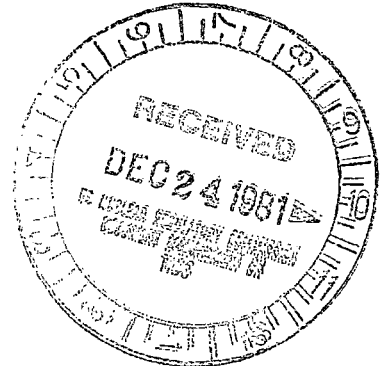


December 23, 1981

Docket No. 50-255
LS05-81-12-074



Mr. David P. Hoffman
Nuclear Licensing Administrator
Consumers Power Company
1945 W Parnall Road
Jackson, Michigan 49201

Dear Mr. Hoffman:

SUBJECT: PALISADES - SEP TOPICS V-10.B, RHR SYSTEM RELIABILITY,
V-11.B, RHR INTERLOCK REQUIREMENTS AND VII-3, SYSTEMS
REQUIRED FOR SAFE SHUTDOWN (SAFE SHUTDOWN SYSTEMS REPORT)

As preparation for the integrated assessment, the staff has re-evaluated some of the open items from the topic reviews to determine whether they can be resolved within the topic rather than being carried into the integrated assessment.

For topics covered by the safe shutdown systems review, (V-10.B, V-11.B, and VII-3), the staff considers the following items to be closed out as discussed below.

The deviation concerning independent, diverse interlocks for the shutdown cooling system (SCS) suction valves which prevent the valves from opening unless primary coolant system (PCS) pressure is below SCS design pressure is considered acceptable. The key lock switches and administrative controls, along with the pressure interlock on the inboard valves provide adequate assurance that the SCS will not be inadvertently exposed to high PCS pressure.

For operation with fire protection water as auxiliary feedwater, the staff had recommended that operating procedures be revised to direct cooldown to SCS initiation conditions within 36 hours, and then proceeding to cold shutdown expeditiously. The proposed increase in the Technical Specification minimum volume in the condensate storage tank will decrease the likelihood of prolonged use of the fire protection water. Therefore, the staff does not consider the proposed procedural changes to be of sufficient safety significance for inclusion in the integrated assessment.

*SFO4
S/1
Add: Ted
Michaels
DSU USE EX(0A)*

8112280306 811223
PDR ADOCK 05000255
P PDR

OFFICE ▶	.....	.....	.....	.....	.....	.....	.....
SURNAME ▶	.....	.....	.....	.....	.....	.....	.....
DATE ▶	.....	.....	.....	.....	.....	.....	.....

Enclosed are revised pages of the safe shutdown systems report which should be substituted into the evaluation transmitted on October 27, 1981. Concurrently, the staff is revising the safety evaluation for V-11.B (previously dated June 2, 1981) to be consistent with the above.

The remaining staff positions from the safe shutdown evaluation are being considered in the integrated assessment:

1. Modification to the technical specifications to require enabling of the overpressure protection system prior to initiating SCS.
2. Operating procedures for a shutdown and cooldown using the systems identified in the minimum systems list (Section 3.1 of the evaluation).
3. Provision of suitable interlocks on the low pressure safety injection (LPSI) discharge valves to prevent opening until pressure is below LPSI design pressure or demonstration that the consequences of failure of a LPSI check valve are acceptable.
4. Maintenance of at least 107,000 gallons of onsite water and development of procedures to achieve SCS initiation temperature and pressure within seven hours after reactor trip to permit a safe shutdown and cooldown with loss of offsite power.
5. Maintenance of 100,000 gallons of the 107,000 gallons of onsite stored water in the seismic category I condensate storage tank.

Sincerely,

Dennis M. Crutchfield, Chief
Operating Reactors Branch No. 5
Division of Licensing

Enclosure:
As stated

cc w/enclosure:
See next page

OFFICE ▶	SEP B:DL <i>EM</i>	SEP B:DL	SEP B:DL	ORB#5:PM	ORB#5:BC	AD:SA:DL	
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DATE ▶	12/15/81	12/17/81	12/17/81	12/18/81	12/23/81	12/18/81	



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555
December 23, 1981

Docket No. 50-255
LS05-81-12-074

Mr. David P. Hoffman
Nuclear Licensing Administrator
Consumers Power Company
1945 W Parnall Road
Jackson, Michigan 49201

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5. Maintenance of 100,000 gallons of the 107,000 gallons of onsite stored water in the seismic category I condensate storage tank.

Sincerely,

for *Thomas V. Wambach*
Dennis M. Crutchfield, Chief
Operating Reactors Branch No. 5
Division of Licensing

Enclosure:
As stated

cc w/enclosure:
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Mr. David P. Hoffman

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ENCLOSURE

SYSTEMATIC EVALUATION PROGRAM
TOPICS V-10.B, V-11.B, VII-3
PALISADES

REVISED PAGES FOR SYSTEMS REPORT
DECEMBER 1981

The PCS suction supply to the LPSI pumps is from the hot leg of loop 2 through motor-operated valves MO-3015 and MO-3016 in series. The SCS uses the LPSI pumps for coolant circulation. SCS return flow is via all four SI lines to the PCS cold legs. The permissive interlock for the SCS suction valves is described in Reference 5, and it prevents opening MO-3015 and MO-3016 unless PCS pressure is below 265 psig. The pressure signal is generated by PS-0104 on the pressurizer for input to the interlock on both suction valves. The two motor-operated valves also have administratively controlled key-locked switches in the control room. By procedure, the SCS system is not placed into operation until pressure is below 270 psia and the overpressure system is operable. The single interlock is a deviation from the independent diverse interlock provision of BTP RSB 5-1. There are no interlocks which automatically shut the SCS suction or discharge valves on increasing PCS pressure. The SCS suction and discharge isolation valves fail "as is" on loss of power and have position indication in the control room.

On the discharge side of the SCS, protection from PCS pressure is provided by two check valves and the motor-operated LPSI valve in each of the four SI lines. The SCS is isolated from SI tank pressure (200 psig) by one check valve and one LPSI motor-operated valve in each cold leg injection path. The motor-operated valves open upon receipt of an SI signal.

Based on the above description, the SCS deviations from these BTP provisions:

1. The suction valves do not have independent diverse interlocks to prevent opening the valves until PCS pressure is below SCS design pressure.
2. The motor-operated valves in the discharge lines are not interlocked to prevent opening on an SI signal until PCS pressure is below SCS design pressure.
3. The isolation valves have no interlock to close them when PCS pressure increases above the SCS design pressure.

The deviation for lack of automatic suction valve closure on increasing PCS pressure is acceptable since in addition to the administrative and procedural controls on these valves, an alarm is provided at 375 psig to warn the operator that PCS pressure is increasing towards SCS design pressure whenever the Overpressure Protection System is enabled. Upon receipt of an alarm, the control room operator would be able to terminate the pressure increase or to perform the required procedural steps to isolate the SCS. (See the following discussion of BTP provision C.1, "Pressure Relief Requirements").

The deviation concerning the independent interlocks on the suction valves to prevent opening until PCS pressure is below SCS design pressure is acceptable since the keylock switches and administrative controls in addition to the existing interlock provide assurance that a single failure or single operator error will not result in overpressurization of the SCS.

- a. The licensee will be required to incorporate plant Technical Specifications to require enabling the overpressure protection system whenever SCS cooling is in progress.
- b. The licensee will be required to provide suitable interlocks on the LPSI discharge valves to prevent the valves from opening unless pressure is below LPSI design pressure or demonstrate that the consequences of failure of a LPSI check valve are acceptable.

5.3 Topic V-11.B RHR Interlock Requirements

The safety objective of this topic is identical to that of Topic V-11.A. The staff conclusion regarding the Palisades SCS valve interlocks, as discussed in Section 5.2, is that adequate interlocks exist after implementation of the indicated staff conclusions.

5.4 Topic VII-3 Systems Required For Safe Shutdown

The Safety objectives of this topic are:

1. To assure the design adequacy of the safe shutdown system to
 - (a) initiate automatically the operation of appropriate systems.

Based on the staff's evaluation of safe shutdown water requirements at Palisades, we have concluded that the plant systems identified in the SEP Safe Shutdown Report would permit a plant cooldown in accordance with the intent of BTP RSB 5-1 requirements if the following staff positions are implemented:

1. The licensee should maintain (by Technical Specification) at least 107,000 gallons of on-site water and develop procedures to achieve SCS initiation temperature and pressure within 7 hours after reactor trip to permit a safe shutdown and cooldown with loss of offsite power using on-site water.
2. Of the 107,000 gallons of water, discussed in item 1 above, 100,000 gallons should be maintained in the seismic category I CST.