



WISCONSIN PUBLIC SERVICE CORPORATION

600 North Adams • P.O. Box 19002 • Green Bay, WI 54307-9002

May 14, 1986

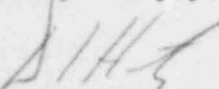
Mr. J. G. Keppler, Regional Administrator
Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

Dear Mr. Keppler:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
I.E. Bulletin 85-03 - Motor Operated Valve Common Mode Failures
During Plant Transients Due to Improper Switch Setting

The subject bulletin requested that we review and document the design basis for selected motor operated valves in the High Pressure Coolant Injection System and the Emergency Feedwater System. The methodology used by Wisconsin Public Service Corporation for determining which valves to include was developed by the Westinghouse Owners Group. Attachment I contains Tables I & II which reports the results of this review. Attachment II details the requested schedule for completion of items b through d.

Very truly yours,

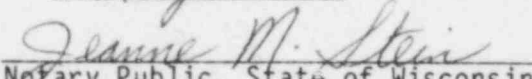

D. C. Hintz
Manager - Nuclear Power

DJM/jms

Attach.

cc - Mr. Robert Nelson, US NRC
Mr. G. E. Lear, US NRC
Director, Office of I&E, US NRC

Subscribed and Sworn to
Before Me This 14th Day
of May 1986


Notary Public, State of Wisconsin

My Commission Expires:
June 28, 1987

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Attachment I

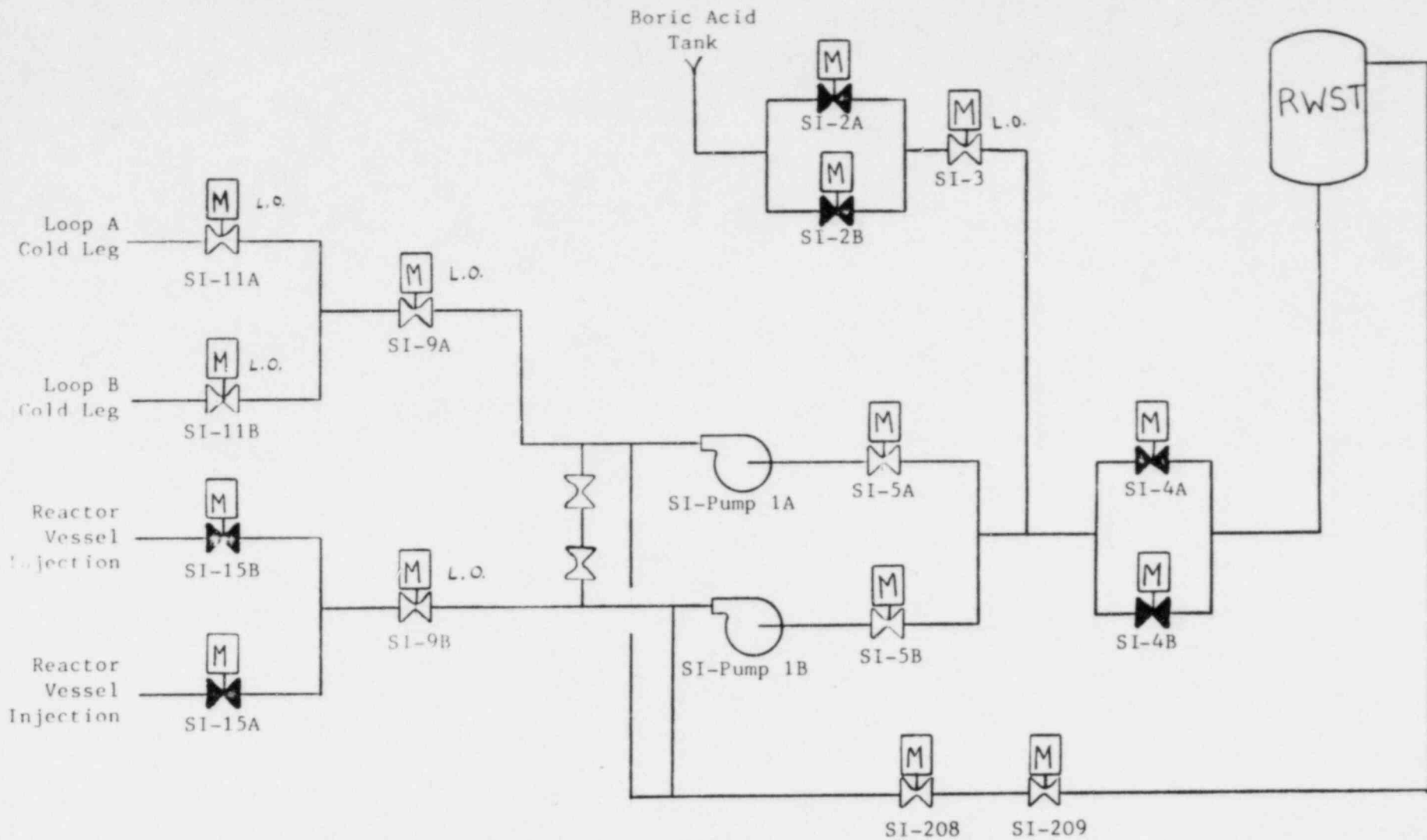
Letter from D. C. Hintz to J. G. Keppler

