementation. The quality assessments were comprehensive and thorough. These assessments identified numerous programmatic deficiencies, which provided the site Maintenance Rule organization with excellent findings, conclusions, and recommendations. Quality evaluations were initiated as a result of the assessments, which identified the problem descriptions and the suggested corrective actions.

The team reviewed some of the corrective actions taken and determined that the actions taken were appropriate (i.e., scoping, performance criteria). However, there were corrective actions that had not been completed, but the team determined that the proposed corrective actions were appropriate.

c. Conclusions

The team concluded the scope of the self assessments were comprehensive, the identification of issues was thorough, and meaningful feedback and suggested corrective actions were provided to management.

III. Engineering

E2 Engineering Support of Facilities and Equipment

E2.3 Updated Final Safety Analysis Report

A recent discovery of a licensee operating their facility in a manner contrary to the Updated Final Safety Analysis Report description highlighted the need for a special focussed review that compares plant practices, procedures and/or parameters to the Updated Final Safety Analysis Report descriptions. While performing the inspections discussed in this report, the team reviewed the applicable portions of the Updated Final Safety Analysis Report that related to the areas inspected, including Sections 8.3.1.1.13, 9.2.2, 9.2.7, and 9.4.6. The team verified that, in general, the Updated Final Safety Analysis Report wording was consistent with the observed plant practices, procedures and/or parameters.

The team questioned one statement in the design bases section for the Auxiliary Saltwater System, Updated Final Safety Analysis Report, Section 9.2.7.1. One sentence discussing the ability to maintain the component cooling water system function to remove heat states that:

> "However, to prevent overheating of the CCWS in the event that maximum possible heat loads are placed on the CCWS and minimum heat rejection capability to the ASWS is experienced during post-LOCA recirculation, operator action is credited to place either the second CCW heat exchanger or a second ASW pump (from the same unit or other unit through cross-tie FCV-601) into operation within 20 minutes to maintain CCW temperature within the limits given in Section 9.2.2."

The component cooling water heat exchangers are located within the protected area and have accessible platforms and emergency lights to assist an operator to manually stroke valves. In contrast to the component cooling water heat exchanger valves, cross-tie Valve FCV-601 is located inside the intake structure and is not easily accessible without a ladder and was not illuminated by emergency lighting. The team was informed that each unit supplies half the normal lighting in the intake structure, but the normal lighting is powered off non-emergency buses. The licensee's Individual Plant External Events Evaluation seismic study classified opening the crosstie valve as one of the top two operator actions that would help mitigate the design basis accident.

The team questioned the ability of the licensee to open Valve FCV-601 manually within 20 minutes. In response to the team's questioning, the licensee generated Action Request A0439301. The verification that the licensee can operate Valve FCV-601 within 20 minutes and the necessity of having emergency lights in the area is an inspection followup item (50-275;-323/9704-06).

E4 Engineering Staff Knowledge and Performance

E4.1 Engineering Staff Knowledge Related to the Maintenance Rule

a. Inspection Scope (62706)

The team interviewed engineering personnel to assess their understanding of the Maintenance Rule and associated responsibilities.

b. Observations and Findings

The team identified that system engineering personnel, according to Procedure TS5.ID1, "System Engineering Program," Revision 4, had responsibilities for:

- The lead role in the implementation of the Maintenance Rule monitoring activities
- System scoping criteria and risk-significance determination
- Maintaining system performance criteria and history
- Review and validation of system unavailability hours
- Determination of maintenance preventable functional failures
- Trending of system performance and comparison to performance criteria
- Determination of goals and monitoring for structures, systems, and components that exceed performance criteria values

System engineers had significant responsibilities associated with Maintenance Rule activities. The team determined that system engineers were knowledgeable of their systems; they had limited knowledge of probabilistic risk assessment; some did not know the performance criteria of their systems; some did not know whether reliability limits were train or system specific; some were unaware of how system unavailability was calculated; in general, they had no common understanding of unavailability; some were not knowledgeable in use of computer tracking; some did not know how to interpret performance graphs; and, in general, they lacked procedural knowledge of the Maintenance Rule.

The team reviewed four action requests (AO410224, AO412875, AO412876, and AO425346) that identified component failures as maintenance rule functional failures. Each failure was age related. The team noted that the system engineers did not consider an age-related failure as a maintenance preventable functional failure. In none of the above four cases did an action request include an apparent analysis to justify that the failures had little safety impact (i.e., run-to-failure). This was not consistent with NUMARC 93.01, Revision 2, or nonquality-related Procedures TS5.1D1 and MA1.ID17. The team reviewed the licensee's disposition and corrective actions of these four action requests and determined that the corrective actions for the specific equipment failures were appropriate, and that no violations of NRC requirements had occurred. For these action requests, other concerns resulted in the licensee determining that maintenance preventable functional failures had occurred. The team found the system engineers' lack of knowledge to properly identify age-related failures as either run-to-failure structures, systems, or components, or maintenance preventable functional failures as a significant weakness, which was not addressed by the licensee's corrective action for these four action requests.

