U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos. 50-528/90-37, 50-529/90-37, 50-530/90-37

Docket Nos. 50-528, 50-529, 50-530

License Nos. NPF-41, NPF-51 and NPF-74

Licensee: Arizona Public Service Company
P. O. Box 52034
Phoenix, Arizona 85072-2034

Facility Name: Palo Verde Nuclear Generating Station Units 1, 2 and 3

Inspection Conducted: August 6-10, 1990

Inspector: W. P. Ang, Project Inspector

Approved By: H. Wong, Chief — 9/6/90 Date Signed
Reactor Projects Branch, Section II

Inspection Summary:

Inspection on August 6-10, 1990 (Report Nos. 50-528/90-37, 50-529/90-37, and 50-530/90-37)

Areas Inspected: Routine inspection of the QA program by one regional inspector. Areas inspected included QC inspections, QA monitoring and safety review committee activities (on-site and off-site). During this inspection the following inspection procedures were utilized: 30703, 35502, 35702, 40702 and 40704.

Results: Of the areas inspected, no violations or deviations were identified.

General Conclusions and Specific Findings

A weakness was identified in the licensee's 10 CFR Part 21 processing system regarding the need for: (1) timely notification of QA of 10 CFR Part 21 reports and (2) timely QA evaluation of corrective actions and QA followup, as appropriate, as described in Paragraph 2.B(2).

Significant Safety Matters: None

Summary of Violations: None

Summary of Deviations: None

DETAILS

1. Persons Contacted

Arizona Public Service (APS)

J. Bailey, Vice President, Nuclear Safety and Licensing
*B. Ballard, Quality Assurance Director
*W. Marsh, Operations and Maintenance Director
*G. Shell, Quality Systems Manager
R. Prabhakar, QA Engineering Manager
R. Fullmer, QA Audits Manager
*C. Russo, QC Manager
*T. Bradish, Compliance Manager

The inspector also met with other licensee and contractor personnel during the course of the inspection.

NRC

*J. Sloan, Resident Inspector
F. Ringwald, Resident Inspector

* Attended the exit meeting held on August 10, 1990.

2. Licensee Quality Assurance Program Implementation (35502, 35102, 40702 and 40704)

The licensee's requirements and commitments for quality verification functions and Quality Assurance (QA) requirements and commitments are contained in Section 6 of the Technical Specifications (TS) for Palo Verde Units 1, 2, and 3, and in the Updated Final Safety Analysis Report (UFSAR). An inspection in this area was initially performed and documented in Inspection Report 50-528, 529, 530/90-31. This inspection is a follow-up to that inspection report.

A. Review Committees

TS, Section 6.5, provides requirements for the Plant Review Board (PRB) whose function is "to advise the Plant Director on all matters related to nuclear safety." The PRB has been the subject of criticism from organizations within APS and from external organizations and audit groups, including the NRC. The criticism stemmed from the PRB's composition, conduct and effectiveness. Recent TS amendments and the issuance of administrative procedure 02AC-0AP01, Revision 0, Plant Review Board, resulted in the reconstitution of the PRB. The new procedure elevated the composition of the PRB by including all Unit Plant Managers and the Site Technical Support Director. The first meeting of the newly composed PRB was held on August 8, 1990, and was observed by the NRC inspector. The meeting was attended by a majority of the PRB members, including all Unit Plant Managers and the Director of

Standards and Technical Support. The PRB appeared to address the TS specified PRB responsibilities with emphasis on the review of the operations of all three units for potential nuclear safety hazards. The participation of the Plant Managers resulted in substantive discussion of problems experienced and resulting actions and recommendations. The Plant Managers provided written operations reports at the start of the meeting and discussed the reports during the meeting. The NRC inspector noted that during the initial part of the meeting (approximately the first 30 minutes), the discussions primarily involved the Unit 1 Plant Manager and the PRB chairman. The inspector discussed this condition with the PRB chairman and suggested that PRB members should be provided some time at the start of the meeting to review the reports so that they would be able to participate more fully during the meeting. The PRB chairman acknowledged the inspector's observation and agreed to further evaluate this area. Subsequent to the meeting, the inspector also noted that the PRB had 15 open action items, two of which were overdue with delinquent letters issued and five others with due dates which had been extended. The inspector discussed this condition with the Director of Operations and Maintenance, and recommended that the new PRB devote increased emphasis on timely resolution of open action items. The Director of Operations and Maintenance acknowledged the inspector's observation.

