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

Gentlemen:

Subject: Docket No. 50-206
ATWS Mitigation System Isolation Devices
San Onofre Nuclear Generating Station
Unit 1

By letter dated April 5, 1989, the NRC requested additional information regarding the qualification and testing of isolation devices that will be used in the San Onofre Unit 1 ATWS Mitigation System. These devices will also be used in the Safety Parameter Display System. Enclosure 1 provides SCE's responses to the four specific questions asked in your April 5, 1989 letter.

If you have any questions or require additional information, please let me know.

Very truly yours,

Enclosure

cc: J. B. Martin, Regional Administrator, NRC Region V
F. R. Huey, NRC Senior Resident Inspector, San Onofre Units 1, 2 and 3



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The following provides SCE's responses to the four specific questions/comments from the NRC's April 5, 1989 letter regarding the qualification and testing of isolation devices that will be used in the San Onofre Unit 1 ATWS Mitigation System and the Safety Parameter Display System.

1. In response to questions on the isolation devices used in the SPDS and ATWS circuits, SCE's October 21, 1988 submittal states "credit is taken for circuit over current protective devices." The staff finds this position to be unacceptable. The isolation device when used in safety-related applications is required to function alone in protecting the safety-related circuits from voltage/current faults that originate in the associated non-safety related side of the isolator. However, the staff encourages the use of over current protective devices in these isolator circuits to limit fault currents and to serve as a backup to a fully qualified isolator, as necessary.

   Therefore, the staff finds the licensee's response, in this instance, to be incomplete, and requests a response to Question No. 2, Section B of our previous request for additional information with details that address the information requested.

   <u>Response</u>:

   The previous response provided in our October 21, 1988 submittal indicated that IEEE 384-1981 allows verification of maximum credible voltage or current in the determination of acceptability for an electrical isolation device for instrumentation and control circuits. SCE has provided information regarding MCF voltage testing. The isolation device vendor has not been able to provide similar information on MCF current testing. As this testing is considered optional by the applicable IEEE standard, it was SCE's position that MCF voltage testing in combination with overcurrent protective devices provided sufficient assurance of acceptable isolation device performance. However, to address NRC concerns regarding MCF current, SCE is implementing a testing plan to perform MCF current testing of the CCC isolation relay to be used in ATWS and SPDS circuitry. This testing would satisfy the requirements of IEEE-384-1981 for qualifying isolation devices. This testing will be completed and results provided to you within 120 days.

2. In response to questions on the qualification of isolation devices used in ATWS modifications, the staff does not consider the CCC Model 8N13 relay to be sufficiently qualified for service in related ATWS circuits. Successful Hypot tests and dielectric strength tests alone are not sufficient to conclude that the Class IE to non-Class IE isolator will successfully withstand the challenge of the maximum credible fault (MCF) voltage/current that could originate in the non-safety side of the isolation device.

For this reason, the staff requests the licensee to provide additional detail to answer Question No. 3, Section B of our previous request for additional information regarding MCF testing of the CCC Model 8N13 relay.

Response:

As indicated in our previous response, the qualifying document provided by the vendor did not include the requested test data. As part of the MCF testing that SCE will perform on the CCC relay, the voltage/current will be applied to the non-Class 1E side of the relay in the transverse mode and the Class 1E side will be monitored for perturbations. This test data and the previous relay testing will verify isolation capability of the CCC isolation relay for use in ATWS and SPDS systems.

3. The DTT must be diverse from RTS. The DTT isolators being a part of the DTT must also be diverse from the RTS isolation relays. The staff's SER approving the WCAP only gives credit for the non-diverse input isolators that are associated with the input sensors and their signals. Credit is not given for the non-diversity of any other isolators associated with ATWS.

   The licensee should qualify an isolator for use in the DTT that is diverse from the isolators used in the RPS.

   Response:

   As stated in previous correspondence, isolation relays are being used as input isolation from the RPS P-7 permissive and as isolation to the plant annunciation system. In the isolation of the P-7 permissive, the relay is used as an input isolator that is associated with the existing input sensors. It is SCE's understanding of the NRC SER dated September 22, 1986 that the use of a non-diverse isolator to isolate an existing input sensor is acceptable. For the second case, the application is for ensuring electrical isolation from the plant annunciation system. In this case the application is for annunciation only. Therefore, the likely common mode failures of relay misoperation or nonoperation would not affect the ATWS Mitigation System functioning. The potential for any other isolation device failures affecting the circuitry is limited due to the low current drawn by the annunciator system. The isolator to be used for the ATWS Mitigation System design is currently used for various SONGS 1 applications and its past history has shown it to have a high degree of reliability. Therefore, it is SCE's position that the use of the same type of isolator for these ATWS applications and in the RPS will not jeopardize the functioning of the ATWS Mitigation System and is acceptable.

