U. S. NUCLEAR REGULATORY COMMISSION
REGION V

Report Nos: 50-528/86-05, 50-529/86-04

Docket Nos: 50-528, 50-529 License Nos: NPF-41; NPF-46

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

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

Inspection Conducted: February 3 - March 9, 1986

Inspectors: R. Zimmerman, Senior Resident Inspector — 3-31-86 Date Signed

G. Fiorelli, Resident Inspector — 3-31-86 Date Signed

C. Bosted, Resident Inspector — 3-31-86 Date Signed

Approved By: L. Miller, Chief, Reactor Projects Section 2 — 3-31-86 Date Signed

Summary:

Inspection on February 3 through March 9, 1986 (Report Nos. 50-528/86-05 and 50-529/86-04)

Areas Inspected: Routine, onsite, regular and backshift inspection by the three resident inspectors. Areas inspected included: followup of previously identified items; review of plant activities; engineered safety system walkdowns; surveillance testing; plant maintenance; power ascension test witnessing; Licensee Event Report followup; Unit 2 operating experiences; Unit 2 license commitments; Deficiency Evaluation Report followup; allegation followup; periodic and special report reviews; and plant tours.

During this inspection the following Inspection Procedures were covered: 30702, 30703, 61700, 61726, 62703, 71707, 71710, 72616, 72624, 92700, 92701, and 93702.

Results: Of the 13 areas inspected, no violations were identified.

DETAILS

1. Persons Contacted:

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

Arizona Nuclear Power Project (ANPP)

R. Adney, Operations Superintendent, Unit 2
*J. Allen, Operations Manager
J. R. Bynum, PVNGS Plant Manager
B. Cederquist, Chemical Services Manager
J. Dennis, Operations Supervisor, Unit 1
W. Fernow, Plant Services Manager
*J. G. Haynes, Vice President Nuclear Production
W. E. Ide, Corporate Quality Assurance Manager
D. Nelson, Operations Security Manager
*R. Nelson, Maintenance Manager
G. Perkins, Radiological Services Manager
J. Pollard, Operations Supervisor, Unit 2
*T. Shriver, Compliance Manager
*L. Souza, Assistant Quality Assurance Manager
*E. E. Van Brunt, Jr., Executive Vice President
R. Younger, Operations Superintendent, Unit 1
*O. Zeringue, Technical Support Manager

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

*Attended the Exit Meeting on March 11, 1986.

2. Previously Identified Items

a. (Closed) Enforcement Item (50-528/85-08-03): "Ineffective Corrective Action."

Repetitive instances of several Technical Specification time limits being exceeded were identified by the licensee for fire watch roving patrols and Procedure Change Notice (PCN) approvals by the Plant Review Board.

The licensee's corrective actions included changing the fire patrols from contractor personnel to plant employees and administratively changing the time limit for fire watch tours from 60 minutes to 40 minutes. The Procedure Change Review check sheet that is used when procedures are revised was also changed to improve its efficiency. The inspector reviewed several PCNs and noted the licensee's reviews were accomplished within the Technical Specification allotted time.

Similarly, roving fire patrol records were reviewed on a sampling basis by the inspector and were also found to have been performed within the required time frame. This item is closed.

b. (Closed) Enforcement Item (50-528/85-26-01): "Ineffective Corrective Action on LER 85-24."

LER 85-24 identified several fire doors that were not checked locked within the Technical Specification required time interval of seven days. The surveillance procedure used to verify that the fire doors were in fact locked closed had been changed with a Preliminary Change Notice (PCN), to add the doors which were inadvertently omitted. However, when the procedure was revised, the PCN was not completely incorporated into the procedure revision. This caused several fire doors to be left off the surveillance check list.

The licensee's corrective actions included assuring all locked fire doors were added into the 24 hours unlocked fire door surveillance procedure. Additionally, a review of the station administrative controls was conducted by the licensee to identify steps necessary to prevent the omission of PCNs when procedures were revised.

