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 AUTH.NAME AUTHOR AFFILIATION  
 DIETCH,R. Southern California Edison Co.  
 RECIP.NAME RECIPIENT AFFILIATION  
 DENTON,H.R. Office of Nuclear Reactor Regulation, Director

SUBJECT: Forwards executive summary of Plant Operations Personnel  
 Review Committee, per 821115 commitment. Plant operations  
 personnel experienced & adequately trained to conduct power  
 operations.

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*Southern California Edison Company*



P. O. BOX 800

2244 WALNUT GROVE AVENUE

ROSEMEAD, CALIFORNIA 91770

ROBERT DIETCH  
VICE PRESIDENT

TELEPHONE  
213-572-4144

March 2, 1983

Mr. Harold Denton  
Director, Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Gentlemen:

Subject: Docket No. 50-362  
San Onofre Nuclear Generating Station  
Unit 3

Enclosed for your information is an advance copy of the Executive Summary of the Plant Operations Personnel Review Committee (POPRC) Report. Please note that this summary is subject to change during final review.

SCE's letter of November 15, 1982, committed to establish a committee to perform a review of the staffing and training of operations personnel at the San Onofre Nuclear Generating Station, Unit 3. The review was conducted by developing an action plan structured into five major tasks. This action plan was described in SCE's letter of December 28, 1982. Based on parameters evaluated in this special review, the POPRC concluded in the Executive Summary that the plant operations personnel are ready to conduct full power operations on Unit 3. The operations personnel are capable, experienced and adequately trained.

SCE will submit to the NRC a copy of the POPRC's report no later than two weeks prior to exceeding 5% power. Actions taken as a result of this review will be identified when the report is submitted.

Very truly yours,

cc: Mr. H. Rood, Project Manager  
Licensing Branch No. 3

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## EXECUTIVE SUMMARY

### 1.1 INTRODUCTION

On November 15, 1982, Southern California Edison (SCE) committed to establish a committee to perform a review of the staffing and training of operations personnel at the San Onofre Nuclear Generating Station, Unit 3.

This report details the results of the Plant Operations Personnel Review Committee's (POPRC) review including conclusions and recommendations on how SCE management can assist in improving the overall effectiveness of the Unit 3 operating staff. Mr. Ben C. Rusche of Management Analysis Company was retained by SCE to actively participate in the POPRC's review.

The review was conducted by developing an action plan structured into five major tasks. The major tasks (A, B, C, D and E) were designed to verify the operational readiness of the plant operating staff by (a) reviewing staffing, operator qualifications, overtime, and turnover rates; (b) reviewing past performance; (c) reviewing operator training; (d) obtaining operator feedback; and (e) summarizing conclusions and proposing recommendations. The action plan provided a basis for evaluating the readiness of plant operations personnel in terms of these parameters.

This executive summary provides a synopsis of the review, the conclusions and recommendations.

### 1.2 SCOPE

The scope of this effort was to conduct an independent review of the operational readiness of the plant operating staff of San Onofre Unit 3 in terms of certain defined parameters.

This review included the administering of questionnaires to all levels of the shift operating staff.

The review focused on licensed and non-licensed shift operations personnel and focused on the Operations Department interface with other station and general office departments. The operator training portion was limited to a review of those activities affecting Units 2 and 3.

The POPRC reviewed and evaluated the:

1. Readiness of plant operations personnel to conduct intended operation and testing, including the adequacy of staffing levels and the effectiveness of measures to control and reduce required overtime.
2. Past performance in plant operations and adherence to procedures and administrative controls.

3. Adequacy of the operator training program, including a comparison with other PWR training programs.
4. In performing the review and evaluation the POPRC considered how company management can assist in improving the overall effectiveness of the plant operating staff.

