



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
611 RYAN PLAZA DRIVE, SUITE 400  
ARLINGTON, TEXAS 76011-4005**

October 21, 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, UNITS 1, 2, AND 3 -  
NRC INTEGRATED INSPECTION REPORT 50-528/02-04; 50-529/02-04;  
50-530/02-04 and INDEPENDENT SPENT FUEL STORAGE INSTALLATION  
INSPECTION REPORT 72-44/02-02**

Dear Mr. Overbeck:

On September 21, 2002, the NRC completed an inspection at your Palo Verde Nuclear Generating Station, Units 1, 2, and 3. The enclosed report documents the inspection findings which were discussed with other members of your staff on September 26, 2002, and as described in Section 4OA6.

The inspection examined activities conducted under your license 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.

Based on the results of this inspection, the NRC has identified issues that were evaluated under the risk significance determination process as having very low safety significance (Green). The NRC has also determined that violations are associated with these issues. These violations are being treated as noncited violations (NCVs), consistent with Section VI.A of the Enforcement Policy. These NCVs are described in the subject inspection report. If you contest the violation or significance of these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Palo Verde Nuclear Generating Station, Units 1, 2, and 3, facility.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response 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).

Sincerely,

*/RA/*

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

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50-529  
50-530  
72-44

Licenses: NPF-41  
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Enclosure:  
NRC Inspection Reports  
50-528/02-04; 50-529/02-04;  
50-530/02-04; and 72-44/02-02

cc w/enclosure:  
Steve Olea  
Arizona Corporation Commission  
1200 W. Washington Street  
Phoenix, Arizona 85007

Douglas K. Porter, Senior Counsel  
Southern California Edison Company  
Law Department, Generation Resources  
P.O. Box 800  
Rosemead, California 91770

Chairman  
Maricopa County Board of Supervisors  
301 W. Jefferson, 10th Floor  
Phoenix, Arizona 85003

Aubrey V. Godwin, Director  
Arizona Radiation Regulatory Agency  
4814 South 40 Street  
Phoenix, Arizona 85040

Craig K. Seaman, Director  
Regulatory Affairs/Nuclear Assurance  
Palo Verde Nuclear Generating Station  
Mail Station 7636  
P.O. Box 52034  
Phoenix, Arizona 85072-2034

Hector R. Puente  
Vice President, Power Generation  
El Paso Electric Company  
2702 N. Third Street, Suite 3040  
Phoenix, Arizona 85004

Terry Bassham, Esq.  
General Counsel  
El Paso Electric Company  
123 W. Mills  
El Paso, Texas 79901

John W. Schumann  
Los Angeles Department of Water & Power  
Southern California Public Power Authority  
P.O. Box 51111, Room 1255-C  
Los Angeles, California 90051-0100

David Summers  
Public Service Company of New Mexico  
414 Silver SW, #1206  
Albuquerque, New Mexico 87102

Jarlath Curran  
Southern California Edison Company  
5000 Pacific Coast Hwy. Bldg. DIN  
San Clemente, California 92672

Robert Henry  
Salt River Project  
6504 East Thomas Road  
Scottsdale, Arizona 85251

Brian Almon  
Public Utility Commission  
William B. Travis Building  
P.O. Box 13326  
1701 North Congress Avenue  
Austin, Texas 78701-3326

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Branch Chief  
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800 North Loop 288  
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10/18/2002	10/21/2002	10/21/2002	10/21/2002	10/18/2002	10/18/2002
SPE:DRP/D	C:DRS/OB	AC:DRS/PSB	C:DRS/EMB	SRI:DRP/D	C:DRP/D
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**ENCLOSURE**

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Dockets: 50-528  
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Licenses: NPF-41  
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Reports: 50-528/02-04  
50-529/02-04  
50-530/02-04  
72-44/02-02

Licensee: Arizona Public Service Company

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

Location: 5951 S. Wintersburg Road  
Tonopah, Arizona

Dates: June 23 through September 21, 2002

Inspectors: N. L. Salgado, Senior Resident Inspector, Project Branch D  
G. G. Warnick, Resident Inspector, Project Branch D  
R. Azua, Project Engineer, Project Branch C  
F. Brush, Senior Resident Inspector, Project Branch B  
E. Crowe, Project Engineer, Project Branch D  
P. Gage, Senior Operations Engineer, Operations Branch  
P. Goldberg, Senior Reactor Inspector, Engineering and Maintenance Branch  
R. Lantz, Senior Emergency Preparedness Inspector, Plant Support Branch  
R. Mullikin, Senior Reactor Inspector, Engineering and Maintenance Branch  
C. Osterholtz, Senior Resident Inspector  
D. Schaefer, Physical Security Inspector, Plant Support Branch  
S. Schwind, Senior Resident Inspector  
W. Sifre, Reactor Inspector  
M. Vasquez, Project Engineer  
G. Werner, Senior Operations Engineer

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 50-528/02-04; 50-529/02-04; 50-530/02-04, 72-44/02-02

IR 05000528-02-04, IR 05000529-02-04, IR 05000530-02-04, IR 72-44/02-02; Arizona Public Service Company; 6/23/02 - 9/21/02; Palo Verde Nuclear Generating Station, Units 1, 2, and 3; Emergency Response Organization Augmentation Testing and Access Control.

The inspection was conducted by the resident inspectors, project engineers, a senior emergency preparedness inspector, a physical security inspector, two senior operations engineers, two senior reactor inspectors, and one reactor inspector. The inspection identified three issues that were evaluated as having very low safety significance (Green). The significance of findings is indicated by their color (Green, White, Yellow, Red) and was determined by the Significance Determination Process in Inspection Manual Chapter 0609. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

### **Cornerstone: Emergency Preparedness**

- Green. A noncited violation of very low safety significance was identified for failure to periodically test the ability to meet minimum emergency response facility staffing response times during off-hours. Off-hours exercises are only conducted once every 6 years, and off-hours quarterly pager and autodialer tests conducted over the past year were only functional tests that did not establish response times to the emergency facilities.

Failure to adequately test the ability to meet minimum emergency response facility staffing response times during off-hours is a violation of 10 CFR 50.54(q), which requires that a licensee follow their emergency plans. Section 8.1.3, "Drills," of the Emergency Plan states that drills for the emergency organization are conducted periodically throughout the year to test response timing and emergency equipment and to ensure members of the Emergency Response Organization are familiar with their duties. Section 5.1.2.2 of Emergency Plan Implementing Procedure 08 requires that quarterly pager and autodialer testing be conducted to demonstrate minimum staffing response capability for the emergency facilities. Minimum staffing is defined in Table 1 of the Emergency Plan and includes positions and response times during normal and off-hours for each emergency facility. Contrary to the above, drills for the emergency response organization have not tested off-hours response timing periodically throughout the year. The last off-hours facility activation drill was conducted in 1999, and off-hours pager and autodialer tests conducted each quarter did not demonstrate response timing.

The finding was determined to be a performance deficiency associated with emergency response organization augmentation testing. The finding was evaluated to be more than minor using the Emergency Preparedness Significance Determination Process because it affects the emergency preparedness cornerstone objective in that inadequate testing of the augmentation function can fail to identify problems in staffing the emergency facilities in a timely manner. The finding was evaluated as having very low safety significance (Green), since it was a failure of a regulatory requirement but not a

failure to meet an emergency planning standard. This finding is in the licensee's corrective action process as Condition Report/Disposition Request 2532635 and is being treated as a noncited violation (50-528/02-04-01; 50-529/02-04-01; 50-530/02-04-01) in accordance with Section VI.A of the NRC Enforcement Policy (Section 1EP3).

### **Cornerstone: Physical Protection**

- Green. A noncited violation of very low safety significance was identified for failure to mark a portion of a document as containing Safeguards information. On September 18, 2001, pursuant to 10 CFR 50.90, the licensee submitted to NRC Headquarters a change to its physical security plan. A portion (page) of this plan change included the size (number) of the armed response force used to defend all three units at Palo Verde and was not marked as containing "Safeguards Information." 10 CFR 73.21 requires, in part, that information regarding the size (number) of responding security forces be marked "Safeguards Information" in a conspicuous manner to indicate the presence of protected information. Following identification of this issue, the licensee withdrew all copies of this physical security plan change.

The failure to conspicuously mark a portion of a document as "Safeguards Information" was determined to be a performance deficiency. The finding was evaluated to be more than minor because it affects a physical protection cornerstone objective and if left uncorrected it would become a more significant safety concern. Using the Physical Protection Significance Determination Process, the inspector determined the violation had very low safety significance because there were not more than two similar findings in four calendar quarters. Because of the very low safety significance (Green) and because the licensee included the finding in their corrective action program as Condition Report/Disposition Request 2433526, this finding is being treated as a noncited violation (50-528/02-04-02; 50-529/02-04-02; 50-530/02-04-02) in accordance with Section VI.A of the NRC Enforcement Policy (Section 3PP2).

- Green. A noncited violation of very low safety significance was identified for failure to mark a drawing as containing Safeguards information. On June 27, 2002, the licensee maintained Drawing TY-GL-002 (sheet 1 of 1), which contained an overview block diagram of the Palo Verde new North Access Facility and the new Independent Spent Fuel Storage Installation (ISFSI) and was not marked as containing "Safeguards Information." 10 CFR 73.21 requires, in part, that information regarding the site-specific drawings that substantially represent the final design features of the physical protection system be marked "Safeguards Information" in a conspicuous manner to indicate the presence of protected information. Following identification of this issue, the licensee ensured that all copies of the drawing were properly marked.

The failure to conspicuously mark the drawing as "Safeguards Information" was determined to be a performance deficiency. The finding was evaluated to be more than minor because it affects a physical protection cornerstone objective and if left uncorrected it would become a more significant safety concern. Using the Physical Protection Significance Determination Process, the inspector determined the violation had very low safety significance because there were not more than two similar findings

in four calendar quarters. Because of the very low safety significance (Green) and because the licensee included the finding in their corrective action program as Condition Report/Disposition Request 2533054, this finding is being treated as a noncited violation (50-528/02-04-03; 50-529/02-04-03; 50-530/02-04-03) in accordance with Section VI.A of the NRC Enforcement Policy (Section 3PP2).

- One violation of very low significance, which was identified by the licensee, has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and corrective action tracking numbers are listed in Section 4OA7 of this report.

## Report Details

### Summary of Plant Status

Unit 1 began this inspection period at essentially full power until July 24, 2002, when power was reduced to 92.5 percent when the forced draft fans on one of the three circulating water cooling towers stopped. The licensee returned the plant to full power later that day after the cooling tower was returned to service. Unit 1 operated at essentially full power for the remainder of this inspection period.

Unit 2 operated at essentially full power 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]**

#### 1R01 Adverse Weather Protection (71111.01)

##### .1 Licensee Response to Adverse Weather

###### a. Inspection Scope

On July 14, 2002, the operators in Units 1, 2, and 3 entered abnormal operating Procedure 40AO-9ZZ21, "Acts of Nature," Revision 19, in response to sustained winds of greater than 50 mph and wind gusts up to 70 mph. Operators exited the severe weather procedure when wind speed had been less than 20 mph for a half hour, and the National Weather Service did not expect any further high wind conditions. The inspectors reviewed the operations logs and operating procedures to verify operator actions had been appropriate.

###### b. Findings

No findings of significance were identified.

##### .2 Susceptibility of Safety-Related Systems to Adverse Weather

###### a. Inspection Scope

The inspectors reviewed susceptibility of the refueling water tank instrument pit to a common mode failure of plant protection system components due to flooding. The licensee analyzed this potential problem in response to industry operating experience Report OE-14417 through condition report/disposition request (CRDR) 2548036. The inspector performed a review of the Updated Final Safety Analysis Report (UFSAR), individual plant examination for external events, and the design basis manual and interviewed engineering personnel to verify that the safety-related components in the refueling water tank instrument pit could perform the intended safety function under the adverse weather conditions evaluated in the UFSAR.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial Walkdown Inspections

a. Inspection Scope

The inspectors completed a partial walkdown of the systems listed below to verify proper equipment alignment using applicable plant procedures and plant 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, and major system components were properly labeled, lubricated, and cooled.

- July 3, 2002, Auxiliary feedwater system Train B (Unit 3)
- July 31, 2002, Emergency diesel generator Train B (Unit 3)
- August 14, 2002, Containment spray system Train B (Unit 2)
- September 17, 2002, High pressure safety injection system Train A (Unit 3)

b. Findings

No findings of significance were identified.

.2 Complete Walkdown of the Essential Cooling Water (EW) System

a. Inspection Scope

During the week of July 22, 2002, the inspectors completed walkdowns of the Units 1, 2, and 3 EW systems. The inspectors verified that the system was capable of performing required safety functions, the licensee properly performed mechanical and electrical system alignments, and system valves did not exhibit leakage that would adversely impact function. The inspectors also checked major system components for correct labeling and lubrication, that hangers and supports were correctly installed, and that functional and essential support systems were operational.

The inspectors reviewed the following documents to determine correct system alignment:

- Essential Cooling Water System Design Basis Manual, Revision 15
- Procedure 40OP-9EW01, "Essential Cooling Water System (EW) Train A," Revision 1
- Procedure 41OP-1EW02, "Essential Cooling Water System (EW) Train B," Revision 27

- Procedure 42OP-2EW02, "Essential Cooling Water System (EW) Train B," Revision 29
- Procedure 43OP-3EW02, "Essential Cooling Water System (EW) Train B," Revision 24
- Panel B02A Alarm Responses 43AL-3RK2A Window 2A09A, "ESS CLG WTR SYS TRBL," Revision 38
- Panel B02A Alarm Responses 43AL-3RK2A Window 2A09B, "ESS CLG WTR PMP A Disch Press HI-LO," Revision 38
- Panel B02A Alarm Responses 43AL-3RK2A Window 2A10B, "ESS CLG WTR PMP B Disch Press HI-LO," Revision 38
- P & I Diagram 01-M-EWP-001, "Essential Cooling Water System," Revision 29
- P & I Diagram 02-M-EWP-001, "Essential Cooling Water System," Revision 29
- P & I Diagram 03-M-EWP-001, "Essential Cooling Water System," Revision 23
- UFSAR

The inspectors also reviewed selected EW CRDRs, outstanding corrective maintenance requests, the System Health Report, temporary modifications, and outstanding design issues.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

1. Fire Tours

a. Inspection Scope

The inspectors conducted tours of the areas listed below that are important to reactor safety and referenced in the Pre-fire Strategies Manual, Revision 13, 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.

- June 27, 2002, Emergency Diesel Generator Building - all accessible elevations (Unit 3)
- July 1, 2002, Auxiliary Building 120-foot and 140-foot elevations (Unit 2)

- July 10, 2002, Auxiliary Building 88-foot, 70-foot, 52-foot, and 40-foot elevations (Unit 3)
- July 11, 2002, Auxiliary Building 88-foot, 70-foot, 52-foot, and 40-foot elevations (Unit 1)
- July 11, 2002, Auxiliary Building 88-foot, 70-foot, 52-foot, and 40-foot elevations (Unit 2)
- August 5, 2002, Control Building 140-foot elevation (Unit 3)
- September 4, 2002, Condensate Storage Pump House and Tunnel (Unit 1)
- September 4, 2002, Main Steam Support Structure 80-foot, 100-foot, 120-foot, and 140-foot elevations (Unit 1)
- September 5, 2002, Condensate Storage Pump House and Tunnel (Unit 2)
- September 5, 2002, Main Steam Support Structure 80-foot, 100-foot, 120-foot, and 140-foot elevations (Unit 2)

b. Findings

No findings of significance were identified.

