

UTILITY ADVISOR EVALUATION TEAM
REPORT
ON
DIABLO CANYON SHIFT ADVISOR PROGRAM

April 4, 5 & 6, 1984

April 10, 1984

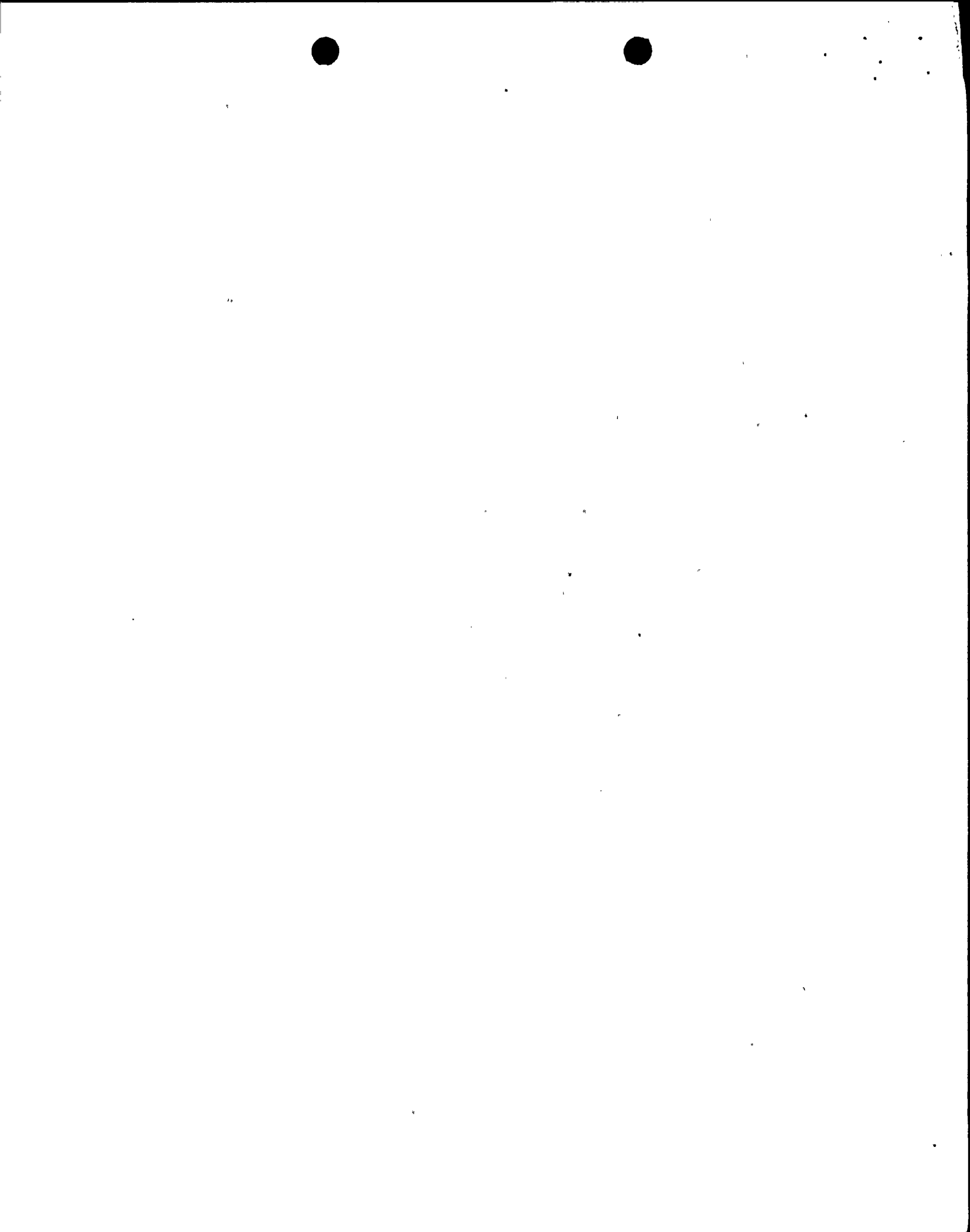
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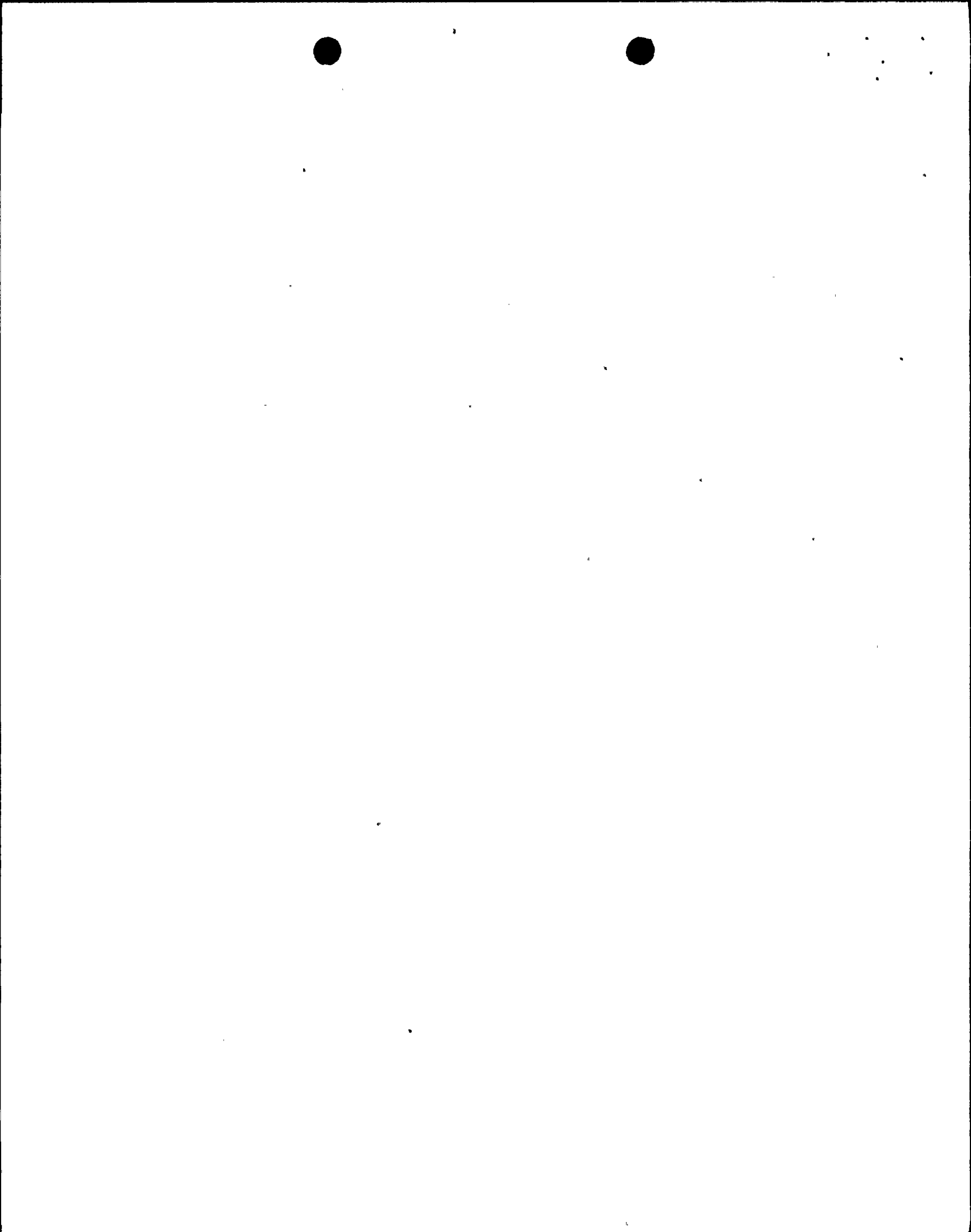
I. EXECUTIVE SUMMARY

