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ILLINOIS POWER COMPANY

CLINTON POWER STATION, P.O. BOX 678, CLINTON, ILLINOIS 61727

September 16, 1985

Docket No. 50-461

Director of Nuclear Regulation
Attention: Mr. W.R. Butler, Chief
Licensing Branch No.2
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Clinton Power Station
Analysis and Fault Testing of the
TEC Model 156 Analog Isolators
(TMI Action Plan Item I.D.2)

Dear Mr. Butler:

Illinois Power (IP) Letter U-0745, dated October 2, 1984, provided the NRC Staff with responses to questions regarding the Technology for Energy Corporation (TEC) 1E isolation system used in the Safety Parameter Display System (SPDS) at the Clinton Power Station (CPS). The Staff's review of this information resulted in additional concerns regarding the voltage and current testing levels used by TEC to verify the isolation capability of this system. As a result, IP Letter U-0779, dated January 11, 1985, provided responses for the TEC Model 980-3 and 981-1A isolators. The latter submittal also stated that TEC Model 156 analog isolators would be needed for Division 4 SPDS parameters. The Model 156 isolator uses magnetic coupling as its isolating mechanism and uses the same isolator module as the Model 980-3. Therefore, information presented in IP Letter U-0745 related to seismic and environmental qualification for the Model 980-3 isolators applies also to the Model 156 isolators.

Additional testing of the TEC Model 156 analog isolators has been completed to verify the maximum credible fault conditions, as committed in IP Letter U-0779. The results of these tests are provided in the attached TEC reports and indicate the following:

1. Shorts, grounds, or open circuits applied to the non-Class 1E side of the isolator will not degrade the Class 1E side below an acceptable level;

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2. 120 Volts AC at 20 Amps applied to the non-Class 1E side of the isolator will not degrade the Class 1E side below an acceptable level. Possible faults considered include an internal short inside the 24 Volt DC power supply (operated from 120 Volt AC primary supply). This test was repeated to demonstrate that potting does not cause any additional degradation to the Class 1E side than what was previously shown; and

3. 2000 Volts DC at 20 milliamps applied to the non-Class 1E side of the isolator will not degrade the Class 1E side below an acceptable level.

Based on these results, IP considers the requirements specified in IEEE Std. 384-1981, "IEEE Standard Criteria for Independence of Class 1E Equipment and Circuits" for the 1E-input isolation provided by the TEC Model 156 analog isolator to be satisfied for the CPS SPDS. Therefore, the requirements of 10CFR50, Appendix A, General Design Criteria 24 have been fulfilled.

If you should have any questions on this material, please contact me.

Sincerely yours,

F.A. Spangenberg
Director - Nuclear Licensing
Nuclear Station Engineering

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Attachment

cc: B.L. Siegel, NRC Clinton Licensing Project Manager
NRC Resident Office
Regional Administrator, Region III, USNRC
Illinois Department of Nuclear Safety