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BRAND,D.A. Pacific Gas & Electric Co.
RECIP.NAME RECIPIENT AFFILIATION
Ofc of Enforcement (Post 870413)

89-01

SUBJECT: Responds to NRC 890705 Enforcement Action 89-085 & notice of violation & imposition of civil penalty.

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August 4, 1989

PG&E Letter No. DCL-89-206

Director, Office of Enforcement
U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Re: Docket No. 50-275, OL-DPR-80
Docket No. 50-323, OL-DPR-82
Diablo Canyon Units 1 and 2
Reply to the Notice of Violation in NRC
Enforcement Action 89-85

Gentlemen:

On July 5, 1989, NRC Region V issued Enforcement Action 89-85 that included a Notice of Violation and proposed imposition of civil penalties in the amount of $75,000 associated with NRC Inspection Report Nos. 50-275/89-01, 50-323/89-01, 50-275/89-05, 50-323/89-05, 50-275/89-13, and 50-323/89-13. Enforcement Action 89-85 contained a Notice of Violation citing two Severity Level III problems. PG&E acknowledges the Notice of Violation and will pay the proposed penalties. Enclosed is a check for $75,000 payable to the Treasurer of the United States as directed by Enforcement Action 89-85.

PG&E has previously submitted six Licensee Event Reports (LERs) related to the events discussed in Enforcement Action 89-85. Additionally, PG&E previously submitted information regarding timeliness of corrective action, one of the problems cited in Enforcement Action 89-85, in PG&E Letter DCL-89-004, dated January 6, 1989. Enclosure 1 provides a reference to previous PG&E correspondence and meetings with the NRC on the specific issues noted in Enforcement Action 89-85.

Enforcement Action 89-85 identifies two primary concerns: (1) failure to implement or maintain the design bases of the plant through engineering and procedures; and, (2) failure to resolve identified problems in an effective and timely manner. PG&E recognizes the importance and significance of these issues and, as noted by the NRC in Enforcement Action 89-85, has taken aggressive and extensive actions related to these concerns.

PG&E's responses to the Notice of Violation are provided in Enclosure 2. In addition to the more recent actions being taken, these responses incorporate discussions and corrective actions described in previous PG&E correspondence to the NRC and PG&E-NRC meetings regarding these issues. As indicated in Enclosure 2 and as discussed with Region V in an April 6, 1989 meeting, PG&E's evaluation of the events concluded that the safety significance of each was minimal.

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w/check #75,000

PG&E recognizes the need for improvement in certain programs and procedures, and since it is PG&E's policy that conditions potentially adverse to safety or quality be properly identified and corrected in a timely fashion, PG&E senior management has been focusing considerable attention on these matters. This management involvement, coupled with the ongoing programs and the corrective actions discussed in Enclosure 2, will provide greater assurance that recurrence of incidents of this nature will be avoided, and that the plant will be managed and operated at the highest level of safety and reliability.

Kindly acknowledge receipt of this material on the enclosed copy of this letter and return it in the enclosed addressed envelope.

Subscribed to in San Francisco, California this 4th day of August 1989.

Respectfully submitted,

Pacific Gas and Electric Company

By _____
D. A. Brand
Sr. Vice President and
General Manager
Engineering and Construction
Service Business Unit

Howard V. Golub
Richard F. Locke
Attorneys for Pacific
Gas and Electric Company

By _____
Richard F. Locke

Subscribed and sworn to before me
this 4th day of August 1989

_____
Adriane D. Tolefree, Notary Public
for the County of Alameda,
State of California

My commission expires December 22, 1992.

OFFICIAL SEAL
ADRIANE D. TOLEFREE
NOTARY PUBLIC - CALIFORNIA
ALAMEDA COUNTY
My Comm. Expires Dec. 22, 1992

cc: J. B. Martin
M. M. Mendonca
P. P. Narbut
H. Rood
B. H. Vogler
CPUC
Diablo Distribution

Enclosures

2809S/0070K/DWO/2237

ENCLOSURE 1

VIOLATION SUMMARY AND RELATED PG&E CORRESPONDENCE AND MEETINGS

NRC Designation in EA 89-85*	Description	Previous PG&E Correspondence/Mtgs.
I.A.	CCW/ASW Systems Design Basis not Incorporated Into Plant Procedures	DCL-89-078 LER 1-84-040-00 March 24, 1989 Mtg. April 6, 1989
I.B.	Two AFW Pumps Out-of-Service Greater Than 6 hours - TS Violation	DCL-89-037 LER 2-89-001-00 February 24, 1989 DCL-89-059 LER 2-89-001-01 March 9, 1989 Mtg. April 6, 1989
I.C.(1)	ASW Pump Overcurrent Relay Not Operable For Design Basis Reduced Bus Voltage	DCL-89-083 LER 1-88-032-00 March 29, 1989 Mtg. April 6, 1989
I.C.(2)	ASW Pump Impeller Replacement Did Not Consider Diesel Fuel Oil (DFO) Storage For Increased Horsepower	DCL-89-083 LER 1-88-032-00 March 29, 1989 Mtg. April 6, 1989

* Collectively, items I.A., I.B., I.C.(1), I.C.(2), and I.D. have been categorized as a Severity Level III problem (Supplement 1) applicable to both Units 1 and 2.

Collectively, items II.A. and II.B. have been categorized as a Severity Level III problem (Supplement 1) applicable to both Units 1 and 2.

ENCLOSURE 1 (Continued)

VIOLATION SUMMARY AND RELATED PG&E CORRESPONDENCE AND MEETINGS

NRC Designation in EA 89-85*	Description	Previous PG&E Correspondence/Mtgs.
I.D.	AFW Overspeed Trip Mechanism - Failure to Implement Vendor Recommendations in Test and Preventive Maintenance Procedures	DCL-89-105 LER 2-89-002-00 April 21, 1989 DCL-89-106 April 24, 1989 (Response to IR 89-05) Mtg. April 6, 1989 Mtg. April 25, 1989
II.A.	Steam Driven AFW Pump Inoperable for 30 days Due to Open Gauge Line Root Valve - TS Violation	DCL-89-027 LER 2-88-024-00 January 30, 1989 DCL-89-140 LER 2-88-024-01 May 19, 1989 Mtg. April 6, 1989 Mtg. April 25, 1989
II.B.	Untimely Corrective Actions For Compensatory Measures For Missing DFO Transfer Pump Vault Drain Backwater Check Valves	DCL-89-080 LER 1-89-002-00 March 27, 1989 DCL-89-004 (Encl. 2) January 6, 1989 (Response to IR 88/26 and 88/24) Mtg. April 25, 1989

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* Collectively, items I.A., I.B., I.C.(1), I.C.(2), and I.D. have been categorized as a Severity Level III problem (Supplement 1) applicable to both Units 1 and 2.

Collectively, items II.A. and II.B. have been categorized as a Severity Level III problem (Supplement 1) applicable to both Units 1 and 2.

ENCLOSURE 2

RESPONSE TO NOTICE OF VIOLATION IN ENFORCEMENT ACTION 89-85

On July 5, 1989, as followup to an enforcement conference held with PG&E on April 25, 1989, NRC Region V issued Enforcement Action (EA) 89-85 that included a Notice of Violation associated with NRC Inspection Report Nos. 50-275/89-01, 50-323/89-01, 50-275/89-05, 50-323/89-05, 50-275/89-13, and 50-323/89-13. Enforcement Action 89-85 cited two Severity Level III problems, noting two primary concerns. More specifically, these two Severity Level III problems relate to (1) failure to implement or maintain the design bases of the plant through engineering and procedures, and (2) failure to resolve identified problems in an effective and timely manner. PG&E recognizes the importance and significance of these concerns and has taken comprehensive measures and devoted substantial resources to improve performance in these areas.

Actions PG&E has accomplished to address the first concern include: (1) implementation of a plant System Engineer Program as an integral part of the plant staff; (2) increased involvement of Nuclear Engineering and Construction Services (NECS) engineers in plant operations; (3) enhancement of the Configuration Management Program (CMP); (4) reinforcement of management expectations to all plant personnel regarding engineering involvement in plant activities; (5) improvements in the engineering training program; (6) reviews of selected previous work; and (7) strengthening of engineering procedures. Significant progress has been made to improve the working relationships and interface between NECS System Design Engineers and the plant staff. A key element in achieving this result has been the emphasis placed on coordination of design and operations activities between the plant System Engineers and NECS System Design Engineers. Considerable progress has also been made in CMP tasks that involve clarification of the plant design bases and implementation of actions to make them more accessible to the plant staff.

Actions PG&E has taken to address the second concern include: (1) Technical Review Group (TRG) and root cause evaluation enhancements; (2) more timely incorporation of industry and DCPP experience into DCPP practices and procedures; (3) development of a more aggressive, self-critical attitude to resolve problems; (4) more explicit communication of management expectations; and (5) individual accountability for resolution of identified problems. PG&E has devoted considerable resources in the area of problem resolution during the last several years and is continuing its efforts toward improvement.

The statements of violation and PG&E's response to each item of the cited problems are provided below.

STATEMENT OF VIOLATION NO. I.A.

The Notice of Violation (EA 89-85) stated:

I. Engineering and Plant Procedures

A. 10 CFR Part 50, Appendix B, Criterion III, "Design Control," provides in part, that "Measures shall be established to assure that applicable regulatory requirements and the design basis . . . for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions."

1. The design basis requirements for the Component Cooling Water (CCW) system described in the Final Safety Analysis Report (FSAR), Section 9.2.2.2, specifies that one CCW pump and heat exchanger are sufficient to provide decay heat removal and essential component cooling in the event of a design basis loss of coolant accident (LOCA) provided that a second CCW heat exchanger is placed in service within 20 minutes.

Contrary to the above, as of January 26, 1989, the requirement that, within 20 minutes following a LOCA, operators place a second CCW heat exchanger into service, had not been translated into appropriate procedures or instructions.

2. The design basis for the Component Cooling Water system, as described in the FSAR, Section 9.2.2, specifies that, following a design basis Loss of Coolant Accident (LOCA), sufficient cooling will be supplied to vital loads. Licensee calculation M-464, dated August 17, 1983, and internal letter No. 84000312, dated February 14, 1984, specify that to meet the design basis, two CCW heat exchangers must be in service whenever CCW pump 1-1 or 1-2 is not available. This calculation is also applicable to Unit 2 (pumps 2-1 and 2-2).

Contrary to the above, as of January 26, 1989, the requirement to have two heat exchangers in service with CCW pump 1-1 or

1-2 not available had not been translated into appropriate specifications, drawings, procedures, or instructions. Between July 20, 1984 (initial entry of Diablo Canyon Unit 1 into Mode 3) and January 26, 1989 (NRC Safety System Functional Inspection team discovery date), the licensee routinely removed CCW pumps 1-1 or 1-2, and 2-1 or 2-2, without putting a second CCW heat exchanger into service.

REASON FOR VIOLATION IF ADMITTED

PG&E acknowledges that certain operating requirements established by Engineering to assure full compliance with the design bases for the component cooling water (CCW) and auxiliary saltwater (ASW) systems were not incorporated into the appropriate plant procedures.

The performance of the CCW system was analyzed in 1983 for accident response under various combinations of heat loads, component alignments, and water temperatures. To satisfy the acceptance criteria for the peak water temperature of the CCW system, certain operator actions would be necessary to maintain consistency with the assumptions used in the calculations and to keep the CCW temperature within specified limits. This information was provided to the plant staff by two internal letters dated January 3, 1984, and February 14, 1984; however, the information was not included in plant procedures.

The cause of this failure to revise plant procedures was determined to be inadequate tracking of resolution of correspondence and communications specific to engineering design bases constraints on plant operations. The tracking methods used at that time assured closure of design information related to hardware, however, these controls were not applied to non-hardware related subjects.

A recent refined analysis performed by PG&E and Westinghouse (letter PGE 89-570, February 16, 1989) demonstrates that the CCW temperature does not rise beyond the limits of operation of the CCW cooled Engineered Safety Feature (ESF) components. The maximum CCW temperature will peak at less than 132°F and will subsequently reduce to less than 120 degrees within 20 minutes. Further, the Westinghouse assessment concluded that the FSAR Update containment integrity analysis remained valid. Although the effect of the short-term reduced CCW flow was not quantitatively evaluated for all individual components, the probability of a concurrent LOCA, a bus F or G CCW pump being taken out of service, high ocean water temperature, loss of bus H, and failure of a safety-related component due to the short-term reduction in flow, is very low. Therefore, although Diablo Canyon has operated without the required procedure changes, there has been no compromise to the safe operation of the plant.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

1. Changes were made on February 2, 1989, to appropriate plant procedures as follows:

   - Emergency Procedure (EP) E-0, "Reactor Trip or Safety Injection " was revised to add a new step to verify that both ASW pumps start following a safety injection. If only one pump starts, the operator is instructed to place the second CCW heat exchanger in service in accordance with Operating Procedure (OP) E-5:II, "Auxiliary Saltwater System-Two CCW Heat Exchanger Operation."