The inspector reviewed the revised surveillance procedure, and confirmed the consolidation of the fire doors (locked and unlocked) into a single check list. The inspector also reviewed the revisions made to 70AC-0ZZ02 "Review and Approval of Station Procedures" which give explicit directions on PCN processing, including carrying over any PCNs which may have been issued while the revised procedure was in the review cycle. This item is closed.

c. (Closed) Followup Item (50-528/85-21-02): "Fire Team Member Qualification."

Possible inconsistencies between training records and program requirements for the fire team members was left for further inspection in the areas of fire team staffing, training, and fire protection program changes.

In November 1985, the fire team member composition was changed from unit staff shift members to a dedicated fire department. The new fire team members are all certified by a state agency and a check of the new fire team members training records indicated that these individuals have been trained on the Palo Verde station systems. The inspector's review of the fire team program records for the previous twelve months revealed that no significant changes in the program, other than the change to a dedicated team, had occurred. This item is closed.

d. (Closed) Followup Item (50-528/85-26-05): "Modification to the Unit 1 Diesel Generator Governor Oil Cooling System."

This item related to a plant modification which utilized diesel generator jacket cooling water instead of spray pond cooling water in the diesel generator governor oil heat exchanger, to improve governor response and prevent overspeed trips. The inspector observed that this design change was completed by work orders 116226 and 105774 and that the engines were retested satisfactorily. This modification was also completed in Unit 2 as reported in NRC Inspection Report 529/85-27. The modification is also planned for Unit 3. This item is closed.

e. (Closed) Followup Item (50-528/85-04-01): "Review of Adequacy of Auxiliary Operator Logs."

The auxiliary operator (AO) log was to be revised and the licensee committed to have an SRO review the logs on a shiftly basis.

The inspector reviewed the revised logs, revised administrative procedure 10AC-9ZZ02 "Conduct of Shift Operations", and implementing night order instructions. The inspector also reviewed the AO shift log and noted that the assistant shift supervisor was reviewing and initialing the logs. This item is closed.

f. (Closed) Followup Item (50-528/85-13-01): "Conduct of Shift Operation Procedure Will Be Revised".

Procedure 40AC-9ZZ02 "Conduct of Shift Operations" was to be revised to include a statement that the unit log would be the official record of Technical Specification action statement times.

The inspector reviewed the procedure and verified that it had been revised to include logging action statement times in the unit log. This item is closed.

3. Review of Plant Activities

a. Unit 1

At the start of the reporting period, the unit was at 60% power with the "B" Main Feedwater Pump (MFP) out of service to replace a cracked pump shaft. The plant tripped from 60% power on February 3, 1986, on low steam generator level when the "A" MFP turbine control system malfunctioned. Complications with steam bypass control system operation following the trip caused an overcooling of the reactor coolant system (RCS), and the initiation of the safety injection actuation (SIAS), containment isolation actuation (CIAS), and main steam isolation (MSIS) systems. All engineered safeguards systems functioned as designed. A notification of Unusual Event was declared at 12:07 PM and terminated at 1:11 PM. The reactor was restarted on February 5 and power was increased to 2% full power and held at that level until the "B" MFP shaft and turning gear were

aligned. The licensee monitored critical parameters in the "A" MFP turbine control system in an effort to locate the malfunction. An intermittent fault was identified, and the licensee determined that further troubleshooting and repair efforts would be conducted during the upcoming maintenance outage. Power was raised to 18% on February 7, when the reactor tripped on low steam generator level, while attempting to hold power below 20%, so that the "greater than 20% check sheets" could be completed. Prolonged plant operation at the power level where the automatic switch over between the downcomers to economizer feed valves takes place, caused an underfeeding condition to occur and resulted in low steam generator levels. The plant was restarted on February 8, and power was raised to 100%. The 100 consecutive hour full power run for commercial declaration was completed February 14, at 2:15 AM. The plant remained at full power until March 1 when power was reduced to 60% to take a condenser train out of service to repair a condenser tube leak. The tube was repaired and power increased to 100% on March 3. On March 4, a bare wire on a steam/feedwater flow strip chart recorder was believed to have shorted to ground and caused a momentary decrease in generator load; reactor power remained nearly constant while the steam bypass control valves "quick opened," then reshut in approximately 15 seconds. This caused a 400 MWe decrease in generated megawatts. The plant was returned to full power operation after a defective cable on the recorder was replaced. The plant operated at full power until March 7 when the unit began a planned shutdown for the annual spring maintenance outage. During the shutdown, at approximately 20% power, shortly after the "B" MFW pump was secured, the "A" MFW pump experienced a malfunction in the control system similar to that experienced on February 3, causing a low steam generator level condition that tripped the unit. The unit was cooled down to Mode 5 on March 9 and the annual maintenance outage commenced. Major activities planned include diesel generator preventive maintenance; containment integrated leak rate testing; reactor coolant pump seal injection piping modification and integrated safeguards system testing. The outage duration is expected to be about 55 days.

