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

Perry Nuclear Power Plant
Docket No. 50-440
Technical Specification
Change Request - ECCS Actions

Gentlemen:

Enclosed is a request for amendment to the Perry Nuclear Power Plant (PNPP) Unit 1 Facility Operating License NPF-58. In accordance with the requirements of 10CFR50.91(b)(1), a copy of this request for amendment has been sent to the State of Ohio as indicated below.

This amendment requests revision of Technical Specification 3.3.3 Actions, to make the Actions for various ECCS Actuation Instrumentation consistent with the purpose and logic of the instruments involved.

Attachment 1 provides a Summary, Safety Analysis, and the Environmental and Significant Hazards considerations. Attachment 2 provides a copy of the proposed Technical Specification changes.

If you have any questions, please feel free to call.

Sincerely,

M. D. Lyster

Michael D. Lyster

MDL:BSF:njc

Attachments

cc: NRC Project Manager
NRC Resident Inspector Office
NRC Region III
State of Ohio

Operating Companies
Cleveland Electric Illuminating
Toledo Edison

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SUMMARY

This Technical Specification Amendment Request is performing three changes within the Emergency Core Cooling System (ECCS) Actuation Instrumentation Table (Table 3.3.3-1) of the Perry Technical Specifications.

The first part of this change request concerns changing the wording of ACTION 33 as it relates to the Automatic Depressurization System (ADS) instruments. The ADS actuation instrumentation presently assigned to this ACTION are the Manual Inhibit Switches, and the Manual Initiation Switches (Table 3.3.3-1 Items A.2.b, A.2.g, B.2.b and B.2.f). As discussed later in this summary, the ACTION statement for the Manual Inhibit switches is being requested to be changed to ACTION 31, thus the only ADS instruments which will now be assigned to ACTION 33 are the Manual Initiation Switches.

ACTION 33 presently requires that the "associated ADS valve" be declared inoperable if an instrument in one ADS trip system cannot be restored to an OPERABLE status within 8 hours. However, for the Manual Initiation switches this action is not meaningful and would result in declaring all eight of the ADS valves inoperable even though all eight valves would still operate together correctly with any automatic signal from either the Division 1 or Division 2 trip systems logic, and all eight could still be manually initiated from the other trip systems Manual Initiation switches.

The proposed change would therefore revise ACTION 33 to change the word "valve" to "trip system". As stated above, the requirements of ACTION 33 as presently worded would require the operator to declare all eight ADS valves inoperable after 8 hours. This would require the plant to be placed in HOT SHUTDOWN within the next 12 hours per the requirements of Technical Specification 3.5.1 ACTION e.2. By changing the wording of the ACTION statement from "ADS valve" to "ADS trip system", the required action would be to declare the affected trip system inoperable (which is more appropriate). Declaring the ADS trip system inoperable would require the operator to take the actions stated in Technical Specification 3.3.3 ACTION c.1 or c.2. These actions permit continued operation for 72 hours or seven days (depending on the operability of high-pressure water injection systems), which provides a time period for repair of the inoperable Manual Initiation function.

The logic and function of the ADS actuation trip systems and Manual Initiation switches will be discussed in more detail in the Safety Analysis section below.

The second part of this change request deals with changing the ACTION statement for the Automatic Depressurization System Manual Inhibit switches (Table 3.3.3-1 items A.2.b and B.2.b.) from ACTION 33 to 31. The ACTION that is currently assigned to the Manual Inhibit switches, ACTION 33, permits up to 8 hours to restore the switches to an OPERABLE status before requiring that affected ADS equipment be declared inoperable. Action 31 requires that the affected ADS equipment be declared inoperable immediately rather than waiting 8 hours. This change request would impose the more restrictive requirement of ACTION 31 for an inoperable Inhibit Switch. The requested change will bring the action for an inoperable Manual Inhibit switch in line with the required actions when one of the other ADS instruments in the automatic actuation portion of the ADS logic is found inoperable. The Manual Inhibit switch contacts are in the automatic actuation portion of the ADS logic, and an inoperable Manual Inhibit switch may prevent one of the ADS trip system logics from automatically actuating the 8 ADS valves. Since the ADS valves would still actuate from the other ADS trip system, the safety function of the ADS actuation trip logic has been maintained. However, changing the required action to ACTION 31 eliminates the 8 hour allowable outage period permitted in ACTION 33 prior to declaring the trip system inoperable. Again this logic will be discussed in more detail in the safety analysis section below.

