

October 18, 2006

Mr. James M. Levine
Executive Vice President, Generation
Mail Station 7602
Arizona Public Service Company
P.O. Box 52034
Phoenix, AZ 85072-2034

SUBJECT: PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3 -
REQUEST FOR ADDITIONAL INFORMATION REGARDING TECHNICAL
SPECIFICATION AMENDMENT SUBMITTAL (TAC NOS. MD2831, MD2832,
AND MD2833)

Dear Mr. Levine:

By letter dated August 16, 2006, Arizona Public Service Company submitted a license amendment request for the Palo Verde Nuclear Generating Station, Units 1, 2, and 3. The request would revise several Surveillance Requirements (SRs) in Technical Specification (TS) 3.8.1, "AC Sources – Operating," to allow these SRs to be performed, or partially performed, in reactor modes that currently are not allowed by the TSs. The proposed changes would also require certain SRs to be performed at a power factor of ≤ 0.9 if performed with the emergency diesel generators synchronized to the grid, unless grid conditions do not permit.

The Nuclear Regulatory Commission (NRC) staff has reviewed the information provided and determined that additional information is required in order to complete the evaluation. The additional information being requested is enclosed. As discussed with Glenn Michael of your staff, the NRC staff is requesting a response within 60 days of the date of this letter.

If you have any questions, please contact me at 301-415-3062.

Sincerely,

/RA/

Mel B. Fields, Senior Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos: STN 50-528, 50-529
and STN 50-530

Enclosure: Request for Additional Information

cc w/encl: See next page

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REQUEST FOR ADDITIONAL INFORMATION

ARIZONA PUBLIC SERVICE COMPANY, ET AL.

PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3

DOCKET NOS. STN 50-528, STN 50-529, AND STN 50-530

By letter dated August 16, 2006, Arizona Public Service Company submitted a license amendment request for the Palo Verde Nuclear Generating Station (Palo Verde or PVNGS), Units 1, 2, and 3. The request would revise several Surveillance Requirements (SRs) in Technical Specification (TS) 3.8.1, "AC Sources – Operating," to allow these SRs to be performed, or partially performed, in reactor modes that currently are not allowed by the TSs. The proposed changes would also require certain SRs to be performed at a power factor of ≤ 0.9 if performed with the emergency diesel generators synchronized to the grid, unless grid conditions do not permit.

The staff has reviewed the information provided and determined that the following additional information is required in order to complete the evaluation.

1. Confirm that proposed power factor of ≤ 0.9 is the calculated worst case power factor. The confirmation should include actual calculated power factor of each diesel generator (DG) for loss of offsite power (LOOP) and LOOP with loss-of-coolant accident loading.
2. The Bases for SR 3.8.1.10 implies that the bus voltage can be varied by adjusting the DG field excitation when operating in parallel with the grid. Adjusting the field excitation should only momentarily affect the bus voltage. The grid voltage is primarily controlled by the transmission system operators and the automatic voltage regulators installed on the large generating units tied to the grid. However, the staff does believe that potentially high-bus voltage may prevent the DG from obtaining the power factor limit specified in the TS due excessive excitation, and under these conditions the proposed Note is warranted. Provide analysis or operating data to demonstrate that the voltage on the emergency bus can be varied by adjusting the field excitation of the DG when operating in parallel with the grid. Otherwise, the Bases for SR 3.8.1.10 should be revised to delete this condition.
3. The Bases state that house loads must be transferred from the auxiliary transformers to the startup transformers in order to lower the voltage on the emergency bus. The voltage on the emergency bus must be lower in order to meet the power factor requirements of SR 3.8.1.10 and SR 3.8.1.14. This manipulation of the offsite power circuits to perform surveillance is unusual and could perturb the onsite alternating current electrical distribution systems. Normally this SR is performed during shutdown. Provide assurance that manipulation of the offsite power circuits would not significantly increase the probability of LOOP.
4. Provide a detailed description of how the SR 3.8.1.9 is performed.
5. On page 12 of the application, it is stated that "only one DG per unit is paralleled to offsite power at any one time and any offsite grid disturbances would only possibly affect

one operable DG." Confirm that at PVNGS no more than one DG to be paralleled to the offsite power at the same time.

6. On page 12 of the application, it is stated that "at PVNGS when the DG full load reject SR is performed at shutdown, the voltage transients experienced by the loads on the associated bus are considered minimal (an approximate 10 percent step change (400 VAC) in the bus voltage at the 4.16 kV level, with voltage recovery within 1 second." Discuss the impact of this voltage transient on a degraded voltage relay. Also, since the voltage at the safety buses during power operation are relatively lower during shutdown, what will be the voltage transient due to a full load rejection test during power operation?
7. On page 12 of the application, it is stated that "If a LOP [loss of offsite power] occurs during testing, the DG either trips on over current or continues to run, depending upon if the resulting load is in excess of the DG's load rating. If the load is excessive, the DG will trip on over current and the DG breaker will trip automatically on a DG shutdown signal." Discuss how the DG will be started and DG breaker closed once the over current relay trips the DG? Will it involve manual resetting of the relays? If so, discuss the time associated with the manual resetting of the relay.
8. Confirm that SR 3.8.1.9 and 3.8.1.10 will not be scheduled during periods where the potential for grid or bus disturbance increases (i.e., storm, grid emergencies, etc.).
9. Discuss administrative controls to preclude performing these SRs during other maintenance and test conditions that could have adverse effects on the offsite power system or plans for restricting additional maintenance or testing of safety related systems that depend on the remaining DG as a source. Additionally, discuss if the remaining DG were to become inoperable while the other DG is being tested, would the test be aborted?
10. Discuss whether the Transmission System Operator is notified in advance that a DG is going to be taken out for surveillance testings on-line.
11. Discuss what action will be taken if degraded grid conditions occur during the DG surveillance testing.
12. The new Note added in SR 3.8.1.10 and 3.8.1.14 states that "If performed with the DG synchronized with offsite power, it shall be performed at a power factor of ≤ 0.9 . However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as close to the limit as practicable." The staff understands that the Palo Verde units have difficulty maintaining this power factor during these SRs.
 - (a) Provide a discussion regarding the acceptable power factor during these SRs performed at high grid voltage conditions (what is meant by as close to the limit as practicable).
 - (b) Provide an assurance that the Note will not be used routinely or used for convenience.

- (c) Describe the grid voltage that would not permit the power factor limit to be satisfied and how often these grid conditions are expected to occur in the future.
- (d) Provide the nominal grid voltage.

Palo Verde Generating Station,
Units 1, 2, and 3
cc:

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March 2006

Palo Verde Generating Station,
Units 1, 2, and 3
cc:

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March 2006