

## WISCONSIN PUBLIC SERVICE CORPORATION



P.O. Box 1200, Green Bay, Wisconsin 54305

February 2, 1981

50-305

Mr. James G. Keppler, Reg Dir  
Office of Inspection & Enforcement  
Region III  
U. S. Nuclear Regulatory Commission  
799 Roosevelt Rd  
Glen Ellyn, IL 60137



Gentlemen:

Docket 50-305  
Operating License DPR-43  
Kewaunee Nuclear Power Plant  
Environmental Qualification of Electrical Equipment

- References:
1. IE Bulletin 79-01B; transmitted by letter of January 16, 1980 from J. G. Keppler to E. R. Mathews
  2. Supplement 3 to IE Bulletin 79-01B; transmitted by letter of October 24, 1980, from J. G. Keppler to E. R. Mathews
  3. Letter of December 30, 1980, from E. R. Mathews to J. G. Keppler

Supplement 3 to IE Bulletin 79-01B requested Qualification information for installed TMI Action Plan equipment and equipment needed to achieve and maintain a cold shutdown condition. This letter responds to those requests.

Installed TMI Action Plan Equipment

Radiation monitoring equipment has been installed in areas of the auxiliary building and on potential release paths to provide increased monitoring capability. These monitors are intended to provide information for events which would result in large releases of radioactivity; since analysis predict that a team line break would not result in large releases of radioactivity, the only applicable harsh environment would be radiation. The installation of this equipment provides radiation protection to the supporting hardware by locating the hardware in an area remote to the detectors.

The pressurizer PORV block valves have been provided with safety grade power supplies. This required the installation of new cable. The qualifications of cable have been reported previously in reference 3.

8103240556

Q

Mr. James G. Keppler  
February 2, 1981  
Page 2

Acoustic monitors have been installed on the pressurizer safety valves. WPSC is currently participating in a qualification program for those monitors. That program is not complete at this time.

Subcooling indication has been installed in the control room. This indication utilizes existing core exit thermocouples and wide range reactor coolant system pressure; these signals are fed into a new micro-processor which is located in the control room. Since the micro-processor is in a non-harsh environment, no qualification data is necessary. Additional information regarding this system was submitted in our letter of April 3, 1980, to Mr. H. R. Denton.

Qualification information for TMI action plan equipment to be installed in the future will be submitted in accordance with the implementation requirements specified in NUREG 0737.

#### Cold Shutdown Equipment

The equipment which would be utilized post-accident to achieve and maintain a cold shutdown condition depends on the specific accident and equipment availability. The Kewaunee Operators are instructed to utilize available equipment while minimizing the release of radioactivity. Much of the equipment utilized to achieve and maintain cold shutdown is also required for hot shutdown and was reported in reference 3.

A large break LOCA will result directly in a cold shutdown condition. Long-term stability is maintained through the recirculation mode of cooling. In this mode, water is drawn from the containment sump and routed via the low head safety injection system back to the reactor coolant system. This mode does not require any equipment additional to that identified in reference 3.

Following a small break LOCA (defined as a break that does not result in the complete depressurization of the reactor coolant system) there are several methods to achieve cold shutdown available to the operator. One alternative would involve the use of the safety injection system to provide borated water to the RCS and make-up shrinkage as the RCS cools down. When the RCS temperature and pressure were compatible with the RHR system, it could be utilized for subsequent cooling. This would require the use of the RHR suction and discharge valves. The RHR suction valves have the potential of becoming submerged post-accident. This was identified in our reviews concerning low temperature, over-pressure protection; valve upgrade is under consideration.

A second alternative to achieve cold shutdown after a small break LOCA would involve the use of the chemical and volume control system for make-up and boration capabilities. To provide radiation protection if this option is exercised, WPSC is currently implementing a design change which would reroute the radioactive gases that may accumulate in the VCT back to containment. Utilization of the CVCS would be dependent on equipment availability. Although equipment in the CVC system is desirable to maintain RCS inventory control, it

Mr. James G. Keppler  
February 2, 1981  
Page 3

is not essential to maintain hot shutdown, most equipment which would be used to achieve cold shutdown is QA Type 1 and, accordingly, is superior quality equipment.

A third alternative available to the operator to achieve and maintain a cold shutdown condition involves the use of the steam generators as a water solid heat exchanger. Studies have been performed which indicate the viability of this method. Preliminary studies for Kewaunee indicate that the steam lines themselves are adequately supported to allow solid water operation. The only major equipment needed in this method, in addition to that required for hot shutdown, are the condensate pumps. Since these pumps are not subject to a harsh environment, no qualification information is necessary.

The equipment necessary to achieve and maintain a cold shutdown condition following a steam line break could either be the CVC system combined with the RHR system (similar to that described for a small break LOCA) or the method described above utilizing the steam generators as a water-solid heat exchanger. Since a steam line break accident is a cooldown accident, the amount of radiation released from the RCS and fuel is predicted to be much less than that for a LOCA. Therefore, equipment located in the auxiliary building is expected to be available, as discussed in the Appendix to Section 10 of the FSAR.

WPSC is continuing with the evaluations concerning equipment qualifications for cold shutdown equipment. We reiterate our conviction that the licensing basis (hot shutdown) is a safe, stable condition utilizing a minimum of equipment and provides adequate margin to the health and safety of the public. Our work in this area does not represent a commitment to environmentally qualify any or all equipment necessary to achieve and maintain a cold shutdown condition.

In discussions with Westinghouse, WPSC has been informed of their concern regarding the release of proprietary information. Although we have not submitted proprietary documents, we have referenced the following documents which are proprietary. This is to advise you that proprietary information contained in those documents should be controlled in an appropriate manner.

Proprietary Documents Referenced in	WCAP 7410	WCAP 8540
WPSC Equipment Qualification Submittals:	WCAP 7410-L	WCAP 9157
	WCAP 7744	

Very truly yours,

*E. R. Mathews*

E. R. Mathews, Vice President  
Power Supply & Engineering

snf

cc - Mr. Robert Nelson, NRC Resident Inspector

Subscribed and Sworn to Before Me This 2nd Day  
of February, 1981.

*[Signature]*  
Notary Public, State of Wisconsin

My Commission Expires

Dec. 19, 1982