The action plan consisted of five tasks:

- A. Task A, Readiness of Plant Operating Personnel, focused on a review and evaluation of staffing, operator qualifications, overtime, and turnover rates. Past and present data and future estimates were evaluated for the staffing, overtime and turnover rates. The intent of this task was to evaluate areas relevant to the operational readiness of plant operating personnel.
- B. Task B, Past Performance, consisted of a review of station compliance history, Systematic Assessment of Licensee Performance (SALP) reports, an Institute of Nuclear Power Operations (INPO) evaluation of San Onofre Unit 1 and procedural controls. The intent of this task was to review plant history concerning operator performance and adherence to procedures.
- C. Task C, Operator Training, consisted of a review of the content of the licensed and non-licensed operator training programs, the requalification program, and the training staff qualifications. The training programs were compared with other PWR training programs. The Saddleback Community College Nuclear Technology Work Study Program was also reviewed relative to its potential for providing future operators. The intent of this task was to provide assurance that the training programs are adequate to meet the needs of current operators and the demands of increased staffing levels for both units.
- D. Task D, Operator Feedback, involved the administration of a questionnaire to shift plant operations personnel and training staff. The intent of this task was to gain operator feedback in order to identify problem areas for the purposes of evaluating their impact on readiness and to recommend corrective action.
- E. Task E, Review and Evaluation, involved processing and evaluating the assembled data and formulating the conclusions and recommendations identified in Tasks A, B, C and D. The individual conclusions were regrouped and summarized.

This entire action plan provided the basis on which the readiness of the plant operations staff was evaluated.

### 1.3 TASKS

Sections 1.3.1 through 1.3.4 summarize the review activities conducted for each task. The conclusions and recommendations are summarized in Section 1.3.5.

#### 1.3.1 Readiness of Plant Operating Personnel, Task A

##### Objective

The objective of Task A was to review and evaluate plant operations department staffing, operator qualifications, overtime, and turnover rate. Past and present data and future estimates were gathered.

##### .1 Staffing

Staffing level history for Units 2 and 3 was gathered from 1977 to present. Present staffing levels were compared to station needs and NRC regulations. Future staffing requirements were presented to the Committee by the Station Operations Manager.

##### Conclusions

This review determined that present staffing levels with a five shift rotation are adequate to operate Units 2 and 3 both in terms of actual operating needs and NRC requirements. Assuming a reasonable success rate during the 1983 NRC examinations, the scheduled implementation date for six shift rotation in January 1984 is attainable. This schedule was considered acceptable by the POPRC.

Sufficient numbers of personnel are being trained to meet current staffing goals.

Historically, efforts were made not to deplete the Unit 1 staff during staffing of Units 2&3. Future plant staffing is being pursued from a variety of sources.

##### .2 Operator Qualifications

Education and experience data for the Units 2 and 3 operators were gathered. Job descriptions of the shift personnel were reviewed. The future need for contract personnel was discussed.

### Conclusion

Relevant average experience of the staff is 3.5 years for operators and 5 years for supervisors at San Onofre which is considered adequate. Commercial nuclear power plant experience is comparable to industry averages of 2.8 years for RO's and 6.4 years for SRO's as reported in NUREG/CR-1750.

### .3 Overtime

Overtime history was collected since the receipt of the Unit 2 operating license. Data is presented showing overtime by operator classification. Future overtime projections and license requirements were discussed.

### Conclusions

Planned overtime has been decreasing steadily since May 1982 to an average amount of 4% per month for December 1982. Adequate controls are now in place to keep planned overtime at or near present levels. The Station Operations Manager estimates that less than 5% per month per operator planned overtime would be worked on the average for 1983. The POPRC found this level of overtime acceptable.

### .4 Turnover Rate

Data was gathered on operator turnovers for four years and compared with recent INPO industry figures. Future turnover was estimated at 10%.

### Conclusions

Turnover has decreased steadily since 1979 to a present level of 11.2% which compares favorably with an industry average of 12.6%. Adequate provisions have been made to train replacements to offset anticipated attrition of 10%.

### Recommendations

None

### 1.3.2 Past Performance, Task B

#### Objective

The objective of Task B was to review available plant history concerning operator performance and adherence to procedures and administrative controls. This review determined if there was a need to improve procedural compliance of operators based on past performance.

