

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

FOR

PACIFIC GAS AND ELECTRIC COMPANY

DIABLO CANYON NUCLEAR POWER PLANT

REPORT NOS. 50-275/87-29 AND 50-323/87-29

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## I. INTRODUCTION

### 1. Purpose and Overview

The Systematic Assessment of Licensee Performance (SALP) is an NRC staff integrated effort to collect available observations and data on a periodic basis and evaluate licensee's performance based on this information. SALP is supplemental to normal regulatory processes used to ensure compliance with NRC rules and regulations. SALP is intended to be sufficiently diagnostic to provide a rational basis for allocating NRC resources and to provide meaningful guidance to licensee management to promote quality and safety of plant construction and operation.

An NRC SALP Board, composed of the members listed below, met in the Region V office on September 9, 1987, to review the collection of performance observations and data to assess the licensee's performance in accordance with the guidance of NRC Manual Chapter 0516, "Systematic Assessment of Licensee Performance," dated July 25, 1986. A summary of the guidance and evaluation criteria is provided in Section II of this report.

This report is the SALP Board's assessment of the licensee's safety performance at the Diablo Canyon Nuclear Power Plant, Units 1 and 2, for the period August 1, 1986 through July 31, 1987.

### 2. SALP Board for Diablo Canyon

#### Board Members:

- \*\* A. E. Chaffee, Deputy Director, Division of Reactor Safety and Projects (Board Chairman)
- \*\* G. W. Knighton, Director, Project Directorate No. 5, NRR
- \*\* C. M. Trammell, NRR Project Manager
- \*\* R. A. Scarano, Director, Division of Radiation Safety and Safeguards
- \*\* R. P. Zimmerman, Chief, Reactor Projects Branch
- \*\* F. A. Wenslawski, Chief, Emergency Preparedness and Radiological Protection Branch
- \*\* M. M. Mendonca, Chief, Reactor Projects Section I
- \* G. P. Yuhas, Chief, Facilities Radiological Protection Section
- \* M. D. Schuster, Chief, Safeguards Section
- \* S. A. Richards, Chief, Engineering Section
- \* R. F. Fish, Chief, Emergency Preparedness Section
- \*\* P. P. Narbut, Senior Resident Inspector
- \*\* J. F. Burdoin, Project Inspector
- \* C. Hooker, Radiation Specialist
- \* K. M. Prendergast, Emergency Preparedness Analyst
- \* C. B. Ramsey, Reactor Inspector

\*Denotes voting member in area of specialty.

\*\*Denotes voting member in all areas.



## II. CRITERIA

Licensee performance is assessed in selected functional areas, depending upon whether the facility is in a construction, preoperational, or operating phase. Functional areas normally represent areas significant to nuclear safety and the environment. Some functional areas may not be addressed because of little or no licensee activities, or lack of meaningful observations. Special areas may be added to highlight significant observations.

The following evaluation criteria were applied for each of the eleven functional areas as appropriate:

1. Management involvement in assuring quality.
2. Approach to resolution of technical issues from a safety standpoint.
3. Responsiveness to NRC initiatives.
4. Enforcement history.
5. Reporting and analysis of reportable events.
6. Staffing (including management).

To provide a consistent assessment of licensee's performance, attributes were applied for each of the above criterion that described the characteristics of Category 1, 2, or 3 performance, in accordance with NRC Manual Chapter 0516, Part II and Table 1, as follows:

Category 1: Reduced NRC attention may be appropriate. Licensee management attention and involvement are aggressive and oriented toward nuclear safety; licensee resources are ample and effectively used so that a high level of performance with respect to operational safety is being achieved.

Category 2: NRC attention should be maintained at normal levels. Licensee management attention and involvement are evident and are concerned with nuclear safety; licensee resources are adequate and are reasonably effective so that satisfactory performance with respect to operational safety is being achieved.

Category 3: Both NRC and licensee attention should be increased. Licensee management attention or involvement is acceptable and considers nuclear safety, but weaknesses are evident; licensee resources appear to be strained or not effectively used so that minimally satisfactory performance with respect to operational safety is being achieved.

## III. SUMMARY AND RESULTS

### 1. Management Overview

Pacific Gas and Electric Company (PG&E) has made significant enhancements to some programs in response to the previous SALP's recommendations and to inspection findings during the current SALP period. Examples of these program enhancements are in the areas of radiological protection, surveillances and outages. Additional enhancements have been made or are planned as outlined in a June 15, 1987, letter from PG&E.



The key issues developed during the SALP period were the subject of the licensee's letter to the NRC of June 15, 1987. The licensee generated the June 15, 1987, letter in response to a series of violations and a recognition that comprehensive management action was required to correct a potentially declining trend. The issues, that were addressed in the June 15, 1987 letter, applied to all functional areas in general and included formality of communications, procedural compliance, root cause identification and resolution, and late event reporting. The licensee has committed to improvement programs in all the areas discussed.

As highlighted in a Region V management meeting with PG&E on August 17, 1987, implementation of the programs described in PG&E's June 15, 1987, letter has provided and will continue to be a major challenge to PG&E's management. The recommendations in each of the functional areas reinforced this finding with specific areas where improvements may be made. Specifically, in the operations, maintenance, surveillance, and quality programs functional areas, the SALP Board found that PG&E's management should put high priority on improving performance in root cause analysis, procedural compliance, and formality of communications, as well as, continuing strong management efforts in the other aspects of the licensee's June 15 letter. In the areas of radiological controls, emergency preparedness, outages, and training, continued strong management support has been recommended. In the other functional areas, specific recommendations for management consideration are provided, which could result in improved performance. Overall, the SALP Board concluded that PG&E's management was aggressively involved and concerned with nuclear safety, and that licensee resources were ample and reasonably effective in assuring operational safety.

## 2. Inspection Activities

Approximately 6,827 onsite inspection hours were spent in performing a total of 44 inspections by resident, region-based, headquarters, and contract inspectors. Inspection activity in each functional area is summarized in Tables 1 and 2. Tabulation of enforcement items during the SALP period is contained in Tables 3 and 4; and a synopsis of Licensee Event Reports for each Diablo Canyon Unit is contained in Tables 5 and 6.

## 3. Results of Board Assessment

Overall, the SALP Board found the performance of NRC licensed activities by the licensee acceptable and directed toward the safe operation of both units of the Diablo Canyon plant. The SALP Board has made specific recommendations in most functional areas for licensee management consideration. The results of the Board's assessment of the licensee's performance in each functional area, including the previous assessments, are as follows:



<u>Functional Area</u>	<u>Assessment Last Period</u>	<u>Assessment This Period</u>	<u>Trend*</u>
A. Plant Operations	2	2	None apparent
B. Radiological Controls	2	1	Improving
C. Maintenance	1	2	None apparent
D. Surveillance	2	2	Improving
E. Fire Protection	1	2	None apparent
F. Emergency Preparedness	1	1	None apparent
G. Security and Safeguards	1	2	None apparent
H. Outages	2	1	None apparent
I. Quality Programs and Administrative Controls Affecting Safety	2	2	None apparent
J. Licensing Activities	1	2	None apparent
K. Training and Qualification Effectiveness	1	1	None apparent

\* The trend indicates the SALP Board's appraisal of the licensee's direction of performance in a functional area near the close of the assessment period and continuation of this trend may result in a change in performance level. It is not necessarily a comparison of performance during the current period with the previous period.

#### IV. PERFORMANCE ANALYSIS

##### 1. Plant Operations

###### Analysis

During this SALP period the licensee's plant operations were inspected on a routine basis by the NRC resident and regional inspectors. Also, the annual team inspection was conducted in February 1987 and included an assessment of auxiliary operator response to events. In addition, an Augmented Inspection Team (AIT) was conducted in April 1987 in response to the April 10, 1987 loss of RHR event. The teams' efforts included an evaluation of operational aspects of the event. A total of 3401 inspection hours were expended in this area.

