UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

July 19, 2002

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

SUBJECT: PALO VERDE NUCLEAR GENERATING STATION - NRC INTEGRATED INSPECTION REPORT 50-528/02-03; 50-529/02-03; 50-530/02-03

Dear Mr. Overbeck:

On June 22, 2002, the NRC completed an inspection at your Palo Verde Nuclear Generating Station, Units 1, 2, and 3, facility. The enclosed report documents the inspection findings, which were discussed with you and other members of your staff on June 26, 2002, and as described in Section 4OA6.

The inspection examined activities conducted under your licenses as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel. No findings of significance were identified.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be made 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/reading-rm/adams.html (the Public Electronic Reading Room).

The NRC has increased security requirements at Palo Verde Nuclear Generating Station in response to terrorist acts on September 11, 2001. Although the NRC is not aware of any specific threat against nuclear facilities, the NRC issued an Order and several threat advisories to commercial power reactors to strengthen licensees' capabilities and readiness to respond to a potential attack. The NRC continues to monitor overall security controls and will issue temporary instructions in the near future to verify by inspection the licensee's compliance with the Order and current security regulations.

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

Sincerely,

/RA/

Linda Joy Smith, Chief
Project Branch D
Division of Reactor Projects

Dockets: 50-528
50-529
50-530
Licenses: NPF-41
NPF-51
NPF-74

Enclosure:
NRC Inspection Report
50-528/02-03; 50-529/02-03; 50-530/02-03

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Dockets:	50-528 50-529 50-530
Licenses:	NPF-41 NPF-51 NPF-74
Report No:	50-528/02-03 50-529/02-03 50-530/02-03
Licensee:	Arizona Public Service Company
Facility:	Palo Verde Nuclear Generating Station, Units 1, 2, and 3
Location:	5951 S. Wintersburg Road Tonopah, Arizona
Dates:	March 24, 2002 through June 22, 2002
Inspectors:	N. Salgado, Acting Senior Resident Inspector J. Moorman, III, Senior Resident Inspector G. Warnick, Resident Inspector J. Clark, Senior Project Engineer D. Proulx, Senior Resident Inspector M. Hay, Resident Inspector C. Paulk, Senior Reactor Inspector, Engineering and Maintenance I. Barnes, Consultant W. McNeill, Reactor Inspector
Approved By:	Linda Joy Smith, Chief, Project Branch D Division of Reactor Projects

SUMMARY OF FINDINGS

Palo Verde Nuclear Generating Station, Units 1, 2, and 3
NRC Inspection Report 50-528/02-03; 50-529/02-03; 50-530/02-03

IR 05000528-02-03, IR 05000529-02-03, IR 05000530-02-03, on 3/24/02 - 6/22/02, Arizona Public Service Company, Palo Verde Nuclear Generating Station; Units 1, 2, and 3. Integrated resident and regional report. No findings were identified.

The report covered a 13-week period of resident inspection, and regional inspections by a senior project engineer, a senior reactor inspector, a reactor inspector, and a consultant. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using IMC 609 "Significance Determination Process." The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/index.html.

A. Inspector Identified Findings

No findings of significance were identified.

Report Details

Summary of Plant Status

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

Unit 2 began this inspection period in Mode 6 in the tenth refueling outage. The outage was completed on April 17, 2002, and the unit was returned to essentially full power on April 21, and remained at that power level for the duration of this inspection period.

Unit 3 operated at essentially full power for the duration of this inspection period.

1. REACTOR SAFETY
Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity
[REACTOR - R]

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

The inspectors completed a partial walkdown of the systems listed below to verify proper equipment alignment. This inspection included a review of the applicable plant procedures and drawings. The inspectors verified the following; all valves were properly aligned, there was no leakage that could affect operability, electrical power was available as required, major system components were properly labeled, lubricated, and cooled, and hangers and supports were correctly installed and functional.

- April 10, 2002 - Shutdown Cooling Trains A and B (Unit 2)
- June 12, 2002 - Emergency Diesel Generator B (Unit 2)

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

a. Inspection Scope

The inspectors conducted tours of the areas listed below that are important to reactor safety and referenced in the Prefire Strategies Manual to evaluate conditions related to licensee control of transient combustibles and ignition sources; the material condition, operational status, and operational lineup of fire protection systems, equipment and features; and the fire barriers used to prevent fire damage from propagation of potential fires.

- March 6, 2002, Diesel generator building - all accessible elevations (Unit 1)
- March 7, 2002, Diesel generator building - all accessible elevations (Unit 2)
- April 29, 2002, Main steam support structure (Unit 3)

- June 7, 2002, Control building 120-foot, 140-foot, and 160-foot elevations (Unit 3)
- June 18, 2002, Auxiliary building 100-foot (Unit 2)

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors reviewed the Updated Final Safety Analysis Report and Design Calculation 13-MC-DG-0204, "Diesel Generator Building Flooding Analysis," to verify that the internal flood mitigation plans and equipment were consistent with design requirements. A walkdown of Unit 3 diesel generator building was conducted to verify that the appropriate internal flooding sources were included in the licensee's flooding analysis. The adequacy of watertight doors, penetration seals, and floor drains used to mitigate the consequences of internal flooding for these areas were also assessed.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

During the Unit 2 outage in March, 2002, licensee personnel conducted an inspection of the Train B essential cooling water heat exchanger. The inspectors also reviewed test and analysis results for the Train B essential cooling water heat exchanger. Heat exchanger data was collected on March 19, 2002, as directed by Procedure 70TI-9EW01, "Thermal Performance Testing Of Essential Cooling Water Heat Exchangers," Revision 4. The data was analyzed using Procedure 73DP-9ZZ10, "Guidelines For Heat Exchanger Thermal Performance Analysis," Revision 3. Final review of the analysis was completed on May 30, 2002. The inspectors' review was conducted to determine if the test acceptance criteria and results appropriately considered the differences between testing and design conditions, and to determine if the results were appropriately measured against pre-established acceptance criteria and were acceptable.

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection Activities (71111.08)

.1 Performance of Nondestructive Examination (NDE) Activities

a. Inspection Scope

The inspector observed licensee and contractor NDE personnel perform the ASME Code Section XI specified examinations listed below:

System	Component/Weld Identification	Examination Method
Reactor Coolant	Pipe to Pump Outlet Nozzle Zone 6 Weld 18-1	Magnetic Particle Examination
Reactor Coolant	Pipe to Safety Injection Nozzle Zone 6 Weld 13-8	Magnetic Particle Examination
Safety Injection	Pipe to Valve Zone 26 Weld 26-17	Liquid Penetrant Examination
Safety Injection	Pipe to Valve Zone 26 Weld 24-19	Liquid Penetrant Examination
Reactor Coolant	Elbow to Nozzle Weld Zone 31 Weld 31-9	Ultrasonic Examination
Reactor Coolant	Pipe to Elbow Weld Zone 31 Weld 31-10	Ultrasonic Examination
Reactor Coolant	Pipe to Nozzle Weld Zone 31 Weld 5-31	Ultrasonic Examination

During the performance of each examination, the inspector verified that the correct NDE procedure was used, procedural requirements or conditions were as specified in the procedure, and test instrumentation or equipment was properly calibrated and within the allowable calibration period. The inspector also verified that indications revealed by the examinations were compared against the previous outage examination reports and the ASME code-specified acceptance standards and appropriately dispositioned.

b. Findings

No findings of significance were identified.

.2 ASME Code Welding

a. Inspection Scope

The inspector reviewed a repair performed under Section III of the ASME Code. The welding was accepted based on radiography. The inspector verified that the appropriate

penetrameter had been used, and that film density and geometric unsharpness of the radiographic film were acceptable. The inspector verified that the radiography was in accordance with ASME Code.

b. Findings

No findings of significance were identified.

.3 ASME Code Section XI Repair and Replacement Activities

a. Inspection Scope

The inspector reviewed two ASME Code Section XI valve replacements, Work Orders (WO) 230255 and 240482, on replacement of valves in the diesel generator air receiver and pressurizer relief systems. No welding was performed on either replacements. The inspector verified that the replacements met ASME Code requirements.

b. Findings

No findings of significance were identified.

