



Consumers
Power
Company

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December 1, 1983

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Operating Reactor Branch No 5
Nuclear Reactor Regulation
US Nuclear Regulatory Commission
Washington, DC 20555

DOCKET 50-255 - LICENSE DPR-20 -
PALISADES PLANT - RESPONSE TO NRC EVALUATION OF RESPONSE TO IE BULLETIN 80-06
(ADDITIONAL INFORMATION)

Consumers Power Company letter dated March 11, 1983 and entitled "Response to NRC Evaluation of Response to IE Bulletin 80-06" contained information justifying the actions of certain valves in the Palisades Engineered Safety Feature (ESF) system. A telephone conference call November 18, 1983, regarding the previously referenced letter, conducted between Consumers Power Company, NRC staff and the NRC reviewer resulted in a request for Consumers Power Company to resubmit our position on the workings of the Palisades ESF system in a more definitive form and to clarify the action and function of the valves discussed.

This requested information is provided as follows:

First, it should be established that the Palisades plant does not have one ESF Reset which resets all ESF equipment. At Palisades, two signals actuate and reset the ESF system, one being the Containment High Pressure (CHP) signal and the other being the Safety Injection System (SIS) signal.

The CHP signal is generated by two of four high containment pressure signals. Upon receipt of CHP the three containment spray pumps start, containment spray header valves open and outlet valves on the hydrazine tank (T-102) open. CHP cannot be reset by the operator until containment pressure is less than or equal to four (4) psig.

The SIS signal is generated manually, or by two of four high containment pressure or by two of four low pressurizer pressure signals. SIS starts the high and low pressure injection pumps, opens the safety injection loop valves and closes the primary system check valve leakage paths. SIS cannot be reset by the operator until a CHP condition has been cleared, if one did exist, and the operator has verified all the conditions in Attachment I, have been met.

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Palisades Plant
RESPONSE TO NRC EVALUATION OF
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The only crossties between the actuation and reset of the two systems is that a CHP signal will cause an SIS signal, therefore SIS cannot be reset when a CHP condition still exists.

In the event of an SIS & CHP the two systems would first take suction off the Safety Injection and Refueling Water (SIRW) Tank parallel to the Hydrazine Tank. Once the SIRW tank ran within 27" from the bottom, automatic switchover would take place to recirculation from the sump. No operator action is required once an SIS or CHP signal is received, with the exception of closing of the recirculation line to the SIRW tank to prevent contaminating the tank with sump water.

The valves in question are listed on the following pages complete with a description of the their function in the system and their action in an accident situation.



Brian D Johnson
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CC Administrator, Region III, USNRC
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Attachments

ATTACHMENT I

Consumers Power Company

Palisades Plant - Docket 50-255

VALVES ACTUATED AND RESET BY SIS AND CHP

2 Pages

Valves Actuated and Reset by SIS

Component Cooling Water to Shutdown Heat Exchanger Valves - SV-0937 and SV-0938

The purpose of valves SV-0937 and SV-0938 is to isolate component cooling water flow to the shutdown heat exchangers. The cooling water is needed to cool the water being pumped into the containment spray headers in the event of an accident.

The valves open on receipt of an SIS signal, thus providing the cooling flow path. Once containment pressure is less than or equal to four (4) psig CHP can be reset. With CHP reset the containment spray valves (SV-3001 and SV-3002) will close as no further spraying of containment is necessary. Valves SV-0937 and SV-0938 will not close on CHP reset. The valves will not close until SIS is reset and this cannot be accomplished with a CHP condition present. With the CHP condition removed and the conditions in attachment II verified the operator can then reset SIS and close the valves.

Component Cooling Water to Seal Cooling - SV-0913 and SV-0950

The purpose of valves SV-0913 and SV-0950 is to isolate cooling water flow to the mechanical seals on the LPSI, HPSI and CS pumps. The seals are designed to operate at 300°F, but are provided with cooling to extend seal life.

The valves open on receipt of an SIS signal providing cooling of the seals on the HPSI, LPSI and CS pumps. If a CHP signal is present the SIS cannot be reset and the valves can therefore not be closed. Once containment pressure is less than or equal to four (4) psig, CHP can be reset. Then once the conditions in attachment I are met the operator can reset SIS and the valves will close. If at this time HPSI pumps are still in operation, water to seal cooling would be cutoff. The temperature of the water being pumped however, would be less than 227°F and seal cooling would therefore not be necessary.

Valves Actuated and Reset by CHP

Iodine Removal Tank Discharge Valve - SV-0437A and SV-0437B

The purpose of valves SV-0437A and SV-0437B is to isolate the T-102 hydrazine tank from the Safety Injection System. The hydrazine tank is used to remove Iodine from the containment atmosphere.

The valves open upon receipt of a CHP signal providing hydrazine to the containment spray pumps. The header to the CS pumps is also common to the LPSI and HPSI pumps and therefore hydrazine would also be introduced to this system. Once containment pressure is less than or equal to four (4) psig, CHP can be reset closing the valves. At this point, containment atmosphere would be stable and no further introduction of hydrazine into the system is needed.

The SIS signal has no effect on this part of the system.

Containment Spray System Discharge Valve - SV-3001 and SV-3002

The purpose of valves SV-3001 and SV-3002 is to isolate the containment spray system from spraying into containment. The containment spray system is used to reduce containment building pressure and radioactivity in the event of an accident.

The valves open upon receipt of a CHP signal, providing water to the containment spray headers. Once containment pressure is less than or equal to four (4) psig, spraying of containment is no longer necessary and CHP can be reset closing valves SV-3001 and SV-3002. The CS pumps do not auto trip on CHP reset, however procedures have been modified to shutdown the pumps before resetting CHP, thus adverting deadheading of the pumps.

The SIS signal has no effect on this part of the system.

As a result of the careful analysis and discussion of the Palisades ESF System, it has been shown that the system has been properly designed and will function in a desired manner. The SIS and CHP systems function without any operator intervention. The operator takes no action to reset the systems until they have performed their functions and conditions have been stabilized.

ATTACHMENT II

Consumers Power Company

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"REACTOR TRIP"

POST-REACTOR TRIP CONDITIONS WHICH MUST BE
MET IN ORDER TO RESET SAFETY INJECTION
PER EMERGENCY OPERATING PROCEDURE #1

"REACTOR TRIP"

1. The reactor is shut down and will remain shut down.
2. The hot and cold leg temperatures are at least 50°F subcooled.
3. The cause of the low pressure condition is known and corrected.
4. Pressurizer pressure is greater than 1700 psia and is returning to normal.
5. Pressurizer level is greater than 20% and is returning to normal.
6. TAVG is stable or increasing and is less than 545°F.