

Creswell

Docket No. 50-346

Serial No. 396

October 27, 1977



LOWELL E. ROE
Vice President
Facilities Development
(419) 259-5242

Director of Nuclear Reactor Regulation
Attention: Mr. John F. Stolz, Chief
Light Water Reactors Branch No. 1
Division of Project Management
United States Nuclear Regulatory Commission
Washington, D. C. 20555



Dear Mr. Stolz:

Our letter to you dated July 18, 1977, regarding grid stability at Davis-Besse Nuclear Power Station Unit No. 1 proposed some modifications to increase certain safety margins. One of the changes requires a change to the Davis-Besse Nuclear Power Station Unit No. 1 Technical Specifications. Enclosed is the requested change to Page 3/4 3-13 and associated safety evaluation. This change is requested on an emergency basis to allow operation of Davis-Besse Nuclear Power Station Unit No. 1 in a manner which better assures plant operability during grid voltage degradation.

Yours very truly,

Attachments:
Davis-Besse Unit No. 1 Technical Specification Page 3/4 3-13
Safety Evaluation

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EXHIBIT 7
page 1 of 3

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Safety Analysis

A result of our review of "Millstone Grid Stability Syndrome" was additional undervoltage relaying on the 4.16 KV essential switchgear. Serials 179 and 226 to the NRC explained that the relays functioned on 90% voltage and a 10 second time delay to trip incoming 4.16 KV source breakers. In addition a 1 second time delay was added to the diesel generator breaker closure, only if the diesel had been started and was ready to accept load.

In Serial 293 to the NRC we responded that the changes in 4.16 KV protection did not adversely affect the safety analysis. However, to increase our margin in the safety analysis we proposed slightly more conservative settings of less than 90% 4.16 KV for 9 seconds and diesel generator breaker closure delay of .5 seconds.

The reduction in trip time from 10 to 9 seconds on 4.16 KV voltage re. 27A-1 through 27A-4 and the reduction in close time from 1 to .5 seconds on the diesel generator breaker was to assure ECCS injection within 30 seconds. The table below compares the old scheme with the new scheme.

Time After LOCA In Seconds

<u>Occurrence</u>	<u>Old</u>	<u>New</u>
LOCA occurs	0	0
LOCA detected and diesel generator started	5	5
System voltage less than 90%, greater than 59%	5	5
Voltage monitoring operates to open off-site source breakers	15	14
Diesel generator at voltage and frequency	15	15
Bus voltage decay and spurious dip allowance	16.5	15
Diesel generator breaker closed	16.5	15
High pressure injection pump starts - second step of diesel generator sequence	21.5	20
Low pressure injection pumps starts - third step of diesel generator sequence	26.5	25
High pressure injection pump up to speed	26.5	25
Low pressure injection pump up to speed	31.5	30

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TABLE 3.3-4

SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
<u>INSTRUMENT STRINGS</u>		
a. Containment Radiation	< 2 x Background at RATED THERMAL POWER	< 2 x Background at RATED THERMAL POWER [#]
b. Containment Pressure - High	≤ 18.4 psia	≤ 18.52 psia [#]
c. Containment Pressure - High-High	≤ 38.4 psia	≤ 38.52 psia [#]
d. RCS Pressure - Low	≥ 1620.75 psig	≥ 1615.75 psig [#]
e. RCS Pressure - Low-Low	≥ 420.75 psig	≥ 415.75 psig [#]
f. DWST Level	≥ 49.5 and ≤ 55.0 in. H ₂ O	≥ 48.3 and ≤ 56.7 in. H ₂ O [#]
<u>SEQUENCE LOGIC CHANNELS</u>		
a. Essential Bus Feeder Breaker Trip (90%)	≥ 3744 volts for 7 ± 1.5 sec	≥ 3558 volts for 7 ± 1.5 sec [#]
b. Diesel Generator Start, Load Shed on Essential Bus (59%)	≥ 2071 and < 2450 volts for 0.5 ± 0.1 sec	≥ 2071 and < 2450 volts for 0.5 ± 0.1 sec [#]
<u>INTERLOCK CHANNELS</u>		
a. Decay Heat Isolation Valve	≤ 530 and ≥ 413 psig	≤ 535 and ≥ 408 psig [#]

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[#] Allowable Value for CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION.