AG E

Southern California Edison Company

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

M. O. MEDFORD MANAGER, NUCLEAR LICENSING

January 17, 1986

Director, Office of Nuclear Reactor Regulation Attention: G. E. Lear, Director PWR Project Directorate No. 1 U. S. Nuclear Regulatory Commission Washington, D.C. 20555

Gentlemen:

- Subject: Docket No. 50-206 SEP Topic IX-5, Ventilation Systems San Onofre Nuclear Generating Station Unit 1
- Reference: Letter, M. O. Medford, SCE, to J. A. Zwolinski, NRC, Commitments to Complete Open Issues of Draft NUREG-0829, Integrated Plant Safety Assessment, October 4, 1985

The referenced letter indicated that SCE would provide the details of our temperature monitoring program for the 4 kV and 480V rooms. These details are necessary to enable the NRC staff to perform a confirmatory review of this program in order to close out their review of the subject SEP Topic. Accordingly, enclosed find the station procedures that implement the program to assure proper cooling for the 4 kV and 480V rooms. The procedures are entitled SO1-7-21, "480V and 4 kV Room HVAC System Operation" and SO1-2.4-5, "Loss of 480 Volt/4 kV Room HVAC." This program includes the monitoring of HVAC system operation, the monitoring of the temperature in these rooms and appropriate response actions in the event that room cooling is lost.

If you have any questions, please let me know.

Very truly yours,

M. J. Mulfa

Enclosures



TELEPHONE

(818) 302-1749

REFERENCE: SO123-VI-1.0.1	TEM 1-85-MVS-001 Attack mat 8 pg 495 ROVAL/DISAPPBOVAL/(ENCODE ACIOAC SO ((WHEN FORM FILLED OUT)
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*** If YES, the Shift Superintendent shall provide the required SRO approval.

SO(123) 110, REV. 10 02-21-85

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UNIT 1 EFFECTIVE DATE DET 17 1984

SUCLEAR GENERATION SITE

OPERATING INSTRUCTION SO1-7-21 SECONDARY PLANT REVISION D PAGE 1 OF 7

TCN 0-1

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480 VOLT AND 4 KV ROOM HVAC SYSTEM OPERATION

TABLE OF CONTENTS

SELTION	PAGE
1.0 OBJECTIVE	2
2.0 REFERENCES RECEIVED COM	2
3.0 PREREQUISITES OCT 17 1984	2
4.0 PRECAUTIONS SITE FILE COPY	2
5.D CHECKLIST	2
6.0 INSTRUCTIONS	2
7.0 RECORDS	. 5
ATTACHMENTS	-
I LNECKIIST 1, 480 V/4 kV Air Conditioning Electrical Alignment	6

QA PROGRAM AFFECTING



480 VOLT AND 4 KV ROOM HVAC SYSTEM OPERATION

TCN 0-1

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1.0 OBJECTIVE

- To provide guidance in the operation of the air conditioning units 1.1 for the 480 Volt and 4 kV Rooms.
- To provide guidance in the operation of the installed back-up 1.2 ventilation fans for the 480 Volt and 4 kV Rooms.
- To provide guidance in monitoring for proper operation of the 1.3 480 V and 4 kV Room air conditioning and ventilation equipment.

2.0 REFERENCES

2.1 Operating Instruction

> SO1-2.4-5, Loss of 480 Volt/4 kV Room HVAC 2.1.1

3.0 PREREQUISITES

Prior to use of an uncontrolled (pink) copy of this Station 3.1 Document to perform work, verify that it is current by checking a controlled copy and any TCNs or by use of the method described in S0123-VI-0.9.

4.0 PRECAUTIONS

- 4.1 Manual override switches, HS-322 and HS-323, should be maintained in the NORMAL position. This is to prevent inadvertantly overriding the trip signal to the units upon detection of a fire in the 480 Volt or 4 kV Rooms.
- If 480 Volt or 4 kV room temperatures cannot be maintained within 4.2 the limits specified in this instruction, go to SO1-2.4-5, Loss of 480 Volt/4 kV Room HVAC.
- In the event of a fire, portable exhaust fans should be used to 4.3 ventilate smoke from the 480 Volt or 4 kV Rooms not the air conditioning units. (Ref. 2.1.1)

5.0 CHECKLIST

Checklist 1, 480 V/4 kV Air Conditioning Electrical Alignment 5.1

6.0 INSTRUCTIONS

- Placing the 480 V/4 kV Room Air Conditioning in Service 6.1
 - Perform Checklist 1, 480 V/4 kV Air Conditioning 6.1.1 Electrical Alignment, for either or both rooms as required.

