



NRC NEWS

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PERFORMANCE ISSUES AT THE PALO VERDE NUCLEAR GENERATING STATION

Bruce Mallett
Region IV Administrator
U. S. Nuclear Regulatory Commission
before the
Arizona Corporation Commission
Phoenix Arizona

Good afternoon. My name is Bruce Mallett. I am the Regional Administrator or Director of the Region IV Office of the Nuclear Regulatory Commission. Here with me today is Mr. Troy Pruett, Chief of the Reactor Projects Branch, and Victor Dricks, Public Affairs Officer, both in our Region IV Office. Mr. Pruett's Branch is responsible for NRC inspection oversight of the licensee's (Arizona Public Service) operation of the Palo Verde nuclear power plant.

Our Office is one of four regional offices in the NRC with our Headquarters office near Washington, D.C. The Region IV Office is located in Arlington, Texas, and regulates the use of radioactive materials for licensees operating in the United States west of the Mississippi River. This includes regulating the use of nuclear materials in the operation of nuclear power plants such as the Palo Verde nuclear plant.

At your request, we are here to provide you with information specific to the operation of the Palo Verde nuclear plant. Before we respond to your questions, I would like to provide you a brief overview of the role of the Nuclear Regulatory Commission, how we assess the performance of commercial nuclear power facilities, and our current assessment of Palo Verde. Our Agency's mission is to ensure that nuclear plants, like Palo Verde, are operated safely and securely, in a manner that protects the public health and safety. We also ensure that the licensees are adequately prepared for emergencies and operate such that they protect the environment. We carry out this mission by licensing facilities to operate and inspecting them during operation. We

also evaluate, test the adequacy of qualifications for and license the operators of the controls of these nuclear reactors. We license nuclear plants to operate only after exhaustive reviews of their proposed design and a determination that their facilities, procedures, and training and technical qualifications of certain individuals in the organization (e.g., the operators at the controls) are adequate.

After issuance of the license to operate, we inspect the plant's operation to ensure compliance with (1) the operating bases (e.g., procedures, facilities, people, technical specifications, etc., described in the license); and (2) our regulations, and to ensure operation with the greatest margin between operation and a safety problem. In addition, our inspection program ensures that Palo Verde (1) maintains acceptable design and safety margins when making changes, (2) identifies and adequately addresses problems that could impact that safety margin, and (3) maintains the qualifications of the control room operators. An example of this might be examinations or surveillances the licensee conducts to make sure a piece of equipment important to safety remains capable of performing its safety function. Our inspection program is a part of our Reactor Oversight Process and includes three inspectors, who live in the vicinity of the plant and inspect full time at the Palo Verde plant. These "resident inspectors" work out of an NRC field office that has been established at each nuclear power plant. In addition, we conduct multiple other inspections, by inspectors who travel from our Region IV office to the plant site for weeks at a time. When we complete an inspection, we provide the licensee with our findings and request a response to those that we determine to be important to safety. The results of these inspections are documented in quarterly or special inspection reports. In addition to inspections, each licensee monitors the performance of their plants and provides quarterly performance indicator reports to the NRC. The NRC verifies the information is accurate by sampling data used by the licensee to generate the report. Performance indicator results and inspection reports are publicly accessible at the NRC Web site.

Performance indicators and inspection findings can have varied safety significance. To facilitate communication, we assign them a color code depending on their safety significance. Green issues have very low safety significance and require little NRC follow up. White, Yellow, and Red issues have increasing safety significance and trigger additional NRC review. This entire inspection process is described at our Web site as the Reactor Oversight Process.

Our Reactor Oversight Process also includes an assessment every six months of each licensee's performance with regard to operation of the nuclear plant. The purpose is to note whether the licensee and the NRC need to take actions in addition to those already identified and taken at the time of each inspection or event response. The results of this evaluation are then provided in writing and during a public meeting with the licensee for the annual assessment. These assessment letters are also available at our Web site under the Reactor Oversight Process and the Palo Verde plant.

To apply our actions consistently in response to inspection findings and this assessment, we have created guidelines that are in a table, called an Action Matrix. The Action Matrix concept provides for a gradual increase in NRC's response as safety significance increases. As safety significance increases, NRC inspection effort, management involvement, and regulatory

actions also increase. The Action Matrix has five columns of licensee performance and NRC response actions. Of the 103 nuclear units in the United States, 80 are in the first or Green Column (Licensee Response), 17 are in the second or White Column (Regulatory Response), three are in the third or Yellow Column (Degraded Cornerstone), and three are in the fourth or Red Column (Multiple/Repetitive Degraded Cornerstone). There are no units in the 5th or unsafe column. The three Yellow Column units are Palo Verde Units 1, 2, and 3.

If we determine the licensee's performance in identifying and correcting problems, in human performance, or in maintaining a safety conscious work environment have declined and meet certain threshold criteria, we may also identify this in the letter to the licensee and increase our inspection oversight in that area. We term this process as identifying a cross-cutting issue, because each of these three areas is important to all aspects of a safe, secure, operation of a nuclear plant and one that has adequate procedures and facilities sufficient to respond to potential emergency situations.

The NRC has several actions we can take and have taken to ensure licensees operate nuclear plants in keeping with protecting the public health and safety and with the greatest margin to safety problems (i.e., the lowest risk significance). For example, we issue findings and Notices of Violation and require responses to describe corrective actions. We can also issue Civil Penalties, and Orders to modify the license or shut down the operation.

With this information as background, Mr. Pruett and I will now provide some information specific to Palo Verde's performance as a licensee over the past 1-2 years. First and foremost, the licensee, Arizona Public Service, has operated the Palo Verde nuclear plant in a safe and secure condition, ensured the protection of the public health and safety, and ensured the protection of the environment. The licensee has also responded to emergent plant conditions and emergencies with safety as the primary focus. There have been problems, some identified by the licensee and some by the NRC, that have challenged the plant safety systems (people, facilities and procedures). Based on these problems and events, we have assessed the licensee's performance as being in Column 3 of our Action Matrix. This means that their performance is degraded in certain areas, and they and the NRC are taking actions to ensure improvement. This does not mean the operation is unsafe. I should also note that there are some areas where the licensee's performance is not degraded and the licensee's actions have been in compliance with our requirements and timely and thorough in response to events and emergent issues. For example, in February 2004, in response to an early indication of a leak in one of the tubes in a steam generator in Unit 2, the licensee shut down the unit before it could become a more significant leak. In June 2004, all three units tripped off-line due to a loss of offsite power. While there were some problems associated with the response, the operators successfully stabilized all three units. Most recently, in October 2005, the licensee shutdown Units 2 and 3 in response to a potential design deficiency raised by the NRC until the deficiency was addressed. This shutdown is required by license technical specifications once there is a confirmed, unresolved design question that could cause operation outside the license design basis.

When Palo Verde began the 2004 assessment cycle, they were in the Licensee Response Column of the NRC Action Matrix as a result of having no inspection findings or performance

indicators greater than Green. In 2004 and 2005, the licensee experienced several events at the Palo Verde plant, which the NRC determined warranted special inspections to determine the causes and adequacy of the licensee's responses. A few of them are:

- C Steam generator tube leak in Unit 2 in February 2004
- C Response to loss of offsite power in all three units in June 2004
- C Followup on identification of significant voiding in the Emergency Core Cooling System at all three units in August 2004.
- C Followup on identification of potential design issue in Emergency Core Cooling System at all three units in October 2005.
- C Followup on operating at reduced power due to high pipe vibrations in Unit 1 in December 2005.

As a result of the voiding issues in the ECCS piping, the NRC issued two escalated enforcement actions to the licensee for Palo Verde in April 2005. The first was the issuance of two violations, one with a significance equivalent to "yellow" in our process for failure to control the design and a second, Security Level III violation for an inadequate review to detect NRC needing to approve the design change. The second action was the issuance of a civil penalty in the amount of \$50,000 for these violations. Based on these findings, the NRC assessed the licensee's performance as being currently in the third column of our Action Matrix.

In March 2005, the NRC notified the licensee of a decision that their performance met the criteria for issuance of substantive cross-cutting issues in the areas of problem identification and resolution and human performance. Some contributing causes to this declined performance are:

- C Unclear, thorough reviews of issues or problems
- C Fixing the symptoms of a problem and moving on without completely addressing the causes.
- C Not recognizing or incomplete evaluation of design changes with potential impact on safety.
- C Not all organizations or individuals using the corrective action program to identify and set up actions to correct issues.
- C Incomplete and untimely engineering evaluations and communications with operations causing delays in operability evaluations.

In response to events and problems identified in 2004 and 2005, the licensee has initiated an evaluation and steps to correct identified causes of degraded performance. The licensee refers to their collective actions as a Performance Improvement Plan.

These are significant issues and the licensee is taking actions to correct them. At this time, they have identified the issues and are in the process of setting actions in motion to correct. The key to improvement will be the effective implementation of these actions. Be assured that we will be inspecting them closely to ensure that these actions improve the performance.

At this time, we would be glad to answer your questions involving our oversight and assessment of Arizona Public Services operation of the Palo Verde nuclear plant.

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