.2 Fire Drill - Lower Cable Spreading Room (Unit 2)

a. Inspection Scope

On June 24, 2002, the inspectors observed the third quarter fire drill to evaluate the readiness of the licensee's personnel to prevent and fight fires. The inspectors reviewed the strategies and information in the Pre-Fire Strategies Manual, Revision 13, to verify that it accurately described the fire protection design features, fire area boundaries, and combustible loading for the lower cable spreading room. The inspectors observed the fire team enter the fire area and utilize the pre-fire plan strategies. The inspectors observed the equipment brought to the scene to evaluate whether sufficient equipment was available for the simulated fire. The inspectors observed firefighting directions and radio communications between the fireground commander, fire department personnel, and the control room. Also, the inspectors reviewed the post-drill critique to evaluate whether the drill acceptance criteria was satisfied.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

.1 Annual External Flood Protection Inspection

a. Inspection Scope

The inspectors conducted an annual inspection of the procedures and plant design features for coping with external flooding sources. The inspection concentrated on plant design features used to mitigate the effects of heavy rains during the local monsoon season. The inspectors reviewed the UFSAR and "Storm Water Pollution Prevention Plan," Revision 9, to determine the design features important for prevention of onsite flooding. In addition, the inspectors performed a walkdown of drainage ditches and diversion channels described in the UFSAR to verify that they were clear of debris and capable of draining storm runoff as designed.

b. Findings

No findings of significance were identified.

.2 Semiannual Internal Flood Protection Inspection

a. Inspection Scope

The inspectors performed a semiannual inspection of flood protection features for the Unit 1 emergency core cooling pumps. This inspection included a review of the UFSAR and Design Calculation 13-MC-ZA-809, "As Built Auxiliary Building Flooding Calculation," Revision 2, to determine the sources of flood water which were considered and the design features which were credited for mitigation of a flooding event. A walkdown of the Unit 1 auxiliary building 40-foot elevation was conducted to verify that the flood mitigation equipment was installed and maintained in good condition. The inspectors also reviewed maintenance Procedure 73DP-9XI01, "Pump and Valve Inservice Testing Program - Component Table," Revision 9, to verify that these components were in the maintenance program and that the maintenance was performed as required.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07B)

.1 Performance of Testing, Maintenance, and Inspection Activities

a. Inspection Scope

The inspectors reviewed the licensee's test methodology for the essential cooling water system heat exchangers, the emergency diesel generator jacket water heat exchangers, and the containment spray pump room coolers. In addition, the inspectors reviewed test

data for the heat exchangers and design and vendor-supplied information to ensure that the heat exchangers were performing within their design bases. The inspectors also reviewed the heat exchanger inspection and test results. Specifically, the inspectors verified proper extrapolation of test conditions to design conditions, appropriate use of test instrumentation, and appropriate accounting for instrument inaccuracies. Additionally, the inspectors verified that the licensee appropriately trended these inspection and test results, assessed the causes of the trends, and took necessary actions for any step changes in these trends.

b. Findings

No findings of significance were identified.

.2 Verification of Conditions and Operations Consistent with Design Bases

a. Inspection Scope

For the selected heat exchangers, the inspectors verified that the heat sink and heat exchanger condition, operation, and test criteria were consistent with the design assumptions. Specifically, the inspectors reviewed the applicable calculations to ensure that the thermal performance test acceptance criteria for the heat exchangers were being applied consistently throughout the calculations. The inspectors also verified that the appropriate acceptance values for fouling and tube plugging for the component cooling water heat exchanger remained consistent with the values used in the design-basis calculations. Finally, the inspectors verified that the parameters measured during the thermal performance and flow balance tests for the essential cooling water and component cooling water systems were consistent with those assumed in the design bases.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Evaluated Simulator Scenario

a. Inspection Scope

On July 18, 2002, the inspectors observed operations crew performance during evaluated simulator Scenario SES-0-09-T-00, "PT 1024 Failure/Condenser Tube Rupture/Loss of All Feed FRP," revision date April 16, 2002. The inspectors evaluated the simulator scenario, the crew performance, and the evaluator critique sessions conducted following the completion of the simulator scenarios. The inspectors verified that the examinations were in conformance with NUREG 1021, "Operator Licensing Examiner Standards," ES-04, "Dynamic Simulator Requalification Examination," and management expectations.

b. Findings

No findings of significance were identified.

.2 Biennial Licensed Operator Requalification Evaluation

a. Inspection Scope

During the week of September 9, 2002, operator performance since the last requalification program evaluation was assessed to determine if performance deficiencies have been addressed through the requalification training program. The inspection evaluated licensed operator performance in mitigating the consequences of events, since poor licensed operator performance results in increased risk through increased operator recovery rates and licensed personnel-induced common-cause error rates assumed in the licensee's individual plant examinations. This inspection effort of the licensed operator requalification program included all of the inspection areas with emphasis on the following areas: (1) facility operating history, (2) requalification examinations, (3) administration of requalification examinations, (4) written examination and operating test results, and (5) conformance with simulator requirements specified in 10 CFR 55.46.

Examination security measures and procedures were evaluated for compliance with 10 CFR 55.49. The licensee's sample plan for the written and operating examinations was evaluated for compliance with 10 CFR 55.59 and NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 8, Supplement 1, as referenced in the facility requalification program procedures. In addition, the inspectors: (1) reviewed the number of applicants and pass/fail results of the written examinations, individual operating tests, and simulator operating tests; (2) observed the administration of six dynamic simulator scenarios to four requalification crews by facility evaluators; (3) observed three facility evaluators administer one in-plant job performance measure to three licensed operators; and (5) observed five facility evaluators administer 10 simulator job performance measures to 10 licensed operators.

The inspectors reviewed the licensee's process for revising and maintaining an up-to-date licensed operator continuing training program, including the use of feedback from plant events and industry experience information.

The inspectors verified the adequacy and effectiveness of the remedial training conducted since the last requalification examinations and the training planned for the current examination cycle to ensure that identified licensed operator or crew performance weaknesses during training and plant operations were addressed. Remedial training and examinations for examination failures were reviewed for compliance with facility procedures and responsiveness to address areas failed. The inspectors reviewed the remediation documents for 16 individuals, which involved six written examination failures and 10 individual simulator failures. In addition, the inspectors also reviewed the remediation documents of three crew simulator examination failures.

Maintenance of license conditions was evaluated for compliance with 10 CFR 55.53 by review of facility records, procedures, and tracking systems for licensed operator training, qualification, and watchstanding.

The inspectors assessed the adequacy of simulator performance and testing to satisfy the requirements of 10 CFR 55.46. The inspectors reviewed simulator discrepancy reports, open simulator work items, completed simulator work items, and a list of simulator CRDRs and interviewed training and operating crew personnel.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors verified the licensee's appropriate handling of structure, system, and component performance or condition problems during review of the following equipment failures. Additionally, the inspectors evaluated the 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":

- Failure of emergency diesel generator Train B lube oil circulating pump/motor on June 18, 2002, reported in CRDR 2528617 (Unit 2)
- Failure of the emergency diesel generator Train B starting air system air dryers on June 5, 2002, reported in CRDR 2523596 (Unit 1)
- Performance monitoring of radioactive drain check Valves RD-AV-020, RD-AV-021, RD-AV-041, and RD-AV-042 (Units 1, 2, and 3)

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 6. 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:

- June 24 through July 2, 2002, startup Transformer NAN-X03 outage (Units 1 and 2)
- July 2, 2002, failure of Valve SGUV138A to stroke as required during the performance of Procedure 73ST-9AF02 (Unit 3)
- July 11, 2002, scheduled online outage for emergency diesel generator, essential spray pond, essential chilled water, EW, and containment spray Train A (Unit 1)
- August 13, 2002, failure of the feedwater ultrasonic flow meter and resulting downpower (Unit 1)
- August 16, 2002, increased leakage from reactor coolant Pump 1A thrust bearing/lift tank system (Unit 1)
- August 26, 2002, scheduled online outage for high pressure safety injection (HPSI) Train A (Unit 1)
- August 29, 2002, scheduled performance of Procedure 73ST-9AF02, "AFA-P01 Inservice Test," Revision 23, and associated special case plant configuration risk indicator matrix (Unit 1)
- September 12, 2002, reactor coolant system leakage, below Technical Specification (TS) identified leakage threshold, to reactor drain tank due to failed packing on pressurizer main spray Valve RCE-PV-100F (Unit 2)

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Evolutions (71111.14)

a. Inspection Scope

On July 24, 2002, the inspectors observed and reviewed plant personnel response following loss of all cooling tower number one fans. Operators reduced power to 92.5 percent to maintain condenser vacuum in accordance with Procedure 40AO-9ZZ07, "Loss of Condenser Vacuum," Revision 8. Specifically the inspectors observed operator performance, reviewed operator logs and plant computer data, and interviewed licensed operators to determine what occurred and how the operators responded. The inspectors reviewed CRDR 2543838 which was initiated to evaluate the event.

