

SNUPPS

Standardized Nuclear Unit
Power Plant System

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Nicholas A. Petrick
Executive Director

December 23, 1982

SLNRC 82- 59 FILE: 0278
SUBJ: Request for Information
re: SRP Section 7.4,
Remote Shutdown Capability

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

Docket Nos. STN 50-482 and STN 50-483

Reference: NRC (Youngblood) letter to Union Electric (Schnell)
and Kansas Gas and Electric (Koester), dated
November 3, 1982

Dear Mr. Denton:

The referenced letter provided NRC Instrumentation and Control Systems Branch (ICSB) guidance for interpretation of General Design Criterion 19 and requested SNUPPS Utility responses to the first seven ICSB positions. The enclosure to this letter provides the requested information. The conclusion of the enclosure is that the SNUPPS design meets the ICSB positions.

As noted in the enclosure, SNUPPS has provided clarifications for each item in the ICSB guidance. These clarifications are consistent with the design basis criteria presented to, and approved by, the NRC Staff during the recent operating license reviews of Callaway and Wolf Creek. A different interpretation of the ICSB guidance could result in NRC positions much more extensive than those applied during the licensing reviews.

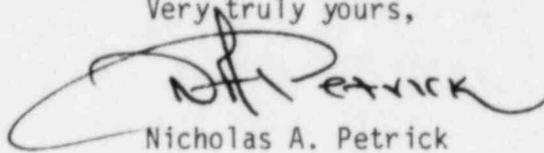
Since the issuance of Construction Permits for Callaway and Wolf Creek, three major sets of design backfits have been incorporated in order to comply with revised NRC positions dealing with safe shutdown capabilities. These NRC positions are Regulatory Guide 1.139 (Reactor Systems Branch) and 10 CFR 50, Appendix R as interpreted first by the Chemical Engineering Branch and then by the Auxiliary Systems Branch. Although every effort is being made to implement all of these design changes at the construction sites, it may not be possible to complete all changes prior to fuel load. Any additional changes would have a severe impact on the

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plant schedules. Therefore, the clarifications provided herein are significant, not only because they properly reflect safety considerations, but also because of the potential schedular impact.

Very truly yours,



Nicholas A. Petrick

MHF/nld/1a8
Enclosure

cc: D. T. McPhee	KCPL
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B. ICSB GUIDANCE

To Meet GDC-19 (As Interpreted in SRP Section 7.4)

- 1) "The design should provide redundant safety grade capability to achieve and maintain hot shutdown from a location or locations remote from the control room, assuming no fire damage to any required systems and equipment and assuming no accident has occurred. The remote shutdown station equipment should be capable of maintaining functional operability under all service conditions postulated to occur (including abnormal environments such as loss of ventilation), but need not be environmentally qualified for accident conditions unless environmental qualification is required for reasons other than remote shutdown. The remote shutdown station equipment, including indicators, should be seismically qualified."

CLARIFICATION

- 1) Hot shutdown as used in this position means operational mode 3 defined in the Standard Technical Specifications. The RCS average temperature need only be maintained at approximately the zero power value.
- 2) A fire in the control room may be the cause of evacuation; however, no fire damage is postulated to safety grade equipment or other instrumentation or the Auxiliary Shutdown Panel (ASP) which also has circuitry in the control room. ICSB Guidance Item 8 addresses the case of fire damage.
- 3) A seismic event is not postulated to result in the evacuation of the control room; however, for defense in depth, certain required equipment and indicators shall be seismically qualified. Seismic events are not postulated during control room evacuation.
- 4) Design basis accidents (LOCA, MSLB, SGTR and Fuel handling accidents) are not postulated to occur concurrent with or during control room evacuation. Loss of offsite power is to be considered.

RESPONSE

The SNUPPS plants meet the stated recommendations as clarified. The instrumentation on the ASP required for attaining and maintaining hot standby are seismically and environmentally qualified for the conditions to which they would be exposed.

Additional instrumentation is provided at the ASP; however it is considered to be non-vital. This instrumentation is generally the same quality as is the qualified instrumentation. It is powered either from an isolated Class 1E source or from D.C. separation groups 5 and 6 which have battery chargers supplied from Class 1E AC power. Since fire damage and seismic damage are not postulated during the time the control room is evacuated, these non-vital instruments will be operable. Non-vital instrumentation on the ASP is identified in FSAR Table 7.4-1.

2) "Redundant instrumentation (indicators) should be provided to display to the operator(s) at the remote shutdown location(s) those parameters which are relied upon to achieve and verify that a safe shutdown condition has been attained."

CLARIFICATION

- 1) Clarifications 1, 2, 3 and 4 of Item 1) apply to this item. Safe shutdown is defined as hot shutdown.
- 2) Redundant instrumentation need not be safety grade solely for meeting this recommendation.

RESPONSE

Table 7.4-1 of the FSAR describes the instrumentation available on the ASP. The SNUPPS plants meet the stated recommendations as clarified.