## .1 Compliance History

The NRC Systematic Assessment of Licensee Performance (SALP) reports were reviewed for all three units. The 1981 INPO evaluation of Unit 1 was also reviewed.

### Conclusions

Insufficient data was available to discern any pattern on which a conclusion could be reached due to the limited amount of operational data available from Units 2 and 3.

## .2 Procedural Controls

The SALP reports were reviewed for all three units. Recent SALP reports indicate that a potential problem exists regarding performing and scheduling surveillances. The plans to implement a computer-based surveillance and scheduling program were reviewed.

### Conclusions

Adequate corrective measures are now underway. However, results must be monitored on a continuing basis.

Data to date does not show a problem with adherence to procedures on Units 2 and 3 based on a review of the SALP reports.

### Recommendations

Adherence to procedures should be continually emphasized. The computer-based surveillance and scheduling program should be implemented promptly for both units.

## 1.3.3 Operator Training, Task C

### Objective

The objective of Task C was to review the content of the training and requalification programs. The training staff qualifications were reviewed by the Committee's staff. SCE's training programs were compared with other PWR training programs. The Saddleback Community College program was also reviewed.

## .1 Current and Proposed Programs

The following training program documents were reviewed: cold license, hot license, requalification including the simulator; and the four proposed programs for non-licensed operator, reactor operator, senior reactor operator and shift supervisor. The Saddleback Community College Program was also reviewed.

### Conclusions

The individual training program documents were reviewed and found to be acceptable.

The Saddleback Community College Program will provide San Onofre Nuclear Generating Station (SONGS) with trainees for Nuclear Plant Equipment Operator (NPEO) positions starting in 1983. This innovative program shows great promise. It has the potential of enhancing both the educational level and retention rate for operators. The program will augment some of the reliance now placed on hiring ex-Navy personnel. It will also tend to increase the educational level of the operating staff.

## .2 Comparison With Other Utility Programs

The initial SCE training programs were compared with the programs of four other utilities; GPU (Three Mile Island), Commonwealth Edison (Zion), Northeast Utilities (Millstone 2), and Vermont Yankee Nuclear Power Corp. (Vermont Yankee). The requalification program was compared with the regulatory requirements and INPO Guidelines. In addition, Management Analysis Company performed an independent review of the content of the training programs.

### Conclusions

The content of the training programs compares favorably with other utility programs, but a need for additional training was noted in certain non-technical operating training areas, e.g., stress management.

## .3 Instructors

Instructor resumes were reviewed by the Committee staff. Implementation schedules for providing qualified SCE instructors were evaluated.

Although the current staff of contract instructors is adequate, staffing with SCE training instructors will improve the training program by providing plant specific insight and actual on-the-job experience. The POPRC recognizes the complement of training instructors will be improved when the four SCE instructors presently in shift operations return to the training department.



## Conclusions

None

## Recommendations

The administrative training requirements contained in the SRO training program should include the delineation of job responsibilities for other operator classifications.

Stress management training for RO's should be upgraded to equal that for SRO's.

### 1.3.4 Operator Feedback, Task D

#### Objective

The objective of Task D was to obtain feedback through a comprehensive questionnaire given to shift plant operations and training personnel. The POPRC also reviewed the scope of the interviews being conducted by an outside consultant. The intent of this task was to gain operator feedback in order to identify problem areas for the purpose of evaluating their impact on readiness and to recommend corrective action.

#### .1 Questionnaire

A questionnaire was administered to 104 (83%) Unit 2 and 3 operations and training personnel on January 12 and 14. The job titles of these individuals were divided into two categories: (1) Operators, who comprised 84% of the sample, and (2) Supervisors, who comprised 16% of the sample.

The 72 job attitude responses were grouped into four categories: Training, Communications, Operations and Job Satisfaction.

#### Conclusions

1. Supervisors have adequate technical experience but minimal supervisory experience.
2. The amount of operations experience is comparable to industry averages.
3. Operators feel they have the skills and knowledge required to perform their jobs well.
4. Operators feel opportunities exist to learn new and challenging work.

