



Commonwealth Edison

One First National Plaza, Chicago, Illinois
Address Reply to: Post Office Box 767
Chicago, Illinois 60690

January 3, 1984

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Byron Generating Station Units 1 and 2
Braidwood Generating Station Units 1 and 2
Diesel Generator Controls
NRC Docket Nos. 50-454/455 and 50-456/457

Dear Mr. Denton:

This is to provide an advance copy of a revised response to a Byron/Braidwood FSAR question regarding emergency diesel generator vibration. These pages will be incorporated into the FSAR in the next amendment.

The enclosed response to FSAR question 040.94 indicates that the diesel generator and control panel are mounted on a floor slab which has been proportioned to minimize vibration. The potential for damaging vibration has been therefore adequately considered in the design of this equipment.

Please direct further questions regarding this matter to this office.

One (1) signed original and fifteen (15) copies of this letter are provided for NRC review.

Very truly yours,

T. R. Tramm
Nuclear Licensing Administrator

Enclosure

8401100162 840103
PDR ADDCK 05000454
A PDR

7906N

Boo!

QUESTION 040.94

"The availability on demand of an emergency diesel generator is dependent upon, among other things, the proper functioning of its controls and monitoring instrumentation. This equipment is generally panel mounted and in some instances the panels are mounted directly on the diesel generator skid. Major diesel engine damage has occurred at some operating plants from vibration induced wear on skid mounted control and monitoring instrumentation. This sensitive instrumentation is not made to withstand and function accurately for prolonged periods under continuous vibrational stresses normally encountered with internal combustion engines. Operation of sensitive instrumentation under this environment rapidly deteriorates calibration, accuracy and control signal output.

"Therefore, except for sensors and other equipment that must be directly mounted on the engine or associated piping, the controls and monitoring instrumentation should be installed on a free standing floor mounted panel separate from the engine skids, and located on a vibration free floor area or equipped with vibration mounts.

"Confirm your compliance with the above requirement or provide justification for noncompliance."

RESPONSE

The control panel for the diesel generator is a free-standing floor mounted panel mounted on an independent skid approximately 11 feet 6 inches from the diesel generator skid. This control panel houses control for such things as the generator, pump motors, and unit starting solenoids, as well as relays, monitoring equipment, and alarms for the diesel generator.

The design of the floor slab in the diesel generator rooms is such that the slab mass has been proportioned to the equipment mass to minimize vibration and impact loading. This design philosophy is used instead of isolating floor slabs in order to minimize vibration.

Critical instruments which can trip out the Diesel Generator when the D-G is required, include generator differential trip and engine overspeed. The generator differential trip device is located off the engine in the switch gear. the overspeed device must be located on the engine. However, the overspeed trip control circuits are located in the free-standing control panel.

Noncritical instruments such as RTD's, thermocouples, sensors, and switches for alarms and monitoring equipment on the diesel generator control panel are directly mounted on the engine. This is to prevent process fluids (i.e., lube oil, jacket water, etc.) from entering and contaminating the control panel. Temperature switches (connected to associated RTD's) and pressure switches (connected to associated process piping) are mounted on gauge boards located on the engine frame and wired to the control panel. Process system pressures are provided by a pneumatic signal to indicators on the control panel. Sensors for monitoring such things as engine vibration, crank case oil level, and engine speed are required to be mounted on the engine and wired to the control panel.