



An EDISON INTERNATIONAL Company

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January 30, 1997

U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D.C. 20555

Subject: Docket No. 50-361 and 50-362  
30 Day Report  
Licensee Event Report No. 96-009-01  
San Onofre Nuclear Generating Station, Unit 2 and 3

This submittal provides a revised Licensee Event Report (LER) for an occurrence involving a failure to perform surveillance testing of the Emergency Diesel Generators' non-critical trip bypasses in accordance with the Technical Specification surveillance requirements. The health and safety of the public and plant personnel were not affected.

Sincerely,

A handwritten signature in cursive script that reads "RW Krieger".

Enclosure: LER No. 96-009-01

cc: L. J. Callan, Regional Administrator, NRC Region IV  
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**LICENSEE EVENT REPORT (LER) TEXT CONTINUATION**

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SAN ONOFRE NUCLEAR GENERATING STATION  
UNITS 2 AND 3DOCKET NUMBER  
05000361LER NUMBER  
96-009-01PAGE  
2 of 4

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**Description of Event:**

**Plant:** San Onofre Nuclear Generating Station Unit 2 and 3  
**Reactor Vendor:** Combustion Engineering  
**Event Date:** December 17, 1996  
**Event Time:** 1253  
**Mode:** Unit 2: 6  
Unit 3: 1 (Power Operation)  
**Power:** Unit 2: 000%  
Unit 3: 099%  
**Temperature:** Unit 2: 067 Degrees F  
Unit 3: 553 Degrees F  
**Pressure:** Unit 2: Atmospheric  
Unit 3: 2250 PSIA

**Background:**

Each Emergency Diesel Generator (EDG) (EK) is equipped with "critical" and "non-critical" protective trips. Non-critical trips are bypassed by a Safety Injection Actuation Signal (SIAS) because, during an accident, EDG availability is more critical than protecting the engine against problems not immediately detrimental to operation. If a bypassed trip signal were received, an alarm would alert the Operator to take appropriate actions. The trips are not bypassed by a loss of voltage signal (LOVS).

Original Technical Specification (TS) 4.8.1.1.2.d.7, issued in 1982, required EDG operability to be tested by:

*"Simulating a loss of offsite power in conjunction with an ESF test signal, and*

- a) *Verifying de-energization of the emergency busses and load shedding from the emergency busses.*
- b) *Verifying the diesel starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 10 seconds, ... and operates for greater than or equal to 5 minutes while its generator is loaded with emergency loads....*
- c) *Verifying that all automatic diesel generator trips, except [the critical trips] ... are automatically bypassed."*

The test was to be initiated by a LOVS (a LOVS is generated by a loss of offsite power) in conjunction with a SIAS (SIAS is an engineered safety feature [ESF]). By design, the LOVS clears when the emergency busses are energized (after about 10 seconds). The SIAS remains until manually reset. Consequently, most of part b) and all of part c) would be performed with SIAS only.

In November 1983, before the first refueling outage, the EDG test procedure was revised to include the non-critical trip bypass testing. Because the LOVS does not bypass any EDG trips and clears before the bypasses are tested, the surveillance requirement was placed in the SIAS only test procedure section, rather than in the section with a LOVS plus SIAS initiating condition. However, this test arrangement does adequately test the EDG non-critical trip bypass design feature.

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SAN ONOFRE NUCLEAR GENERATING STATION  
UNITS 2 AND 3DOCKET NUMBER  
05000361LER NUMBER  
96-009-01PAGE  
3 of 4

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Edison has had several opportunities to identify and correct this discrepancy. The most recent was during the Technical Specification Improvement Program (TSIP) review. In May 1996, TSIP reviewers questioned whether the non-critical trip bypass surveillance test fulfilled the old TS requirement. Because the non-critical trip bypasses are activated and tested with SIAS only, regardless of the test's initial conditions, it was concluded the test, as performed, was technically equivalent to a test initiated by LOVS plus SIAS. This conclusion was supported by extending sequential testing permitted for other actuation logic, such as response time testing, to the testing of the non-critical trip bypasses.