5. Both supervisors and operators felt the people on shift work well as a team.
6. Operators were slightly dissatisfied with working hours and conditions.
7. Inadequate communications with management is a significant area of job dissatisfaction among operators and supervisors.

## .2 Interviews

Prior to the efforts of this Committee, Station Management had received reports of increased stress and lowering of morale. Station Management then retained an outside consultant not associated with POPRC to conduct individual interviews with operations personnel. These interviews attempted to identify the factors underlying the problems reported.

This effort was started prior to November 15, 1982. Recognition by Station Management of a potential problem is seen as a conscientious, progressive effort to implement corrective action to improve the overall effectiveness of operations personnel.

### Conclusions

None

### Recommendations

Provide additional supervisory skills training to operations supervisors.

Institute a program to improve communications within the Operations Department.

## 1.3.5 Review and Evaluation, Task E

### Objective

The objective of Task E was to process and evaluate the conclusions and recommendations identified in Tasks A, B, C and D. A general conclusion is reached for each of the 4 categories identified in the November 15, 1982 letter. Finally, an overall conclusion of this effort is provided.

.1 Summary of Conclusions

The conclusions of Tasks A, B, C and D are summarized below into four categories. The categories correspond to the items addressed in the November 15, 1982 letter.

A. Readiness of Plant Operations Personnel

Based on parameters evaluated in this special review, plant operations personnel are ready to conduct intended full power operation and startup testing of San Onofre Unit 3. This conclusion is supported by the following findings noted previously:

1. Present staffing levels for five shift operation are adequate.
2. The schedule for implementing six shift operation is acceptable.
3. Sufficient numbers of personnel are being trained to meet current staffing goals and to compensate for anticipated attrition.
4. Relevant average experience of the staff is 3.5 years for operators and 5 years for supervisors at San Onofre which is adequate overall.
5. Future plant staffing is being pursued from a variety of sources.
6. Overtime has been decreasing since May 1982 to an average amount of 4% per month for December 1982. Adequate controls are now in place to keep planned overtime at or near present levels.
7. Turnover has decreased steadily since 1979 to a present level of 11.2% which compares favorably with an industry average of 12.6%.

B. Past Performance

Compliance history and adherence to procedures indicates a need for continued emphasis in this category. This conclusion is based on the following findings:

1. Adequate corrective measures are now underway. However, results must be monitored on a continuing basis.

2. Data to date does not show a problem with adherence to procedures on Units 2 and 3 based on a review of the SALP reports.

C. Operator Training

The training programs are acceptable and compare favorably with other PWR training programs. This conclusion is supported by the following findings:

1. The individual training program documents were reviewed and the programs were found to be acceptable.
2. The Saddleback Community College Program is an innovative program that shows great promise.
3. The content of the programs compares favorably with other utility programs but a need for additional training was noted in certain non-technical operator training areas, e.g., stress management.

D. Improving Overall Effectiveness

Generally, the plant operating staff is experienced and motivated. Communications with management needs to be improved. This conclusion is supported by the following findings:

1. Supervisors have adequate technical experience but minimal supervisory experience.
2. The amount of operations experience is comparable to industry averages.
3. Operators feel they have the skills and knowledge required to perform their jobs well.
4. Operators feel opportunities exist to learn new and challenging work.
5. Both supervisors and operators felt the people on shift work well as a team.
6. Operators were only slightly dissatisfied with working hours and conditions.
7. Inadequate communications with management is a significant area of job dissatisfaction among operators and supervisors.

Based on parameters evaluated in this special review, the plant operations personnel are ready to conduct full power operations on Unit 3. The staff is capable, experienced and adequately trained.

.2 Recommendations

The POPRC recommends the following items receive management attention and further action:

- A. Adherence to procedures should be continually emphasized.
- B. Implement the planned computer-based surveillance program for both units to improve adherence to surveillance schedules.
- C. The administrative training requirements in the SRO training program should include the delineation of job responsibilities for other operator classifications.
- D. Stress management training for RO's should be upgraded to equal that for SRO's.
- E. Institute a program to improve communications within the Operations Department.
- F. Provide additional supervisory skills training to operations supervisors.

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