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SUBJECT: Forwards response to Generic Ltr 91-11, "Resolution of Generic Issues 48 'LCOs for Class 1E Vital Instrument Buses' & 49 'Interlocks & LCOs for Class 1E Tie Breakers.'"

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WILLIAM F. CONWAY
EXECUTIVE VICE PRESIDENT
NUCLEAR

161-04600-WFC/JMQ
January 29, 1992

U. S. Nuclear Regulatory Commission
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References: A) NUREG/CR-5414 Technical Findings for Proposed Integrated Resolution of Generic Issue 128, Electric Power Reliability

B) Letter 161-04146-WFC/MEP, dated August 31, 1991, from W. F. Conway, Arizona Public Service Company (APS), to NRC, Revised Response to the Station Blackout Rule (10 CFR 50.63)

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2, and 3
Docket Nos. STN 50-528/529/530
Generic Letter 91-11, Resolution of Generic Issues 48, "LCOs for Class 1E Vital Instrument Buses," and 49, "Interlocks and LCOs for Class 1E Tie Breakers" Pursuant to 10 CFR 50.54(f)
File: 92-056-026

The purpose of this letter is to certify that PVNGS has appropriate procedures conforming to the guidance provided in the enclosure to Generic Letter 91-11.

Generic Letter 91-11 states that current Combustion Engineering Standard Technical Specifications meet the requirements contained in the subject generic letter. Therefore, the PVNGS Technical Specifications were compared to the Combustion Engineering Standard Technical Specifications to verify consistency (see enclosure). Particular attention was paid to the time limitations given in the Limiting Conditions of Operation (LCO) and Surveillance Requirements. The Conclusions section of NUREG/CR-5414, referenced in the Generic Letter, supports this method, i.e., "The most common reaction anticipated from plants needing action is the verification or implementation of appropriate LCOs."

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The electrical distribution system was reviewed to identify the design interties which can connect redundant Class 1E buses directly or indirectly. There are no interties below the ESF Bus (4.16 KV) power level.

The off-site (preferred source) power feeds to the Class 1E load groups are through two Engineered Safety Feature (ESF) transformers. PVNGS has the capability to manually power the redundant load groups from a single ESF transformer. This may be done via the Non-Class 1E on-site distribution system feeders to the Class 1E 4.16 KV ESF buses. Normally this connection would only be performed when the plant is in Modes 5 or 6 (cold shutdown or refueling) when only a single source of off-site power is required per both Combustion Engineering Standard Technical Specifications and PVNGS Technical Specifications. In an emergency, the alignment may be performed in Modes 1-4 (power operation - hot shutdown) by direct operator action. The tie breakers, which are Class 1E, trip on a loss of off-site power (LOP). Should a trip occur, the two Class 1E load groups are isolated in preparation for reestablishing bus power from the Emergency Diesel Generators (EDGs). (UFSAR 8.3.1.1.3.5)

Likewise, the operator can use the Non-Class feeder to permit feeding selected loads of both load groups from a single EDG. This alignment would, again, only be established in a unit emergency, e.g., LOP with loss of one EDG and failure of selected accident mitigation equipment of the unaffected train. Procedural constraints preclude overloading that EDG. (UFSAR 8.3.1.1.3.5)

There are no tie breakers which can directly cross connect the Class 1E buses between units. In an emergency, however, PVNGS has the capability to indirectly (i.e., via the off-site power distribution system) power one unit from another, by manual action, as covered under the Station Blackout Procedure. This is a complex procedure and is not in the normal scope of operation, and is done only in response to an unit emergency. These connections are manually performed at the 13.8 KV and 4.16 KV power level using the Non-Class 1E off-site/on-site power distribution system which feeds the two Class 1E load groups of each unit. However, upon completion of the commitments associated with Regulatory Guide 1.155 "Station Blackout," the primary method of responding to a station blackout will be through an alternate AC power source, as indicated in Reference B.

In the above scenarios, attainment of Mode 5 (cold shutdown) would be of the highest priority. Entry into and exit from these emergency electrical distribution system alignments are specifically addressed in the emergency procedures. Performance of those alignments cannot be accomplished without direct operator action.

The Technical Specifications and Operating Procedures provide sufficient guidance to ensure that the plant is operating in an electrical configuration consistent with the regulations and its design basis.

If you have any questions, please contact Michael E. Powell of my staff at (602) 340-4981.

Sincerely,

WFC/JMQ/jmq

Enclosure

cc: J. B. Martin
D. H. Coe
C. M. Trammell
A. C. Gehr
A. H. Gutterman

STATE OF ARIZONA)
) ss.
COUNTY OF MARICOPA)

I, W. F. Conway, represent that I am Executive Vice President - Nuclear, that the foregoing document has been signed by me on behalf of Arizona Public Service Company with full authority to do so, that I have read such document and know its contents, and that to the best of my knowledge and belief, the statements made therein are true and correct.

W. F. Conway

Sworn To Before Me This 29 Day Of January, 1992.