The TS required off-site review committee is the Nuclear Safety Group (NSG) headed by the NSG Manager. Similar to the PRB, NSG was also the subject of criticism by external audit groups. The criticism included the inability to obtain effective corrective action. This was perceived to be due to the relatively low management level and authority of the NSG, despite a direct reporting relationship to the Vice President, Nuclear Safety and Licensing, and a reporting function to the Executive Vice President, Nuclear.

Recent licensee initiatives have included the formation of an Off-site Safety Review Committee (OSRC), chaired by the Vice President, Nuclear Safety and Licensing, including the Vice President, Nuclear Production; Vice President, Engineering; Director, Quality Assurance; and three non-APS members with industry recognized credentials. The committee composition, charter, previous minutes, and future intended functions were discussed with the NRC inspector by the OSRC chairman. The OSRC was an evolution of the Management Review Committee (MRC). The MRC has been organizationally disbanded with the restart of Unit 1 and the OSRC is intended to provide the high level management nuclear safety overview of plant performance.

The OSRC has commenced its review activities and has met four times as of the date of this inspection. Discussions with the OSRC chairman indicated that the licensee is currently evaluating the future substitution of the OSRC as the TS required off-site review committee, with the NSG as a staff function to the OSRC. The inspector observed: (1) that this change appeared be a substantive enhancement to the licensee's safety review program; (2) that

the change appeared to significantly increase the authority of the TS off-site review committee; and (3) this change should increase the off-site review committee's effectiveness and ability to recommend corrective actions.

No violations or deviations were identified.

B. Quality Verification Function

Recent plant performance problems, involving licensed operator medical records and feedwater isolation valve O-ring material discrepancies, were selected to determine the QA department effectiveness in identifying technical issues and actions to ensure timely resolution of problems.

(1) Inspection Report 50-528, 529, 530/90-16 identified a concern regarding the adequacy of licensed operator medical records. Subsequently, the QA Director initiated a review of the medical exam program, current (most recent) records for all licensed operators, and verification of operator qualifications for one randomly selected operator in each unit. These reviews were performed and documented in QA monitoring reports MR 90-1974, 1975, 1979, 1980, 1981, and 1982. The reviews were performed by two QA auditors who had been previously licensed as Senior Reactor Operators at another facility. The reviews resulted in the issuance of QA Corrective Action Request (CAR) 90-0017 and two Corrected-On-The-Spot (COTS) items. The CAR identified programmatic deficiencies of the medical testing program involving the lack of ANSI N 3.4 - 1983 required licensee evaluation and referral for medical examinations, and lack of a required test to detect odor. The program deficiencies were corrected and the CAR closed in a timely manner. QA monitoring report 90-1975 also identified that a urine analysis had not been performed for a licensed operator within two years of the audit. However, this condition was not identified as a deficient condition due to subsequent evaluation, discussion with licensing, and judgement by QA management that the condition was not a deficient condition. The NRC inspector referred the noted condition to the NRC Region V Operator Licensing Section for inclusion in the ongoing medical records concern.

(2) Anchor/Darling provided a 10 CFR Part 21 report to the NRC in a letter dated January 26, 1990, which described backup rings (O-rings) made of incorrect material that had been found installed in a four-way valve at another utility. A Buna-N O-ring was found in lieu of the required Viton O-ring. These O-rings were furnished in rebuild kits for Teledyne-Republic four-way valves which are part of the actuators for main steam isolation valves (MSIVs) and feedwater isolation valves (FWIVs). Similar type valves were used at Palo Verde. Anchor/Darling informed Palo Verde of suspect purchase orders which included the incorect O-rings. Palo Verde replaced O-rings in those four-way valves.

In July 1990, a FWIV at Palo Verde failed to operate properly during surveillance testing. The failure was determined to be caused by O-rings of an incorrect material, similar to that discussed in the January 1990 Anchor/Darling Part 21 report. Testing determined that the O-rings were of a polythioether/polysulfide elastomer material and not Buna-N or Viton.

The Quality Engineering (QE) group of the Quality Department had overview functions over engineering activities and responsibility for vendor audits. The licensee's onsite engineering group had lead responsibility for providing corrective action for the incorrect O-ring material discrepancy noted above. The QA aspects of the condition was being reviewed by QE. The NRC inspector attempted to review QE activities in relation to the problem. However, during the inspection, QE had just commenced its review of the problem. Subsequent to the onsite inspection, telephone discussions were held with the QE Manager and the following information was provided.

(a) The O-rings in question were procured commercial grade by Anchor/Darling and were supplied to Teledyne for use in the four-way valves for FWIVs and MSIVs. The problem appeared to have been caused by a lack of commercial grade dedication by Anchor/Darling in the 1988 time frame.

(b) Anchor/Darling was on the APS approved vendors list. Anchor/Darling was audited by the APS Quality Department vendor audits group (QE) in September 1988 and by the Nuclear Utilities Procurement Issues Council (NUPIC) in June 1990. No significant problems relevant to commercial grade dedication were identified by those audits.

(c) Anchor/Darling provided APS with a list of purchase orders that had been determined to have had O-rings that had been tested and accepted. A miscommunication or misinterpretation of this list of purchase orders resulted in the July 1990 FWIV Palo Verde problem, i.e. the O-ring in the valve had not been inspected and contributed to the malfunctioning of the valve. This aspect was undergoing review and evaluation by the licensee.

(d) QE was in the process of performing an audit of Anchor/Darling to determine the adequacy of corrective action for the problem and to determine the adequacy of its commercial grade dedication program.

(e) Palo Verde FWIV and MSIV O-rings (both installed and in stock) purchased from Anchor/Darling were tested using a vendor recommended specific gravity test.

Based on the above noted discussions, the NRC inspector inquired about the adequacy of the vendor recommended testing

for the O-rings and the potential lack of commercial grade dedication by Anchor/Darling for parts other than O-rings and for components other than FWIVs and MSIVs. In relation to the testing, the QE Manager stated that it had been specified by systems engineering, but he was unaware if the testing had been reviewed with the licensee's chemistry organization or other knowledgeable independent sources. Specifically, the NRC inspector noted that the Palo Verde FWIV O-ring problem appeared to have been caused by a material other than the suspected deficient Buna-N or the accepted Viton. The recommended testing appeared to differentiate between the two materials, rather than confirm chemical composition of the rubber product. The test as described by the QE Manager involved immersion in saline solution and subsequent rinsing. The QE Manager was uncertain about an evaluation of potential deleterious effects of the testing by the system engineering organization. The QE Manager stated that Anchor/Darling's commercial grade dedication program was being reviewed, the adequacy of the recommended testing was being reviewed, and the need for further review of other Anchor/Darling commercially procured components used in Anchor/Darling supplied material would be determined by these reviews.

The NRC inspector was informed by the QE Manager that the compliance organization assigned action for the January 1990 Anchor/Darling 10 CFR Part 21 Notification to system engineering, and consequently QE involvement did not occur until after system engineering corrective actions had been initiated. The lack of QE involvement in the corrective action aspects of the problem until August 1990 (approximately seven months after the Part 21 notification and approximately one month after a similar problem was experienced by Palo Verde), appeared to be a weakness in the licensee's QA program. However, after notification and discussions with the NRC inspector, the QE group appears to have initiated appropriate reviews and evaluation of the problem.

No violations or deviations were identified.

