UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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ARLINGTON, TEXAS 76011-8064

June 13, 2000

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

SUBJECT: NRC INSPECTION REPORT NO. 50-528/00-06; 50-529/00-06; 50-530/00-06 FOR PALO VERDE NUCLEAR GENERATING STATION

Dear Mr. Overbeck:

This refers to the inspection conducted on April 2 through May 20, 2000, at the Palo Verde Nuclear Generating Station, Units 1, 2, and 3, facility. The enclosed report presents the results of this inspection. The results of this inspection were discussed on May 31, 2000, with you and members of your staff.

This inspection was an examination of activities conducted under your licenses as they relate to safety and to compliance with the Commission's rules and regulations and with the conditions of your licenses. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations of activities, and interviews with personnel.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/NRC/ADAMS/index.html (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

/RA/

P. H. Harrell, Chief
Project Branch D
Division of Reactor Projects

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

License Nos.: NPF-41
NPF-51
NPF-74

Enclosure:
NRC Inspection Report No.
50-528/00-06; 50-529/00-06; 50-530/00-06

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Only inspection reports to the following:
D. Lange **(DJL)**
NRR Event Tracking System **(IPAS)**
PV Site Secretary **(TLB4)**

DOCUMENT NAME: R:_PV\PV2000-06RP-JHM.wpd

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket Nos.:	50-528 50-529 50-530
License Nos.:	NPF-41 NPF-51 NPF-74
Report No.:	50-528/00-06 50-529/00-06 50-530/00-06
Licensee:	Arizona Public Service Company
Facility:	Palo Verde Nuclear Generating Station, Units 1, 2, and 3
Location:	5951 S. Wintersburg Road Tonopah, Arizona
Dates:	April 2 through May 20, 2000
Inspectors:	J. H. Moorman, III, Senior Resident Inspector D. E. Corporandy, Resident Inspector N. L. Salgado, Resident Inspector
Approved By:	P. H. Harrell, Chief, Project Branch D, Division of Reactor Projects

ATTACHMENTS:

Attachment 1: Supplemental Information

Attachment 2: NRC's Revised Reactor Oversight Process

SUMMARY OF FINDINGS

Palo Verde Nuclear Power Station
NRC Inspection Report 50-528/00-06; 50-529/00-06; 50-530/00-06

The report covers a 7-week period of resident inspection. In the Reactor Safety area, the cornerstones inspected included Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness.

There were no inspection findings identified in these areas.

Report Details

Summary of Plant Status

Unit 1 operated at essentially 100 percent power for the duration of this inspection period.

Unit 2 operated at essentially 100 percent power until May 8, 2000, when the spurious closure of a Steam Generator 2 main steam isolation valve forced operators to reduce reactor power to less than 50 percent. Power was returned to 100 percent on May 10 and remained there for the duration of this inspection period.

Unit 3 began the inspection period in Mode 3 in the eighth refueling outage. The unit was restarted on May 1 and returned to 100 percent power on May 6. It operated at 100 percent power for the remainder of this inspection period.

1. REACTOR SAFETY
Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness

1R04 Equipment Alignment - Routine Inspection

a. Inspection Scope

While the Unit 3 reactor was drained to the midloop condition and shutdown cooling Train A was in service for heat removal, the inspectors performed a partial alignment verification of shutdown cooling Train B. This inspection included an observation of Train B power supplies and a review of component alignments designated in Procedure 40OP-9SI01, “Shutdown Cooling Initiation,” Revision 16.

b. Issues and Findings

There were no findings identified during this inspection.

1R05 Fire Protection - Monthly Routine Inspection

a. Inspection Scope

The inspectors performed fire protection walkdowns to assess the material condition of plant fire protection equipment and proper control of transient combustibles. The following risk significant areas were inspected:

- Diesel generator building (Unit 1),
- Turbine-driven and motor-driven auxiliary feedwater pump rooms (Unit 2), and
- Control building 74 feet and 100 feet elevations (Unit 3).

b. Issues and Findings

There were no findings identified during this inspection.

1RO7 Heat Sink Performance

a. Inspection Scope

During the Unit 3 outage, licensee personnel conducted an inspection of the Trains A and B essential cooling water heat exchangers. The inspectors conducted an inspection of the heat exchanger to determine if the licensee's inspections were sufficient to detect degradation prior to loss of heat removal capabilities below design basis values. The inspectors also reviewed test and analysis results for the Train A essential cooling water heat exchanger. The analysis and test were conducted in accordance with Procedure 73DP-9ZZ10, “Guidelines For Heat Exchanger Thermal Performance Analysis,” Revision 2, and Procedure 70TI-9EW01, “Thermal Performance Testing Of Essential Cooling Water Heat Exchangers,” Revision 4. This review was conducted to determine if the test acceptance criteria and results appropriately considered the differences between testing conditions and design conditions and to determine if the results were appropriately measured against pre-established acceptance criteria and were acceptable.

b. Issues and Findings

There were no findings identified during this inspection.

