# Southern California Edison Company

P. O. BOX 800 2244 WALNUT GROVE AVENUE ROSEMEAD. CALIFORNIA 91770 January 15, 1979

K. P. BASKIN MANAGER, GENERATION ENGINEERING

Director, Office of Nuclear Reactor Regulation Attention: Mr. D. L. Ziemann, Chief Operating Reactors Branch #2 Division of Operating Reactors U. S. Nuclear Regulatory Commission Washington, D. C. 20555

Gentlemen:

1.

ŀ

UT.

· .

١.,

Subject: Docket No. 50-206 Provisional Operating License No. DPR-13 Fire Protection Program Review San Onofre Nuclear Generating Station Unit 1

In accordance with the commitment made in our letter dated October 18, 1978, this letter forwards as Enclosure 1, a conceptual plan for providing the capability to establish a safe shutdown of San Onofre Unit 1 following a fire in the 4160 volt switchgear room or the lube oil reservoir area, which is not dependent on the Chemical and Volume Control System test pump. The study was based on the criteria which was received from the NRC staff during the site visit (and containment inspection) of October 19, 1978, and which was included as Enclosure 2 to our letter dated December 1, 1978. Also, included as Enclosure 2 is a conceptual implementation schedule for the plant modifications associated with the conceptual plan.

The proposed plan of Enclosure 1 meets all the criteria of Enclosure 2 of our December 1, 1978 letter with the exception that the proposed means of shutdown utilizes either one of two separate and independent sources of offsite power regardless of fire related damage in the 4160 volt switchgear room rather than utilizing either onsite or offsite power. It is our understanding that the basis for requesting the utilization of either onsite or offsite power is the concern that a fire in the fire zones of concern could affect the availability of offsite power. A review of the proposed alternate source of offsite power, as described in Enclosure 1, confirmed that its availability would be unaffected by a forced outage of San Onofre Unit 1 such as an outage due to a fire. It has also been determined that the alternate source of offsite power can be made electrically independent and physically separate from the existing offsite power source except for their intertie to the San Diego

7901230243



TELEPHONE 213-572-1401



Gas & Electric Company's 138 kV system. Dependence on the San Diego Gas & Electric Company's 138 kV system is considered acceptable inasmuch as the guidance provided in Appendix A to Branch Technical Position APCSB 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants Docketed Prior to July 1, 1976," indicates that postulated fires or fire protection failures need not be considered concurrent with other plant accidents or the most severe natural phenomena (e.g., events leading to a loss of offsite power).

In view of the facts that: (1) the 4160 volt switchgear room and lube oil reservoir area are being provided with the fire detection and suppression systems as described in our letter dated October 18, 1978 and these systems are designed to limit fire damage in those areas such that plant shutdown can be accomplished using either of the existing onsite or offsite power sources and (2) we are now proposing the addition of an electrically independent and physically separate alternate source of offsite power for plant shutdown presuming the loss of the existing power sources due to fire in the 4160 volt switchgear room or lube oil reservoir area, we conclude that there is adequate assurance that San Onofre Unit 1 can be safely shutdown following fire related damage as is required to be postulated by the NRC Regulatory Staff.

As has been suggested by the NRC Staff position included as Enclosure 2 to our December 1, 1978 letter, the conceptual plan described in Enclosure 1 could be significantly impacted by the review of selected topics in the course of the Systematic Evaluation Program (SEP). For that reason, we do not propose to proceed with the detailed engineering of the conceptual plan described in Enclosure 1 until such time as: (1) the Regulatory Staff concurs with the conceptual plan and (2) related SEP topics are assessed by the Regulatory Staff and the integrated assessment of any necessary backfit modifications has begun. A conceptual implementation schedule following (1) and (2) above is provided as Enclosure 2. Detailed engineering and material procurement quotations will necessarily have an effect on any final implementation schedule. Pending implementation of the conceptual plan, interim modifications as described in our letters dated October 18, 1978, and November 22, 1978 provide adequate assurance that San Onofre Unit 1 can be safely shutdown in the event of a fire in the 4160 volt switchgear room or the lube oil reservoir area.

If you have any questions or desire further information please contact me.