   - OP E-5:II was completely revised to provide clear, adequate guidance regarding actions necessary to meet the design requirements.

2. Corresponding reference changes were made to interfacing procedures:

OP E-5	"Auxiliary Saltwater System"
OP E-5:I	"Auxiliary Saltwater System - Make Available"
OP F-2	"Component Cooling Water System"
OP F-2:V	"Component Cooling Water System - Operation During Plant Cooldown"
OP AP-11	Abnormal Procedure - "Malfunction of Component Cooling Water System"
PK01-01	Annunciator Response - "ASW System Heat Exchanger Dp/Hdr Pressure"
PK01-06	Annunciator Response - "CCW Vital Hdr A/B"

3. A plant Operations Shift Order was immediately issued to provide interim instructions until these procedural changes were implemented. Shift training sessions on these changes were immediately conducted.

4. Nuclear Engineering Manual Procedure (NEMP) 3.6 ON, "Operating Nuclear Power Plant Design Changes," was changed to require new or modified design bases information to be included in the body of the Design Change Notice (DCN). NEMP 3.6 ON was also revised to require communication of restraints on plant operation by use of the DCN process in those cases where such information is not provided by the normal engineering process.

5. NPG Policy 1.3, "Plant Operation," was revised to more clearly define NECS's role in plant operations.

6. PG&E reviewed more than 3000 items of correspondence and plant operating procedures to ensure that engineering correspondence and communications specific to constraints on plant operations have been appropriately incorporated into plant procedures. Of the 3,000 items reviewed, the nature of the exception items identified did not create a concern regarding safe operation of the plant. Action is being taken to disposition the open items.

7. An expeditious review of the FSAR Update and NRC Safety Evaluation Reports was performed by plant System Engineers and NECS System Design Engineers to ensure that the design bases summarized in these documents are appropriately incorporated into plant procedures for operation, testing, and maintenance. The results of this review were screened and no plant or system operability issues were identified. However, open items have been identified and action is being taken to assess these items to clarify or enhance plant procedures and the FSAR updating process. This effort will be followed by a more detailed review of the design bases during development of the new and revised DCMs on a schedule consistent with PG&E's Configuration Management Program discussed in PG&E Letter DCL-89-099, dated April 19, 1989.

8. A Configuration Management Program (CMP) was initiated in late 1988 to incorporate detailed system design bases information into existing Design Criteria Memoranda (DCMs) and to prepare additional DCMs as necessary. An action plan has been developed for the plant staff to perform a detailed review of plant procedures in parallel with development of DCMs to verify proper incorporation of appropriate system design bases.

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

PG&E believes that the above corrective actions will preclude recurrence of similar violations.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance with the design basis requirements for the CCW and ASW systems was achieved on February 2, 1989, when appropriate plant procedures were revised to include the operating requirements identified in Violation I.A. As noted above, additional actions to prevent recurrence are in progress as part of the Configuration Management Program.

STATEMENT OF VIOLATION NO. I.B.

The Notice of Violation (EA 89-85) stated:

I. Engineering and Plant Procedures

B. TS 3.7.1.2, "Auxiliary Feedwater System," states in part that "At least three steam generator auxiliary feedwater pumps and associated flow paths shall be OPERABLE with: a. Two motor-driven auxiliary feedwater pumps, each capable of being powered from separate vital busses, and b. One steam turbine-driven auxiliary feedwater pump capable of being powered from an OPERABLE steam supply system." This specification is applicable in Modes 1, 2, and 3. The Action Statement for this technical specification provides in part that "With two auxiliary feedwater pumps inoperable, [the reactor shall] be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours."

Contrary to the above, when two of the three Unit 2 auxiliary feedwater pumps were inoperable from January 17, 1989, 5:13 a.m. to January 18, 1989, 6:30 a.m., the reactor was not placed in hot standby or hot shutdown as required; rather, the reactor remained in Mode 1 at approximately 100% power for this entire period.

REASON FOR VIOLATION IF ADMITTED

PG&E acknowledges that two Unit 2 auxiliary feedwater (AFW) pumps were removed from service in January 1989 for approximately 25 hours and the reactor was not placed in hot standby or hot shutdown as required by the Technical Specification (TS).

On January 17, 1989, motor-driven AFW pump 2-3 was declared inoperable in order to perform maintenance on level control valve LCV-115. Technical Specification 3.7.1.2, Action a. was entered which allows 72 hours to return the inoperable AFW pump to service before other action must be taken. Shortly thereafter, AFW pump 2-1 was made inoperable by removal from service of one steam supply to the pump when FCV-37, a steam supply isolation valve, was shut to allow maintenance on the valve motor operator. Isolating one of two steam supplies to AFW pump 2-1 inadvertently made the pump technically inoperable because a fault in the other steam generator providing steam would disable the remaining steam supply.

The senior licensed operator who evaluated the operability considerations associated with taking FCV-37 out of service incorrectly concluded that this action would not render AFW pump 2-1 inoperable. The cause of this event was

a misunderstanding by plant personnel of multiple failure criteria as they apply to the design basis operability requirements of the steam-driven AFW pump. This misunderstanding was due to inadequate guidance in plant procedures which were used to determine the pump operability. Applicable plant procedures did not reflect the requirement to have both turbine steam supply paths operable.

As indicated in LER 2-89-001-01 (DCL-89-037, dated March 9, 1989), Westinghouse performed a feedline break analysis to evaluate the effects of the plant configuration during this 25-hour time period. This analysis was performed for cases with and without loss of offsite power. The results of the Westinghouse evaluation, which assumes operator adherence to emergency procedures, demonstrate that there would have been no adverse safety consequences from this event.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

1. An operations incident summary was issued on March 2, 1989, to familiarize all plant operators with this event.

2. A revision to Administrative Procedure (AP) C-6S4, "Control of Equipment Required by the Plant Technical Specifications," was approved on March 2, 1989, to provide greater detail on methods to determine system operability. This revision includes a requirement to obtain concurrence with the System Engineer in cases where equipment operability is not clear.

3. Surveillance test procedures (STPs) affecting the operation of the steam-driven AFW pump main steam supply valves were revised to clarify their impact on AFW pump operability.

4. As stated in response to Violation I.A. above, an expeditious review of the FSAR and the NRC Diablo Canyon Safety Evaluation Reports was performed by plant System Engineers and NECS System Design Engineers to ensure that the design bases summarized in these documents are appropriately incorporated in plant procedures. As part of the CMP, a program task has been developed that requires a detailed review of the design bases during development of the new and revised DCMs on a schedule consistent with PG&E's Configuration Management Program discussed in PG&E Letter DCL-89-099, dated April 19, 1989.

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

1. A revision to the FSAR Update, scheduled for a September 22, 1989 submittal, is being made to clearly state that both main steam supply valves must be open for the steam-driven AFW pump to be operable.

2. Surveillance test procedures are being reviewed on a schedule consistent with the PG&E's CMP by Engineering and the Plant System Engineering Group

to assure the adequacy of the surveillance test program. This review is being conducted in parallel with development of the DCMs to assure that the current program provides confidence that the systems perform as required by the plant design bases.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance with Technical Specification 3.7.1.2 was achieved on January 19, 1989, when FCV-37 was opened and AFW pump 2-1 was returned to service. As noted above, additional actions to prevent recurrence are in progress as part of the Configuration Management Program.

STATEMENT OF VIOLATION NO. I.C.(1)

The Notice of Violation (EA 89-85) stated:

I. Engineering and Plant Procedures

. . .

C. 10 CFR Part 50, Appendix B, Criterion III, "Design Control," provides in part, that "The design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews."

Contrary to the above, the licensee failed to perform an adequate design review of Design Change Package (DCP) M-39834, which increased the auxiliary saltwater pump motor load by installing larger impellers on May 25, 1988 for Unit 1 and on October 20, 1988 for Unit 2, as evidenced by:

(1) The DCP failed to consider the effects of the increased motor load on the time-current relay setpoints to account for accompanying changes for potential reduced voltage conditions. Consequently, satisfactory performance at the reduced voltage levels specified in the FSAR, Appendix 8.3A, was not assured.

REASON FOR VIOLATION IF ADMITTED

PG&E acknowledges that the ASW pump overcurrent relays were not reset after the pump impellers were replaced during the 1988 refueling outages for Units 1 and 2.

As indicated in LER 1-88-032 (DCL-89-083, dated March 29, 1989), due to personnel error, review and approval of motor performance test results with the new pump impellers were not properly identified in the Design Change Package (DCP) as necessary to verify the relay settings prior to declaring the pump operable. The DCP noted that pump motor test data should be collected for Engineering review; however, it did not clearly establish the requirement for verified pump test data and a documented reevaluation of the ASW pump motor overcurrent relay setting as a prerequisite to declaring the ASW pump operable.

Contributing causes to this event were determined to be:

1. A notation to check the pump overcurrent relay settings was made on the ASW pump motor rerating calculation. However, the calculation was not designated as "preliminary" in accordance with NEMP 3.3, Section 4.1.2b, which requires review and finalization of the calculation prior to component operation.

2. The pre-operational test required by Engineering did not specify testing to simulate worst case conditions.

3. Engineering instructions were entered as a requirement in an inappropriate section of a Replacement Parts Evaluation (RPE) and the instructions required greater definition.

4. The technical review checklist included in NEMP 3.6 ON did not include a specific entry for motor overcurrent relay setpoint evaluation.

A review of the electrical supply power design and the emergency onsite power design distribution characteristics shows that: (1) due to system design, an undervoltage condition would not be of sufficient duration to actuate the relays; and, (2) in the event of a postulated long duration voltage loss or a total voltage loss, the ASW pump motors would be loaded on the diesel generators. Therefore, operation of the plant with the initial overcurrent relay settings would not have resulted in the ASW pump motors being inoperable under the postulated simultaneous bus undervoltage condition.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

1. A Justification for Continued Operation (JCO) safety evaluation (JCO 89-02) was approved on February 2, 1989, to confirm that the existing overcurrent relay settings were acceptable until the relay settings could be reset.

2. Design Change Packages E-41629-R1 and E-42629-R1 were prepared for Unit 1 and Unit 2, respectively, to raise the relay settings from a nominal 67.5 amps to 75 amps. The relay settings were changed to 75 amps on February 4, 1989. This additional margin provides assurance that the relays will not pickup for the worst case design voltage and load.

3. All DCP electrical calculations were reviewed to ensure that, if needed, they are designated as "Preliminary" until appropriate input is received and they are reviewed and finalized. Three calculations were found to require revision as a result of this review. Neither operations nor hardware is affected and the calculation updates will be complete by August 15, 1989.

4. NEMP 3.6 ON was revised, to ensure that requirements for component and system testing are identified by the engineer writing the design change, including testing requirements needed to provide for design verification of the system. The procedure was also revised to add the subject of relay settings to the technical review checklist and will be effective on September 1, 1989.

5. The requirements and importance of the following areas were reemphasized to NECS engineers in training sessions: (1) limitation, control, and use of preliminary calculation procedures; (2) clear instructions for required test data; (3) proper use of RPEs; and (4) performance of thorough 10 CFR 50.59 evaluations with consideration of all interactions

between associated systems and components, even though interactions are initially judged to be insignificant.

6. A training update for NECS Group Supervisors and Group Leaders was conducted to address the importance of identifying affected calculations and other items that are indirectly affected by a design change.

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

1. All test results required by NECS Electrical Engineering on Mechanical RPEs were reviewed to verify that required test data had been furnished and were acceptable. In addition, a twenty percent sample of all Electrical RPEs issued following commercial operation was reviewed. As a result of not receiving all requested data, the sample was expanded to include all RPEs issued since commercial operation. A preliminary review has not identified any operational or hardware issues to date. The final review is scheduled for completion by October 16, 1989.

2. The NECS training discussed above is being incorporated into the ongoing NECS training program.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance with the requirements to provide design control measures to verify the adequacy of design has been achieved by the corrective actions PG&E has implemented. As noted above, additional actions to prevent recurrence are in progress and scheduled for completion by October 16, 1989.

STATEMENT OF VIOLATION NO. I.C.(2)

The Notice of Violation (EA 89-85) stated:

I. Engineering and Plant Procedures

. . .

C. 10 CFR Part 50, Appendix B, Criterion III, "Design Control," provides in part, that "The design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews."

Contrary to the above, the licensee failed to perform an adequate design review of Design Change Package (DCP) M-39834, which increased the auxiliary saltwater pump motor load by installing larger impeller on May 25, 1988 for Unit 1 and on October 20, 1988 for Unit 2, as evidenced by:

. . .

(2) The DCP failed to consider the effects of the increased motor load on the diesel generator fuel oil consumption. Consequently, the minimum fuel oil storage capacity calculation, M-731, dated January 19, 1988, was not updated to reflect the effects of that increased consumption on minimum storage values specified in the technical specifications.