TSIP was implemented in August 1996. Based on the guidance of NUREG-1432, "Standard Technical Specifications, Combustion Engineering Plants," the old TS 4.8.1.1.2.d.7 parts a) and b) were replaced by SR 3.8.1.19. The non-critical trip bypass test (TS 4.8.1.1.2.d.7.c)) was separated and replaced by SR 3.8.1.13, which states:

*"Verify each DG automatic trip is bypassed on actual or simulated loss of voltage signal [LOVS] on the emergency bus concurrent with an actual or simulated ESF actuation signal [SIAS] except [the critical trips] ..."*

SR 3.8.1.13 modified the old TS 4.8.1.1.2.d.7.c) and clearly identifies that the test be performed with a LOVS plus SIAS. However, SR 3.8.1.13 and SR 3.8.1.19 were not intended to change any existing surveillance test requirements. Because the TSIP review had concluded the surveillance test with SIAS only satisfied TS 4.8.1.1.2.d.7.c), changing the surveillance test was not deemed necessary to satisfy SR 3.8.1.13. The reviewers also concluded an administrative TS change to clarify the wording of SR 3.8.1.13, scheduled for mid-1997, would be appropriate.

**Description of the Event:**

On December 16, 1996, an engineer (utility, non-licensed) reviewing the EDG surveillance test procedure notified his Supervisor that the procedure did not test the non-critical trip bypasses as required by SR 3.8.1.13.

Upon further review, no documentation could be identified which specifically addressed the acceptability of separating this surveillance into the SIAS only testing. As such, Edison concluded that the test procedure did not satisfy SR 3.8.1.13. Although Edison believes the required EDG non-critical trip bypass design feature has been adequately tested, Edison conservatively concluded that the current test of record did not accurately meet either the new SR 3.8.1.13 or the old TS 4.8.1.1.2.d.7.c) test requirements.

On December 17, 1996, Edison concluded this was a missed surveillance, reportable in accordance with 10CFR50.73(a)(2)(i). At the time, Unit 2 was shutdown for refueling, and Unit 3 was at 99% power.

**Cause of the Event:**

The cause of the event was the inadequate November 1983 test procedure. Because of the passage of time and the lack of documentation, the specific cause is unknown.

Edison has also focused on why this error was not corrected during the recent TSIP review. The TSIP reviewers (utility, non-licensed, engineers, and management) did not recognize that SR 3.8.1.13, having been separated from the old TS 4.8.1.1.2.d.7, required the non-critical trip bypasses be tested with a LOVS plus SIAS initiating

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SAN ONOFRE NUCLEAR GENERATING STATION  
UNITS 2 AND 3DOCKET NUMBER  
05000361LER NUMBER  
96-009-01PAGE  
4 of 4

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condition. Instead, the reviewers, knowing that it was not the intention of TSIP to change any requirements, continued to accept the separated testing with a SIAS only. The reviewers erred in not pursuing a TS change during TSIP implementation to properly clarify the testing (cognitive personnel error).

**Corrective Actions:**

1. SR 3.0.3 was entered for both units. Both Unit 3 EDGs were successfully tested as required by SR 3.8.1.13 using a temporary procedure within the 24-hour delay period, and returned to operable.  
  
Unit 2 was defueled when SR 3.0.3 was entered. At the expiration of the 24-hour period, both Unit 2 EDGs were declared inoperable in accordance with SR 3.0.3. Using a temporary procedure, one EDG was successfully tested on December 18, 1996, and returned to operable. The other EDG was successfully tested on December 21, 1996, and returned to operable.
2. Edison verified that LOVS does not affect the non-critical trip bypasses, and that the omission of a LOVS during the surveillance test would not affect the results.
3. To assure strict compliance with TS surveillance requirements, a TSIP surveillance self-assessment will review each TS surveillance requirement to verify that both the surveillance procedure and the current test of record meet the TS requirements, verbatim.
4. A license amendment request will be submitted to revise SR 3.8.1.13 to test the non-critical trip bypasses with SIAS only. Until that change is approved by the NRC, the test procedure will be revised to comply with the existing SR 3.8.1.13.
5. Meetings will be held with site supervision/management to discuss this event and management's expectation for strict compliance with the words of the TSs, and that relying on technical equivalency or other rationale to justify compliance is inappropriate.
6. Special training will be provided to plant personnel who make TS compliance, reportability, or operability decisions.

**Event Safety Significance:**

Pre-operational and surveillance tests have demonstrated that the EDGs respond correctly to LOVS, SIAS, and LOVS plus SIAS. Based on these tests, it is Edison's judgment that the EDGs were always fully functional and capable of performing their intended safety function. This judgment was confirmed by the testing conducted in Corrective Action 1 above. Consequently, Edison believes this event has no safety significance.

**Additional Information:**

Edison has reviewed the LERs for the last three (3) years and determined that no other LERs involving missed TS surveillances had the same root cause. However, as a result of the self-assessment discussed in Corrective Action 3, additional problems with TSIP implementation were identified and will be reported in LER 2-97-001.