PGE Portland General Electric Company

January 21, 1981

Trojan Nuclear Plant
Docket 50-344
License NPF-1

Director of Nuclear Reactor Regulation
ATTN: Mr. Robert A. Clark, Chief
Operating Reactors Branch No. 3
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Sir:

On November 12, 1980, PGE submitted License Change Application (LCA) 67 requesting changes to the Trojan Technical Specifications regarding 41.6-kV emergency bus undervoltage protection. The letter provides supplemental information on the undervoltage protection system actuation logic.

The primary undervoltage protection (loss of voltage) and the secondary undervoltage protection (degraded voltage) will each consist of a set of four solid-state definite time delay relays. The actuation logic to be implemented at Trojan is one-out-of-two-taken-twice among the four relays. This logic is presented in the attached Figure 1. Although the logic suggested by the NRC was either a two-out-of-three logic or a two-out-of-four logic, this one-out-of-two-taken-twice logic was chosen at Trojan based on the existing Plant condition and the expected improvement in system reliability.

Trojan utilizes two potential transformers connected in an open delta configuration. Each potential transformer supplies two undervoltage relays and two degraded grid voltage relays as shown in the attached Figure 2 (Interim Drawing Notice E-203). If a fuse on one of the two potential transformers should blow, a two-out-of-four logic would open the breaker, thus actuating the undervoltage protection system. This is unacceptable since it would reduce the Plant reliability by causing an unnecessary challenge to the diesel generators and a possible plant trip. On the other hand, the proposed one-out-of-two-taken-twice logic does not cause the breaker to open since the logic requires an agreement between the two potential transformers before a trip can occur. Therefore, the Plant reliability will not be affected by a minor incident such as a blown fuse or failure of a potential transformer. It should be noted,

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however, that an alarm will be activated in the control room should any one of the four relays fail in this one-out-of-two-taken-twice logic design; this provides an advance warning to the control room operator. This actuation logic was previously discussed with Mr. C. Cleveland of EG&G, who informally approved this approach.

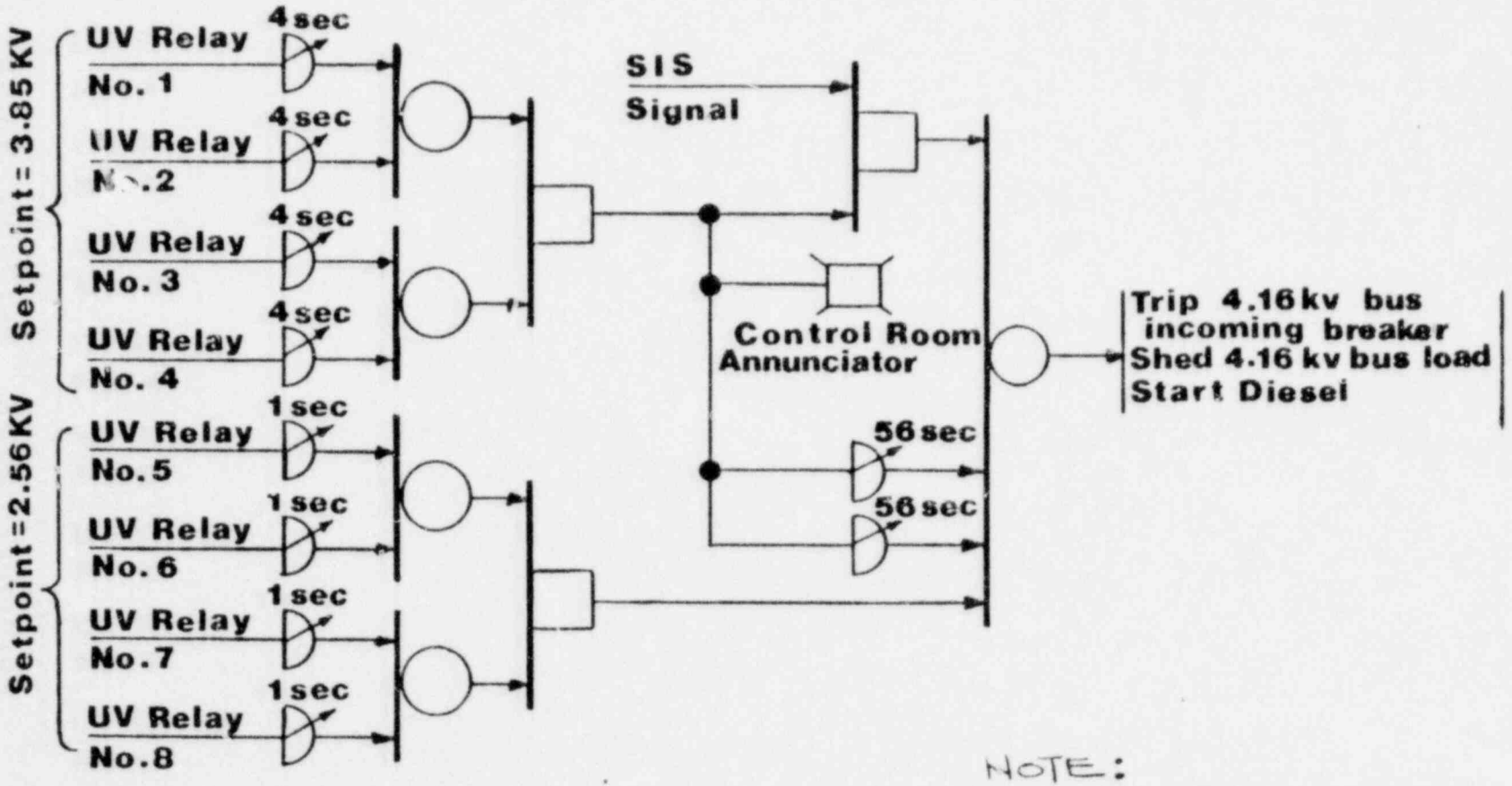
Sincerely,

Bart D. Withers
Vice President
Nuclear

Attachments

c: Mr. Lynn Frank, Director
State of Oregon
Department of Energy

Mr. C. Cleveland
EG&G, Inc.



NOTE:
THIS IS TYPICAL FOR BOTH ESF, CLASS IE, TRAINS, A AND B.

Figure 1. PROPOSED UNDERVOLTAGE PROTECTION SCHEMES

FIGURE 2

CONTROLLED COPY
PACKAGE NO 1
2
BECHTEL 0
POWER and INDUSTRIAL DIVISION
12-5-80

INTERIM DRAWING CHANGE NOTICE

JOB NO	DRAWING NO	IDC NO
6478	E-203	X

IDCN NO. 1 Page 1 of 2 pages
DATE 9-24-80 BY: PB/LA
APPROVAL:

Reason for change: WRITTEN AGAINST REVISION 7 PER RDC 80-005
(DEGRADED GRID VOLTAGE)