This evaluation recognizes the fact that this is the first SALP period in which both units were in a full operational status for the entire SALP period. There were eight enforcement items and twenty-four reportable events considered applicable to the plant operations area.

In the plant operations area, management has shown generally improving involvement during the SALP period. Senior corporate management became directly involved in the more significant events during the SALP period; specifically the Unit 1 oil fire in December 1986 and the loss of RHR event of April 1987. Additionally, during the SALP period, the licensee initiated and strengthened plant



management involvement programs such as requiring senior management on-shift coverage for critical plant evolutions during startup and senior management walkdowns of plant areas prior to post refueling closeout.

There has been evidence of prior planning and control of activities in the operations area, and improvements have been initiated in response to errors. For example, the licensee had generally adequate procedures for defining and controlling the operability status of safety systems during normal operation, but these procedures were not effective in handling the large amounts of out-of-service equipment that occurred during the Unit 1 refueling outage. Management was not sufficiently involved to identify this problem early-on, but did take aggressive action to prevent a recurrence during the Unit 2 refueling outage. The licensee's corrective actions in the operational area are usually effective, but not always so. For example, the licensee's actions have not yet proven to be effective in the area of late telephone reporting to the NRC (10 CFR 50.72 reports) and an additional violation was issued after the end of the SALP period.

The licensee's approach to technical resolutions of plant problems generally demonstrated an understanding of the issues, and conservatism was usually exhibited. This was notably demonstrated in the licensee response and corrective actions initiated subsequent to the loss of RHR event of April 10, 1987 and the reactor trip and safety injection event of July 14, 1987, involving a positive moderator temperature coefficient. Although in both events, the inspectors concluded that there was sufficient information available to the licensee such that aggressive action and followup could have prevented the events; after the events, the licensee did initiate and execute detailed action plans for corrective actions prior to restart. Early in the SALP period the licensee had demonstrated a reluctance to formulate clear formal action plans for events and consequently did not consistently provide an adequate focus for root cause identification and correction. An example of this was the Unit 1 oil fire where the action plan was largely verbal. The licensee's performance in formulating action plans had clearly improved later in the SALP period.

The licensee's responsiveness to NRC initiatives has been generally timely and acceptable resolutions are generally proposed. There was one isolated instance demonstrative of uncooperative behavior toward the NRC inspectors, during an event, by both operations personnel and management. Specifically, the operations personnel attempted to exclude the inspector from the observation of plant parameters after a reactor trip and attempted to exclude him from post-trip review discussions. A recent example of good responsiveness to NRC issues is the June 15, 1987 letter that responded to several violations and Region V initiatives. The response appeared to be a well thought out, integrated program to address licensee performance weaknesses. Finally, in regard to responsiveness to NRC initiatives, written reports required to be submitted to the NRC were consistently timely and the information provided was generally clear and thorough.



The licensee's enforcement history in the operations area shows multiple and repetitive minor violations in the areas of procedural compliance and late reporting indicating corrective action has not been fully effective in those areas. Examples of lack of procedure compliance include the failure to follow administrative procedures for system operability on snubber work, and two examples of not following procedures during reactor vessel draining. Examples of late reporting included failure to report two ESF actuation events. The licensee's lack of fully effective actions indicated a weakness in root cause analysis, which the licensee addressed in their June 15, 1987 letter. An additional area of repetitive enforcement has been the occasional lack of formal communication between departments interfacing with operations. These cases have led to violations discussed in other sections of this report, and involve verbally reporting the completion of work or testing to operations. The acceptance of informal communications regarding the status of safety equipment clearly indicates that the operations staff's attitude, toward discipline in all activities, requires improvement.

There have been occasional significant operational events attributable to causes under the licensee's control, in particular the loss of RHR event which was primarily caused by failure to follow procedures. There have been frequent events largely caused by inherent characteristics of the hardware involved which the licensee has not yet fully resolved, but is actively working toward resolution. These include the inadvertent ESF ventilation actuations caused by radiation monitor noise spikes, feedwater control sensitivity at low power levels and steam dump valve erratic response characteristics. The licensee reported 24 events in the operations functional area, but a significant portion of the events were entirely avoidable if the precepts of procedure compliance had been followed. Examples included not adhering to the reactor vessel water level requirements resulting in the April 10, 1987 loss of RHR, and failure to comply to Technical Specification requirements for containment isolation when a blowdown isolation valve was repaired.

The licensee's qualified and licensed operational staffing, on shift and otherwise available, was outstanding. The number of on shift licensed personnel exceeds minimum requirements of five and generally is eight or nine licensed individuals. Operations personnel generally appeared to be knowledgeable of plant systems and performance, and generally responded to significant and complicated events effectively and professionally. There was an isolated instance of unprofessional behavior regarding an annunciator marking, and there have been occasional examples of improper attitudes in regards to procedure compliance; but licensee management has initiated programs aimed at more successfully communicating their expectations to operations staff.



## Conclusion

### Performance Assessment - Category 2.

There was no apparent overall trend. However, the effectiveness of actions to correct the root cause of problems, such as procedure compliance issues identified early in the SALP period, were improving but no results in terms of reduced trips or events were noted at the end of the SALP period.

## Board Recommendation

Licensee management should work to effectively implement the improvements defined in their June 15, 1987 letter to the NRC, emphasizing continued improvements in root cause analysis, procedure compliance, formality of communications and elimination of late reporting.

## 2. Radiological Controls

### Analysis

A total of six routine NRC inspections related to radiological controls were performed during this appraisal period. Also, inspections by the resident inspectors focused on the implementation of the radiation protection program. In excess of 385 hours were expended in the following functional areas:

- A. Occupational Radiation Safety
- B. Radioactive Waste Management
- C. Radiological Effluent Control and Monitoring
- D. Transportation of Radioactive Materials
- E. Water Chemistry Control
- F. Licensee Event Reports (LERs)

Two Severity Level IV and three Severity Level V Violations were identified during the previous SALP period (August 1, 1985, through July 31, 1986). Additionally, the previous assessment period identified an apparent weakness by plant personnel in attention to detail and adherence to procedures in the area of radiological controls and a lack of program direction involving procedural changes and data collection in the radwaste startup testing program for Unit 2.

During this appraisal period, significant improvements were made in management's involvement in ensuring quality in C&RP areas. Specifically, the licensee met the challenge of initial refueling outages for both Units without the occurrence of any significant radiological incidents. During 1986, the licensee only had 304 person-rem for both Units. The 1986 national average for PWR plants was 392 person-rem per Unit. Through June 30, 1987, DCPD had about 310 person-rem. DCPD anticipates that less than 350 person-rem will be accumulated for both Units during 1987. The low exposures are a reflection of an effective ALARA program. Other examples of



management's involvement in ensuring quality include: the anticipatory and effective implementation of a program to control personnel exposures from radioactive particles, implementation of water chemistry control measures including a new secondary chemistry laboratory provided with state-of-the-art equipment and the effectiveness of their contamination control program in maintaining the plant clean.

The licensee resolved most technical issues with appropriate conservatism, technical expertise and supporting documentation. Two long-term issues regarding the reporting of radioactive effluents released from their hot chemistry laboratory hood exhaust system, and effluent sampling requirements of their new radioactive laundry and respirator cleaning facility were effectively resolved. Additionally, the licensee recognized the need and effectively reduced the quantity of radioactive material released in liquid effluent releases.

Responses to NRC initiatives have been timely and conservatism was routinely exhibited when the potential for safety significance existed. One example involving the release of workers from the radiologically controlled areas who had alarmed the licensee's new sensitive personnel contamination monitors was conservatively resolved by the C&RP management and engineering staff.

Two Severity Level V violations were identified during this assessment period. The violations involved the failure to adequately post a high radiation area and adherence to administrative controls concerning the use of procedures (Note - this violation was against both Units and is so indicated in Tables 1 and 2). The violations represented a need to improve management oversight and attention to detail in these areas. The violations were minor in nature and not indicative of a programmatic breakdown in radiological controls.

Only one LER was submitted in this functional area during this period. Effective corrective action was taken in a timely manner.