1R11 Licensed Operator Requalification

1. Inspection Scope

On May 16, the inspectors observed licensed operators during requalification testing in the plant simulator. The inspectors observed the simulator evaluation to assess licensed operator performance and the quality of the training.

b. Issues and Findings

There were no findings identified during this inspection.

1R12 Maintenance Rule Implementation

a. Inspection Scope

The inspectors reviewed two equipment failures to verify that licensee personnel properly implemented the requirements of 10 CFR Part 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." Specifically, the inspectors evaluated the failure of Unit 2 auxiliary feedwater pump trip and throttle Valve 2JAFAHV0054 and the failure of the Unit 3 emergency diesel generator Train A fuel oil line to Cylinder 10L. The inspectors used the maintenance rule field flow chart to determine if the licensee properly dispositioned the failures.

b. Issues and Findings

There were no findings identified during this inspection.

1R13 Maintenance Risk Assessment and Emergent Work Evaluation

.1 Auxiliary Feedwater Pump Turbine Trip and Throttle Valve Operator Switch Replacement

a. Inspection Scope

The inspectors reviewed the work order and observed troubleshooting activities associated with the failure of Unit 2 auxiliary feedwater pump turbine trip and throttle Valve 2JAFAHV0054. The licensee discovered that a torque switch in the valve operator had failed and required replacement. The inspectors reviewed the licensee's work prioritization and risk determination to verify that this activity was properly planned, controlled, and executed.

b. Issues and Findings

There were no findings identified during this inspection.

.2 Containment Purge Supply Inlet Isolation Valve 3JCPBUV005A

a. Inspection Scope

The inspectors reviewed the licensee's emergent maintenance activities following discovery of excessive leakage of containment purge supply inlet isolation Valve 3JCPBUV005A during the integrated leak rate testing of the Unit 3 containment. The inspectors observed portions of maintenance activities performed by licensee personnel to correct the problem with Valve 3JCPBUV005A leakage and postmaintenance testing conducted in accordance with Work Order 00926394. The inspectors also reviewed the licensee's evaluation of the applicability of the observed problem to containment purge exhaust inlet isolation Valve 3JCPBUV004B and similar valves in Units 1 and 2.

b. Issues and Findings

There were no findings identified during this inspection.

1R14 Nonroutine Plant Evolutions

a. Inspection Scope

On May 8, 2000, Unit 2 was operating at 100 percent power when main steam isolation Valve 171 spuriously closed. Annunciator response procedures required a reduction in reactor power to 65 percent. Reactor power was reduced to less than 50 percent to maintain plant parameters within Technical Specification limits. The inspectors reviewed

control room logs and various parameter plots to assess operator response to the main steam isolation valve failure. The licensee identified that a failed pilot air valve solenoid on the Train A hydraulics for Main Steam Isolation Valve 171 caused the spurious valve closure. The solenoid was replaced and retested using Work Order 927502.

On May 9, the inspectors monitored control room activities associated with the power increase after the solenoid replacement and plant parameters had stabilized. The inspectors observed the operators conduct the power increase and assessed their use of required procedures.

b. Issues and Findings

There were no findings identified during this inspection.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following operability evaluation for technical adequacy and impact on continued plant operation:

- Operability Determination 138 evaluates insufficient separation of class and nonclass cables in the Train B BOP-ESFAS cabinet SABC02B, Bays 2 and 4 (CRDR 1-6-0193).

b. Issues and Findings

There were no findings identified during this inspection.

1R19 Postmaintenance Testing

a. Inspection Scope

The inspectors observed or evaluated the following postmaintenance tests to determine whether the test adequately confirmed equipment operability:

- Work Order 00923400 retest of auxiliary feedwater pump trip and throttle Valve 2JAFAHV54 following installation of new torque switch,

- Work Order 00914776 retest of Inverter 3E-PNB-N12 following replacement of capacitors, and

- Work Order 00901334 retest of auxiliary feedwater Pump A following inspection and adjustment of overspeed trip tappet.

b. Issues and Findings

There were no findings identified during this inspection.

1R20 Refueling and Outage Activities

.1 Review of the Unit 3 Outage Plan

a. Inspection Scope

The inspectors reviewed the licensee's outage risk assessment, Palo Verde Unit 3 Eighth Refueling Shutdown Risk Assessment, to verify that the licensee appropriately considered risk in planning and scheduling the outage activities.

The inspectors primarily focused on the following activities:

- Transition and midloop operation,
- Fuel offload and reload, and
- Replacement of Class 1E batteries.

b. Issues and Findings

There were no findings identified during this inspection.

.2 Monitoring of Shutdown Activities

a. Inspection Scope

The inspectors reviewed plant data records and control room and unit logs and conducted interviews with licensed operators to assess the licensee's compliance with Technical Specification plant cooldown limits during the Unit 3 plant cooldown.

b. Issues and Findings

There were no findings identified during this inspection.

.3 Control of Outage Activities

a. Inspection Scope

The inspectors reviewed plant conditions and observed selected refueling outage activities throughout the outage to verify that the licensee maintained the plant in a configuration consistent with the requirements of Technical Specifications and with the assumptions of the outage risk assessment. The inspectors verified that emergent issues were properly assessed for their impact to plant risk. Removal of decay heat was verified by reviewing compliance with Procedure 40OP-9PC05, “Augmentation of Fuel Pool Cooling with Shutdown Cooling,” Revision 11, and conducting walkdowns of the shutdown cooling and spent fuel pool cooling systems to verify proper alignment and operation.

Electrical power availability was periodically verified to meet Technical Specification requirements and outage risk assessment recommendations. Control room operators were interviewed to determine if they were cognizant of plant conditions. The inspectors reviewed equipment clearance activities, controls for reactivity management, and reactor coolant system inventory. The inspectors reviewed Procedure 40ST-9ZZ08, "Containment Building Atomospheric Penetrations Weekly Surveillance," Revision 10, and conducted system walkdowns to verify containment closure capability.

b. Issues and Findings

There were no findings identified during this inspection.

.4 Reduced Inventory and Midloop

a. Inspection Scope

The inspectors observed Unit 3 midloop activities to verify that the licensee had appropriately considered the risk associated with this activity. The inspectors reviewed the licensee's response to Generic Letter 88-17 and verified that licensee commitments had been properly translated into procedures. The inspectors also verified that multiple sources of electrical power, multiple reactor vessel level indications, and multiple reactor coolant system temperature indications were available. The inspectors observed licensee compliance with the following procedures:

- 40OP-9ZZ16 "RCS Drain Operations," Revision 17
- 40OP-9ZZ20 "Reduced Inventory Operations," Revision 3

b. Issues and Findings

There were no findings identified during this inspection.

.5 Refueling Activities

a. Inspection Scope

The inspectors observed portions of core off-load and core reload activities to determine if these activities were conducted in accordance with the Technical Specifications and administrative procedures. Refueling was conducted using Procedure 72IC-9RX03, "Core Reloading," Revision 14.

b. Issues and Findings

No findings were identified during this inspection.

.6 Monitoring of Heatup and Startup Activities

a. Inspection Scope

The inspector observed portions of the Unit 3 startup that were conducted in accordance with the following procedures:

- 40OP-9ZZ02 "Initial Reactor Startup Following Refuelings," Revision 17
- 40OP-9ZZ03 "Reactor Startup," Revision 17
- 40OP-9ZZ04 "Plant Startup Mode 2 to Mode 1," Revision 19
- 40ST-9ZZ09 "Containment Cleanliness Inspection," Revision 2
- 72PY-9RX01 "Low Power Physics Tests," Revision 22
- 77ST-9RX01 "CEA Drop Time," Revision 1

The inspectors reviewed these activities for compliance with the Technical Specifications and administrative requirements. The inspectors accompanied licensee personnel during the performance of Procedure 40ST-9ZZ09 to assess containment cleanliness and material condition of components.

b. Issues and Findings

There were no findings identified during this inspection.

.7 Identification and Resolution of Problems

a. Inspection Scope

The inspectors screened condition report/disposition requests that documented problems identified during the Unit 3 outage to verify that problems were identified at an appropriate threshold.

b. Issues and Findings

There were no findings identified during this inspection.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors observed or reviewed the following tests:

- 33FT-9FP02 "CO2 Fire Suppression System Damper Functional Test," Revision 2 (Unit 3)

- 40ST-9DG02 “Diesel Generator B Test,” Revision 14 (Unit 2)
- 73ST-9CL01 "Containment Leakage Type "B" and "C" Testing," Revision 8 (Unit 3, Penetration 26 - Shutdown Cooling Loop Number 2)
- 73ST-3DG01 “Class 1E Diesel Generator and Integrated Safeguards Surveillance Test,” Revision 9 (Unit 3)
- 73ST-9SI10 "HPSI Pumps Miniflow - Inservice Test," Revision 16 (Unit 1)
- 73ST-9SI10 “HPSI Pumps Miniflow - Inservice Test,” Revision 16 (Unit 2)
- 73ST-9XI24 “Reactor and Pressurizer Vent Valves-In-Service Test,” Revision 3 (Unit 3)

b. Issues and Findings

There were no findings identified during this inspection.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed Temporary Modification 01-NC-99-020, which disabled the nuclear cooling water low flow trip to letdown line Containment Isolation Valve 1JCHB-UV0523. A jumper was installed to disable the interlock that isolates Valve 1JCHB-UV0523 when a loss of nuclear cooling water flow to the letdown heat exchanger is detected on Flow Switch NCN-FSL-613. Valve 1JCHB-UV0523 would continue to close automatically in response to a containment isolation actuation signal. This modification will remain installed until the unit is shutdown for the next refueling outage.

b. Observations and Findings

There were no findings identified during this inspection.

1EP6 Drill Evaluation

.1 Emergency Preparedness Exercise

a. Inspection Scope

On May 17, 2000, the licensee conducted an emergency preparedness exercise. Prior to the exercise, the inspectors reviewed the scenario to determine whether the exercise was of appropriate scope to be included in the performance indicator statistics as intended by the licensee. During the exercise, the inspectors observed performance of the operations crew in the simulator, as well as licensee performance in the Technical Support Center and Emergency Operations Facility. The inspectors observed activities involving event classification, notification, and protective action recommendations. The

inspectors' observations were compared with licensee identified findings to determine the adequacy of the licensee's exercise evaluation process.

b. Issues and Findings

There were no findings identified during this inspection.

OTHER ACTIVITIES

4OA3 Event Followup

(Closed) Licensee Event Report (LER) 50-528,-529,-530/1998-003-00: main steam safety valve as-found lift pressures outside of Technical Specification limits. This LER was a minor issue and was closed.

(Closed) LER 50-528,-529,-530/1998-003-01: main steam safety valve as-found lift pressures outside of Technical Specification limits. This LER was a minor issue and was closed.

(Closed) LER 50-528,-529,-530/1998-008-00: equipment qualification of electrical connectors may not be adequately demonstrated. This LER was a minor issue and was closed.

(Closed) LER 50-529/1999-002-00: main steam safety valve lift pressures outside of Technical Specification limits. This LER was a minor issue and was closed.

(Closed) LER 50-529/1999-004-00: pressurizer safety valve lift pressures outside of Technical Specification limits. This LER was a minor issue and was closed.

(Closed) LER 50-528/1999-005-00: main steam safety valve lift pressures outside of Technical Specification limits. This LER was a minor issue and was closed.

4OA6 Meetings

.1 Exit Meeting Summary

The inspectors presented the inspection results to Mr. G. Overbeck, Senior Vice President - Nuclear, and other members of licensee management on May 31, 2000. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT 1

PARTIAL LIST OF PERSONS CONTACTED

Licensee

M. Banks, Communications Representative, Strategic Communications
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F. Gowers, Site Representative, El Paso Electric
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D. Marks, Section Leader, Nuclear Regulatory Affairs
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P. Wiley, Unit 2 Department Leader, Operations

ITEMS CLOSED

Closed

50-528,-529, -530/1998-003-00	LER	Main Steam Safety Valve As-found Lift Pressures Outside of TS Limits (Section 4OA3)
50-528,-529, -530/1998-003-01	LER	Main Steam Safety Valve As-found Lift Pressures Outside of TS Limits (Section 4OA3)
50-528,-529, -530/1998-008-00	LER	Equipment Qualification Of Electrical Connectors May Not Be Adequately Demonstrated (Section 4OA3)
50-529/1999-002-00	LER	Main Steam Safety Valve Lift Pressures Outside of TS Limits (Section 4OA3)
50-529/1999-004-00	LER	Pressurizer Safety Valve Lift Pressures Outside of TS Limits (Section 4OA3)
50-528/1999-005-00	LER	Main Steam Safety Valve Lift Pressures Outside of TS Limits (Section 4OA3)

ATTACHMENT 2

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety	Radiation Safety	Safeguards
● Initiating Events	● Occupational	● Physical Protection
● Mitigating Systems	● Public	
● Barrier Integrity		
● Emergency Preparedness		

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: http://www.nrc.gov/NRR/OVERSIGHT/index.html.