



Southern California Edison Company

SAN ONOFRE NUCLEAR GENERATING STATION

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U. S. Nuclear Regulatory Commission
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Subject: Docket Nos. 50-361 and 50-362
Emergency Diesel Generator Annual Report-1988
San Onofre Nuclear Generating Station, Units 2 and 3

Pursuant to section 6.9.1 and 4.8.1.1.3 of Technical Specifications Appendix A of Facility Operating License Nos. NPF-10 and NPF-15 for San Onofre Nuclear Generating Station Units 2 and 3, this submittal provides the required Emergency Diesel Generator (EDG) Annual Report for several EDG failures, valid and invalid. This report is in conformance with the requirements of Regulatory Position C.3.b of Regulatory Guide 1.108, as updated by Generic Letter 84-15.

If you require any additional information, please so advise.

Sincerely,

H E Morgan

Enclosure

cc: F. R. Huey (USNRC Senior Resident Inspector, Units 1, 2 and 3)
J. B. Martin (Regional Administrator, USNRC Region V)
Institute of Nuclear Power Operations (INPO)

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DIESEL GENERATOR REPORT
SOUTHERN CALIFORNIA EDISON COMPANY
SAN ONOFRE NUCLEAR GENERATING STATION
UNITS 2 AND 3, DOCKET NO. 50-361 AND 50-362

Event Date: January 20, 1988

The following information is provided in accordance with Technical Specification Surveillance Requirement 4.8.1.1.3 and Regulatory Position C.3.b of Regulatory Guide 1.108, as updated by Generic Letter 84-15.

1. The EDG involved was 3G002.
2. This was the first failure in the last 20 valid tests of 3G002. This was the second failure in the last 100 valid tests of the Unit 3 EDGs.
- 3.a. The emergency ventilation fans failed to automatically start, which resulted in excessive exhaust fumes in the EDG room; these fans provide room cooling, which is required for long term emergency operation of the EDG. The EDG was manually stopped after two minutes. A subsequent investigation determined that the cause of the fan failure was a manufacturer deficiency of the relay (Potter & Brumfield MDR 138-8) which actuates the fans.
- b. During this investigation, 3G002 was started and then (as planned) intentionally stopped one minute later to identify the failure of the emergency exhaust fans to automatically start. This was not considered a valid test or failure.
- c. In addition, an operability test (performed later on January 20) was terminated intentionally due to a minor fuel oil leak from the mechanical seal on the engine driven fuel oil pump. This was not considered a valid test or failure.
- 4.a. The emergency exhaust fans' actuating relay was replaced. A program has been initiated to replace all similar relays in the plant during upcoming refueling outages.
- b. The fuel oil pump assembly was replaced.
5. As a result of this event, the 3G002 was not available for automatic start from 0239 on 1/20/88 to 0935 on 1/21/88.
6. The surveillance test interval remained at 31 days.
7. The surveillance test interval was in accordance with the schedule of Regulatory Position C.2.d of Regulatory Guide 1.108, as updated by Generic Letter 84-15.

DIESEL GENERATOR REPORT
SOUTHERN CALIFORNIA EDISON COMPANY
SAN ONOFRE NUCLEAR GENERATING STATION
UNITS 2 AND 3, DOCKET NO. 50-361 AND 50-362

Event Date: April 1, 1988

The following information is provided in accordance with Technical Specification Surveillance Requirement 4.8.1.1.3 and Regulatory Position C.3.b of Regulatory Guide 1.108, as updated by Generic Letter 84-15.

1. The EDG involved was 3G003.
2. This was not considered a valid test or failure of 3G003.
3. Following routine maintenance, for which 3G003 was declared inoperable, an operability test was terminated eight minutes after starting when it was noted that the governor on the 20-cylinder engine was not controlling speed properly. It was determined that the governor had been inadequately vented following maintenance, resulting in an insufficient amount of oil for proper governor operation.
4. The governor was vented, oil was added to the system, and a successful operability test of 3G003 was performed. Maintenance procedures regarding venting of the governor were reviewed and amended as necessary to ensure adequate venting of the governor post maintenance.
5. The EDG was not unavailable for automatic start as a result of this event.
6. The surveillance test interval remained at 31 days.
7. The surveillance test interval was in accordance with the schedule of Regulatory Position C.2.d of Regulatory Guide 1.108, as updated by Generic Letter 84-15.

DIESEL GENERATOR REPORT
SOUTHERN CALIFORNIA EDISON COMPANY
SAN ONOFRE NUCLEAR GENERATING STATION
UNITS 2 AND 3, DOCKET NO. 50-361 AND 50-362

Event Date: May 19, 1988

The following information is provided in accordance with Technical Specification Surveillance Requirement 4.8.1.1.3 and Regulatory Position C.3.b of Regulatory Guide 1.108, as updated by Generic Letter 84-15.

