Docket Nos. 50-10[237]

DEC 21 1978

Mr. Cordell Reed
Assistant Vice President
Commonwealth Edison Company
Post Office Box 767
Chicago, Illinois 60690

Dear Mr. Reed:

RE: VERIFICATION OF PLANT INFORMATION ON SEP TOPIC V-11.A, "REQUIREMENTS FOR ISOLATION OF HIGH AND LOW PRESSURE SYSTEMS"

Our initial review of SEP Safety Topic V-11.A has been completed. The enclosed table presents docketed information on reactor coolant system interfaces with low pressure systems. Also included is plant information obtained during our recent safe shutdown review of your facilities.

Only systems that had direct interfaces with the primary system were considered. These were the water cleanup systems, the ECCS, the sampling systems and the RHR systems. High pressure systems connected to the primary system that indirectly interfaced with a low pressure system (i.e., service water or component cooling through a heat exchanger) were not considered. Systems designed to operate at high pressure were also not included (i.e., BWR isolation condenser) except for the high pressure RHR system on several BWRs, which were included for completeness.

For PWRs the seal injection system was included because it was identified in a memo from E. G. Case to R. F. Fraley (Ref. 1) as having the potential to inadvertently overpressurize the water makeup tank. For BWRs the reactor vessel head spray cooling system was included because the potential for overpressurizing the condensate storage tank, if not properly vented, may exist.

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Isolation requirements for the ECCS system injection lines as stated in Standard Review Plan (SRP) 6.3 are listed below:

(1) One or more check valves in series with a normally closed motor-operated valve. The motor-operated valve is to be opened upon receipt of a safety injection signal once the reactor coolant pressure has decreased below the ECCS design pressure.

(2) Three check valves in series.

(3) Two check valves in series provided that there are design provisions to permit periodic testing of the check valves for leak tightness and the testing is performed at least annually.

The isolation requirements for the RHR system as stated in Branch Technical Position BTP-RSB 5-1 are listed below:

(1) The following shall be provided in the suction side of the RHR system to isolate it from the RCS.

(a) Isolation shall be provided by at least two power-operated valves in series. The valve positions shall be indicated in the control room.

(b) The valves shall have independent diverse interlocks to prevent the valves from being opened unless the RCS pressure is below the RHR system design pressure. Failure of a power supply shall not cause any valve to change positions.

(c) The valves shall have independent diverse interlocks to protect against one or both valves being open during an RCS increase above the design pressure of the RHR system.

(2) One of the following shall be provided on the discharge side of the RHR system to isolate it from the RCS:

(a) The valves, position indicators, and interlocks described in item 1(a) - (c).

(b) One or more check valves in series with a normally closed power-operated valve. The power-operated valve position shall be indicated in the control room. If the RHR discharge line is used for an ECCS function the power-operated valve is to be opened upon receipt of a safety injection signal once the reactor coolant pressure has decreased.

(c) Three check valves in series or

(d) Two check valves in series, provided that there are design provisions to permit periodic testing of the check valves for leak tightness and the testing is performed at least annually.

Isolation requirements for the cleanup and sampling system are dictated by the requirements of SRP 6.2.4 and GDC 55 related to lines that penetrate the primary containment boundary and are listed below:

(1) One locked closed isolation valve--inside and one locked closed isolation valve outside containment, or

(2) One automatic isolation valve inside and one locked closed isolation valve outside containment; or

(3) One locked closed isolation valve inside and one automatic isolation valve outside containment, or

(4) One automatic isolation valve inside and one automatic isolation valve outside containment.

The table indicates (1) if the systems meet the isolation requirements identified, the types of valves used, (2) if the capability for leak testing individual valves exists, (3) the high pressure low pressure interfaces, (4) method of pressure reduction in closed loop systems and (5) how the systems are isolated (by procedures or automatically). Check valve orientation was included because there has been some recent concern that vertically mounted check valves are not as effective as those mounted horizontally. There was, however, no data in the FSARs on check valve orientation.

For isolation of the systems identified to meet current criteria, they must satisfy conditions in the appropriate SRPs, GDC 55 and Section XI of the ASME Code. These documents establish the combinations of acceptable valves, the testing interval, and the individual valve leak testing requirements.