REASON FOR VIOLATION IF ADMITTED

During the evaluation for the ASW pump impeller replacement modification, the diesel generator load capacity was demonstrated to be compatible with the increased ASW pump motor rating. However, PG&E acknowledges that the increase in diesel fuel oil consumption due to the increase in horsepower demand and its impact on the Technical Specification oil inventory requirement were not evaluated for the design change. PG&E determined that DCP-M-39834, Revision 0, (RPE-M-0012 to increase the size of the ASW pump impellers) was issued without addressing the impact on Calculation M-731, Revision 0, "Required Diesel Fuel Oil Inventory for Seven (7) Days Operation at Minimum ESF Loads."

PG&E's evaluation identified the cause of this event as personnel oversight, in that the responsible individual did not review the fuel oil consumption Calculation M-731 for impact from the larger pump impeller design change. The following contributing cause was identified: the technical review checklist included in NEMP 3.6 ON did not include a specific entry for diesel fuel oil inventory.

On February 28, 1989, a TRG reviewed the effect of this oversight on the diesel generator fuel oil consumption. The TRG concluded that: (1) this change resulted in a small increase in the fuel oil consumption which could be accommodated within the margin in the fuel consumption calculation; (2) the Technical Specifications were not violated; and (3) there was no safety significance associated with this oversight.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

1. JCO 89-01 was approved on February 2, 1989, and justified operation of DCPP until further analysis could be performed.

2. Calculation M-731 was revised to reflect the increased motor horsepower due to the replacement impeller. The TS requirements are sufficient to meet the licensing basis, and the amount of diesel fuel oil available at Diablo Canyon is well in excess of that required to meet the TS requirements.

3. STP M-10A, "Diesel Fuel Oil Storage Tank Inventory," was revised to increase the acceptance criterion for the quantity of fuel oil inventory.

4. The Operator Rounds Sheets were revised to require a review on a daily basis to ensure that the diesel fuel oil is ordered and received prior to exceeding the STP M-10A acceptance criterion.

5. NEMP 3.6 ON was revised to add the subject of diesel fuel oil inventory to the technical review checklist and will be effective on September 1, 1989.

6. The training of NECS engineers and the training update for Engineering Group Supervisors and Group Leaders identified in response to Violation I.C.(1) are also corrective steps taken with regard to this violation.

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

PG&E believes that the above corrective actions will preclude recurrence of similar violations.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance with the requirements to provide design control measures to verify the adequacy of design has been achieved by the corrective actions PG&E has implemented. As noted above, additional actions to prevent recurrence are in progress and scheduled for completion by October 16, 1989.

STATEMENT OF VIOLATION NO. I.D.

The Notice of Violation (EA 89-85) stated:

I. Engineering and Plant Procedures

. . .

D. Technical Specification (TS) 6.8.1 states that: "Written procedures shall be established, implemented and maintained covering . . . applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978." Section 9 of this Regulatory Guide specifies that maintenance that can affect the performance of safety-related equipment should be properly performed in accordance with procedures or drawings appropriate to the circumstances.

The manufacturer's Technical Manual for the steam driven auxiliary feedwater pump, PG&E document number DC-663056-45, Revision 8, Section 7, with reference to the overspeed trip mechanism states: "At least once a week lubricate the moving parts such as trip gear sliding nut and screw spindle with a good grade of oil to keep these parts clean to prevent any possibility of sticking . . . Warning - It is most important that every overspeed device and trip mechanism be tested regularly, preferably once monthly. This will ensure that the tripping mechanism is operating freely."

Contrary to the above, as of February 12, 1989, the licensee's maintenance procedures for the safety-related steam driven auxiliary feedwater pump were not appropriate to the circumstances in that the overspeed mechanism was neither lubricated nor tested in accordance with the manufacturer's instructions. Consequently, on February 12, 1989, during operator training, the Unit 2 overspeed trip device (FCV-152) failed to actuate when manually exercised due to rust and corrosion inhibiting both the trip mechanism and the valve movement.

REASON FOR VIOLATION IF ADMITTED

PG&E acknowledges that the vendor preventive maintenance (PM) and testing recommendations were not appropriately included in the PM and testing program for steam stop valve 2-FCV-152 and the overspeed trip mechanism.

On February 12, 1989, steam stop valve 2-FCV-152 for the Unit 2 AFW pump 2-1 turbine driver failed to close during a manual actuation. This valve can be closed by its associated manual trip lever or overspeed trip mechanism.

Following lubrication of the valve actuator, the valve closed satisfactorily by use of the manual trip lever.

A subsequent problem was discovered when the steam stop valve did not close upon manual actuation of the overspeed trip mechanism. Investigation showed that the valve trip lever was sticking in the latched position. When lubricated, it went to the neutral position, thereby allowing 2-FCV-152 to trip shut when actuated by the overspeed trip mechanism.

As indicated in LER 2-89-002 (DCL-89-105, dated April 21, 1989), the root cause of the event was determined to be an inadequate PM and testing program for steam stop valve 2-FCV-152 and the overspeed trip mechanism. A contributing cause was determined to be high humidity in the pump room leading to accelerated corrosion.

The above problem was restricted to the operation of the overspeed steam stop valve and the trip linkage mechanism. Proper operation of all active elements of the normal turbine governor speed control was verified in the as-found condition by successful performance of a surveillance test on February 14, 1989. The failure of the steam stop valve to close would not prevent the governor from performing its design function since the governor uses an independent mechanism to modulate a separate flow control valve (FCV-15).

The failures of 2-FCV-152 and the overspeed trip linkage did not violate the TS, nor were the TS exceeded. The AFW motor-driven pumps and the normal turbine governor controls for the turbine-driven pump were capable of performing their intended function, i.e., supplying steam generator feedwater in the event of loss of the main feedwater supply.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

1. The steam stop valve 2-FCV-152 and the overspeed trip linkage were cleaned and lubricated.

2. Unit 1 AFW pump 1-1 was inspected and tested satisfactorily for operability.

3. Scheduled preventative maintenance was established to lubricate the FCV-152 valve and the overspeed trip linkage mechanism in both Units 1 and 2 pursuant to recommendations of the vendor manual or as concurred with by the vendor for the specific AFW turbine application.

4. STP P-6B, "Routine Surveillance Test of Steam Driven Auxiliary Feedwater Pump," was revised to require actuation of the steam stop valve and associated linkage prior to performing the test. This results in a monthly functional test of the trip valve and linkage, as well as the AFW pump and turbine.

5. Maintenance Procedure (MP) M-3.7, "Disassembly and Inspection for FCV-152, Trip Throttle Valve," was developed and issued to provide for periodic disassembly, inspection, and reassembly of the AFW pump overspeed trip mechanism.

