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J. G. HAYNES
MANAGER OF NUCLEAR OPERATIONS

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US NRC
NUCLEAR SERVICES
DISTRICT BRANCH

Southern California Edison Company

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

February 2, 1981

TELEPHONE
(213) 572-1742

U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region V
1990 North California Boulevard
Suite 202, Walnut Creek Plaza
Walnut Creek, California 94596

Attention: Mr. R. H. Engelken, Director

DOCKET NO. 50-206
SAN ONOFRE - UNIT 1

Dear Sir:

This letter constitutes a revision to a reportable occurrence involving loss of power to all station auxiliaries, previously reported to you in LER 80-038 dated December 9, 1980.

It was noted that during this incident, 4Kv breaker 11C02, source breaker to 4Kv bus 1C, did not open on loss of voltage as required. Subsequent investigation revealed that the No. 1 D.C. bus control power switch to the station undervoltage scheme for the 1C bus was open. This switch is required to be in the closed position for complete operation of the station undervoltage scheme during a Loss of Power (LOP) or Safety Injection Signal/Loss of Power (SIS/LOP) event.

The primary function of the aforementioned undervoltage scheme is to strip 4Kv bus 1C of remaining loads during a LOP or SIS/LOP event. This circuit is energized to perform this function. However, with the D.C. control power switch open, the undervoltage scheme will remain deenergized. In this condition, the potential exists for applying load blocks larger than the diesel generator is designed to accept.

The subject D.C. control power switch is physically located in 4Kv breaker cubicle 11C01. It is identified as the control power to the station undervoltage scheme and is located within six inches from a similar D.C. switch that supplies control power to breaker 11C01. When "racking out" a 4Kv breaker, it is normal practice to open the D.C. control power switch to that breaker. Breaker 11C01 is the tie breaker between 4Kv buses 1-C & 1-A and would be racked out for clearances on these buses or for breaker servicing.

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A review of our records indicate that the control power switch to the undervoltage scheme was verified to be closed at the end of our last refueling outage. At that time sequencer testing including SIS/LOP was completed satisfactorily. From that time until this outage, there were no clearances issued which would have required opening of the D.C. control power switch to breaker 11C01 or the No. 1 D.C. bus control power switch to the undervoltage scheme. However, during the current refueling outage there were at least two times when the D.C. control power switch to breaker 11C01 was opened. It is believed that on one of these occasions the D.C. control power switch to the station undervoltage scheme was inadvertently opened due to its close proximity to the D.C. control power switch to breaker 11C01.

The first of the two occasions noted above occurred on April 16, 1980, one week after reactor shutdown. Prior to the first occasion the SIS/LOP signal had been locked out and the reactor was in the cold shutdown condition. In this mode the normal loading on 4KV bus 1C would not be greater than the maximum load block that the diesel generator is designed to accept. Due to equipment testing however, there may have been brief periods when the loading on 4Kv bus 1C was greater than the design load block.

With the SIS/LOP signal locked out, an LOP event would automatically start the Diesel Generators but loading would be accomplished manually as specified in Emergency Operating Instruction, SOI-3-5.30, Loss of Offsite Power. This procedure lists the automatic equipment trips associated with the station undervoltage scheme and requires verification that breaker 11C02 is open prior to manual loading. In the unlikely event the diesel generator had not been able to accept the loading which may have been on 4Kv bus 1C and tripped, the operator would have detected the failure of the automatic trip functions and taken immediate remedial action.

Based on the above information, it is our conclusion that the station undervoltage transfer scheme was disabled inadvertently during the current refueling outage but that this disabling would have no adverse effect on plant safety during this time. Testing of the sequencer is required prior to return to service and discovery of the open switch would have been assured at that time. There was no effect on public health and safety as a result of this event.

To preclude recurrence of this incident, the station will develop and implement administrative controls on safety-related D.C. control circuits prior to our return to service from the current refueling outage.

Should you have any questions regarding this incident, please call me.

Sincerely,



Enclosure: LER 80-038 Rev. 1

cc: L. F. Miller (NRC Resident Inspector - San Onofre Unit 1)
Director, Office of Management Information & Program Control
Director, Nuclear Safety Analysis Center