During interviews, a majority of system engineers were unfamiliar with Maintenance Rule activities or terms related to scoping, risk-significance, performance criteria, monitoring periods, or goal setting. This lack of knowledge was not expected considering the responsibilities assigned to the system engineers in accordance with Procedures TS5.1D1 and MA1.ID17.

c. Conclusions

The knowledge of the system engineers with respect to the Maintenance Rule was weak and not commensurate with procedure requirements.

V. Management Meetings

X1 Exit Meeting Summary

The team discussed the progress of the inspection on a daily basis and presented the inspection results to members of licensee management at the conclusion of the onsite portion of the inspection on July 11, 1997. In addition, a supplemental telephonic exit was held on August 26, 1997, to discuss the results of inoffice review and the enforcement findings from the inspection. The licensee personnel acknowledged the potential violation on scoping violation, but had a differing position on the potential violations for failure to perform a risk assessment prior to removing an auxiliary saltwater pump from service for maintenance and for not monitoring the performance or condition of certain systems. Supplemental information was forwarded to the NRC staff concerning the potential violation for not performing a risk assessment. Based on the supplemental information and clarification from the licensee's staff, this potential violation was determined not to

be a violation of an NRC requirement. This was because during the time that the pump was declared inoperable, it remained in service and continued to fulfill its safety function while adjustments were performed.

The team asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

J. Becker, Director, Operations
B. Crocket, Manager, Nuclear Quality Services
D. Dye, Shift Supervisor, Operations
L. Fusco, Maintenance Rule Coordinator
T. Grebel, Director, Regulatory Services
S. Ketelsen, Supervisor, Regulatory Services
T. Leserman, Acting Director, Nuclear Safety Assessments and Licensing
C. Lewis, Engineer, Nuclear Quality Services
J. Molden, Manager, Operation Services
D. Miklush, Manager, Engineering Services
M. Norem, Director, Mechanical Maintenance
D. Oatley, Manager, Maintenance
R. Powers, Vice President, Nuclear Operations

Others

G. Gibson, Visitor, San Onofre
A. Krainik, Visitor, Palo Verde
R. Stroud, Consultant, Arizona Public Service

NRC

D. Allen, Resident Inspector
D. Powers, Chief, Maintenance Branch
M. Tschiltz, Senior Resident Inspector

INSPECTION PROCEDURE USED

IP 62706	Maintenance Rule

ITEMS OPENED AND CLOSED

Opened

50-275;-323/9704-01	NOV	Failure to include 20 structures, systems, and components in the scope of the Maintenance Rule (Section M1.1)
50-275;-323/9704-02	NCV	Failure to monitor unavailability for 125V dc system (Section M1.6)

50-275;-323/9704-03	NCV	Failure to monitor unavailability for the specific functions of main steam (PC-04B-02), reactor coolant (RC-07A-01), and the 4kV (PC-63A-01) systems (Section M1.6)
50-275;-323/9704-04	NOV	Failure to monitor unavailability for risk-significant systems (three examples) (Section M1.6)
50-275;-323/9704-05	NCV	Failure to monitor unavailability for the 480kV system (Section M1.6)
50-275;-323/9704-06	IFI	Auxiliary Salt Water emergency lighting (Section E2)

Closed

50-275;-323/9704-02	NCV	Failure to monitor unavailability for 125V dc system Section (M1.6)
50-275;-323/9704-03	NCV	Failure to monitor unavailability for the specific functions of main steam (PC-04B-02), reactor coolant (RC-07A-01), and the 4kV (PC-63A-01) systems (Section M1.6)
50-275;-323/9704-05	NCV	Failure to monitor unavailability for the 480kV (Section M1.6)

LIST OF DOCUMENTS REVIEWED

MA1.ID17	"Maintenance Rule Monitoring Program," Revision 3
AD7.DC6	"On-Line Maintenance Risk Assessment," Revision 0
MA1.NEI	"Maintenance Rule Monitoring Program-Civil Implementation," Revision 0
TS5.ID1	"System Engineering Program," Revision 4
AD8.DC51	"Outage Safety Management Control of Off-Site Power Supplies to Vital Buses," Revision 5A
TS1.ID1	"Erosion/Corrosion Monitoring Program Interfaces and Responsibilities," Revision 1A
OM7.ID1	"Problem Identification and Resolution - Action," Revision 7
TS1.ID4	"Intake Structure Aging Management Program," Revision OB
TS1.ID4	"Saltwater Systems Aging Management Program," Revision 1

AD8.DC52	"Outage Safety Management Outage Planning and Management During Increased Risk Periods," Revision 3
TI 4.22	"Maintenance Rule Program," Revision 0
PPM 1.16.6B	"Voluntary Entry into Technical Specification Action Statements for Work Activities," Revision 6
AD7.ID4	"On-Line Maintenance Scheduling," Revision 1A
AD8.DC55	"Outage Safety Scheduling," Revision 6
PM 41736	Intake Structure Engineering Walkdown, July 12, 1996
PM 41736	Intake Structure Engineering Walkdown, February 14, 1997
PG&E Letter DCL-91-307	Letter to NRC Summarizing Inspection Program, Inspection Results, and Corrective Action to Enhance Serviceability of the Intake Structure
Report	Consultant Engineering Report on Corrosion of Reinforcing Steel in the Intake Structure for the Diablo Canyon Nuclear Plant, November 26, 1991
Report 420DC-91.1112	Corporate Report on Test and Analysis of Structural Concrete in the Diablo Canyon Power Plant, December 10, 1991
NCR N1775	Nonconformance Report, Concrete Spalling at Intake Structure
PDR Docket 05000275, 9204240016 920414	Individual Plant Examination Report for Diablo Canyon Power Plant Units 1 and 2 in Response to Generic Letter 88-20, Pacific Gas & Electric Company - April 1992
PDR Docket 05000275, 9301250130 930115	Diablo Canyon Units 1 and 2 Response to NRC Request for Additional Information on the Diablo Canyon Individual Plant Examination Report, PG&E Letter DCL-93-008, January 15, 1993
PDR Docket 05000275, 9307150050-930630	Staff Evaluation of the Diablo Canyon Power Plant (DCPP) Units 1 and 2, Individual Plant Examination - Internal Events Submittal (TAC Nos. M74403 and M74404), June 30, 1993
PG&E Letter DCL-94-133	Response to Generic Letter 88-20, Supplement 4, "Individual Plant Examination of External Events for Severe Accident Vulnerabilities," June 27, 1994

"Maintenance Rule Technical Basis Document," PG&E - Diablo Canyon Power Plant with Appendices:

Appendix A - "SSC Scoping Forms"

Appendix B - "SSC Risk-significance Evaluation Forms"

Appendix C - "Mapping of Maintenance Rule Performance Criteria Functions from Scoping Functions"

Appendix D - "Performance Criteria Evaluation Methodology"

Report No. 970550005	"NQS Engineering Assessment Group Assessment - INPO Topics MA.1, ES.5," March 7, 1997, and subsequently revised July 3, 1997
Quality Evaluation Q0011948	"Maintenance Rule Performance Criteria," April 11, 1997, Action Request A0428553
Calculation File No. PRA97-10	Pacific Gas & Electric Co., Nuclear Regulatory Services, Probabilistic Risk Assessment, Maintenance Rule Performance Criteria Investigation, Revision 0, dated July 2, 1997, (supersedes Calculation 95-006, Revision 0)
EPRI Technical Bulletin 96-11-01	"Monitoring Reliability for the Maintenance Rule - Failure to Start," November 1996
EPRI Technical Bulletin 97-3-01	"Monitoring Reliability for the Maintenance Rule - Failures to Run," March 1997
C:\DATA\AEC\ MRSEN\CDFSUM. DO	Diablo Canyon Maintenance Rule Program, "PRA Sensitivity Runs (Reliability Performance Criteria)," July 7, 1997
NQS Assessment 971690001	"Operations Role in Implementing the Maintenance Rule," June 25, 1997
Calculation PRA96-08	"PRA Evaluation of Various Maintenance Configurations to Support the On-Line Maintenance Risk Assessment Procedure (AD7.DC6)," Revision 0, July 25, 1996
"1R8 Outage Safety Plan," (Revision March 14, 1997)	
CMR-2.5	Maintenance Rule-Civil Implementation Data File

Action Requests:

A0398141, A0408726, A0415942, A0418317, A0388355 A0420123, A0420271, A0420276, A0422133, A0438002, A0432762, A0428512, A0428453, A0427530, A0426788, A0423365, A0418008, A0416480, A0415928, A0415928, A0411818, A0411805, A0408736, A0401798, A0400905, A0395295, A0386593, A0386592, A0411558, A0377881, A0370834, A0433135, A0404674, A0425255, A0411469, A0427510, A0427491, A0427492, A0386913, A0383025, A0381347, A0366265, A0383497, A0438512, A0352347, A0353898, A0408756, A0402534, A0353423, A0355739, A0329619, A0357255, A0357254, A0357236, A0357246, A0357217, A0357229, A0336219, A0325201, A0394084, A0332645, A0328546, A0386452, A0353256, A0327473, A0325201

ENCLOSURE 3

Facsimile from Shawn LaForce (PG&E)
to Claude Johnson (NRC)

Dated July 23, 1997

PACIFIC GAS & ELECTRIC COMPANY

Diablo Canyon Power Plant
P.O. Box 56
Avila Beach, CA 93424

To: Claude Johnson
Company: USNRC
Phone: (817) 860-8282
Fax: (817) 860 - 8212

From: Shawn LaForce
Company: Pacific Gas & Electric
Phone: (805) 545 - 4741
Incoming fax : (805) 545 - 3368
or 691 - 3368 for co. line

Date: 07 / 23 / 97
Pages including this cover page: 9

Comments:

Claude - Per your telephone conversation with Stan Ketelsen this morning, attached are three discussion paper regarding the three Maintenance Rule potential violations. If you need additional information or clarification please call Stan Ketelsen or myself.

Thanks, Shawn LaForce

TO CONFIRM RECEIPT OF FAX: (805) 545 - 4840 TO CINDY NAIL

Response to NRC Identified Issue - MR Scoping

NRC Issue:

Twenty systems were not scoped within the MR program by the required implementation date of July 10, 1996. The inspectors noted that the failure to scope these systems into the MR program was licensee-identified and that the systems were subsequently scoped within the MR program.

PG&E Position:

In most cases, the failure to scope these systems into the MR was based on what was at the time believed to be sound technical interpretation of NRC requirements, NUMARC guidance and industry benchmarking data. However, the instances involving the addition of safety-related SSCs (for 5 systems) represent an oversight in our original scoping process. In these cases, the safety-related/nonsafety-related system boundaries were inappropriately delineated during the scoping process. Subsequent to the required MR implementation date, the NRC conducted numerous MR inspections at facilities throughout the country. Utilizing the feedback from these inspections, NQS identified that PG&E's original MR scoping criteria needed to be re-evaluated. Through aggressive corrective actions in response to our own internal NQS assessments, PG&E made the necessary adjustments to the DCPP MR scoping prior to the conduct of the NRC inspection. In summary, PG&E agrees that the twenty identified systems should have been scoped within the MR program. PG&E believes that, based on the fact that the scoping issues were self-identified, of low safety significance.
aggressive/thorough corrective actions, this potential NOV satisfies the criteria for being non-cited.

Description of Problem:

Twenty Systems were not scoped into the DCPP Maintenance Rule Program as of 7/10/96. The need for these systems to be scoped into the MR was identified by NQS in Assessment 962990004 issued November 5, 1996. Of the 20 systems added, only 5 systems involved the addition of SSCs which are safety-related (11A - NSSS Sampling, 42A - Cranes, Monorails, Hoists, 60 - Communications, 4C - Steam Generator Blowdown, 23A2 - Containment Hydrogen Control.)

Although the omission from the MR scope of some safety-related SSCs for five systems was an oversight, it is important to note that the majority of the systems added were intentionally scoped out in the original scoping effort based on PG&E's interpretation of the MR guidance. Based on the outcome of NRC Inspection Reports, however, it became apparent that we needed to re-visit the criteria we had used to develop the original MR scoping. The main areas for which the original scoping guidance was modified involve the following:

- Three of the systems added were not originally considered for scoping because of the "could-cause" versus "has-caused" scram issue. PG&E made this interpretation based on guidance provided by NEI based on feedback from the NRC (Reference 1).
- Two systems were not originally scoped into the rule because of the PG&E interpretation of the NUMARC 93-01 guidance regarding the inclusion of nonsafety-related SSCs used in EOPs (Reference 2). The NUMARC guidance allowed the exclusion of nonsafety-related SSCs that were determined not to add significant value to the mitigation of core damage or a radioactive release.
- Four systems addressed in the abnormal operating procedures (AOPs) were not originally scoped into the MR based on the NUMARC 93-01 guidance regarding the inclusion of nonsafety-related SSCs used in EOPs (Reference 2). This guidance does not mention the use of AOPs or the need to scope those SSCs in AOPs that perform accident mitigation functions. This guidance was acquired from NRC Inspection Procedure 62706 and applied during the NQS self assessment.
- Four systems containing nonsafety-related SSCs whose failure could result in loss of safety-related equipment were not originally scoped into the rule. The NUMARC 93-01 guidance in this regard required utilities to investigate systems and system interdependencies to determine the failure modes of nonsafety-related SSCs that will directly affect safety-related functions (Reference 3). The original PG&E scoping guidance allowed crediting of the augmented QA programs applied to these types of SSCs (nonsafety-related whose failures could affect safety-related SSCs) as providing reasonable assurance of reliable performance so as not to result in the loss of safety-related components.

In response to the NQS assessment finding on MR scoping, MR procedures were revised to modify/clarify scoping guidance in the above instances to be consistent with the guidance being applied by the NRC to other facilities around the country.

Safety Significance

Not having scoped portions of 20 systems into the MR prior to July 10, 1996 is of limited safety significance. Maintenance and corrective action programs that are independent of the MR ensure the operability of safety-related systems and/or the implementation of appropriate compensatory measures.

Of the twenty systems identified for addition to the scope of the DCPP MR program, only five systems involve the addition of safety-related SSCs. Of the twenty systems added, only system 98 - Fire Barrier Penetrations - was immediately placed into goal setting status based on a history of poor

performance. Problems with the fire barrier penetrations had been identified earlier and are being addressed in conjunction with NCR N0001789. Roving fire watch patrols have been established for several years which serve as a compensatory measure for this nonconforming condition.

Timeliness / Effectiveness of Corrective Actions

Failure to scope the 20 systems were identified by DCPP during a self assessment conducted from August through October, 1996. Corrective actions included a thorough review of all system scoping forms by the system engineers and re-evaluating each system for inclusion in the rule. Revised scoping forms were reviewed and approved by the expert panel as the forms were completed starting in February, 1997. All systems were reviewed by the expert panel and scoped into the rule on or before 6/30/97.

