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July 7, 1980

Trojan Nuclear Plant
Docket 50-344
License NPF-1
License Change Application 62

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:

Pursuant to discussions with members of your staff regarding License Change Application (LCA) 62 which proposes to modify the logic to the reactor coolant pump (RCP) trip breaker position trip signal to the Reactor Solid State Protection System, the following clarifying information is provided:

1. This LCA is requested because of a weakness in the Trojan Reactor Protection System that currently allows the Plant to undergo inadvertent and spurious trips upon the loss of one vital 120-V a-c bus. Although all RCP breakers remain closed upon the loss of one 120-V a-c vital bus, the Reactor Protection System will sense one breaker open causing a reactor trip above 36 percent power (P8). This concept is not only inconsistent with good operating practice, but it is also inconsistent with the General Design Criteria and IEEE 279. Upon approval of this LCA, Trojan will no longer be vulnerable to spurious reactor trips resulting from the loss of one 120-V a-c vital bus. There is no other mechanism that will cause a reactor trip as a result of losing one 120-V a-c vital bus.

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2. The two-pumps-tripped case was analyzed for Trojan since the Trojan electrical system design provides power for the four reactor coolant pumps (RCPs) from two electrical buses, i.e., two pumps from each bus. Hence, a failure on one of these buses would result in the tripping of two RCPs. The DNB transient for the Trojan plant of a single RCP trip would be less severe than that for the two-pumps-tripped case reported in the FSAR. This is because the severity of the transient is dependent on the rate of coastdown of the total core flow rate, which would be less rapid for one pump tripped than for two pumps tripped.

   For plants where a separate electrical bus provides power to each RCP, only the single tripped RCP transient is analyzed as a Cordition II event, since the loss of two RCPs requires the assumption of multiple failures.

3. A copy of the revised logic diagram for a reactor trip caused by a low flow and RCP breaker position is attached. A revised second page (Page 2 of 2) of LCA 62 is also attached.

Sincerely,

C. Goodwin, Jr.
Assistant Vice President
Thermal Plant Operation and
Maintenance

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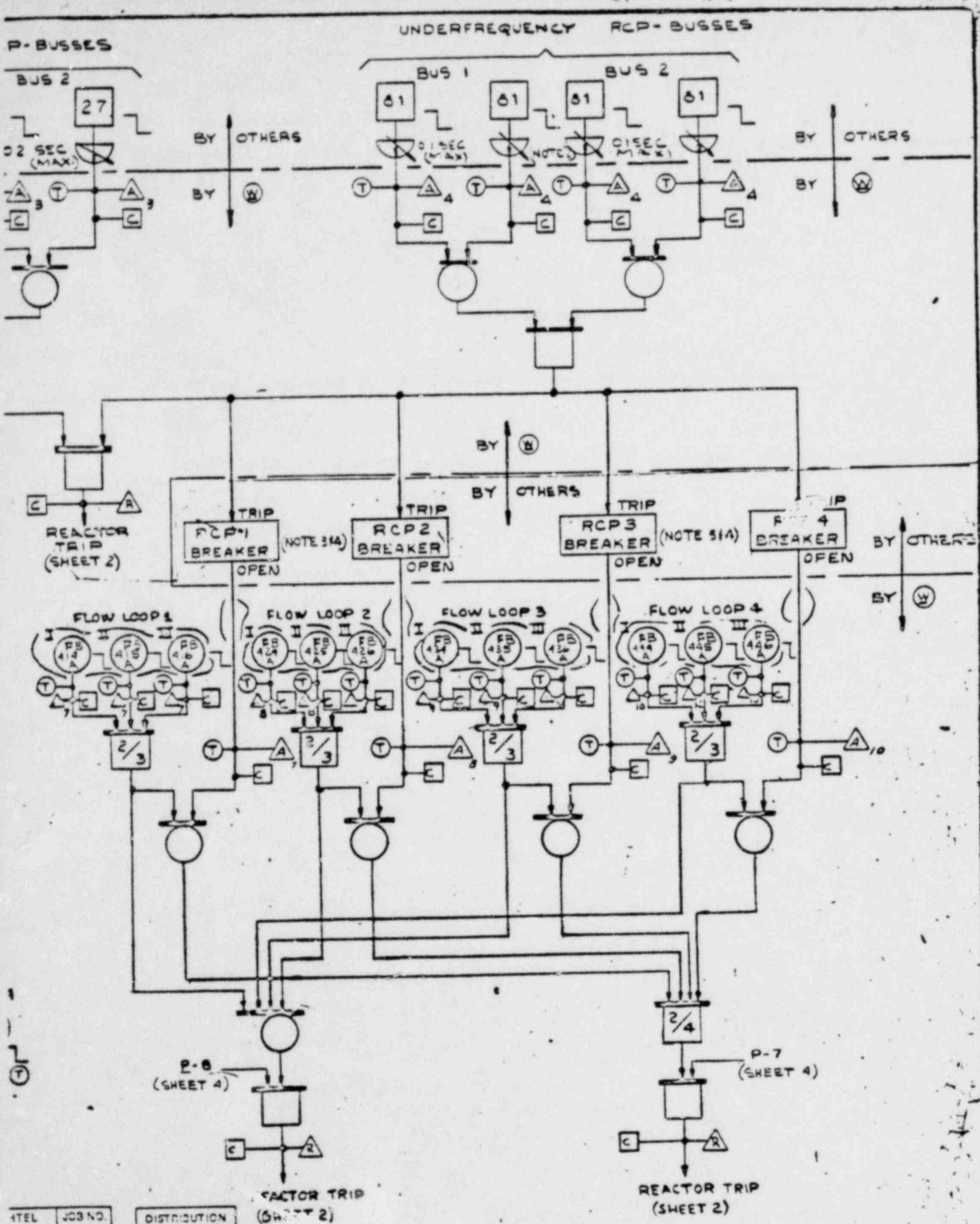
Attachments

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



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The reactor trip resulting from an open RCP breaker is an anticipatory trip for low reactor coolant system flow resulting from a loss of RCPs. Changing the logic above 36-percent power (P8) to require two RCP breakers to open to initiate a reactor trip is not considered to decrease the margin of safety that presently exists. The loss of one RCP will still result in a reactor trip from the loss of actual flow in one loop (two of three flow transmitters). The anticipatory reactor trip signal for a loss of flow resulting from loss of one RCP is not as important as it is for a loss of flow resulting from loss of two or three RCPs. The significant nuclear parameters (flow, nuclear power, heat flow and DNBR) do not approach as close to their critical or limiting valves when one of four RCPs is tripped as they do when two or three of four RCPs are tripped; thus, the anticipatory feature for which credit is not taken in the partial loss of forced reactor coolant flow safety analysis is not necessary for a loss of one RCP. On the other hand, the anticipatory feature still exists for loss of two or more RCPs.

Since this change will not have any affect on the response times credited in Chapter 15, Accident Analyses, the environmental analyses contained in the FSAR, The Environmental Report, and the final Environmental Impact Statement will likewise be unaffected. Neither will this change introduce any new environmental matter not previously reviewed or evaluated by the NRC.

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