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MIDDLE SOUTH UTILITIES SYSTEM

June 18, 1984

W3P84-1690
3-A1.01.04

Director of Nuclear Reactor Regulation
Attention: Mr. G. W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUBJECT: Waterford SES Unit 3
Docket No. 50-382
Supplementary Response to RSB
Questions on Technical Specifications

REFERENCES: (1) Letter dated May 18, 1984 from
Knighton (NRC) to Leddick (LP&L)
(2) W3P84-1492 dated May 29,1984

Dear Sir:

By your Reference (1) letter you requested information concerning the Waterford 3 Technical Specifications to which LP&L responded by Reference (2).

Your Mr. C.Y. Liang (NRR/RSB) verbally requested clarifying information as to reactor protective instrumentation response times. Enclosed please find the additional information.

Should you require further information in this matter please contact Mike Meisner at (504) 363-8938.

Yours very truly,

K.W. Cook

K.W. Cook
Nuclear Support & Licensing Manager

KWC/MJM/pco

Enclosure

cc: E.L. Blake, W.M. Stevenson, J.T. Collins, D.M. Crutchfield,
J. Wilson, G.L. Constable, L.B. Marsh, C.Y. Liang

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WATERFORD 3

REACTOR PROTECTIVE INSTRUMENTATION RESPONSE TIMES

Steam Generator Level-Low

There were two occurrences of this trip questioned. These were in Table 15.2-6 (page 15.2-30) and table 15.2-10 (page 15.2-35) of the FSAR. The response time appeared to be 0.4 seconds since the occurrence of the trip signal was interpreted as the time at which the system parameter reached the setpoint value. This is incorrect since the trip signal time includes a sensor delay time of 0.5 seconds. That is, the system parameter reached its setpoint value 0.5 seconds prior to the trip signal being generated. Thus the response time is actually 0.9 seconds which agrees with the Technical Specifications.

Steam Generator Pressure-Low

There were two occurrences of this trip questioned. These were in Table 15.1-13 (page 15.1-51) and Table 15.1-14 (page 15.1-52) of the FSAR. The response time appeared to be 0.4 seconds since the occurrence of the trip signal was interpreted as the time at which the system parameter reached the setpoint value. This is incorrect since the trip signal time includes a sensor delay time of 0.5 seconds. That is, the system parameter reached its setpoint value 0.5 seconds prior to the trip signal being generated. Thus the response time is actually 0.9 seconds which agrees with the Technical Specifications.

Pressurizer Pressure-High

This trip appeared in Table 15.4-3 (page 15.4-36) of the FSAR. The response time appeared to be 0.5 seconds since the occurrence of the trip signal was interpreted as the time at which the system parameter reached the setpoint value. This is incorrect since the trip signal time includes a sensor delay time of 0.5 seconds. That is, the system parameter reached its setpoint value 0.5 seconds prior to the trip signal being generated. Thus, the response time is actually 1.0 second which is conservative with respect to the Technical Specification value of 0.9 seconds.

CPC Trips: Local Power Density-High, DNBR-Low, Low Pressurizer Pressure

These trips appeared in Table 15.6-5 (page 15.6-30), Table 15.6-9 (page 15.6-36), Table 15.4-16 (page 15.4-49), Table 15.2-3 (page 15.2-27), Table 15.3-1 (page 15.3-10), Table 15.3-3 (page 15.3-12), Table 15.3-5 (page 15.3-14), Table 15.4-1 (page 15.4-34), Table 15.4-5 (page 15.4-38), Table 15.4-13 (page 15.4-46), and Table 15.4-15 (page 15.4-48) of the FSAR. The reactor protective instrumentation response times presented in Table 3.3-2 for the Local Power Density and DNBR functional units are applicable for response time testing (RTT). RTT procedures and test requirements are defined in Waterford test procedure SPO-66-044. "RPS Response Time Test". In accordance with this procedure and requirements, a special RTT software disc is generated for use by the CPCs during RTT. The response times given in Table 3.3-2 are the time from injection of the signal to the signal conditioners until the opening of the trip breakers. These times

include a 150 millisecond time delay for that time delay measured from the output of the trip signal from the CPC to the opening of the trip breakers. As a result of these procedures for RTT the response times included in Table 3.3-2 of the Technical Specifications cannot be directly applied to the time delays which appear in the FSAR Chapter 15 sequence of events tables. Furthermore, the time delay for the CPCs to generate a trip signal is included in the trip signal time in the sequence of events tables.

HPSI/Main Steam Isolation Response Times

In Table 15.1-12 (page 15.1-50), 15.1-13 (page 15.1-51) and 15.1-14 (page 15.1-52) the Main Steam Isolation response time is shown as 3.0 seconds, as compared with 4.0 seconds given in the Technical Specifications and the HPSI system response time is shown as 18.0 seconds, as compared with the 18.5 seconds given in the Technical Specifications. These inconsistencies have been evaluated and have been shown to have a negligible impact on the consequences of the applicable events. The response times allowed in the Technical Specifications are fully acceptable.

In Table 15.2-10 (page 15.2-35), the HPSI System response time is shown as 6.3 seconds, as compared with the 18.5 seconds allowed in the Technical Specifications. A 28.0 second response time has (actually) been used, which is conservative with respect to the Technical Specifications. Table 15.2-10 also indicates that a 3.0 second MSIV response time was used in the analysis, as compared with 4.0 seconds allowed in the Technical Specifications. This inconsistency has been evaluated and determined to have minimum impact on the consequences of the event. The response time allowed in the Technical Specifications is fully acceptable.