As a result of the self-assessment:

- The methodology for evaluating SSCs for inclusion in the MR was revised to reflect the guidance provided in NRC Inspection Report # 62607 and contained in the early baseline inspection reports.
- MA1.ID17 was revised to include the new scoping methodology
- All DCPP system scoping forms were revised and reviewed using the new methodology for inclusion in the MR scope.
- System Engineers reviewed each scoping form and provided input into the accuracy and completeness.

The scope of the corrective actions taken was comprehensive and was verified to adequately resolve the scoping issues identified by NQS and subsequently included in the potential NOV cited by the NRC Maintenance Rule inspection team.

References:

1. NEI letter from Tom Tipton dated October 17, 1995 (Documents discussions from a meeting between NEI and Bill Russell and other NRC representatives)
2. NUMARC 93-01, section 8.2.1.3
3. NUMARC 93-01, section 8.2.1.4

Response to NRC Identified Issue - MR Monitoring

NRC Issue:

The inspection team identified several systems that were scoped within the MR program but did not have PC1 (unavailability) performance criteria established by the required implementation date of July 10, 1996. The specific systems identified were: 125 VDC, 480 V, SSPS, NIS, and CFCUs. The inspectors noted that this issue was licensee-identified and that PC1 performance criteria were subsequently identified for several of the systems. However, PC1 values were not identified for the NIS and SSPS. (Note: Justification was provided to the inspection team for not establishing PC1 criteria for systems 37 (NIS) and 38 (SSPS). The inspection team indicated that they would review the adequacy of this justification during the week of 7/14/97.)

PG&E Position:

PG&E agrees that as of July 10, 1996, PC1 values had not been established for the five systems identified by the NRC. This fact was identified in NQS Assessment 970910120 issued on May 8, 1997. PC1 values were established as appropriate for 125 VDC, 480 V, and CFCUs in response to the NQS assessment. However, PG&E believes that our treatment of the NIS and SSPS under the MR meets the requirements of 10CFR50.65 with respect to balancing availability and reliability without the establishment of specific PC1 values. It is our understanding that the NRR representative on the NRC inspection team (Tom Bergman) was in agreement with the PG&E approach to balancing availability and reliability for the NIS and SSPS as described to the team during inspection period. PG&E also believes that, based on the fact that the monitoring issues were self-identified, of low safety significance, and with credit given for aggressive/ thorough corrective actions, this potential NOV satisfies the criteria for being non-cited.

Description of Problem:

The NRC identified the following systems as not being monitored in accordance with 10CFR50.65 as required by the Maintenance Rule (MR): 125 VDC, 480 V, SSPS, NIS, and CFCUs. The stated basis for this conclusion was the fact that PC1 values had not been established for these systems as of July 10, 1996. NQS Assessment 970910120, issued on May 8, 1997, identified all of these systems as either 1) not having availability performance criteria (PC1) assigned or 2) not having adequate justification documented as to why PC1 values are not required. In conjunction with the resolution of this assessment finding, it was determined that the assignment of availability performance criteria was required for 125 VDC, 480 V, and the CFCUs. PC1 values were established for these systems by 6/30/97. However, review of the NIS and SSPS systems against the requirements of 10CFR50.65 and the guidance of NUMARC 93-01 determined that the establishment of PC1 values for these systems is not required.

This determination was made based on the MR guidance from NUMARC 93-01 which states:

> "Performance criteria for risk-significant SSCs should be established to assure that reliability and availability assumptions used in plant specific PRA, IPE, IPEEE, or other risk determining analysis are maintained or adjusted when determined necessary by the utility."

PG&E believes it has met the intent of the above NUMARC guidance based on application of the following considerations to the establishment of MR performance criteria:

- PRA assumptions are analyzed and considered.
- Monitoring determinations and PC values are based on PRA and other factors (ID factors).
- PCs required under the MR were determined based on consideration of risk significance.

The following bases for not establishing specific PC1 values for the NIS and SSPS are provided in the PC worksheets for these systems:

NIS: The function of the NIS is risk significant. However, this function is not modeled in the PRA and due to the redundancy associated with the function (i.e., multiple channels), the maintenance unavailability is low. Additionally, PL3 plant level PC has been assigned to this function as a means for monitoring unavailability since tracking the time inoperable NIS equipment prevents power operation, mode transition, or an evolution such as refueling, is a more appropriate indicator of NIS unavailability. Hence, PC1 Criteria was not established for this function.

SSPS: The function of the SSPS is risk significant. However, the type of maintenance that could be performed on the associated SSCs (during periods when function is required) will not render the function inoperable. Hence, PC1 criteria was not established for this function.

To ensure a balance between availability and reliability in absence of PC1 values for NIS and SSPS, the following actions were taken:

- Conservative MRFF/MPFF definitions were applied (per the guidance of MA1.ID17) to both NIS and SSPS,
- To validate the assumptions made as to availability of NIS/SSPS in the PC determinations, NQS reviewed extensive historical Tech Spec LCO entries/data, and
- Similar Tech Spec LCO reviews are planned for future periodic assessments to ensure on a continuing basis the balance between availability and reliability as described in MA1.ID17, section 5.6.8.

Based on the above, although specific PC1 values were not established for NIS and SSPS, these systems satisfy the requirements of the 10CFR50.65.

Safety Significance:

Not having PC1 values prior to July 10, 1996 is of limited safety significance. Maintenance and corrective action programs that are independent of the MR ensure the operability of safety-related systems and/or the implementation of appropriate compensatory measures. However, without establishing criteria and/or methods for monitoring unavailability, DCPP would not be able to balance reliability and availability as required by the MR. This does not represent a safety-significant issue since the initial periodic assessment, performed in accordance with the requirements of MA1.ID17, would have identified the need to establish monitoring for the above systems.

Timeliness/Effectiveness of Corrective Actions:

The NQS assessment that identified the performance criteria issue was conducted from March 17 - May 8, 1997. The new PC1 values were established and approved by the Expert Panel by 6/30/97. Considering the lack of safety significance and the scope of the effort, PG&E considers the corrective actions taken to address this self-identified issue to be timely. The corrective actions taken in response to the NQS assessment finding associated with performance criteria are summarized as follows:

- Mapping forms (Appendix C of the Maintenance Rule Program Document) were developed for all scoped SSCs.
- A PC1 criterion was assigned to each risk significance MR PC function or appropriate justification was provided on the PC worksheets. PC1 values calculated using the latest PRA. The PRA sensitivity analysis was performed to verify the adequacy of the new PC1 values.
- MRPD Appendix D was developed to establish the PC calculation methodology and provide the technical bases for the methodology.
- MA1.ID17 was changed to add additional guidance on the establishment of PC1 criteria. In addition, section 4 of the MRPD was revised.
- Historical unavailability data were compared to the new PC1 exceedance values. The systems that exceeded the values are in the process of being evaluated for goal setting.

The scope of the corrective actions taken was comprehensive and was verified to adequately resolve the performance criteria issues identified by NQS and subsequently included in the potential NOV cited by the NRC Maintenance Rule inspection team.

Response to NRC Identified Issue - Risk Assessment

NRC Issue:

One incident was identified in which maintenance was authorized on risk significant equipment without a risk assessment. This incident was licensee identified. The inspection team considers this to be a potential violation in that the requirements of the applicable procedure (AD7.DC6, "On-Line Maintenance Risk Assessment") were not followed.

PG&E Position:

The failure to perform a risk assessment in this instance is not clearly prescribed in AD7.DC6 in that the risk significant component, auxiliary saltwater pump (ASP) 1-1 was not removed from service although it was declared inoperable until the excessive seal leakoff flow condition was corrected. However, it is the intent of our program to perform risk assessment evaluations in these cases and training has been conducted to ensure this understanding among the senior licensed operating crew supervisors. This event was self-identified by a QA audit. In addition to being self-identified, this incident was not indicative of a programmatic problem, was not risk significant, and actions were taken to preclude similar incidents. Thus, PG&E believes that this potential NOV satisfies the criteria for being non-cited.

Description of Event:

On 3/10/97 at 09:11, ASP 1-1 was declared INOPERABLE due to excessive shaft seal leakoff flow and TS 3.7.4.1 was entered as documented on Technical Specification Tracking Sheet T0020924. The ASP 1-1 remained in service (pump continued to supply required flow) for shaft seal packing adjustment and was declared OPERABLE on the same day at 11:44. There is no documentation that a risk assessment sheet was completed for this event, as required per AD7.DC6.

AD7.DC6, step 6.3.1 states:

> "Anytime a risk significant SSC is removed from service for planned or emergent maintenance, the risk shall be evaluated for the current plant state. This is necessary in addition to the risk assessment performed in the planning process."

This problem was identified by a subsequent QA audit and ETR V0008856 was filed on 6/20/97. This event has been determined not to be programmatic because the QA audit found that out of 64 risk significant equipment outages, there was only one case identified where the risk assessment was not done. The cause of this event was attributed to an isolated personnel error related to implementation of a new program.

Response to NRC Identified Issue - Risk Assessment

Safety Significance:

Plant nuclear safety was not compromised. During this event the ASP 1-1 seal leakoff flowrate was identified to be slightly over 4 gpm. The ASP surveillance test procedure acceptance criteria for pump operability requires the ASP seal leakoff flowrate to be less than 4 gpm. Therefore, Operations declared the ASP 1-1 inoperable. The Technical Specification log for dayshift, 3/10/97, indicates that no other safety related equipment was out of service at the time of the event. ASP 1-1 was not removed from service and continued to supply required cooling water flow during the seal packing adjustment. When a risk assessment was performed for the plant conditions as they existed on 3/10/97 the risk was found to be acceptable and no compensatory measures or upper management notifications were required.

Timeliness / Effectiveness of Corrective Actions:

AD7.DC6 clearly requires a risk assessment in the case where a component is removed from service for planned or emergent maintenance. In this case the affected component remained in service even though it was technically inoperable. Management's expectation is that a risk assessment be performed whenever a component is declared inoperable. The Operations SS involved in this event was counseled on management's expectation's. Also, this expectation was made clear with the maintenance rule training that was conducted during operator re-qualification sessions for all senior licensed personnel, including SS, SFM, and STAs in May and June of this year. In addition, PG&E is planning additional enhancements to AD7.DC6 to strengthen the risk assessment program.

