UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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ARLINGTON, TEXAS 76011-4125

February 9, 2012

Randall K. Edington, Executive
Vice President, Nuclear/CNO
Mail Station 7602
Arizona Public Service Company
P.O. Box 52034
Phoenix, AZ 85072 2034

SUBJECT: PALO VERDE NUCLEAR GENERATING STATION -- NRC INTEGRATED INSPECTION REPORT 05000528/2011005, 05000529/2011005, and 05000530/2011005

Dear Mr. Edington:

On December 31, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Palo Verde Nuclear Generating Station Units 1, 2, and 3. The enclosed inspection report documents the inspection results which were discussed on January 6, 2012, with Mr. R. Bement, Senior Vice President, Site Operations, and other members of your staff.

The inspections 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.

One NRC-identified and two self-revealing findings of very low safety significance (Green) were identified during this inspection.

Two of these findings were determined to involve violations of NRC requirements. Further, two licensee-identified violations which were determined to be of very low safety significance are listed in this report. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest these non-cited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Palo Verde Nuclear Generating Station.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region IV; and the NRC Resident Inspector at Palo Verde Nuclear Generating Station.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's Agencywide Document Access and Management 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/

Ryan Lantz, Branch Chief
Project Branch D
Division of Reactor Projects

Docket Nos: 0500050528, 0500050529, 0500050530
License Nos: NPF-41, NPF-51, NPF-74

Enclosure: Inspection Report 05000528/2011005, 05000529/2011005, and 05000530/2011005
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	0500050528, 0500050529, 0500050530
License:	NPF-41, NPF-51, NPF-74
Report:	05000528/2011005, 05000529/2011005, 05000530/2011005
Licensee:	Arizona Public Service Company
Facility:	Palo Verde Nuclear Generating Station, Units 1, 2, and 3
Location:	5951 South Wintersburg Road Tonopah, Arizona
Dates:	October 1 through December 31, 2011
Inspectors:	M. Brown, Senior Resident Inspector M. Baquera, Resident Inspector D. Allen, Senior Project Engineer B. Parks, Project Engineer J. Melfi, Project Engineer G. Guerra, CHP, Emergency Preparedness Inspector L. Ricketson, P.E., Senior Health Physicist B. Baca, Health Physicist A. Fairbanks, Reactor Inspector D. Reinert, Reactor Inspector E. Uribe, Reactor Inspector S. Hedger, Reactor Inspector
Approved By:	Ryan Lantz, Chief, Project Branch D Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000528/2011005, 05000529/2011005, 05000530/2011005; 10/01/2011 – 12/31/2011; Palo Verde Nuclear Generating Station; Integrated Resident & Regional Inspection Report, Rad. Hazard Assess & Exposure Cont., Ident. & Res. of Probs., Event Flwp.

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by region-based inspectors. Two Green non-cited violations and one Green finding of significance were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." The cross-cutting aspect is determined using Inspection Manual Chapter 0310, "Components Within the Cross Cutting Areas." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for the failure of the licensee to assure that all required testing for the gaseous radwaste (GR) system was identified and performed in accordance with written test procedures which incorporated the requirements and acceptance limits contained in applicable design documentation. Specifically, from May 1995 to October 26, 2011, the licensee did not identify nor perform functional testing on GR system equipment which is credited in the Updated Final Safety Analysis Report (UFSAR) to preclude the internal hydrogen explosion event. The licensee developed written test procedures and successfully completed appropriate functional tests on all three units as a corrective action to restore compliance. The licensee documented their corrective actions for this issue in Palo Verde Action Requests 3440072, 3931118, and 4004489.

  The licensee's failure to perform functional testing on GR system equipment was a performance deficiency. The performance deficiency is more than minor, and therefore a finding, because it is associated with the Initiating Events Cornerstone attribute of procedure quality in the area of testing procedure adequacy and it adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, the lack of having functional testing on GR system components could result in a credible hydrogen explosion event which could initiate a radiological release. Using Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," the finding was determined to have very low safety significance (Green) because the condition represented a low degradation rating due to the fact that nitrogen

dilution valves and compressor auto trip features all passed recent functional testing successfully. This finding has no cross-cutting aspect assigned because the finding is not reflective of current performance (Section 4OA2).

- Green. The inspectors reviewed a self-revealing finding that occurred during maintenance associated with the Unit 1 reactor coolant pump 2A 13.8 kilovolt motor termination enclosure. Specifically, work instructions were inadequate to ensure the enclosure maintained the highest degree of availability and reliability as required by Procedure 30DP-0AP01, "Maintenance Work Order Writer's Guide." As a result, on October 8, 2011, water leakage from an open nuclear cooling system vent valve entered the enclosure, resulting in a ground fault on the energized 13.8 kilovolt electrical conductors, explosion inside the enclosure, and subsequent declaration of an Unusual Event. The licensee replaced the enclosure and satisfactorily retested reactor coolant pump 2A. The licensee entered this issue into the corrective action program as Condition Report Disposition Request 3905265 and has not completed all corrective actions.

  The failure of the licensee to provide adequate work instructions to maintain the Unit 1 reactor coolant pump 2A motor termination enclosure to the highest degree of availability and reliability was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because if left uncorrected, it could lead to a more significant safety concern. Specifically, had the event occurred while the unit was in full power operations, a significant plant transient due to a reactor trip and loss of forced circulation could have occurred. Using Inspection Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process," the inspectors concluded that the finding is of very low safety significance (Green) because it did not require a quantitative assessment. This finding had a cross-cutting aspect in the area of problem identification and resolution associated with the operating experience component because the licensee failed to implement and institutionalize internal operating experience through changes in station work instructions related to RCP motor termination enclosures. Specifically, the licensee has experienced previous issues with water penetration in electrical enclosures and missing seals, and maintenance personnel have consistently had difficulty restoring the electrical terminations due to various factors. This internal operating experience was not incorporated into revised work instructions [P.2(b)] (Section 4OA3).

Cornerstone: Occupational Radiation Safety

- Green. The inspectors reviewed a self-revealing, non-cited violation of 10 CFR 20.1501(a), resulting from the licensee's failure to evaluate the hazard associated with breaching a contaminated system. On October 18, 2011, before and during work on Unit 1 in the letdown heat exchanger valve CHNV340, the licensee did not make or cause to be made surveys necessary for the licensee to comply with 10 CFR 20.1201(a), the occupational dose limits to adults. The violation resulted in four workers receiving unplanned internal dose. The licensee took corrective action to secure similar valve work pending review of the

personnel contamination events; required the use of respiratory protection for subsequent work on the same valve; revised the governing radiation exposure permit; briefed outage personnel on the occurrence; and performed an apparent cause evaluation as part of Condition Report Disposition Request 3919188.

The failure to evaluate the radiological hazard was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it is associated with the Occupational Radiation Safety Cornerstone attribute of program and process and adversely affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation. Specifically, the failure to evaluate the radiological hazard resulted in unplanned and unintended dose to personnel. Using Inspection Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," the inspectors determined the finding to be of very low safety significance because: (1) it was not an as low as is reasonably achievable finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. The inspectors determined this finding had a cross-cutting aspect in the area of human performance associated with the work control component. Specifically, the licensee did not appropriately plan a work activity by incorporating risk insights because the station lacked a systematic and rigorous process for risk assessment on alpha contamination [H.3(a)] (Section 2RS01).

B. Licensee-Identified Violations

Violations of very low safety significance, which were identified by the licensee, have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and corrective action tracking numbers (condition report numbers) are listed in Section 4OA7.

REPORT DETAILS

Summary of Plant Status

Unit 1 operated at approximately 80 percent power until October 8, 2011 when Unit 1 began refueling outage 1R16. Unit 1 returned to essentially full power on November 28, 2011 and remained there for the remainder for the inspection period.

Unit 2 operated at essentially full power during the inspection period.

Unit 3 operated at essentially full power during the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

1R01 Adverse Weather Protection (71111.01)

.1 Readiness to Cope with External Flooding

a. Inspection Scope

The inspectors evaluated the design, material condition, and procedures for coping with the design basis probable maximum flood. The evaluation included a review to check for deviations from the descriptions provided in the UFSAR for features intended to mitigate the potential for flooding from external factors. As part of this evaluation, the inspectors checked for obstructions that could prevent draining, checked that the roofs did not contain obvious loose items that could clog drains in the event of heavy precipitation, and determined that barriers required to mitigate the flood were in place and operable. Additionally, the inspectors performed an inspection of the protected area to identify any modification to the site that would inhibit site drainage during a probable maximum precipitation event or allow water ingress past a barrier. The inspectors also reviewed the abnormal operating procedure for mitigating the design basis flood to ensure it could be implemented as written. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one external flooding sample as defined in Inspection Procedure 71111.01-05.

b. Findings

No findings were identified.

1R04 Equipment Alignments (71111.04)

.1 Partial Walkdown

a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- December 16, 2011, Unit 1, emergency diesel generator, train B
- December 29, 2011, Unit 1, containment spray system

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could affect the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, UFSAR, technical specification requirements, administrative technical specifications, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also inspected accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings were identified.

.2 Complete Walkdown

a. Inspection Scope

On November 29, 2011, the inspectors performed a complete system alignment inspection of the Unit 1, high pressure safety injection, train A, to verify the functional capability of the system. The inspectors selected this system because it was considered both safety significant and risk significant in the licensee's probabilistic risk assessment. The inspectors inspected the system to review mechanical and electrical equipment line ups, electrical power availability, system pressure and temperature indications, as

appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. The inspectors reviewed a sample of past and outstanding work orders to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the corrective action program database to ensure that system equipment-alignment problems were being identified and appropriately resolved. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one complete system walkdown sample as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

Quarterly Fire Inspection Tours

a. Inspection Scope

The inspectors conducted fire protection walkdowns that were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- October 26, 2011, Unit 1, containment building, all elevations
- November 16, 2011, Unit 2, diesel building, all elevations
- November 30, 2011, Unit 1, control building, all elevations
- December 20, 2011, Unit 1, diesel building, all elevations

The inspectors reviewed areas to assess if licensee personnel had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant; effectively maintained fire detection and suppression capability; maintained passive fire protection features in good material condition; and had implemented adequate compensatory measures for out of service, degraded or inoperable fire protection equipment, systems, or features, in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to affect equipment that could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four quarterly fire-protection inspection samples as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08)

.1 Inspection Activities Other Than Steam Generator Tube Inspection, Pressurized Water Reactor Vessel Upper Head Penetration Inspections, and Boric Acid Corrosion Control (71111.08-02.01)

a. Inspection Scope

The inspectors observed three nondestructive examination activities and reviewed six nondestructive examination activities that included four types of examinations. The licensee did not identify any relevant indications accepted for continued service during the nondestructive examinations.

