

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos. 50-528/89-46, 50-529/89-46 and 50-530/89-46

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

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

Licensee: Arizona Nuclear Power Project
P. O. Box 52034
Phoenix, AZ 85072-2034

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

Inspection Conducted: September 18-22, 1989

Inspectors:

W. P. Ang
W. P. Ang, Project Inspector

10-4-89
Date Signed

Approved by:

S. Richards
S. Richards, Chief
Reactor Projects Section II

10-23-89
Date Signed

Inspection Summary:

Inspection on September 18-22, 1989 (Report Nos. 50-528/89-46, 50-529/89-46 and 50-530/89-46)

During this inspection the following Inspection Procedures were utilized: 30703 and 35702

Safety Issues Management Systems (SIMS) Items: None

Results: Of the areas inspected no violations were identified.

General Conclusions and Specific Findings

The licensee is currently in the process of revising its nonconformance reporting process. A new procedure for material nonconformance reports was issued August 1, 1989 and was scheduled to be implemented on October 1, 1989. New procedures for quality deficiency reports and for a management escalation program for quality/nuclear safety related issues and deficiencies were in preparation. These new processes were being provided to correct past weaknesses in the licensee's nonconformance identification and corrective action process. These new processes will require significant management oversight and vigorous implementation to achieve their intended function.

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DETAILS

1. Persons Contacted

Arizona Nuclear Power Project (ANPP)

- *W. Marsh, Plant Director
- B. Ballard, Quality Assurance Director
- *J. Reilly, Standards and Technical Support Director
- *C. Russo, Assistant Quality Assurance Director
- *T. Shriver, Compliance Manager
- *J. L. McGrath, Quality Control Manager
- *G. T. Shell, QA/Systems Manager

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

*Attended the Exit meeting.

2. Inspection of Quality Verification Function (35702)

An inspection was performed to assess the effectiveness of licensee quality verification organizations in identifying technical issues and problems having safety significance and in following up to ensure that issues and problems are resolved in a timely manner.

The NRC inspector selected recent plant problems (listed below) and performed an evaluation of the effectiveness of the licensee's quality verification organization in identifying and correcting the precursors of the problems.

- o July 12, 1989, Unit 2 reactor trip and safety injection (SI). Excessive leakage of the pressurizer spray valve was postulated to have contributed to excessive reactor coolant system (RCS) depressurization that resulted in the SI.
- o March 3, 1989, Unit 3 reactor trip and loss of class 1E power. Loss of emergency DC lighting hampered manual operation of atmospheric dump valves (ADV's). Preventative maintenance for the emergency lighting were waived for five consecutive quarters prior to the event.
- o March 3, 1989, Unit 3 reactor trip, ADVs failed to remotely operate from the control room and remote shutdown panels. Similar past problems identified during testing of ADV's and Steam Bypass Control Valves (SBCV's) had not been adequately corrected to preclude recurrence. In addition, an EER to clean ADV positioners, resulting from similar problems experienced with Unit 1 valves, had not been completed.



The review and evaluation of the QA organizations involvement and effectiveness in correcting the precursors to the above problems resulted in the following observations.