ENCLOSURE 4

Facsimile from Shawn LaForce (PG&E)
to Claude Johnson (NRC)

August 27, 1997

PACIFIC GAS & ELECTRIC COMPANY

Diablo Canyon Power Plant
P.O. Box 56
Avila Beach, CA 93424

To: Claude Johnson
Company: NRC
Phone: 817 - 860 - 8282
Fax: (817) 860 -- 8212

From: Jim Dye
Company: Pacific Gas & Electric
Phone: (805) 545 - 3555
Incoming fax : (805) 545 - 3368
or 691 - 3368 for co. line

Date: 8 / 27 / 97
Pages including this cover page: 14

Comments:

Claude, Here is the background documentation regarding the potential NOV for missed risk assessments. In the interest of time, I will call you to discuss this whole package of documentation.

Jim Dye
8/27/97 0805 PDT

TO CONFIRM RECEIPT OF FAX: (805) 545 - 4444 / Amy Calloway or (805) 545-4840 / Dana Lopez

spreadsheets and maintain the official values for the PRA AOT values in AD7.DC6.

AD7.DC6 requires the SS or SFM to assess risk before removing any risk significant SSC from service. The OLM program only contains those SSC that have PRA AOT values and/or are included in the Safety Function logic trees. The OLM program does not contain several risk significant SSCs. Interviews with Shift Supervisors and Shift Foremen show that risk assessments are only being performed on SSCs contained in the OLM program. NQS believes AD7.DC6 may be unnecessarily restrictive since NUMARC 93-01 only requires risk assessments to be performed on systems that support key plant safety functions.

NQS reviewed all AD7.DC6 Att. 9.13, "Risk Assessment Checklists for Removing Risk Significant SSCs from Service" for the month of March. Operations performed a total of 62 risk assessments. When compared with the PIMS T.S. module, two instances were identified where a risk significant SSC was declared inoperable and a Risk Assessment sheet was not found. NQS initiated ETRs in both cases.

Date	Component	T.S. Sheet	ETR #
3/10/97	ASW PP 11	T0020924	V0008856
3/28/97	ASW PP 11	T0020934	V0008857

AD7.DC6 Att. 9.1, "List of Risk Significant Systems", contains a list of risk significant SSCs at the "train level." The Maintenance Rule Basis Document, Sect. 3, Table 3.2-1 lists SSCs based on their maintenance rule performance criteria functions. The following is a list of those SSC's from Table 3.2-1 which do not appear to have corresponding SSC's listed in AD7.DC6 Att. 9.1:

MR PC Function ID	MR PC Function Description
PC-04B-01	Turbine Steam Supply (MSIVs and Upstream) - Provide for overpressure protection of the S/Gs using main steam safety valves with setpoints that ensure proper AFW flow
PC-04B-02	Turbine Steam Supply (MSIVs and Upstream) - Provide controlled cooldown of the RCS in the event of a Hosgri earthquake or SGTR via 10% steam dump valves
PC-04B-06	Turbine Steam Supply (MSIVs and Upstream) - Provide capability to limit steam flow (via steam flow restrictor) following a steam line break
PC-04B-07	Turbine Steam Supply (MSIVs and Upstream) - Maintain S/G tube integrity (primary to secondary pressure boundary)
PC-07A-01	RCS - Provide proper flow, pressure, reactivity control, and chemistry control to satisfy heat transfer requirements

EVENT TRENDING (2) PAGE : 0001

Pot. NOV

TREND NBR : V0008856
EVENT DATE : 03/10/97
FEG :
OMPONENT : 1 17 M PP ASP1
UNIT/SYS : 1 17
AR# :
EVENT DESCRIPTION : RISK ASSESSMENT NOT PERFORMED AS REQUIRED PER AD7.DC6

TREND STATUS/DATE: ACTIVE 06/20/97
LAST CNG BY/DATE : SWH1 06/24/97
TRENDING INIT BY : SWH1
OPERATING MODE :
TREND EQUIPMENT? : N

========== PERFORMING ORGANIZATIONS ==========

ORGANIZATION: PGOF OPERATIONS - DAY SHIFT SUP.

