ATTACHMENT

August 20, 1984
RBG- 18701

DR-138 Gould Type 2150
Overload Relays

Background and Description of the Problem

The problem involves 1TE-Gould Type 2150 overload relays. During field testing of Gould Type 2150 overload relays, the Preliminary Test Organization (PTO) found the overloads out of calibration. Nonconformance and Disposition Report (N&D) No. 4135 was written to identify and correct the condition pertaining to the motor overload problem. When Gould was contacted, it was discovered that Gould's factory test equipment was also out of calibration.

After recalibration by Gould, PTO still found that overloads were tripping out of range. To resolve this problem, Stone and Webster Engineering Corporation (SWEC) personnel went to Gould's facilities to witness testing as noted in Trip Report No. C-RBS-T-00512. After extensive testing, it was concluded that type 250 overload relays are far more sensitive to ambient temperature conditions than the manufacturer's published ambient temperature conditions than the manufacturer's published ambient correction factor curves indicated.

Safety Implications

The problem with the type 2150 overload relays required extensive evaluation, testing, and eventual replacement of the type 2150 relays with L10 overload relays. The type 2150 relays did not operate in accordance with the performance specifications. Had this problem remained uncorrected Class 1E 480-V motors and motor-operated valves (MOVs) would potentially not trip and alarm at 125 percent to 140 percent as required by SWEC . This could result in damage to the motor or MOV, consequently jeopardizing the safe shutdown of the plant.

Corrective Action

As corrective action, the type 2150 overload relays were sent back to Gould for recalibration.

N&D No. 4366 and Engineering and Design Coordination Report (E&DCR) No. P-21,142A were written to correct the problem and prevent its recurrence by replacing all type 2150 overload relays with L10 overload relays. In addition, new selection criteria for selecting motor overload heaters were developed in E&DCR No. P-21,256 to revise Appendix F of Specification No. 248.00, installation specification

REQUEST FOR ADDITIONAL INFORMATION

CONCERNING THE

SURRY 1 AND 2 AND NORTH ANNA 1 AND 2

SAFETY PARAMETER DISPLAY SYSTEM

Each operating reactor shall be provided with a Safety Parameter Display System (SPDS). The Commission approved requirements for an SPDS are defined in NUREG-0737, Supplement 1. In the Regional workshops on Generic Letter 82-33 held during March 1983, the NRC discussed these requirements and the staff's review of the SPDS.

Prompt implementation of the SPDS in operating reactors is a design goal of prime importance. The staff's review of SPDS documentation for operating reactors called for in NUREG-0737, Supplement 1 is designed to avoid delays resulting from the time required for NRC staff review. The NRC staff will not review operating reactor SPDS designs for compliance with the requirements of Supplement 1 of NUREG-0737 prior to implementation unless a pre-implementation review has been specifically requested by licensees. The licensee's Safety Analysis and SPDS Implementation Plan will be reviewed by the NRC staff only to determine if a serious safety question is posed or if the analysis is seriously inadequate. The NRC staff review to accomplish this will be directed at (a) confirming the adequacy of the parameters selected to be displayed to detect critical safety functions, (b) confirming that means are provided to assure that the data displayed are valid, (c) confirming that the licensee has committed to a human factors program to ensure that the displayed information can be readily perceived and comprehended so as not to mislead the operator, and (d) confirming that the SPDS will be suitably isolated from electrical and electronic interference with equipment and sensors that are used in safety systems. If, based on this review, the staff identified a serious safety question or seriously inadequate analysis, the Director of IE or the Director of NRR may require or direct the licensee to cease implementation.

The staff reviewed the SPDS safety analysis provided by Virginia Electric & Power Co. (Reference 1). The staff was unable to complete its evaluation because of insufficient information. The following additional information is required to continue and complete the SPDS evaluation:

- ISOLATION DEVICES

  a. For each type of device used to accomplish electrical isolation, describe the specific testing performed to demonstrate that the device is acceptable for its application(s). This description should include elementary diagrams when necessary to indicate the test configuration and how the maximum credible faults were applied to the devices.

  b. Data to verify that the maximum credible faults applied during the test were the maximum voltage/current to which the device

A/V

could be exposed, and define how the maximum voltage/current was determined.

c. Data to verify that the maximum credible fault was applied to the output of the device in the transverse mode (between signal and return) and other faults were considered (i.e., open and short circuits).

d. Define the pass/fail acceptance criteria for each type of device.

e. Provide a commitment that the isolation devices comply with the environmental qualifications (10 CFR 50.49) and with the seismic qualifications which were the basis for plant licensing.

f. Provide a description of the measures taken to protect the safety systems from electrical interference (i.e., Electrostatic Coupling, EMI, Common Mode and Crosstalk) that may be generated by the SPDS.

- HUMAN FACTORS PROGRAM

Provide a description of the display system, its human factored design, and the methods used and results from a human factors program to ensure that the displayed information can be readily perceived and comprehended so as not to mislead the operator.

- DATA VALIDATION

Describe the specific methods used to validate data displayed in the SPDS. Also describe how invalid data is defined to the operator.

REFERENCE

Letter from W. L. Stewart (VEPCO) to H. R. Denton (NRC) dated February 8, 1984, with enclosure.

15 FEB 1985

ENCLOSURE - 1
FOIA NO. 85-87
REGION IV

Heading on this line below should be: (one heading to a page)

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DATE OF DOCUMENT	ORIGINATOR	RECIPIENT	DESCRIPTION (i.e., subject line or report title and number(s), no. of pages	10 CFR 9.5 EXEMPTION NO. IF EXEMPT & REASON, OR ACCESSION NO. IN PDR
August 20, 1984	Gulf States Utilities	U.S. NRC	Attachment to Gulf States letter to NRC dated 8/20/84; Subject: DR-138 Gould Type 2150 Overload Relays (1pg)	Releasable

REMARKS: