U.S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos. 50-528/84-23, 50-529/84-17

Docket Nos. 50-528, 50-529

License Nos. CPPR-141, 142

Licensee: Arizona Public Service Company
P. O. Box 21666
Phoenix, Arizona 85036

Facility Name: Palo Verde Nuclear Generating Station Units 1/2

Inspected at: Palo Verde Site, Wintersburg, Arizona

Inspection Conducted: June 2 - July 1, 1984

Inspectors: PP Narbut for — 8-1-84
R. Zimmerman, Senior Resident Inspector — Date Signed

PP Narbut for — 8-1-84
G. Fiorelli, Resident Inspector — Date Signed

PP Narbut for — 8-1-84
C. Bosted, Resident Inspector — Date Signed

Approved by: PP Narbut — 8-1-84
P. Narbut, Acting Chief — Date Signed
Reactor Projects Section 2

Summary:

Inspection on June 2 - July 1, 1984 (Report Nos. 50-528/84-23 and 50-529/84-17

Areas Inspected: Routine, onsite, regular and backshift inspection by the three resident inspectors (368 hours). Areas inspected included: witnessing of preoperational testing activities; maintenance; review of maintenance, operating, alarm and off normal procedures; followup on TMI lessons learned implementation; APS internal quality/safety concern program; operator requalification exam review; and plant tours.

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

DETAILS

1. Persons Contacted

The below listed technical and supervisory personnel were among those contacted:

a. Arizona Public Service Company (APS)

J. Allen, Operations Manager
R. Beecken, Startup Test Group Supervisor
R. Bernier, Operations Supervisor
R. Burdick, Lead Startup Engineer
J. R. Bynum, Director Nuclear Operations
C. Churchman, Startup Test Group Supervisor
W. Fernow, Plant Services Manager
R. Gouge, Unit I Day Shift Supervisor
F. Hicks, Training Manager
J. Houchen, Transition Manager
W. E. Ide, Corporate QA/QC Manager
B. Kaplan, Manager Procurement Quality
D. B. Karner, Assistant Vice President Nuclear Production
J. Kirby, Unit I Startup Manager
R. Kropp, Operations Engineering Supervisor
A. McCabe, Project Shift Manager
R. Nelson, Maintenance Manager
R. Osmet, Startup Test Working Subgroup Supervisor
C. Russo, Quality Audits Manager
R. Vaelelly, Unit 2 Shift Supervisor
E. E. Van Brunt, Jr., Vice President - Nuclear Production
R. Younger, Unit 1 Operations Superintendent

b. Bechtel Corporation

C. Berg, Unit 1 General Superintendent

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

2. Followup of Previously Identified Items

a. APS Activities Related to Fire Protection Post Indicator Valve (PIV) Maintenance (Inspection Report 50-528/83-44-closed)

The inspector reviewed the actions taken or planned by APS in connection with its February 8, 1984 communication to the NRC. Based on discussions with responsible APS staff, the inspector determined the current preventative maintenance (PM) of the valves involves yearly lubrication. Surveillance checks are planned to start after acceptance of the Unit 1 fire protection system by Operations. These surveillance tests are consistent with future Technical Specifications requirements which involve yearly cycling

of the position indicator valves and semiannual flushing of the fire hydrants. The schedule for flushing of the fire loop had been set back because the Unit 3 fire loop has not been turned over to APS Startup from Bechtel Construction.

Flushing of the loop is planned for August 1984 as are the PIV leakage tests and system acceptance by Operations. The technical specification surveillance tests of the PIVs and hydrants will be completed prior to fuel load.

Based on the review and discussions with APS staff the inspector considers the actions taken and planned by the licensee should provide confidence in the operability of the post indicator valves. APS has submitted a supplement to its original communication to the NRC to reflect changes in its planned efforts.

b. Activities Related to Design Change Reviews (Inspection Report 50-528/84-09-closed)

The inspector reviewed the licensee's actions related to review of facility design changes. The actions were related to timely reviews of design changes for the purpose of determining whether other program areas, such as training, maintenance, and procedures required updating because of plant changes.

Based on discussions with APS staff and the review of applicable procedures, the inspector determined that the licensee is implementing a program which will involve the review of not only all previously issued design changes but also startup field reports, nonconformance reports, and field change requests.

A staff of two full time and two part time employees has been assigned to coordinate the reviews with other organizational units. A procedure describing the effort is in final review and has been tested. Tracking and reporting systems have been established to support the control of the program.

It is established that several thousand items will require review. Initial experience indicates approximately half of the documents are eliminated from further review during the initial screening. Screening criteria have been established to assist in the determination that further evaluations are not required. It is also anticipated based on current experience that the majority of the remaining documents reviewed by affected organizational units will result in the majority of the changes not requiring programmatic adjustments.

The review effort is planned to be completed prior to fuel load. Based on the review and discussions with APS staff the inspector considers that the actions taken and planned by the licensee should identify the needed programmatic changes and the subsequent factoring of these changes into its operations program.

c. Activities Related to NRC Commitment Tracking System (Inspection) (Report 50-528/84-14-closed)

The inspector reviewed the actions currently being taken by the licensee in connection with its June 11, 1984 communication to the NRC. The inspector noted that the organizational charts reflect the changes which centralize the licensing function under one organizational unit.

Based on discussions with APS staff, the inspector ascertained that the coordination, communication and statusing of actions related to commitments made to the NRC will be controlled by a procedure which is currently being developed. The inspector also confirmed that the site Quality Audit Manager will audit the actions of APS staff in their implementation of the commitments.

Based on the review and discussions with APS staff the actions taken and planned by the licensee should resolve the problem with coordination and timely implementation of commitments made to the NRC in responses to inspection reports. The review of the licensee's implementation of the newly established controls will be part of the NRC's ongoing inspection program.

3. Review of Preoperational Test Activities - Unit 1

a. Major preoperational test activities in progress during the reporting period included flow tests on the Auxiliary Feed Water system; Safety Injection system; Plant Protective System loop functional tests; and Reactor Coolant System tests.

b. During the course of the inspection, tours of the following plant areas were conducted:

- Control Room
- Auxiliary Building
- Radwaste Building
- Turbine Building
- Main Steam Support Structure
- Containment
- Yard Area and Perimeter
- Control Building (Cable Spreading Rooms & Ventilation Support Systems)

c. The following areas were observed during the tours:

1. Control Room logs and records. Records were reviewed for completeness and accuracy to verify conformance with administrative procedure requirements.

2. Equipment tagging. Selected equipment in which tagging requests had been initiated, was observed to verify that tags were in place and the equipment in the condition specified.

3. Plant housekeeping. Plant conditions were observed for conformance with administrative procedures.

4. Preoperational Test Results

The inspector reviewed the completed test procedures and preliminary test results report for preoperational tests on the following systems:

1. Diesel Generator System
2. Refueling Water System
3. Purification Filters and Ion Exchange System
4. Essential Cooling Water System

The inspector observed that the procedure test results had been reviewed by 2 level III test engineers and had been submitted to the Test Working Group for final evaluation. The inspector noted that test exceptions had been properly documented and had either been resolved or formally issued to engineering for resolution. Test changes, test data, and summary reports appeared consistent with administrative controls. The inspector verified on a sampling basis that acceptance criteria either had been met or documented as a test exception for further resolution.

No items of noncompliance were identified.

5. Preoperational Test Witnessing

The inspector witnessed the performance of preoperational testing to verify that the procedure in use was properly approved and adequately detailed to assure satisfactory performance; test instrumentation required by the procedure was calibrated and in use; work was performed by qualified personnel; and results satisfied procedural acceptance criteria or were properly dispositioned.

The inspector witnessed the performance of portions of the following system testing activities:

1. CVCS Charging System
2. Containment HVAC
3. Safety Injection Full Flow Verification
4. Auxiliary Feedwater System
5. 125 VDC Battery Test
6. Plant Protective System Loop Functionals Verification
7. Reactor Coolant System Tests
8. Installation of the Reactor Vessel Internals and Reactor Vessel Head

6. Implementation of Three Mile Island Lessons Learned

The inspector reviewed the below listed items which represent a portion of a comprehensive and integrated plan to improve safety following the events at Three Mile Island, Unit 2 in March 1979. The item number corresponds to Enclosure 2 of NUREG 0737.