The third part of this change request deals with modifying the wording of ACTION 30 to make the wording consistent with that used in the other ACTIONS involving multiple ECCS systems including ADS Actuation instrumentation. This is an editorial change, and does not change the required action in any way.

SAFETY ANALYSIS

As discussed above there are three changes to the ECCS Actuation Instrumentation Technical Specification Tables and Actions. The first part of the change request deals with changing the portion of ACTION 33 which deals with ADS channels. Presently four Technical Specification Table ADS items have ACTION 33 as the applicable action for inoperable instruments. The required ACTION for two of these Table items (A.2.b and B.2.b) is being changed by the second part of this request. Thus, only the Manual Initiation channels (Table items A.2.g and B.2.f) for the Division 1 and 2 ADS Trip Systems will have ACTION 33 as the required ACTION following approval of this change request.

The ADS actuation system is discussed in the USAR Section 7.3.1.1.1.2 and the simplified logic for one trip system (Division 1) is depicted on USAR Figure 7.3.3, Sheet 6 of 7. Figure 1 of this letter is a reproduction of the applicable parts of the USAR Figure. In addition, Figure 2 provides another depiction of the Division 1 and 2 ADS Trip System logics, and shows that either logic train actuation will result in all eight ADS valves opening. As shown on this logic the Manual Initiation pushbuttons form a part of the overall initiation logic for both Division 1 and Division 2. For Division 1 [and 2] the ADS logic is initiated manually when the manual initiation pushbuttons in channels A and E [B and F] are depressed and there is a low pressure ECCS system running (LPCS or LPCI A for ADS Division 1, LPCI B or C

for ADS Division 2). If both channels in a Division are activated and a pump is running, all eight of the ADS valves will receive a signal to open. If one or both Manual Initiation channels in either Division become inoperable, the Automatic Initiation portions of the logic will not be affected in either Division, but the manual initiation function of that particular Division will be affected. Since the ADS valves themselves are not "divisional," manual initiation of all eight ADS valves could still be accomplished using the manual initiation pushbuttons for the other Division. In addition, each Safety Relief Valve (SRV) has an individual control switch which an Operator could use to open one or more of the SRVs (including any or all ADS valves).

As Action 33 is presently written, if an ADS Manual Initiation channel became inoperable, the channel must be restored in 8 hours or the "associated ADS valve" must be declared inoperable. This action is not appropriate for the Manual Initiation channels, and the ACTION statement is being modified to change the word "valve" to "trip system." As discussed above, Manual Initiation is part of the divisional logic, and when actuated completes logic to open all eight ADS valves. Therefore presently if a Manual Initiation channel becomes inoperable in one ADS trip system, all eight ADS valves would have to be considered as "associated ADS valves(s)" and be declared inoperable. Technical Specification 3.5.1 ACTION e.2 would then require the plant to be placed in HOT SHUTDOWN in 12 hours ("with two or more ADS valves inoperable, be in at least HOT SHUTDOWN within 12 hours...."). This is inconsistent with the actions required for other more important, channels of the ADS trip system, such as the automatic actuation channels.

For example, as can be seen on Figure 1 and 2 of this letter, the Reactor Vessel Water Level-Low, Level 3 instruments are vital to the automatic actuation of the ADS trip system. However, the action required when one of these channels becomes inoperable is to declare the ADS trip system inoperable (ACTION 31). This is the appropriate action since the other Division can complete the automatic ADS logic if necessary. If the trip system is declared inoperable, ACTION c.1 of Technical Specification 3.3.3 permits 72 hours or seven days (depending on the operability of the HPCS and RCIC systems) to restore the trip system to OPERABLE status.

Changing the wording of ACTION 33 from "valve" to "trip system" will make the action for the Manual Initiation channels consistent with the other channels of the ADS trip system, and consistent with the logic and purpose of the instruments involved. It will also contribute to avoiding unnecessary plant shutdowns for an inoperable Manual Initiation channel, while still maintaining the capability to complete the safety function with either Division of the automatic initiation logic or the other Division of the Manual Initiation logic.

The second change being requested by this submittal is changing which ACTION is required for inoperable ADS Manual Inhibit channels (Technical Specification Table 3.3.3-1 item A.2.b and B.2.b). Even though the name of the function contains the word "Manual", these channels are in the Automatic portion of the ADS logic as shown in Figure 1 and 2 of this letter. Therefore, throughout the remainder of this discussion, the function will be simply referred to as "ADS Inhibit" in order to avoid confusion.

If an ADS Inhibit channel is inoperable the Automatic actuation of one ADS trip system (Division 1 or Division 2) would be affected. Depending on the failure mechanism, either Automatic Initiation for the affected trip system would be prevented by the inoperable ADS Inhibit channel, or the Operators could be unable to inhibit actuation of ADS (the purpose of the switch). Presently the required action to be taken for an inoperable ADS Inhibit channel is ACTION 33. As discussed in the first portion of this change request, this action presently provides an eight hour allowable out-of-service time before action must be taken to declare associated ADS equipment inoperable, and currently the equipment that must be declared inoperable is the "associated ADS valve" (same current ACTION as described above for the Manual Initiation channels). This is not consistent with the actions required for the other channels in the Automatic portion of the ADS actuation logic. Therefore, this change request modifies the required action from ACTION 33 to ACTION 31.

ACTION 31 requires that the associated ADS trip system be declared inoperable if the ADS Inhibit channel becomes inoperable. This Action is similar to the proposed revision to ACTION 33 except that the operator will not have the 8 hours to restore the channel to an OPERABLE status prior to declaring the ADS trip system inoperable. In the same fashion as the Manual Initiation logic described above, an inoperability of an ADS Inhibit function would currently result in a declaration of all eight ADS valves inoperable due to the current ACTION 33 wording. Again, similar to the Manual Initiation function, declaring all eight valves inoperable is not appropriate. Instead, the trip system should be declared inoperable, since the ADS valves can still be actuated by the other trip system's automatic initiation logic, and they can also be actuated by both Divisions of Manual Initiation. At first glance, therefore, it would seem appropriate to leave the ADS Inhibit function associated with ACTION 33, but merely change the word "valve" to "trip system" as proposed in the first part of this letter. However, since the ADS Inhibit channel can affect the automatic actuation of the affected ADS trip system, taking 8 hours prior to declaring the trip system inoperable is not appropriate, and not consistent with the other channels which form the automatic portion of the ADS actuation logic.

This change is conservative in that it shortens the time frame provided by the Action before the trip system must be declared inoperable, and it still provides an opportunity to restore the ADS Inhibit function to operable status before forcing a plant shutdown, due to the seven-day time frame provided when only one Division is inoperable (and therefore the other Division can complete the automatic initiation function). Also, inoperabilities of an ADS Manual Inhibit channel do not affect the operation of the Manual Initiation function of either Division in any way.

The final change deals with modifying the words in ACTION 30 to make them consistent with the wording of ACTION 31 and 33. All three of these ACTIONS apply to instruments used in multiple ECCS systems including ADS. ACTION 31 clearly states that the requirements apply to the "associated ADS trip system or ECCS." As discussed above, ACTION 33 is being revised to also state the "associated ADS trip system or ECCS". Therefore, for consistency, the ACTION 30 wording is being modified to state this same requirement. The present wording of both ACTION 30 a. and b. directs the operator to declare the "associated system" inoperable. Since this ACTION is associated with various ECCS Actuation instruments on Technical Specification Table 3.3.3-1, the ACTION has always been implemented by declaring the associated ECCS system inoperable (for non-ADS instruments associated with ACTION 30) and by declaring the associated ADS trip system inoperable for ADS instruments associated with ACTION 30 (Reactor Vessel Level-Level 1). Thus the change to ACTION 30 is an editorial change, merely providing clarification and consistency between ACTIONS 30, 31 and 33.

SIGNIFICANT HAZARDS CONSIDERATION

The standards used to arrive at a determination that a request for amendment involves no significant hazards considerations are included in the Commission's Regulations, 10CFR50.92, which state that the operation of the facility in accordance with the proposed amendment would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated, (2) create the possibility of a new or different kind of accident from any previously evaluated, or (3) involve a significant reduction in a margin of safety. CEI has reviewed the proposed amendment with respect to these three factors and has determined that the proposed changes do not involve a significant hazard because:

This change does not involve a significant increase in the probability of consequences of an accident previously evaluated.