PROCEDURES BEING USED	WORK PROCESS DATA	WORKER RELATED DATA
1B AD7.DC6	PROCED ADHER	HUMAN ERROR

========== EQUIPMENT TRENDING ==========

========== EVENT REMARKS ==========

EVENT TRENDING COMMENTS:	ID	DATE
DURING ASSESSMENT OF OPS COMPLIANCE TO THE MAINTENANCE	SWH1	06/24/97
RULE, A COMPLETED RISK ASSESSMENT SHEET FOR THE REMOVAL	SWH1	06/24/97
OF ASP1 FROM SERVICE WAS UNABLE TO BE FOUND. A T.S.	SWH1	06/24/97
SHEET WAS PROPERLY INITED	SWH1	06/24/97

========== END OF REPORT DATA ==========

(3)

TECH SPEC SEARCH BY UNIT, INOP DATE AND SYSTEM -----PAGE 1 OF 1
SELECT RESULT ---> SEARCH MODE

UNIT: 1 INOP DATE RANGE: 03/09/97 TO 03/11/97 SYSTEM:

RESULTS OF SEARCH

	UNIT	INOP DATE	SYS	COMPONENT ID	TS SHEET	STATUS
1.	1	03/10/97	17	1 17 M PP ASP1	T0020924	HISTRY
2.	1	03/10/97	23		T0020926	HISTRY
3.	1	03/10/97	23	1 80 F DR DOOR361	T0020925	HISTRY
4.	1	03/11/97	13	1 13 M PP SFPP1	T0020907	HISTRY
5.	1	03/11/97	23	1 23 P V VAC-1-FCV-66	T0020927	HISTRY
6.	1	03/11/97	39	1 39 I I RM-44A	T0020929	HISTRY
7.	1	03/11/97	80	1 80 F DR DOORB26	T0020936	HISTRY
8.	1	03/11/97	80	1 80 F DR DOOR143	T0020933	HISTRY
9.	1	03/11/97	80	1 80 F DR DOOR149	T0020937	HISTRY
10.	1	03/11/97	80	1 80 F DR DOOR232	T0020938	HISTRY
11.						
12.						

MESSAGE: NO MORE DATA TO SCROLL IN FORWARD DIRECTION
B MY JOB LU #8

TECHNICAL SPECIFICATION SHEET

(4)

TS SHEET NUMBER: T0020924 STATUS: HISTRY TYPE: ACT
UNIT: 1 SYSTEM: 17 CMP ID: 1 17 M PP ASP1 FEG: 1 17 1P1

DESCRIPTION: ASW PP 1-1
DATE: 03/10/97

---------- TECH SPEC LCO OR ECG ENTERED ----------
TSLCO: 3.7.4.1 MODES: 1 2 3 4 _ _ 3.0.4: Y INFO (Y/N): N

---------- ACTION DESCRIPTION ----------
ACTION: WITH ONLY ONE AUX SW TRAIN OPERABLE, RESTORE AT LEAST TWO TRAINS
ACTION: TO OPERABLE STATUS WITHIN 72 HOURS OR BE IN AT LEAST HOT STANDBY
ACTION: WITHIN THE NEXT 6 HOURS AND IN COLD SHUTDOWN WITHIN THE FOLLOW-
ACTION: ING 30 HOURS.
ACTION: ** NOTE: RACKING OUT THE 4KV PUMP BREAKER REQUIRES A TEST RUN
ACTION: PRIOR TO DECLARING THE PUMP OPERABLE **
ACTION: *** NOTE: PSRC INTERPRETATION 95-08 REV 0 STATES:
ACTION: TO COMPLY WITH THE ACTION STATEMENT HAVE EITHER:
ACTION: 1) TWO ASW PUMPS * AND ONE CCW HEAT EXCHANGER, OR
ACTION: 2) ONE ASW PUMP AND TWO CCW HEAT EXCHANGERS, OR
ACTION: 3) ONE TRAIN (ASW PUMP AND CCW HX), WITH THE CAPABILITY TO
ACTION: RESTORE AT LEAST ONE ADDITIONAL ASW PUMP * OR CCW HX WITHIN 20
ACTION: MINUTES OF RECEIPT OF AN SI.
ACTION: * NOTE: THE UNIT CROSS TIE, FCV-601 IN CONJUNCTION WITH AN
ACTION: OPERABLE, OPPOSITE UNIT ASW PUMP, MAY BE USED TO PROVIDE
ACTION: EQUIVALENT FLOW FOR ONE ASW PUMP.

---------- ASSOCIATED SOURCE DOCUMENTS ----------

TYPE	NBR	STATUS	DESCRIPTION	WORK COMP
A/R	A0426051	HISTRY	ASW PP 1-1 HI SEAL LEAKAGE	N

---------- ACTION REQUIRED ----------

INOP DATE/TIME: 03/10/97 09:11 SEE ATTMT :
ACTION PERIOD REQUIRED: 0072 H DUE BY : 03/13/97 09:11

No Risk Assessment Found

TECHNICAL SPECIFICATION SHEET

(5)

TS SHEET NUMBER: T0020924 STATUS: HISTRY TYPE: ACT
UNIT: 1 SYSTEM: 17 CMP ID: 1 17 M PP ASP1 FEG: 1 17 1P1

DESCRIPTION: ASW PP 1-1
DATE: 03/10/97

------------------------------ MISC INFORMATION ------------------------------

NOTIFICATIONS: _ ____

COND SURV: _ ____

REDUNDANT EQ CHECK: _ ____

TRAIN AFFECTED: A ADD SYSTEMS: __ __ __ __ __

SFM APPROVAL : RAAB JMR1

COMP OP (SFM): LEWIS B BAL1 OP DATE/TIME : 03/10/97 11:44