The inspectors directly observed the following nondestructive examinations:

SYSTEM	WELD IDENTIFICATION	EXAMINATION TYPE
High Pressure Safety Injection	HPSI Pump Room A Discharge (Weld 106-16)	Ultrasonic
High Pressure Safety Injection	HPSI Pump Room A Discharge (Weld 106-47)	Ultrasonic
Reactor Coolant	Reactor Head Vent Line	Radiographic

Inspectors reviewed records for the following nondestructive examinations:

SYSTEM	WELD IDENTIFICATION	EXAMINATION TYPE
Essential Spray Pond	Weld on EDG Heat Exchanger	VT-2
Shutdown Cooling	Shutdown Cooling Heat Exchanger A Inlet Piping weld (weld 21-14, 15, 16)	Dye Penetrant
Steam Generator	Pressure Test on Steam generator Tube Economizer Piping (2SGEL005)	VT-2
Reactor Coolant	Inspector of Pressurizer Lower Shell Weld 5-2	Ultrasonic

SYSTEM	WELD IDENTIFICATION	EXAMINATION TYPE
Feedwater	Auxiliary and Downcomer Feedwater Steam Generator 1 (Weld 58-28)	Ultrasonic
Feedwater	Auxiliary and Downcomer Feedwater Steam Generator 1 (Weld 58-28, 29. 30. 31)	Dye Penetrant

During the review and observation of each examination, the inspectors verified that activities were performed in accordance with the ASME Code requirements and applicable procedures. The inspectors also verified the qualifications of all nondestructive examination technicians performing the inspections were current.

The inspectors verified, by review, that the welding procedure specifications and the welders had been properly qualified in accordance with ASME Code, Section IX, requirements. The inspectors also verified, through observation and record review, that essential variables for the welding process were identified, recorded in the procedure qualification record, and formed the bases for qualification of the welding procedure specifications. Specific documents reviewed during this inspection are listed in the attachment.

b. Findings

No findings were identified.

.2 Vessel Upper Head Penetration Inspection Activities (71111.08-02.02)

a. Inspection Scope

The Unit 1 reactor pressure vessel head was replaced during the previous outage (1R15) and no vessel upper head inspection activities were required to be performed this outage. Therefore, the inspectors determined this section of Inspection Procedure 71111.08 is not applicable. The licensee visually inspected the bottom head nozzles during this outage. The inspectors reviewed the visual records of the inspections and did not identify any indications of leakage.

These actions constitute completion of the requirements for Section 02.02.

b. Findings

No findings were identified.

.3 Boric Acid Corrosion Control Inspection Activities (71111.08-02.03)

a. Inspection Scope

The inspectors evaluated the implementation of the licensee's boric acid corrosion control program for monitoring degradation of those systems that could be adversely affected by boric acid corrosion. The inspectors reviewed the documentation associated with the licensee's boric acid corrosion control walkdown as specified in Procedure 70TI-9ZC01, "Boric Acid Walkdown Leak Detection," Revision 11. The inspectors also reviewed the visual records of the components and equipment. The inspectors verified that the visual inspections emphasized locations where boric acid leaks could cause degradation of safety-significant components. The inspectors also verified that the engineering evaluations for those components where boric acid was identified gave assurance that the ASME Code wall thickness limits were properly maintained. The inspectors confirmed that the corrective actions performed for evidence of boric acid leaks were consistent with requirements of the ASME Code. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the one requirement for Section 02.03.

b. Findings

No findings were identified.

.4 Steam Generator Tube Inspection Activities (71111.08-02.04)

a. Inspection Scope

The licensee did not perform steam generator tube inspection activities this outage due to the results of previous eddy current examinations on the previous outage. The licensee performed an operational assessment of the eddy current examinations, and concluded that steam generator tube integrity performance criteria will be satisfied for the upcoming cycle.

These actions constitute completion of the requirements of Section 02.04.

b. Findings

No findings were identified.

.5 Identification and Resolution of Problems (71111.08-02.05)

a. Inspection scope

The inspectors reviewed 17 action requests which dealt with inservice inspection activities and found the corrective actions were appropriate. From this review the inspectors concluded that the licensee has an appropriate threshold for entering issues into the corrective action program and has procedures that direct a root cause evaluation

when necessary. The licensee also has an effective program for applying industry operating experience. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements of Section 02.05.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Quarterly Review

a. Inspection Scope

On November 14, 2011, during licensed operator continuing training simulator scenarios, the inspectors observed a crew of licensed operators in the plant's simulator to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- Licensed operator performance
- Crew's clarity and formality of communications
- Crew's ability to take timely actions in the conservative direction
- Crew's prioritization, interpretation, and verification of annunciator alarms
- Crew's correct use and implementation of abnormal and emergency procedures
- Control board manipulations
- Oversight and direction from supervisors
- Crew's ability to identify and implement appropriate technical specification actions and emergency plan actions and notifications

The inspectors compared the crew's performance in these areas to preestablished operator action expectations and successful critical task completion requirements. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one quarterly licensed-operator requalification program sample as defined in Inspection Procedure 71111.11.

b. Findings

No findings were identified.

.2 Annual Inspection (Units 1, 2 and 3)

The licensed operator requalification program involves two training cycles that are conducted over a 2-year period. In the first cycle, the annual cycle, the operators are administered an operating test consisting of job performance measures and simulator scenarios. In the second part of the training cycle, the biennial cycle, operators are administered an operating test and a comprehensive written examination. For this annual inspection requirement, the licensee was in the first part of the training cycle.

a. Inspection Scope

The inspector reviewed the results of the operating tests for all units to satisfy the annual inspection requirement.

On December 14, 2011, the licensee informed the lead inspector of the following Units 1, 2 and 3 results:

- 21 of 22 crews passed the simulator portion of the operating test
- 117 of 124 licensed operators passed the simulator portion of the operating test
- 117 of 124 licensed operators passed the Job Performance Measure (JPM) portion of the examination

The crew that failed the simulator portion of the operating test was remediated, retested, and passed their retake test. Individuals that failed the JPM portion of the operating test were remediated, retested, and passed their retake test. One licensed operator was unable to take the annual operating test due to medical leave and six licensed operators were not required to take the annual operating test since they are enrolled in the Initial License Operator class as upgrade applicants.

The inspector completed one inspection sample of the annual licensed operator requalification program.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk significant systems:

- November 9, 2011, Units 1, 2, and 3, atmospheric dump valve surveillance test failures
- November 28, 2011, Units 1, 2, and 3, 10 CFR 50.65(a)(3) periodic assessment of maintenance rule program

The inspectors reviewed events such as where ineffective equipment maintenance has resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- Implementing appropriate work practices
- Identifying and addressing common cause failures
- Scoping of systems in accordance with 10 CFR 50.65(b)
- Characterizing system reliability issues for performance
- Charging unavailability for performance
- Trending key parameters for condition monitoring
- Ensuring proper classification in accordance with 10 CFR 50.65(a)(1) or -(a)(2)
- Verifying appropriate performance criteria for structures, systems, and components classified as having an adequate demonstration of performance through preventive maintenance, as described in 10 CFR 50.65(a)(2), or as requiring the establishment of appropriate and adequate goals and corrective actions for systems classified as not having adequate performance, as described in 10 CFR 50.65(a)(1)

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two quarterly maintenance effectiveness samples as defined in Inspection Procedure 71111.12-05.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed licensee personnel's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- October 3, 2011, Unit 3, low pressure safety injection A and high pressure safety injection B surveillance testing
- November 29, 2011, Unit 1 emergency diesel generator B unplanned maintenance following failed surveillance testing

The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that licensee personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When licensee personnel performed emergent work, the inspectors verified that the licensee personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

No findings were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- October 4, 2011, Units 1, 2, and 3, class 1 thermal relief valves not tested in accordance with ASME OM Code

- October 21, 2011, Unit 1, bent reactor vessel level monitoring system upper tube assembly

- November 7, 2011, Units 1, 2, and 3, unverified drainage capacity of safety-related building roofs

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that technical specification operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and UFSAR to the licensee personnel's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of three operability evaluations inspection samples as defined in Inspection Procedure 71111.15-05.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

Temporary Modifications

a. Inspection Scope

To verify that the safety functions of important safety systems were not degraded, the inspectors reviewed the following temporary modifications:

- October 5, 2011, Unit 1, temporary cooling towers to nuclear cooling water heat exchanger for plant cooling water system outage

- October 8, 2011, Unit 1, installation of pneumatic jumpers around instrument air containment isolation valve 1JIAAUV0002

- October 18, 2011, Unit 1, installation of pneumatic jumpers around fuel/auxiliary building train A damper solenoids during 125 Vdc bus outage

The inspectors reviewed the temporary modifications and the associated safety-evaluation screening against the system design bases documentation, including the UFSAR and the technical specifications, and verified that the modification did not adversely affect the system operability/availability. The inspectors also verified that the installation and restoration were consistent with the modification documents and that configuration control was adequate. Additionally, the inspectors verified that the temporary modification was identified on control room drawings, appropriate tags were placed on the affected equipment, and licensee personnel evaluated the combined effects on mitigating systems and the integrity of radiological barriers.

These activities constitute completion of three samples for temporary plant modifications as defined in Inspection Procedure 71111.18-05.

b. Findings

No findings were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed the following postmaintenance activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- October 31, 2011, Unit 3, atmospheric dump valves ADV-178 and ADV-185
- November 12, 2011, Unit 1, high pressure safety injection trains A and B pumps
- November 16, 2011, Unit 1, low pressure safety injection train A pump
- December 1, 2011, Unit 3, low pressure safety injection train B

The inspectors selected these activities based upon the structure, system, or component's ability to affect risk. The inspectors evaluated these activities for the following (as applicable):

- The effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed

- Acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate

The inspectors evaluated the activities against the technical specifications, the UFSAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed

corrective action documents associated with postmaintenance tests to determine whether the licensee was identifying problems and entering them in the corrective action program and that the problems were being corrected commensurate with their importance to safety. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four postmaintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

The inspectors reviewed the outage safety plan and contingency plans for the Unit 1 refueling outage, conducted October 8 through November 28, 2011, to confirm licensee personnel had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense in depth. During the refueling outage, the inspectors observed portions of the shutdown and cooldown activities and monitored licensee controls over the outage activities listed below.

- Shutdown and cooldown, including portions of the cooldown process to verify that technical specification cooldown restrictions are followed, and primary containment walkdown immediately after shutdown to inspect plant areas which are inaccessible during power operations

- Configuration management, including maintenance of defense in depth, activities are conducted commensurate with the outage safety plan for key safety functions and compliance with the applicable technical specifications when taking equipment out of service

- Clearance activities, including confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing

- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error

- Status and configuration of electrical systems to ensure that technical specifications and outage safety-plan requirements were met, and controls over switchyard activities

- Monitoring of decay heat removal processes, systems, and components

- Verification that outage work was not impacting the ability to operate the spent fuel pool cooling system

- Reactor water inventory controls, including flow paths, configurations, alternative means for inventory addition, and controls to prevent inventory loss

- Controls over activities that could affect reactivity

- Maintenance of secondary containment as required by the technical specifications

- Refueling activities, including fuel handling and sipping to detect fuel assembly leakage

- Startup and ascension to full power operation; tracking of startup prerequisites, walkdown of the primary containment to verify that debris had not been left which could block emergency core cooling system suction strainers, and reactor physics testing

- Licensee identification and resolution of problems related to refueling outage activities

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one refueling outage and other outage inspection sample as defined in Inspection Procedure 71111.20-05.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the UFSAR, procedure requirements, and technical specifications to ensure that the surveillance activities listed below demonstrated that the systems, structures, and/or components tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the significant surveillance test attributes were adequate to address the following:

- Preconditioning

- Evaluation of testing impact on the plant

- Acceptance criteria

- Test equipment
- Procedures
- Jumper/lifted lead controls
- Test data
- Testing frequency and method demonstrated technical specification operability
- Test equipment removal
- Restoration of plant systems
- Fulfillment of ASME Code requirements
- Updating of performance indicator data
- Engineering evaluations, root causes, and adequacy of bases for returning to service tested systems, structures, and components not meeting the test acceptance criteria
- Reference setting data
- Annunciators and alarms setpoints

The inspectors also verified that licensee personnel identified and implemented any needed corrective actions associated with the surveillance testing.

- October 19, 2011, Unit 1, containment penetration 30, as-left local leak rate test
- October 31, 2011, Unit 2, safety injection train B valves inservice test
- November 8, 2011, Unit 1, containment spray system

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of three surveillance testing inspection samples as defined in Inspection Procedure 71111.22-05.

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

a. Inspection Scope

The inspector performed an in-office review of Emergency Plan Implementing Procedure EP-901, "Classifications," Revisions 0 and 1, submitted by letters, dated April 28, and August 19, 2011. Implementation of Revision 0 of this procedure incorporated the former Appendix A, "Emergency Action Levels," of Emergency Plan Implementing Procedure EPIP-99, "EPIP Standard Appendices," Revision 31 with no technical changes. Revision 1 made corrections to typographical errors in the fission product barrier table used for emergency action level determinations.

Also reviewed were Palo Verde Emergency Plan Revisions 46 and 47 submitted by letters, dated May 6, and September 23, 2011. Revision 46 made several administrative corrections throughout, deleted the radiation protection support technician reporting to the Emergency Operations Facility, and added a Radiological Field Assessment Team position. Revision 47 made several administrative corrections throughout including revising organization name changes.

These revisions were compared to previous revisions, to the criteria of NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, to Nuclear Energy Institute Report 99-01, "Emergency Action Level Methodology," Revision 5, and to the standards in 10 CFR 50.47(b) to determine if the revision adequately implemented the requirements of 10 CFR 50.54(q). This review was not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, these revisions are subject to future inspection. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four samples as defined in Inspection Procedure 71114.04-05.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on December 13, 2011, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the Technical Support Center,

and Operations Support Center to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the corrective action program. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.06-05.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Occupational and Public Radiation Safety

2RS01 Radiological Hazard Assessment and Exposure Controls (71124.01)

a. Inspection Scope

This area was inspected to: (1) review and assess licensee's performance in assessing the radiological hazards in the workplace associated with licensed activities and the implementation of appropriate radiation monitoring and exposure control measures for both individual and collective exposures; (2) verify the licensee is properly identifying and reporting Occupational Radiation Safety Cornerstone performance indicators; and (3) identify those performance deficiencies that were reportable as a performance indicator and which may have represented a substantial potential for overexposure of the worker.

The inspectors used the requirements in 10 CFR Part 20, the technical specifications, and the licensee's procedures required by technical specifications as criteria for determining compliance. During the inspection, the inspectors interviewed the radiation protection manager, radiation protection supervisors, and radiation workers. The inspectors performed walkdowns of various portions of the plant, performed independent radiation dose rate measurements, and reviewed the following items:

- Performance indicator events and associated documentation reported by the licensee in the Occupational Radiation Safety Cornerstone

- The hazard assessment program, including a review of the licensee's evaluations of changes in plant operations and radiological surveys to detect dose rates, airborne radioactivity, and surface contamination levels

- Instructions and notices to workers, including labeling or marking containers of radioactive material, radiation work permits, actions for electronic dosimeter alarms, and changes to radiological conditions

- Programs and processes for control of sealed sources and release of potentially contaminated material from the radiologically controlled area, including survey performance, instrument sensitivity, release criteria, procedural guidance, and sealed source accountability

- Radiological hazards control and work coverage, including the adequacy of surveys, radiation protection job coverage, and contamination controls; the use of electronic dosimeters in high noise areas; dosimetry placement; airborne radioactivity monitoring; controls for highly activated or contaminated materials (non-fuel) stored within spent fuel and other storage pools; and posting and physical controls for high radiation areas and very high radiation areas

- Radiation worker and radiation protection technician performance with respect to radiation protection work requirements

- Audits, self-assessments, and corrective action documents related to radiological hazard assessment and exposure controls since the last inspection.

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of the one required sample as defined in Inspection Procedure 71124.01-05.

b. Findings

Introduction. The inspectors reviewed a self-revealing violation of 10 CFR 20.1501(a) resulting from the licensee's failure to evaluate the hazard associated with breaching a contaminated system. The violation resulted in four workers receiving unplanned internal dose.

Description. On October 18, 2011, two welders removed remnants of Unit 1 valve CHNV340 and the socket weld on the letdown system piping. A radiation protection technician provided continuous job coverage and another worker acted as a firewatch. Workers on the previous shift cut out the valve. The night shift radiation protection technician had turned over hand-written survey results of the inside of the piping before and after decontamination of the pipe. Before decontamination, the radiation protection personnel found the contamination levels to be 250,000 disintegrations per minute of beta/gamma and 200 disintegrations per minute of alpha.

The welder used a portable band saw and a grinder to remove the valve remnants and socket weld. The only engineering control used was a high efficiency particle air filter. The workers used general exposure permit 1-3502, Task 2, for the valve work. The welder and the worker acting as a firewatch wore lapel air samplers. The dayshift

radiation protection technician relied on the survey information from the previous shift and did not perform independent surveys at the start of the work. During the work, the radiation protection technician did not perform surveys at the cutting or grinding location or elsewhere inside the valve gallery. The work took approximately 3.5 hours to complete.

When the work was complete, the workers attempted to exit the radiological controlled area, but three of the four workers caused the contamination monitors to alarm. Radiation protection personnel investigated the alarms and identified contamination on the workers. After allowing the short-lived radionuclides time to decay, radiation protection personnel reviewed lapel air sampler results. The results confirmed the presence of alpha emitting radionuclides. The licensee's preliminary internal dose estimates for the workers, based on lapel samples and work area air samples, were 49 mrem for welder A, 62 mrem for welder B and the firewatch, and 16 mrem for the radiation protection technician. The licensee sent bioassay samples to a vendor laboratory. The results will enable the licensee to refine its dose assessment.

The licensee took corrective action to secure further work on valve CHNV340, pending the review of the personnel contamination events; required the use of respiratory protection for subsequent work on valve CHNV340; revised radiation work permit 1-3502; and briefed outage personnel on the occurrence. The licensee documented the occurrence in the corrective action system and conducted an apparent cause evaluation.

The licensee determined during its investigation that the instrument used by the previous shift was not appropriate for determination of the beta/gamma to alpha ratio. (The beta/gamma to alpha ratio is used to rank the risk and to determine work area protective actions to reduce the chance of personnel internal exposure.) The licensee concluded the as-found conditions should have alerted the job coverage radiation protection technician to the potential that high contamination levels could be seen again during the job, even though the risk significance associated with the contamination level within the letdown system piping was not discussed with the radiation protection technician. The licensee's apparent cause was, "The station lacks a systematic and rigorous process for risk assessment on alpha contamination." The inspectors identified the use of an incorrect radiation detection instrument to determine the beta/gamma to alpha ratio and the failure of a radiation protection technician to perform contamination surveys during the removal of valve remnants as examples of a failure to evaluate radiological hazard.

Analysis. The failure to evaluate the radiological hazard was a performance deficiency. The finding was more than minor because it is associated with the Occupational Radiation Safety Cornerstone attribute of program and process and adversely affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation. Specifically, the failure to evaluate the radiological hazard resulted in unplanned and unintended dose to personnel. Using Inspection Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," the inspectors determined the finding to be of very low safety significance because: (1) it was not an as low as is reasonably achievable finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the

ability to assess dose was not compromised. The inspectors determined this finding had a cross-cutting aspect in the area of human performance associated with the work control component. Specifically, the licensee did not appropriately plan a work activity by incorporating risk insights because the station lacked a systematic and rigorous process for risk assessment on alpha contamination [H.3(a)].

Enforcement. Title 10 CFR 20.1501(a) requires that each licensee make or cause to be made surveys that may be necessary for the licensee to comply with the regulations in 10 CFR Part 20 and that are reasonable under the circumstances to evaluate the extent of radiation levels, concentrations or quantities of radioactive materials, and the potential radiological hazards that could be present. Pursuant to 10 CFR 20.1003, a survey means an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, or presence of radioactive material or other sources of radiation. Title 10 CFR 20.1201(a) states, in part, that the licensee shall control the occupational dose to adults. Contrary to the above, on October 18, 2011, before and during work on Unit 1 valve CHNV340 in the letdown heat exchanger valve gallery, the licensee did not make or cause to be made surveys that may have been necessary for the licensee to comply with 10 CFR 20.1201(a), the occupational dose limits to adults. Specifically, the licensee used incorrect radiation detection instrumentation to determine the beta/gamma to alpha ratio. Also, a licensee radiation protection technician failed to perform contamination surveys during the removal of valve remnants and a socket weld on the letdown system piping to ensure the quantities of radioactive material present did not cause the workers to exceed the occupational dose limits. Because the failure to perform a radiological survey is of very low safety significance and has been entered into the licensee's corrective action program as Condition Report Disposition Requests 3919188, this violation is being treated as a NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy:
NCV 05000528/2011005-01, "Failure to Evaluate a Radiological Hazard."

2RS02 Occupational ALARA Planning and Controls (71124.02)

a. Inspection Scope

This area was inspected to assess performance with respect to maintaining occupational individual and collective radiation exposures as low as is reasonably achievable (ALARA). The inspectors used the requirements in 10 CFR Part 20, the technical specifications, and the licensee's procedures required by technical specifications as criteria for determining compliance. During the inspection, the inspectors interviewed licensee personnel and reviewed the following items:

- Site-specific ALARA procedures and collective exposure history, including the current 3-year rolling average, site-specific trends in collective exposures, and source-term measurements

- ALARA work activity evaluations/postjob reviews, exposure estimates, and exposure mitigation requirements

- The methodology for estimating work activity exposures, the intended dose outcome, the accuracy of dose rate and man-hour estimates, and intended versus actual work activity doses and the reasons for any inconsistencies

- Records detailing the historical trends and current status of tracked plant source terms and contingency plans for expected changes in the source term due to changes in plant fuel performance issues or changes in plant primary chemistry

- Radiation worker and radiation protection technician performance during work activities in radiation areas, airborne radioactivity areas, or high radiation areas

- Audits, self-assessments, and corrective action documents related to ALARA planning and controls since the last inspection.

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of the one required sample as defined in Inspection Procedure 71124.02-05.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the performance indicator data submitted by the licensee for the third quarter 2011 performance indicators for any obvious inconsistencies prior to its public release in accordance with Inspection Manual Chapter 0608, “Performance Indicator Program.”

This review was performed as part of the inspectors’ normal plant status activities and, as such, did not constitute a separate inspection sample.

b. Findings

No findings were identified.

.2 Mitigating Systems Performance Index - Heat Removal System (MS08)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index for Units 1, 2, and 3 - heat removal system performance indicator for the period from the fourth quarter 2010 through the third quarter 2011. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports, mitigating systems performance index derivation reports, and NRC integrated inspection reports for the period of October 1, 2010 through September 30, 2011 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of three mitigating systems performance index - heat removal system samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index - Residual Heat Removal System (MS09)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index for Units 1, 2, and 3 - residual heat removal system performance indicator from the fourth quarter 2010 through the third quarter 2011. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's operator narrative logs, issue reports, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports for the period of October 1, 2010 through September 30, 2011 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of three mitigating systems performance index - residual heat removal systems sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.4 Mitigating Systems Performance Index - Cooling Water Systems (MS10)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index for Units 1, 2, and 3 - cooling water systems performance indicator from the fourth quarter 2010 through the third quarter 2011. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's operator narrative logs, issue reports, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports for the period of October 1, 2010 through September 30, 2011 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of three mitigating systems performance index - cooling water system samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.5 Occupational Exposure Control Effectiveness (OR01)

a. Inspection Scope

The inspectors reviewed performance indicator data for the second quarter 2010 through the third quarter 2011. The objective of the inspection was to determine the accuracy and completeness of the performance indicator data reported during these periods. The inspectors used the definitions and clarifying notes contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, as criteria for determining whether the licensee was in compliance.

The inspectors reviewed corrective action program records associated with high radiation area (greater than 1 rem/hr) and very high radiation area non-conformances.

The inspectors reviewed radiological, controlled area exit transactions greater than 100 mrem. The inspectors also conducted walkdowns of high radiation areas (greater than 1 rem/hr) and very high radiation area entrances to determine the adequacy of the controls of these areas.

These activities constitute completion of the occupational exposure control effectiveness sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.6 Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences (PR01)

a. Inspection Scope

The inspectors reviewed performance indicator data for the second quarter 2010 through the third quarter 2011. The objective of the inspection was to determine the accuracy and completeness of the performance indicator data reported during these periods. The inspectors used the definitions and clarifying notes contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, as criteria for determining whether the licensee was in compliance.

The inspectors reviewed the licensee's corrective action program records and selected individual annual or special reports to identify potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose.

These activities constitute completion of the radiological effluent technical specifications/offsite dose calculation manual radiological effluent occurrences sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152)

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Physical Protection

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action program at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. The inspectors reviewed attributes that included the complete and accurate identification of the problem; the timely correction, commensurate with the safety significance; the evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews; and the classification, prioritization, focus, and timeliness of corrective actions. Minor issues entered into the licensee's corrective action program because of the inspectors' observations are included in the attached list of documents reviewed.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure, they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. The inspectors accomplished this through review of the station's daily corrective action documents.

The inspectors performed these daily reviews as part of their daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

Introduction. The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for the failure of the licensee to assure that all required testing for the GR system was identified and performed in accordance with written test procedures which incorporated the requirements and acceptance limits contained in applicable design documentation. Specifically, from May 1995 to October 26, 2011, the licensee did not conduct functional testing on GR system equipment credited in the UFSAR to preclude the need to analyze an internal hydrogen explosion event for the system.

Description. On February 24, 2010, the licensee documented in PVAR 3440072 that functional testing of the GR system's automatic nitrogen injection valve had not been conducted since it was removed from the system's surveillance procedure in 1995. Inspectors reviewed the 50.59 screening prepared for Revision 12 of Procedure 36ST-9GR02, "Gaseous Radwaste Explosive Gas Monitoring System Calibration," and determined that requirements for testing the function of the system's automatic nitrogen dilution valve and waste gas compressor auto shutdown features were inappropriately removed at that time. Surveillance procedure 36ST-9GR02 provides the details on a functional test for the GR system in order to meet site requirements in Technical Requirements Manual T3.3.107, "Explosive Gas Monitoring System," which ensures that the site maintains the assumptions described in UFSAR Sections 9.3.2.3.5 and 11.3.

The change altered the acceptance criteria for GR system performance testing. Since the automatic nitrogen dilution valve and the waste gas compressor were no longer tested to ensure they met their design functions, it could no longer be demonstrated that an internal hydrogen explosion accident could be precluded from the UFSAR analysis. This created a possibility of an accident of a different type than any previously evaluated in the licensee UFSAR. The licensee entered the failure to perform a 50.59 evaluation into the corrective action system as PVAR 3931118. The licensee revised the surveillance procedure to address the necessary scope of the functional test on October 26, 2011. The licensee successfully tested the nitrogen auto dilution valves and waste gas compressor trip features on all three units.

Additionally, on November 16, 2011, the NRC inspectors inquired as to what functional testing had been conducted to ensure that the waste gas surge tank low pressure alarm/switch described in UFSAR Section 11.3.1.1.6 could meet its described function to alert operating personnel of a tank leak which could potentially result in oxygen inleakage to the system to preclude an internal hydrogen explosion event in the GR system. The licensee responded that no specific functional testing or maintenance had been completed on this pressure alarm/switch since 1988. The licensee entered this issue into the corrective action program as PVAR 4004489 and scheduled calibration and testing of these alarms in all three units.

Analysis. The licensee's failure to perform functional testing on GR system equipment was a performance deficiency. The performance deficiency is more than minor, and therefore a finding, because it is associated with the Initiating Events Cornerstone

attribute of procedure quality in the area of testing procedure adequacy and it adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, the lack of having functional testing on GR system components could result in a credible hydrogen explosion event which could initiate a radiological release. Using Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," the finding was determined to have very low safety significance (Green) because the condition represented a low degradation rating due to the fact that nitrogen dilution valves and compressor auto trip features all passed recent functional testing successfully. This finding has no cross-cutting aspect assigned because the finding is not reflective of current performance.

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," requires, in part, that a licensee's test program will assure that all testing required to demonstrate that structures, systems and components will perform satisfactorily is identified and performed in accordance with written test procedures which incorporate requirements contained in applicable design documents. Procedure 36ST-9GR02, "Gaseous Radwaste Explosive Gas Monitoring System Calibration," Revision 26, implements testing to assure the gaseous waste management system performs satisfactorily in accordance with applicable design documents. Contrary to the above, from May 1995 to October 26, 2011, the licensee did not have written procedures which incorporate requirements contained in applicable design documents to assure all testing required to demonstrate that structures, systems and components will perform satisfactorily. Specifically, in May 1995, the licensee removed testing for the GR system nitrogen dilution valves from the surveillance procedure and also did not have procedures to verify that the surge tank low pressure alarm could perform its credited function. The licensee successfully tested the nitrogen auto dilution valves and waste gas compressor trip features on all three units as corrective action to restore compliance. Because the finding is of very low safety significance and was entered in the corrective action program as PVARs 3931118 and 4004489, this violation is being treated as a non-cited violation in accordance with Section 2.3.2 of the Enforcement Policy: NCV 05000528; 529; 530/2011005-02, "Failure to Identify and Perform Testing for the Gaseous Radwaste System."

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors focused their review on repetitive equipment issues, but also considered the results of daily corrective action item screening discussed in Section 4OA2.2, above, licensee trending efforts, and licensee human performance results. The inspectors nominally considered the 6-month period of July 2011 through December 2011.

The inspectors also included issues documented outside the normal corrective action program in major equipment problem lists, repetitive and/or rework maintenance lists,

departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self-assessment reports, and maintenance rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's corrective action program trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

These activities constitute completion of one single semi-annual trend inspection sample as defined in Inspection Procedure 71152-05.

b. Findings and Observations

Closure of Adverse Trend in Maintenance Related Equipment Failures and Degraded Conditions

In Section 4OA2 of Inspection Report 05000528; 05000529; 05000530/2011003, the inspectors identified an adverse trend associated with maintenance related equipment failures and degraded conditions that existed at Palo Verde through June 2011. The adverse trend involved several plant transients and degraded equipment that resulted from inadequate maintenance activities conducted by plant personnel. These issues resulted in events that upset plant stability and increased unavailability of equipment important to safety.

The licensee initiated an apparent cause evaluation (CRDR 3795122) to address these issues and implemented numerous corrective actions to improve maintenance performance. Actions included additional training, increased observations of maintenance activities by management personnel, and increased efforts to improve work instruction quality.

Based on corrective actions initiated by the licensee and no issues identified related to maintenance deficiencies that occurred during the review period, the inspectors concluded that the adverse trend no longer exists. The inspectors will continue to monitor the licensee's progress in this area.

.4 Selected Issue Follow-up Inspection

a. Inspection Scope

During a review of items entered in the licensee's corrective action program, the inspectors recognized corrective action items documenting issues that warranted a further scrutiny.

- November 30, 2011, Unit 2, emergency diesel generator B failed surveillance test

The inspectors considered the following during the review of the licensee's actions: (1) complete and accurate identification of the problem in a timely manner; (2) evaluation and disposition of operability/reportability issues; (3) consideration of extent of condition, generic implications, common cause, and previous occurrences; (4) classification and

prioritization of the resolution of the problem; (5) identification of root and contributing causes of the problem; (6) identification of corrective actions; and (7) completion of corrective actions in a timely manner.

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one in-depth problem identification and resolution samples as defined in Inspection Procedure 71152-05.

b. Findings

No findings were identified.

4OA3 Follow-up of Events and Notices of Enforcement Discretion (71153)

.1 Event Follow-Up

a. Inspection Scope

The inspectors reviewed the below listed event for plant status and mitigating actions to: (1) collect information necessary to communicate event details to NRC management for determination of the appropriate agency response; (2) observe plant system parameters and status; (3) evaluate licensee actions; and (4) confirm that the licensee properly classified the event in accordance with emergency action level procedures and made timely notifications to NRC and state/governments, as required.

- October 8, 2011, Unit 1, declaration of unusual event due to reactor coolant pump 2A trip following water intrusion into its electrical termination enclosure

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71153-05.

b. Findings

Introduction. Inspectors determined that a Green self-revealing finding occurred during maintenance associated with the Unit 1 reactor coolant pump 2A 13.8 kilovolt motor termination enclosure. Specifically, work instructions failed to ensure the enclosure maintained the highest degree of availability and reliability as required by Procedure 30DP-0AP01 “Maintenance Work Order Writer’s Guide.” As a result, on October 8, 2011, water leakage from an open nuclear cooling system vent valve entered the enclosure resulting in a ground fault on the energized 13.8 kilovolt electrical conductors and subsequent declaration of an Unusual Event.

Description. On October 8, 2011, while in Mode 5, Unit 1 operators drained a portion of the nuclear cooling water system associated with the control element drive mechanism air cooling unit to support reactor head disassembly and refueling operations. During

the evolution, water leaked out of a piping vent directly above the reactor coolant pump (RCP) 2A motor termination enclosure. Water penetrated the enclosure, causing a ground fault path from the C phase bus bar to the metal enclosure housing. The ground fault ionized a portion of the C phase bus bar resulting in a phase to phase differential current fault and tripping the RCP supply circuit breaker. Additionally, containment fire alarms actuated and personnel in containment heard a loud band and observed smoke near the RCP 2A bay. As a result, Unit 1 operators declared an Unusual Event for classification criteria, HU 2.2, "Explosion."

The licensee's investigation concluded that the event was caused by water penetration into the enclosure through missing seals associated with the OZ/Gedney armor cable terminators that were not installed during plant construction and by inadequate electrical termination restoration performed during RCP 2A maintenance in the prior refueling outage that allowed the water to penetrate the bus bars and initiate the ground fault. The licensee determined that work instructions did not provide guidance to ensure the bus bar was vertical and centered in the support board, ensure a minimum of 1" of tape/insulation overlap was achieved, or verify the termination enclosure had no water intrusion pathways.

The licensee replaced the motor termination enclosure and satisfactorily retested RCP 2A. Additionally, the licensee inspected the other RCP motor termination enclosures to ensure water tightness. The licensee entered this issue into the corrective action program as Condition Report Disposition Request 3905265 and has not completed all corrective actions.

The inspectors determined the most significant contributor to this issue was the failure of the licensee to minimize long-standing equipment issues, specifically related to the configuration of the RCP motor terminations. The licensee's investigation revealed that electrical maintenance personnel have consistently had difficulty restoring the electrical terminations due to various factors, such as dimensional differences between bar thickness and bracket sizing which can allow bus bars to slip down. This results in difficulty achieving tape overlap without further disassembly. Also, short bus bar length limits the available space to achieve required taping overlap and the tools allowed for cutting old insulation off create difficulty and lack of precision in work. The licensee concluded these problems were a principle contributor to the inadequate insulation performed on these terminations.

Analysis. The failure of the licensee to provide adequate work instructions to maintain the Unit 1 reactor coolant pump 2A motor termination enclosure to the highest degree of availability and reliability was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because if left uncorrected, it could lead to a more significant safety concern. Specifically, had the event occurred while the unit was in full power operations, a significant plant transient due to a reactor trip and loss of forced circulation could have occurred. Using Inspection Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process," the inspectors concluded that the finding is of very low safety significance (Green) because it did not require a quantitative assessment. This finding had a cross-cutting aspect in the area of problem identification and resolution associated with the operating experience

component because the licensee failed to implement and institutionalize internal operating experience through changes in station work instructions related to RCP motor termination enclosures. Specifically, the licensee has experienced previous issues with water penetration in electrical enclosures and missing seals, and maintenance personnel have consistently had difficulty restoring the electrical terminations due to various factors. This internal operating experience was not incorporated into revised work instructions [P.2(b)].

Enforcement. This finding does not involve enforcement action because no regulatory requirement violation was identified. Because this finding does not involve a violation and has very low safety significance, it is identified as FIN05000528/2011005-03 "Failure of Unit 1 Reactor Coolant Pump 2A Motor Junction Box Due to Inadequate Maintenance".

4OA5 Other Activities

NRC Temporary Instruction (TI) 2515/177, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems (NRC Generic Letter 2008-01)"

a. Inspection Scope

The inspectors evaluated whether the licensee maintained documents, installed system hardware, and implemented actions that were consistent with the information provided in their response to NRC Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems." Specifically, the inspectors verified that the licensee had implemented or was in the process of implementing the commitments, modifications, and programmatically controlled actions described in the response to Generic Letter 2008-01. The inspectors conducted their review in accordance with TI 2515/177 and also considered site-specific supplemental instructions provided by the Office of Nuclear Reactor Regulation.

b. Inspection Documentation

The inspectors reviewed the licensing basis, design, testing, and corrective actions as specified in the temporary instruction. The specific items reviewed and any resulting observations are documented below.

Licensing Basis: The inspectors reviewed selected portions of licensing basis documents to verify that they were consistent with the Office of Nuclear Reactor Regulation assessment report and that the licensee properly processed any required changes. Specifically, the inspectors reviewed selected portions of technical specifications, technical specification bases, and the updated final safety analysis report. The inspectors also verified that applicable documents that described the plant and plant operation, such as calculations, piping and instrumentation diagrams, procedures, and corrective action program documents, addressed the areas of concern and were updated as necessary. The inspectors confirmed that the licensee performed surveillance tests at the frequency required by the technical specifications. The

inspectors verified that the licensee tracked their commitment to evaluate and implement any changes that would be contained in the technical specification task force traveler.

Design. The inspectors reviewed selected design documents, performed system walkdowns, and interviewed plant personnel to verify that the licensee addressed design and operating characteristics. Specifically:

- The inspectors verified that the licensee had identified the applicable gas intrusion mechanisms for their plant.

- The inspectors verified that the licensee had established void acceptance criteria consistent with the void acceptance criteria identified by the Office of Nuclear Reactor Regulation. The inspectors also confirmed that the range of flow conditions evaluated by the licensee was consistent with the full range of design basis events and expected flow rates for various break sizes and locations.

- The inspectors selectively reviewed applicable documents, including calculations and engineering evaluations, with respect to gas accumulation in the emergency core cooling, decay heat removal, and containment spray systems. Specifically, the inspectors verified that these documents addressed venting requirements, void control during maintenance activities, and the potential for vortex effects that could entrain gas into the systems during design basis events.

- The inspectors conducted a walkdown of selected regions of the emergency core cooling systems in sufficient detail to assess the adequacy of the licensee's walkdowns. The inspectors completed full system alignment inspections of the Unit 1 train B containment spray system, the Unit 2 train A high pressure safety injection system, and the Unit 3 train B low pressure safety injection system during earlier inspection periods. These additional activities counted towards the completion of this temporary instruction and were documented in Inspection Reports 05000528;05000529;05000530/2010003, 05000528;50500029;50500030/2010005, and 05000528;05000529;05000530/2011003. The inspectors also verified that the information obtained during the licensee's walkdown was consistent with the items identified during the inspectors' independent walkdown.

- The inspectors verified that piping and instrumentation diagrams and isometric drawings described the current emergency core cooling, residual heat removal, and containment spray system configurations. The review of the selected portions of piping and instrumentation diagrams and isometric drawings considered the following:

1. High point vents were identified.

2. High points without vents were clearly shown in isometric drawings.

3. Other areas where gas could accumulate and potentially impact operability were described in the drawings or in referenced documentation.

4. Pipe slopes in nominally horizontal lines that exceeded specified criteria were identified.

5. All pipes and fittings were clearly shown.

6. The drawings were up-to-date with respect to recent hardware changes, and any discrepancies between as-built configurations and the drawings were documented and entered into the corrective action program for resolution.

    - The inspectors verified that the licensee had completed their walkdowns and selectively verified that the licensee identified discrepant conditions in their corrective action program and appropriately modified affected procedures and training documents.

Testing. The inspectors reviewed selected surveillance test, post-modification test, and post-maintenance test procedures performed during power and shutdown operations to verify that the procedures were adequate to identify gas accumulation and/or air intrusion into the subject systems. This review included verification that surveillance test procedures and procedures for determining void volumes were adequate to reasonably ensure the operability of the subject systems until the next scheduled void surveillance test. Also, the inspectors reviewed procedures used for filling and venting following conditions that could introduce voids into the subject systems to verify that the procedures addressed testing for such voids, and provided processes for their reduction or elimination. The inspectors observed filling and venting activities associated with the Unit 1 train A low pressure safety injection system, the Unit 2 train B containment spray system, and the Unit 3 train A high pressure safety injection system during earlier inspection periods. These additional activities counted towards the completion of this temporary instruction and were documented in Inspection Reports 05000528;529;530/2010002, /2010003, and /2011002.

Corrective Actions. The inspectors reviewed selected actions from the December 2010 assessment and sampled other corrective action program documents to assess how effectively the licensee addressed issues associated with Generic Letter 2008-01 in their corrective action program. In addition, the inspectors verified that the licensee implemented appropriate corrective actions for selected issues identified in the nine-month and supplemental responses. The inspectors determined that the licensee had effectively implemented the actions required by Generic Letter 2008-01.

Based on this review, the inspectors concluded that there was reasonable assurance that the licensee would complete all outstanding items and incorporate this information into the design basis and operational practices. This temporary instruction is closed.

c. Findings

Assumption that Low Pressure Safety Injection Pump Fails to Trip on a Recirculation Actuation Signal not Included in Analysis

Introduction. The inspectors identified an unresolved item involving the licensee's analysis which determined the minimum required refueling water tank transfer volume. Specifically, the licensee's analysis did not evaluate the failure of a single low pressure safety injection pump to automatically stop, as designed, following a recirculation actuation signal.

Description. During a TI 2515/177 inspection, inspectors reviewed the licensee's analysis that determined the required refueling water tank transfer volume after a recirculation actuation signal. Inspectors asked why the licensee had not analyzed for the failure of a low pressure safety injection (LPSI) pump to trip off at a recirculation actuation signal (RAS). Inspectors were concerned that the failure of a LPSI pump to trip off at a RAS could potentially result in a greater than previously calculated drain down rate of the refueling water tank; therefore, a greater transfer volume would be required to prevent air entrainment in the emergency core cooling system.

The licensee provided the inspectors a license amendment request, dated November 30, 2009, which, among other changes, discusses the basis for not evaluating the single failure of a LPSI pump to trip off at a RAS. The license amendment request documents that the subject single failure is bounded by the previously analyzed single failure (failure of an engineered safety features train to realign to the containment sump at a RAS) for the following reasons:

1. The emergency operating procedures, for loss-of-coolant accident recovery, direct the operators early in the event, to stop one of the redundant containment spray pumps; thereby maintaining containment pressure high enough, but within limits, to significantly reduce the range of loss-of-coolant accident break sizes where air entrainment remains a potential concern.

2. The failure of a LPSI pump to trip off on a RAS, within the limited range of break sizes where air entrainment is a concern, is considered to have a low probability of occurrence.

3. All of the operating crews tested at the licensee's simulator demonstrated that initiation of refueling water tank discharge valve closure could be completed even within the reduced time that would be available if the refueling water tank pump down rate included the LPSI pump operating at its maximum flow rate.

4. Per the emergency operating procedures, the first step after a RAS is to ensure that the LPSI pumps are stopped.

Inspectors informed the licensee that the basis provided in the license amendment request may not be adequate to satisfy the requirements of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," which states that "design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program." In compliance with 10 CFR Part 50, Appendix A, Criterion 35, "Emergency Core Cooling," Section 3.1.31 of

the licensee's updated final safety analysis report states "The system [safety injection system] design includes provisions to assure that the required safety functions are accomplished with either onsite or offsite electrical power system operation, assuming a single failure (qualified as described below) of any component." Inspectors informed the licensee of the following, with respect to the basis for not performing the analysis:

5. The licensee's assertions that containment pressure would be maintained high enough to reduce the range of loss-of coolant accident break sizes where air entrainment is a concern, that the task of closing the refueling water tank discharge valves could be completed more quickly if the refueling water tank pump down rate included the operation of one LPSI pump, and that the first step in the emergency operating procedures after a RAS is to ensure that the LPSI pumps are stopped are all qualitative statements and do not verify that the refueling water tank would not be drained down further than previously analyzed.

6. The deterministic requirements of Criterion III, to verify the adequacy of design, assuming a potentially more limiting single failure than previously analyzed, cannot be met with a probabilistic approach.

The licensee provided inspectors with the safety evaluation report issued by the Office of Nuclear Reactor Regulation (dated November 24, 2010) that approved the subject license amendment request. The licensee told inspectors that because the Office of Nuclear Reactor Regulation had approved of the license amendment request, without taking exception to the licensee's basis for not analyzing for the subject potentially more limiting single failure, they were in compliance with regulatory requirements. Inspectors were concerned that by not performing the single failure analysis, the licensee did not meet the requirements of Criterion III.

Inspectors contacted a representative in the Office of Nuclear Reactor Regulation to obtain clarification on the intent of the safety evaluation approval, but the guidance received during the on-site portion of the inspection was inconclusive. Because more information is necessary to resolve this issue, it is considered an unresolved item pending further NRC review. Inspectors concluded that further discussions with the Office of Nuclear Reactor Regulation were required to determine whether or not the licensee was required to perform the subject single failure analysis and whether the failure to perform the analysis constitutes a violation of NRC requirements.

This unresolved item is identified as URI 05000528; 05000529; 05000530/2011005-04, "Assumption that Low Pressure Safety Injection Pump Fails to Trip on a Recirculation Actuation Signal not Included in Analysis."

4OA6 Meetings

Exit Meeting Summary

On October 20, 2011, the inspectors presented the inspection results of the review of in service inspection activities to Mr. D. Mims, Senior Vice President, Nuclear Regulatory and Oversight, and other members of the licensee staff. The licensee acknowledged the issues presented.

On October 28, 2011, the inspectors presented the results of the radiation safety inspections to Mr. R. Bement, Senior Vice President, Site Operations, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On November 7, 2011, the inspector discussed the results of the in-office inspection of changes to the licensee's emergency plan and emergency action levels by telephonic conference with Mr. S. Sawtschenko, Department Leader, Emergency Preparedness and Ms. M. Webb, Regulatory Affairs. The licensee acknowledged the results presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On December 9, 2011, the inspectors presented the temporary instruction inspection results to Mr. D. Mims, Senior Vice President, Nuclear Regulatory and Oversight, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary. On December 15, 2011, the inspectors reexited the temporary instruction inspection results to Mr. T. Webber, Nuclear Regulatory Affairs Department Leader, and other members of the licensee staff. The licensee acknowledged the issues presented.

On January 6, 2012, the inspectors presented the quarterly inspection results to Mr. R. Bement, Senior Vice President, Site Operations, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

4OA7 Licensee-Identified Violations

The following violations of very low safety significance (Green) were identified by the licensee and are violations of NRC requirements which meet the criteria of Section 2.3.2 of the NRC Enforcement Policy for being dispositioned as non-cited violations.

- Title 10 CFR Part 50, Appendix B, Criteria V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings of a type appropriate to the circumstances. Contrary to this requirement, on November 30, 2011, plant personnel concluded that the station failed to provide documented instructions to ensure the locking collar for the range potentiometer on the automatic voltage regulator of emergency diesel generator 2B is tightened to prevent misalignment and failed to prescribe preventive maintenance instructions for the remote gate firing modules of the diesel generator. As a result, on July 6, 2011, Unit 2 emergency diesel generator B failed its routine surveillance test due to output voltage fluctuations. The licensee replaced the automatic voltage regulator and remote gate firing module and successfully retested the emergency diesel

generator. The licensee entered the issue into the corrective action program as Condition Report Disposition Request 3804270 and has not completed all corrective actions associated with this issue. The inspectors concluded the finding is of very low safety significance and was not greater than Green based on the results of a risk assessment performed by a Region IV senior reactor analyst that concluded the delta-CDF was less than 1E-6.

- Title 10 CFR 50.55a "Codes and Standards" states in part that Systems and components of boiling and pressurized water cooled nuclear power reactors must meet the requirements of the following standards referenced in paragraphs (b)(1), (b)(2), (b)(3), (b)(4), (b)(5), and (b)(6) of this section. Title 10 CFR 50.55a(b)(3) states in part that as used in this section, references to the OM Code refer to the ASME Code for Operation and Maintenance of Nuclear Power Plants, Subsections ISTA, ISTB, ISTC, and ISTD, Mandatory Appendices I and II, and Nonmandatory Appendices A through H and J, and include the 1995 Edition through the 2006 Addenda. Mandatory Appendix I "Inservice Testing of Pressure Relief Devices in Light-Water Reactor Nuclear Power Plants" states in part that Class 1 pressure relief valves shall be tested at least once every 5-years, a minimum of 20 percent of the valves from each valve group shall be tested within any 24-month interval, and for replacement of a partial complement of valves, the valves removed from service shall be tested prior to resumption of electric power generation. Contrary to the above, prior to November 19, 2011, the licensee did not test a minimum of 20 percent of the valves from each valve group within any 24-month interval and valves removed from service were not tested prior to resumption of electric power generation. Specifically, the licensee failed to test a minimum of 20 percent of Class 1 thermal relief valves within any 24-month interval for Units 1 and 3 and failed to test Class 1 thermal relief valves removed from service prior to resumption of electric generation for Unit 2. The licensee entered surveillance requirement SR 3.0.3 for Units 2 and 3 and will test the affected Class 1 thermal relief valves, in accordance with Mandatory Appendix I, at the next outage for each unit respectively. Inspectors concluded that the finding is of very low safety significance (Green) because the reactor coolant system barrier remained intact.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION
KEY POINTS OF CONTACT

Licensee Personnel

R. Barnes, Director, Regulatory Affairs
R. Bement, Senior Vice President, Site Operations
B. Berryman, Director, Business
J. Cadogan, Director, Plant Engineering
K. Chavet, Consultant, Nuclear Regulatory Affairs
E. Dutton, Director, Nuclear Assurance Department
W. Hettel, Plant Manager, Plant Operations
M. Lacal, Vice President, Operations Support
F. Lake, Director, Performance Improvement Department
M. McGhee, Department Leader, Nuclear Regulatory Affairs
D. Mims, Vice President, Senior Vice President, Nuclear Regulatory and Oversight
M. Powell, Director, Nuclear Fuel Management
M. Ray, Director, Emergency Preparedness/Security
M. Shea, Director, Safety Culture
J. Waid, Director, Nuclear Training
T. Young, Director, Communications

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000528/2011005-01	NCV	Failure to Evaluate a Radiological Hazard (Section 2RS01)
05000528; 529; 530/2011005-02	NCV	Failure to Identify and Perform Testing for the Gaseous Radwaste System (Section 4OA2)
05000528/2011005-03	FIN	Failure of Unit 1 Reactor Coolant Pump 2A Motor Junction Box Due to Inadequate Maintenance (Section 4OA3)

Opened

05000528; 529; 530/2011005-04	URI	Assumption that Low Pressure Injection Pump fails to trip on a Recirculation Actuation Signal not Included in Analysis.

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

PROCEDURES

NUMBER	TITLE	REVISION
40AO-9ZZ21	Acts of Nature	27
40ST-9ZZM1	Operations Mode 1 Surveillance Logs	57

PALO VERDE ACTION REQUESTS

3952065 3958463 3961596 3961593

Section 1R04: Equipment Alignment

PROCEDURES

NUMBER	TITLE	REVISION
40ST-9SI07	High Pressure Injection System Alignment Verification	15
40OP-9SI02	Recovery from Shutdown Cooling to Normal Operating Lineup	91
40OP-9DG02	EDG System Alignment	62
40ST-9SI13	LPSI and CS System Alignment	25
40OP-9SI02	Recovery from Shutdown Cooling to Normal Operating Lineup	93

DRAWINGS

NUMBER	TITLE	REVISION
01-M-SIP-001	P & I Diagram Safety Injection & Shutdown Cooling System	48
01-M-SIP-001	P & I Diagram Safety Injection & Shutdown Cooling System	37
02-P-SIF-203	Auxiliary Building Safety Injection System HPSI Pump Discharge	4
13-P-SIF-203	Auxiliary Building Safety Injection System HPSI Pump Discharge	24
13-P-SIF-201	Auxiliary Building Safety Injection System ESF Pump Suction	24
01-M-DGP -001	P & I Diagram Safety Injection & Shutdown Cooling System	52
01-M-SIP-001	P & I Diagram Safety Injection & Shutdown Cooling System	49
01-M-SIP-002	P & I Diagram Safety Injection & Shutdown Cooling System	37

WORK ORDERS

2569327 3470020 3528093 3572576 3842886 3978326

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION
	Updated Final Safety Analysis Report	
13-MS-A108	Palo Verde Nuclear Generating Station Engineering Study, Determination of Allowable Void Size and Venting Criteria for the PVNGS ECCS and CSS Pump Suctions	2
13-MS-B086	PVNGS Engineering Study, Development of ECCS Suction Side Piping Arc Lengths Associated with Calculated Max Void Volumes	0

Section 1R05: Fire Protection

PROCEDURES

NUMBER	TITLE	REVISION
40DP-9ZZ17	Control of Doors, Hatches, and Floor Plugs	51

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION / DATE
	Pre-Fire Strategies Manual	22
	Pre- Fire Strategies Manual	23
	Open Door Permit 3763332	May 27, 2011

Section 1R08: Inservice Inspection Activities

PROCEDURES

NUMBER	TITLE	DATE
70TI-9ZC01	Boric Acid Walkdown Leak Detection	11
73DP-9ZC01	Boric Acid Corrosion Control Program	11
73DP-9ZZ17	Repair and Replacement – ASME Section XI	

Section 1R08: Inservice Inspection Activities

PROCEDURES

NUMBER	TITLE	DATE
73TI-0EE01	Ultrasonic Instrument Calibration	
73TI-9ZZ79	ASME Section XI Appendix VIII Ultrasonic Examination of Ferritic Piping	6
73TI-9RC10	Bare Metal Visual Examination of Reactor Vessel Bottom Head	2
73TI-9ZZ22	Visual Examination For Leakage - Interval 3	5
73TI-9ZZ80	ASME Section XI Appendix VIII Ultrasonic Examination of Austenitic Piping	7

WORK ORDERS

3445410	3445412	3445428	3445578	3445581	3445594	3450109
3492286	3555347					

PALO VERDE ACTION REQUESTS

3654452	3660716	3691351	3696732	3837725	3837745	3837765
3837825	3837885	3837906	3837925	3837985	3838025	3838065

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION / DATE
	Bottom Mounted Instrumentation Inspection Results (Video and Pictures)	
	Boric Acid Walkdown Inspection Summary and Results	
	Radiography Shot Plan, Reactor vent line	October 14, 2011
Assessment 3524435	Boric Acid Corrosion Control Program	September 10, 2010

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION / DATE
01-MS-C017	Steam Generator Operational Assessment Evaluation, Unit 1 Cycles 16 and 17	0
11-UT-1034	Ultrasonic Examination report	

Section 1R11: Licensed Operator Requalification Program

PROCEDURES

NUMBER	TITLE	REVISION
15DP-0TR69	Training and Qualification Administration	35
15DP-0TR07	Training Oversight	12
40DP-9ZZ04	Time Critical Operator Actions Program	7
15DP-0TR05	NRC Exam Security	1
15DP-0TR08	Systematic Approach to Training	1
LOCT-TPD	Licensed Operator Continuing Training Program	60

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	DATE
	Simulator Scenario Session 1 LOAF	November 2, 2011

Section 1R12: Maintenance Effectiveness

PROCEDURES

NUMBER	TITLE	REVISION
70DP-0MR01	Maintenance Rule	32

PALO VERDE ACTION REQUESTS

3898085 3954668 3954687 3961607 3981325 3999964

CONDITION REPORTS / DISPOSITION REQUESTS

3909156 3956911

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION / DATE
	System History Report, Main Steam Safety Valves (SG)	November 22, 2011
	PVNGS Maintenance Rule System Basis, Main Steam	5
	Periodic Assessment of Maintenance Rule Program July 2008 through December 2009	April 8, 2010

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

PROCEDURES

NUMBER	TITLE	REVISION
70DP-0RA05	Assessment and Management of Risk When Performing Maintenance in Modes 1 and 2	18
40DP-9AP21	Protected Equipment	5

PALO VERDE ACTION REQUESTS

3988045

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	DATE
	Work Order 3988085	
	Troubleshooting Game Plan, EDG 1B Voltage Issue from Control Room	November 30, 2011

Section 1R15: Operability Evaluations

PROCEDURES

NUMBER	TITLE	REVISION
40DP-9OP26	PVAR Processing and Operability Determination/Functional Assessment	31
73ST-9ZZ20	IST Program Off-Line Set Pressure Verification	30
73ST-9ZZ20	IST Program Off-Line Set Pressure Verification	31

PALO VERDE ACTION REQUESTS

3512590	3721156	3789677	3873705	3887856	3894424	3894427
3909645	3914346	3914897	3952605	3958463	3959465	3961593
3961596	4004812					

CONDITION REPORTS / DISPOSITION REQUESTS

3513867	3728388	3790704	3875593	3888541	3896148

CONDITION REPORTS ACTION ITEM

3770259	3816030

WORK ORDERS

39103972	3956860

CALCULATION

NUMBER	TITLE	REVISION
13-CC-ZV-0140	Miscellaneous Hydrological & Hydrolic Studies	0
13-CC-ZV-0061	Power Block Area Drainage	3

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	DATE
	Video of Reactor Head lift	
	Updated Final Safety Analysis Report	
	Generic Letter 89-22	
161-02824-RAB/JR	Arizona Public Service Company Response to Generic Letter 89-22	December 28, 1989
NUREG-0857	Safety Evaluation Report	November, 1981

Section 1R18: Plant Modifications

PROCEDURES

NUMBER	TITLE	REVISION
31MT-9IA03	Install/Remove Pneumatic Jumper Around Valve IAAUV0002	9
81DP-0DC17	Temporary Modification Control	29
33MT-9HF01	Fuel and Auxiliary Building Normal Ventilation System Train "A" Pneumatic and Electrical Jumper Installation	10
93DP-0LC07	10 CFR 50.59 and 72.48 Screenings and Evaluations	23
93DP-0LC17	10 CFR 50.59 and 72.48 Guidance Manual	6
31MT-9PW02	Installation & Removal of Temporary Cooling Towers to NC Heat Exchanger for PW System Outage	9
40AO-9ZZ23	Loss of SPF Level or Cooling	15
40OP-9PW01	Plant Cooling Water	33

PALO VERDE ACTION REQUESTS

3902570 3921145 3933398

DRAWINGS

NUMBER	TITLE	REVISION
01-M-IAP-003	Piping and Instrumentation Diagram – Instrument and Service Air System	80
13-J104-00067	System Interconnection Diagram FBEVAS Train B	11
01-M-HAP-001	Piping and Instrumentation Diagram HVAC – Auxiliary Building	2
01-M-HAP-002	Piping and Instrumentation Diagram HVAC – Auxiliary Building	5

DRAWINGS

NUMBER	TITLE	REVISION
01-M-HFP-001	Piping and Instrumentation Diagram HVAC – Fuel Building	16
SKH-M-A204	PW Cooling Water Mod, Units 1, 2, & 3	9
03-M-PWP-001	P & I Diagram Plant Cooling Water System	03

50.59 EVALUATIONS

NUMBER	TITLE	DATE/REVISION
94-00041	New procedure to provide instructions for installing a jumper around Instrument Air Containment Isolation Valve IAAUV002 during a EPBAS03 outage or during steam generator nozzle dam usage	February 21, 1994
92-00225	Install and Remove Pneumatic Jumpers which will allow the Train “A” Normal Fuel Building Ventilation Dampers to remain open during a 125VDC PK “A” Bus outage	August 7, 1992
99-00024	50.59 Evaluation for Procedure 31MT-9PW02	1

WORK ORDERS

3483280 3492282 3537888 3545535

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION / DATE
	Palo Verde Unit 1 Operations Logs	October 16-19, 2011
	System Training Manual, Volume 30C, Fuel Building HVAC System (HF)	4
	System Training Manual, Volume 4, Nuclear Cooling Water System (NC)	4
	System Training Manual, Volume 32, Spent Fuel Pool Cooling and Cleanup System (PC)	4

Section 1R19: Postmaintenance Testing

PROCEDURES

NUMBER	TITLE	REVISION
73ST-9XI20	ADVs – Inservice Test	30
73ST-3XI12	Safety Injection Train B ECCS Throttle Valves – Inservice Test	22
73ST-9XI33	HPSI Pump and Check Valve Full Flow Test	52
31MT-9SI02	HPSI Pump Disassembly, Examination and Assembly	24A
73ST-9SI11	Low Pressure Safety Injection Pumps Miniflow – Inservice Test	28
31MT-9SI01	Low Pressure Safety Injection Pump Maintenance	18

PALO VERDE ACTION REQUESTS

3898085

WORK ORDERS

3180553 3192268 3262855 3539886 3950890

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION / DATE
13-MC-SG-0318	Pressure/Temperature Rating of N2 Back-Up System of ADV's	2
EER 92-SG-006	Atmospheric Dump Valve N2 Pressure Regulator	January 6, 1992
	Work Order 3137840	
	Work Order 3876705	
	Work Order 2981510	

Section 1R20: Refueling and Other Outage Activities

PROCEDURES

NUMBER	TITLE	REVISION
40OP-9ZZ11	Mode Change Checklist	84
40OP-9ZZ16	RCS Drain Operation	72
31ST-9SI01	Cleaning/Inspection of ECCS Sumps	13
0PGP03-ZF-0019	Control of Transient Fire Loads and Use of Combustible and Flammable Liquids and Gases	7

PALO VERDE ACTION REQUESTS

11-18274 11-18328 11-9447

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION
	Unit 1 16th Refueling Outage Schedule	0
	Unit 1R16 Surveillance Plan	
	Computer printouts on overtime use	

Section 1R22: Surveillance Testing

PROCEDURES

NUMBER	TITLE	REVISION
73ST-9XI04	SI Train B Valves – Inservice Test	31
73DP-9XI01	Pump and Valve Inservice Testing Program – Component Tables	25
73ST-9CL01	Containment Leakage Type “B” and “C” Testing	37
73ST-9SI02	Containment Spray Nozzle Air Test	9
30DP-9MP03	System Cleanliness and FME Controls	18

PALO VERDE ACTION REQUESTS

3954125

DRAWINGS

NUMBER	TITLE	REVISION
01-M-SIP-001	P & I Diagram Safety Injection & Shutdown Cooling System	49

WORK ORDERS

3515472 3515819 3567044 3567045 3954628

Section 1EP4: Emergency Action Level and Emergency Plan Changes

PROCEDURES

NUMBER	TITLE
EP-0761E	10CFR50.54(q) Review Form – New Function Based EPIPs
2010-017	and User Manuals

Section 1EP6: Drill Evaluation

PALO VERDE ACTION REQUESTS

4003965

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION
	Palo Verde Emergency Preparedness December 2011 Tabletop Drill Scenario PVNGS Emergency Plan	47

Section 2RS01: Radiological Hazard Assessment and Exposure Controls

PROCEDURES

NUMBER	TITLE	REVISION
75DP-9RP01	Radiation Exposure and Access Control	17
75RP-0RP01	Radiological Posting and Labeling	29

Section 2RS01: Radiological Hazard Assessment and Exposure Controls

PROCEDURES

NUMBER	TITLE	REVISION
75RP-9OP02	Control of High Radiation Areas, Locked High Radiation Areas and Very High Radiation Areas	25
75RP-9RP07	Radiological Surveys and Air Sampling	20
75RP-9RP26	Radioactive Source Control	14

CONDITION REPORTS / DISPOSITION REQUESTS

3452643	3456640	3466248	3467444	3467606	3470763	3548686
3554716	3680478	3746424				

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

NUMBER	TITLE	DATE
302-02786	Nuclear Assurance 2010 First Cycle Report	June 10, 2010
ER 11-0004	Nuclear Assurance Evaluation Report – Radiation Protection	June 21, 2011

RADIATION WORK PERMITS

NUMBER	TITLE	REVISION
1-3502	Valve, Flange, and Pump Maintenance and Inspection	1
1-3502	Valve, Flange, and Pump Maintenance and Inspection	2
1-1472	Stud Hole 6 and 33 Imperfection/Deformity Removal	00
9-1035	Radiography Within the PVNGS Owner Controlled Area	00

RADIATION SURVEY RECORDS

NUMBER	TITLE	DATE
1-11-01040	Lapel Air Sample in 100-foot Auxiliary Letdown	October 18, 2011
1-11-01046	Lapel Air Sample in 100-foot Auxiliary Letdown	October 18, 2011

RADIATION SURVEY RECORDS

NUMBER	TITLE	DATE
1-11-01041	Particulate Air Sample in 100-foot Auxiliary Letdown	October 18, 2011
1-M-20111018-51	Letdown Heat Exchanger Lower Valve Gallery	October 18, 2011
1-M-20111019-16	Letdown Heat Exchanger Lower Valve Gallery	October 19, 2011
1-M-20111016-19	Containment 140, Reactor Head Stand	October 16, 2011

Section 2RS02: Occupational ALARA Planning and Controls

PROCEDURES

NUMBER	TITLE	REVISION
75DP-0RP01	RP Program Overview	8
75DP-0RP03	ALARA Program Overview	4
75DP-0RP06	ALARA Committee	5
75DP-9RP01	Radiation Exposure and Access Control	17
75RP-9RP05	Contamination Dose Evaluation	5
75RP-0RP01	Radiological Posting and Labeling	29
75RP-9RP02	Radiation Exposure Permits	27
75RP-9RP07	Radiological Surveys and Air Sampling	20
75RP-9RP10	Conduct of RP Operations	31

CONDITION REPORTS / DISPOSITION REQUESTS

3456283	3466401	3467444	3468659	3469223	3470768	3471713
3495553	3518709	3690010				

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

NUMBER	TITLE	DATE
302-02850-CPS	NAD Bi-Monthly Department Report (Radiation Protection)	September 16, 2010

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

NUMBER	TITLE	DATE
302-02882-CPS	NAD Bi-Monthly Department Report (Radiation Protection)	November 10, 2010
302-03061	NAD Bi-Monthly Department Report (Radiation Protection)	September 9, 2011
ER 11-0004	Nuclear Assurance Evaluation Report – Radiation Protection	June 21, 2011

ALARA WORK PACKAGES

NUMBER	TITLE
2-3002	Destack and Restack
2-3306	Primary Side Steam Generator Maintenance
2-3501	RP Tours, Inspections and Routine Surveys
2-3502	Valves and Pumps – Including MOVs, PSVs, (LPSI B MS Repl)

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	DATE
	Palo Verde Nuclear Generating Station Radiological Trends	September 2011
	U1R16 Radiological Safety – In Perspective	October 18, 2011

Section 4OA1: Performance Indicator Verification

PROCEDURES

NUMBER	TITLE	REVISION
71DP-0AP01	Mitigating System Performance Index Program	1

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION
	NEI 99-02, Regulatory Assessment Performance Guideline	6

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION
	Cooling Water (CW) Mitigating System Performance Indicator (MSPI) Margins 3rd Qtr 2011	
	HPSI and RHR Mitigating System Performance Indicator (MSPI) Margins 3rd Qtr 2011	
	OP6 – EDG and AFW Mitigating System Performance Indicator (MSPI) Margins 3rd Qtr 2011	

Section 4OA2: Identification and Resolution of Problems

PROCEDURES

NUMBER	TITLE	REVISION
31ST-9GR02	Gaseous Radwaste Explosive Gas Monitoring System Calibration	27
31ST-9GR02	Gaseous Radwaste Explosive Gas Monitoring System Calibration	11
31ST-9GR02	Gaseous Radwaste Explosive Gas Monitoring System Calibration	12
93DP-0LC03	Licensing Document Maintenance	21
81DP-0DC17	Temporary Modification Control	29
33MT-9HF01	Fuel and Auxiliary Building Normal Ventilation System Train "A" Pneumatic and Electrical Jumper Installation	10

PALO VERDE ACTION REQUESTS

3413469	3440072	3558574	3885866	3901065	3914277	3916406
3919745	3931118	3933322	4004489			

CONDITION REPORTS / DISPOSITION REQUESTS

3804270

50.59 EVALUATIONS

NUMBER	TITLE	DATE
None Assigned	36ST-9GR02 – Remove the calibration of the non Tech Spec instruments from this ST. Some of those instruments will not be calibrated, others will be calibrated per the I&C PM Basis in PMs 088466, 088471, and 088472. Change the calibration method to allow calibrating the analyzers in parallel.	May 9, 1995

WORK ORDER

3440792

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION
	System Training Manual, Volume 61, Gaseous Radwaste System (GR)	3
	Letter from Jack N. Donohew, Office of Nuclear Reactor Regulation, NRC; to James M. Levine, Arizona Public Service Company. “Conversion to Improved Technical Specifications for the Palo Verde Nuclear Generating Station, Unit No. 1 (TAC No. M96672), Unit No. 2 (TAC No. M96673), and Unit No. 3 (TAC No. M96674),” May 20, 1998	
	Arizona Public Service Company, Et. Al., Docket No. Stn. 50-528, Palo Verde Nuclear Generating Station, Unit No. 1, Amendment to Facility Operating License, License Amendment No. 117, License No. NPF-41	

Section 4OA3: Event Follow-Up

PALO VERDE ACTION REQUESTS

3902425 3902448 3902509 3902512 3902811 3907383

CONDITION REPORTS / DISPOSITION REQUESTS

3905265

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	DATE
EN# 47333	Reactor Plant Event Notification Worksheet	October 8, 2011

Section 4OA5: Other Activities

PROCEDURES

NUMBER	TITLE	REVISION
40OP-9ZZ23	Outage GOP	61
40DP-9ZZ04	Time Critical Action (TCA) Program	7
40OP-9SI01	Shutdown Cooling Initiation	47
40OP-9RC01	Reactor Coolant Pump Operation	37
40ST-9SI07	High Pressure Safety Injection System Alignment Verification	16
40ST-9SI13	LPSI and CS System Alignment Verification	24
40ST-9SI04	RAS Line Fill Check	21

PALO VERDE ACTION REQUESTS

3181558	3296075	3408420	3421026	3457272	3488889	3529241
3822780	3990925	3991315	3997948	3998180		

CONDITION REPORTS / DISPOSITION REQUESTS

3401178

CONDITION REPORTS ACTION ITEM

3276365

LICENSING DOCUMENT CHANGE REQUEST

2009-F004

DRAWINGS

NUMBER	TITLE	REVISION
01-M-SIP-001	P & I Diagram Safety Injection & Shutdown Cooling System	49
01-P-SIF-201	Auxiliary Bldg Isometric Safety Injection System ESF Pump Suction Lines – Train A	7
01-P-SIF-105	Containment Building Isometric Safety Injection System Shutdown Cooling Lines	24

CALCULATIONS

NUMBER	TITLE	REVISION
13-JC-CH-0209	Refueling Water Level Tank Measurement	12
13-MC-CH-0201	RWT, HT, and RMWT Sizing	7
N001-1900-01516	Evaluation of Instrument Zero for the Palo Verde RWT	0

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION / DATE
13-MS-B094	Operator Action Time for RWT Isolation After RAS	0
LP NQX01C970102	SOER 97-01, Loss of HPSI and Charging due to Gas Intrusion, Licensed Operator Continuing Training	May 3, 2011
LP NKASMC90900	SOER 97-01, Loss of HPSI and Charging due to Gas Intrusion, Licensed Operator Initial Training	
11-0958	Ultrasonic Thickness Examination Report	December 6, 2011
11-0959	Ultrasonic Thickness Examination report	December 6, 2011