Dated May 14, 1986

Kewaunee Nuclear Power Plant

Wisconsin Public Service Corporation

KNPP Safety Injection System



NOTE: This simplified drawing shows major flow paths and locations of motor operated valves contained in Table I.

Legend

- L.O. - Locked Open
- M - Motor Operation
- ⊗ - Normally Closed
- ⊘ - Normally Open

TABLE I
HPI Valve Delta P's

MOV	KNPP Valve Number	Design delta P		Maximum Operating Delta P		Justification for Maximum Operating delta P
		<u>Close</u>	<u>Open</u>	<u>Close</u>	<u>Open</u>	
Safety Injection Pump Suction from Boric Acid Tanks	SI-2A	200	200	30	29	Open - 1 Close - 2
Safety Injection Pump Suction from Boric Acid Tanks	SI-2B	200	200	30	29	Open - 1 Close - 2
Safety Injection Pump Suction from RWST	SI-4A	200	200	200	30	Open - 3 Close - 4
Safety Injection Pump Suction from RWST	SI-4B	200	200	200	30	Open - 3 Close - 4
Safety Injection Pump Suction Isolation Valves	SI-5A	200	200	200	30	Open - 5 Close - 5
Safety Injection Pump Suction Isolation Valves	SI-5B	200	200	200	30	Open - 5 Close - 5
Safety Injection to Reactor Vessel Isolation Valve	SI-15A	2750	2750	2330	2380	Open - 6 Close - 6
Safety Injection to Reactor Vessel Isolation Valve	SI-15B	2750	2750	2380	2380	Open - 6 Close - 6
SI Pump to RWST Recirc. Isol. Valve	SI-208	2750	2750	2225	2225	Open - 7 Close - 7
SI Pump to RWST Recirc. Isol. Valve	SI-209	2750	2750	2225	2225	Open - 7 Close - 7

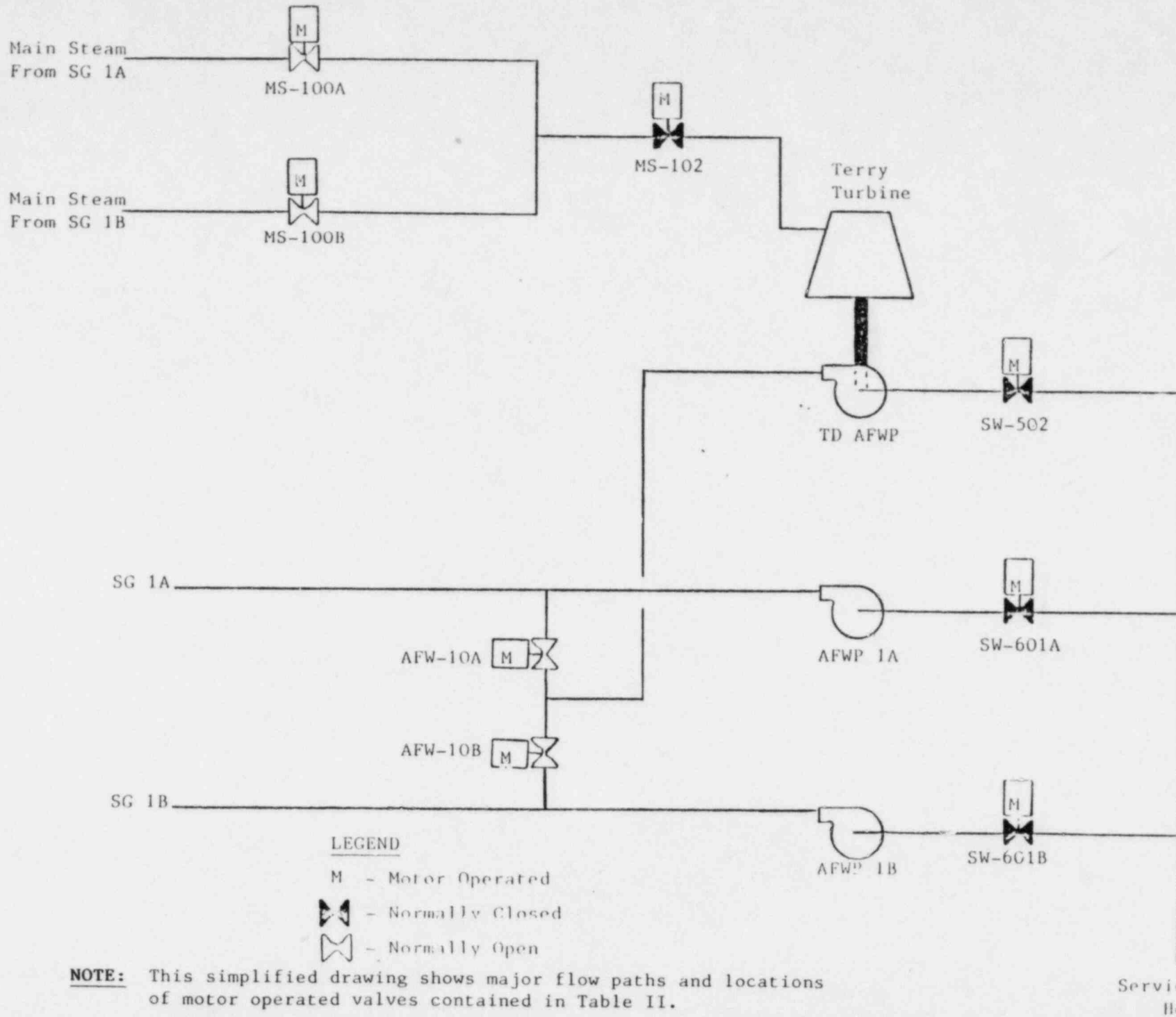
Justification for Table I

1. These valves must open to allow the SI pumps to take suction on the Boric Acid Tanks. The maximum delta P for this scenario is the elevation head of the Boric Acid Tanks above the valves.
2. These valves must close to allow SI pump suction to switch to the Refueling Water Storage Tank (RWST). The maximum delta P for these valves to close against would be the elevation head of the RWST above the valves ≈ 30 psig.
3. This valve must open on a Boric Acid Tank Lo Lo Level to provide suction to the SI pumps from the RWST. The maximum delta P this valve would have to open against would be the elevation head of the RWST ≈ 30 psig.
4. The Westinghouse Valve Specification Sheet for these valves specifies a 200 psi delta P. The Limitorque Bill of Material specifies a 100 psi delta P. In the event the valve SI-5A/SI-5B fails to fully close, this valve would be required to close against the discharge head of the RHR pump while operating in the recirculation mode. Should the valve SI-4A/SI-4B fail to close against the RHR pump discharge pressure, the control room operators would have ample time to stop the affected train of recirculation flow, thus removing the pressure, and then closing the valve. A review of this failure mode is continuing; however, this is not considered to be a safety concern.
5. This valve is normally open. The valve must close to isolate the RWST from the discharge of the RHR pumps during the recirculation mode of operation. The maximum delta P this valve would see would be the discharge of the RHR pumps ≈ 200 psig.



6. This valve is normally closed. It would have to open to allow vessel injection. The maximum differential pressure this valve would see is the discharge head of the SI pumps plus the discharge head of the RHR pumps operating in the recirculation mode.
7. This valve is normally open. It must close to allow transfer to recirculation operation. The maximum delta P this valve would see is the discharge head of the SI pumps.