b. Unit 2

Unit 2 continued in Mode 5 during this inspection period. Work and test activities involved the completion of surveillance tests, design changes, and corrective maintenance to satisfy the equipment operability requirements for Mode 4 entry.

c. Plant Tours

The following plant areas at Units 1 and 2 were toured by the inspectors during the inspection:

- Auxiliary Building
- Containment Building

- Control Complex Building
- Diesel Generator Building
- Radwaste Building
- Technical Support Center
- Turbine Building
- Yard Area and Perimeter
- Emergency Operations Facility

The following areas were observed during the tours:

1. Operating Logs and Records. Records were reviewed against Technical Specification and administrative control procedure requirements.

2. Monitoring Instrumentation. Process instruments were observed for correlation between channels and for conformance with Technical Specification requirements.

3. Shift Manning. Control room and shift manning were observed for conformance with 10 CFR 50.54.(k), Technical Specifications, and administrative procedures.

4. Equipment Lineups. Valve and electrical breakers were verified to be in the position or condition required by Technical Specifications and by plant lineup procedures for the applicable plant mode. This verification included routine control board indication reviews and conduct of partial system lineups. Details of system walkdowns are documented in paragraph 4.

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

6. Fire Protection. Fire fighting equipment and controls were observed for conformance with Technical Specifications and administrative procedures.

7. Plant Chemistry. Chemical analysis results were reviewed for conformance with Technical Specifications and administrative control procedures.

8. Security. Activities observed for conformance with regulatory requirements, implementation of the site security plan, and administrative procedures included vehicle and personnel access, and protected and vital area integrity.

9. Plant Housekeeping. Plant conditions and material/-equipment storage were observed to determine the general state of cleanliness and housekeeping. Housekeeping in the radiologically controlled area was evaluated with

respect to controlling the spread of surface and airborne contamination.

No violations of NRC requirements or deviations were identified.

4. Engineered Safety Feature System Walk Down - Units 1 and 2

Selected engineered safety feature systems (and systems important to safety) were walked down by the inspectors to confirm that the systems were aligned in accordance with plant procedures. During the walkdown of the systems, items such as hangers, supports, electrical cabinets, and cables were inspected to determine that they were operable, and in a condition to perform their required functions. The inspectors also verified that the system valves were in the required position and locked as appropriate. The local and remote position indication and controls were also confirmed to be in the required position and operable.

Unit 1

Portions of the following systems were walked down on February 6, and February 14, 1986.

High Pressure Safety Injection Trains "A" and B".
Low Pressure Safety Injection Train "B".
Containment Spray Systems Trains "A" and "B".
Auxiliary Feedwater Systems Trains "A" and "B".
Diesel Generator Systems Trains "A" and "B".

Unit 2

Portions of the following system were walked down on February 10, 12 and 25, 1986.

CO2 Fire Protection System
Halon Fire Protection System
Emergency Boration Paths

No violations of NRC requirements or deviations were identified.

5. Surveillance Testing

a. Surveillance tests required to be performed by the Technical Specifications (TS) were reviewed on a sampling basis to verify that: 1) the surveillance tests were correctly included on the facility schedule; 2) a technically adequate procedure existed for performance of the surveillance tests; 3) the surveillance tests had been performed at the frequency specified in the TS; and 4) test results satisfied acceptance criteria or were properly dispositioned.

b. Portions of the following surveillances were observed by the inspector on the dates shown:

[illegible]

[illegible]

[illegible] following [illegible]

[illegible] with [illegible] impact [illegible] also [illegible] and [illegible] parts.