.4 Identification and Resolution of Problems

a. Inspection Scope

The inspector reviewed the condition reports/disposition requests (CRDRs) issued during the past year and reviewed in detail a sample of five CRDRs on inservice inspection activities. The inspector verified that the licensee identified, evaluated, corrected, and trended problems.

b. Findings

No findings of significance were identified.

.5 Steam Generator Tube Integrity

a. Inspection Scope

The inspectors reviewed the licensee's in-situ screening criteria to verify that the criteria were in accordance with industry guidelines. The estimated size and number of tube flaws identified up to the date of the inspection were compared, by the inspectors, to the operational assessment predictions from the previous outage. The inspectors also reviewed the eddy current examination scope and expansion criteria to determine if the Technical Specifications (TS), industry guidelines, and commitments to the NRC were being met.

The inspectors reviewed the areas of potential degradation (based on site-specific and industry experience) to verify that such areas were being inspected. The inspectors also reviewed the leakage history for the steam generators to verify that the leakage was less than 3 gallons per day during operations. The eddy current probes and equipment were reviewed to ascertain if they were properly qualified for the expected types of tube degradation.

The inspectors observed the collection and analysis of eddy current data by licensee personnel that was performed to evaluate a possible loose part. The inspectors also reviewed the only corrective action document generated (CRDR 2499573). This document was generated as the result of identifying a possible axial crack located immediately adjacent to a dent in a tube located at the 02H support on the hot leg. As a result of identifying this flaw, the corrective action document was generated to expand the scope of the current eddy current examinations to include all identified dents in each steam generator between the 01H and 03H supports. These examinations were to be performed with a plus point probe.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalifications (71111.11)

a. Inspection Scope

On June 5, 2002, the inspectors observed a training simulator scenario for various crews conducted during Cycle NLR02-HIT, Week 7. The inspectors observed the simulator scenarios, the crew performance, and the evaluator critique session conducted following the completion of the simulator scenarios. Additionally, the inspectors compared simulator board configurations with actual control room board configuration for consistency.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12)

a. Inspection Scope

The inspectors evaluated the following equipment failures to verify that licensee personnel properly implemented the requirements of 10 CFR 50.65, “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants”:

- Two separate personnel airlock door seal test failures occurred during the performance of Procedure 73ST-9CL03, "Containment Airlock Door Seal Leak Test," Revision 13 as reported in CRDR 2438401 (Unit 3)

- Valve 1JSIBHV0693 failed to open during the performance of Procedure 73ST-9XI04, "SI Train B Valves - Inservice Test," Revision 12, as reported in CRDR 2499037 (Unit 1)

- Valve 3JSIAHV0698 failed to stroke open reported on Work Mechanism 2432707, as reported in CRDR 2466252 (Unit 3)

- Fire Panel 2JFPNE49 failed to actuate during the performance of Procedure 14FT-9FP28, "FPN-Spray and/or Sprinkler System Functional Test," as reported in CRDR 2500915 (Unit 2)

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation (71111.13)

a. Inspection Scope

Throughout this inspection period the inspectors reviewed daily and weekly work schedules to determine when risk-significant activities were scheduled. The inspectors reviewed risk evaluations and overall plant configuration control for selected activities to verify compliance with Procedure 30DP-9MT03, “Assessment and Management of Risk When Performing Maintenance in Modes 1 - 4,” Revision 5. The inspectors discussed emergent work issues with work control personnel and reviewed the potential risk impact of these activities to verify that the work was adequately planned, controlled, and executed. The inspectors verified that plant configurations allowed by the Plant Configuration Risk Indicator Matrix were consistent with actual plant conditions during maintenance. The specific activities reviewed were associated with planned and emergent maintenance on:

- March 25, 2002, safety injection tank 2B vent Valve 3JSIAHV0606 replacement (Unit 3)

- April 9, 2002, auxiliary feedwater Valve 3JAFCHV0033 scheduled maintenance (Unit 3)

- April 19, 2002, Shifted main feedwater pump coolers using Procedure 43OP-3FT02, Section 4.7 (Unit 3)

- April 22, 2002, Switchyard circuit Breaker PL-948 out of service from April 22 through May 10 (Unit 1 and Unit 3)

- April 24, 2002, Control element assembly motion demand troubleshooting (Unit 3)

- June 6, 2002, Auxiliary feedwater steam supply Valve SGA-UV-138 slow stroke time troubleshooting (Unit 1)

- June 5, 2002, Scheduled online outage for emergency diesel generator, essential chilled water, essential cooling water Train A (Unit 2)

- June 18, 2002, Failure lubricating oil circulating oil pump Breaker PHBM3436 for emergency diesel Generator B (Unit 2)

- June 10 through June 17, 2002, Startup Transformer NAN-XO1 was declared inoperable for scheduled maintenance activities (Unit 2 and Unit 3)

- June 11, 2002, Steam generator atmospheric dump Valve SGA-HV-184 was declared inoperable for scheduled maintenance activities (Unit 1)

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors evaluated the operability determinations listed below for technical adequacy and assessed the impact of the condition on continued plant operation. Additionally, the inspectors reviewed TS entries, CRDRs, and equipment issues to verify that operability of plant structures, systems, and components was maintained or that TS actions were properly entered.

- PK battery Breaker 2EPKAM4102 loss of positive trip shaft paddle did not render the breaker inoperable since the negative overcurrent device would trip the breaker (CRDR 2495553) (Unit 2)

- Operability Determination 248, Revision 0, assessment of safety-related inverter and static transfer switch operability with quality class nonquality-related metal oxide varisters installed (CRDR 2502698) (Units 1, 2, and 3)

- Operability of the emergency diesel Generator B when it tripped on high crankcase pressure approximately 1 minute into its cooldown cycle on May 29, 2002 (CRDR 2523835) (Unit 3)

- Declaration of all 4 channels of core protection calculators inoperable upon discovery that uncertainty constants installed in the calculators were incorrect. Uncertainty constants for departure from nucleate boiling ratio and local power density had the posttesting values inserted instead of the pretesting values (CRDR 2508991) (Unit 2)

- Operability Determination 2527266, Revision 1, and CRDR 2527160, Operability of motor operated valves with degraded Rotork Add-on-Pak switch assemblies (Unit 1, 2, and 3)

- CRDR 2529253, Operability of safety injection Tank 1A with leaking reference leg socket weld (Unit 2)

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors observed and/or evaluated the results from the following postmaintenance tests to determine whether the test adequately confirmed equipment operability. The inspectors also verified that postmaintenance tests satisfied the requirements of Procedure 30DP-9WP04, "Post-maintenance Testing Development," Revision 13.

- Various WOs Emergency diesel generator Train B maintenance (Unit 2)
- WO 2514064 Corrective maintenance on Steam Generator 2 steam supply to auxiliary feedwater Pump A bypass Valve SGA-UV-138A (Unit 2)
- Various WOs Auxiliary feedwater Pump A maintenance (Unit 2)

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20)

Unit 2 - Tenth Refueling Outage

.1 Review of the Unit 2 Outage Plan

a. Inspection Scope

The inspectors reviewed the licensee's outage risk assessment, Palo Verde Unit 2 Tenth Refueling Shutdown Risk Assessment, Revision 1, to verify that the licensee appropriately considered risk in planning and scheduling the outage activities.

The inspectors primarily focused on the following activities:

- Midloop and reduced inventory operations
- Spent fuel pool cooling during fuel off-load/reload and core off-loaded
- Reactor vessel head inspections

b. Findings

No findings of significance were identified.

.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 TS plant cooldown limits during the Unit 2 plant cooldown.

b. Findings

No findings of significance were identified.

.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 TS and with the assumptions of the outage risk assessment. The inspectors verified that emergent issues were properly assessed for their impact on plant risk.

Electrical power availability was periodically verified to meet TS 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 (RCS) inventory.

b. Findings

No findings of significance were identified.

.4 Clearance Activities

a. Inspection Scope

The inspectors reviewed the following equipment clearances:

- ID 64525Second half-pipe clearance for RCS/CH/SI half-pipe work
- ID 29708Possible cross connection of fuel pool cooling and cleanup trains
- ID 61844Outage clearance for PCNV-118 status control

b. Findings

No findings of significance were identified.