Key positions were identified and responsibilities defined. Expertise is available within the plant and corporate staffs and the use of outside consultants is minimal. Experience levels for management and technician staff meet and/or exceed commitments made by the licensee at the time of licensing. Corporate management oversight and technical support was observed during most of the inspections and especially during the Unit 1 and 2 refueling outages.

### Conclusion

Performance Assessment - Category 1. The licensee has shown an improving trend in this functional area.



### Board Recommendations

The licensee should continue the high level of management and staff awareness and corporate support to maintain the present performance level. Attention to administrative controls, use of procedures and further reduction of radioactivity in liquid discharges should be given more emphasis.

#### 3. Maintenance

##### Analysis

During this SALP period the maintenance and instrumentation and controls (I&C) work programs were inspected on a routine basis by resident and regional staff. In addition, a team inspection in February 1987 focused, in large part, on maintenance activities. A total of 769 inspection hours were expended in the functional area of maintenance. There were two enforcement items and fourteen reportable events considered attributable to the maintenance functional area.

The licensee's actions addressed in their June 15, 1987 letter to the NRC generally apply to the maintenance and I&C work areas, as well as operations and other functional areas. In particular, actions to improve formality of communications, and procedure compliance are applicable and appropriate. For example, a Level IV violation for ineffective corrective action was issued because of repeated containment airlock door failures. At least one instance of failure was caused by informal communications regarding maintenance done on the door. Likewise, a section of Unit 2 RHR piping had been flame heated "as an experiment" (rendering it inoperable or at least questionable in its integrity), but the maintenance engineer in charge had not formally prevented reuse of the pipe. Work, in fact, continued toward reuse of the pipe before the integrity of the pipe was formally questioned. Other problems identified during the SALP period included I&C personnel not following their procedures, maintenance engineering personnel providing erroneous information to maintenance foremen verbally and without proper design authority or evidence of having involved the engineering organization. Another example of poor or insufficiently controlled work authorization occurred at the end of the SALP period and, although unresolved, involves maintenance personnel changing the support configuration of reactor vessel head area cables in Unit 2 without formal work authorization. These occurrences underscore the importance of formal communications, adherence to proper work authorization procedures, and personnel attitudes to these fundamental concepts of nuclear plant operation.

Other specific maintenance weaknesses identified during the SALP period included the team inspection findings of a lack of preventative maintenance on manual valves and a lack of effective tracking of maintenance backlogs.



Management involvement in the maintenance and I&C work areas showed consistent evidence of prior planning and provided defined procedures for the control of activities. The I&C Manager has demonstrated an innovative technique of working with his technicians on a regular basis. The maintenance manager was regularly involved in significant maintenance tasks.

The work planning department is a separate organization at Diablo Canyon which is involved in the maintenance functional area. The work planning department demonstrated an overall capability of dealing with large outage workloads and developed contingent work plans for unexpected outages.

In all three areas of maintenance control (maintenance, I&C, and work planning) evidence suggested that decision making was not at a level which ensured adequate management review. Examples included maintenance engineers making design decisions regarding snubber washers, performing unqualified heating experiments on RHR piping, and I&C technicians going beyond procedure bounds during annunciator testing.

Problem reviews were not always timely and sound; because the lack of formal documentation, as previously discussed, did not provide for detailed action plans, and complete, well maintained records. Maintenance management has taken effective action in hardware oriented problem areas, but the recurrence of problems in personnel activity and attitudinal areas (such as informality of work control) indicated that an adequate root cause analysis had not been performed. Several licensee commitments in the June 15, 1987 letter are designed to address these issues.

The licensee's approach to maintenance department technical issues has been generally conservative and sound. For example, the licensee devised a unique method of radiography of main steam stop valves to verify operability in Unit 2.

The licensee's responsiveness to NRC initiatives in the maintenance area have been generally timely and acceptable as, for example, in verifying Unit 2 Main Steam isolation valve operability by radiography. The licensee has shown responsiveness in improving personnel attitudes and formality in the maintenance area.

The licensee's enforcement history in maintenance has not demonstrated repetitive violations, although the problems encountered, which did not rise to the level of a violation, have shown the same repetitive attitudinal cause; an apparent breakdown of formal controls and procedural compliance. There were two violations directly associated with maintenance involving an unauthorized material for an oil ring (Severity Level IV) and a lack of lubricant controls (Severity Level V).

Licensee staffing in this area appeared adequate to perform necessary immediate work. The team inspection identified the fact that there were a large number of long standing minor tasks which



were not being corrected or trended. The number of such items may indicate inadequate staffing, however, the licensee is developing trending information and is committed to taking appropriate actions.

### Conclusion

Performance Assessment - Category 2

### Board Recommendations

Licensee management should implement corrective actions in the maintenance area with particular emphasis on procedure compliance, formality of controls, and the trending and reduction of maintenance backlogs.

#### 4. Surveillance

##### Analysis

During this SALP period the licensee's surveillance activities were inspected by the resident and regional inspectors, and by an NRC team inspection in February 1987. Additionally, licensee activities in nondestructive examination surveillances were examined in a special inspection during the Unit 2 refueling outage which included independent measurements and examinations by qualified NRC personnel using NRC test equipment. A total of 456 inspection hours were expended in this functional area. There were three enforcement items and fourteen reportable events assigned to the surveillance area.

The problems and events that occurred during this SALP period, assigned to surveillance activities, largely were due to operations and I&C surveillance personnel not following procedures and exercising faulted informal communications regarding the status of testing. These subjects were addressed by licensee management in their June 15, 1987 letter to the NRC.

Overall management involvement in the surveillance area has been evident. During the last SALP, problems in missed surveillances were noted; however, during this SALP the surveillances missed were greatly reduced in number and the root causes were identifiable to subtle data entry errors from the previous SALP period. Management involvement in the resolution of missed surveillances was evident.

The licensee's approach to resolution of technical issues and response to NRC initiatives in this area were generally sound, thorough, and timely. For example, instances of informal turnover of the status of I&C work were corrected procedurally in a timely manner.

The enforcement history in this area involved three violations, attributable to not following procedure and informal communications, which are the same general management issues discussed in other functional areas in this report. Four of the fourteen reportable



events are attributable to informal communication and a lack of procedure compliance in the surveillance area. An example of this was the failure to meet the Technical Specification action statement for an inoperable RCP under-frequency relay. The root causes were procedure compliance and informal communication.

Staffing in general appeared adequate. Further, the licensee's nondestructive examination staff was determined to be highly qualified for their positions based on inspection efforts by the NRC's NDE staff.

### Conclusion

#### Performance Assessment Category 2

An improving trend was noted in a significant reduction in the number of missed surveillances.

### Board Recommendation

Licensee management should continue to implement corrective actions regarding personnel not following their procedures and improve the formality of communication.

## 5. Fire Protection

### Analysis

During this assessment period, one inspection was conducted in the area of fire protection. This inspection consisted of an assessment of the licensee's compliance with the NRC's fire protection program requirements and whether the facility continues to be capable of achieving post-fire safe shutdown using the existing plant configuration, procedures and trained personnel. A followup was also made of previous licensee and NRC identified open items. In addition, the project and resident inspectors provided continuing observations in this area.

In general, the licensee's implementation of fire protection program requirements was determined to be satisfactory in the areas assessed. The inspector's assessment recognized the conscientious effort expended in these areas, by the licensee, citing strengths in staffing for program implementation, management commitment and involvement, clear definition of the program requirements and assignment of responsibilities to qualified individuals. The professionalism and dedication of the full-time fire protection staff was also noted by the resident inspectors during several small fire situations and drills. However, a number of deficiencies and areas for improvement were identified. Three areas of particular concern were:

- o The responsibilities assigned to the site fire brigade appeared to be broader than firefighting in the immediate plant area; specifically, responding to fires in the large owner-controlled



area outside the plant protected areas. This problem is complicated by potential delays for offsite fire department response due to the remoteness of the site and the potential that the offsite fire departments may be occupied with other firefighting activities.

