



Consumers  
Power

**POWERING  
MICHIGAN'S PROGRESS**

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Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555

DOCKET 50-255 - LICENSE DPR-20 - PALISADES PLANT -  
TECHNICAL SPECIFICATIONS INTERPRETATION - DESIGN BASIS ACCIDENT (DBA)  
SEQUENCER OPERABILITY

On November 26, 1986, the rotating actuator of design basis accident (DBA) sequencer 34-2 failed during surveillance testing. Consequently, Operations personnel conservatively declared the sequencer and all associated components which could be actuated by the sequencer inoperable. The following interpretation is provided to clarify the operability requirements and Palisades Technical Specification applicability for the DBA sequencer.

The DBA sequencer consists of four separate rotating cams which, during accident conditions, automatically and sequentially initiate engineered safeguards controls. The system is designed on a two-independent-channel basis, with each channel capable of initiating safeguards equipment load groups to meet the minimum requirements to safely shut down the reactor. As shown on Attachment 1, components associated with DBA sequencer 1 and 3 are loaded onto Diesel Generator 1-1, with redundant components sequenced by DBA sequencer 2 and 4 loaded onto Diesel Generator 1-2.

Consumers Power Company has interpreted the Technical Specifications 3.4.5 and 3.3.2f to be applicable, as the DBA sequencer functions as an interlock between the diesel generators and several components. As an interlock, the DBA sequencer protects the diesel generator by sequentially starting safe-guards equipment and prohibiting concurrent starting of the loads. We further interpret that Specifications 3.4.4 and 3.3.2e are not applicable because the DBA sequencer is not directly associated with any component. The sequencer should not be deemed to be part of a single component or diesel generator since its inoperability does not directly render any component or the diesel generators inoperable. Therefore, we also find Specification 3.7.2i as not being applicable to an inoperable sequencer. Components associated with the DBA sequencer (containment and emergency core cooling equipment) still maintain the ability to be manually actuated in the event of a sequencer failure.

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Both Palisades Technical Specification 3.4.5 and 3.3.2f state that during power operation, any valve, interlock or piping associated with the containment cooling system and the safety injection and shutdown cooling systems, respectively, which is required to function during accident conditions may be inoperable for up to 24 hours, provided that all valves and interlocks in the system that provide the duplicate function are tested to demonstrate operability. Therefore, as an interlock, one or both of the DBA sequencers may be inoperable for a period of no more than 24 hours, provided that the two sequencers associated with the opposite diesel generator are tested satisfactorily. Failure of a single sequencer on each diesel or failure of any three or more sequencers will require actions as specified in Specification 3.0.3 to be followed.

In summary, with no specific statement regarding sequencer operability in the Palisades Technical Specifications, coupled with the fact that the sequencer is not directly associated with the operability of either the equipment which it actuates or the diesel generator, the DBA sequencer would correctly be interpreted if addressed as an interlock, per Technical Specifications 3.4.5 and 3.3.2f.

Pending concurrence or no further response from NRR, Consumers Power Company will interpret any further sequencer inoperabilities in this manner.



James L Kuemin  
Staff Licensing Engineer

CC Administrator, Region III, NRC  
NRC Resident Inspector - Palisades

Attachment

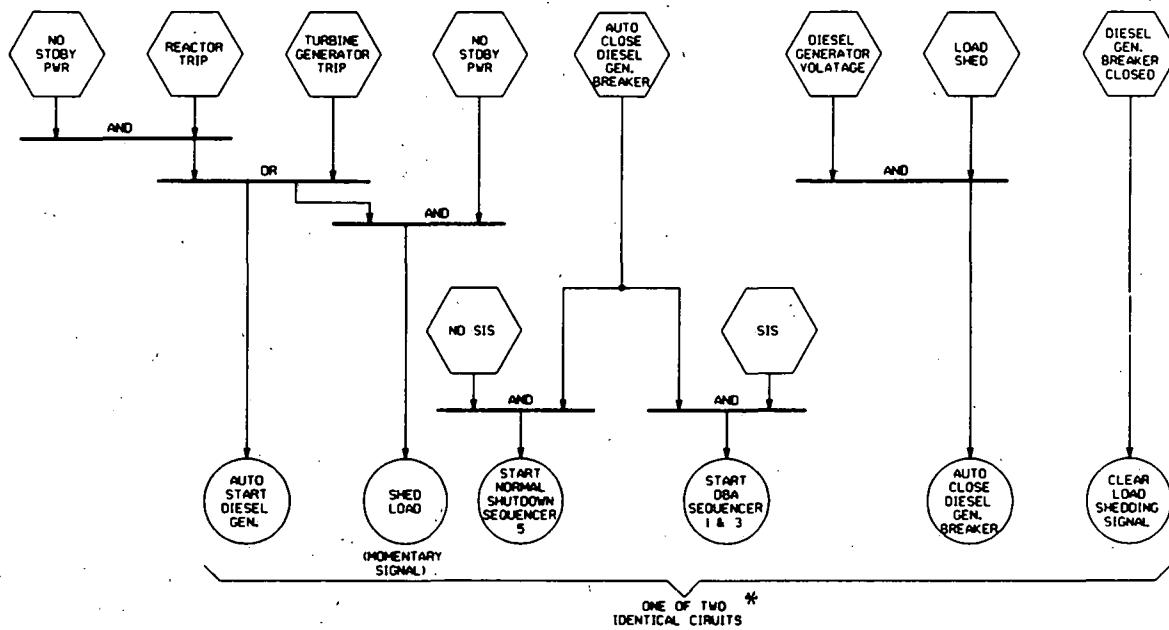
**ATTACHMENT**

**Consumers Power Company  
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**LOGIC DIAGRAM  
EMERGENCY POWER CONTROL CIRCUIT**

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\* The logic diagram shown corresponds to diesel generator 1-1. The diagram not shown corresponds to diesel generator 1-2 and DBA Sequencer 2 & 4.