



UNITED STATES
NUCLEAR REGULATORY COMMISSION
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ARLINGTON, TEXAS 76011-4005

April 8, 2005

EA-05-051

Gregg R. Overbeck, Senior Vice
President, Nuclear
Arizona Public Service Company
P.O. Box 52034
Phoenix, AZ 85072-2034

SUBJECT: NOTICE OF VIOLATION AND PROPOSED IMPOSITION OF CIVIL PENALTY -
\$50,000 (NRC SPECIAL INSPECTION REPORT 2004-014, PALO VERDE
NUCLEAR GENERATING STATION)

Dear Mr. Overbeck:

The NRC's January 5, 2005, inspection report described the results of a special inspection that followed up on your discovery in July 2004 that a significant section of containment sump safety injection piping at all three Palo Verde Nuclear Generating Station (PVNGS) units was void of water. The report discussed two findings that were being evaluated for further NRC action under the NRC's Significance Determination Process or NRC Enforcement Policy. This letter provides you the final results of our enforcement deliberations on one of the findings, the apparent violation of 10 CFR 50.59 identified in the special inspection report, and addresses your denial of one example of a violation of 10 CFR 50.59 documented as a non-cited violation (NCV) in the same report. In separate correspondence, we are providing you our evaluation and final significance determination for the second finding, a design control finding that was processed under the NRC's Significance Determination Process.

The apparent violation of 10 CFR 50.59 [1992 version] involved making a change in June 1992 to Surveillance Procedure 41ST-1SI09, "ECCS (emergency core cooling system) Leak Test," which drained, and left empty, a portion of the containment sump safety injection recirculation piping. As described in the inspection report, the apparent violation was based on the NRC's preliminary conclusion that the change modified the facility as described in the Updated Final Safety Analysis Report (UFSAR). The UFSAR states, in part, that safety injection piping will be filled with water. This procedural change also affected the available net positive suction head analysis described in the UFSAR for the containment spray and high pressure safety injection pumps, which assumed that pump suction piping would be filled with water.

NRC's evaluation of this apparent violation considered the fact that Arizona Public Service Company (APS) discovered this condition at PVNGS in July 2004, following notification from another facility where a similar problem had been identified. On July 31, 2004, APS reported this condition to NRC under the provisions of 10 CFR 50.72(b)(3)(v), noting that the voided section of piping had the potential to prevent the fulfillment of the safety function to remove residual heat and mitigate the consequences of a loss-of-coolant accident. In early August,

Palo Verde took corrective action to fill the voided piping in all three units, completing those actions by August 4, 2004.

At your request, a Regulatory and Predecisional Enforcement Conference was held on February 17, 2005, to provide APS an opportunity to provide its perspective on this apparent violation before NRC made a final enforcement decision. At the conference, the APS staff contested the apparent violation of 10 CFR 50.59 described above, claiming that the procedural change made in 1992 did not change the facility as described in the UFSAR because the design requirements described in the UFSAR had never been implemented. The APS staff also contended that the change to the surveillance test procedure would not be expected to be evaluated under 10 CFR 50.59 because it resulted in returning the affected section of piping to its as-found condition by removing demineralized water that was used to perform the ECCS leak test. Following the conference, you submitted letters dated February 24 and 28, 2005, which summarized your views on this and other issues discussed in the inspection report.

Rather than viewing this as a violation of 10 CFR 50.59, the APS staff indicated that the change to the procedure represented a missed opportunity to identify and correct design and licensing basis deficiencies that had existed since plant startup. At the conference and in your February 24, 2005, letter, you made the following points:

- 1) No design output document was found that specified a design requirement to maintain the emergency core cooling system (ECCS) sump suction lines filled, and no procedural requirement was established to maintain the ECCS sump suction piping filled for system operability purposes.
- 2) Prior to the 1992 procedural change, the section of piping that was left filled with water at the conclusion of the ECCS leak test was drained of water during quarterly valve stroke testing, supporting the view that system design requirements were not recognized. Interviews of operations personnel indicated a general understanding that the ECCS sump suction lines were maintained empty.
- 3) The UFSAR actually states "To minimize the potential for water hammer, the safety injection piping will be maintained filled with water." Water hammer is a discharge piping phenomenon.
- 4) The net positive suction head calculations referenced in the inspection report refer to the expected conditions in the system after fully developed flow from the sump is established. No statements in the calculations define the initial conditions.

Based on the information developed during the special inspection, and the information that APS provided during and subsequent to the conference, the NRC has determined that the failure to perform a safety evaluation and receive prior NRC approval of the change to Procedure 41ST-1SI09 was a violation of 10 CFR 50.59. We concluded that the procedure change should have been subjected to an evaluation in accordance with the requirements of 10 CFR 50.59 in existence in 1992, and that had an evaluation been performed, it would have led to a conclusion that the change was contrary to the description of the facility in the UFSAR and that it created an unreviewed safety question. The primary bases for the NRC's conclusion follow:

- 1) Whether or not a specific procedure existed to implement the design basis, the fact is that prior to 1992, the ECCS leak-test procedure resulted in leaving the affected section of piping filled with water, which was consistent with the description of the system in the UFSAR.
- 2) The 1992 change to Procedure 41ST-1SI09 resulted in intentionally draining the system piping, a change to the original procedure and a change to the facility as described in the UFSAR.
- 3) The 1992 procedure change increased the probability of a malfunction of equipment important to safety because it had the potential to affect the ability of the containment spray and high pressure safety injection pumps to perform their intended safety function in the containment sump recirculation mode.

We also considered your statements pertaining to the reference to “water hammer” considerations in the UFSAR, net positive suction head requirements in the UFSAR, and plant staff’s knowledge of the design basis requirements for this section of piping. None of these issues affected our determination that a violation of 10 CFR 50.59 occurred. With regard to “water hammer,” we conclude that voided conditions in pump suction piping may lead to a water hammer condition in discharge piping and that it is unreasonable to assume that UFSAR statements regarding the filling of piping with water is limited to the discharge side of the pumps. With regard to net positive suction head calculations, we conclude that such calculations are completed to evaluate the range of operating configurations of safety related equipment, including transition periods between suction sources. In this case, the net positive suction head calculations assumed the system was water filled. With regard to plant staff’s knowledge of the design basis, we note that plant records of the 1992 procedure change indicate that a shift manager questioned the change because of the potential impact voided suction piping would have on the operability of the ECCS systems. Also, the APS staff acknowledged during the conference that some of the engineering staff understood that the system was to be maintained in a water filled condition.

The NRC also evaluated this violation against the current 10 CFR 50.59 requirements, because NRC policy is to exercise discretion for violations of 10 CFR 50.59 that predate the current rule if the involved circumstances do not indicate that the current rule would have been violated. The current rule states that a licensee shall obtain a license amendment pursuant to 10 CFR 50.90 prior to implementing a proposed change, test, or experiment if the change, test, or experiment would result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system or component important to safety previously evaluated in the final safety analysis report (as updated). We conclude that the 1992 change also would have violated the current rule, because changes to Surveillance Procedure 41ST-1SI09, "ECCS Leak Test" resulted in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system or component important to safety.

Based on the analysis described above, the 1992 violation of 10 CFR 50.59 is cited in the enclosed Notice of Violation (Notice), and the circumstances surrounding it were described in more detail in the subject inspection report. The safety significance of this violation is based largely on the risk significance of the associated change to the facility, as discussed in Supplement I of the NRC Enforcement Policy. The policy provides an example of a Severity

Level III violation as, "A failure to obtain prior Commission approval required by 10 CFR 50.59 for a change, in which the consequence of the change, is evaluated as having low to moderate, or greater safety significance (i.e., white, yellow, or red) by the SDP." Because the risk significance of the related design control violation was determined to be Yellow, this violation has been classified at Severity Level III, in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600.

In accordance with the Enforcement Policy in existence in 1992, a base civil penalty in the amount of \$50,000 is considered for a Severity Level III violation. Because the Palo Verde facility has not been the subject of escalated enforcement action under the Enforcement Policy within the last 2 years, the NRC considered only whether credit was warranted for Corrective Action in accordance with the civil penalty assessment process in Section VI.C.2 of the Enforcement Policy. While you took prompt action to fill the affected portions of the ECCS piping with water following the discovery of this condition in July 2004, and have taken actions to address other deficiencies in your program for implementing 10 CFR 50.59 at your facility, it is not apparent that you have taken actions to address the specific causes or prevent similar violations from occurring. For example, you have not assessed how "non-intent" changes to maintenance and test procedures were screened to assure they do not affect the facility design and may therefore require a 10 CFR 50.59 evaluation, and you have not assessed whether similar changes in the past should have been evaluated under the 10 CFR 50.59 process. APS has not taken corrective actions in response to this violation consistent with NRC requirements for "significant conditions adverse to quality" in 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action. The actions you have taken to address 10 CFR 50.59 problems would not, in our view, preclude the repetition of similar implementation problems. Thus, the NRC has determined that Corrective Action credit is not warranted, resulting in an assessment of a civil penalty at the base value, or \$50,000.

Therefore, to emphasize the importance of evaluating changes to the facility that may impact safety, and the importance of taking corrective actions that are comprehensive in correcting significant noncompliances, I have been authorized, after consultation with the Director, Office of Enforcement, to issue the enclosed Notice of Violation and Proposed Imposition of Civil Penalty (Notice) in the base amount of \$50,000.

At the conference, the APS staff also contested one example of a violation of 10 CFR 50.59 that was documented in the same inspection report as an NCV. The example involved leaving a 10-20 cubic foot section of piping voided after you identified this condition in July 2004. The NRC's determination in the inspection report was that the decision to leave a portion of piping voided should have been subjected to a 10 CFR 50.59 evaluation. At the conference and in your February 24, 2005 letter, you stated that this was not the final corrective action for this condition, that the final corrective action was to fill the piping with borated water, and that a 10 CFR 50.59 evaluation was not required. The APS staff supported the APS position with references to NRC and industry guidance documents. After evaluating the information in the inspection report, and the information that you provided during and after the conference, the NRC has determined to withdraw this example of the non-cited violation of 10 CFR 50.59 documented in the report.

You are required to respond to the Notice and should follow the instructions specified in the enclosed Notice when preparing your response. The NRC will use your response, in part, to

determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. The NRC also includes significant enforcement actions on its Web site at www.nrc.gov; select **What We Do, Enforcement**, then **Significant Enforcement Actions**.

Sincerely,

//RA//

Bruce S. Mallett
Regional Administrator

Docket Nos. 50-528; 50-529; 50-530
License Nos. NPF-41; NPF-51; NPF-74

Enclosures:

1. Notice of Violation and Proposed Imposition of Civil Penalty, EA-05-051
2. NUREG/BR-0254 Payment Methods (Licensee only)

cc w/Enclosure 1 only:
See next page

Arizona Public Service Company

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Enclosure 1

NOTICE OF VIOLATION AND PROPOSED IMPOSITION OF CIVIL PENALTY

Arizona Public Service Company
Palo Verde Nuclear Generating Station

Docket Nos. 50-528; 50-529; 50-530
License Nos. NPF-41; NPF-51; NPF-74
EA-05-051

During an NRC inspection completed December 8, 2004, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the NRC proposes to impose a civil penalty pursuant to Section 234 of the Atomic Energy Act of 1954, as amended (Act), 42 U.S.C. 2282, and 10 CFR 2.205. The particular violation and associated civil penalty are set forth below:

10 CFR 50.59(a)(1) [1992 version] states, in part, that the holder of a license authorizing operation of a production or utilization facility may: (1) make changes in the facility as described in the safety analysis report, (2) make changes in the procedures as described in the safety analysis report, and (3) conduct tests or experiments not described in the safety analysis report, without prior Commission approval, unless the proposed change, test, or experiment involves a change in the Technical Specifications incorporated in the license or an unreviewed safety question. A proposed change, test, or experiment shall be deemed to involve an unreviewed safety question: (1) if the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report may be increased; (2) if a possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report may be created; or (3) if the margin of safety as defined in the basis for any Technical Specification is reduced.