All three of the proposed changes either create a more conservative and/or more appropriate ACTION to be taken in the event one or more of the instrument channels involved become inoperable. The Technical Specifications have always permitted these instrument channels to be inoperable for periods of time provided the remedial steps are taken as required by the ACTION statements.

In the first proposed change the existing required ACTION was not appropriate for inoperable ADS Manual Initiation channels, since all ADS valves are uniformly affected, and declaring all the ADS valves inoperable after eight hours is not consistent with the required actions for channels in the more important automatic ADS logic. The existing ACTION forces an almost immediate, unnecessary plant shutdown, with all the attendant cycling of plant systems, despite the fact that the manual initiation function is capable of being completed by the other Divisions logic, and the automatic initiation logic, for which credit is taken in the safety analyses, is completely unaffected. The proposed change instead requires that the associated ADS Trip System be declared inoperable, which is consistent with the other ADS instrument channels, and it places a time limit on how long this condition can exist.

The second proposed change not only makes the required action for the ADS Inhibit function consistent with the other instrument channels in the automatic initiation portion of the ADS logic, but requires that the action be taken immediately when the ADS Inhibit channel is found inoperable, further limiting the time permitted for the channel to be inoperable as compared to the manual initiation logic. Again, the other Divisions logic can complete the automatic safety function during this period of inoperability, and the manual initiation logic is completely unaffected. The Technical Specifications are approved by the NRC to permit inoperable equipment to exist for limited amounts of time, so that licensees can have some time frame to restore the equipment to an operable status, and not put the plant through unnecessary plant shutdown cycles for inoperable equipment that can normally be restored within a short time. These proposed changes do not create any new or different approach to dealing with these instrument channels. As described above, both changes are to make the required ACTIONS more conservative and/or consistent with other instrument channels within the ADS system logic, and make them consistent with the purpose and logic of the instruments involved. As such the proposed change does not increase the probability or consequences of any previously evaluated accident.

The final change to the wording of ACTION 30 is merely a clarification of the existing requirements, to make the wording of ACTION 30 consistent with ACTION 31 and 33. Since this is merely an editorial clarification of existing requirements, the revision involves no change or increase in the probability or consequences of an accident previously evaluated.

This proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

As discussed above no new or different types of ACTIONS are being proposed by this change request. This change request is attempting to remove some inconsistencies in the required ACTIONS for inoperable ECCS Actuation Instrumentation. No changes are proposed to the design or operation of any plant systems or components. The proposed change has not created the possibility of a new or different type of accident from those previously evaluated in the USAR. Therefore, no new type of accident has been created by this change request.

The proposed changes do not involve a significant reduction in the margin of safety.

The proposed changes do not reduce the margin of safety as defined in the bases for the Technical Specifications. These changes do not modify any of the instrument setpoints or functions. All ECCS systems will still be capable of performing their intended safety functions. These proposed changes will either maintain the present margin of safety or increase it, by reducing the need for unnecessary plant shutdowns, while still maintaining the capability to complete the safety function. Therefore the proposed changes do not involve a significant reduction in the margin of safety.

ENVIRONMENTAL CONSIDERATION

The Cleveland Electric Illuminating Company has reviewed the proposed Technical Specification change request against the criteria of 10 CFR 51.22 for environmental considerations. As shown above, the proposed change does not involve a significant hazards consideration, nor increase the types and amounts of effluents that may be released offsite, nor significantly increase individual or cumulative occupational radiation exposures. Based on the foregoing, CEI concludes that the proposed Technical Specification change meets the criteria given in 10 CFR 51.22(c)(9) for a categorical exclusion from the requirement for an Environmental Impact Statement.

NJC/CODED/4432

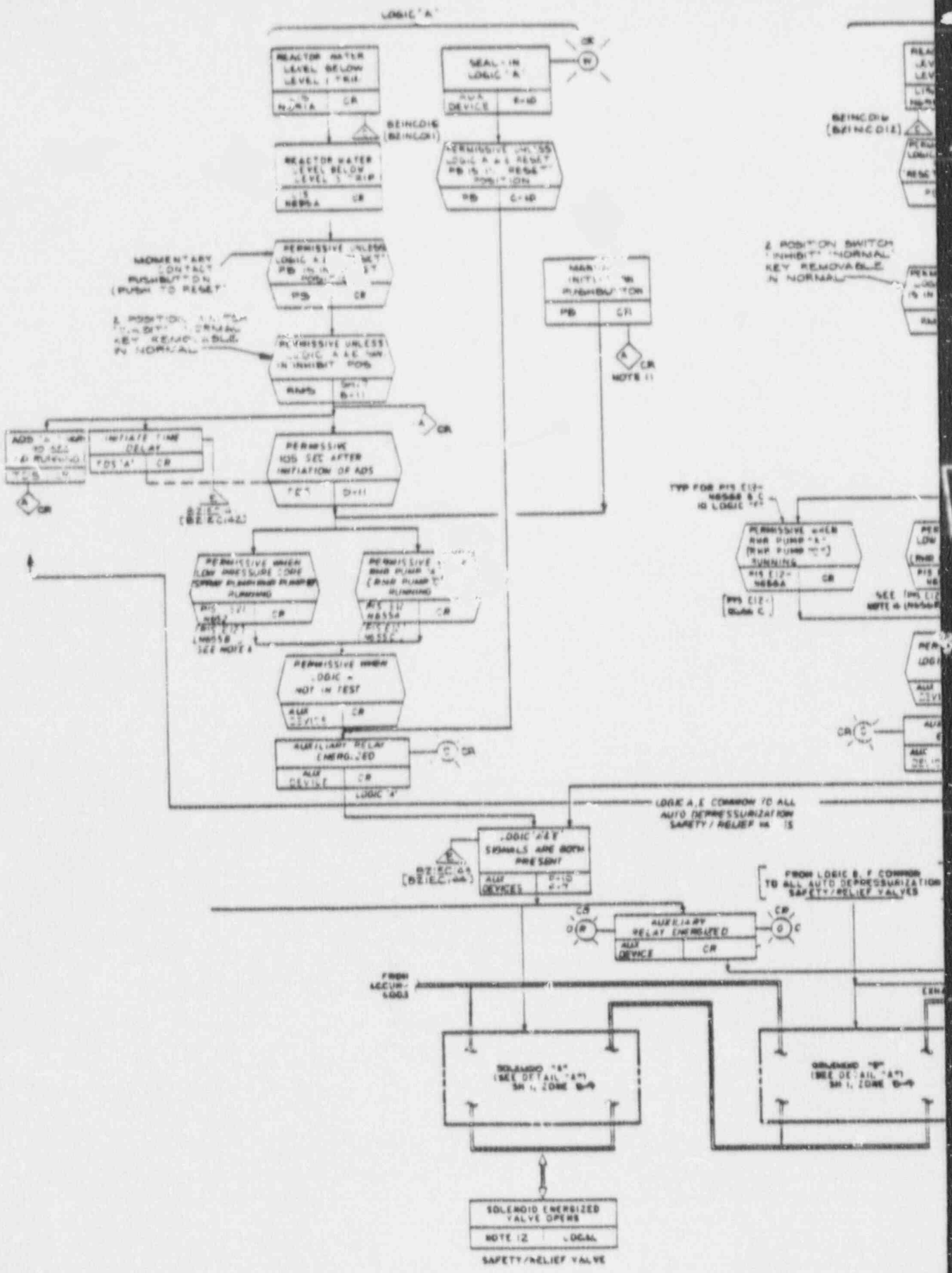