1. The EDG involved was 2G003.
2. This was the first failure in the last 20 valid tests of 2G003. This was the first failure in the last 100 valid tests of the Unit 2 EDGs.
3. While performing an operability surveillance test, during an attempt to manually adjust var loading approximately 5 minutes after 2G003 had achieved full load, the EDG tripped on loss of excitation due to a dirty spot on the automatic voltage regulator (AVR) Channel B voltage adjusting potentiometer. Although the loss of excitation trip is bypassed in the emergency mode, the voltage regulator is operative in the emergency mode, and nothing would have prevented the operator from making an adjustment during an accident; as a result, the EDG output breaker may have tripped on overcurrent (during an emergency) when the voltage spiked low during an adjustment of the voltage. This failure is therefore considered a valid failure.
4. AVR Channel A was selected, removing AVR Channel B from the voltage regulation function. A satisfactory operability test of 2G003 was then performed with AVR Channel A in service. On May 20, after cleaning AVR Channel B, a satisfactory operability test of 2G003 was performed with AVR Channel B in service. The periodic cleaning of the voltage adjusting potentiometers has been incorporated into the preventive maintenance program.
5. The EDG was unavailable for automatic start from 1208 to 2000 on May 20, 1988.
6. The surveillance test interval remained at 31 days.
7. The surveillance test interval was in accordance with the schedule of Regulatory Position C.2.d of Regulatory Guide 1.108, as updated by Generic Letter 84-15.

DIESEL GENERATOR REPORT
SOUTHERN CALIFORNIA EDISON COMPANY
SAN ONOFRE NUCLEAR GENERATING STATION
UNITS 2 AND 3, DOCKET NO. 50-361 AND 50-362

Event Date: June 15, 1988

The following information is provided in accordance with Technical Specification Surveillance Requirement 4.8.1.1.3 and Regulatory Position C.3.b of Regulatory Guide 1.108, as updated by Generic Letter 84-15.

1. The EDG involved was 2G003.
2. This was not considered a valid test or failure of 3G003.
3. An operability test of 2G003 was intentionally terminated eight minutes after starting as a precautionary measure in response to an internal noise on oil pump MP782 on the 16-cylinder engine.
4. Approximately 20 minutes later, 2G003 was again started to troubleshoot the noise. The noise was determined to be minor (no work was performed), and a successful operability test was completed.
5. The EDG was not unavailable for automatic start as a result of this event.
6. The surveillance test interval remained at 31 days.
7. The surveillance test interval was in accordance with the schedule of Regulatory Position C.2.d of Regulatory Guide 1.108, as updated by Generic Letter 84-15.

DIESEL GENERATOR REPORT
SOUTHERN CALIFORNIA EDISON COMPANY
SAN ONOFRE NUCLEAR GENERATING STATION
UNITS 2 AND 3, DOCKET NO. 50-361 AND 50-362

Event Date: June 22, 1988

The following information is provided in accordance with Technical Specification Surveillance Requirement 4.8.1.1.3 and Regulatory Position C.3.b of Regulatory Guide 1.108, as updated by Generic Letter 84-15.

1. The EDG involved was 3G002.
2. This was not considered a valid test or failure of 3G002.
3. A special test of 3G002 was intentionally terminated when the EDG could not be synchronized to its associated bus. The synchronization circuit is not applicable in the emergency mode of the EDG.
4. The synchronization circuit was operationally checked to be satisfactory, and the special test was continued.
5. The EDG was not unavailable for automatic start as a result of this event.
6. The surveillance test interval remained at 31 days.
7. The surveillance test interval was in accordance with the schedule of Regulatory Position C.2.d of Regulatory Guide 1.108, as updated by Generic Letter 84-15.

DIESEL GENERATOR REPORT
SOUTHERN CALIFORNIA EDISON COMPANY
SAN ONOFRE NUCLEAR GENERATING STATION
UNITS 2 AND 3, DOCKET NO. 50-361 AND 50-362

Event Date: June 26, 1988

The following information is provided in accordance with Technical Specification Surveillance Requirement 4.8.1.1.3 and Regulatory Position C.3.b of Regulatory Guide 1.108, as updated by Generic Letter 84-15.

1. The EDG involved was 3G002.
2. This was not considered a valid test or failure of 3G002.
3. Following a 24-hour load-run, stoppage, and initiation of a loss of voltage signal (LOVS) (which resulted in an automatic start of the EDG), 3G002 tripped on stator overtemperature. This trip is bypassed in the emergency mode of the EDG. The overtemperature was determined to be due to a loose connection between the stator temperature detector and its terminal board; the loose connection was caused by a stripped screw hole on the terminal board.
4. The failure was determined to be a routine failure. The terminal board was replaced, and, following another 24-hour load-run, stoppage, and initiation of LOVS, the test was completed satisfactorily on June 27.
5. The EDG was not unavailable for automatic start as a result of this event.
6. The surveillance test interval remained at 31 days.
7. The surveillance test interval was in accordance with the schedule of Regulatory Position C.2.d of Regulatory Guide 1.108, as updated by Generic Letter 84-15.

DIESEL GENERATOR REPORT
SOUTHERN CALIFORNIA EDISON COMPANY
SAN ONOFRE NUCLEAR GENERATING STATION
UNITS 2 AND 3, DOCKET NO. 50-361 AND 50-362

Event Date: September 22, 1988

The following information is provided in accordance with Technical Specification Surveillance Requirement 4.8.1.1.3 and Regulatory Position C.3.b of Regulatory Guide 1.108, as updated by Generic Letter 84-15.

1. The EDG involved was 2G002.
2. This was not considered a valid test or failure of 2G002.
3. Following routine maintenance, for which 2G002 was declared inoperable, an operability test was terminated as a precautionary measure 12 minutes after starting when a low governor oil level on Engine #1 was noted. The governor was operating properly at the time, and no other problems were identified.
4. Oil was added to the EDG, and a satisfactory operability test was performed.
5. The EDG was not unavailable for automatic start as a result of this event.
6. The surveillance test interval remained at 31 days.
7. The surveillance test interval was in accordance with the schedule of Regulatory Position C.2.d of Regulatory Guide 1.108, as updated by Generic Letter 84-15.