.5 Reduced Inventory and Midloop

a. Inspection Scope

On March 19 and April 10, 2002, the inspectors observed, in part, Unit 2 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 RCS temperature indications were available. The inspectors observed licensee compliance with the following procedures:

- 40OP-9ZZ16 "RCS Drain Operations," Revision 29
- 40OP-9ZZ20 "Reduced Inventory Operations," Revision 4

b. Findings

No findings of significance were identified.

.6 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 TS and administrative procedures. Refueling was conducted using Procedure 72IC-9RX03, "Core Reloading," Revision 17.

b. Findings

No findings of significance were identified.

.7 Monitoring of Heatup and Startup Activities

a. Inspection Scope

The inspector reviewed control room and unit logs to verify that the Unit 2 startup was conducted in compliance with TS and administrative requirements. The inspectors accompanied licensee personnel during the performance of Procedure 40ST-9ZZ09, "Containment Cleanliness Inspection," Revision 4, to assess containment cleanliness and materiel condition of components. The inspectors reviewed Procedure 72PY-9RX04, "Low Power Physics Testing using RMAS," Revision 1, to verify that core operating limit parameters were consistent with the design.

b. Findings

No findings of significance were identified.

.8 Identification and Resolution of Problems

a. Inspection Scope

The inspectors screened CRDRs that documented problems identified during the Unit 2 outage to verify that problems were identified at an appropriate threshold.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed the performance of and/or reviewed documentation for the following surveillance tests. Applicable test data was reviewed to verify whether they met TS, Updated Final Safety Analysis Report, and licensee procedure requirements. Also, the inspectors verified that the testing effectively demonstrated that the systems were operationally ready, capable of performing their intended safety functions, and that identified problems were entered into the corrective action program for resolution.

- March 28, 2002 Procedure 73ST-9DG01**,** "Class 1E Diesel Generator and Integrated Safeguards Test Train A," Revision 4, Section 8.5 (Unit 2)
- April 4, 2002 Procedure 73ST-9CL01, "Containment Leakage Type "B" and "C" Testing," Revision 16, Section 8.18.5 (Unit 2)
- April 9, 2002 Procedure 73ST-9DG02, "Class 1E Diesel Generator and Integrated Safeguards Test Train B," Revision 4, Section 8.2 (Unit 2)
- May 7, 2002 Procedure 40ST-9DG01, "Diesel Generator A Test," Revision 16 (Unit 1)
- May 13, 2002 Procedure 73ST-9SG01, "MSIVs - Inservice Test," Revision 14 (Unit 1)
- May 11, 2002 Procedure 73ST-9AF02, "AFA-P01 - Inservice Test," Revision 23 (Unit 2)

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors evaluated the following temporary modifications (T-Mod) and associated 10 CFR 50.59 screening. The inspectors reviewed these against the system design basis documentation and verified that the modification did not adversely affect system operability or availability. Additionally, the inspectors verified that the installation was consistent with applicable modification documents and conducted with adequate configuration control. The inspectors observed the installation of and/or reviewed documentation for the following T-Mods:

- T-Mod 2508956 Installed a air blower to bearing oil seal of main feedwater Pump B to reduce an excessive bearing oil leak (Unit 3).

- DFWO 2523674 Install raychem blanket on Breaker 2EPBSA03B bushing to prevent potential arcing due to solarite leakage on Phase C primary disconnect (Unit 2).

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness (EP)

1EP6 Drill Evaluations (71114.06)

a. Inspection Scope

On May 8, 2002, the licensee conducted an emergency preparedness drill. Prior to the drill, the inspectors reviewed the scenario to determine whether it was of appropriate scope to be included in the performance indicator statistics as intended by the licensee. During the drill the inspectors observed performance of the operations crew in the simulator, as well as licensee performance in the Technical Support Center and in the 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. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES (OA)

4OA1 Performance Indicator Verification (71151)

1. Residual Heat Removal System Unavailability

a. Inspection Scope

The inspectors reviewed unit logs, maintenance rule unavailability tracking database and TS component condition records from July 2001 through May 2002 to verify the accuracy and completeness of the unavailability data used to calculate the residual heat removal system unavailability for all three units.

b. Findings

No findings of significance were identified. The performance indicator remained in the licensee response band (Green).

4OA3 Event Followup (71153)

.1 Pressurizer Spray Check Valve Leakage

a. Inspection Scope

On April 29, 2002, an increase in RCS leakage for Unit 1 developed due to leakage from pressurizer spray check Valve 1PRCEV244. The valve had been previously furmanite leak sealed. The total leakage had approximately doubled .34 gpm to 0.70 gpm. The inspectors evaluated the engineering assessment of the furmanite activities on Valve 1PRCEV244 per WO 2429435.

b. Findings

No findings of significance were identified.

.2 (Closed) Licensee Event Report (LER) 50-529/2000-002-00: Main Steam Safety Valve Lift Pressures Outside of TS Limits. The inspectors reviewed the LER and the associated safety consequences analysis and no findings of significance were identified. This TS violation was placed in the licensee's corrective action program and documented on CRDR 2316994. This event constituted a violation of minor significance that is not subject to enforcement action in accordance with Section IV of the Enforcement Policy.

.3 (Closed) LER 50-529/2002-001-00: Main Steam Safety Valve As-found Lift Pressure Outside of TS Limits. The inspectors reviewed the LER and no findings of significance were identified. This event was placed in the licensee's corrective action program and documented on CRDR 2481479. This event constituted a violation of minor significance that is not subject to enforcement action in accordance with Section IV of the Enforcement Policy.

4OA5 Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles (TI 2515/145)

.1 Bulletin 2001-01 Response and Inspection Overview

a. Inspection Scope

On March 18 through April 5, 2002, the inspectors performed NRC Inspection Manual Temporary Instruction 2515/145 for Unit 2 during refueling outage 2R10. They reviewed the licensee's inspection plan, and the NRR assessment, in response to NRC Bulletin 2001-01. The inspectors noted that Palo Verde U-2 was considered a Moderate-Susceptible Plant (Bin 3) according to the bulletin. The inspectors noted that Bulletin 2001-01 recommended a 100 percent effective visual examination of the surface of the reactor vessel head and the annulus area around each penetration nozzle. However, the licensee expressed excessive difficulty in visually inspecting the area above the reactor vessel head, under the permanent insulation package. Therefore, the licensee committed to a 100 percent under head volumetric examination of each control rod drive mechanism nozzle, and a qualified visual examination of the reactor vessel head vent. The licensee's methodology employed both ultrasonic and eddy current examination of the under head sections of each nozzle. Their plan also considered that no significant amounts of boric acid had leaked onto the head or insulation in the past, and that a visual inspection of 25 periphery nozzles at the beginning of this outage showed no significant amounts of boric acid trails or staining. Through discussions with the licensee and conferences with NRR, the inspectors assessed the validity of this methodology to meet the intent of NRC Bulletin 2001-01.

b. Findings

No findings of significance were identified.

.2 Volumetric Examinations

a. Inspection Scope

The inspectors verified that the licensee's volumetric inspection plan and critical performance objectives were incorporated into site procedures. They also interviewed plant inspection personnel, and contractors performing the inspections, to determine their understanding of NRC Bulletin 2001-01and the specific inspection plan. The inspectors reviewed Westinghouse Field Service Procedures MRS-SSP-1274, Revision 0, and WDI-UT-010, Revision 1, which governed the volumetric testing. NRR personnel, in conjunction with the inspectors, reviewed the qualification of these methods and their ability to determine flaws in j-groove welds and base metals associated with primary water stress corrosion cracking. The inspectors conducted interviews with plant engineers and Westinghouse contractors to determine their training, background, and expertise in conducting and analyzing these examinations, including questions regarding the methods used to ensure complete documentation and

review of all findings. The inspectors also observed the equipment operation and a sample of the actual nozzle testing.

b. Findings

No findings of significance were identified.

.3 Qualified Visual Examinations

a. Inspection Scope

On March 21, 2002, the inspectors attended a crew briefing for the visual inspection of the reactor vessel head vent. The inspectors discussed the scope of the inspection with the licensee and contractor personnel. They also discussed the qualification and experience of the examiners. The inspectors observed the setup and testing of the remote video equipment used for the examination. The inspectors observed the visual examination to verify that a clear 360 degree observation could be made, and that no evidence of cracking or boric acid crystals were present.

b. Findings

No findings of significance were identified.

4OA6 Management Meetings

Exit Meeting Summary

The inspectors presented steam generator inservice inspection activities inspection results to Mr. R. Schaller and Mr. D. Hansen, at the conclusion of the inspection on March 31, 2002. The licensee acknowledged the findings presented.

The inspectors presented other inservice inspection activity inspection results to Mr. W. Ide at the conclusion of the inspection on March 29, 2002. The licensee acknowledged the findings presented.

The inspectors presented the Temporary Instruction 2515/145 inspection results to Mr. W. Ide, Vice President - Nuclear Production, and other members of the licensee management on April 9, 2002. The licensee acknowledged the inspection findings presented.

The resident inspectors presented inspection results to Mr. G. Overbeck, Senior Vice President - Nuclear, and other members of licensee management on June 26, 2002. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any materials reviewed during the inspection should be considered proprietary. While proprietary information was reviewed, no proprietary information is included in this report.

ATTACHMENT
SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

G. Andrews, Section Leader, Reactor Engineering
S. Bauer, Section Leader, Regulatory Affairs
J. Bayless, Senior Engineer, Inservice Inspection
R. Buzard, Senior Consultant, Nuclear Regulatory Affairs
S. Grier, Department Leader, Nuclear Assurance
F. Gowers, Site Representative, El Paso Electric
D. Hansen, Level III Non Destructive Examiner, Steam Generator Projects Group
R. Henry, Site Representative, Salt River Project
W. Ide, Vice President, Nuclear Production
A. Krainik, Director, Emergency Services Department
D. Marks, Section Leader, Regulatory Affairs - Compliance
D. Mauldin, Vice President, Engineering and Support
M. Melton, Engineering Section Leader, Inservice Inspection
G. Overbeck, Senior Vice President - Nuclear
S. Peace, Consultant, Communications
T. Radtke, Director, Maintenance
J. Reynoso, Steam Generator Engineer, Steam Generator Projects Group
R. Schaller, Department Leader, Engineering Support
C. Seaman, Director, Nuclear Assurance/Regulatory Affairs
J. Scott, Department Leader, Nuclear Assurance, Operations/Emergency Services Department
D. Smith, Director, Operations
W. Stewart, President, Generation
K. Sweeney, Section Leader, Steam Generator Projects Group
D. Wheeler, Engineering Section Leader, Nuclear Assurance
M. Winsor, Director, Nuclear Engineering

ITEMS CLOSED

Closed

50-529/2000-002-00	LER	Main Steam Safety Valve Lift Pressures Outside of Technical Specification Limits (Section 4OA3.2)
50-529/2002-001-00	LER	Main Steam Safety Valve As-found Lift Pressure Outside of Technical Specification Limits (Section 4OA3.3)

DOCUMENTS REVIEWED

In addition to the documents referenced in the inspection report, the following documents were selected and reviewed by the inspectors to accomplish the objectives and scope of the inspection and to support any findings:

PROCEDURES

PROCEDURE	TITLE	REVISION
40DP-9OP26	Operability Determination	10
40OP-9DG02	Emergency Diesel Generator B	17
40OP-9SI01	Shutdown Cooling Initiation	24
40OP-9ZZ16	RCS Drain Operations	29
40OP-9ZZ20	Reduced Inventory Operations	4
73DP-0EE16	Qualification and Certification of NDE Personnel	4
73DP-9XI03	ASME Section XI Inservice Inspection	5
73ST-9AF02	AFA-P01 - Inservice Test	23
73TI-0EE01	Ultrasonic Instrument Calibration	3
73TI-9RC01	Steam Generator Eddy Current Examinations	21
73TI-9ZZ 80	ASME Section XI Appendix VII Ultrasonic Examination of Austenitic Piping	2
73TI-9ZZ05	Dry Magnetic Particle Examination	10
73TI-9ZZ07	Liquid Penetrant Examination	9
73TI-9ZZ09	Ultrasonic Examination of Pipe Welds	11
81CP-9RC01	Checkout and Operation of the Steam Generator Tube In-Situ Pressure Test Tool	1
81CP-9RC09	In-Situ Pressure Test	0
81CP-9RC29	In Situ [sic] Pressure Test Using the Computerized Data Acquisition System	3
81DP-9RC01	PVNGS Steam Generator Degradation Management Program	1
90DP-OIP10	Condition Reporting	11

Licensee Correspondences:

NUMBER	SUBJECT	DATE
102-03401-WLS/AKK/JRP	Response to Generic Letter 95-03, Circumferential Cracking of Steam Generator Tubes	June 27, 1995
102-03601-WLS/SAB/NLT	Response to the Request for Additional Information Regarding Generic Letter 95-03	February 8, 1996
102-04094-JML/SAB/RMW	Response to Generic Letter 97-05: "Steam Generator Tube Inspection Techniques"	March 13, 1998
102-04103-JML/SAB/RMW	Response to Generic Letter 97-06: "Degradation of Steam Generator Internals"	March 30, 1998

Miscellaneous:

NUMBER	TITLE	REVISION
2356074	Operability Determination	
	EPRI ISI Guidelines	5
	Steam Generator Program Eddy Current Program - Analysts Guidelines Training Manual	19
	Technical Specification 5.5.9 - Steam Generator Surveillance Program	
1999-SGPG-TJ-001	Calibration Notches	01
1999-SGPG-TJ-003	Analysts Feedback System	01
2001-SGPG-TJ-011	PVNGS In Situ [sic] Candidate Screening Criteria	00
ACTS No. B1	Acquisition Technique Sheet for Bobbin Coil Examinations	9
ACTS No. R02 HS	Acquisition Technique Sheet for RC Examinations of Steam Generator Tubing (Flexible or Solid Body Probes, Without Bobbin Profiling)	1

Miscellaneous:

NUMBER	TITLE	REVISION
ACTS No. R05	Acquisition Technique Sheet for RC Examinations of Steam Generator Tubing (U-Bend MF & HF +Pt)	4
ACTS No. R06	Acquisition Technique Sheet for RC Examinations of Steam Generator Tubing (2 Coil Modular +Pt)	3
ANTS No. B1	Analysis Technique Sheet, Manual Analysis, Bobbin Coil Examination of Steam Generator Tubing	10
ANTS No. B3	Analysis Technique Sheet, Manual Analysis, Special Projects	9
ANTS No. R02 HS	Analysis Technique Sheet for RC Examinations of Steam Generator Tubing (Flexible or Solid Body Probes, Without Bobbin Profiling)	0
ANTS No. R05	Analysis Technique Sheet for RC Examinations of Steam Generator Tubing (U-Bend MF & HF +Pt)	6
ANTS No. R06	Analysis Technique Sheet for RC Examinations of Steam Generator Tubing (2 Coil Flexible +Pt)	
NEI 97-06	Steam Generator Program Guidelines	1
TR 107569, Volume 1	PWR Steam Generator Examination Guidelines	5
TR 107620	Steam Generator In Situ [sic] Pressure Test Guidelines	1
TR 107621	Steam Generator Integrity Assessment Guidelines	1

Condition Report/Disposition Reports (CRDRs)

2352208
2360608
2370060
2375490
2400122

Test Reports

Liquid Penetrant Examinations

PT-02-034
PT-02-035

Magnetic Particle Examinations

MT-02-006
MT-02-007

Ultrasonic Examinations

UT-02-027
UT-02-028
UT-02-029
UT-02-061
UT-02-062
UT-02-063
UT-02-064

Work Orders

2395290
2434288
2420502
2489613
2421382
230255
2431076
2420482

LIST OF ACRONYMS USED

CFR	Code of Federal Regulations
CRDR	Condition report/disposition request
LER	licensee event report
NDE	nondestructive examination
RCS	reactor coolant system
T-Mod	temporary modification
TS	Technical Specifications
WO	work order