- 1) There was no identifiable involvement by the QA organization in the problems identified during testing of ADVs and SBCV's prior to the March 3, 1989 event. Specifically, no involvement in the non-safety-related SBCV's could be identified by the licensee's QA organization.
- 2) EER 88-56-110 was written to clean ADV positioners in all units subsequent to erratic operation of an ADV during a July 6, 1988 Unit 1 reactor trip. However, in accordance with EER procedure 73AC-OEE01, there was no direct QA organization involvement in the EER corrective action process. The program in existence during the March 3, 1989 event only required sampling QA reviews of EER's and sampling audits of EER's.
- 3) Preventative maintenance work orders, such as those for the emergency lighting, are reviewed by the QA organization for establishing inspection requirements. However, after the initial review, the QA organization's subsequent involvement would be when the work was accomplished and was ready for inspection. In the case of waived PM's the only potential QA involvement would be in periodic sampling audits of work orders and PM's. QA audit report 88-001 dated December 2, 1988 performed an audit on maintenance in general and included a review of 18 electrical PM's. Emergency lighting did not appear to have been part of the sample and waived PM's did not appear to have been identified by the audit as a finding.
- 4) QA department Corrective Action Report (CAR) CA 89-0032, issued May 31, 1989, identified that 34 components had been detected by Failure Data Trend Report (FDTR) for the fourth quarter of 1988 as having either excessive failures or excessive corrective maintenance, but only 12 had been responded to by system engineers. Not identified by CAR CA 89-0032 was that the FDTR for the second quarter of 1988 identified that pressurizer spray valves for Units 2 and 3 had experienced excessive corrective maintenance. The Engineering Evaluation Department (EED) response to the CAR indicated that FDTRs for the 3rd and 4th quarter of 1988 and the first quarter of 1989 would be reissued and all reports properly evaluated. The QA department accepted the response on June 23, 1989 and stated that corrective action would be verified by August 18, 1989. On July 12, 1989, Unit 2 experienced a reactor trip and a safety injection. Pressurizer spray valve leakage was postulated at the time to have contributed to the low pressure safety injection. The EED response missed an opportunity to identify the potential problems with the pressurizer spray valves by not having reviewed discrepant FDTR evaluations. In addition, the QA organization missed an opportunity to assure effective corrective action by accepting the EED response without EED including all discrepant FDTR's in its review and without assuring that EED was providing for those potentially

discrepant components identified by FDTR's that could affect plant operations.

Subsequent to the event, on September 5, 1989, the QA department re-opened the item by issuing CAR CS89-0066. The CAR resulted from a licensee self-initiated maintenance team inspection finding that the noted corrective action did not preclude the potential problem experienced with the Unit 2 pressurizer spray valve. The CAR further identified that the 6 spray valves on site had 57 previous work documents and 5 EER's.

The above noted NRC inspector review indicated a lack of QA involvement and effectiveness in identifying and addressing problem precursors. The above review repeatedly showed that this was caused by weaknesses in the QA involvement in the licensee's problem identification and correction process, specifically QA involvement in the EER process. Furthermore, the review also noted that where QA did get involved, i.e. pressurizer spray valves, the QA organization involvement at the time was not sufficiently aggressive in assuring effective corrective action. These problems had been recognized by the licensee prior to this NRC inspection. Several changes to problem identification and resolution procedures were in process at the time of the inspection. A new "Control of Nonconforming Items" procedure (60AC-00Q01) was issued August 1, 1989 and was scheduled to be implemented on October 1, 1989. The procedure replaces the material nonconformance reporting functions of EERs. The procedure provided more direct QA/QC involvement in corrective action, closeout and conditional release of components justified to be acceptable for continued operation. Additional procedures and procedure changes requiring more direct QA/QC involvement were also in preparation for Quality Deficiency Reports (60AC-00Q03), Corrective Action (60AC-00Q02) and Management Escalation Program for Quality/Nuclear Safety Related Issues and Deficiencies (60AC-00Q04). The QA organization has undergone significant changes in structure and personnel. A new QA/QC Director was appointed in May 1989, an assistant director position was added, and new managers selected for quality systems and quality engineering.

The component problems noted above were already subjects of existing NRC open items. The items were left open since only the QA/QC involvement in the problems were reviewed during this inspection. No new violations or deviations were identified.

3. Observation of QA/QC activities

On September 19, 1989, the NRC inspector, accompanied by the Assistant QA/QC Director, performed a walk thru inspection of the Unit 3 Main Steam Support Structure, Turbine Building, Control Room and Emergency Diesel Generator Rooms and attempted to observe any ongoing QA/QC activities. No ongoing QA/QC activities were observed.



On September 20, 1989, the NRC inspector, accompanied by the QC Manager, performed a walk-thru inspection of the Unit 1 reactor building and attempted to observe any ongoing QA/QC activities. The only QA/QC activity observed was the monitoring of the reactor building exclusion area.

No violations or deviations were identified.

3. Exit Interview

The inspection scope and findings were summarized on September 22, 1989, with those persons indicated in paragraph one above. The inspector described the areas inspected and discussed in detail the inspection findings. No dissenting comments regarding the inspection findings were received from the licensee.