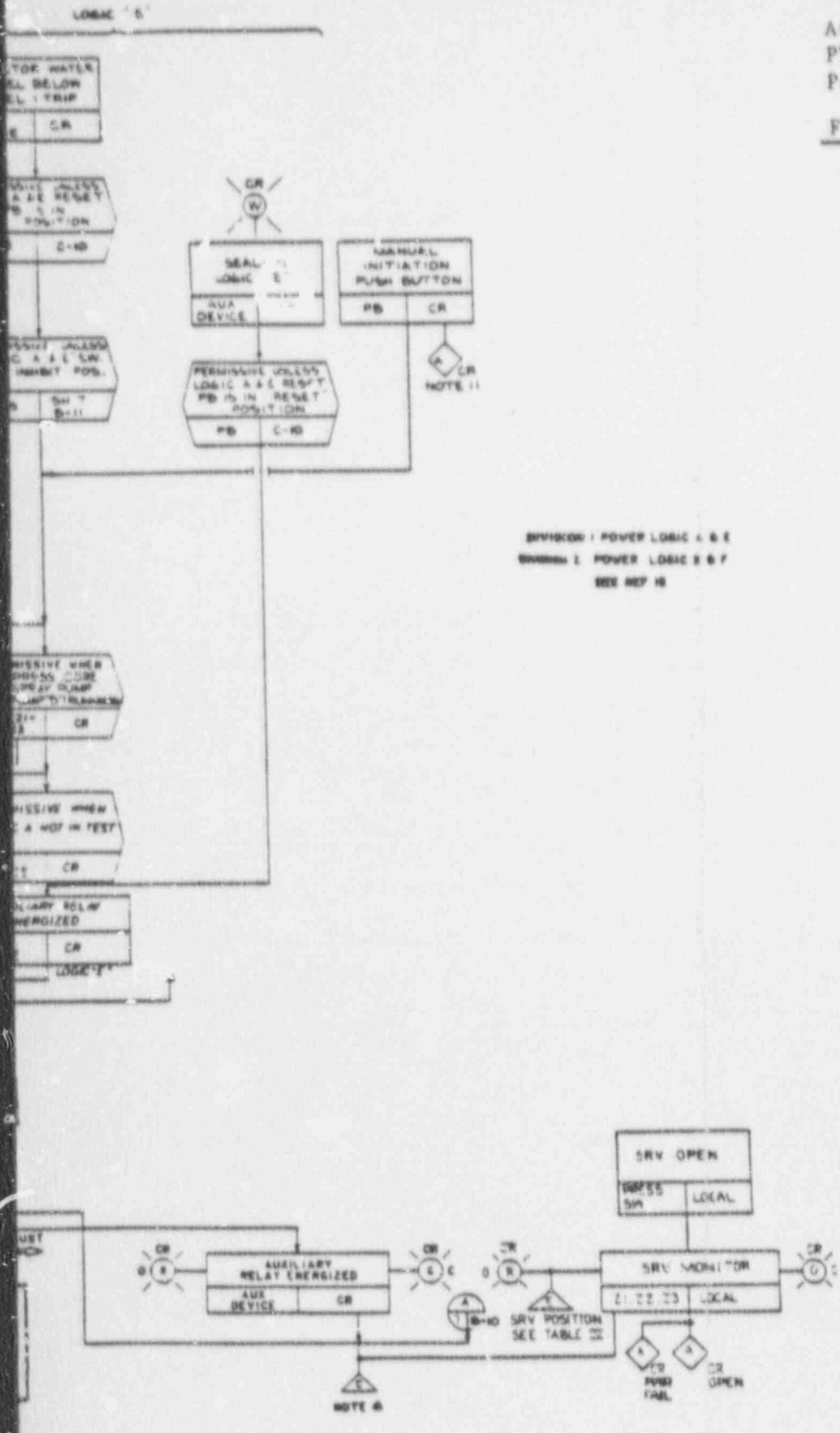
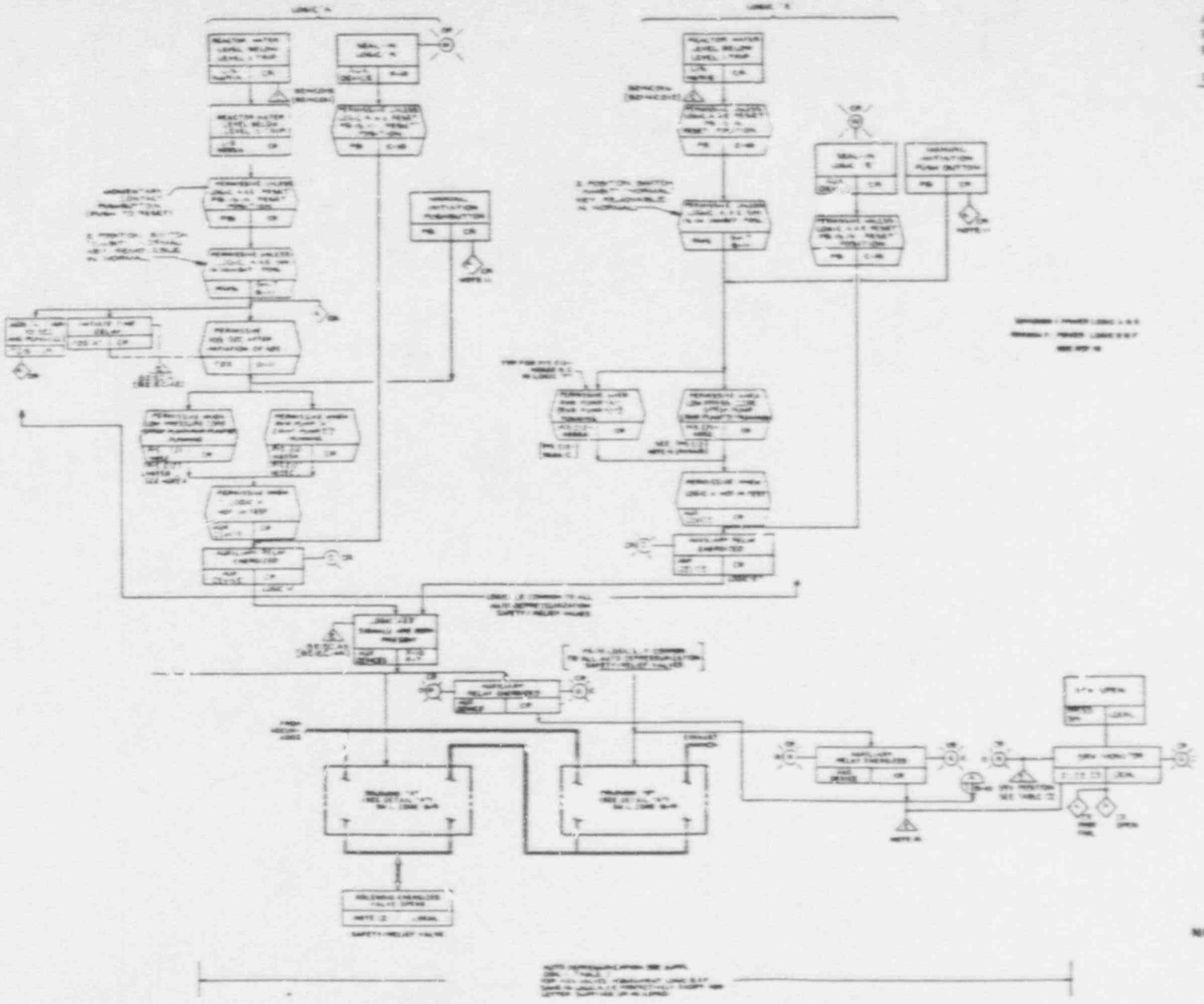