- 3) "Credit may be taken for manual actions (exclusive of continuous control) of systems from location that are reasonably accessible from the Remote Shutdown Stations. Credit may not be taken for manual actions involving jumpering, rewiring, or disconnecting circuits."

CLARIFICATION

- 1) Clarifications 1, 2, 3 and 4 of Item 1) apply to this item.

This item applies to hot shutdown as defined in clarification 1 to Item 1).

RESPONSE

The SNUPPS plants meet the stated recommendations as clarified without relying on jumpering, rewiring, or disconnecting circuits.

- 4) "The design should provide redundant safety grade capability for attaining subsequent cold shutdown through the use of suitable procedures."

CLARIFICATION

- 1) Clarifications 1, 2, 3 and 4 of Item 1) apply to this item. Cold Shutdown is operational mode 5 as defined in the Standard Technical Specifications.
- 2) This recommendation is provided for defense in depth against some unforeseeable event which is not explicitly considered in the design bases of LWRs. The control room is designed to be habitable during and after all design basis accidents and site related natural phenomena. Also the probability of one of these events or phenomena occurring during the time that the control room is postulated to be evacuated is extremely small and therefore need not be considered as a design basis or in meeting this recommendation.

Although the control room will most probably be reentered within one hour regardless of the cause for evacuation, design capabilities should be provided to control the plant from outside the control room for extended periods of time. The plant should also be provided with sufficient capabilities to allow achieving of cold shutdown conditions prior to reentry of the control room.

- 3) Suitable procedures may include minor circuit modifications and local manual actions to initiate system/equipment operation and to reposition valves or other components. The normal plant staff shall be capable of performing these actions.

RESPONSE

The SNUPPS plants have been modified to include the capability to achieve and maintain a cold shutdown condition from the control room using redundant safety grade equipment.

The SNUPPS utilities would not plan to take the plant to cold shutdown from outside the control room using only safety-related equipment. The plant would be maintained in hot standby until the control room could be reentered and normal cooldown (non-safety-related) equipment would be used. However, the SNUPPS plants do have redundant, safety grade capability to reach and maintain cold shutdown from outside the control room through the use of suitable procedures.

- 5) "Loss of offsite power should not negate shutdown capability from the remote shutdown stations. The design and procedures should be such that following activation of control from the remote shutdown location, a loss of offsite power will not result in subsequent overloading of essential buses or the diesel generator. Manual restoration of power to shutdown loads is acceptable provided that sufficient information is available such that it can be performed in a safe manner."

CLARIFICATION

- 1) Clarifications 1, 2, 3 and 4 of Item 1) apply to this item.
- 2) This item applies also to reaching and achieving cold shutdown.

RESPONSE

SNUPPS plants meet the stated recommendations as clarified. If offsite power were lost after transfer of control to the ASP, decay heat removal would continue using the turbine driven auxiliary feed-water pump and DC controls. The emergency diesel generators are also started automatically and essential equipment sequenced onto them automatically on loss of offsite power. As described in FSAR Section 7.4 and the SNUPPS Control Room Fire Hazards Analysis, the SNUPPS plants are provided with isolation capabilities on Train B components which would bypass the sequential loading of safety-related items onto the diesel generator. The procedure for responding to a control room fire (with or without fire damage) requires that a loss of offsite power be simulated prior to isolation of the components. This ensures that the essential loads are loaded onto emergency diesel generator B prior to isolation. Subsequent loss of offsite power will not affect Train B. Train A components are not provided with isolation devices; therefore, loss of offsite power will cause proper sequencing of essential loads onto emergency diesel generator A.

For additional details, refer to the SNUPPS Control Room Fire Hazards Analysis submitted by letter dated November 15, 1982, N. Petrick to H. Denton, SLNRC 82-046.

- 6) "The design should be such that if manual transfer of control to the remote location(s) disables any automatic actuation of ESF equipment, this equipment can be manually placed in service from the remote shutdown station(s). Transfer to remote location(s) should not change the operating status of equipment."

CLARIFICATION

- 1) Clarifications 1, 2, 3 and 4 of Item 1) apply to this item.
- 2) This item applies also to reaching and achieving cold shutdown.

RESPONSE

The response to Item 5 describes the isolation provisions provided for Train B components and the procedure governing their use. As described therein, the SNUPPS plants meet the stated recommendations as clarified.

- 7) "Where either access to the remote shutdown station(s) or the operation of equipment at the station(s) is dependent upon the use of keys (e.g., key lock switches), access to these keys shall be administratively controlled and shall not be precluded by the event necessitating evacuation of the control room."

CLARIFICATION

- 1) Clarifications 1, 2, 3 and 4 of Item 1) apply to this item.
- 2) This item applies also to reaching and maintaining cold shutdown.

RESPONSE

The SNUPPS plants meet these guidelines. Access to the ASP was described to the NRC during the Operating License reviews. Wherever use of keys is required, administrative controls will ensure availability of the keys following evacuation of the control room.