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 50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylv
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 RECIP. NAME YOUNGBLOOD, B.J. RECIPIENT AFFILIATION Licensing Branch 1

DOCKET #
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SUBJECT: Forwards addl info per TMI items II.K.1 item 22 re reactor vessel makeup water supply,

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NORMAN W. CURTIS
Vice President-Engineering & Construction-Nuclear
770-5381



April 15, 1981

Mr. B. J. Youngblood
Licensing Branch #1
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Susquehanna Steam Electric Station
TMI Item II.K.1 ITEM 22
ER100450 File 841-2
PLA-727

Docket Nos. 50-387 and 50-388

Dear Mr. Youngblood:

The following additional information is provided in response to
TMI items II.K.1 item 22.

Very truly yours,

A handwritten signature in cursive script that reads "N. W. Curtis".

N. W. Curtis
Vice President-Engineering and Construction-Nuclear

cc: R. M. Stark

Boo
s
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Response

If the main feedwater system is not operable, a reactor scram will be automatically initiated when reactor water level falls to Level 3 (540.5 inches above vessel bottom or 178.2 inches above the top of the active fuel). The operator can then remote manually initiate the reactor core isolation cooling system from the main control room, or the system will be automatically initiated when reactor water level decreases to Level 2 (489.5 inches above vessel bottom or 127.2 inches above the top of the active fuel) due to boil-off. At this point, the high pressure coolant injection system will also automatically start supplying makeup water to the vessel. These systems will continue automatic injection until the reactor water level reaches Level 8 (581.5 inches above vessel bottom or 219.2 inches above top of the active fuel), at which time the high pressure coolant injection turbine and the reactor core isolation cooling turbine are automatically tripped.

In the nonaccident case, the reactor core isolation cooling system is utilized to furnish subsequent makeup water to the reactor pressure vessel. Reactor core isolation cooling must be manually restarted (once it is tripped by a Level 8 signal) from the main control room by reopening the stop valve at the turbine inlet. If the operator fails to restart reactor core isolation cooling, the high pressure coolant injection system will restart automatically when the level again falls to Level 2. No manual actions are required for high pressure coolant injection to start or restart. Reactor vessel pressure is regulated by the automatic or remote manual operation of the main steam relief valves which blow down to the suppression pool.

To remove decay heat, assuming that the main condenser is not available, the steam condensing mode of the residual heat removal system is initiated by the operator. This involves remote manual alignment of the residual heat removal system valves. If the steam condensing mode is unavailable for any reason, the main steam relief valves can be manually actuated from the control room. Remote manual alignment of the residual heat removal system into the suppression pool cooling mode is then required for suppression pool heat removal. Makeup water to the vessel is still supplied by the reactor core isolation cooling system under manual control.

For the accident case with the reactor pressure vessel at high pressure, the high pressure coolant injection system is utilized to automatically provide the required makeup flow. No manual operations are required since the high pressure coolant injection system will cycle on and off automatically as water level reaches Level 2 and Level 8, respectively. If the high pressure coolant injection system fails under these conditions, the operator can manually depressurize the reactor vessel using the automatic depressurization system to permit the low pressure emergency core cooling systems to provide makeup coolant. Automatic depressurization will occur if all of the following signals are present: high drywell pressure 1.69 psig, Level 3 water level permissive, Level 1 water level (398.5 inches above vessel bottom or 36.2 inches above the top of the active fuel), pressure in at least one low pressure injection system and the runout of a 120 second timer (set at 105 seconds) which starts with the coincidence of the other four signals.