Recent industry efforts have focused on identifying appropriate experience for NTOL plants as a part of a broader program to improve the managerial and technical competence of those involved in the operation of nuclear plants. A special NTOL experience group chaired by H. B. Tucker, Vice President Nuclear Production, Duke Power Company, was asked by Pacific Gas and Electric Company to assemble a team to evaluate the Diablo Canyon Shift Advisor Program.

The six member Utility Advisor Evaluation Team (UAET) consisting of representatives from four major nuclear utilities, conducted a comprehensive evaluation of the Diablo Canyon Shift Advisor program on April 4, 5 and 6, 1984. The UAET evaluated all aspects of the program including advisor training, qualifications, responsibilities, interfaces between the shift crews and the advisor, procedures and examinations. The evaluation included documentation reviews, interviews with advisors and PG&E operations staff, and direct observation of shift operations and classroom instruction.

The UAET concludes that PG&E has defined an effective Advisor program; has selected qualified individuals and has provided training appropriate for the shift advisors. The PG&E Advisor program equals or exceeds all requirements presented to the NRC by the NTOL Utility Group on February 24. Additionally, PG&E committed to the UAET to incorporate the UAET recommendations into their Advisor program which will further strengthen their program.

The UAET also concludes that these advisors can rapidly and effectively communicate their experience to the PG&E shift crew. It is the UAET's unanimous opinion that PG&E's Advisor program provides additional assurance that the Diablo Canyon Nuclear Plant can be started up and operated safely and in accordance with NRC regulatory requirements.



II. OBJECTIVE, SCOPE AND METHODOLOGY

- o Evaluation of PG&E's Shift Advisor Program and the qualifications of each advisor on shift at Diablo Canyon Power Plant.
- o The Scope of the evaluation consisted of a review of the following:
 - a) The training provided the advisors, including the extent of the training, the criteria for the training, the specific procedures (administrative, normal, abnormal, and emergency), Plant Technical Specifications, specific plant systems, and the scope, content, and grading of the examinations given.
 - b) The procedure that defines the specific duties and responsibilities of the Shift Advisor, the training provided to the shifts to ensure their understanding of the program, the advisor's functions, their limitations and access to plant management above the Shift Supervisor.
 - c) The training records, observation of classroom training in-progress and observation of on-shift crews performing routine operation including shift turnovers and briefings.
- o The team divided into groups and conducted reviews of assigned areas; normal shift operations, shift turnovers, shift briefings, observation of the shift crews/advisor interface, the training program, resumes of the individual advisors, interviews with most of the advisors, interviews with operations, training and plant management, and observation of training in progress.

A post evaluation discussion was held with PG&E's management to review the team findings.



III. EVALUATION RESULTS BY SECTION

A. INTERVIEWS

There were several types of interviews conducted with the PG&E Shift Advisors and staff. These included a shift licensed group interview with all UAET members present, several one-on-one and two-on-one interviews in both the off-shift and on-shift environment.

The purpose of these interviews was threefold. First, there was the verification of adequate communication relating to the duties and responsibilities of the Shift Advisor. This verification was performed by comparing the responses obtained from the various advisors, control room RO's and SRO's to the responses obtained by staff members delineating the duties and responsibilities of these advisors. Second, all the responses were compared to the duties and responsibilities stated in PG&E's plant procedures.

Third, to evaluate the Shift Advisors specific training needs that are relative to their stated duties and responsibilities. This again was accomplished by comparing responses as described previously.

In summary, the UAET members have found that PG&E's advisors, shift crews and plant staff generally agree on the function of the shift advisor. However, inconsistencies existed concerning an understanding of the duties and responsibilities of the shift advisor. UAET members also agree that the training provided meets or exceeds the requirements necessary to adequately function as Shift Advisors for PG&E's Diablo Canyon plant.

Finally, in order to enhance the existing advisor program, the UAET members recommended the following improvements:

- o Change the plant procedure delineating the advisors duties and responsibilities such that those stated are in agreement with those actually being practiced.
- o Discuss the new procedure with the shift crew, advisors and appropriate plant staff.
- o Provide one advisor with approximately one week of Westinghouse simulator training since his experience was related to a Combustion Engineering PWR.



B. SHIFT OBSERVATIONS

Two shift turnovers were observed by various members of the UAET. These reviews enabled the team to evaluate, in part, the Shift Advisor's conformance to stated responsibilities and performance of duties. These responsibilities and duties are prescribed in a procedure.

The advisor's turnover requirements are not described by procedure. However, the advisors are all experienced in operations and maintain their own log. They used this log and a control board walkdown to inform the oncoming advisor of significant activities accomplished during the previous shift or that were in progress. On most shift turnovers, it was stated that a briefing is conducted between the Shift Foreman and the operating crew including the Shift Advisor. This is an additional method for the advisor to maintain awareness of activities and was observed on one shift turnover.

The Shift Advisor is stationed in the main control room near the Senior Control Operator (an SRO). This should enable him to be involved in operating decisions since he can easily observe the main control board and annunciator panels and also make recommendations regarding activities discussed between the Shift Foreman and Senior Control Operator who control shift operations.

C. CLASSROOM OBSERVATION

Several UAET members observed a portion of the classroom training provided the Shift Advisor. The training provided was consistent with the training staff's course outline and flow sheet. The instructor was knowledgeable of current industry experience and presented an effective program on significant events with potential application to the Diablo Canyon Power Plant. The pace of the class was appropriate for the student level of training and experience. The program, as presented, represents SRO level instruction and content.

D. RESUME REVIEW

Each of the nine Shift Advisor's resumes were reviewed and NRC licenses held by these individuals were verified by NRC Region V with the exception of one person. Verification of one person's license was made by direct contact with the plant for which this person held a license. One Shift Advisor candidate was rejected for lack of adequate hot operating experience and it was recommended that one candidate receive an additional week of simulator training. All remaining candidates resumes indicated that they exceeded the industry requirements proposed for the Shift Advisor position.

In addition to the resume review and license verification, seven of the nine candidates were personally interviewed either on the job in the control room or in special sessions during the classroom training programs. Additional information about the candidates usefulness and their experience was obtained by direct interviews with Shift Foremen, Shift Technical Advisors and Senior Control Operators.



E. ADVISOR PROCEDURE REVIEW

PG&E developed a procedure to cover the scope, responsibilities, limitations, duties and working relationships of the Shift Advisor. The procedure covered all the important aspects of the Advisor's role and specifically stated his key responsibility:

"The Shift Advisor will review and assess the impact of significant shift activities that are scheduled or in progress and will keep control room personnel apprised of any potential problem areas... (including plant shutdown)."

The UAET believes that PG&E's procedure meets the current industry NTOL requirements. The UAET made several recommendations for improving this procedure and PG&E committed to implement these recommendations. *

* See Attachment

F. TRAINING LESSON PLAN REVIEW

A training course for the Shift Advisors was developed by the station's training department. The training staff performed a review of the duties of the advisor and developed a training plan specific to the needs of the advisors. This course was four weeks in duration and included plant walkthroughs, Technical Specifications, plant procedures, and plant systems. The UAET reviewed the lesson plans for the first and fourth week of this program since these weeks included training in all areas within the scope of our program evaluation - plant procedures, Technical Specifications, and plant systems. Evaluation of the examination is discussed elsewhere. The training plans were considered satisfactory for the Shift Advisor position. Emphasis was placed on the more significant operating and emergency procedures and plant systems. Since most advisors were familiar by experience with the Standard Technical Specifications and are not functioning as an SRO, the short time spent on the Diablo Canyon Technical Specifications is satisfactory. The UAET considered the Shift Advisors training plans to meet the requirements of the NTOL Utility Working Group.

G. EXAMINATION REVIEW

The UAET reviewed the content and grading of PG&E's oral and written examinations which were administered to the first group of Shift Advisors to complete training. The examinations were representative of the Advisor Training Program. The examination content had sufficient depth including plant specific and Westinghouse generic questions to assure that any Advisor who passed the examinations would be able to effectively relate and communicate their experience to Diablo Canyon operators. The grading was also considered appropriate.

The UAET reviewed the mix of generic and plant specific examination questions. Approximately 44% to 68% of the questions were considered plant specific. The generic questions were considered appropriate. These questions reviewed important general aspects of Westinghouse reactor operation especially for Advisors who have held a license on a Combustion Engineering PWR.



IV. UTILITY ADVISOR EVALUATION TEAM MEMBER EXPERIENCE

GEORGE BOCKHOLD, JR.
GENERAL MANAGER, VOGTLE NUCLEAR OPERATIONS
GEORGIA POWER COMPANY

Mr. Bockhold has seventeen years of nuclear experience including SRO commercial Shift Supervisor line responsibilities during the startup and operation of the 900 Mwe Westinghouse Indian Point Units. He managed and instructed licensed operators and supervisors on both generic and reference plant simulators, and has directed research associated with operators performance. He is currently responsible for the startup, operation and maintenance of the Vogtle Nuclear Units.

JOHN P. LEIDER
SUPERVISOR SAFETY ENGINEERING GROUPS
OFFICE OF NUCLEAR SAFETY
COMMONWEALTH EDISON COMPANY

Mr. Leider has twenty years of power plant experience with Commonwealth Edison Company including over thirteen years of nuclear experience. Mr. Leider received a cold SRO license on Zion Station in March 1973 and continues to hold this license. Specific job assignments and responsibilities in the nuclear area include Operating Engineer at Zion Station responsible for the performance of operations personnel during Units 1 and 2 startup and operation, Assistant Superintendent at Zion responsible for operations and maintenance activities, Nuclear Division Staff Engineer developed with EPRI a disturbance analysis surveillance system (DASS), and Supervisor of the onsite safety engineering groups in the Office of Nuclear Safety.



CHRIS I. MCLEAN
SR. PLANT INSTRUCTOR - SIMULATOR FARLEY NUCLEAR PLANT
ALABAMA POWER COMPANY

Mr. McLean has approximately thirteen years of nuclear experience including eight years of commercial experience. He is currently SRO licensed on Farley 1 and 2 with 5 1/2 years SRO experience with duties including Shift Foreman, Shift Supervisor and currently operations plant specific simulator and classroom instructor. Plant specific experience includes startup of Farley 1 as an Assistant Plant Operator, Hot Licensed SRO Shift Foreman on Farley 1, Cold License SRO Shift Supervisor on Farley 2 and various procedural and lesson plan development tasks associated with both the operation and training areas at Farley Nuclear Plant. Currently, he is actively engaged in license training on the Farley plant specific simulator.