- The plant fire detection and fire suppression system annunciation, located in the control room, was considered as a potential area for improvement. The licensee has recognized the problem and is considering enhancements for better utilization of personnel and other resources, as well as, modifications to centralize fire annunciation in the control room area.
- Some delays in the maintenance activities (10 Action Requests) to assure fire door integrity have been observed. The licensee should consider actions to assure timely maintenance activity in the fire protection functional area.

One LER was submitted in the fire protection area during this period. Also, corrective action to LER No. 86-03 from the previous SALP period was determined satisfactory and closed out during this period.

### Conclusions

Performance Assessment - Category 2

### Board Recommendation

The board recommends that the licensee continue to devote comprehensive management attention to its commitments and responsibilities in this area. The focus of management attention and involvement in this area should extend into effective implementation of all aspects of fire protection program requirements and their interface with other elements of plant operations. Particular emphasis should be denoted to strengthening weaknesses identified in the areas of manual firefighting capability and design deficiencies in the fire alarm system.

### 6. Emergency Preparedness

During this SALP period, approximately 157 hours of direct inspection effort were devoted to the assessment of the emergency preparedness (EP) program for the Diablo Canyon Nuclear Power Plant. In addition, some of the inspection effort of the resident inspectors was in the area of EP. The 1986 and 1987 annual emergency preparedness exercises were not within this SALP period. However, the 1986 exercise performance was commensurate with a SALP Category 1 rating.

Licensee performance during this assessment period demonstrated that management had been actively involved in achieving a quality program. This is the result of assuring that the appropriate level



of management has been assigned the review responsibility. Management review of items affecting EP have been thorough and technically sound. Corporate management has been actively involved in matters affecting site EP and has provided the support necessary to assure an ability to readily respond to emergencies. Records and documents related to the EP program were easily accessed and well maintained.

The licensee's approach to the resolution of technical issues from a safety standpoint has always been conservative and in the cases reviewed was technically sound. The licensee has evaluated technical issues affecting safety thoroughly. Resolutions are conservative and timely. One recent example in this area was improvements to the Appendix Z's of the Emergency Procedures. These are also used for accident classification. During April of 1987, the licensee encountered problems with the RHR system while operating in a half loop configuration. Shortly after that event, some questions were brought up regarding the classification of the event. The licensee evaluated the concerns and made changes to the Appendix Z's. The changes were more conservative and provided the Shift Foreman with better definition and guidance for accident classification.

Licensee management has been very responsive to concerns identified by the NRC. Timely and thorough corrective actions have been initiated when concerns were brought to their attention. As an example, questions were raised regarding the assembly of plant personnel downwind of the plant during an accident. Assembling downwind of the plant was determined to be the most expedient direction for quickly evacuating plant personnel. However, the adverse effects of assembling downwind of a release of toxic or radioactive material was discussed with Plant Management. Shortly after the discussion, the issue was quickly resolved. The emergency procedures were quickly modified to provide guidance for the Emergency Coordinator to consider assembling in areas to the North or East of the plant under certain conditions.

Only one severity level IV violation which dealt with the failure to notify the County of an unusual event was identified during this assessment period and it was not indicative of any programmatic breakdown. Licensee management quickly evaluated the problem and corrective action was prompt and effective.

The staffing and training in the functional area of emergency preparedness continues to be excellent. This is evidenced by an extensive training program for the corporate support organization, as well as the site personnel, and by extensive use of the simulator to train control room staff in the response to an accident including mitigation, notification, classification and protective action recommendations. A review of numerous LERs and documentation regarding two "unusual events" performed during this SALP period, disclosed all events examined were appropriately classified according to the DCCP emergency procedures.



EP training was current and records were well maintained and available.

### Conclusion

Performance Assessment - Category 1.

### Recommendations

Continued management attention and commitment in maintaining EP.

## 7. Security and Safeguards

### Analysis

During this assessment period of August 1, 1986, through July 31, 1987, Region V conducted three physical security inspections at the Diablo Canyon Nuclear Power Plant. A total of approximately 290 hours of direct inspection effort were conducted by regional inspectors. In addition, the resident inspectors provided continuing observations in this area. There were no material control and accounting inspections conducted during this assessment period.

With regard to management involvement in assuring quality, corporate and plant management have been involved in the implementation and review of the overall security program and have implemented remedial measures to correct deficiencies identified in the course of the physical security inspections. During the first half of this assessment period, Region V observed maintenance difficulties with assessment aids and with equipment inside the alarm stations. After discussing these observed deficiencies with security and plant management, Region V observed an improvement in these areas. Additionally, the security organization demonstrated their ability to effectively manage a 55-hour guard strike at Diablo Canyon. During this strike, the security managers and members of the proprietary security force filled required vacancies of the striking contract guard force. Further, during this assessment period, the capability of the plant security computer was increased, and efforts are presently underway to replace the present security card readers with more reliable units throughout the plant.

The security management demonstrated a coordinated effort with other plant staff in preventing safety/security problems at Diablo Canyon. Currently, the security management is in the process of correcting a situation identified by a Region V inspector in which the security departments' use of assigned radio communication frequencies could interfere with the radio communication equipment assigned to the Units 1 and 2 operations staff.

During the current assessment period, six information notices related to security were issued. The licensee's actions, as reviewed to date, were generally found to be appropriate. Upon reviewing Information Notice 86-88, titled: Compensatory Measures



for Prolonged Periods of Time, it was noted that portions of the licensee's implementing procedures for their required program of providing compensatory measures for breached or degraded barriers were not consistent with NUREG-1045. The inconsistency occurred because the licensee's procedures allowed the use of unarmed security officers at deficient vital area barriers when compensatory posts were established. NUREG-1045 specifies that armed security officers are to be used.

The enforcement history for this assessment period identified a total of three violations. Two Level-IV violations pertained to the licensee's failure to properly search certain material entering the protected area, and the licensee's failure to properly respond to a security alarm. The Level V violation pertained to the licensee's failure to provide adequate assessment coverage to the protected area perimeter.

The three physical security inspection reports issued during the assessment period discussed 137 security events that had been previously identified by the licensee, and were properly reported to the NRC operations center pursuant to 10 CFR 73.71(c). The majority of these events pertained to security card keys that had either been lost, found, misissued or misread by the card readers at the vital area portals. Eight of these security events related to unsecured or degraded vital area barriers; and were primarily caused by plant maintenance personnel. In spite of a previous NRC initiative, as documented by NRC Information Notice No. 85-79, related to inadequate communication between maintenance, operations and security organizations, three (of the above eight) barrier problems resulted from plant work crews removing portions of vital area barriers without considering the security implications of their actions.

With respect to staffing, the licensee's total security staff was adequate to fulfill commitments. The licensee continues to utilize a uniformed security force comprised of both proprietary and contract personnel. The security training and qualification program was adequate to provide security personnel with the knowledge and practical application of their responsibilities necessary to conduct the security program in accordance with established commitments.

### Conclusion

Performance assessment - Category 2.

### Recommendations

Licensee management is encouraged to be more pro-active and become more involved in the areas of: internal coordination between security, maintenance, and operations; management review of Information Notices and referenced NUREG's; and resolution of the safety/security issue involving radio communication frequencies for security and operations personnel.



## 8. Outages

### Analysis

During this SALP period the licensee outage activities were examined by the resident inspector staff. A total of 994 inspector hours were expended in this functional area. No violations were identified and four reportable events were considered assignable to the outage functional area.

The licensee had two refueling outages during this SALP period. The first refueling outage of Unit 1 was from August to December 1986 and the first refueling outage of Unit 2 was from April to July 1987. The outage scopes were ambitious and included major modification work such as replacing feedwater heaters and retubing main steam reheaters, replacement of steam generator feed ring nozzle J-tubes, and replacement of RCP seals. Additionally, during the Unit 1 refueling, a court decision mandated the reinstallation of the low density fuel racks which caused the licensee to reschedule significant amounts of work with little prior notice.