[illegible] the following systems were [illegible] and [illegible] May 16, 1961.

[illegible]

[illegible] were [illegible]

[illegible]

[illegible] involved [illegible]

[illegible]

[illegible]

[illegible]

Unit 1

Procedure	Description	Dates Performed
41ST-1DG02	Diesel Generator "B" Start and Load.	February 5
41ST-9ZZ18	Routine Surveillance Modes 1-4.	February 11 February 28
72ST-9SB02	CPC/CEAC Auto Restart.	February 11
41ST-1AF01	Auxiliary Feedwater Pump Operability Test.	February 11
72ST-9RX11	COLSS Margin Alarms.	February 28

Unit 2

Procedure	Description	Dates Performed
42ST-2DG01	Emergency Diesel Generator "A" Start and Load.	February 11

c. The following completed surveillance tests were reviewed by the inspector:

Unit 1

Procedure	Title	Dates Performed
41ST-1AF01	Auxiliary Feedwater Pump Operability.	January 26 February 10
72ST-9SB02	CPC/CEAC Auto Restart Test.	February 10
41ST-1ZZ18	Routine Surveillance Mode 1-4.	February 26 February 27 February 28
41ST-1DG02	Diesel Generator "B" Started and Load.	February 17
41ST-1DG04	Diesel Generator "B" Day Tank Fuel Oil Purity Test.	February 17 February 24
41ST-1CH06	Charging Pump Operability Test.	February 5
41ST-1CH01	Injection Flow Path.	February 21
41ST-1AF02	Auxiliary Feedwater Pump Operability.	October 26, 1985

41ST-1CP02	Containment Purge Supply and Exhaust Valves.	December 20,1985

Unit 2

Procedure	Title	Dates Performed
42ST-2ZZ19	Routine Surveillance Modes 5-6 Logs.	January 17 January 18 February 4
42ST-2CH02	Boron Injection Flow Paths - Shutdown.	January 19
42ST-2ZZ16	Routine Surveillance Daily Midnight Logs.	February 3 February 4
42ST-2ZZ24	Startup Channel High Neutron Flux.	January 25
72ST-2RX09	Shutdown Margin.	February 3 February 4
73ST-9ZZ05	Section XI Valve Operability Testing Normal Operations Refueling.	February 26
73ST-9ZZ07	Section XI Valve Operability Testing.	February 26

No violations of NRC requirements or deviations were identified.

6. Plant Maintenance

a. During the inspection period, the inspector observed and reviewed documentation associated with maintenance and problem investigation activities to verify compliance with regulatory requirements, compliance with administrative and maintenance procedures, required QA/QC involvement, proper use of safety tags, proper equipment alignment and use of jumpers, personnel qualifications, and proper retesting. The inspector verified reportability for these activities was correct.

b. The inspector witnessed portions of the following maintenance activities:

Unit 1

Description	Dates Performed
o Trouble shooting on NSSS ESFAS Auxiliary relay cabinet "A".	February 5

o Main Feedwater Pump (MFP) "B" shaft alignment.	February 6
o Alignment of MFP "B" turning gear.	February 7
o Control valve testing on main turbine-Procedure 410P-1MT02.	February 14
o Trouble shooting on pressurizer code safety valve position acoustic monitors - Work Orders 117086 and 123931 (see paragraph c below).	February 19

Unit 2

Description	Dates Performed
o Replacement of personnel air lock door upper bearing and grease fitting - Work Order 133320.	February 5
o Trouble shooting and repair of safety injection valve SI-665 - Work Order 134241.	February 6
o Installation of charging pump vent system - Work Order 127639.	February 7
o Repair of reactor head vent valve HV-108 - Work Order 136343.	February 19 - February 21

c. On February 19, 1986, the inspector observed an instrument and controls (I&C) technician working on the Unit 1 pressurizer code safety valve position acoustic monitor instrument. At the time of observation, a instrument card had been removed and placed on an extension board and reenergized. An oscilloscope had been attached to the board and testing was ongoing. The inspector, based upon examining the work order and discussing the circumstances with the technician and both Operations and Maintenance management, determined the technician was working on the correct instrument; however, the work order being used remained open pending completion of ongoing maintenance on a steam generator acoustic monitor, and did not govern work on the pressurizer monitors.

