

May 5, 1989

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

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Mr. Donald B. Karner  
Executive Vice President  
Arizona Nuclear Power Project  
Post Office Box 52034  
Phoenix, Arizona 85072-2034

Dear Mr. Karner:

SUBJECT: RESPONSE TO GENERIC LETTER 88-17, "LOSS OF DECAY HEAT REMOVAL,"  
PALO VERDE NUCLEAR GENERATING STATION (TAC NOS. 69762, 69763,  
AND 69764)

On October 17, 1988, Generic Letter (GL) 88-17, "Loss of Decay Heat Removal" was issued, and in part, requested licensees to respond to recommended "expeditious actions" and "programmed enhancements," aimed toward reducing the probability of loss of decay heat removal and mitigating the consequences in the event a loss of decay heat removal capability occurs. Arizona Nuclear Power Project (ANPP) responded to the recommended "expeditious actions" and "programmed enhancements" in letters dated January 6 and February 6, 1989, respectively.

We have reviewed your January 6, 1989 letter with respect to expeditious actions and find it to be responsive to the generic letter. However, your response to certain items is brief and unspecific. As such, we ask that you consider the observations contained in the Enclosure in order to assure yourselves that the actions are adequately addressed. A response to these observations is not required.

As you are aware, the expeditious actions are intended to be interim measures to achieve an immediate reduction in risk associated with reduced inventory operation. These actions will be supplemented and in some cases replaced by programmed enhancements. We intend to audit both your response to the expeditious actions and your programmed enhancement program. The observations which are discussed in the Enclosure may also be covered in the audit of expeditious actions.

Please contact me if you have questions on this matter.

Sincerely,  
/s/

Terence L. Chan, Senior Project Manager  
Project Directorate V  
Division of Reactor Projects - III,  
IV, V and Special Projects  
Office of Nuclear Reactor Regulation

Enclosure: As stated

cc: See next page

DRSP/PD5  
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TLChan:dr  
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1. The first part of the report deals with the general situation in the country. It is noted that the economy is in a state of depression and that the government is facing a serious financial crisis. The report also mentions that the population is suffering from widespread poverty and unemployment.

2. The second part of the report discusses the political situation. It is noted that the government is weak and that there is a lack of unity among the political parties. The report also mentions that the military is a powerful force in the country and that it is a major obstacle to the development of a democratic system.

3. The third part of the report deals with the social situation. It is noted that the social structure is highly unequal and that there is a large gap between the rich and the poor. The report also mentions that there is a high level of illiteracy and that the health care system is inadequate.

4. The fourth part of the report discusses the economic situation. It is noted that the economy is in a state of stagnation and that there is a lack of investment in the country. The report also mentions that the government is facing a serious balance of payments crisis and that it is unable to service its foreign debt.

5. The fifth part of the report deals with the international situation. It is noted that the country is isolated and that it is unable to attract foreign investment. The report also mentions that the country is a member of the United Nations and that it is active in the international community.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

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PALO VERDE NUCLEAR GENERATING STATION (TAC NOS. 69762, 69763,  
AND 69764).

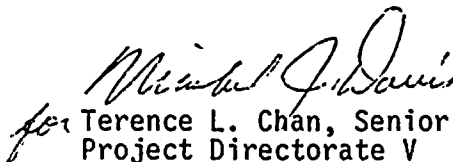
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Please contact me if you have questions on this matter.

Sincerely,

*for* 

Terence L. Chan, Senior Project Manager  
Project Directorate V  
Division of Reactor Projects - III,  
IV, V and Special Projects  
Office of Nuclear Reactor Regulation

Enclosure: As stated

cc: See next page



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Palo Verde

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Enclosure

PALO VERDE NUCLEAR GENERATING STATION  
OBSERVATION RELATED TO ANPP'S  
RESPONSE TO GL 88-17

1. You mention discussion of the Diablo Canyon event with operations personnel and training for specific mid-loop operation and cooldown/draindown with your staff. It is not specifically stated that maintenance personnel are also included. The item was intended to include all personnel who can affect reduced inventory operation.
2. You state that you will implement the appropriate administrative controls and procedures to reasonably assure containment closure within 2 hours. If you plan to use less than a full compliment of bolts for sealing the equipment hatch, then you should first verify that you can make a proper seal of the mating surfaces.
3. You mentioned a containment closure but provided no information regarding how you will keep track of and control the many potential openings (piping, electrical, personnel hatches) which may have to be closed simultaneously. Your procedures and administrative controls should address this topic.
4. You indicated that you will have at least two core exit thermocouples (CETs) available whenever the RCS is in mid-loop condition and the reactor vessel head is located on top of the reactor vessel. The CETs will provide temperature indication to the control room operators. You have not stated any frequency of recording of the temperatures. Because the CETs are being monitored in the control room, the need for frequent logging only arises for the case of loss of RHR.
5. You indicate that each Palo Verde unit is equipped with two independent tygon tube level monitoring systems during reduced inventory operations. One of the systems, which is connected to an operating shutdown cooling loop, requires correcting factors which depend on the flow rate. A TV



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camera indication will be available in the control room. Also, a permanent RCS level monitoring system is to be installed during the next refueling outage for each Palo Verde Unit. When two instruments are in place, care should be taken to resolve any discrepancy between the two measurement systems. Also, the pressure of the reference leg should approximate the pressure of the void in the hot leg or be compensated to obtain the correct level value.

6. Walking the level hose following installation to verify lack of kinks or loop seals is good. Experience shows that periodic walkdowns are needed after installation. We recommend daily walkdowns when the level hose is in use, with an additional walkdown immediately prior to its being placed in use.
7. You state that your criteria for providing backup equipment includes the provision of at least two available means of adding inventory to the RCS in addition to the pumps that are a normal part of the shutdown cooling systems. You state that you do not believe that it is necessary to constrain outage related activities by requiring that one of the means of providing RCS makeup be a high pressure safety injection pump. This is acceptable as long as there is the capability for another pump to be aligned to inject RCS makeup into the hot leg at an acceptable flow rate with pressurization resulting from boiling in the core. We note that technical specification changes will be considered if existing specifications are overly restrictive for meeting the generic letter recommendations.
8. You mention that procedures are being revised to provide a hot leg vent path. A pressurizer manway or steam generator manway is often used as means to provide RCS venting. We note that relatively large hot side openings in the RCS, such as a pressurizer manway, can still lead to a pressure of several psi. The large steam flow rate in combination with flow restrictions in the surge line and lower pressurizer hardware may lead to pressurization. Calculations should be performed to verify the effectiveness of the opening.



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