The licensee's overall performance in outage management appeared to be good in that the number of problems encountered were not excessive, considering the scope of the outages and the licensee's limited outage experience. Additionally, the licensee initiated a lessons learned program at the end of the first Unit 1 refueling outage and did not repeat the mistakes during the Unit 2 outage.

Management involvement in the outage activities showed consistent evidence of prior planning and corrective action was shown to be effective by the lack of repetition of specific outage problems and the lack of radiological problems which are often associated with licensee's first refueling outages. Also, the work planning department's effort showed foresight and assured correct performance of outage activities.

The licensee's approach to the resolution of technical issues demonstrated a clear understanding of the issues and conservatism was generally exhibited. Specific examples included the licensee's actions regarding a tilted fuel assembly encountered during Unit 1 refueling operation and licensee actions regarding investigation for missing disk nuts on the main steam isolation valves. The most significant event during the outages was the loss of RHR in Unit 2 on April 10, 1987. However, that event has been deliberately discussed in other functional areas in this report (such as operations) since the root cause problems identified were more accurately attributable to those areas rather than the outage area.

The licensee's responsiveness to NRC initiatives was good as demonstrated by their cautious actions in response to the tilted fuel assembly during the Unit 1 refueling.

No violations were directly attributable to the outage area. The violations that occurred during the outage period were caused by



weaknesses in the basic attitudes toward formality of communications and control of work exhibited by the involved departments. These areas have been previously addressed in other sections of this SALP report.

Operational events uniquely attributable in root cause to outage activities include only the tipped fuel assembly situation on Unit 1 which was not repeated in Unit 2's outage.

Licensee staffing for outage management appeared to be well thought out and adequate. The assignment of dedicated department outage coordinators and twice daily outage meeting appeared to be effective.

### Conclusion

Performance Assessment - Category 1.

### Board Recommendation

Licensee management should continue to apply their lessons learned program to outage activities, and continue to demonstrate carefully coordinated and scheduled complex work activities.

## 9. Quality Programs and Administrative Controls Affecting Quality

### Analysis

During this SALP period, the licensee's quality programs and administrative controls affecting quality were examined on a routine basis by the NRC residents and regional inspectors. In addition, a special team inspection was conducted in February 1987 which included a specific assessment of QA/QC effectiveness. Further, an investigation of allegations dealing with the procurement of spare parts afforded an opportunity for senior regional inspectors to examine QA/QC actions and interfaces. An AIT review of the Unit 2 loss of RHR event also involved an examination of the QA/QC involvement in that event. A total of 285 inspection hours were expended in this functional area. Six violations and three reportable events were considered attributable to this functional area.

In the area of quality programs and administrative controls affecting quality, the licensee has shown both strongly positive and some notably negative examples of performance, as explained below.

Early in the SALP period, licensee management response to events was perceived to be too informal and lacking depth. Action and investigative plans were verbal in nature and did not adequately determine root causes and, therefore, did not identify meaningful corrective action. Examples of this type of informality were experienced in the Unit 1 containment door failure in August 1986 and the Unit 1 high pressure turbine oil fire in December 1986. However, in balance of the above, corporate level involvement was



evident in several of the significant events and the licensee's approach to event analysis and actions was formalized and improved during the appraisal period. The licensee's response to the loss of RHR event was judged to be excellent in formality, management involvement and depth.

Although the licensee has had policy requirements to follow procedures, there was continued evidence throughout the SALP period of failure to follow procedures in the performance of duties. These procedural issues were largely identified by the NRC rather than through the licensee's quality programs. The licensee, in their June 15, 1987, letter, committed to aggressively address the procedural compliance issue. Although further examples of procedural noncompliance occurred after the June 15, 1987 letter, actions toward improving the licensee's adherence to procedures were showing some effectiveness in that the licensee's staff was noted to be involved in procedure improvement and clarification activities.

The examination of procurement allegations determined that, although the licensee has a comprehensive and in-depth audit program and the audit program has identified meaningful findings, the management response to resolve those findings has not always been aggressive or timely. Additionally, there appeared to be a lack of effective cooperation between site management and corporate QA.

Likewise, NRC inspection findings regarding the Unit 1 containment door event indicated a lack of timely resolution, primarily due to the quality programs and administrative controls programs failing to identify the root cause and failing to follow through on resolutions. The failure to identify root cause led to additional door failures in 1984, 1985 and 1986.

The inspection program also identified a situation regarding the closing of the RHR cross-tie valve in Unit 2. In this case, the licensee's administrative controls and quality programs were not sufficiently timely to implement preventive measures regarding a potential RHR system operability concern before it actually occurred. The potential for the situation was identified by licensee personnel and information was provided by an NRC information notice prior to the event, but failure to implement actions resulted in closing the cross-tie valve because operations personnel had not been forewarned.

Other examples of weaknesses identified in the quality programs and administrative controls area were identified by the AIT team including: a failure to inspect the temporary Reactor Vessel Refueling Level Indicating System; lack of a 10 CFR 50.59 review for an RHR cavitation test; and poor control on the installation and use of temporary systems in use at the time of the event.

The licensee's responsiveness to NRC initiatives in the quality programs area has improved during the SALP period. Specifically, the licensee readily committed to improvements in tracking and trending Quality Evaluations, and improvements in temporary system control.



The enforcement history in this area had no major violations but the four Level IV violations indicated programmatic weakness in the identification and timely resolution of problem areas.

Operational events directly attributable to weak Quality programs and administrative controls largely covered the same events which led to violations already discussed. Specifically, this included the Unit 1 containment door opening and closing the RHR crosstie valve.

The licensee staffing in this area was determined to meet regulatory requirements and the qualifications of QC personnel was determined, by NRC QA specialists during the team inspection, to represent a high caliber of QC personnel. The onsite review groups appeared adequately staffed.

The licensee, in response to NRC findings, committed to improve the timeliness and quality of root cause analysis as described in their June 15, 1987, letter. In that regard, the licensee has initiated some innovative programs and actions including a "top ten" list of problem areas to focus licensee management attention and special training sessions for root cause analysis groups.

### Conclusion

Performance Assessment - Category 2

### Board Recommendation

Licensee management should effectively implement the improvements defined in their June 15, 1987, letter and continue to emphasize aggressive problem identification and timely resolution from all organizations involved in quality programs and administrative controls affecting quality. Additional emphasis should be placed on timely evaluation and implementation of problems areas identified through industry experience.

## 10. Licensing Activities

Licensing activities were dominated by three major areas during this SALP period: the Long-Term Seismic Program, in which the most recent seismic information is being evaluated; the spent fuel pool rerack proposal, involving free-standing racks and public intervention by the Sierra Club; and routine license amendment requests and resolution of generic issues, license conditions, etc.

In the Long-Term Seismic Program it is the consensus of the NRC staff and its consultants that PG&E is conducting a professionally-oriented, objective program that is addressing the requirements of the Unit 1 license condition. The program received staff approval and is proceeding on schedule. By letter dated September 24, 1987, PG&E requested an amendment to the Diablo Canyon Unit 1 Operating License to extend the submittal date for the final report from July 31, 1988 to not later than July 31, 1989. PG&E is conducting



numerous in-process workshops to both keep the staff and its consultants abreast of the program and to allow comments as the program is implemented.

The spent fuel pool rerack proposal has involved intensive licensing activity due both to the complexity of some of the issues raised (e.g., multi-rack impact analyses) and the tight (and changing) schedule for implementation.

Few license amendments were issued during the first half of the SALP period due to the emphasis on the spent fuel pool rerack review and hearing. The second half saw eight amendments reviewed and approved, resulting in a few general and specific comments.

PG&E license amendment requests (LAR) could be improved by providing a better and more complete safety basis for the change. For example, in LAR 87-02, PG&E did not present an adequate basis for changing the setpoint for the S/G low level reactor trip to 15% and failed to demonstrate initially that it understood that this circuit is used for accident mitigation, although not at the 25% setting. In other words, PG&E confused the setpoint with the trip function. In LAR 87-07 regarding a minor change to a biological sampling point, PG&E did not provide an adequate description of the change or an adequate basis for its acceptance.

On May 22, 1987, PG&E discussed the possibility of reducing RHR flow to 1500 gpm in preparation for an upcoming 1/2 loop evolution. A month or more later, PG&E requested an emergency Technical Specification change to do so but withdrew the request when it was apparent that the request had not addressed the boron dilution accident aspects described in the basis of the Technical Specification.

These examples of some of the PG&E amendment requests suggest that the review process could be improved by a more critical look at amendment requests both by the onsite and offsite review committees.

On the positive side, PG&E is well staffed both at its headquarters and at the site with capable personnel and both are responsive to NRC requests. PG&E has been especially cooperative in the licensing area during and after the transfer of Diablo Canyon to a new project manager and the new NRR organization.

### Conclusion

Performance Assessment - Category 2

### Board Recommendations

The Board recommends that PG&E put more emphasis on providing an adequate basis for amendment requests and perform more critical reviews by the on-site and off-site review organizations.



## 11. Training and Qualification Effectiveness

### Analysis

During the reporting period, two Replacement Examinations and one Pilot Requalification Examination were conducted.

A total of ten reactor operator candidates and nine senior operator candidates were administered written and operating tests during two replacement examinations. Nine reactor operator candidates and nine senior reactor operator passed these examinations. One reactor operator candidate passed the written examination but failed the operating examination. No generic weaknesses were observed during either of these examinations.

The Requalification Program evaluation conducted was based on the NRC Pilot Test Program as defined in a memorandum from W. T. Russell, Director, Division of Human Factors Technology, NRR, dated May 22, 1986. This program used the criteria of NUREG-1021, ES-601, Revision 0, for evaluation of the facility performance. The evaluated program must fall in one of three categories; "satisfactory," "marginal," or "unsatisfactory." Based on this evaluation of the Requalification Program, the licensee was evaluated as "satisfactory."

Based on the observed pass/fail rates, the requalification examination evaluation and the specific events listed below, the performance of this facility in the area of licensed operator training appears to be "satisfactory." Management personnel were responsive in addressing minor criticisms of their oral and written requalification examinations and have consistently been involved with any positive or negative comments regarding their qualification and training programs. A procedure step requiring clarification, identified during an examination was promptly resolved by facility management. The facility has used the NRC Examiner Standards for their own examination format and content. They have also been responsive to NRC initiatives for developing a facility question bank for facility and NRC use; and they have continued to improve simulator examination in the area of documentation and expected candidate performance.

The facility's training programs for both licensed and non-licensed operations personnel have been accredited by INPO. The facility simulator has generally performed well and properly models almost all scenarios used to date by the NRC. In addition, the facility has constructed an additional training building containing training facilities for Instrument and Control Technicians, Chemists, Health Physics personnel, and mechanical maintenance personnel.

### Conclusion

Performance Assessment - Category 1



### Board Recommendations

Licensee management should continue to improve simulator examination preparation by the facility in the areas of documentation and expected candidate performance.

## V. SUPPORTING DATA AND SUMMARIES

### 1. Licensee Event Reports (LERs)

Office of Analysis and Evaluation of Operational Data (AEOD) reviewed a sample of 15 LERs (9 LERs for Unit 1 and 6 for Unit 2) reported during this assessment period. The evaluation consists of a detailed review of each selected LER to determine how well the content of its text, abstract, and code fields met the requirements of NUREG-1022 and its supplements.

The LER discussions concerning the root cause, the assessment of the safety consequences, the failure mode, mechanism, and effect of failed components, and personnel error were well written. However, there are some areas needing improvement--text, abstract and coded fields. They are summarized as follows:

#### A. Text

Four of the LERs were considered to lack in detailed safety assessment: 86-013-01, 86-022, 87-004 and 87-007.

- ° An assessment of the consequences and implications of the event including specifics as to why it was concluded that there were "no safety consequences," if such was the case. It is inadequate to simply state "this event had no safety consequences or implications" without explaining how that conclusion was reached.
- ° A safety assessment should discuss whether the event could have occurred under a different set of conditions.
- ° Finally, a safety assessment should name other systems (if any) that were available to perform the function of the safety systems that were unavailable during the event.

The requirement to provide adequate identification for failed components was considered deficient in one of the three LERs involving a failed component. In most cases, this requirement can be met by simply providing the manufacturer and model number for each failed component.

The Energy Industry Identification System (EIIS) codes were not provided for the components or systems mentioned in seven of the 15 LERs. These codes should be provided for all components and systems referred to in the text, not just those that fail.



## B. Abstract

While there are no specific requirements for an abstract, an abstract should summarize the following information from the text:

- ° Cause/Effect           What happened that made the event reportable.
- ° Responses               Major plant, system, and personnel responses as a result of the event.
- ° Root/Intermediate Cause   The underlying cause of the event. What caused the component and/or system failure or the personnel error.
- ° Corrective Actions    What was done immediately to restore the plant to a safe and stable condition and what was done or planned to prevent recurrence of the event.

While these requirements were, in general, adequately addressed in the abstracts of the LERs reviewed, four of the abstracts were deficient in the area of presentation. The use of a more concise summary would have improved the abstract score for the four LERs that exceeded the specified maximum length of 1400 spaces.

## C. Coded Fields

The main deficiency in the area of coded fields involved the titles. Seven of the 15 titles failed to include adequate cause information, two failed to include the result of the event and one failed to include the link between the cause and the result. While the result is considered to be the most important part of the title, cause and link, information must be included to make a title complete.

## Summary

This is the second time the Diablo Canyon LERs have been evaluated using this methodology. The results of this evaluation indicated that the overall quality of the Diablo Canyon LERs, for the three areas that are evaluated (i.e., the text, abstract, and coded fields), has remained virtually unchanged from the previous evaluation of an overall average LER score of 9.3. The previous industry average was 7.8 as compared to the current industry average which had increased to 8.4. The quality of the discussions concerning root cause, corrective actions, and safety system responses has increased since the previous evaluation. The areas requiring improvements are as identified.



2. Part 21 Reports (Letters)

87-13-P Main Steam Check Valves, Retaining Nut Problem

3. Investigations

Investigative Matters by Office of Investigation

NRC inquiries open and pending as of August 1, 1986. . . . .	4
NRC inquiries closed during SALP period (August 1, 1986 through July 31, 1987. . . . .	4
NRC inquiries opened during this timeframe and pending on July 31, 1987 . . . . .	3

4. Escalated Enforcement Actions

A. Civil Penalties

None

B. Orders Issued

None

C. Confirmation of Action Letters

EA-87-67, dated May 6, 1987, "Returning Diablo Canyon Unit 2 to mid-loop operation."

5. Management Conferences Held

November 1986 - A management meeting was held to discuss a number of recent events that had occurred at Diablo Canyon Nuclear Power Plant. Some of the events discussed were containment door mechanical interlock problems, snubber control problems, steam generator snubber pin problems and main steam line isolation valve check valve nut problems. The meeting focused on improved cause analysis of events, managements followup and awareness of measures to correct events, and actions taken to reduce the number of events.

March 1987 - A management meeting was held to discuss recent plant events such as reactor trips; four for Unit 1 and two for Unit 2; main turbine oil fire (Unit 1); and T.S. violations. Also discussed were the backlogs of action request and Unit 1 refueling "Lessons Learned."

6. Special Reports

Report 50-323/87-18 (NUREG-1269) dated June 19, 1987, "Augmented Inspection Team - Inspection at Diablo Canyon Unit 2."



7. NRR Meetings With Licensee

<u>Date</u>	<u>Purpose</u>
August 15-16, 1986	LTSP-Geology/Seismology/Geophysics Field Trip, San Luis Obispo, California
August 19-21, 1986	LTSP-Plant Visit and Workshop on PRA; San Luis Obispo, California (August 19, 1986) and Newport Beach, California (August 20-21, 1986)
September 10, 1986	Meeting with NRC Staff. First meeting on reinstallation of Original Spent Fuel Pool Racks
September 19-23, 1986	Meeting with NRC Staff. Second meeting on Reinstallation of Racks
September 25-26, 1986	Meeting with NRC Staff. Third meeting on Reinstallation; As-built Welds
October 21-22, 1986	LTSP-Geology/Seismology/Geophysics Workshop, San Francisco, California
October 23-24, 1986	LTSP-Ground Motions Workshop, San Francisco, California
November 20, 1986	LTSP-ACRS Subcommittee on Extreme External Phenomena Meeting, Washington, D.C.
November 21, 1986	Meeting with NRC and its BNL Consultants, PG&E, and Westinghouse. Discussion of the BNL Evaluation of the Natural Circulation, Boron Mixing, and Cooldown Tests Performed by PG&E on Unit 1
December 10-12, 1986	LTSP-Soil-Structure Interaction Workshop, San Francisco, California
December 16, 1986	LTSP-Ground Motion Workshop, Bethesda, Maryland
January 22, 1987	Meeting with NRC Staff on Wet Reracking
February 17-18, 1987	LTSP-Workshop on PRA, Fragilities Analysis, Seismic Hazard Analysis, Bethesda, Maryland
February 18, 1987	Meeting with NRC Staff and its Consultants on Rack Interactions
March 11, 1987	One-day Workshop on the NRC's Incident Investigation Program (IIP) - Invitational Workshop



March 26, 1987	Meeting with NRC, FRC, and BNL on Rack Interaction Parametric Studies
May 5-8, 1987	LTSP-Geology/Seismology/Geophysics Workshop and Field Trip, San Luis Obispo, California
May 6, 1987	Meetings with NRC, BNL on Rack Interactions; Six Close-out Questions
June 9-11, 1987	LTSP-Soil-Structure Interaction Audit, San Francisco, California
July 15-16, 1987	LTSP-Ground Motions Workshop, San Francisco, California

8. Commission Meetings

None

9. Schedular Extensions Granted

One schedular extension was granted by license amendment during this SALP period. Amendment No. 12 to the Unit 2 license extended the time for submittal of an improved steam generator tube rupture analysis from startup from the first refueling outage (June 1987) to April 1988.

10. Reliefs Granted

None. PG&E has requested numerous reliefs both in its ISI and IST Program that are under review as part of NRC's review of the first 10-year inspection interval for both units. This review should be finished in 1987.

11. Exemptions Granted

None

12. Emergency Technical Specification Changes

One emergency technical specification change was requested but withdrawn. The proposed change involved plant operations in Mode 6 (refueling) with less than 3000 gpm flow in the RHR system (discussed more fully in performance analysis).

13. License Amendments Issued

<u>Amendment No.</u> (Unit 1/Unit 2)	<u>Date</u>	<u>Subject</u>
10/8	10-21-86	Revises the T/S to 1) redefined the moderator temperature coefficient limits; 2) revise the f <sup>N</sup>



-delta- H partial power multiplier; and 3) delete the design feature description of the total weight of uranium in a fuel rod.

11/9	01-07-87	Changes 1) T/S 3.6.2.3 to assure that two containment fan cooler units are available assuming a single failure; 2) T/S 3.6.1.4 and its Bases to specify a maximum positive containment internal pressure of 1.2 psig and a maximum positive pressure of 46.65 psig in the event of a loss of coolant accident (LOCA); and 3) Bases 3/4.6.1.6 to specify a maximum containment pressure of 46.65 psig in the event of a LOCA.
12/10	01-30-87	Changes TS Section 3/4.2.1 "Axial Flux Difference," to implement for Unit 2 the Westinghouse developed relaxed axial offset control (RAOC) methodology after Unit 2 has reached a burnup of 8000 MWD/MTU in the first cycle.
13/11	06-08-87	Fuel Assemblies
--/12	06-12-87	Extends the time for submittal of a steam generator tube rupture analysis to April 1988
14/13	06-02-87	To accommodate Cycle 2 and later operation of Unit 2 and Cycle 3 and later operation Unit 1
15/14	07-24-87	Diesel Generator Surveillance Testing
16/15	07-27-87	Provides for operability and surveillance tests for certain check valves in the



residual heat removal and safety injection systems to ensure adequate pressure isolation between the reactor coolant system and these lower pressure support systems

14. Issues Pending

At the end of this SALP period, there were 28 amendments and 37 other licensing issues under review by NRR for both units.



TABLE 1

INSPECTION ACTIVITIES AND ENFORCEMENT SUMMARY (8/1/86 - 7/31/87)

DIABLO CANYON UNIT 1

<u>Functional Area</u>	<u>Inspections Conducted</u>		<u>Enforcement Items</u>					
	<u>Inspection*</u> <u>Hours</u>	<u>Percent</u> <u>of Effort</u>	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>	<u>V</u>	<u>Dev</u>
1. Plant Operations	1491	42.5					1	
2. Radiological Controls	243	6.9						1
3. Maintenance	398	11.3					2	
4. Surveillance	282	8.0					1	1
5. Fire Protection	13	0.4						
6. Emergency Preparedness	40	1.1					1	
7. Security and Safeguards	180	5.1					1	2
8. Outage	627	17.9						
9. Quality Programs and Administrative Controls	212	6.0					2	
10. Licensing Activities	N/A	N/A						
11. Training and Qualification Effectiveness	30	0.8						
TOTAL	3516	100					8	4

\* Allocations of inspection hours to each functional area are approximations based upon NRC Form 766 data.

\*\* Severity levels are in accordance with NRC Enforcement Policy (10 CFR Part 2, Appendix C).

Data reflects Inspection Reports 86-22 through 87-30.



TABLE 2

INSPECTION ACTIVITIES AND ENFORCEMENT SUMMARY (8/1/86 - 7/31/87)

DIABLO CANYON UNIT 2

<u>Functional Area</u>	<u>Inspections Conducted</u>		<u>Enforcement Items</u>					<u>Dev</u>
	<u>Inspection*</u> <u>Hours</u>	<u>Percent</u> <u>of Effort</u>	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>	<u>V</u>	
1. Plant Operations	1910	57.7				7		
2. Radiological Controls	144	4.3					2	
3. Maintenance	371	11.2						
4. Surveillance	174	5.2				1		
5. Fire Protection	12	0.4						
6. Emergency Preparedness	117	3.5						
7. Security and Safeguards	112	3.4						
8. Outage	367	11.1						
9. Quality Programs and Administrative Controls	73	2.2					4	
10. Licensing Activities	N/A	N/A						
11. Training and Qualification Effectiveness	31	1.0						
TOTAL	3311	100				12	2	

\* Allocations of inspection hours to each functional area are approximations based upon NRC Form 766 data.

\*\* Severity levels are in accordance with NRC Enforcement Policy (10 CFR Part 2, Appendix C).

Data reflects Inspection Reports 86-22 through 87-30.