Very truly yours,

Yep Bushin

Enclosures

-2-

#### Enclosure 1

## CONCEPTUAL PLAN FOR SAFE SHUTDOWN

In response to the recent NRC position regarding safe shutdown without reliance on the CVCS test pump following a fire in the 4160V switchgear room or the lube oil reservoir area (fire zone 9A), the following conceptual design changes have been developed for San Onofre Nuclear Generating Station Unit 1.

Alternate 4160V power will be provided for a charging pump using the San Onofre Units 2 and 3 12 kV construction power line from San Diego Gas & Electric's Japanese Mesa Substation as an independent offsite power source feeding a 4160V transformer. The line would also feed a 480V transformer to power the 480V switchgear No. 2 bus (see attached drawing). The charging pump would normally be fed from 4 kV bus 2C; in case of fire in the 4160V room or adjacent fire zone 9A, a transfer will be made to the 12 kV alternate offsite power source provided from the SDG&E system, which is independent of the San Onofre Unit 1 switchyard. The transfer will be effected by operating a two position selector switch.

The alternate offsite source will be electrically independent and physically separate from the San Onofre Unit 1 switchyard except for their intertie to the SDG&E power distribution system. There are no direct connections between the San Onofre Unit 1 switchyard and SDG&E's Japanese Mesa Substation. SDG&E's Japanese Mesa Substation is supplied by two independent 138 kV sources from the SDG&E power distribution system.

If, as a result of a fire, the San Onofre Unit 1 generation supply to the SDG&E power distribution system is lost, the system will remain functional since that power source amounts to less than 10% of the total generating capacity and the system's load follow capability can accommodate the change in demand placed upon it. A fire will therefore not affect the alternate source of offsite power due to the loss of San Onofre Unit 1 generation to the SDG&E power distribution system.

The possibility that a line fault created by a fire in the fire zones of concern would backfeed to the San Onofre Unit 1 switchyard, which supplies a normal source of offsite power to the station, has also been investigated. A fault in the line which connects the 4160V switchgear in the 4160V switchgear room through auxiliary transformer C to the switchyard, will be interrupted by the line breakers in the switchyard. In the highly unlikely event that the breakers do not perform their isolation function, the fault will be interrupted by the Local Breaker Failure Backup Protection System, which is not interconnected to any electrical system at San Onofre Unit 1, so it will not be affected by a fire in the fire zones of concern. Therefore, a line fault created by a fire will not impact the SDG&E power distribution system and the availability of the alternate source of offsite power is unaffected.

In view of the independence of the 12 kV power source from San Onofre Unit 1 power generation and fault propagation, it is concluded that the alternate source of offsite power is electrically independent of the normal offsite source. The electrical independence and physical separation of the normal and alternate sources of offsite power result in the conclusion that a fire will not impact the availability of offsite power to the station.

In order to provide adequate controls for hot and cold shutdown, it is proposed that a centralized control location be constructed near the auxiliary control panel for remote manual operation of essential equipment. The control panel will incorporate controls for test pump G-42, charging pump G-8B and controls for the essential valves necessary to ensure correct valve alignment for CVCS flow injection to the reactor coolant system. The panel will also incorporate local instruments to indicate VCT level and seal injection flow for each RCP.

To avoid possible spurious actuation of necessary equipment, essential power and control cables will be rerouted from the 4160V room and area 9A fire zones. In addition, control switches will be provided in the control room to control normally open power disconnect switches for MOV356, MOV357 and MOV358 on the charging lines to ensure that these valves will not spuriously actuate and divert the charging flow from the reactor coolant pump seal injection paths.

To ensure that an adequate water supply is available for the auxiliary feedwater pump with minimum operator action, a permanent piping connection will be installed between the service water system and the condensate storage tank. This connection would be locally controlled with a normally closed manual valve.

Since the compressed air system instrument air header passes through fire zone 9A, the northern portion of the header and its associated lines will be relocated outside of the fire zone to eliminate the possibility of fire damage to the system. The instrument air system will be provided with compressed air from the existing diesel driven portable air compressor. The above described conceptual design changes will provide assurance that, in the event of a fire in the 4160V room or fire zone 9A, it will be possible to bring the plant to a safe shutdown condition without relying on the CVCS test pump.



# Enclosure 2

### IMPLEMENTATION SCHEDULE

The following tentative schedule is based on only conceptual designs and may alter after preliminary detailed design engineering is completed.



Time (weeks)