OPERATING INSTRUCTION SO1-7-21 SECONDARY PLANT REVISION 0 PAGE 3 OF

PAGE 3 OF 7 TCN ____

6.0 **INSTRUCTIONS** (Continued)

NOTE: Both room air conditioners cycle on and off via thermostats. TSH-102 controls the 480V Room unit and TSH-104 controls the 4 kV Room unit.

- 6.1.2 Verify that the air conditioning units start and supply cooling to their respective rooms.
- 6.2 Removing the 480 V/4 kV Room Air Conditioning from Service

6.2.1 The 480 V and/or 4 kV Room air conditioning equipment may be removed from service by opening individual breakers in panel B-25 located on the mezzanine level of the 480V Room.

- 6.3 Manual Override of the 480V/4 kV Room Air Conditioning
 - NOTE: The air conditioning units receive a trip signal from smoke detectors in their associated switchgear Room.

CAUTION The air conditioning units are not to be operated for the purpose of clearing the smoke, due to fires, from the switchgear rooms.

- 6.3.1 To clear smoke from the switchgear rooms, refer to SO1-2.4-5, Loss of 480 Volt/4 kV Rooms HVAC.
- 6.3.2 The air conditioning units may be restarted, in the event of a false fire alarm, with the approval of the SRO Operations Supervisor by:
 - .1 Placing the override switch of the desired unit in the OVERRIDE position.
 - NOTE: The 480 V air conditioning unit override switch is mounted on the wall beside the 480 V Room Halon Control Panel.
 - NOTE: The 4 kV air conditioning unit override switch is mounted on the wall beside the 4 kV Room Halon Control Panel.

OPERATING INSTRUCTION S01-7-21 SECONDARY PLANT REVISION 0 PAGE 4 OF

- 6.0 INSTRUCTIONS (Continued)
 - 6.4 <u>Backup Fan Operation</u>

PAGE 4 OF 7 TEN O PAGE 4A Follows

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- NOTE: Backup fans are provided to deliver outside air to the 480 V and 4 kV Rooms in the event of an air conditioning failure. Fans are controlled with local pushbuttons.
- 6.4.1 Placing the 480 V Room Backup Fans in Operation
 - .1 OPEN D/S-A-100, 480 V Room Air Conditioning Unit Safety Switch, to stop the 480 V Room Air Conditioning Unit.
 - .2 CLOSE MVS-340, A-100 Discharge Damper.
 - .3 CLOSE MVS-349, A-100 Return Damper.
 - .4 OPEN MVS-347, A-902 Discharge Damper.
 - .5 OPEN MVS-350, A-900 Suction Damper.
 - .6 START A-902 and A-900, 480 V Room Supply and Exhaust Backup Fans.
- 6.4.2 Securing the 480 V Room Backup Fan Operation
 - .1 STOP A-900 and A-902, 480 V Room Exhaust and Supply Backup Fans.
 - .2 CLOSE MVS-350, A-900 Suction Damper.
 - .3 CLOSE MVS-347, A-902 Discharge Damper.
 - .4 OPEN MVS-349, A-100 Return Damper.
 - .5 OPEN MVS-340, A-100 Discharge Damper.
 - .6 If the 480 VRoom Air Conditioning Unit is to be placed in service, then CLOSE D/S-A-100, 480 V Room Air Conditioning Unit Safety Switch.
- 6.4.3 <u>Placing the 4 kV Room Backup Fans in Operation</u>
 - .1 OPEN D/S-A-101, 4 kV Room Air Conditioning Unit Safety Switch, to stop the 4 kV Room Air Conditioning Unit.
 - .2 CLOSE MVS-332, A-101 Discharge Damper.
 - .3 CLOSE MVS-330, A-101 Return Damper.
 - .4 OPEN MVS-333, A-903 Discharge Damper.
 - .5 OPEN MVS-331, A-901 Suction Damper.
 - .6 START A-903 and A-901, 4 kV Room Supply and Exhaust Backup Fans.

OPERATING INSTRUCTION SO1-7-21 SECONDARY PLANT REVISION 0 PAGE 440F 7

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6.0 INSTRUCTIONS (Continued)

	• •
6.4.4	Securing the 4 kV Room Backup Fan Operation
1	STOP A-901 and A-903, 4 kV Room Exhaust and Supply Backup Fans.

- .2 CLOSE MVS-331, A-901 Suction Damper.
- .3 CLOSE MVS-333, A-903 Discharge Damper.
- .4 OPEN MVS-330, A-101 Return Damper.

.5 OPEN MVS-332, A-101 Discharge Damper.