TABLE 3

DIABLO CANYON UNIT 1 ENFORCEMENT ITEMS

(08/01/86 - 07/31/87)

<u>INSPECTION REPORT NO.</u>	<u>SUBJECT</u>	<u>SEVERITY LEVEL</u>	<u>FUNCTIONAL AREA</u>
86-29	FAILURE BY SHIFT FOREMEN TO CONTROL SNUBBER WORK AND SYSTEM OPERABILITY	IV	1
86-29	INADEQUATE CORRECTIVE ACTION FOR CONTAINMENT AIRLOCK FAILURE	IV	9
87-01	FAILURE TO MAINTAIN CONTROL OF LUBRICANTS CONTRARY TO PLANT PROCEDURES	IV	3
87-02	FAILURE TO COMPLETE MATERIAL VERIFICATION FORM FOR ITEMS ENTERING PROTECTED AREA	V	7
87-02	FAILURE OF CAS AND SAS TO RESPOND TO A SECURITY ALARM	IV	7
87-06	FAILURE TO NOTIFY OFFSITE ORGANIZATIONS IN REQUIRED TIME LIMIT FOR UNUSUAL EVENT OF JANUARY 2, 1987	IV	6
87-08	FAILURE TO FOLLOW PROCEDURES FOR INSTALLATION BRONZE OIL SLINGER RING VERSUS BRASS SLINGER RING ON AFW PUMP 1-2	IV	3
87-13	FAILURE TO PLACE INOPERABLE CHANNEL OF RC PUMP UNDERFREQ. REACTOR TRIP SYSTEM IN TRIPPED POSITION WITHIN PRESCRIBED SIX HOURS	IV	4
87-19	FAILURE TO MONITOR ALL AREAS OF PROTECTED AREA PERIMETER VIA CCTU CAMERAS	V	7
87-23	FAILURE TO POSITION RCP UNVOLTAGE TEST SW TO THE OFF POSITION PRIOR TO REMOVING LEADS TO THE MULTIMETERS.	V	4
87-28	FAILURE TO IDENTIFY AMPHENOL TYPE HN CONNECTOR ON EQ MASTER LIST AND FAILURE TO MAINTAIN A COMPLETE QUALIFICATION FILE.	IV	9



TABLE 3 (CONTINUED)

DIABLO CANYON UNIT 1 ENFORCEMENT ITEMS

(08/01/86 - 07/31/87)

<u>INSPECTION REPORT NO.</u>	<u>SUBJECT</u>	<u>SEVERITY LEVEL</u>	<u>FUNCTIONAL AREA</u>
87-30	IMPROPER USE OF TEMPORARY INSTRUCTION AND FAILURE TO DESTROY OR IDENTIFY AS OBSOLETE A SUPERSEDED TEMPORARY INSTRUCTION.	V	2

NOTE: THERE ARE FOUR POTENTIAL VIOLATIONS FROM THE ENVIRONMENTAL  
QUALIFICATION INSPECTION REPORTED IN IR 86-33.



TABLE 4

DIABLO CANYON UNIT 2 ENFORCEMENT ITEMS

<u>INSPECTION REPORT NO.</u>	<u>SUBJECT</u>	<u>SEVERITY LEVEL</u>	<u>FUNCTIONAL AREA</u>
87-12	INATTENTION TO DUTIES, MISUSE OF CONTROL ROOM ANNUNCIATOR ALARM DROP.	IV	1
87-12	FAILURE TO TAKE PROMPT CORRECTIVE ACTION TO PREVENT CLOSING RHR CROSSTIE VALUE 8716B.	IV	9
87-18	FAILURE TO FOLLOW PROCEDURES IN ESTABLISHING PROPER OPERATING LEVEL OF RCS DURING MID-LOOP OPERATION RESULTING IN VORTEXING/CAVITATION OF RHR PUMP IN SERVICE.	IV	1
87-18	FAILURE OF QC INSPECTOR(S) TO PROPERLY FOLLOW QUALITY CONTROL INSPECTION PLAN FOR INSTALLATION OF TEMPORARY REACTOR VESSEL REFUELING LEVEL INSTRUMENTATION SYSTEM (RVLIS).	IV	9
87-18	FAILURE TO FOLLOW PROCEDURES IN DOCUMENTING REVIEWS FOR AN UNREVIEWED SAFETY QUESTION IN PREPARING TEMPORARY PROCEDURE FOR RHR PUMP CAVITATION TEST.	IV	9
87-18	CONTRARY TO T.S., INADEQUATE PREPARATION OF PROCEDURES FOR MALFUNCTION OF THE RHR SYSTEM DURING MID-LOOP OPERATION.	IV	1
87-18	CONTRARY TO T.S., INADEQUATE PROCEDURES FOR CONTROL OF RVLIS SCALE INSTALLATION.	IV	1
87-20	FAILURE TO LOG MOMENTARY JUMPER PLACED ACROSS TERMINALS OF EMERGENCY START RELAY OF D-G 2-1 AS REQUIRED BY PROCEDURE.	IV	4
87-20	FAILURE TO MEET "FOUR-HOUR REPORT" REQUIREMENT ON ESF ACTUATION, FOR INADVERT. START OF D-G 2-1.	IV	1
87-20	OPERATING OUTSIDE SCOPE OF ESTABLISHED PROCEDURES WHILE USING RHR PUMP TO DRAIN REFUELING CAVITY.	IV	1



TABLE 4 (CONTINUED)

DIABLO CANYON UNIT 2 ENFORCEMENT ITEMS

<u>INSPECTION REPORT NO.</u>	<u>SUBJECT</u>	<u>SEVERITY LEVEL</u>	<u>FUNCTIONAL AREA</u>
87-21	FAILURE TO POST AT PERSONNEL ACCESS TO BOTTOM OF PRESSURIZER AS HIGH RADIATION AREA.	V	2
87-26	FAILURE TO REPORT ESF ACTUATION WITHIN PRESCRIBED FOUR HOURS.	IV	1
87-28	FAILURE TO IDENTIFY AMPHENOL TYPE HN CONNECTOR ON EQ MASTER LIST AND FAILURE TO MAINTAIN A COMPLETE QUALIFICATION FILE.	IV	9
87-30	IMPROPER USE OF TEMPORARY INSTRUCTION AND FAILURE TO DESTROY OR IDENTIFY AS OBSOLETE A SUPERSEDED TEMPORARY INSTRUCTION.	V	2

NOTE: THERE ARE FOUR POTENTIAL VIOLATIONS FROM THE ENVIRONMENTAL  
QUALIFICATION INSPECTION REPORTED IN IR 86-31.



TABLE 5

DIABLO CANYON UNIT 1

SYNOPSIS OF LICENSEE EVENT REPORTS\*\*

<u>Functional Area</u>	<u>SALP Cause Code*</u>						<u>Totals</u>
	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>X</u>	
1. Plant Operations	4	6	2	1	1	0	14
2. Radiological Controls	0	0	0	0	0	0	0
3. Maintenance	1	2	0	0	2	0	5
4. Surveillance	4	0	0	1	1	0	6
5. Fire Protection	0	0	0	0	0	0	0
6. Emergency Preparedness	0	0	0	0	0	0	0
7. Security and Safeguards	0	0	0	0	0	0	0
8. Outages	1	0	0	1	0	0	2
9. Quality Programs and Administrative Controls Affecting Safety	2	0	0	0	0	0	2
10. Licensing Activities	0	0	0	0	0	0	0
11. Training and Qualification Effectiveness	0	0	0	0	0	0	0
	12	8	2	3	4	0	29

\* Cause Codes:

- A - Personnel Error
- B - Design, Manufacturing or Installation Error
- C - External Cause
- D - Defective Procedures
- E - Component Failure
- X - Other

\*\* Synopsis includes LER Nos. 86-09 through 87-11



TABLE 6

DIABLO CANYON UNIT 2

SYNOPSIS OF LICENSEE EVENT REPORTS\*\*

<u>Functional Area</u>	<u>SALP Cause Code*</u>						<u>Totals</u>
	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>X</u>	
1. Plant Operations	6	1	0	1	1	1	10
2. Radiological Controls	1	0	0	0	0	0	1
3. Maintenance	5	3	0	1	0	0	9
4. Surveillance	5	0	0	2	1	0	8
5. Fire Protection	1	0	0	0	0	0	1
6. Emergency Preparedness	2	0	0	1	0	0	3
7. Security and Safeguards	0	0	0	0	0	0	0
8. Outages	1	0	0	1	0	0	2
9. Quality Programs and Administrative Controls Affecting Safety	0	0	0	1	0	0	1
10. Licensing Activities	0	0	0	0	0	0	0
11. Training and Qualification Effectiveness	1	0	0	1	0	0	2
	<u>22</u>	<u>4</u>	<u>0</u>	<u>8</u>	<u>2</u>	<u>1</u>	<u>37</u>

\* Cause Codes:

- A - Personnel Error
- B - Design, Manufacturing or Installation Error
- C - External Cause
- D - Defective Procedures
- E - Component Failure
- X - Other

\*\* Synopsis includes LER Nos. 86-22 through 87-17