FRANK A. PALMER
ASSISTANT TO EXECUTIVE VICE PRESIDENT
COMMONWEALTH EDISON COMPANY

Mr. Palmer has thirty-one years of power plant experience of which twenty-seven years were nuclear experience in every management position in the Edison Nuclear Division. This experience included Pre-op Test Director, ASME Turbine Test Director, SRO Licensed Shift Engineer Unit Startup Testing Dresden 1, Quad Cities 1 & 2, organized and managed the manning, training and startup of Quad Cities Units 1 & 2. Organized and managed the development of the Nuclear Division of the Edison Company to support six nuclear power plant with thirteen units. Participated as a member of ANSI/ANS 3 from 1973 to 1982 developing standards. Mr. Palmer was Ad Hoc Chairman on ANSI/ANS 3.1 "Selection, Training and Qualification of Nuclear Power Plant Personnel". Other standards developed during ANSI/ANS 3 membership included ANS 3.2, 3.3, and 3.5. Participated as ANSI/ANS 3 Liaison to IEEE Committee on "Control Room Design". He was a member of the AIF committee that developed the Emergency Preparedness Plan For Industry Following the TMI Event. He participated in the development of INPO on the first Industry Review Group to the Emergency Planning and Radiation Protection Division and was Chairman of the IRG during 1982. Presently, he is a member of the EPRI NSAC Task Force, the Executive Committee for ANS Program Development, the Corporate INPO contact, responsible for development of corporate performance monitoring and long range strategy planning in the nuclear division.



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J. NORMAN POPE
SUPERINTENDENT OF OPERATIONS
OCONEE NUCLEAR STATION
DUKE POWER COMPANY

Mr. Pope has twenty-two years power plant experience, ten of these years has been commercial nuclear power plant experience. He obtained an SRO license at Oconee, a 3 Unit 900 Mwe B&W power plant. He has held the positions of Shift Supervisor, Operating Engineer, and Superintendent of Operations at this plant. In these line management positions he has been responsible for portions of the initial testing programs, initial fuel loadings and initial startup testing on all 3 units, and the continued safe and efficient operation of Oconee.

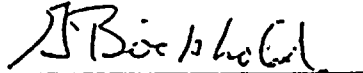
E. L. THOMAS
MANAGER NUCLEAR RELIABILITY ASSURANCE
DUKE POWER COMPANY

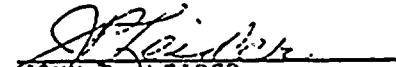
Mr. Thomas has thirty-seven years power plant experience including thirteen years nuclear involvement. Specific nuclear experience includes eight years in defining, developing and operating Duke Power Company's Nuclear Power Technical Training Program. Served as Director of the Training and Education Division of INPO for 2.5 years. Currently responsible for developing and implementing a program to improve the reliability/availability of Duke's nuclear generating units.

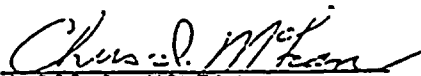


V. TEAM ENDORSEMENT OF REPORT


This report reflects my observations and opinions.


