June 27, 2000

LICENSEE: Consumers Energy Company

FACILITY: Palisades Plant

SUBJECT: PALISADES PLANT - SUMMARY OF TELEPHONE CONVERSATIONS ON MAY 10 AND 24, 2000, REGARDING ENVIRONMENTAL QUALIFICATIONS OF THE POWER CABLE FOR SOLENOID VALVE SV-0347 (TAC NO. MA7943)

On May 10 and 24, 2000, the NRC called Consumers Energy Company (the licensee) to discuss the licensee's disposition of a 125-volt direct current (dc) electrical cable inside the containment building at the Palisades Plant which, in June 1994, the licensee discovered was not qualified for the post-accident harsh environment. This event was described in Licensee Event Report 94-15, dated June 30, 1994. The licensee also performed a Justification For Continued Operation which described several failure modes and their effects. Participants of the telephone call are listed in the enclosure.

The cable provides control power to solenoid valve SV-0347 which is required to de-energize, vent control air from safety injection tank (SIT) pressure control valve CV-3047, and allow it to close. CV-3047, which is opened to fill the SIT, is designed to close upon receipt of a safety injection signal to prevent diversion of safety injection away from the reactor vessel following a loss-of-coolant accident. CV-3047 is located in the 1-inch line connected to the 12-inch outlet piping of SIT T-82C. The cable was manufactured by Essex Cable Company and cannot be environmentally qualified for use inside containment at Palisades. The NRC staff's concern is that the harsh environment could potentially degrade the cable insulation, increasing susceptibility to multiple grounds, and thus, the possibility for SV-0347 to remain energized, keeping CV-3047 open when it needs to be closed.

During the May 10, 2000, call, the licensee reviewed the design, functions, and history of the cable and its associated valves. Rather than replace the cable, the licensee performed an engineering analysis (EA-SC-95-033-01) and a modification in 1995 that used safety injection relays to isolate both the positive and negative conductors of the circuit during an event that causes a safety injection signal (i.e., one of two series safety injection signal contacts on the positive side of the solenoid's dc circuit was moved to the negative side of the circuit). The licensee stated that, although no failure modes have been found to-date that could cause the solenoid valve to become energized during an accident, additional failure mode and effects analyses (FMEAs) were in progress which considered all credible failure modes for the cable. It was decided to resume the telephone discussion after completion of the additional analyses.

During the May 24, 2000, call, the licensee stated that the additional analyses had been completed on the cable as modified in 1995. On the basis of these engineering and FMEA analyses, the licensee concluded that, if the cable were to fail in the harsh environment during an accident, it would not adversely affect other safety systems, structures, and components. The failure would not impact the accident scenario, any other cable, or nearby equipment. Consequently, the licensee stated that the analyses support the decision to remove the cable from the Equipment Qualification Master Equipment List maintained in accordance with

paragraph (d) of 10 CFR 50.49. The licensee, thus, concluded that the cable is not required to meet qualification program requirements specified in 10 CFR 50.49.

The licensee also stated that the cable is designed for environmental conditions outside of containment. These environmental conditions outside containment are more severe than the normal (i.e., non-accident) environmental conditions inside containment. Thus, the cable is qualified for the normal conditions inside containment.

The NRC staff stated that the above information adequately addressed its request regarding the licensee's disposition of the cable.

/RA/

Darl S. Hood, Senior Project Manager, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-255

Enclosure: List of Participants

cc w/encl: See next page

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IN TELEPHONE CONVERSATIONS ON MAY 10 AND 24, 2000

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Dale Thatcher	NRR/DE/EEIB
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Paul Shemanski	NRR/DE/EEIB
Darl Hood	NRR/DLPM/LPD1
Dan Malone	Consumers Energy Company
Kerry Toner	Consumers Energy Company
et al.	

* RIII = Region III
NRR = Office of Nuclear Reactor Regulation
DE = Division of Engineering
DLPM = Division of Licensing Project Management
DRS = Division of Reactor Safety
EEB = Electrical Engineering Branch
EEIB = Electrical and Instrumentation and Controls Branch

ENCLOSURE

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