Linda B. Spell
Notary Public

My Commission Expires

June 5, 1992

NRC GENERIC LETTER (GL) 91-11 "Comparison of Palo Verde Nuclear Generating Station's (PVNGS') Technical Specifications and the Standard Technical Specifications (CE-STS)"

PVNGS Technical Specification	Standard Technical Specification	Comments
• SECTION 3/4.8.2 - DC SOURCES		
LIMITING CONDITION FOR OPERATION (LCO)		
Section 3.8.2.1 PVNGS has four Battery Channels, with A & C Channels fed by one Load Group, and B & D Channels fed by a redundant Load Group. Both Battery Channels are required to be operable in order for the Train to be likewise operable.	The Standard Plant assumes two Battery Channels, one for each AC power load group. In the CE-STS, each battery constitutes one Train.	PVNGS has four (rather than two) independent and essentially uninterruptable Battery Channels; there are two Battery Channels per Load Group. This design is more reliable than the "Standard Plant" described in the CE-STS. This configuration is not a GL 91-11 issue. The Operability & Surveillance Requirements and LCO at PVNGS are otherwise the same as the CE-STS.
Section 3.8.2.1.a Same as CE-STS. See Section 3.8.2.1.		
Section 3.8.2.1.b Upon loss of one Battery Charger, restore to service or align the back-up battery charger to provide charging capability to the affected bank within 1 hour or perform Surveillance Requirement (SR) within 1 hour and every 8 hours thereafter to confirm operability of the affected bank.	With one full, capacity charger inoperable demonstrate operability of its associated battery bank by performing SR within 1 hour and every 8 hours thereafter.	The CE-STS do not consider PVNGS' swing (back-up) Battery Chargers, which are part of the PVNGS Design. These provide an alternate means for "restoration of battery charging" to maintain DC System capacity. This meets the intent of the CE-STS guidance.

NRC GENERIC LETTER (GL) 91-11 "Comparison of Palo Verde Nuclear Generating Station's (PVNGS') Technical Specifications and the Standard Technical Specifications (CE-STS)"

PVNGS Technical Specification	Standard Technical Specification	Comments
SURVEILLANCE REQUIREMENTS Section 4.8.2.1 a. Same as CE-STS.		
b. Battery Voltage range given as 105 to 145 VDC (normal).	Battery voltage range assigned 110-150 VDC. CE-STS values are in parentheses, which means plant specific values should be inserted.	Values are specific to the performance of the PVNGS batteries. This is not a GL 91-11 issue. By test, as supported by operating experience, the PVNGS values have been shown to be acceptable for meeting "battery capacity" requirements of the units.
c.1. Same as CE-STS.		
c.2. Same as CE-STS.		
c.3. Same as CE-STS.		
c.4. Battery Charger Amperage shall be: >400 amp for A & B channels and >300 amp for C & D channels.	Charger current >400 amps per battery bank. CE-STS values are in parentheses, which means that plant specific values should be inserted.	Values are specific to the performance of the PVNGS batteries. The level of charging current for the C & D Battery Banks has been found to be sufficient to maintain/restore charge on these batteries while supplying the maximum demand of the steady state loads, per UFSAR 8.3.2.2.1.16. All other LCO and ST parameters are the same. This is not a GL 91-11 issue.
d. Same as CE-STS.		
e. Same as CE-STS.		
f. Same as CE-STS.		
LIMITING CONDITION FOR OPERATION Section 3.8.2.2 See comments.	See comments.	Same response as provided in Section 3.8.2.1.

NRC GENERIC LETTER (GL) 91-11 "Comparison of Palo Verde Nuclear Generating Station's (PVNGS') Technical Specifications and the Standard Technical Specifications (CE-STS)"

PVNGS Technical Specification	Standard Technical Specification	Comments
Section 3.8.2.2.a This section of the Technical Specifications does not discuss depressurization and venting.	Per the CE-STS "...within 8 hours depressurize and vent the Reactor Coolant System through a [ ] square inch vent."	PVNGS does not utilize Power Operated Relief Valves for Reactor Coolant System (RCS) depressurization and/or venting the RCS. This requirement is not applicable. Otherwise same as the CE-STS.
Section 3.8.2.2.b Upon loss of one Battery Charger, restore to service or align the back-up battery charger to provide charging capability to the affected bank within 1 hour or perform SR within 1 hour and every 8 hours thereafter to confirm operability of the affected bank.	With required full capacity charger inoperable, demonstrate operability of its associated battery bank by performing SR within 1 hour and every 8 hours thereafter.	The CE-STS does not consider PVNGS' swing (back-up) Battery Chargers, which are part of the PVNGS Design. These provide an alternate means for "restoration of battery charging" to maintain DC System capacity. This meets the intent of the CE-STS guidance.
SURVEILLANCE REQUIREMENTS Section 4.8.2.2 Same as CE-STS.		
• <u>SECTION 3/4.8.3 - ON-SITE POWER DISTRIBUTION</u> LIMITING CONDITION FOR OPERATION Section 3.8.3.1 PVNGS Electrical System Description. See Comments.	See comments.	PVNGS has three Load Centers, four Motor Control Centers, and two Battery channels, per load group, rather than the one each assumed, but the configuration is consistent with the plant described in the CE-STS. Otherwise same as Standard Technical Specifications.

NRC GENERIC LETTER (GL) 91-11 "Comparison of Palo Verde Nuclear Generating Station's (PVNGS') Technical Specifications and the Standard Technical Specifications (CE-STS)"

PVNGS Technical Specification	Standard Technical Specification	Comments
SURVEILLANCE REQUIREMENTS Same as 4.8.3.1 Same as CE-STS.		
LIMITING CONDITION FOR OPERATION Section 3.8.3.2 PVNGS Electrical System Description. See Comments.	See comments.	Same response as provided in Section 3.8.3.1.
SURVEILLANCE REQUIREMENTS Section 4.8.3.2 Same as CE-STS.		