GEORGE BOCKHOLD
GEORGIA POWER COMPANY


JOHN P. LEIDER
COMMONWEALTH EDISON COMPANY


CHRIS I. MCLEAN
ALABAMA POWER COMPANY

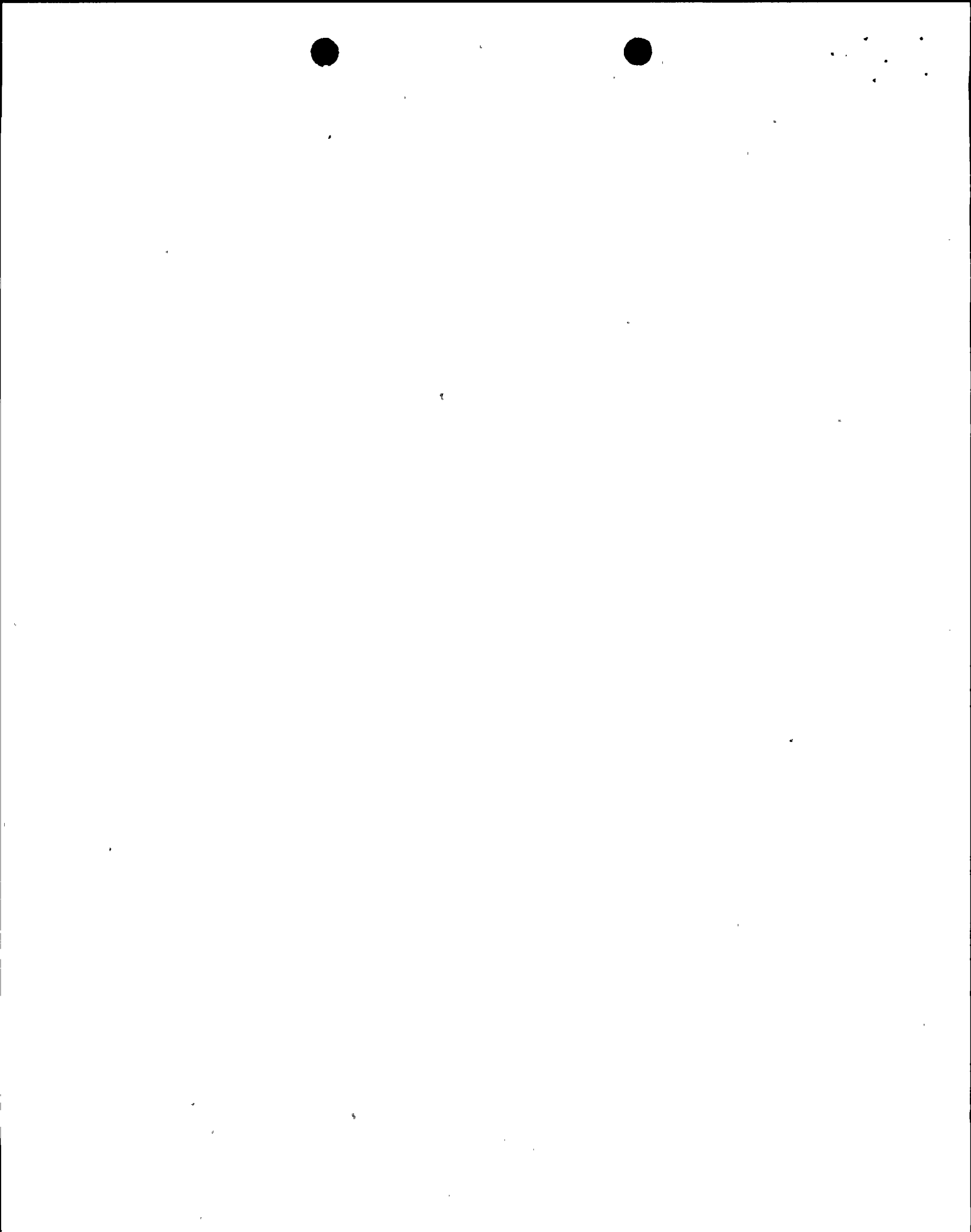

FRANK A. PALMER
COMMONWEALTH EDISON COMPANY


J. NORMAN POPE
DUKE POWER COMPANY


E. L. THOMAS
DUKE POWER COMPANY



VI. ATTACHMENTS



FOR INTRA-COMPANY USE

FOR INTRA-COMPANY USE

From Division or Department: NUCLEAR PLANT OPERATIONS
Diablo Canyon Power Plant
To Division or Department:
FILE NO. 026.14
RE: LETTER OF
SUBJECT Improvements in Shift Advisor Program

April 9, 1984

MESSRS. T. J. MARTIN, Training Manager
J. A. SEXTON, Operations Manager

As discussed in our meeting with the industry group on Shift Advisors on Friday, April 6, 1984, please make the following changes to the Shift Advisor Program:

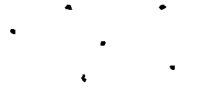
1. Procedure changes to TP-TQ-8401 as agreed to in the meeting.
2. Disseminate the information on the new procedure to the shift operating personnel and the Shift Advisor.
3. Provide the simulator training to the Shift Advisor that was agreed upon.
4. Provide a schedule which rotates the Shift Advisor with the Shift Foreman.

I believe the above four changes to the Program will improve the Shift Advisor Program and the overall Startup Program for Unit 1 at the plant.

R. C. Thornberry
R. C. THORNBERRY

JASexton(3336):ws

xc WGCrockett
RPatterson
JDTownsend





Pacific Gas and Electric Company

NUMBER TP TD-8401

REVISION 1

DATE 4/5/84

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DEPARTMENT OF NUCLEAR PLANT OPERATIONS

DIABLO CANYON POWER PLANT UNIT NO(S) 1 AND 2

TEMPORARY PROCEDURE

RESPONSIBILITIES AND DUTIES OF THE SHIFT ADVISOR

TITLE:

APPROVED: _____

PLANT MANAGER

DATE

SCOPE

As part of our operating license (Item 2.c.8.c), PG&E will augment the plant staff by providing on each shift an individual experienced in comparable size PWR operation. In addition to this, PG&E will meet the requirements developed by the NTOL utility working groups position on shift operating experience. This procedure establishes the primary responsibilities, duties and working relationships of this individual (henceforth referred to as Shift Advisor). This procedure will be rescinded upon completion of the commitment. This procedure and changes thereto requires PSRC approval.

PROCEDURE

1. Responsibilities:

- a. To provide advisory support to the operating shift crew. The Shift Advisor will review and assess the impact of significant shift activities that are scheduled or in progress and will keep control room personnel apprised of any potential problem areas. The Shift Advisor should be involved in significant shift operating decisions and recommend appropriate actions (including plant shutdowns).
- b. To provide technical and administrative support to the Shift Technical Advisor, Shift Foreman, Senior Control Operator and the Operations Manager.

2. Limitations:

- a. Responsibilities will not include direct manipulation of equipment.
- b. Responsibilities will also not include supervision of licensed operators in assignments which require an operator's license.



DIABLO CANYON POWER PLANT UNIT NO(S)

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1 AND 2

NUMBER TP TO-8401
REVISION 1
DATE 4/5/84
PAGE 2 OF 3

TITLE: RESPONSIBILITIES AND DUTIES OF THE SHIFT ADVISOR

3. Duties:

The Shift Advisor duties will include, the following tasks:

- a. Review and assess the impact of significant shift activities.
- b. Review startup procedures planned for the shift.
- c. Research any potential problems involving Technical Specifications and provide input based upon his experience.

The Shift Advisor duties may include the following tasks:

- a. Review shift turnover checklists.
- b. Review operator logs.
- c. Review equipment status in the Control Room.
- d. Assist in review of plant problem reports.
- e. Assist in the preparation of required reports.
- f. Review and recommend revisions to Operating and Emergency Procedures.
- g. Participate in shift turnover and shift briefings.
- h. Other tasks as assigned by the Shift Foreman.

4. Working Relationships

- a. The Shift Advisor assigned to a shift will report directly to the Shift Foreman during normal operation and plant testing, and to the Shift Technical Advisor (STA) during any plant emergency. The Shift Advisor will also work closely with all operations personnel as necessary to perform his duties.
- b. Shift Advisors not assigned to shift will report directly to the Senior Power Production Engineer (Operations).



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DIABLO CANYON POWER PLANT UNIT NO(S)

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1 AND 2NUMBER TP TO-8401
REVISION 1
DATE 4/5/84
PAGE 3 OF 3

TITLE: RESPONSIBILITIES AND DUTIES OF THE SHIFT ADVISOR

- c. The Shift Advisor will report any disagreements that cannot be resolved with the Shift Foreman (which may affect safe operation of the plant) to the General Operating Foreman, the Senior Power Production Engineer, Operations Manager or other appropriate plant management.

5. Miscellaneous

- a. At least one Shift Advisor shall be on duty on each shift whenever the reactor is not in a cold shutdown condition.
- b. In case of illness or otherwise, the "on shift" Shift Advisor will make arrangements for relief. The "on shift" person will stay until relieved.
- c. It should be understood that the Shift Advisors bear no direct responsibility for the operating crews actions. DCPP is responsible for all aspects of plant operations.