- .6 If the 4 kV Room Air Conditioning Unit is to be placed in service, then CLOSE D/S-A-101, 4 kV Room Air Conditioning Unit Safety Switch.
- NOTE:
- The back-up fans receive a trip signal from smoke detectors in their associated switchgear Room. This trip signal cannot be overridden.

6.5 Monitoring HVAC Operation

- NOTE: The HVAC System is designed to supply 65°F air to the 480 V and 4160 V switchgear Rooms in a manner sufficient to maintain an ambient temperature no greater than 95°F. Also, ducting is provided to maintain a temperature of 77°F or lower in the area of the Elgar Inverter.
- 6.5.1 Record on Part J of SO(1)-24 the air temperature in the following locations in 4 kV and 480V switchgear rooms once per day on day shift (preferably afternoon) in Modes 1-6.
 - .1 4 kV room by the double doors at the southeast corner of the room at grade;
 - .2 4 kV room in the northwest corner at grade;
 - .3 480V room by the double doors at the southeast corner of the room at grade;

.4 480V room - in the northeast corner at grade;

.5 480V room - in the center of the west side of the platform at elevation 20'.

SECONDARY	INSTRUCTION PLANT	S01-7	7-21	
REVISION C		PAGE	5 OF	7

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6.0 INSTRUCTIONS (Continued)

6.5.2

Ensure the following temperatures are maintained:

CAUTION If temperatures cannot be maintained within limits go to SO1-2.4-5, loss of 480 Volt/4 kV Room HVAC.

- .1 Switchgear Room ambient temperature < 95°F;</p>
- .2 Elgar Inverter ambient temperature < 77°F.
- 6.5.3 Once per shift verify proper operating mode of the HVAC System in each room.
 - .1 Air conditioning units operating.
 - .2 Backup fans not operating.

7.0 RECORDS

7.1 Checklist 1, when completed, shall be filed in the Nonsafety-Related Systems Alignment file. The preceding Checklist may be removed and discarded.

JWReynolds:0825g

OPERATING INSTRUCTION S01-7-21 SECONDARY PLANT REVISION O ATTACHMENT 1 CHECKLIST 1

PAGE 6 OF 7 TCN <u>0-1</u>

480V/4kV AIR CONDITIONING

ELECTRICAL ALIGNMENT

1.0 PREREQUISITES

- 1.1 Obtain the SRO Operations Supervisor's approval to perform this Checklist.
- 1.2 All personnel performing this Checklist have been advised to note all missing, incorrect or deteriorated component ID tags in the "Comments" section of this Checklist.
- 1.3 Equipment is not required to be aligned in numerical sequence.
- 1.4 Deviations from indicated component positions are allowed by approval of the SRO Operations Supervisor. Deviated positions will be indicated by circling the indicated position, writing the deviated position above, and initialing of each deviated entry by the SRO Operations Supervisor.

2.0 INSTRUCTIONS

2.1 480 V Room

		BKR NUMBER	DESCRIPTION	BKR POSITION	ALIGN INITIALS
	2.1.1	52-1306	Power Supply to HVAC Panel B-25	CLOSED	
2.2	480V Roo	m Mezzanine	Level		
	2.2.1	8-2501	480 V Room Air Conditioning Unit Power Supply	CLOSED	
	2.2.2	8-2502	4 kV Room Air Conditioning Unit Power Supply	CLOSED	<u>_</u>
	2.2.3	8-2507	4 kV Room Ventilation Supply Fan Power Supply	CLOSED	
	2.2.4	8-2508	480 V Room Ventilation Supply Fan Power Supply	CLOSED	
	2.2.5	8-2513	4 kV Room Ventilation Exhaust Fan Power Supply	CLOSED	
	2.2.6	8-2514	480 V Room Ventilation Exhaust Fan Power Supply	CLOSED	
			ATTACHMENT 1	PAGE	1 OF 2

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OPERATING INSTRUCTION	S01-7-21
SECONDARY PLANT	
REVISION O	PAGE 7 OF 7
ATTACHMENT 1	-
CHECKLIST 1	TICN

2.0 INSTRUCTIONS (Continued)

		BKR NUMBER	DESCRIPTION	BKR POSITION	ALIGN INITIALS	
2.3	West Heat	ter Deck				
	2.3.1	C/S-A-900	480 V Room Ventilation Exhaust Fan Safety Switch	CLOSED		
	2.3.2	C/S-A-902	480 V Room Ventilation Supply Fan Safety Switch	CLOSED		
	2.3.3	D/S-A-100	480 V Room Air Conditioning Unit Safety Switch	CLOSED		
2.4	4kV Halon	Panel Area				
	2.4.1	C/S-A-901	4 kV Room Ventilation Exhaust Fan Safety Switch	CLOSED		
	2.4.2	C/S-A-903	4 kV Room Ventilation Supply Fan Safety Switch	CLOSED		
2.5	Control B	uilding Roof				
	2.5.1	D/S-A-101	4 kV Room Air Conditioning Unit Safety Switch	CLOSED		
COMMENT	s:					
					<u> </u>	
PERFORME	PERFORMED BY:					

Operator Signature Initials Date

 Operator Signature
 Initials
 Date

 Operator Signature
 Initials
 Date

 REVIEWED BY:
 SRO Operations Supervisor
 Date

0825g

ATTACHMENT 1

PAGE 2 OF 2

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•	REFERENCE: S0123-VI-1.0.1 TEMPORARY CHANGE NOTICE Page 1 of 1	1. <u>19</u>
• •	TECHNICAL SPECIFICATION VIOLATION IF NOT COMPLETED WITHIN 14 DAYS	
	Site Document No. <u>SOI-J.Y-S</u> Revision No. <u>O</u> TCN No. <u>D-1</u> (For CDN use only)	
	1. PREPARED BY: JWREYNOLOS PAX: 56658 ORGANIZATION: OPS-1	
•	Driginator 3. ISSUANCE DATE: DEC 8 1984 (GDIM ONLY)	
	6. If required, ICM Deviation Approval: CFDM (or designee): //	
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	6. Thris change cannot wait until the next revision of the Site Document and is required: DEC 10 1984	
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	Indicate PFC, NCR, TFM etc. Identifier Implementation of the facility design change has been determined. YES NO (If ND, a TCM cannot be approved until the facility design change has been implemented.) B. Other (e.g., CAR, Licensing Commitments) Specific Reason:	· · : ·
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	 A. Does this change affect FSAR or Tech. Spec. commitments? YES NO B. Does this change affect the nonradiological environment of any offsite area previously undisturbed during site preparation and plant construction? YES NO C. Is the intent of the original document altered? YES NO J. Is the document to be changed an Emergency Operating Instruction? YES NO E. Does this change pose an unreviewed safety question per 10 CFR 50.59, i.e., does it increase the probability of occurrence or the consequences of an accident; create the possibility of a different 	
	accident; or reduce the lech. spec. Hargin of safetyr its yes, A TCH IS NOT AUTHORIZED.) (IF THE ANSWER TO A, B, C, D or E IS YES, A TCH IS NOT AUTHORIZED.) 8. Does this change affect licensing commitment requirements? YES NO	ŧ
	S. Copy forwarded to the Nuclear Safety Group. PERFORMED BY: Date:	
5 7 7 7 7 7	(QA Affecting TCNs only) 10. The entire document was reviewed in conjunction with this TCN. REVIEWED AND APPROVED BY:	
	CFDM or Designee Date	
	REVIEWED AND APPROVED AT: ** (AT LEAST ONE (1) SRO ON THE UNIT AFFECTED)	
	Could this TEH affect or does it represent a change to a plant Could this TCH affect or does it represent a change to a plant operation in progress? YES*** NO	
•	3) 31 12/7/8-4 1957 4) SRO - Unit Date Time SRO - Units 243 - Date Time	. :
	REVIEWED AND APPROVED BY: 5) D E M Sign in Manager Date Guality Assurance - Units 1 yand 3 Date	
	 If a document is Not QA Affecting, obtain initial approval from the Cognizant Supervisor(s) an the affected Unit(s) [signs on Plant Management Staff line(s)] and final approval from the CFDM prior to submittal bo CDM. As other signatures are required. 	
	If QA ARGUIDING, spp: 2023 UNAI be by two members of the Plant Hanagement Staff knowledgeable in the areas 271_sted, 22 least country (show holds an SRO License on the unit or units affected. (For TCN approval, members of the Plant Bunagement (for defined as the supervisor in charge of the shift, or as designated in writing by the CFPM, exercising responsibility in the specific area and unit(s) addressed by the change.)	
	If TES, in Superingundant shall provide the required SRO approval.	

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QA PROGRAM AFFECTING

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OPERATING INSTRUCTION SO1-2.4-5 ABNORMAL

LOSS OF 480 VOLT/4kV ROUMS HVAC

PAGE 2 DF 4

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REVISION D

1.0 SYMPTOMS

HT 1 .

NUCLEAR GENERATION SITE

- 480 Volt HVAC Trouble alarm (100°F ambient room temperature) 1.1
- 4kV HVAC Trouble alarm (100°F ambient room temperature). 1.2
- Increasing temperatures in 480 Volt or 4kV Room. 1.3
- 480 Volt and/or 4kV Room air conditioning equipment or backup fans 1.4 not operating (local observation).
- Fire in 480 Volt and/or 4kV room. 1.5

AUTOMATIC ACTIONS 2.0

- 2.1. The 480 Volt Room air conditioning unit and backup fans will trip upon actuation of 480 Volt room smoke detectors or closure of the 480 Volt room smoke dampers.
- The 4kV Room air conditioning unit and back-up fans will trip upon 2.2 actuation of 4kV room smoke detectors or closure of the 4kV room smoke dampers.

IMMEDIATE OPERATOR ACTION(S) 3.0

3.1 None

4.0 SUBSEQUENT ACTIONS

If an air conditioning unit has tripped due to actuation of a smoke 4.1 detector or damper due to a fire, portable exhaust fans should be used to ventilate smoke from the room, not the air conditioning units.

The SRO Operations Supervisor's approval shall be obtained CAUTION prior to using the OVERRIDE switches to restart the 4kV or 480 Volt Room air conditioning units.

If an air conditioning unit has tripped due to actuation of a false 4.2 smoke detector or damper signal, the unit may be restarted as follows:

NOTE:

Monitor the 480 V and 4kV room temperature per step 4.5 while performing the following steps to establish adequate cooling.

WILLFAR RENERATION SITE

OPERATING INSTRUCTION 30.4 2.3 3 ABNORMAL REVISION D PAGE 3 OF 4

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4.D SUBSEQUENT ACTIONS (Continued)

NOTE:

- 4.2.1 Obtain SRO Operations Supervisor's approval to operate the OVERRIDE switch.
- 4.2.2 Place the override switch in the OVERRIDE position.
- 4.2.3 Verify that the air conditioning unit starts.
- **4.3** If an air conditioning unit fails mechanically or electrically, restore ventilation as follows:
 - **4.3.1** Place the installed backup supply and exhaust fans in service, by depressing their respective start pushbutton.

The 480 V room backup fan controls are located on the West Heater Deck. The 4kV room backup fan controls are located on the Control Building roof.

4.4 If the backup fans are not available and the air conditioning unit(s) remain inoperable;

NDTE: Security should be notified if the 4kV room security door will be open.

4.4.1 OPEN the doors to the affected room.

NOTE: If all lights are turned off the ambient room temperature should remain $\leq 104^{\circ}$ F.

4.4.2 Reduce lighting in the affected room as low as possible.

4.5 Monitor and compare the affected switchgear room(s) ambient temperatures to the following limits:

Areas Monitored	Allowable Daily Rated Ambient Temperature	Maximum Allowable Ambient Temperature	
Elgar Inverter	<u><</u> 104°F	122°F	Ten
Power Cables (in trays)	<u><</u> 104°F	140°F	
Dther Equipment	< 104°F	122°F	

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OPERATING INSTRUCTION SO1-2.4-5 ABNORMAL REVISION D PAGE 4 OF 4

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4.D SUBSEQUENT ACTION (Continued)

4.5.1

If the ambient temperature exceeds the Allowable Daily Rated Value(s), initiate steps to reduce the ambient temperature. (Provide auxiliary cooling, reduce plant load, reduce lighting levels, etc.)

.1 Record Elgar Inverter area temperatures hourly, if Elgar T(N Inverter temperatures exceed 104°F. NOTE: One significant ambient temperature

One significant ambient temperature
excursion (4 hours) above the allowable
daily rated values, but below the Maximum
Allowable Ambient Values, is permitted in any 24 hour period.

If the ambient temperature exceeds the Allowable Daily Rated Value(s) for greater than 4 hours or if the ambient temperature exceeds the Maximum Allowable Value(s), the Elgar inverter, power cables and other equipment within that room shall be considered inoperable and the Unit shall be shutdown in accordance with applicable Tech. Spec. requirements. In all cases, this would require a shutdown in accordance with Tech. Spec. 3.0.

4.6 Determine if this event is classified as an emergency per SOI-VIII-1, Recognition and Classification of Emergencies. If this event is not so classified, notification shall be made in accordance with SOI-14-13, Notification and Reporting of Significant Events.

5.0 ATTACHMENT(S)

5.1 None

6.0 REFERENCE

6.1 Letter to H. B. Ray from D. K. Nelson, dated June 18, 1982, concerning 480V/4kV Room Ambient Temperature Operating Criteria.

7.0 RECORD(S)

7.1 None

JWReynolds:0827g