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 Technical Specification (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.

- Operability Determination 250, "Loose bolts on the Unit 2 and 3 emergency diesel generators," Revision 0. The bolts were on the air distributor mounting plate, jacket water pump mounting flange, and timing covers. In Unit 2, the licensee discovered several bolts on the timing cover that were loose. In Unit 3, there was one bolt loose on the timing cover, one bolt on the air distributor mounting plate, and two bolts on the jacket water pump mounting flange (Units 2 and 3).
- Operability Determination 2401544, "Unit 3 "B" EW Heat Exchanger SP to EW Tube Leak," Revision 0 (Unit 3)
- Oil with the wrong viscosity identified in Pump 1MEWBP01 inboard and outboard bearings as described in CRDR 2530293 (Unit 1)
- Operability Determination 2540053, "Ambient Temperature Effects on Calibration and Use of Barton 764 D/P Instruments for Pressurizer Level," identified on July 16, 2002 (CRDR 2540205) (Unit 1)
- Operability Determination 252, "Connectors Associated With Excore Channels C and D Upper and Lower Detector Cables Do Not Meet Environmental Qualification Requirements," Revision 0 (CRDR 2546026) (Units 1, 2, and 3)
- Operability Determination 105, "Assessment of Main Steam Isolation Valve Accumulator Operability Following a Low Accumulator Pressure Alarm," Revision 0 (CRDR 2547756) (Unit 1)
- Temporary Modification 2507582, 10 CFR Part 50, Appendix R justification for continued operation with reactor coolant Pump 1A oil fill system modification (Unit 2)

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

a. Inspection Scope

The inspectors reviewed the control room deficiency log in Units 1, 2, and 3, to determine the number of operator work-arounds that existed, and the safety significance of existing operator work-arounds. The inspectors interviewed operators, shift technical advisors, a work control supervisor, and a training supervisor. Through the interviews and review of station documents, the inspectors assessed the cumulative effect of the work-arounds on the ability of operators to respond in a correct and timely manner to plant transients and emergency response. The inspectors also assessed the adequacy of the compensatory actions for existing work-arounds.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17B)

.1 Permanent Plant Modification Program Review

a. Inspection Scope

The inspectors reviewed 11 permanent plant modification packages and associated documentation, such as review screens and safety evaluations, to verify that they were performed in accordance with regulatory requirements and plant procedures. The inspectors also reviewed procedures governing plant modifications to evaluate the effectiveness of the programs for implementing modifications to risk-significant systems, structures, and components, such that these changes did not adversely affect the design and licensing basis of the facility. Permanent plant modifications and procedures reviewed are listed in Attachment 1 to this report.

The inspectors interviewed the cognizant design and system engineers for the identified modifications as to their understanding of the modification packages.

The inspectors evaluated the effectiveness of the licensee's corrective action process to identify and correct problems associated with the performance of permanent plant modifications. In this effort, the inspectors reviewed the corrective action documents listed in the attachment to this report.

b. Findings

No findings of significance were identified.

.2 Control Room Modifications

a. Inspection Scope

The inspectors observed portions of the Unit 3 control room modification work to verify the following:

- Operators were not distracted from performing their duties
- Transient combustible material was appropriately controlled
- Construction material was appropriately staged
- Construction debris was kept to a minimum

The inspectors also discussed with various crews the capability of operators to respond to off-normal events with various equipment in temporary locations in the control room. Additionally, the inspectors reviewed the following documentation:

- Design Modification Work Order (WO) 219340
- UFSAR

b. Findings

No findings of significance were identified.

1R19 Postmaintenance 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 Retest Development," Revision 13.

- June 18, 2002, WO 2450809, used to determine the cause of the loss of standby lube oil Pump 2MDGBP04 for emergency diesel generator Train B (Unit 2)
- June 21, 2002, WO 2450809, performance of Procedure 40ST-9DG02, "Diesel Generator B Test," Revision 19, as the retest following maintenance on emergency diesel generator Train B (Unit 1)
- July 31, 2002, Procedure 73ST-9SI06, "Containment Spray Pumps and Check Valves - Inservice Test," Revision 11, performed as retest following maintenance on containment spray Pump A (Unit 3)
- July 29, 2002, Procedure 73ST-9SI10, "HPSI Pumps Miniflow - Inservice Pump Test," Revision 22, performed as retest following maintenance on HPSI Pump A (Unit 2)

- July 31, 2002, Procedure 73ST-9X105, "AF and CT Valves - Inservice Valve Test," Revision 13 - as a retest following maintenance on Valve AFA-HV-32, Auxiliary Feedwater Pump A Flow Control to SG Number 1 (Unit 2)
- August 14, 2002, WOs 2464632 and 2464117, retests following maintenance on containment spray Pump B (Unit 2)
- August 27, 2002, WO 2369359, "Gear Change for Motor Operator Valves AFAHV0032 and AFCHV0033" (Unit 1)
- September 12, 2002, WO 2526807, performance of Procedure 73ST-3XI12, "Safety Injection Train B ECCS Throttle Valves - Inservice Test," Revision 14, as the retest for Valve SIB-UV-0615 maintenance (Unit 3)
- September 12, 2002, WO 2462289, performance of Procedure 73ST-9SI11, "Low Pressure Safety Injection Pumps Miniflow -Inservice Test," Revision 13, as a retest for several maintenance WOs following maintenance on low pressure safety injection pump Train B. (Unit 3)

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, UFSAR, 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.

- July 5, 2002, Procedure 73ST-9AF02, "AFA-P01- Inservice Test," Revision 23 (Unit 3)
- July 3, 2002, Procedure 40ST-9DG01, "Diesel Generator A Test," Revision 16 (Unit 2)
- August 24, 2002, Procedure 40ST-9ZZM1, "Operations Mode 1 Surveillance Logs," Revision 15 (Unit 3)
- September 17, 2002, Procedure 73ST-9ZZ18, "Main Steam and Pressurizer Safety Valve Set Pressure Verification," Revision 16 (Unit 1)

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors evaluated the following temporary modifications and associated 10 CFR 50.59 screening through observation of installation and/or documentation review. 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.

- Temporary Modification WO 2507582 - Reactor coolant Pump 1A remote oil fill hose (Unit 2)
- DFWO 2538718 - Reactor coolant Pump 1A high pressure oil fill of thrust bearing (Unit 1)

b. Findings

No findings of significance were identified.

**Cornerstone: Emergency Preparedness [EP]**

1EP2 Alert Notification System Testing (71114.02)

a. Inspection Scope

The inspector interviewed licensee emergency preparedness staff members and reviewed the following licensee documents to determine the adequacy of testing methods for the alert and notification system in accordance with 10 CFR Part 50, Appendix E. The licensee's siren testing program was compared with guidance in NUREG-0654 and Federal Emergency Management Agency REP-10, "Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants."

- Emergency Plan Implementing Procedure (EPIP) 07, "Telecommunications," Revision 6
- Siren testing schedules and reports for 2001 and 2002
- EPIP Appendix D, "Notifications"

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization Augmentation Testing (71114.03)

a. Inspection Scope

The inspector interviewed licensee emergency preparedness staff members and reviewed the following documents related to the emergency response organization augmentation system to determine the licensee's ability to staff emergency response facilities in accordance with the licensee's emergency plan and the requirements of 10 CFR Part 50, Appendix E:

- EPIP 08, "Emergency Planning Administration," Revision 9
- Emergency Plan
- Emergency Response Organization (ERO) training and drill attendance records
- Quarterly ERO Pager Test Reports for calendar year 2001 and the first quarter of calendar year 2002

b. Findings

Introduction

A noncited violation (NCV) of very low safety significance (Green) was identified for failure to periodically test the ability to meet minimum emergency response facility staffing response times during off-hours. Off-hours exercises are only conducted once every 6 years, and off-hours quarterly pager and autodialer tests conducted over the past year were only functional tests that did not establish response times to the emergency facilities.