LOGIC 'A'
REACTOR WATER LEVEL BELOW LEVEL 1 TRIP
SEAL-IN LOGIC 'A'
BEINCDIb (BEINCDIc)
PERMISSIVE UNLESS LOGIC A,E RESET PB IS IN "RESET" POSITION
MOMENTARY CONTACT PUSHBUTTON (PUSH TO RESET)
PERMISSIVE UNLESS LOGIC A,E SET IN INHIBIT POS
MANUAL INITIATION PUSHBUTTON
NOTE 11
ADS 'A' TO SEC. IS RUNNING
INITIATE TIME DELAY
PERMISSIVE 105 SEC AFTER INITIATION OF ADS
(BE.E.C.42)
PERMISSIVE WHEN LOW PRESSURE CORE SPRAY PUMP IS RUNNING
PERMISSIVE WHEN LOW PRESSURE CORE SPRAY PUMP 'A' (LOW PRESSURE CORE SPRAY PUMP 'C') IS RUNNING
PERMISSIVE WHEN LOGIC A NOT IN TEST
AUXILIARY RELAY ENERGIZED
LOGIC 'A'
LOGIC A,E COMMON TO ALL AUTO DEPRESSURIZATION SAFETY/RELIEF VALVES
LOGIC A,E SIGNALS ARE BOTH PRESENT
(BE.E.C.44)
FROM LOGIC B, F COMMON TO ALL AUTO DEPRESSURIZATION SAFETY/RELIEF VALVES
AUXILIARY RELAY ENERGIZED
FROM ACCUM-ULATORS
SOLENOID "A" (SEE DETAIL "A") SH 1, ZONE B-9
SOLENOID "B" (SEE DETAIL "A") SH 1, ZONE B-9
SOLENOID ENERGIZED VALVE OPENS
NOTE 12
LOGIC
SAFETY/RELIEF VALVE
AUTO DEPRESSURIZATION SEE SUPPL. LOGIC TABLE 1 FOR ADS VALVES ASSIGNMENT LOGIC B SAME AS LOGIC A, E RESPECTIVELY EXCEP LETTER SUFFIXES OR AS NOTED.

Figure 1



NUCLEAR SAFETY RELATED

Figure 1

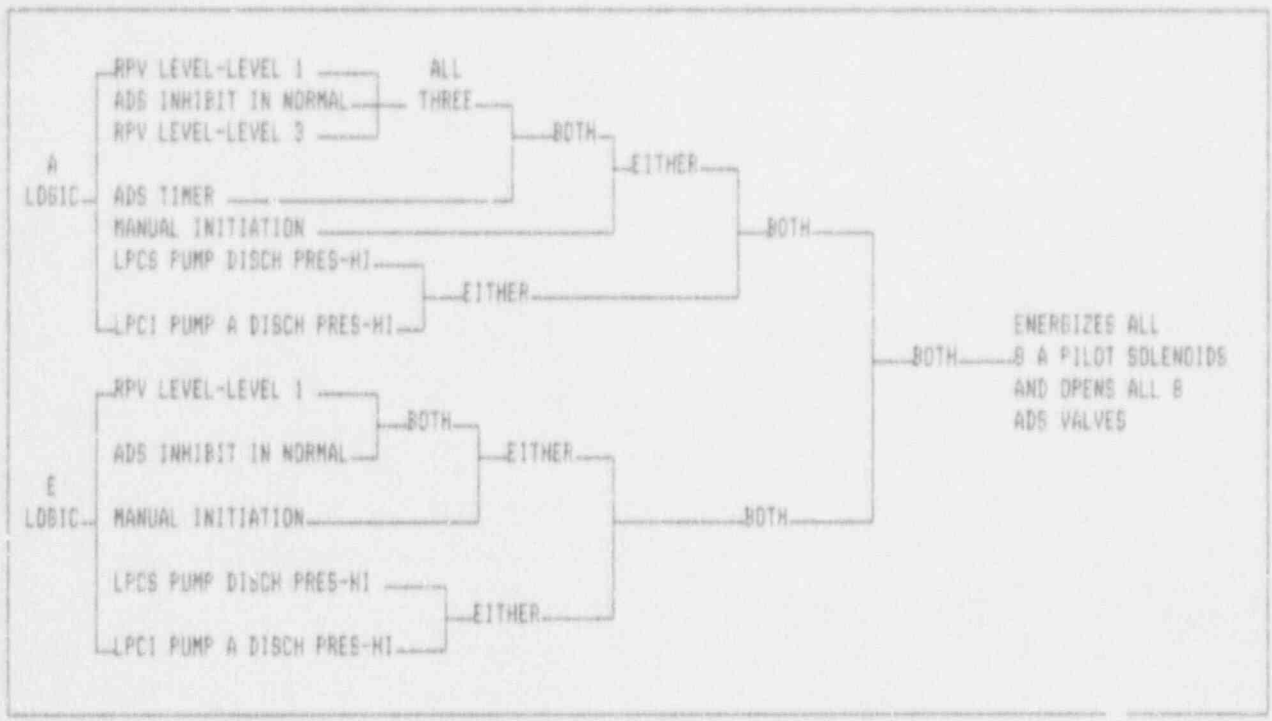


NUCLEAR SAFETY RELATED

FIGURE 2

ADS ACTUATION LOGIC

DIVISION 1:



DIVISION 2: