LICENSEE EVENT REPORT (LER)

Facility Name (1)	Docket Number (2)	Page (3)
San Onofre Nuclear Generating Station (SONGS) Unit 2	0 5 0 0 0 3 6 1	1 of 0 3

Title (4)
Inadequate Surveillance Testing Of Charging Pump Relay Contacts

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)
1 1	1 7	9 7	9 7	0 1 5	0 0	1 2	1 1	9 7	SONGS Unit 3	0 5 0 0 0 3 6 2

OPERATING MODE (9): 1

POWER LEVEL (10): 1 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (CHECK ONE OR MORE OF THE FOLLOWING) (11)

___ 20.402(b)	___ 20.405(c)	___ 50.73(a)(2)(iv)	___ 73.71(b)
___ 20.405(a)(1)(i)	___ 50.36(c)(1)	___ 50.73(a)(2)(v)	___ 73.71(c)
___ 20.405(a)(1)(ii)	___ 50.36(c)(2)	___ 50.73(a)(2)(vii)	___ other (Specify in Abstract below and in text)
___ 20.405(a)(1)(iii)	X 50.73(a)(2)(i)	___ 50.73(a)(2)(viii)(A)	
___ 20.405(a)(1)(iv)	___ 50.73(a)(2)(ii)	___ 50.73(a)(2)(viii)(B)	
___ 20.405(a)(1)(v)	___ 50.73(a)(2)(iii)	___ 50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (AREA CODE)
R. W. Krieger, Vice President, Nuclear Generation	7 1 4 3 6 8 - 6 2 5 5

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
Yes (If yes, complete EXPECTED SUBMISSION DATE)	X No				

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single space typewritten lines.) (16)

Each charging pump at San Onofre Nuclear Generating Station (SONGS) has non-safety-related trips on low suction pressure and high pressurizer level when in automatic control. A contact on the subgroup relay (K108) which starts the pump on a safety injection actuation signal disables these non-safety-related trips. Technical Specification (TS) Surveillance Requirement (SR) 3.5.2.8 requires verification once every 24 months that each pump starts automatically on an actuation signal. On 11/17/97, Southern California Edison (SCE) concluded that, since surveillance testing had not verified the K108 subgroup relay contact properly defeats the non-safety-related charging pump trips, the condition was reportable as a missed TS surveillance. At 1420 on 11/17/97, SONGS entered TS SR 3.0.3. The K108 subgroup relay contacts were tested satisfactorily within the 24 hour period allowed by TS SR 3.0.3.

This occurrence was caused by an inadequate surveillance test procedure which did not specify testing the K108 subgroup relay contacts. SCE established the testing methodology circa 1982, believing it to meet the TS requirements at that time. SCE no longer believes this practice satisfies the TS requirements.

The surveillance test procedure will be modified.

TS SR 3.5.2.8 does not specifically require testing of the K108 relay contacts, nor does the associated TS Basis indicate that testing of these relay contacts is required. SCE will revise the TS Basis to clarify SCE's current understanding of required surveillance testing.

Description of Event:

Plant: San Onofre Nuclear Generating Station (SONGS) Units 2 & 3
Reactor Vendor: Combustion Engineering
Event Date: November 17, 1997
Event Time: 1400 PST
Mode: both Units were in Mode 1, Power Operation
Power: both Units were at approximately 100 percent power

Each SONGS unit is provided with three positive displacement emergency core cooling system (ECCS) [BQ] charging pumps [CB] [P], one in Train A, one in Train B, and one which can be connected to either Train A or Train B. Besides providing an ECCS function, the charging pumps also operate normally to maintain pressurizer [PZR] level, making up for purification letdown [CB] flow from the reactor coolant system (RCS) [AB]. Each charging pump is provided with non-safety-related trips on low suction pressure and high pressurizer level when in automatic control. A contact on the subgroup relay (K108) [RLY] which starts the pump on a safety injection actuation signal (SIAS) [JE] disables these non-safety-related trips.

Technical Specification (TS) Surveillance Requirement (SR) 3.5.2.8 requires Southern California Edison (SCE) to verify once every 24 months that each ECCS pump starts automatically on an actual or simulated actuation signal. On 11/17/97 (the discovery date), as a result of an internal investigation begun in response to an event at Waterford 3 (NRC Operations Center Event Number 33257), SONGS management concluded that, since previous surveillance testing had not verified the K108 subgroup relay contact properly defeats the non-safety-related charging pump trips, the condition was reportable as a missed TS surveillance in accordance with 10 CFR 50.73(a)(2)(i).

At 1420 on 11/17/97, SONGS operators entered TS SR 3.0.3. The K108 subgroup relay contacts were tested satisfactorily within the 24 hour period allowed by TS SR 3.0.3.

Cause of the Event

This occurrence was caused by an inadequate surveillance test procedure (NRC cause code: actions associated with an activity or task not covered by procedure), which did not specify testing the K108 subgroup relay contacts in question. SCE established the charging pump testing methodology circa 1982, believing it to meet the TS requirements at that time. However, based on the guidance provided in NRC Generic Letter (GL) 96-01, SCE no longer believes this practice satisfies the TS requirements.

Corrective Actions

Surveillance testing of the K108 relay contacts for the Unit 2 charging pumps was completed satisfactorily at 2355 on 11/17/97, and for the Unit 3 charging pumps at 0215 on 11/18/97, using a temporarily modified test procedure. All of the contacts were found to operate satisfactorily. The charging pumps were returned to operable status within 12 hours of the SR 3.0.3 entry. The test procedure will be permanently modified prior to its next scheduled use.

During review of this occurrence, SONGS management noted that TS SR 3.5.2.8 does not specifically require testing of the K108 relay contacts, nor does the associated TS Basis indicate that testing of these relay contacts is required. To fully implement the recommendations of GL 96-01, SCE will revise the Basis for SR 3.5.2.8 to clarify SCE's current understanding of required surveillance testing.

Safety Significance

Charging flow is not needed during a loss of coolant accident to maintain peak clad temperature below the limit of 10 CFR 50.46. The licensing basis, including a 1979 Combustion Engineering analysis of record, is overly conservative in crediting 15.8 gpm of charging flow. Best estimate LOCA analyses performed for SCE's Probabilistic Risk Assessment/Independent Plant Examination using the Electric Power Research Institute's Modular Accident Analysis Program code indicate that one train of ECCS without charging will maintain peak cladding temperature below 1500 degrees F

Therefore, SCE concludes that incomplete surveillance testing of the charging pump subgroup relays had no actual safety significance.

Moreover, it is unlikely that relay contacts would malfunction on all three charging pumps of a unit due to a common mode failure; therefore, it is likely that at least one charging pump would have been available at each unit. It is also unlikely that a pressurizer high level or a low suction pressure trip condition would be present at the time of a SIAS.

Additional Information

NRC staff issued GL 96-01 on 1/10/96, notifying licensees of problems with testing safety-related logic circuits. SCE committed to performing a review of actuation logic for SONGS engineered safety features (ESF) systems, including relay contacts, and has completed the review for Unit 3. The K108 relay contacts for the charging pumps were not identified in this review due to cognitive personnel error (NRC cause code: failure to recognize the condition). While a second check of the GL 96-01 review was conducted, a complete independent second review was not performed.

SONGS management has concluded that the 96-01 review should be re-examined. Consequently, SCE is performing a new independent evaluation of the GL 96-01 review. If further instances of incomplete surveillance testing are noted, SCE will revise this LER accordingly. Further, the responsible reviewing engineer (utility, non-licensed) has been coached and appropriate design engineers will receive training about this occurrence and the need for independent reviews of quality-affecting design activities.

Previously, as reported in LER 2-97-006, "Missed Surveillance On RPS Operating Bypass Function," in conducting our GL 96-01 review, SONGS engineers discovered inadequate testing of the reactor protection system. Also, as reported in LER 2-97-001-03, "Surveillances Not Current Upon Improved Technical Specification Implementation," there was inadequate testing of the containment dome air circulating fans. These occurrences were also caused by inadequate procedures written circa 1982.

LER 2-96-009-01, "Surveillance Testing Of Emergency Diesel Generator (EDG) Non-critical Trip Bypasses," reported inadequate testing of the EDGs caused by an inadequate procedure written in 1983.