

January 13, 1986

Honorable Nunzio J. Palladino  
Chairman  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555

SUBJECT: COMMENTS ON OPERATIONAL TEST RESULTS OF PALO VERDE  
NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3 AND  
SUGGESTED FOLLOW-UP ACTIONS

Dear Dr. Palladino:

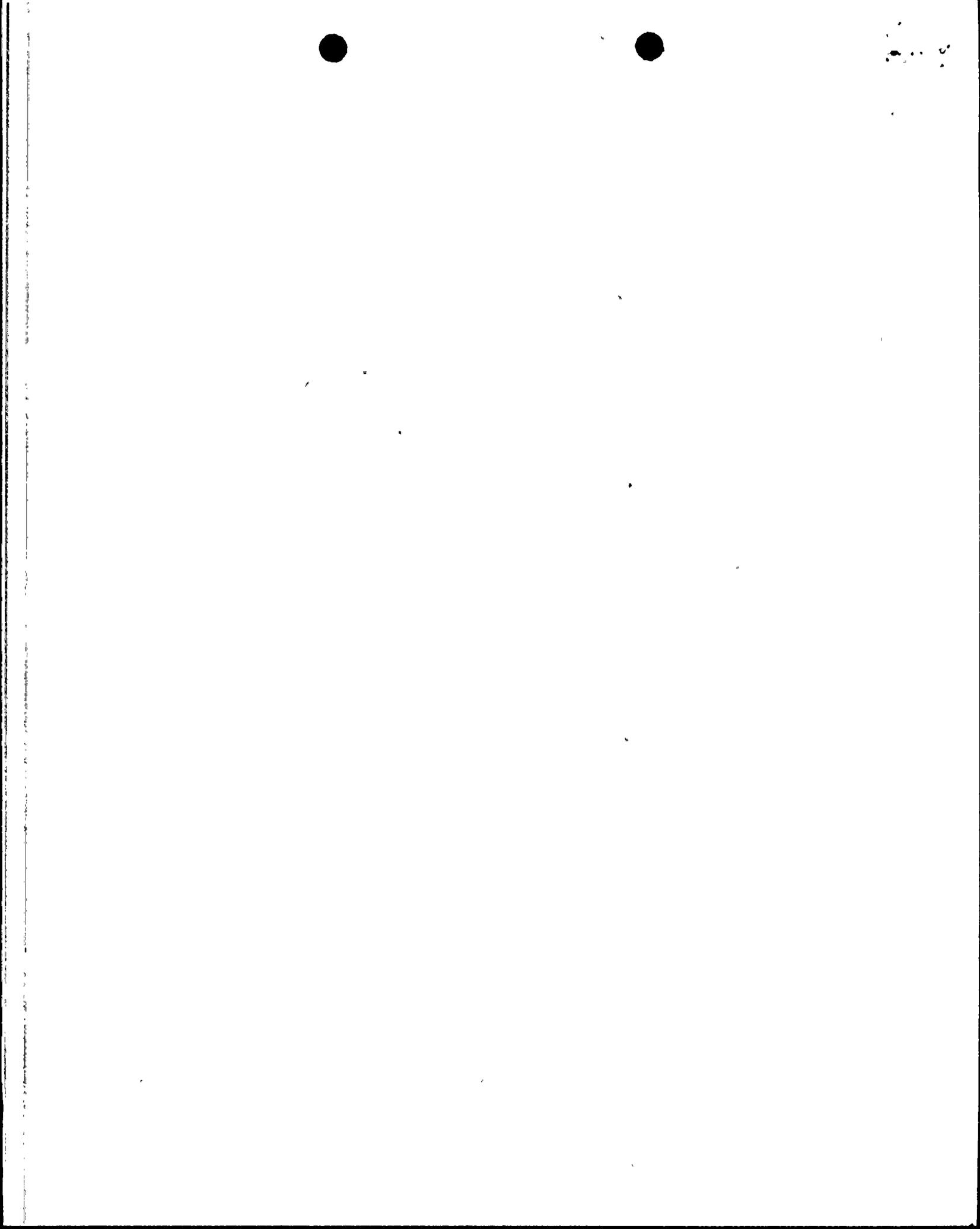
On November 7, 1985, the Advisory Committee on Reactor Safeguards discussed the operational status of the Palo Verde Nuclear Generating Station, Units 1, 2 and 3 regarding the power ascension test program and results at Unit 1 and the completion status of Unit 2. ACRS reports on these units were issued on December 15, 1981 and May 13, 1985. A related ACRS report on the need for rapid depressurization capability in newer CE plants (without PORVs) was issued on October 18, 1983. Based on discussion during the November 1985 meeting, the Committee decided not to provide additional comments regarding these units. We disagreed with their decision at the time and on further consideration, must inform you that, in our opinion, this ACRS action was a mistake. Palo Verde is being allowed to get off to a "bad start" in a somewhat "policy" context.

During the power ascension tests at Palo Verde, Unit 1, one of the systems that did not perform as expected was the Auxiliary Pressurizer Spray System (APSS) and thus, ACRS previous concerns in regard to the function of "rapid" depressurization at this plant should be considered as having been poorly resolved, first, by the licensee attempting the use of an existing and "unqualified" system and then, upon discovery of problems, invoking the use of another existing (thin) system which was installed (as a post-TMI requirement) for noncombustible gas venting from the pressurizer.

In essence, the elements of the problem are as follows:

- (1) The "rapid" depressurization function has been elevated (NUREG-1044) to a safety function but a dedicated safety grade system in this new plant has not been provided to perform it. (Of course, it has not yet been required of the older plants which use nonsafety grade PORVs).
- (2) The utility has now taken credit (after problems with the APSS during the testing program) for an alternate system (the gas vent system) for depressurization. This would permit very





slow depressurization through a preferred 3/4" line or alternatively through a 7/32" orifice.

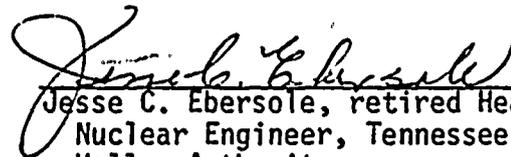
- (3) The systems (APSS and vent) have numerous single failure vulnerabilities.
- (4) The reliability of both of these systems depends on many valves that must open from a normally closed position and on the operability of several air operated valves.

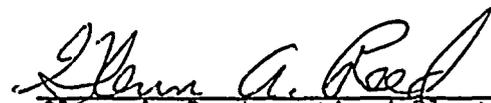
We believe that these current systems at Palo Verde, even with the planned modifications and surveillances, may not be adequate to provide for the rapid depressurization need. As a minimum, the "new" APSS and alternate pressurizer vent should be carefully tested to determine their capabilities and should be subjected to a mini-PRA to assess their overall reliability.

As a further observation, Arizona Public Service Company admitted that it did not and presumably does not now have an organized, methodical and documented activity for performing system interaction studies at this plant -- a state of affairs which tends to produce situations like the one described above.

As you will recall, the companion issue in this design is whether, in the absence of valving of such size and reliability to assure "bleed and-feed" (as well as depressurization) capability, decay heat removal can be assured through the single mode of rejection through the secondary system, a system supported by a large number of auxiliary functions. The most critical of these is, of course, the Auxiliary Feed-water System which in this plant is somewhat less conservative than "standard" designs which do have bleed-and-feed capability.

Sincerely,

  
Jesse C. Ebersole, retired Head  
Nuclear Engineer, Tennessee  
Valley Authority

  
Glenn A. Reed, retired Plant  
Manager, Pt. Beach Nuclear Power  
Plant, Wisconsin Electric Power  
Company