KNPP AUX FEEDWATER SYSTEM

J. G. Keppler
 May 14, 1986
 Attachment 1
 Page 5 of 7



LEGEND

- M - Motor Operated
-  - Normally Closed
-  - Normally Open

NOTE: This simplified drawing shows major flow paths and locations of motor operated valves contained in Table II.

Service Water Header

TABLE II
AFW Valve Delta P's

MOV	KNPP Valve Number	Design delta P		Maximum Operating Delta P		Justification for Maximum Operating of delta P
		<u>Close</u>	<u>Open</u>	<u>Close</u>	<u>Open</u>	
Turbine Driven AFWP to S/G 1A Isolation Valve	AFW-10A	1100	1100	1750	1750	Open - 1 Close - 1
Turbine Driven AFWP to S/B 1B Isolation Valve	AFW-10B	1100	1100	1750	1750	Open - 1 Close - 1
Service Water to TDAFWP Isolation Valve	SW-502	150	150	100	100	Open - 2 Close - 2
Service Water to 1A Motor Driven AFWP	SW-501A	150	150	100	100	Open - 2 Close - 2
Service Water to 1B Motor Driven AFWP	SW-601B	150	150	100	100	Open - 2 Close - 2
1A S/G Steam Supply to TDAFWP Isolation Valve	MS-100A	1100	1100	100	100	Open - 3 Close - 3
1B S/G Steam Supply to TDAFWP Isolation Valve	MS-100B	1100	1100	1106	1106	Open - 3 Close - 3
Main Steam Admitting Valve to TDAFWP	MS-102	1100	1100	1106	1106	Open - 4 Close - 4

Justification for Table II

1. Discharge head of the turbine driven pump at miniflow. Approved operating and emergency procedures are in place to ensure proper operation of these valves under maximum delta P conditions.
2. This valve is normally closed. It must open to allow service water to the pump suction. The maximum delta P this valve would see is the discharge head of the service water pumps.
3. This valve is normally open. It must close to isolate a faulted or ruptured Steam Generator. The maximum delta P for this valve is the lowest Steam Generator safety plus 3% accumulation.
4. This valve is normally closed. It must open to allow steam to the turbine driven pump. The maximum delta P for this valve is the lowest Steam Generator safety plus 3% accumulation.

Attachment II

Letter from D. C. Hintz to J. G. Keppler

Dated May 14, 1986

Kewaunee Nuclear Power Plant

Wisconsin Public Service Corporation

Attachment II

The following response reflects Wisconsin Public Service Corporation's proposed schedule for completion of IE Bulletin 85-03 items b through d.

Item b - WPS is currently reviewing all motor operated torque switch settings.

Any discrepancies between the actual setting and the manufacturer's recommended setting will be corrected by May 31, 1986. A procedure is being developed by the maintenance department to ensure that torque bypass and position limit switches are correctly set. This procedure will be completed prior to the start of the 1987 refueling outage. During the 1987 refueling outage all valves contained in Table I & II will have their switch positions verified. During the 1985 refueling outage design change request (DCR 1695) performed a review of safeguards motor control center overload devices to verify adequate sizing. Included with this review was the limitorque motor operators which are included in this bulletin. Therefore no additional work is planned in this area.

Item c - WPS will perform full flow maximum differential pressure testing on selected valves. The selection of which valves can be tested will depend on the ability of the system to be placed in a configuration where a maximum differential pressure condition can be applied. An example would be the SI pump discharge valves to the reactor vessel (SI-15A/B). During the yearly SI system flow test a maximum differential pressure can be applied to these valves. Maximum differential pressure testing on the valves selected will be completed during the 1987 refueling outage.

Justification of a test method (MOVATS, VMODS, etc.) for valves not undergoing full differential pressure testing will be provided in the future. Due to the uncertain nature of this testing method, no specific date for completion can be set at this time. An update to this response will be provided when a test method and time frame have been finalized.

Item d - All motor operators contained in Tables I and II are currently maintained using preventative maintenance procedures. These procedures will be reviewed to ensure explicit acceptance criteria for torque and torque bypass switch settings are included. These procedures will be reviewed and revised prior to the 1987 refueling outage. Proper operation of limit switches is verified biennially under the Inservice Testing Program.