I.C.5. Feedback of Operating Experience

NRC Position

Reference: NUREG 0737

Prepare procedures to assure that operating information pertinent to plant safety originating both within and outside the utility organization is continually supplied to operators and other personnel and is incorporated into training and retraining programs.

Licensee Commitment

Reference: PVNGS TMI-2 Lessons Learned Implementation Report

An operating experience review program and implementing procedurs will be developed prior to Unit 1 fuel load.

Inspector Findings

References:

(a) Procedure 81-TR-0ZZ06, Updating PVNGS Training, Revision 0, October 26, 1983

(b) Procedure 79AC-9ZZ03, Operating Experience Review (draft)

(c) Procedure 7P405.02.00 Independent Safety Engineering Group Policy (draft)

(d) Procedure 71405.02.01, ISEG Special Investigation (draft)

The licensee's operating experience program has been in place since June, 1982. A recent organization change has given the primary responsibility for program implementation to the Shift Technical Advisor (STA) Section with the Independent Safety Engineering Group (ISEG) providing an overview function. Prior to the reorganization, ISEG directly participated in seeking appropriate resolution to action items resulting from the review of operating experience. At present the ISEG function is being performed, in part, with the aid of the STA Section due to manpower shortcomings within ISEG.

The inspector verified that the program includes review of NRC issuances such as Bulletins and Information Notices, industry advisories, station Licensee Event Reports, and INPO SEE-IN documents. The inspector chose several recent industry events as examples with which to review; the corrective actions, if any, deemed appropriate at Palo Verde; feedback of information pertinent to plant safety to operators and other appropriate personnel; and incorporation of details into training and retraining programs. The inspector found the licensee's evaluation of the sampled industry events to have been well structured, implemented and documented.

During review of draft Procedure 79AC-9ZZ03 to verify that the specific procedure requirements specified in NUREG 0737 have been incorporated in the operating experience program, the inspector made the following observations:

- The procedural listing of recipients of various categories of information from operating experience needs to be expanded to include technicians of all disciplines.

- Procedural controls to assure that plant personnel do not routinely receive extraneous information which could detract from overall job performance needs to be developed.

The licensee representative agreed to incorporate the above comments into the applicable procedure.

The inspector reviewed internal Quality Assurance Audit Report 0-83-09, performed in February, 1984 of the operating experience program. The audit was a detailed programmatic review and was well documented. Subsequent audits are scheduled to be performed on a two year frequency.

The inspector will follow the licensee's actions through issuance of the referenced draft procedures and inclusion of the inspector's comments addressed above (84-23-01).

7. Operator Requalification Examination

On June 18, during discussions with Training Department personnel on how feedback of operating experience is being incorporated in the operator requalification program, the inspector became aware that the licensed operators were provided with the requalification examination question/answer bank about two weeks prior to administering the first annual requalification exam to 25 licensed individuals during March - April, 1984. The licensee representative stated that the exam bank was distributed to allow the annual exam to serve as an additional learning tool for the license holders, since the formal requalification program was not required to be in effect until three months after receipt of the Unit 1 plant operating license (FSAR Section 13.2.2.1). The inspector's review concurred with the licensee's statement that the exam bank was distributed in the spirit of improving plant safety through providing the operators with information to stimulate additional studying; however, the inspector, based on the following concerns, questioned the basis for the judgement which led to the decision to release the exam bank. The inspector stated that although the licensee demonstrated a commitment to training by implementing the requalification program prior to the receipt of the Unit 1 operating license, the current year delay in fuel load since the first individual operator licenses were issued in March, 1983 demonstrated the need for reassessing the operator's knowledge. Based on the relatively small exam bank (292 RO questions and 239 SRO questions), and the high percentage of exam bank questions which appeared on the annual exam (approximately 80-90%), the inspector questioned the validity of the exam as one of the means for the licensee to assess adequate operator knowledge retention. The licensee reviewed the requalification exam issue and shortly after the close of the inspection report period, decided to administer a re-exam to those licensed individuals who took the initial exam in question. The inspector will follow the licensee's actions regarding the implementation of the re-exam (84-23-02).

8. APS Internal Quality/Safety Concern Followup Program

On June 4 the inspector reviewed the licensee's program for surfacing and investigating concerns of individuals at the site. The program, entitled Hot Line, provides for a concerned worker to call a well publicized phone number and talk with a member of the licensee's Quality Assurance (QA) Department. Posters describing the Hot Line are distributed throughout the site in well traveled areas. Hot Line was implemented in November, 1982 and has received direct support through all levels of corporate management. Approximately 50 calls have been received since Hot Line was instituted. Calls received on weekends or after normal working hours are recorded and followed up by QA personnel.

As a sample of the program's effectiveness, the inspector reviewed the licensee's actions on the initial seven calls received in 1984. The investigations were found to be thorough, well documented reviews with results provided to the concerned caller. Although the program has been effective, the licensee is reviewing additional means to increase visibility to workers of APS's interest in quality/safety concerns. The inspector will continue, on a periodic basis, to assure the effectiveness of the licensee's program to identify and resolve workers concerns.

9. Maintenance Procedures Review

Maintenance Procedures were reviewed to verify that the procedures were written and approved in a manner to adequately control safety related opeations within regulatory requirements.

An index of all the procedures was available to the inspector; however, many procedures are currently undergoing development and were not available for inspection.

A total of five Maintenance Implementing Procedures, seven Surveillance Procedures, and three Measuring and Test Equipment Procedures were selected for inspection. The procedures were reviewed for technical content as well as conformance with administrative control procedures "Procedure Format, Content and Numbering" and "Review and Approval of Station Manual Procedure".

The following procedures were reviewed:

1. Calibration Requirements for Measuring and Test Equipment and Calibration.
2. Measuring and Test Equipment Users Administrative Requirements.
3. Power Block Initial Calibration/Functional Test.
4. New Fuel Handling.
5. Diesel Generator Engine Filter Inspection.
6. Reactor Vessel Head Removal.
7. Operation of Containment Cranes.
8. Mechanical System Cleanliness.
9. Diesel Generator Engine Inspection.
10. Cleaning/Inspection of ECCS Sumps.
11. Seven Day Surveillance Test of the Station Batteries.
12. 18 Month Surveillance of Reactor Trip Breakers.
13. Hydrogen Recombiner Instrumentation Calibration.

14. Turbine Overspeed Protection System Calibration.
15. Incore Neutron Monitoring System Channel Calibration.

The procedures were verified to be consistent with the administrative controls in effect at the time of issuance.

The inspector also verified that the nuclear safety related procedures were reviewed by the Plant Review Board or the Procedure Review Group of the PRB and that the procedures were approved in accordance with the administrative controls in effect at the time of issuance.

The procedures were verified by the inspector to be technically adequate to accomplish the stated objectives.

Based on conversions with APS management, the inspector determined that maintenance procedures identified in ANS 3.2 which had not yet been developed were planned to be written in the near future. The inspector also identified several inconsistencies in the maintenance procedure index which APS management stated would be clarified.

No items of noncompliance were identified.

10. Operating Procedures Review

Operating Procedures were reviewed to verify that the procedures were written and approved in a manner to adequately control safety related operations within regulatory requirements.

An index of the procedures was available to the inspector and was found to be complete.

A total of 32 operating procedures and 7 surveillance procedures were selected for review. The procedures were compared to administrative procedures "Procedure Format, Content and Numbering" and "Review and Approval of Station Manual Procedures". Portions of the procedures were also compared with the Technical Specifications, P&ID's, and applicable ASME Codes.

The following procedures were reviewed:

Operating Procedures

1. Containment Hydrogen Control and Hydrogen Purge Exhaust System.
2. Instrument and Service Air System.
3. Essential Auxiliary Feedwater System.
4. Auxiliary System HVAC.
5. Feedwater and Condensate System.
6. Emergency Diesel Generator.
7. 125 VAC Instructment Class 1E Train B.
8. 13.8 KV Electrical System.
9. 125 VDC Class 1E Electrical System.
10. CVCS Normal Operation.
11. Recovery From Shutdown Cooling to Normal Operation Lineup.