Description

The inspector reviewed the last five quarters of pager and autodialer tests, the results of which were documented on Form EP-0744. Each test was evaluated separately to determine whether the acceptance criteria was met for that test. The acceptance criteria for the tests, as noted on the form and stated in Emergency Plan Implementing Procedure EPIP 08, Section 5.1.2.2, is "achieving minimum staffing for the emergency facilities." Minimum staffing is defined in Emergency Plan in Table 1, "Minimum Staffing Requirements for PVNGS for Nuclear Power Plant Emergencies." Table 1 defines each position, corresponding number of personnel, and response time requirements during both normal and off-hours for each emergency facility and each emergency declaration. For example, during an Alert declaration, one Emergency Operations Director qualified individual must report to the emergency operations facility within one hour during normal hours and within 2 hours during off-hours.

The inspector reviewed the data sheets that were used to evaluate the pager test results and noted that no information was gathered on the time required for individuals to respond to the emergency facilities. The tests were conducted by first announcing that a pager test would be conducted at a certain time and date. At the designated time, the pagers were activated and a message was sent to ERO personnel. The next morning, an electronic mail message was sent to each participant to answer two questions: Did the individual receive the page and was the message on the pager readable? The individual was not asked what time they received the page, if they were fit for duty, or to estimate their response time. Therefore, the inspector concluded that the pager tests did not meet the acceptance criteria defined in EPIP 08 and did not test response times.

The inspector reviewed the autodialer reports and noted similarly that they did not test response times to the emergency facilities. The autodialer report supplied more information than the pager test in that the autodialer required a real time response from the emergency response organization, and fitness-for-duty status was established. The autodialer test did not, however, gather information on estimated response time to the emergency facilities, nor was that information requested by the emergency preparedness staff conducting and evaluating the tests.

The inspector reviewed Emergency Planning Audit 2002-009 completed June 14, 2002. The audit report noted that off-hours facility activation was last demonstrated in 1999 with the completion of two separate drills. The inspector concluded that, although this met the 6-year plan minimum requirement to activate the emergency facilities in an off-hours drill or exercise once every 6 years, no other demonstration of off-hours response timing capability had been performed and documented since 1999.

#### Analysis and Enforcement

10 CFR 50.54(q) requires that a licensee follow their emergency plans. Section 8.1.3, "Drills," of the Emergency Plan states that drills for the emergency organization are conducted periodically throughout the year to test response timing and emergency equipment and to ensure members of the ERO are familiar with their duties. Contrary to the above, drills for the ERO have not tested off-hours response timing periodically throughout the year.

The finding was determined to be a performance deficiency associated with ERO augmentation testing. The finding was evaluated to be more than minor using the Emergency Preparedness Significance Determination Process because it affects the emergency preparedness cornerstone objective in that inadequate testing of the augmentation function can fail to identify problems in staffing the emergency facilities in a timely manner. The finding was evaluated as having very low safety significance (Green), since it was a failure of a regulatory requirement but not a failure to meet an emergency planning standard as defined by 10 CFR 50.47(b). This finding is in the licensee's corrective action process as CRDR 2532635 and is being treated as an NCV (50-528/02-04-01; 50-529/02-04-01; 50-530/0204-01) in accordance with Section VI.A of the NRC Enforcement Policy.

1EP4 Emergency Action Level and Emergency Plan Changes

a. Inspection Scope

The inspector reviewed Revisions 24 and 25 to the Emergency Plan against 10 CFR 50.54(q) to determine if the revisions decreased the effectiveness of the plan.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies (71114.05)

a. Inspection Scope

The inspector reviewed the following documents related to the licensee's corrective action program to determine the licensee's ability to identify and correct problems in accordance with the requirements of 10 CFR 50.47(b)(14) and 10 CFR Part 50, Appendix E.

- 93 DP-0LC07, "10 CFR Screenings and Evaluations," Revision 5
- Summaries of corrective actions assigned to the emergency preparedness department between April 2001 and April 2002
- Emergency Planning Audit 2002-009, dated June 14, 2002
- STARS Emergency Preparedness Program Round Robin Self Assessment, April 22 through April 25, 2002
- 2002 Annual/Biennial Emergency Planning Department Activities Schedule
- Nuclear Assurance Evaluation Report 01-0293, dated August, 2001

b. Findings

No findings of significance were identified.

**3. SAFEGUARDS**  
**Cornerstone: Physical Protection [PP]**

3PP1 Access Authorization (71130.01)

a. Inspection Scope

The inspector performed the following inspection activities and compared them with applicable regulatory requirements:

- Reviewed licensee event reports and safeguards event logs to identify problems in the access authorization program
- Reviewed procedures, audits, and self-assessments for behavior observation, access authorization, fitness-for-duty, supervisor and escort training, and requalification training
- Interviewed six supervisors/managers and six individuals who had escorted visitors into the protected and/or vital areas to determine their knowledge and understanding of their responsibilities in the behavior observation program
- Reviewed condition reports, licensee event reports, safeguards event logs, audits, selected security event reports, and self-assessments of the licensee's access authorization program to determine the licensee's ability to identify and resolve problems
- Interviewed security management concerning the use of overtime and plant limitations regarding maximum hours of weekly overtime for security officers to confirm potential worker fatigue issues were being adequately addressed per 10 CFR Part 26.

b. Findings

No findings of significance were identified.

3PP2 Access Control (71130.02)

a. Inspection Scope

The inspector performed the following inspection activities and compared them with applicable regulatory requirements:

- Reviewed licensee event reports and safeguards event logs to identify problems with access control equipment
- Reviewed procedures and audits for testing and maintenance of access control equipment and for granting and revoking unescorted access to protected and vital areas
- Interviewed security personnel concerning the proper operation of the explosive and metal detectors, X-ray devices, and key card readers
- Observed licensee testing of access control equipment and the ability of security personnel to control personnel, packages, and vehicles entering the protected area
- Reviewed procedures to verify that a program was in place for controlling and accounting for hard keys to vital areas

- Reviewed the licensee's process for granting access to vital equipment and vital areas to authorized personnel having an identified need for that access
- Reviewed condition reports, licensee event reports, safeguards event logs, audits, selected security event reports, and self-assessments of the licensee's access control program in order to assess the licensee's ability to identify and resolve problems regarding the access control program
- Interviewed key security department and plant support personnel to determine their knowledge and use of the corrective action reports and resolution of problems regarding repair of security equipment

b. Findings

(1) Change to Physical Security Plan

An NCV of very low risk significance (Green) was identified for failure to mark a portion of a document as containing Safeguards information. On September 18, 2001, pursuant to 10 CFR 50.90, the licensee submitted to NRC Headquarters, a change to its physical security plan. A portion of this plan change included the size (number) of the armed response force used to defend all three units at Palo Verde and was not marked as containing "Safeguards Information." 10 CFR 73.21 requires, in part, that information regarding the size (number) of responding security forces be marked "Safeguards Information" in a conspicuous manner to indicate the presence of protected information. Following identification of this issue, the licensee withdrew all copies of this plan change.

The failure to conspicuously mark a portion of a document as "Safeguards Information" was determined to be a performance deficiency. The finding was more than minor because it affects a physical protection cornerstone objective and if left uncorrected it would become a more significant safety concern. Using the Physical Protection Significance Determination Process, the inspector determined the violation had very low safety significance (Green) because there were no more than two similar findings in four calendar quarters. Because of the very low safety significance and because the licensee included the finding in their corrective action program as CRDR 2433526, this finding is being treated as an NCV (50-528/02-04-02; 50-529/02-04-02; 50-530/02-04-02) in accordance with Section VI.A of the NRC Enforcement Policy.

(2) Licensee Drawings

An NCV of very low safety significance (Green) was identified for failure to mark a drawing as containing Safeguards information. On June 27, 2002, the licensee maintained Drawing TY-GL-002 (sheet 1 of 1), which contained an overview block diagram of the new Palo Verde North Access Facility and the new Independent Spent Fuel Storage Installation and was not marked as containing "Safeguards Information." 10 CFR 73.21 requires, in part, that information regarding the site-specific drawings that substantially represent the final design features of the physical protection system be

marked "Safeguards Information" in a conspicuous manner to indicate the presence of protected information. Following identification of this issue, the licensee ensured that all copies of the drawing were properly marked.

The failure to conspicuously mark the drawing as "Safeguards Information" was determined to be a performance deficiency. The finding was more than minor because it affects a physical protection cornerstone objective and if left uncorrected it would become a more significant safety concern. Using the Physical Protection Significance Determination Process, the inspector determined the violation had very low safety significance (Green) because there were no more than two similar findings in four calendar quarters. Because of the very low safety significance and because the licensee included the finding in their corrective action program as CRDR 2533054, this finding is being treated as an NCV (50-528/02-04-03; 50-529/02-04-03; 50-530/02-04-03) in accordance with Section VI.A of the NRC Enforcement Policy.

### 3PP3 Response to Contingency Events (71130.03)

The Office of Homeland Security developed a Homeland Security Advisory System (HSAS) to disseminate information regarding the risk of terrorist attacks. The HSAS implements five color-coded threat conditions with a description of corresponding actions at each level. NRC Regulatory Information Summary 2002-12a, dated August 19, 2002, "NRC Threat Advisory and Protective Measures System," discusses the HSAS and provides additional information on protective measures to licensees.

#### a. Inspection Scope

On September 10, 2002, the NRC issued a Safeguards Advisory to reactor licensees to implement the protective measures described in Regulatory Information Summary 2002-12a in response to the Federal government declaration of threat level Orange. Subsequently, on September 24, 2002, the Office of Homeland Security downgraded the national security threat condition to Yellow, with a corresponding reduction in the risk of a terrorist threat.

The inspector interviewed licensee personnel and security staff, observed the conduct of security operations, and assessed licensee implementation of the threat level Orange protective measures. Inspection results were communicated to the Region IV and Headquarters security staff for further evaluation.

#### b. Findings

No findings of significance were identified.

### 3PP4 Security Plan Changes (71130.04)

#### a. Inspection Scope

The inspector completed the following actions and compared them with regulatory requirements:

- Reviewed the Training and Qualification Plan, Revision 14, dated August 31, 2001, to determine if requirements of 10 CFR 50.54 (p) were met
- Reviewed the safeguards event logs from January 1, 2001, through May 30, 2002, and interviewed security personnel to determine their knowledge and use of the corrective action program and resolution of problems as they relate to making changes to the licensing documents

b. Findings

No findings of significance were identified.

**4. Other Activities [OA]**

4OA1 Performance Indicator Verification (71151)

.1 Safety System Functional Failures (Units 1, 2, and 3)

a. Inspection Scope

The inspectors reviewed licensee event reports for all three units from April 2001 to July 2002 to verify the accuracy and completeness of data associated with the safety system functional failures performance indicator.

b. Findings

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

.2 Drill and Exercise Performance

a. Inspection Scope

The inspector reviewed the following documents related to the drill and exercise performance indicator in order to verify that the licensee's data was reported in accordance with the requirements of Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline."

- Drill schedules for calendar years 2001 and 2002
- Drill evaluation records and worksheets
- Performance indicator summary sheets
- Performance indicator reports

- Drill records for 100 percent of the drills and exercises counted in drill and exercise performance statistics for calendar year 2001 and the first quarter of calendar year 2002

b. Findings

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

.3 ERO Drill Participation

a. Inspection Scope

The inspector reviewed the following records related to ERO participation in order to verify the licensee's data was reported in accordance with the requirements of NEI 99-02, "Regulatory Assessment Performance Indicator Guideline."

- List of key emergency response organization positions
- Performance indicator summary sheets
- Performance indicator reports
- ERO rosters for calendar year 2001 and the first quarter of calendar year 2002
- Drill participation records for a sample of eight ERO members

b. Findings

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

.4 Alert and Notification System

a. Inspection Scope

The inspector reviewed siren testing records for calendar year 2001 and the first quarter of calendar year 2002 to verify the licensee's data was reported in accordance with the requirements of NEI 99-02, "Regulatory Assessment Performance Indicator Guideline." The inspector also reviewed the reported performance indicator data.

b. Findings

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

.5 Security Performance Indicators

a. Inspection Scope

The inspector reviewed the licensee's security program for collection and submittal of performance indicator data. Specifically, a random sampling of security event logs and

corrective action reports, from January 1, 2001, through May 30, 2002, were reviewed for the following program performance areas:

- Protected area security equipment
- Personnel screening program performance
- Fitness-for-duty program performance

b. Findings

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

.6 Emergency ac Power System Unavailability (Unit 1, 2, and 3)

a. Inspection Scope

The inspectors reviewed unit logs and 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 emergency ac power system unavailability for all three units.

b. Findings

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

.7 Auxiliary Feedwater System Unavailability (Unit 1, 2, and 3)

a. Inspection Scope

The inspectors reviewed unit logs and 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 auxiliary feedwater 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 (Closed) Licensee Event Report (LER) 50-528; -529; -530/2001-002-00: Technical Specification Violation Due to Deficient Test Procedure for Refueling Purge Valves.

On March 29, 2001, while Units 1, 2, and 3 were all in MODE 1 between 94 and 99 percent power, engineering personnel determined that the local leak rate test methodology did not conservatively quantify leakage rates for the inboard refueling

purge valves. Specifically, the deficient surveillance test procedure did not satisfy the requirements of ANSI/ANS 56.8-1994, Regulatory Guide 1.163, and TS 5.5.16. These valves are ASME Section III, Code Class 2, valves that serve as containment isolation valves. As a result, plant operators declared the inboard refueling purge valves inoperable and entered the applicable Limiting Condition for Operation. The inspectors reviewed the LER and associated CRDR 34679. The licensee's analysis showed that the outboard refueling purge valves reliably maintained containment integrity and had been tested appropriately and that the total penetration leakage rate met the acceptance criteria. Therefore, this issue constitutes a violation of minor significance that is not subject to enforcement action in accordance with Section IV of the Enforcement Policy.

- .2 (Closed) LER 50-529/2000-006-00 and LER 50-529/2000-006-01: Safety Injection Tank Outlet Check Valve Back-Leakage Causes Degraded Safety Injection Flow.

This LER was submitted regarding safety injection tank outlet check valve back-leakage which caused degraded safety injection flow and required entry into TS 3.0.3. The inspector reviewed the licensee's root cause determination and corrective actions and concluded that they were reasonable to assure operability of the emergency core cooling systems. During troubleshooting, the licensee confirmed that the valve opened in the as-found condition. In addition, system head loss curves taken before and after this issue with the valve were essentially the same. The licensee documented this issue in their corrective action program as CRDR 2335098. The inspectors reviewed the LER and no new findings of significance were identified.

- .3 (Closed) LER 50-528/2001-004-00: Technical Specification Violation for inoperable RCS Leak Detection Instrument Due to Misaligned O-Ring.

On October 17, 2001, with Unit 1 operating at approximately 100 percent power in Mode 1, the licensee identified that the particulate channel of the reactor coolant system (RCS) leakage detection system was degraded and had been degraded since September 14, 2001, when the particulate filter was replaced. Misalignment of an O-ring following the filter replacement resulted in airflow bypassing the particulate filter, resulting in inaccurate indication. A second occurrence of a misaligned O-ring was identified on November 6 for the time period of October 17 to November 2, 2001.

TS 3.4.1.6 requires one containment atmosphere radioactivity monitor to be operable in Modes 1- 4. If the monitor is inoperable the licensee is required to analyze a containment atmosphere grab sample once every 24 hours. Since it was not recognized at the time of both occurrences that the particulate channel was not operating correctly, the required action was not performed. However, since alternate methods of detecting an RCS leak were available (Gaseous Channel of the Containment Atmosphere Radioactivity Monitor and the Containment Sump Monitoring System) and the fact that surveillance Requirement 3.4.14.1 ensured that an RCS inventory balance was performed at least every 72 hours during steady state operation (to detect RCS leakage) constitutes a violation of minor significance that is not subject to enforcement action in accordance with Section IV of the Enforcement Policy.

The inspectors reviewed the LER and no new findings of significance were identified. The cause of this event has been addressed and corrected through the licensee's corrective action program and documented in CRDR 2434165.

4OA5 Unit 2 Visual Fuel Examination (60855)

a. Inspection Scope

On July 16 and 19, 2002, the inspectors observed the licensee perform visual examinations of fuel assemblies which will be loaded into the first storage cask at the independent spent fuel storage installation. The licensee performed the work in accordance with approved Procedure 78TI-9RX01, "Spent Fuel Inspection," Revision 1.

b. Findings

No findings of significance were identified.

4OA6 Management Meetings

Exit Meeting Summary

The resident inspectors presented inspection results to Mr. W. Ide, Vice President Nuclear Production, and other members of licensee management on September 26, 2002. The licensee acknowledged the findings presented.

The emergency preparedness inspectors presented the inspection results to Mr. G. Overbeck, Senior Vice President, and other members of licensee management at the conclusion of the inspection on June 27, 2002. The licensee acknowledged the findings presented.

The physical security inspector presented the inspection results to Mr. G. Overbeck, Senior Vice President, and other members of licensee management at the conclusion of the inspection on June 28, 2002. The licensee acknowledged the findings presented.

The reactor inspectors presented the inspection results to Mr. G. Overbeck and other members of licensee management on August 30, 2002. Licensee management acknowledged the inspection findings.

The operations engineers presented the inspection results to Mr. W. Ide and other members of licensee management on September 13, 2002. Licensee management acknowledged the inspection findings.

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

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which met the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as an NCV.

10 CFR 73.55(e)(2) requires, in part, that all alarm devices including transmission lines to annunciators be self-checking. Additionally, Section 6.5 of the licensee's Physical Security Plan requires, in part, that line supervision be provided to all alarm signal lines. On May 10, 2002, the licensee determined that the perimeter intrusion detection system was designed and installed in such a manner that line supervision was not provided at small segments of each alarm zone. Upon identification, the licensee implemented appropriate compensatory measures. This violation is being treated as a NCV and is in the licensee's corrective action program, reference CRDR 2514378.

The finding was more than minor because it affects a physical protection cornerstone objective and if left uncorrected it would become a more significant safety concern. Using the Physical Protection Significance Determination Process, the inspector determined the violation had very low safety significance (Green) because there were no more than two similar findings in four calendar quarters.

If the Palo Verde Nuclear Generating Station contests this NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator Region IV; the Director, Office of Enforcement, U. S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC resident inspector at the Palo Verde Nuclear Generating Station.

## ATTACHMENT

### SUPPLEMENTAL INFORMATION

#### KEY POINTS OF CONTACT

##### Licensee

J. Allison, Training Program Advisor, Nuclear Training Department  
S. Bauer, Section Leader, Regulatory Affairs  
K. Bell, Team Leader, OCS/I&C Maintenance  
H. Bieling, Section Leader, Access Authorization  
J. Bungard, Section Leader, Dosimetry  
R. Busto, Engineer, System Engineering  
R. Buzard, Senior Consultant, Nuclear Regulatory Affairs  
D. Cocanour, Team Leader, Emergency Services Division  
D. Cole, Department Leader, Emergency Services Division  
M. Cosenza, Section Leader, Emergency Services Division  
K. Coon, Technical Management Assistant, Radiation Protection  
D. Crozier, Program Leader, Emergency Planning  
T. Dickinson, Senior Shipping Technician, Radiation Protection  
E. Dutton, Section Leader Operating Experience/Trending, Nuclear Assurance  
M. Fladager, Department Leader, Radiation Protection  
F. Garrett, Technical Management Assistant, Design Engineering  
F. Gowers, Site Representative, EPE  
S. Grier, Department Leader, Nuclear Assurance  
W. Ide, Vice President, Nuclear Production  
W. Potter, Section Leader, Nuclear Training Department  
F. Riedel, Department Leader, Nuclear Training Department  
M. Shea, Director, Nuclear Training Department  
J. Wood, Section Leader, Nuclear Training Department  
D. Hansen, Level III Non Destructive Examiner, Steam Generator Projects Group  
D. Hautala, Senior Engineer, Regulatory Affairs  
W. Hendrix, Section Leader, Emergency Services Division  
R. Henry, Site Representative, Salt River Project  
A. Huttie, Department Leader, Emergency Services Division  
M. Hooshmand, Nuclear Engineering Section Leader  
V. Huntsman, Technical Management Assistant, Radiation Protection  
W. Ide, Vice President, Nuclear Production  
L. Johnson, Department Leader, Chemistry  
P. Kirker, Department Leader, Operations  
A. Krainik, Director, Emergency Services  
D. Leith, Senior Technical Assistant, Radiation Protection  
D. Leech, Department Leader, Nuclear Assurance  
E. Lumley, Section Leader, Emergency Services Division  
D. Marks, Section Leader, Nuclear Regulatory Affairs  
D. Mauldin, Vice President, Engineering and Support  
S. Meyer, Section Leader, Emergency Services Division  
J. Minnick, Department Leader, Operations Computer Support  
G. Overbeck, Senior Vice President - Nuclear

E. O'Neill, Section Leader, Emergency Services Division  
R. Pettigrew, Team Leader, Emergency Services Division  
M. Priebe, Section Leader, Health Services/Fitness for Duty  
S. Peace, Consultant, Communications  
M. Pest, Engineer, HVAC Maintenance Engineering  
T. Phillips, Senior Engineer, OCS/I&C Maintenance  
W. Potter, Section Leader, Nuclear Training Department  
T. Radtke, Director, Maintenance  
M. Renfroe, Section Leader, Design Engineering  
J. Reynoso, Steam Generator Engineer, Steam Generator Projects Group  
F. Riedel, Department Leader, Nuclear Training Department  
W. Rudolph, Section Leader, Nuclear Assurance  
C. Seaman, Director, Regulatory Affairs and Quality Assurance  
R. Schaller, Department Leader, Engineering Support  
J. A. Scott, Director, Chemistry  
J. J. Scott, Department Leader, Nuclear Assurance  
M. Shea, Director, Nuclear Training Department  
D. Smith, Director, Operations  
W. Sneed, III, Section Leader, Radiation Protection Operations - ALARA  
M. Sontag, Department Leader, Nuclear Assurance  
D. Straka, Senior Consultant, Compliance  
R. Stroud, Senior Consultant, Regulatory Affairs  
K. Sweeney, Section Leader, Steam Generator Projects Group  
G. Walker, Project Manager  
S. Waters, Section Leader, Design Services  
T. Weber, Section Leader, Regulatory Affairs  
D. Wheeler, Engineering Section Leader, Nuclear Assurance  
R. Wilferd, Section Leader, Engineering  
M. Winsor, Director, Nuclear Engineering  
J. Wood, Section Leader, Nuclear Training Department

#### ITEMS OPENED AND CLOSED

##### Opened

50-528/02-04-01;  
50-529/02-04-01;  
50-530/02-04-01

NCV Failure to Adequately Test Off-Hours Response Time  
Capability (Section 1EP3)

50-528/02-04-02;  
50-529/02-04-02;  
50-530/02-04-02

NCV Failure to Protect (mark) Document Containing  
Safeguards Information (Section 3PP2)

50-528/02-04-03;  
50-529/02-04-03;  
50-530/02-04-03

NCV Failure to Protect (mark) Document Containing  
Safeguards Information (Section 3PP2)

Closed

50-528/02-04-01;  
50-529/02-04-01;  
50-530/02-04-01

NCV Failure to Adequately Test Off-Hours Response Time  
Capability (Section 1EP3)

50-528/02-04-02;  
50-529/02-04-02;  
50-530/02-04-02

NCV Failure to Protect (mark) Document Containing  
Safeguards Information (Section 3PP2)

50-528/02-04-03;  
50-529/02-04-03;  
50-530/02-04-03

NCV Failure to Protect (mark) Document Containing  
Safeguards Information (Section 3PP2)

50-528/2001-002-00;  
50-529/2001-002-00;  
50-530/2001-002-00

LER Technical Specification Violation Due to Deficient Test  
Procedure for Refueling Purge Valves (Section AOA3)

50-529/2000-006-00

LER Safety Injection Tank Outlet Check Valve Back-Leakage  
Causes Degraded Safety Injection Flow (Section AOA3)

50-529/2000-006-01

LER Safety Injection Tank Outlet Check Valve Back-Leakage  
Causes Degraded Safety Injection Flow (Section AOA3)

50-528/2001-004-00

LER TS Violation for inoperable RCS Leak Detection  
Instrument Due to Misaligned O-Ring (Section AOA3)

DOCUMENTS REVIEWED

In addition to the documents called out 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:

Calculations

<u>Number</u>	<u>Title</u>	<u>Revision</u>
13-JC-RC-0204	Pressurizer Level Instrument (RCS-L-110X & RCB-L-110Y) Setpoint and Uncertainty Calculation	5
13-MC-DG-411	DG Heat Exchanger Minimum Flow Rate vs. Inlet SP Water Temperature	1
13-MC-HA-052	Auxiliary Building Essential Cooling System Heat Load Calculation	5
13-MC-SP-307	SP/EW System Thermal Performance Design Bases Analysis	4

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
14FT-9FP42	Monthly Portable Fire Extinguisher Inspection	5
14FT-9FP47	Annual Portable Fire Extinguisher Inspection	5
15DP-0TR69	Training and Qualification Administration	9
15TD-0CC01	Simulator Operator Feedback	3
15TD-0OT05	NRC Examination Security	0
30DP-9ZZ04	Valve Services Maintenance - Motor Operated Valves	7

<u>Number</u>	<u>Title</u>	<u>Revision</u>
31DP-9ZZ01	Lubricant Sampling	4
32MT-9ZZ13	Testing and Calibration of the GE 12IFC66K1A and 12IFC66KD1A Time Overcurrent Relays	3
32MT-9ZZ17	Testing and Calibration of the GE 12PJC11AV1A Instantaneous Overcurrent Relay	0
32MT-9ZZ34	Maintenance of Medium Voltage Circuit Breakers Type AM-4.16-250	13
39TI-9RC01	RCS Vent Valve Leakage Test	3
40DP-9OP05	Control Room Data Sheet Instructions	44
40DP-9OP26	Operability Determination	11
40DP-9ZZ20	Equipment Deactivation	2
40DP-9ZZ20	Equipment Deactivation	2
40OP-9DG01	Emergency Diesel Generator A	21
40OP-9DG02	Emergency Diesel Generator B	18
40OP-9PB01	4.16kV Class 1E Power (PB)	12
40ST-9SI04	Containment Spray Valve Verification	2
70TI-9EW01	Thermal Performance Testing of Essential Cooling Water Heat Exchangers	4
70TI-9SI02	Thermal Performance Data Gathering for Shutdown Cooling Heat Exchangers	3

<u>Number</u>	<u>Title</u>	<u>Revision</u>
73DP-9ZZ05	Lubrication of Plant Equipment	14
73DP-9ZZ10	Guidelines for Heat Exchanger Thermal Performance Analysis	4
73DP-9ZZ11	Heat Exchanger Condition Monitoring	1
73ST-9SI03	Leak Test of SI/RCS Pressure Isolation Valves	22
81DP-0EE10	Plant Modifications	8
90DP-01P10,	Condition Reporting	14

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision</u>
	License Operator Continuing Training Program Description	15
	Operations Performance Assessment Report Cycle NLR01-01	36951
	Operations Performance Assessment Report Cycle NLR01-02	37049
	Operations Performance Assessment Report Cycle NLR01-03	37067
	Operations Performance Assessment Report Cycle NLR01-04	37131
	Operations Performance Assessment Report Cycle NLR02-01	37320

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision</u>
	Text Question Redundancy Review - NUA02C00302, 2002 Requalification Reactor Operator Exam 3 and NUA02C00502, 2002 Requalification Reactor Operator Exam 5	
	Text Question Redundancy Review - NUA02C00802, 2002 Requalification Senior Reactor Operator Exam 3 and NUA02C01002, 2002 Requalification Senior Reactor Operator Exam 5	
	Licensed Operator Continuing Training 2001 - 2002 Two Year Schedule	1
	In-Plant Job Performance Measures: EM011-J-PLT-08 SG009-J-PLT-13 RC027-J-PLT-15 AF006-J-PLT-18	
	Simulator Job Performance Measures: EP021-J-C/R-04 AD006-J-C/R-02 NA001-J-C/R-18 MT003-J-C/R-09 SA006-J-C/R-13 SG017-J-C/R-13 AD010-J-C/R-00 EP012-J-C/R-10 RC008-J-C/R-15 NC006-J-C/R-05	
	Simulator Scenarios: SES-0-09-T-00 SES-0-05-E-00 SES-0-05-D-00 SES-0-09-I-01	

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision</u>
	Unit 2 Action Plan, SIT Check Valve SIEV225 Reverse Leakage	0
	PVNGS UFSAR	11
	EW System, Design Basis Manual	15
	SP System, Design Basis Manual	11
90-SP-012	Engineering Evaluation Request, "Placite Coating in SP Piping, EW, DG Heat Exchangers"	
98-00177	Engineering Document Change	
NUA02C00302	2002 Requalification Reactor Operator Exam 3	
NUA02C00502	2002 Requalification Reactor Operator Exam 5	
NUA02C00502	2002 Requalification Reactor Operator Exam 5 Sample Plan	
NUA02C00802	2002 Requalification Senior Reactor Operator Exam 3	
NUA02C01002	2002 Requalification Senior Reactor Operator Exam 5 Sample Plan	
NUA02C01002	2002 Requalification Senior Reactor Operator Exam 5	

Letter dated January 26, 1990, Response to NRC Generic Letter 89-13, "Service Water System Problems Affecting Safety Related Equipment"

Letter dated July 1, 1991, Additional Information Regarding NRC Generic Letter 89-13, "Service

Water System Problems Affecting Safety Related Equipment”

Letter dated September 3, 1993, Reply to Notice of Deviation 50-528/529/530/93-17-02

Letter dated October 1, 1993, Revised Response to NRC Generic Letter 89-13

Letter dated December 29, 1995, Revised Response to Notice of Deviation 50-528/529/530/93-17-02

Letter dated May 16, 1997, Initial Service Water Test Program Revision

P&ID CHP-002

P&ID SIP-001

Tech Spec 3.7.7; 3.7.8; 3.7.9, and T3.4.103

Design Modifications

<u>Number</u>	<u>Title</u>	<u>Date</u>
219318	Replacement Existing RC Reactor/Pressurizer RC Vent Valves with Target Rock Single Pilot, Bolted Bonnet Solenoid Valves	37238
224684	Feedwater Header to Steam Generator RCEE01B	36874
220055	DG Jacket Water Standpipe Refill Valve Modification	37070
218265	Evaluate Fiber Optics Boards	0
222063	Replace Existing Spray Pond Temperature Elements for Elements with Greater Accuracy	
219210	Replace Barton Transmitters with Rosemount Transmitters	
228402	Provide Design Modification for Interconnection Between Units 1, 2, and 3 Control Rooms and New SRP Bay 7 Breakers	
224682	Replace Carbon Steel Piping Components with Stainless Steel due to Erosion/Corrosion Considerations	
2319254	DMWO for Hot Leg Nozzle Work During U1R9	

220101 Master DMWO to Support Installation of Strain Gage (QSS)  
Installation on Milled Stems

2436108 Dry Cask Storage Project Fuel Building Roof Opening

Work Orders

2552517  
219318  
219378  
2310954  
2536153  
2536174  
2456993

Condition Report/Disposition Requests

118198	2386126
118198	1-3-0208
2303519	118203
2303519	116975
2330205	2342046
2339118	2374166
2365102	2371907
2398568	2434725
2424713	2445253
2459393	2521395
2476314	2346566
2532219	116977
2532718	2541346
2536173	2536113
2547742	

LIST OF ACRONYMS USED

CFR	Code of Federal Regulations
CRDR	condition report/disposition request
EPIP	Emergency Plan Implementing Procedure
ERO	Emergency Response Organization
EW	essential cooling water
HPSI	high-pressure safety injection
HSAS	Homeland Security Advisory System
LER	licensee event report
NCV	noncited violation
NEI	Nuclear Energy Institute
RCS	reactor coolant system
TS	Technical Specifications
UFSAR	Updated Safety Analysis Report
WO	work order