

CONTROL BLOCK										(PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)																													
01	C	A	S	O	S	3	0	0	-	0	0	0	0	0	-	0	0	3	4	1	1	1	1	4	5														
LICENSEE CODE										LICENSE NUMBER										LICENSE TYPE										CAT 38									
CONT																																							
01	L	0	5	0	0	0	3	6	2	7	1	0	1	7	8	3	1	1	1	8	8	3	9																
REPORT SOURCE										DOCKET NUMBER										EVENT DATE										REPORT DATE									
EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)																																							
02	On 10/17/83, with Unit 2 in Mode 1, the undervoltage (UV) armatures for																																						
03	reactor trip breakers (RTB's) 4 and 8 were found not to be fully																																						
04	picked-up. On 10/28/83, with Unit 3 in Mode 3, RTB's 5 and 8 were																																						
05	observed to be in the same condition. On 10/31/83, with both Units 2																																						
06	and 3 in Mode 1, Unit 2 RTB 4 and Unit 3 RTB's 5 and 8 were found in																																						
07	this condition. Public health and safety were unaffected since the																																						
08	shunt trip feature functioned properly. See LER 83-125, Docket 50-361.																																						
SYSTEM CODE CAUSE CODE CAUSE SUBCODE COMPONENT CODE COMP SUBCODE VALVE SUBCODE																																							
09	I	A	11	E	12	B	13	C	K	T	B	R	K	14	A	15	Z	16																					
LER NO REPORT NUMBER EVENT YEAR SEQUENTIAL REPORT NO. OCCURRENCE CODE REPORT TYPE REVISION NO.																																							
17	8	3	21	0	9	1	24	0	1	27	T	30	0	32																									
ACTION TAKEN FUTURE ACTION EFFECT ON PLANT SHUTDOWN METHOD HOURS ATTACHMENT SUBMITTED NPD-4 FORM SUB PRIME COMP SUPPLIER COMPONENT MANUFACTURER																																							
18	E	18	X	19	Z	20	Z	21	0	0	0	0	22	N	23	N	24	N	25	G	0	8	0	26															
CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)																																							
10	UV armatures not being fully picked-up is believed to be the result of inter-																																						
11	ference between the UV armature and the copper shading ring around the coil																																						
12	core. All affected RTB's were reset. As corrective action, visual																																						
13	verification of proper pick-up is required following RTB operations.																																						
14	Diode elimination and alternate UV devices are being investigated.																																						
FACILITY STATUS % POWER OTHER STATUS (30) METHOD OF DISCOVERY DISCOVERY DESCRIPTION (32)																																							
15	B	28	0	0	0	29	NA	30	B	31	Surveillance Testing	32																											
ACTIVITY CONTENT RELEASED OF RELEASE AMOUNT OF ACTIVITY (35) LOCATION OF RELEASE (36)																																							
16	Z	33	Z	34	NA	35	NA	36																															
PERSONNEL EXPOSURES NUMBER TYPE DESCRIPTION (39)																																							
17	0	0	0	37	Z	38	NA	39																															
PERSONNEL INJURIES NUMBER DESCRIPTION (41)																																							
18	0	0	0	40	NA	41																																	
LOSS OF OR DAMAGE TO FACILITY TYPE DESCRIPTION (43)																																							
19	Z	42	NA	43																																			
PUBLICITY ISSUED DESCRIPTION (45)																																							
20	N	44	NA	45																																			
NAME OF PREPARER J. G. HAYNES J. G. Haynes / J. G. Haynes PHONE 714-492-7700																																							

Southern California Edison Company

SAN ONOFRE NUCLEAR GENERATING STATION

P.O. BOX 128

SAN CLEMENTE, CALIFORNIA 92672

J. G. HAYNES
STATION MANAGER

November 18, 1983

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NRC

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SCE

REGION VICE

TELEPHONE
(714) 492-7700

U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region V
1450 Maria Lane, Suite 210
Walnut Creek, California 94596-5368

Attention: Mr. J. B. Martin, Regional Administrator

Dear Sir:

Subject: Docket Nos. 50-361 and 50-362
14-Day Follow-Up Report
Licensee Event Report No. 83-091 (Docket No. 50-362)
San Onofre Nuclear Generating Station, Units 2 and 3

References: 1) Letter J. G. Haynes (SCE) to J. B. Martin (NRC),
"Prompt Report, Licensee Event Report
No. 83-091," dated October 31, 1983
2) Letter, J. G. Haynes (SCE) to J. B. Martin (NRC),
"14-Day Follow-Up Report, Licensee Event Report
No. 83-125," dated October 18, 1983
3) Letter, J. G. Haynes (SCE) to J. B. Martin (NRC),
"14-Day Follow-Up Report, Licensee Event Report
No. 83-125, Revision 1," October 31, 1983

Reference 1 provided you with confirmation of our prompt notification pursuant to Section 6.9.1.12.i of Appendix A Technical Specifications to Facility Operating Licenses NPF-10 and NPF-15 for San Onofre Units 2 and 3, respectively, of a reportable occurrence involving operation of Reactor Trip Breakers (RTB's) on the undervoltage (UV) trip devices. (As in the past, the breakers continue to function acceptably using the shunt trip device.) This submittal provides the required 14-Day Follow-Up Report and a copy of the Licensee Event Report (LER) No. 83-091 (Docket No. 50-362) addressing this event. Although the event is applicable to both units, since we initially reported under the Unit 3 docket number, in accordance with NUREG-0161, a single LER for Unit 3 is provided. This submittal was delayed in order to provide a complete response.