4. The electrical and physical separation of power between AFWS-Train "B"/DTT from RPS is not clear from the data provided. DWG 5146828-25 does not address the DTT power source nor does it show the tie-in for the 125 VDC Bus 2. Breakers 8-11B26 and 8-12B26 are not shown. Please provide the necessary information.

**Response:**

Figure 1 provides a simplified electrical distribution diagram depicting the electrical and physical separation of the Train A and Train B power supplies to the RPS/AFW Train "A" and the AFW Train "B"/DTT circuitry. The battery chargers for DC Buses #1 and #2 were recently repowered (train aligned) during the Cycle X outage. The specific 125 VDC Bus 2 breaker position for the DTT circuitry has not been identified at this time.

MJT:atws

# SONGS UNIT 1

SIMPLIFIED ELECTRICAL DISTRIBUTION FOR

RPS/AFW TRAIN A
AFW/DTT TRAIN B

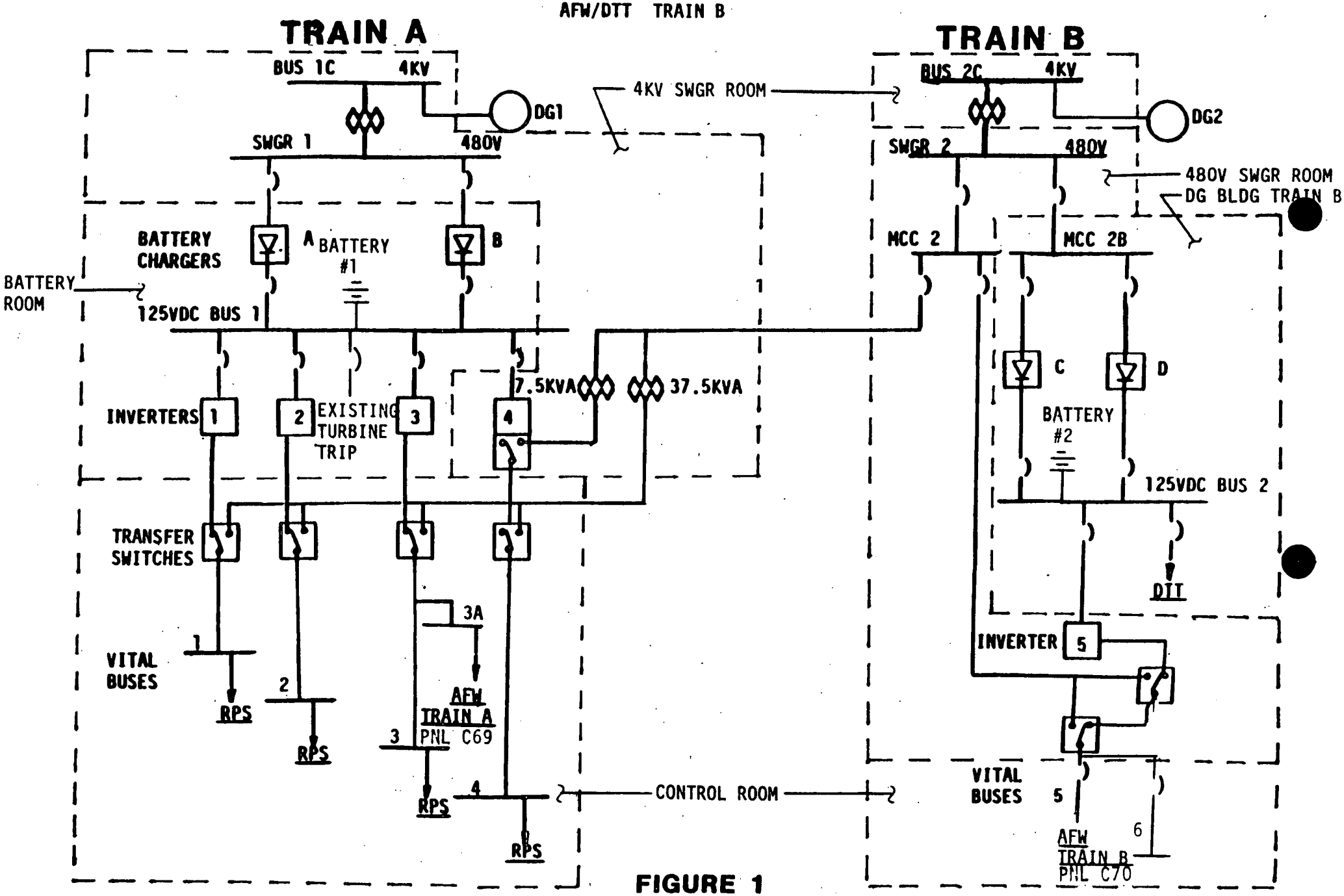


FIGURE 1