12. Main Turbine Operation.
13. Main Steam Operation.
14. Fuel Pool Cooling and Cleanup.
15. Essential Spray Pond Train A.
16. Nuclear Cooling Water.
17. Shutdown Cooling Initiation.
18. Control Element Drive Mechanism Control System Operation.
19. CEDM MG Sets Operation.
20. Reactor System Drain.
21. Reactor System Fill and Vent.
22. Cold Shutdown to Hot Standby, Mode 5 to Mode 3.
23. Reactor Startup.
24. Plant Startup Mode 2 to Mode 1.
25. Power Operation.
26. Plant Shutdown Mode 1 to Mode 2.
27. Reactor Shutdown.
28. Hot Standby to Cold Shutdown, Mode 3 to Mode 5.
29. Fuel Transfer Machine.
30. Refueling Machine Operation.
31. Shift Surveillance (Control Room).
32. Temporary Modification Control.

Surveillance Procedures

1. Excore Safety Channel NI Calibration.
2. CEA Operability Check.
3. Containment Spray Valve Lineup.
4. Main Steam Isolation Valve Surveillance.
5. Boron Injection Flow Path Surveillance.
6. Auxiliary Feed Water System Pump Operability.
7. AFAS Actuation Test.

The procedures were verified to be consistent with the administrative procedures in effect at the time of issuance.

The inspector verified that the nuclear safety related procedures were reviewed by the Plant Review Board (PRB) or the Procedure Review Group of the PRB and that the procedures were approved in accordance with the administrative controls in effect at the time of issuance.

The procedures were reviewed by the inspector for technical adequacy to accomplish the stated objectives. A portion of the procedures were also verified to meet the requirements of the Technical Specifications and the respective ASME Codes.

Not all of the Operating Procedures are currently approved; however, procedures that are being written will be approved prior to fuel load. Some safety related procedures that are overdue on the required two year review cycle will be reviewed/revised prior to fuel load.

No items of noncompliance were identified.

11. Emergency and Off Normal Procedures Review

Emergency and Off Normal Procedures were reviewed to verify that the procedures were written and approved in a manner to adequately combat emergencies and other significant events within regulatory requirements.

An index of the Alarm Annunciator and Off Normal procedures was available to the inspector and was found to be complete. The main Emergency Procedure has not been issued, but will be reviewed prior to fuel load.

A total of eight Alarm Annunciator procedures and 11 Off Normal procedures were selected for review. The procedures were compared to administrative procedures "Procedure Format, Content and Numbering" and "Review and Approval of Station Manual Procedures". Portions of the procedures were also compared with the Technical Specifications and P&ID's.

The following procedures were reviewed:

Alarm Annunciators

1. Diesel Generator Alarm Panel Responses.
2. Safety Equipment Status System Panel ESA-UA-2A.
3. Safety Equipment Status System Panel ESA-UA-2B.
4. Fuel Pool Cooling & Cleanup System Local Alarm Panel.
5. Panel B01C Alarm Responses.
6. Panel B02A Alarm Panel Responses.
7. Panel B02B Alarm Panel Responses.
8. Panel B02C Alarm Panel Responses.

Off Normal Procedures

1. Emergency Boration.
2. Load Rejection.
3. Loss of Nuclear Cooling Water.
4. Loss of Instrument Air.
5. Loss of Condensor Vacuum.
6. Steam Generator Tube Leak.
7. Dropped or Slipped CEA.
8. Excessive RCS Leakrate.
9. Loss of Shutdown Cooling.
10. Inadvertent SIAS and/or CIAS.
11. Reactor Coolant Pump and Motor Emergency.

The procedures were verified to be consistent with the administrative procedures in effect at the time of issuance.

The inspector verified that the nuclear safety related procedures were reviewed by the Plant Review Board (PRB) or the Procedure Review Group of the PRB and that the procedures were approved in accordance with the administrative controls in effect at the time of issuance.

The procedures were reviewed by the inspector for technically adequacy to accomplish the stated objectives. Portions of the procedures were also verified to meet the requirements of the Technical Specifications.

No items of noncompliance were identified.

12. Exit Interview

At periodic intervals during the course of the inspection, meetings were held with senior facility management to discuss the inspection, scope and findings.