The Palo Verde Nuclear Generating Station Updated Final Safety Analysis Report (UFSAR), Section 6.3, "Emergency Core Cooling System," states, in part, that the safety injection piping will be maintained filled with water, and that during recirculation mode, the available net positive suction head for the containment spray and high pressure safety injection pumps is 25.8 feet and 28.8 feet, respectively (values that assume the pump suction piping is filled with water).

Contrary to the above, on June 22, 1992, the licensee made a procedural change which resulted in a change to the facility as described in the UFSAR that increased the probability of a malfunction of equipment important to safety previously evaluated in the safety analysis report, and the licensee failed to perform a written safety evaluation and obtain Commission approval prior to implementing the change. Specifically, a change was made to Surveillance Procedure 41ST-1SI09, "ECCS Leak Test," which drained, and left empty, a portion of the containment sump safety injection recirculation piping at the conclusion of the leak test. This change also affected the available net positive suction head analysis described in the UFSAR for the containment spray and high pressure safety injection pumps, which are important to safety, since these analyses assumed the pump suction piping would be filled with water.

This is a Severity Level III violation (Supplement I).
Civil Penalty - \$50,000

Pursuant to the provisions of 10 CFR 2.201, Arizona Public Service Company (Licensee) is hereby required to submit a written statement or explanation to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, within 30 days of the date of this Notice of Violation and Proposed Imposition of Civil Penalty (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation, EA-05-051" and should include for each alleged violation: (1) admission or denial of the alleged violation, (2) the reasons for the violation if admitted, and if denied, the reasons why, (3) the corrective steps that have been taken and the results achieved, (4) the corrective steps that will be taken to avoid further violations, and (5) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked or why such other action as may be proper should not be taken. Consideration may be given to extending the response time for good cause shown. Under the authority of Section 182 of the Act, 42 U.S.C. 2232, this response shall be submitted under oath or affirmation.

Within the same time as provided for the response required above under 10 CFR 2.201, the Licensee may pay the civil penalty proposed above, in accordance with NUREG/BR-0254 and by submitting to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555, a statement indicating when and by what method payment was made, or may protest imposition of the civil penalty in whole or in part, by a written answer addressed to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission. Should the Licensee fail to answer within the time specified, an order imposing the civil penalty will be issued. Should the Licensee elect to file an answer in accordance with 10 CFR 2.205 protesting the civil penalty, in whole or in part, such answer should be clearly marked as an "Answer to a Notice of Violation, EA-05-051" and may: (1) deny the violation listed in this Notice, in whole or in part, (2) demonstrate extenuating circumstances, (3) show error in this Notice, or (4) show other reasons why the penalty should not be imposed. In addition to protesting the civil penalty, in whole or in part, such answer may request remission or mitigation of the penalty.

In requesting mitigation of the proposed penalty, the factors addressed in Section VI.C.2 of the Enforcement Policy should be addressed. Any written answer in accordance with 10 CFR 2.205 should be set forth separately from the statement or explanation in reply pursuant to 10 CFR 2.201, but may incorporate parts of the 10 CFR 2.201 reply by specific reference (e.g., citing page and paragraph numbers) to avoid repetition. The attention of the Licensee is directed to the other provisions of 10 CFR 2.205, regarding the procedure for imposing a civil penalty.

Upon failure to pay any civil penalty due which subsequently has been determined in accordance with the applicable provisions of 10 CFR 2.205, this matter may be referred to the Attorney General, and the penalty, unless compromised, remitted, or mitigated, may be collected by civil action pursuant to Section 234c of the Act, 42 U.S.C. 2282c.

The response noted above (Reply to Notice of Violation, statement as to payment of civil penalty, and Answer to a Notice of Violation) should be addressed to: Frank Congel, Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, One White Flint North, 11555

Rockville Pike, Rockville, MD 20852-2738, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, TX 76011, and a copy to the NRC Resident Inspector at the Palo Verde Nuclear Generating Station.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you are required to post this Notice within two working days.

Dated this 8th day of April 2005

Arizona Public Service Company - EA-05-051

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SISP Review Completed: **YES** ADAMS: **YES** Initials: **GFS**

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