Maintenance management's review of this occurrence revealed that neither the technician nor the technician's foreman had performed a detailed review of the work order package prior to the technician commencing work.

This occurrence appeared similar to instances documented in NRC Inspection Report 528/86-02 in which a violation was issued based on I&C technicians failing to follow procedures. The licensee's response to the violation has not yet been sent to

the NRC; and licensee management committed to also addressing this most recent event in the response to that violation. This item will remain open pending review of the licensee's response letter and inspection followup of the adequacy of the corrective actions taken. (528/86-05-01)

7. Power Ascension Test Data Review - Unit 1

The following power ascension test data packages, for the 80% and 100% plateaus, which represent a sizable sample of the performed tests, were reviewed to confirm the technical adequacy of the test performance and the administrative adequacy of the post test reviews. The inspector's review determined that:

- the test reviews were performed in accordance with 70AC-0ZZ17 "Test Result Review Group."
- the test changes were documented within the test package and were in accordance with 70AC-9ZZ16 "Temporary Approved Procedure Change."
- all test deficiencies were resolved.
- the test results packages reflected the data acquired during testing.
- calculations were performed as required.
- that the test summaries included the cognizant engineer's evaluation of the test results as compared to the design requirements.

The following test packages were reviewed:

- 72PA-1RX36, Revision 0 - Steady State Core performance Test 80%.
- 72PA-1RX50, Revision 1 - Variable Tave (Isothermal Temperature Coefficient and Power Coefficient) Test 100%.
- 72PA-1RX55, Revision 1 - CPC Static Thermal Power Calibration With CEA Insertion.
- 72PA-1RI16, Revision 1 - Moveable Incore Detector Check 100%.
- 72PA-1RX11, Revision 1 - Adjustment of COLSS Secondary Pressure Loss Terms.
- 72PA-1RX35, Revision 1 - Variable Tave (Isothermal Temperature Coefficient and Power Coefficient) Test 80%.
- 72PA-1SB11, Revision 1 - COLSS/CPC Verification at 80%.

- o 73PA-1MA01, Revision 1 - Unit Load Rejection Test 100% Power.
- o 73PA-1SF05, Revision 0 - Control System Test at 80% Power.
- o 73PA-1ZZ07, Revision 0 - Unit Load Transient Test at 100% Power.
- o 72PA-1SB03, Revision 1 - CPC Verification.
- o 72PA-1RX58, Revision 0 - RCS Flow Measurement 80%.

No violations of NRC requirements or deviations were identified.

8. Licensee Event Report (LER) Followup - Unit 2

a. (Closed) LER 529/85-02: "Received Essential Filtration Actuation While Troubleshooting A Radiation Monitoring Unit".

This report documented the inadvertent actuation of the balance of plant train "B" control room essential filtration system while troubleshooting a radiation monitor unit. The cause of the event was determined to be the malfunction of the low voltage power supply to the radiation detector. This condition was repaired and the channel satisfactorily tested.

b. (Closed) LER 529/85-06: "Received Containment Purge Isolation Actuation Due To Operator Error".

The report documented the inadvertent actuation of the train "A" containment purge isolation actuation system which in turn tripped the other train. The actuation was the result of an improper "reset" by a control room operator. The inspector confirmed the operator was recounselled on the importance of proper use of procedures.

c. (Closed) LER 529/86-05: "Essential Filtration Actuation Due To Inadequate Control Of A Modification On Vital Power".

This report documented the inadvertent actuation of the control room essential filtration system due to the loss of power to the radiation monitoring unit when the fuses blew on the "A" inverter supplying power to the radiation monitoring unit. The blown fuses were attributed to a grounding jumper used to discharge a capacitor in the inverter circuit. The jumper, used as a personnel safety action, was not removed following work on the inverter, causing repetitive power transfers which resulted in the blowing of the fuses. The licensee could not conclusively confirm the specific maintenance job which involved the use of the grounding jumper; however, the investigation did identify one job which called for the use of a grounding jumper of a different resistance rating.

The immediate corrective action included the repair and retesting of the inverter, and the inspection of the other class IE

inverters for unauthorized modifications. Programatic corrective action will require the revision of control procedures which will emphasize the removal of equipment modifications prior to putting equipment back into service. This item is closed for the purposes of this report. The inspector will followup on the procedure changes to be made (86-04-01).

9. Operating Experiences - Unit 2

a. Loss of Pressurizer Heaters - Unit 2

While attempting to draw a steam bubble in the pressurizer on February 15, three of four pressurizer heater banks tripped due to ground faults. An investigation into the matter revealed that the pressurizer cold calibrated level instrumentation LI-103 was providing an erroneous level reading. The actual level was lower than the indicated level. This abnormal condition was determined to be caused by a partially dry reference leg. The level indication of 43% was estimated to be actually 18%; the level at which the heaters would begin to be uncovered. The other level indicators LI-110X and LI-110Y were erroneously off scale high. These two instruments were hot calibrated and also believed to have partially dry reference legs. The cause for the partially dry reference legs is not conclusively known by the licensee. One licensee hypothesis was evaporation of the water to the dry nitrogen cover gas. A check of the pressurizer level instrumentation for proper configuration or leaking valves did not disclose a problem.

Three pressurizer heaters were replaced. The licensee will modify its operating procedures to include cautions that the three pressurizer level indicators correlate properly prior to drawing a steam bubble.

Cautions relating to proper correlation of steam generator level indications as well as safety injection tank level indications are also being incorporated into operating procedures. An evaluation for additional actions to preclude a similar event are ongoing and will be incorporated into procedures when finalized. The inspector will monitor the licensee's actions. (86-04-02)

b. Nitrogen Bubble in Unit 2 Reactor Vessel During Pressurizer Bubble Draw - Unit 2

On February 28, 1986, with Unit 2 in Mode 5, Operations personnel were in the process of drawing a steam bubble in the pressurizer in preparation for entry into Mode 4. During the process, the operators noted that the pressurizer level changes in response to heater energization, charging pump operation and reactor head venting were more severe than expected. In addition the amount of gas vented from the reactor vessel head to reactor drain tank was much more than had been expected. Based on these observations, it was concluded that a gas bubble

existed in the reactor head. An analysis of the head gas confirmed the gas to be nitrogen. The bubble was estimated by the licensee to be approximately 1260 cubic feet and extended to 77 inches above the top of the hot leg.

The licensee's investigation attributed the source of nitrogen to have come from the nitrogen supply used to maintain a cover gas on the pressurizer when in Mode 5. An initial assumption that it may have been released from solution as a result of absorption of nitrogen into the primary coolant was readily dismissed, by the licensee, based on gas solubility and transport phenomenon, as well as the fact that no gas was observed following the sweeping of the steam generator tubes by the reactor coolant pumps.

The exact period of time or valving configuration existing at the time of the introduction of gas into the head is not known; however, there were extended periods of time when the nitrogen manifold valves were left open but connected to the pressurizer with only the solenoid operated vent valves providing isolation. This coupled with the repair and testing of one of the reactor vessel head vent valves is believed to have resulted in nitrogen introduction into the vessel either through valve cycling or valve leakage while the nitrogen manifold supply guard valves were open.

There was low safety significance associated with this incident. The licensee's procedure modifications will include isolating and venting the nitrogen manifold when planned additions of nitrogen to the NSSS are stopped, and minimizing the times when higher nitrogen pressures are used to supply nitrogen to the NSSS for purposes of running the reactor coolant pumps. The inspector will follow the licensee's actions to preclude recurrences. (86-04-03)

No violations of NRC requirements or deviations were identified.

10. <u>Unit 2 License Commitment/Safety Evaluation Report, Supplement No. 9 Followup.</u>

a. <u>Emergency Lighting System (License Attachment 1, Item 5)</u>

The inspector confirmed that this commitment which involved the satisfactory testing of Holophane Modular Emergency Power Stations and approximately 100 wall mounted battery powered lights was completed by the licensee. This emergency lighting system provides lighting to the remote shutdown rooms, associated local control stations, and stairwells and corridors throughout the plant. The inspector confirmed tests were conducted in accordance with test procedure 73TI-9QD01, "Holophane Emergency Power Stations" and work orders which identified the battery powered wall units which required testing.

b. Reactor Coolant Gas Vent Valve 2J-RCB-HV-108 Test (License Attachment 1, Item 2)

This commitment involved the repair and testing of reactor coolant gas vent valve HV-108. The inspector confirmed this valve was repaired and satisfactorily tested in accordance with surveillance procedures, 73ST-9ZZ05 "Section XI Valve Operability Testing Normal Operations", and 73ST-9ZZ07 "Section XI Valve Operability Testing Refueling".

Additional testing will be performed in Mode 3 at normal operating temperature and pressure. The inspector will document the results of the Mode 3 testing in a future NRC inspection report.

c. Enlarge Pipe Penetration Where The Reactor Coolant Gas Vent Piping Passes Through The Pressurizer Blowout Panel - (License Attachment 1, Item 4)

This commitment involved increasing the size of the penetration in the pressurizer blowout panel through which passes a 1 inch reactor coolant gas vent line. Enlarging the hole eliminated the potential for line stresses because of the minimal clearance between the pipe and panel. The inspector observed that the work had been completed.

d. Charging Pump Hydrogen Venting Test - Safety Evaluation Report, Supplement No. 9, Paragraph 5.4.3.

The inspector observed the test involving the venting of gas from the three Unit 2 charging pumps. The test was conducted in accordance with procedures 73TI-2CH04 "Charging Pump Vent Test" and 42AO-2ZZ50 "Venting the Charging Pumps" and was performed to satisfy the commitment described in paragraph 5.4.3 of the Safety Evaluation Report, Supplement 9. The initial test was unsuccessful due to a plugged liquid drain line. The retest was successful and demonstrated the design change, which installed equipment to permit venting from the charging pumps, and the procedures to accomplish the venting were appropriate to accomplish the task.

No violations of NRC requirements or deviations were identified.

11. Deficiency Evaluation Report (DER) Followup - Units 1, 2 and 3.

a. (Closed) DER 85-42: "Burned Wire Insulation in High Process Temperature Target Rock Valves".

This report documented the degraded condition of insulation on the wiring for valves 1J-S6B - 1135 A, B and 1136 A, B. The insulation had melted due to contact with the stem nut or valve cover. The wiring is part of the cabling which provides solenoid coil power and valve position indication. A survey conducted to determine the extent of potential wire insulation

damage was made of other Q Class Target Rock valves. An additional 8 valves were identified as requiring wire replacement.

The resolution of the problem involved the replacement of the low temperature rated insulation with a high temperature rated insulated wire for the 12 valves involved.

The inspector confirmed through the review of work orders that the required corrective action had been taken at Unit 2. This change will be completed at Unit 1 during the current outage and is also planned for Unit 3. This item is closed.

b. (Closed) DER 85-42: "Diesel Generator Fuel Linkage Lever Slippage" - Units 1, 2 and 3.

This report describes a problem involving an overspeed trip of the Unit 2 "B" Diesel Generator. The trip occurred due to the sluggish operation of the fuel rack which had slipped and rotated on the governor shaft, moving the rack out of its proper position. The final resolution of the problem will involve a design change which will use a fuel rack lever having serrations in the clamp area which mesh with the serrations on the shaft. An interim resolution, which has been completed at both Units 1 and 2, incorporated the use of stronger clamp bolts which are larger and were torqued to a higher value than the original installation.

The inspector noted that completed work orders and retest documents existed for the changes made to the Units 1 and 2 diesel generators. Unit 3 modification will also be made when the final design change is issued. This item is closed.

No violations of NRC requirements or deviations were identified.

12. Allegation - RV-85-A-067

a. Characterization:

A former electrician is now in charge of fixing damage incurred to an electrical bus (lack of qualification implied).

Implied Significance to Plant Design, Construction, or Operation:

Although the equipment referred to is non-safety related, improper repair could result in a malfunction which could challenge the start and operation of other plant safety related systems unnecessarily, including the plant protection system.

Assessment of Safety Significance:

The electrical repair work referred to was received by the NRC in correspondence from and anonymous person and is related to

the phase to ground fault on the non-safety related Calvert bus 1E-NANA03 at Unit 1 on October 29, 1985. The fault resulted in a minor explosion which damaged the bus as well as the housing covers in the immediate location. Prior to the repair of the equipment, an inspection of the damage was performed by staff engineers from the Outage Management Group (OMG) electrical discipline, as well as the field engineer from the vendor who supplied the electrical bus equipment. Following the inspection two repair techniques were provided by the vendor's representative. The technique chosen was incorporated into a repair instruction which became a part of the work package.

This work package included formal instructions for repair and retest which included instructions from the vendor's representative as well as the use of plant procedure 32MT-9ZZ65 "Maintenance of Non-Segregated Bus". The repair work was performed by Arizona Public Service (APS) electrical maintenance. The repairs were overviewed by the vendor's representative, and the final inspection and tests involved both the vendor's field engineer and representatives from the OMG staff electrical engineers.

A review of the qualifications of the personnel supervising the craft indicated that they were qualified to level II of ANSI 45.2.6 1978 "Qualifications of Inspection, Examination, and Testing Personnel for the Construction Phase of Nuclear Power Plants" which is consistent with maintenance procedure 30GA-0ZZ02 "Certification and Qualifications". A review of 4 of the OMG staff engineers showed 3 to have degrees in electrical engineering with many years of construction and test experience and a 4th to have 23 years of experience in construction and testing of electrical equipment and power supply systems.

Staff Position:

The inspector was unable to substantiate the allegation. Based on a review of documents and discussions with APS staff the bus was considered to have been properly repaired.

Action Required:

None.

b. Characterization:

Corrective Action Report (CAR) 85-0180 was not responded to.

Implied Significance to Plant Design, Construction, or Operations:

The referenced corrective action report issued by Arizona Public Service (APS) Quality Assurance (QA) department discusses the need for APS to establish in writing the job responsibilities and authorities for the Outage Maintenance

Group (OMG). This group is involved in directing and coordinating much of the corrective and facility change work at the Palo Verde Nuclear Generating Station.

Failure to respond to the CAR could result in avoidable administrative problems regarding the efficient delineation of maintenance task responsibilities at the site.

Assessment of Safety Significance:

A review of the status of the followup actions recommended by the corrective action report indicated that APS policy documents and project procedures delineating the responsibilities and functions of the OMG have been developed and are in the final stages of the approval process. Upon issuance of the procedures APS QA will close out corrective action report 85-0180. The implementation of the corrective action report followup by APS was considered consistent with program provisions.

Staff Position:

It appears that at the time the concern was presented to the Nuclear Regulatory Commission, APS had not completed all of the action needed to close out the corrective action report. This status was known to APS QA and was being tracked as an open item. Based on a review of the draft documents and discussions with APS staff, the resolution of this matter appears imminent.

Action Required:

None.

No violations of NRC requirements or deviations were identified.

13. Review of Periodic and Special Reports - Units 1, and 2.

Periodic and special reports submitted by the licensee pursuant to Technical Specifications 6.9.1 and 6.9.2 were reviewed by the inspector.

Unit 1

- Notification of Unusual Event on December 9, 1985.
- Monthly Operating Report for January, 1986.

Unit 2

- Monthly Operating Report for January, 1986.

This review included the following considerations: the report contained the information required to be reported by NRC requirements; test results and/or supporting information were consistent

with design predictions and performance specifications; and the validity of the reported information.

No violations of NRC requirements or deviations were identified.

14. Exit Meeting

The inspector met with licensee management representatives periodically during the inspection and held an exit on March 11, 1986. The scope of the inspection and the inspector's findings, as noted in this report, were discussed and acknowledged by the licensee representatives.