The performance of the reactor trip breaker undervoltage trip devices and the facts surrounding the events reported in this LER were the subject of a meeting held November 2, 1983, at the

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San Onofre site between the licensee, Mr. R. Wright of NRR, Combustion Engineering (the RTB supplier) and others. At that meeting, we reviewed our corrective actions and future plans regarding the events described herein.

Our investigation of the event described in Reference 1 has established the following sequence:

Preventative maintenance was performed on Unit 2 RTB 4 on October 11, 1983. Due to circuit design, performance of maintenance requires the simultaneous opening of two circuit breakers prior to removal of an RTB for maintenance. In this case, RTB's 4 and 8 were opened. The undervoltage armature position was not verified following closing of the breakers as such verification was not a procedural requirement at that time. On October 17, 1983, with Unit 2 in Mode 1, during maintenance and testing activities of another RTB, the undervoltage armatures for RTB's 4 and 8 were observed to not have fully picked-up. The Control Room was notified and was requested to open the breakers to permit RTB resetting. Following opening of the breakers from the Control Room, RTB's 4 and 8 were reset and the breakers closed. The undervoltage armatures were verified to be correctly positioned.

On October 28, 1983, with Unit 3 in Mode 3, during routine performance of the monthly Reactor Plant Protection System surveillance in accordance with Instrument and Test Procedure SO23-II-1.1, the undervoltage armatures for RTB's 5 and 8 were observed to be not fully picked up. The RTB's were reset, observed to operate properly and the undervoltage armatures remained properly positioned.

On October 31, 1983, with both Units 2 and 3 in Mode 1, the possibility that an undervoltage armature which was not fully picked up could result in the RTB undervoltage trip device failing to trip within specified acceptance criteria was recognized. As a result, all Unit 2 and 3 RTB undervoltage armatures were verified to be properly positioned with the exception of Unit 2 RTB 4 and Unit 3 RTB's 5 and 8. These RTB's were reset, observed to operate properly and the undervoltage armatures remained properly positioned.

On October 17, 1983, when the undervoltage armatures for Unit 2 RTB's 4 and 8 were observed to not have fully picked up, it was believed that the condition was caused by the weaker pickup force available at normal undervoltage coil operating temperature. The pickup voltage had been set at ambient temperature as opposed to normal undervoltage coil operating temperature to improve undervoltage trip performance. A higher voltage is necessary to provide the same pickup force when the coil is at the higher normal undervoltage coil operating temperature. For this reason, no corrective action other than resetting the RTB's was considered necessary.

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On October 18 and 20, 1983, maintenance was performed on Unit 2 RTB 8 at which time RTB 4 was also opened to permit this maintenance. It is believed that following the maintenance the undervoltage armature for Unit 2 RTB 4 remained not fully picked up. However, RTB 8 is believed to have reset properly following its opening.

The failure of the undervoltage armatures to fully pick up on Unit 3 RTB's 5 and 8 found on October 31, 1983, was believed to be the result of a failure of the RTB's to reset following the Unit 3 reactor trip at 1508 on October 29, 1983.

Our preliminary conclusion is that the undervoltage armature can remain not fully picked-up as a result of interference between the undervoltage armature and the copper shading ring around the core of the coil. Testing has demonstrated that visual confirmation that the undervoltage armature is properly positioned is sufficient to ensure no such interference exists.

As corrective action to prevent recurrence, the following actions have been initiated:

- 1) Administrative controls in the form of procedural revisions have been implemented to provide visual confirmation of proper armature pickup following all operations of RTB's.
- 2) As reported in References 2 and 3, the feasibility of eliminating the undervoltage device diode or alternative suppression techniques is being determined.
- 3) As reported in References 2 and 3, we are attempting to identify an alternate undervoltage device.

Our investigation of this matter is continuing with the support and assistance of SCE and CE organizations and the vendor. We will continue to keep you informed of any conclusions resulting from this investigation.

Public health and safety were not affected, since the shunt trip feature functioned properly and would have performed the trip function if called upon to do so.

If you require any additional information, please so advise.

Sincerely,

JG Hughes / N. Martin

Enclosure: LER No. 83-091

November 18, 1983

cc: A. E. Chaffee (USNRC Resident Inspector, Units 1, 2 and 3)
J. P. Stewart (USNRC Resident Inspector, Units 2 and 3)

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