C. Quality Classification

The extent of applicability of QA requirements to systems and components at Palo Verde was based on the quality classification of the system or component. APS letter 161-03349-WFC/RDB, dated July 20, 1990, identified areas of the incomplete application of the PVNGS QA program related to the Fire Protection Program and provided a justification for continued operation. The NRC inspector initiated a review of similar areas requiring quality classification evaluation. The NRC inspector was informed by the Quality Systems Manager that his group was initiating a review of systems and components to verify appropriate quality classification. However,

this process had not yet progressed to a point where written procedures or an action plan had been generated. Furthermore, the Quality Systems Manager stated that the Plant Operations organization has also initiated similar action and that he was coordinating the activities on this subject between the two organizations. This area will be reviewed when the licensee completes its evaluations.

No violations or deviations were identified.

D. Follow-up of Inspection Report 50-528, 529, 530/90-31, Quality Assurance Concerns

(1) (Open) Unresolved Item 90-31-01 - Adequacy of Electrical Inspections

This item identified a need for further evaluation and inspection of the licensee's verification process for lifting and landing of safety-related wiring and for assembly of electrical components. Further inspection of these concerns was performed.

(a) The QA Director informed the inspector that the dual party verification process for lifting and landing of leads was still being evaluated. At the time of the inspection, dual party verification of both lifting and landing of safety-related electrical wiring had been required for work where subsequent tests would not identify erroneous landing of the wiring, similar to the auxiliary feedwater pump steam admission valve discrepancy noted in Inspection Report 50-528, 529, 530/90-31. The use of dual party verification for other safety-related lifting and landing of electrical leads was still being evaluated by the Quality Department.

(b) The QA Director informed the inspector that Quality Engineering was developing new QC inspection standards with the intention of fulfilling applicable code requirements, commitments to the NRC, and ultimately utilizing more effectively the QC resources. In this regard, inspection criteria for electrical work, including electrical component (such as reacotr trip breakers) assembly would be developed.

(c) Procedure Change Notice 01 for QC inspection procedure 63DP-0QQ06 added a requirement for QC inspection of correct conductors being spliced when multiple conductors had been cut, for safety-related cable splicing.

(d) The QC Manager informed the inspector that monitoring of the adequacy of the double party verification of lifting and landing of safety-related wiring had been performed on a sampling basis in the past with no significant unsatisfactory trends identified and was again being considered for future sampling inspections.

(e) The QA Director, and the Director of Plant Operations and Maintenance, disagreed that IEEE 336 inspection requirements for lifting and landing electrical wiring applied because lifting and landing work performed in an operating plant was not comparable in nature to lifting and landing during construction.

Subsequent to the onsite inspection, the inspector noted that Inspection Report 50-528, 529, 530/90-20, Paragraph 18, identified a non-cited violation for the Auxiliary Feedwater pump steam admission valve miswiring. Pending further review of the licensee's evaluations and actions related to this issue, the item will remain open.

(2) (Closed) Unresolved Item 90-31-02 - Concerns Regarding Use of Material Non-conformance Reports (MNCR)

The concerns identified a need for further inspection of the licensee's implementation of the MNCR process and of the work order (WO) QC review process. The inspector determined the following during this inspection.

(a) MNCR 90-SB-0012 had been written for the condition identified by WO 00414793. No apparent safety-related problem resulted from the lack of issuance of the MNCR. The QC Manager informed the NRC inspector that the checklist for QC review of WOs had been revised to include a check for the need for an MNCR for obvious non-conforming conditions that may be identified in WOs. This appeared to the inspector to be an enhancement that should help preclude use of WOs in lieu of MNCRs.

(b) The QC Manager had performed training, which was a briefing of QC personnel, to ensure that WOs are reviewed for obvious non-conforming conditions.

(c) The Quality Systems Manager and the Plant Technical Support Director had met with system engineers to obtain input regarding the need for additional MNCR training and for providing assistance to the system engineers for MNCR generation and processing. Subsequent training, procedure changes, or QA assistance would be provided accordingly.

Based on the licensee's completed and planned actions, this item is closed.

No violations or deviations were identified.

3. Exit Interview (30703)

The inspection scope and findings were summarized on August 10, 1990, with those persons indicated in paragraph one above. The inspector described the areas inspected and discussed the inspection findings.