6. The humid environment of the AFW 2-1 pump room is the subject of an ongoing investigation, initiated under NCR DC2-88-MM-N098, to identify the causes and develop corrective actions. The steam release to the room comes from the drain line going to the auxiliary steam drain receiver tank that processes steam from the steam line drain traps and the drain lines from the Terry turbine. An engineering investigation determined that increasing the steam drain receiver tank vent size would help alleviate the problem. Accordingly, a jumper on this Class 2 piping was installed. Further approaches to remedy the problem are currently being evaluated.

7. In response to a failure to incorporate vendor recommendations into the DCPP PM and testing program, PG&E performed a sample review of 51 functionally significant components, most of which were safety-related. The specific findings of the sample review of vendor recommendations are as follows: twenty-seven component types, representing approximately 550 installed components, have vendor recommendations fully incorporated into the DCPP PM program; twenty-three component types did not have vendor recommendations fully incorporated into the DCPP PM program; and one component did not have the applicable portions of vendor recommendations incorporated into its PM program.

   Listed below are examples of recommendations that were not fully incorporated into the DCPP PM program; however, as noted below the PM program is considered nonetheless to be acceptable:

   - PM frequencies of inspections or oil changes disagree between DCPP and the vendor: most vendor-recommended frequencies are considered generic values. All DCPP frequencies were considered acceptable.

   - Periodic pump seal replacement: DCPP has found that pump seal life can be highly erratic and that condition monitoring (visual inspection) is the best indicator of seal integrity.

   - Periodic packing gland bolt adjustment: routinely tightening valve packing and bonnet bolts can cause more problems than it prevents. Components which exhibit continuing problems are converted to live-loaded valve packing and adjustment is essentially continuous.

   - Lubricate rack for positioning NIS power range detectors: rack positioning has not been a problem and is monitored when installing the detectors. No movement is required during power operation.

Some recommendations, although minor, do appear to enhance the effectiveness of the PM program and will be added. Examples of these are:

- Check ASW pump motor insulation at equal to or greater than 5 mega-ohms, instead of 2 mega-ohms.
- Periodic replacement of valve positioner pilot valve filters and cleaning of pilot valve stems.
- Monitor auxiliary oil pump pressure during routine surveillance testing.
- Add details to check for fastener tightness during pump PM.

The conclusion from the review of vendor recommendations to date is that there are no safety implications from vendor recommendations not being incorporated into the PM program. Another result from the PM sample review is the recognition of the need to improve the documentation for the existing basis for the DCPP PM program. This documentation has been completed for the components sampled.

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

1. To provide further assurance that effective PM is being performed at DCPP, PG&E has developed two action plans. The first action plan is short-term and oriented towards increasing the level of assurance that all safety-related components have effective and appropriate PM tasks. This effort involves a review of significant component vendor recommendations for safety-related systems. Many components will be covered generically, such as Limitorque actuators, relays, 4 kV breakers, snubbers, and existing control valves. This effort will involve assembly of the existing programs and screening for components where a thorough PM scope review has not been performed. This effort is expected to be completed in 1989.

   The second action plan is long-term and intended to optimize the overall DCPP PM program. It is proactive and integrates the Reliability Centered Maintenance (RCM) approach to systematically develop an appropriate maintenance basis for functionally significant components. Once initially established, the specific RCM program elements are modified as required based on feedback from frontline workers and root-cause analysis of failures. PG&E is in the process of improving each of these program elements by enhancing root-cause training, implementing RCM, and encouraging worker feedback.

2. Diablo Canyon surveillance test procedures were developed to implement the surveillance requirements of the Technical Specifications and ASME Section XI regarding inservice testing. The bases for the STPs incorporate industry and DCPP operating experience and vendor testing requirements. As a result of concerns identified in the NRC Maintenance Team Inspection, the NRC SSFI/SSOMI Team Inspection, and several LERs, PG&E is taking the following long-term actions to enhance the surveillance testing program:

   - As discussed in response to Violation I.B., PG&E is conducting a review of the surveillance testing program with a task force led by Engineering and membership from the Plant Engineering Group. This review is being conducted in parallel with development of DCMs as part of PG&E's Configuration Management Program.

   - As discussed above, a complete review of vendor recommendations for all significant components in safety-related systems will be completed in 1989. This review will include testing recommendations. Any identified deficiencies will be promptly corrected and the results of the review will be documented and incorporated into the STP bases documents.

3. Further approaches to remedy the problem of the humid environment of the AFW 2-1 pump room are currently being evaluated.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

PG&E is in full compliance with TS 6.8.1 since scheduled preventive maintenance was established to lubricate the valve and the trip linkage mechanism in accordance with vendor recommendations, and STP P-6B was revised to require actuation of the stop valve and linkage prior to performing the test. Actions to prevent recurrence are in progress and scheduled for completion as noted above.

STATEMENT OF VIOLATION NO. II.A.

The Notice of Violation (EA 89-85) stated:

> II. Corrective Actions
>
> 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," states in part that "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected."
>
> A. Contrary to the above, the licensee failed to take adequate corrective action for recurring valve lineup problems, a significant condition adverse to quality. Specifically, from September 1988 through January 1989, eight instances of valve lineup errors were identified in the monthly Resident Inspection Reports. Licensee's corrective actions in response to four errors that occurred in September 1988 were inadequate to prevent four additional errors that culminated with Unit 2 valve MS 2-923 not being in the closed position from December 1 to December 31, 1988, as required by Operating Procedure D-1:II, "Auxiliary Feedwater System - Alignment Verification in Plant Startup."

REASON FOR VIOLATION IF ADMITTED

PG&E acknowledges that previous corrective actions for valve mispositioning events were not fully effective. As a result, another mispositioning event occurred on December 31, 1988, when Operations personnel were performing STP P-6B, "Routine Surveillance Test of Steam-Driven Auxiliary Feedwater Pump," on AFW pump 2-1. As indicated in LER 2-88-024-01 (DCL-89-140, dated May 19, 1989), the root cause for the event could not be positively determined. Plant records indicate that root valve MS-2-923 was closed, and verified closed on December 1, 1988.. It is postulated that the valve was either left open by the two non-licensed operators who were assigned to shut and verify the valve shut and capped, or the valve was opened and uncapped during undocumented maintenance activities. However, there is no conclusive evidence to support either postulation.

PG&E's investigation of this event on a generic basis led to the conclusion that this problem was attributable to one of the following root causes: (1) personnel error due to a failure to follow established procedures or policies, or failure to utilize adequate operating techniques during system valving manipulations; (2) inadequate or incorrect operating procedures or OVID drawings; or (3) unauthorized operation of plant components.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

Because of the December 1988 event and other recent recurring valve misalignment events, PG&E investigated these events on a generic basis and determined that there was a demonstrated need to increase ownership of all valving operations as part of the corrective actions to prevent recurrence. These corrective actions were identified in LER 2-88-024-01 and were discussed at the April 25, 1989, NRC meeting. The current status of these actions is discussed below.

1. AP C-6S1, "Clearance Request/Job Assignment," was revised to ensure that all vents and drains not connected to a closed system have a pipe cap installed whenever the vent and drain valve are closed. Additionally, a work-planning policy letter was issued to require documentation of pipe cap removal and reinstallation in the applicable clearance request or other controlling work document.

2. AP C-1S1, "Onsite Plant Modification Administration," and AP C-6S1 were revised to incorporate lessons learned from events involving mispositioned equipment. These revisions clarify and strengthen instructions governing clearance reviews, return to service, and alignment of plant components. The revisions include:

   - clearance preparation requirements for pipe caps,
   - additional independent verification requirements for clearance preparation, and
   - documentation of any additional components manipulated in the field for subsequent verification of proper return to service.

3. AP C-6S1 and AP C-53, "Authorization for Equipment Operation and Maintenance," were revised to strengthen requirements for non-operator plant personnel to operate plant components. These revisions include specific requirements to control those valves which may be operated by persons other than operations personnel.

4. AP C-9S1, "Sealed Valves," was revised to strengthen requirements for sealing valves and breaking valve seals and to implement a periodic walkdown of sealed valve checklists.

5. Operations Policy B-1, "Conduct of Operations," was revised to include a section providing required techniques to be used whenever manual valve manipulations are to be performed. These include:

   - use of formal instructions,
   - physical valve position checks,
   - documentation of all equipment manipulated for clearances and administrative tag-outs, and
   - preservice alignment verification of all points within clearance boundaries.

6. Operating Procedure O-17, "Operating Order O-17, Manual Valve Alignment," was developed to provide explicit generic instructions for performing valving operations. This procedure incorporates expected operator techniques and established "good practice" policies to be used as guidance for performing valving type operations. The procedure includes:

   - self verification requirements,
   - followup verification of operations to assure that all activities are progressing as desired,
   - requirements that no job be started without sufficient time available for verification of system response before it is turned over to operations,
   - physical valve position verification,
   - detailed documentation in logs of job status, and
   - generic instructions involving filling or draining vessels.

7. Operating Order O-9, "Manual Operation of Motor Operated Valves," was revised to require improved status control and to provide increased guidance and requirements for manually operating these types of valves.

8. Operating Procedure L-1, "Plant Heatup from Cold Shutdown to Hot Standby," Attachment 1 (Startup Systems Checklist) was revised to assure proper valve alignment of any system that could have been affected as a result of maintenance activities during extended outages.

9. Tailboard reviews of the above changes provided another opportunity to reiterate the valve misalignment problem, to increase operations "ownership" of all valving operations, and to identify personal responsibilities to eliminate the problem. Most importantly, the leadership and supervisory roles that must be maintained to ensure that procedures and policies are correctly implemented by plant operators were strongly emphasized. To ensure that maximum operator attention is given to valving operations and to increase operations ownership of all valving operations, PG&E has taken the following actions:

   - 100 percent independent verification of all clearance and valve alignment activities was instituted.

   - Various valve and equipment status control problems were discussed with all operators during weekly scheduled Operations Manager/Shift Crew meetings. The purpose of these meetings was to instill acceptance of ownership of the problem and to identify the responsibilities of all Operations personnel to eliminate the problem.

10. To ensure that only authorized personnel operate plant equipment, the Plant Manager issued a memorandum to all plant supervisors that required that all employees receive a review of the requirements of AP C-53, "Authorization for Equipment Operation and Maintenance."

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

Because of PG&E's concern related to recurring valve mispositioning events and equipment status, additional actions are being taken as described below. These corrective actions were discussed at an April 25, 1989, meeting with NRC management.

1. To further enhance equipment control status, an operations policy was written to provide interim valve alignment checklist requirements. This policy document requires:

   - A checklist/Operating Valve Identification Diagram (OVID) comparison to ensure that all system valves are included in an alignment checklist.

   - All checklists for systems that include instrument systems include a required sign-off by Instrument and Controls Department (I&C) personnel as a statement that the instrument systems are properly aligned and ready for service.

   - Checklists require that appropriate vents and drains be capped.

   These requirements will be in place until the upgrade described below is complete.

2. An action plan was developed to upgrade the OVIDs and operating procedure system alignment checklists to include all plant instrument valves. This upgrade will consist of:

   - Development of OVID-type drawings for all installed plant instrument tubing. These drawings will identify all instrument valves with a specific valve number. As with other plant valves, the instrument valves will be tagged with OVID-type valve tags.

   - Operating procedure system alignment checklists will be revised to include a section for instrument valve alignment. This section will be given to the I&C department for proper instrument valve alignment as a part of normal system alignment. Although instrument alignment will be performed by I&C personnel, it will be the responsibility of the Operations Department to assure it is adequately implemented.

   - The I&C department will revise I&C procedures to include specific valve numbers as they become available.

   - OVID-type tags on instrument valves and Chemistry Department sample valves will be coded to identify operational responsibilities in the field.

   The long term OVID upgrade is targeted for completion by June 1, 1990.

3. NPAP C-104, "Independent Verification," will be revised by September 30, 1989, to clarify independent verification requirements and responsibilities.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance has been achieved by the corrective actions that PG&E developed and implemented to prevent recurring valve lineup problems. As noted above, long-term actions to prevent recurrence targeted for completion by June 1, 1990 will provide added assurance that valve lineup problems will be minimized.

STATEMENT OF VIOLATION NO. II.B.

The Notice of Violation (EA 89-85) stated:

> II. Corrective Actions
>
> 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," states in part that "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and noncorformances are promptly identified and corrected."
>
> . . .
>
> B. Contrary to the above, even though licensee maintenance engineering personnel learned of a condition adverse to quality on December 22, 1988 whereby backflow check valves were not installed in the diesel fuel transfer pump vaults, as required by design, the licensee did not take corrective action until February 24, 1989, following the Resident Inspector's inquiries of the licensee.

REASON FOR VIOLATION IF ADMITTED

PG&E acknowledges that, while the missing backwater check valves had minimal safety significance, issues related to noncompliance with the FSAR Update and failure to satisfy design commitments must be taken seriously and resolved expeditiously.

In the process of creating test procedures for backwater check valves, on December 22, 1988, a mechanical maintenance engineer identified by visual inspection that backwater check valves were not installed in the diesel fuel oil (DFO) transfer pump vault drain lines as described in the FSAR Update. (Evaluation for inclusion of the backwater check valves into a check valve maintenance program was discussed as part of PG&E's response (DCL-88-236, dated October 5. 1988) to the NRC's Maintenance Team Inspection findings. On January 9, 1989, Nuclear Engineering and Construction Services (NECS) was verbally notified of the situation and began an investigation and evaluation. On January 19, 1989, an Action Request (AR) evaluation was issued to NECS to evaluate the drain configuration; however, it was not assigned to the group responsible for the diesel generator system design basis until February 23, 1989. On February 24, 1989, NECS informed plant management that absence of the backwater check valves represented a condition that, in combination with other unlikely events, could prevent the fulfillment of the safety function of the diesel generators. Backflooding of the DFO transfer pump vaults through the floor drain, thereby causing inoperability of the DFO transfer pumps, is a highly unlikely event. Additionally, the vault has never flooded due to a failure to reinstall the backwater check valves.

As identified in LER 89-002-00 (DCL-89-080, dated March 27, 1989), the cause of the missing backwater check valves was attributed to personnel error, in that inadequate instructions were provided to a contractor for the reinstallation in January 1978 of the DFO transfer pump vault drains. A contributing factor was that, due to the quality classification of the work involved, no quality inspection was conducted during the relocation work that would have discovered the omission of the check valves at the time of occurrence.

Upon receipt of the analysis of the potential significance of this condition, plant management initiated a JCO in accordance with administrative procedures. An action plan was established and initial corrective actions were implemented to mitigate the effects of not having the backwater check valves installed in the drain system.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

1. PG&E recognizes the importance of prompt corrective actions and the need for more timely engineering evaluations. A DCPP mechanical maintenance engineer identified that the backwater check valves were not installed in the DFO pump transfer vaults and he verbally communicated with Engineering to determine the significance of this condition. The maintenance engineer believed preparation of an AR evaluation on January 19, 1989, to be prudent and timely based upon his interpretation of a safety analysis in a Nonconformance Report which stated that this condition did not affect the operability of the diesel generators due to the remote possibility of backflooding. The maintenance engineer was counseled regarding the correct method of communicating problems through the chain of command.

2. As identified in LER 89-002-00, compensatory measures were taken prior to replacement of the backwater check valves to prevent backflooding of the DFO transfer pump vaults.

3. The LER also identified that the backwater check valves were installed in the DFO transfer pump vault drain system, the DFO transfer pump vault backwater check valves were added to the preventive maintenance program, and procedures were reviewed and a determination was made that adequate instructions are currently provided to PG&E personnel to ensure that sufficient guidance is provided to contractors performing work activities in support of PG&E.

4. Enclosure 2 to PG&E Letter No. DCL-89-004, dated January 6, 1989, provided PG&E's commitments to implement the following comprehensive actions resulting from an EIT investigation regarding timely review of DCPP operating experience. These actions were implemented at Diablo Canyon subsequent to discovery of the missing backwater check valves. PG&E expects that once the following actions are effectively in place on a working basis, situations regarding untimely action for problem resolution will be greatly reduced.

- The status of open NCRs is reviewed at a monthly PSRC meeting to increase the awareness of DCPP and NECS management of significant plant problems.

- EIT reports are reviewed at PSRC and GONPRAC meetings to create management awareness of the corrective actions recommended by EITs and ensure that management is aware of significant safety concerns.

- NCRs initiated at DCPP are reviewed and signed by an Assistant Plant Manager prior to convening a TRG.

- Potential NCRs are reviewed at the Plant Manager's morning meeting for assignment of responsibility based on consideration of the department with the most responsibility for the potential corrective actions.

- The NCR process at DCPP was revised to require specific consideration of appropriate industry operating experience, including Nuclear Plant Reliability Data Service. This allows an evaluation of the specific event to determine if other plants have had the problem and what corrective action was taken.

- Procedure C-18, "Event Investigations," was revised to require that an NCR be written to track EIT corrective actions.

- NPG Procedure Vol. 0, Section 5.3, "Committee Charters, Diablo Canyon Plant Staff Review Committee," was revised to include a NECS representative as a non-voting member of the PSRC and require his/her attendance when NCRs are addressed and at special quarterly PSRC/GONPRAC meetings. This ensures that NECS is aware of any significant problem which is discussed, as well as the NCR review and the operating experience status report.

- The Engineering Work Request procedure was revised so that any work request to Engineering will be submitted using an AR. This provides for the prioritization, electronic tracking, and handling of Engineering Work Requests. Procedure C-1S2, "Requesting Plant Design Changes and Engineering Evaluations," was revised accordingly.

- The System Engineer Program was implemented at DCPP and requires that quarterly status reports on each assigned system be provided to NPG management. The reports are prepared jointly by the DCPP System Engineers and NECS System Design Engineers.

- Procedure C-12 was revised to clarify that ARs are required for significant operations or maintenance problems, errors, events or near-misses.

- An individual was assigned responsibility and authority to implement an effective Trip Reduction Program.

- Nuclear Operations Support, as part of its oversight function, reviews quality evaluations, NCRs, EIT reports, DCNs, and NRC inspection reports, and performs independent checks to assure that significant problems are being addressed in a timely fashion.

- GONPRAC and PSRC are conducting a joint meeting quarterly t' discuss the status of significant industry and DCPP operating experience.

- The feasibility of specifying that any AR that describes a condition that could cause a reactor trip or reduce availability be assigned a priority level 2 and reviewed by an Assistant Plant Manager was assessed, and recommendations for changes to PIMS were forwarded to management.

5. In some cases, problems were not resolved until the TRG convened. PG&E is emphasizing that by the time a TRG convenes, the root cause(s) of the problem and the corrective actions to prevent recurrence being proposed are comprehensive and thoroughly address the cause of the problem.

6. DCPP management is meeting with the NRC Resident Inspector on a periodic basis to ensure that any significant NRC concerns are promptly brought to the attention of the plant staff and resolved in a timely manner.

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

For equipment relied upon in the FSAR, but not addressed by the Technical Specifications, timeliness criteria for problem evaluation and resolution will be developed to ensure a clear understanding of management expectations regarding the importance and timeliness of evaluations of identified problems. The criteria will be developed and proceduralized by October 1, 1989.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance with the requirement to promptly identify and correct nonconformances was achieved by the corrective actions PG&E has implemented. As noted above, additional action to prevent recurrence is scheduled for completion by October 1, 1989.