To meet SEP schedule requirements, we need your verification of the correctness of the data presented in the enclosed table and all additional information you may have pertaining to Safety Topic V-11.A by January 29, 1979.

Sincerely,

Original signed by
Dennis L. Ziemann

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

Reference:

Memo. E. G. Case to R. F. Fraley, Executive Director ACRS, dated July 11, 1977. Subject: "Isolation of Low Pressure Systems from Reactor Coolant System".

Enclosure:
As stated

cc w/enclosure:
See next page

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PLANT: Dresden 1 Evaluation of Isolation of Low Pressure Systems From Reactor Coolant System

Direct Interfaces[3,4]	Meets Isolation Criteria[7]	Redundancy of Isolation	Type Valves	Testable Between Valves	Location of HP/LP Interface	Check Valve Orientation	Method of Pressure Reduction	Method of Isolation	Remarks
Water Cleanup System[6]									
Inlet		No	1MO (102)	NA[8]	Between nonregenerative heaters and demineralizer tank	NA			2 lines only valves for one line identified on Table, DWG 104R210 (FSAR)
Discharge		Yes	1MO (106) + 1 check (213M2)	NA	At exit to regenerative heat exchangers				
ECCS									
Low Pressure Injection									No low pressure injection system
Low Pressure Core Spray[2]		Yes	2MO (CS 11 & 12) + 1 check (CS 124)						Sargent & Lundy DWG M-595, 2 lines - only valves for one line identified on table - CE letter Sept. 17, 1970
Sampling System		No	1 Manual	NA	Outside containment	NA		Manual	DWG 104R202 - additional normally open valves upstream of normally closed valves
RHR System									
Suction Side		Yes	2MO valves (136 & 137)			NA			Called unloading heat-only exchangers - 2 lines, valves for one line identified DWG 7368E84 (FSAR)
Discharge Side		No	1MO (122)			NA			

PLANT: Dresden Unit 2 Evaluation of Isolation of Low Pressure Systems From Reactor Coolant System

Direct Interfaces[3,4]	Meets Isolation Criteria[7]	Redundancy of Isolation	Type Valves	Testable Between Valves	Location of HP/LP Interface	Check Valve Orientation	Method of Pressure Reduction	Method of Isolation	Remarks
Water Cleanup System[6]									
Inlet	Yes	Yes	2MO			NA[8]			Fig. 10.3-1 system isolates on reactor low-low water level and system low flow, high pressure or high temperature
Discharge	Yes	Yes	2MO			NA	NA		
ECCS									
Low Pressure Injection		Yes	1MO & 1 testable check valve	No			NA	Normally closed only initiated in RPS signal	Discharge only, suction in suppression pool (Fig. 6.2.7 FSAR)
Low Pressure Core Spray	Yes	Yes	1MO and 1 check	No			NA	Normally closed only initiated on RPS signal	Discharge side only, suction in suppression pool (FSAR Fig. 6.2-2)
Sampling System									No information provided in FSAR
RHR System -									
Suction Side	Yes	Yes	2MO	No		NA	NA	AC & DC Suction Valves Shut @ 350°F. Discharge valves do not. Pumps also trip @350°F. Check valves. Protect discharge	High pressure system (1250 psi) isolates automatically on reactor low-low water water level signal from RPS (FSAR Fig. 10.4-4)
Discharge Side	Yes	Yes	2MO	No		NA	NA		
Reactor Vessel Head Spray Cooling		No	1MO	NA		NA	NA		High press system, downstream of pumps, potential for overpressurizing condensate storage tank exists if not properly vented

NOTE:
1. PWRs only
2. BWRs only
3. Only direct interfaces considered--service water and component cooling water systems not evaluated
4. High pressure systems (i.e., control rod drive hydraulic, isolation condenser, standby liquid control, high pressure injection, & RCIC) connected to reactor coolant pressure boundary not evaluated
5. Inadvertent overpressurization of makeup tank due to reactor coolant pump seal leak off
6. Reactor water cleanup system for BWRs and CVCS or Letdown System for PWRS
7. Isolation requirements for ECCS specified in SRP 6.3 (Section III), for RHR system in BTP RSB 5-1 attached to SRP 5.4.7 and for water cleanup and sampling system in GDC 55
8. NA - Not Applicable