

June 4, 1982

Docket No. 50-206  
LS05-82-06-012

Mr. R. Dietch, Vice President  
Nuclear Engineering and Operations  
Southern California Edison Company  
2244 Walnut Grove Avenue  
Post Office Box 800  
Rosemead, California 91770

Dear Mr. Dietch:

SUBJECT: SEP TOPIC VII-3, SYSTEMS REQUIRED FOR SAFE SHUTDOWN  
FINAL SAFETY EVALUATION FOR SAN ONOFRE UNIT 1

Our Final Safety Evaluation Report on this subject is enclosed. Our report and conclusions have been modified from that forwarded by our letter from D. Crutchfield to R. Dietch dated November 18, 1981. The basis for our revised report is the discovery that the component cooling water surge tank level indication does not satisfy the single failure criterion.

We recommend that a redundant, Class 1E surge tank level indication system be installed. The need to actually install such a system will be determined during the integrated safety assessment for San Onofre Unit 1.

This evaluation may be revised in the future if your facility design is changed or if NRC criteria relating to this subject are modified before the integrated assessment is completed.

Sincerely,

Original signed by:

Walter Paulson, Project Manager  
Operating Reactors Branch No. 5  
Division of Licensing

*SEO4*  
*DSU use (08)*  
*ADD:*  
*G. Staley*  
*E. E. / EGM*

Enclosure:  
As stated

cc w/enclosure:  
See next page

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*6/4/82*

OFFICE	SEP B	SEP B	SEP B	SEP B	OR B	OR B	AD: 9A: DL
SURNAME	Schohl: bl	EMcKenna	RHermann	WRussell	WPaulson	DCrutchfield	GLinas
DATE	5/21/82	5/20/82	6/17/82	6/17/82	6/17/82	6/17/82	6/17/82

Mr. R. Dietch

San Onofre Unit 1  
Docket No. 50-206  
Revised 3/30/82

cc

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# SYSTEMATIC EVALUATION PROGRAM

## TOPIC VII-3

### SAN ONOFRE UNIT 1

TOPIC: VII-3, Systems Required For Safe Shutdown

#### I. INTRODUCTION

The systems aspects of the review of Systems Required for Safe Shutdown was conducted as part of Topic V-10.B (RHR Reliability). This safety evaluation is limited to the electrical instrumentation and control systems identified as being required for safe shutdown. Plant systems that are needed to achieve and maintain a safe shutdown condition of the plant, including the capability for prompt hot shutdown of the reactor from outside the control room were reviewed. Included also, was a review of the design capability and method of bringing the plant from a high pressure condition to low pressure cooling assuming the use of only safety grade equipment. The objectives of the review were to assure:

- A. The design adequacy of the safe shutdown system to (a) initiate automatically the operation of appropriate systems, including the reactivity control systems, such that specified acceptable fuel design limits are not exceeded as a result of anticipated operational occurrences or postulated accidents and (b) initiate the operation of systems and components required to bring the plant to a safe shutdown.
- B. That the required systems and equipment, including necessary instrumentation and controls to maintain the unit in a safe condition during hot shutdown, are located at appropriate places outside the control room and have a potential capability for subsequent cold shutdown of the reactor through the suitable procedures.
- C. That only safety grade equipment is required to bring the reactor coolant system from a high pressure condition to a low pressure cooling condition.

#### II. REVIEW CRITERIA

The review criteria are presented in Section 2 of EG&G Report 0402J, "Electrical, Instrumentation, and Control Features of Systems Required for Safe Shutdown."

#### III. RELATED SAFETY TOPICS AND INTERFACES

Review areas outside the scope of this topic and safety topics that are dependent on the present topic information for completion are identified in Section 3 of EG&G Report 0402J.

IV. REVIEW GUIDELINES

The review guidelines are presented in Section 4 of EG&G Report 0402J.

V. EVALUATION

As noted in EG&G Report 0402J, the systems required to take San Onofre Unit 1 from hot shutdown to cold shutdown, assuming only offsite power is available or only onsite power is available and a single failure, are capable of initiation to bring the plant to a safe shutdown and are in compliance with current licensing criteria and the safety objectives of SEP Topic VII-3 except that long-term cooling (RHR) is susceptible to single EI&C failures which render long-term cooling inoperable.

With the exception of the component cooling system, the instrumentation available to control room operators to place and maintain the reactor in cold shutdown conditions meets current licensing criteria since no single EI&C failures render vital parameters such as reactor pressure, temperature, etc., inoperable.

The capability to maintain the reactor in hot shutdown from outside the control room exists and is in compliance with the safety objectives of SEP Topic VII-3. Procedures to take the plant from hot to cold shutdown from outside the control room satisfy the safety objectives of SEP Topic VII-3.

The component cooling water surge tank level is monitored by three level devices. These devices are a high level alarm, a low level alarm and a local sight gauge. Make up is manually controlled. Given a leak in the component cooling system and a failure of the low level alarm, the cooling system may be lost.

VI. CONCLUSIONS

The long term cooling method (RHR) is susceptible to single EI&C failures which render it inoperable. However, because alternative methods of long term cooling are available which were not addressed by the contractor (see SEP Safe Shutdown Systems Report, transmitted by letter dated June 20, 1981), the staff concludes that San Onofre Unit 1 satisfies all of the review criteria except for the component cooling water system. The staff proposes that a redundant, Class 1E surge tank level indication system be installed.