



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
612 EAST LAMAR BLVD, SUITE 400
ARLINGTON, TEXAS 76011-4125

November 3, 2010

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 05000528/2010004, 05000529/2010004, and 05000530/2010004

Dear Mr. Edington:

On September 30, 2010, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at Palo Verde Nuclear Generating Station, Units 1, 2, and 3, facility. The enclosed integrated inspection report documents the inspection findings, which were discussed on September 30, 2010, with Mr. D. Mims, Vice President Regulatory Affairs and Plant Improvement, 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.

This report documents three NRC-identified findings and one self-revealing finding of very low safety significance (Green). All four of these findings were determined to involve violations of NRC requirements. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as noncited violations (NCV), consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest the violations or the significance of the NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 612 E. Lamar Blvd, Suite 400, Arlington, Texas, 76011-4125; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at Palo Verde Nuclear Generating Station facility. In addition, if you disagree with the crosscutting aspect assigned to any finding 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 facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, and its enclosure, will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's document system (ADAMS).

ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Ryan Lantz, Chief
Project Branch D
Division of Reactor Projects

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

License: NPF-41, NPF-51, NPF-74

Enclosure:

NRC Inspection Report 05000528/2010004, 05000529/2010004, and 05000530/2010004
w/Attachment: Supplemental Information

cc w/Enclosure:

Mr. Steve Olea
Arizona Corporation Commission
1200 W. Washington Street
Phoenix, AZ 85007
Mr. Douglas K. Porter, Esq
Southern California Edison Company
2244 Walnut Grove Avenue
Rosemead, CA 91770

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

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

Mr. Dwight C. Mims
Vice President
Regulatory Affairs and Plant Improvement
Palo Verde Nuclear Generating Station
Mail Station 7605
P.O. Box 52034
Phoenix, AZ 85072-2034

Mr. Ron Barnes, Director
Regulatory Affairs
Palo Verde Nuclear Generating Station
MS 7638
P.O. Box 52034
Phoenix, AZ 85072-2034

Mr. Jeffrey T. Weikert
Assistant General Counsel
El Paso Electric Company
Mail Location 167
123 W. Mills
El Paso, TX 79901

Michael S. Green
Senior Regulatory Counsel
Pinnacle West Capital Corporation
P.O. Box 52034, MS 8695
Phoenix, AZ 85072-2034

Mr. Eric Tharp
Los Angeles Department of Water & Power
Southern California Public Power Authority
P.O. Box 51111, Room 1255-C
Los Angeles, CA 90051-0100

Mr. James Ray
Public Service Company of New Mexico
2401 Aztec NE, MS Z110
Albuquerque, NM 87107-4224

Mr. Geoffrey M. Cook
Southern California Edison Company
5000 Pacific Coast Hwy. Bldg. D21
San Clemente, CA 92672

Mr. Robert Henry
Salt River Project
6504 East Thomas Road
Scottsdale, AZ 85251

Mr. Brian Almon
Public Utility Commission
William B. Travis Building
P.O. Box 13326
Austin, TX 78701-3326

Environmental Program Manager
City of Phoenix
Office of Environmental Programs
200 West Washington Street
Phoenix, AZ 85003

Mr. John C. Taylor
Director, Nuclear Generation
El Paso Electric Company
340 East Palm Lane, Suite 310
Phoenix, AZ 85004

Chief, Technological Hazards
Branch
FEMA Region IX
1111 Broadway, Suite 1200
Oakland, CA 94607-4052

Jake Lefman
Southern California Edison Company
5000 Pacific Coast Hwy, Bldg. D21
San Clemente, CA 92672

Electronic distribution by RIV:
 Regional Administrator (Elmo.Collins@nrc.gov)
 Deputy Regional Administrator (Chuck.Casto@nrc.gov)
 DRP Director (Kriss.Kennedy@nrc.gov)
 DRP Deputy Director (Anton.Vegel@nrc.gov)
 DRS Director (Roy.Caniano@nrc.gov)
 DRS Deputy Director (Troy.Pruett@nrc.gov)
 Acting Senior Resident Inspector (Joseph.Bashore@nrc.gov)
 Resident Inspector (Mica.Baquera@nrc.gov)
 Resident Inspector (Dustin.Reinert@nrg.gov)
 Branch Chief, DRP/D (Ryan.Lantz@nrc.gov)
 PV Administrative Assistant (Regina.McFadden@nrc.gov)
 Senior Project Engineer, DRP/D (Don.Allen@nrc.gov)
 Project Engineer, DRP/D (Peter.Jayroe@nrc.gov)
 Project Engineer, DRP/D (Zachary.Hollcraft@nrc.gov)
 Public Affairs Officer (Victor.Dricks@nrc.gov)
 Public Affairs Officer (Lara.Uselding@nrc.gov)
 Project Manager (Randy.Hall@nrc.gov)
 Project Manager (Lauren.Gibson@nrc.gov)
 Branch Chief, DRS/TSB (Michael.Hay@nrc.gov)
 RITS Coordinator (Marisa.Herrera@nrc.gov)
 Regional Counsel (Karla.Fuller@nrc.gov)
 Congressional Affairs Officer (Jenny.Weil@nrc.gov)
 OEmail Resource
 ROPreports

DRS/TSB STA (Dale.Powers@nrc.gov)
 OEDO RIV Coordinator (Geoffrey.Miller@nrc.gov)

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RIV:SRI:DRP/D	RI:DRP/D	SPE:DRP/D	C:DRS/OB	RI:DRP/D	
JBashore	MBaquera	DAllen	MSHaire	DReinert	
/RA/via E	/RA/via E	/RA/	/RA/	/RA/via E	
10/26/10	10/26/10	10/25/10	10/26/10	10/26/10	
C:DRS/EB2	C:DRS/PSB1	C:DRS/EB1	C:DRS/PSB2	C:DRS/TSS	
NFO'Keefe	MPShannon	TRFarnholtz	GEWerner	MCHay	
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 50-528, 50-529, 50-530

License: NPF-41, NPF-51, NPF-74

Report: 05000528/2010004, 05000529/2010004, 05000530/2010004

Licensee: Arizona Public Service Company

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

Location: 5951 S. Wintersburg Road
Tonopah, Arizona

Dates: July 1 through September 30, 2010

Inspectors: J. Bashore, Acting Senior Resident Inspector
M. Baquera, Resident Inspector
D. Reinert, Resident Inspector
Z. Hollcraft, Project Engineer

Approved By: Ryan Lantz, Chief, Project Branch D
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000528/2010004, 05000529/2010004, 05000530/2010004; 07/01/10 - 09/30/10; Palo Verde Nuclear Generating Station, Units 1, 2, and 3, Integrated Resident and Regional Report; Maintenance Effectiveness; Maintenance Risk Assessment and Emergent Work Control; Identification and Resolution of Problems.

The report covered a 3-month period of inspection by resident inspectors and an announced baseline inspection by region-based inspectors. Four Green NCVs 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 crosscutting 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: Mitigating Systems

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure of engineering personnel to promptly identify and correct a condition adverse to quality associated with foreign material in the nitrogen and instrument air supply to the atmospheric dump valve. Specifically, between July 2009 and August 2010, corrective actions to address foreign material in the Unit 3 instrument air supply to atmospheric dump valve ADV-185 failed to promptly identify and remove similar debris in remaining instrument air or nitrogen supply lines. The licensee is developing new work orders to flush and inspect pneumatic supply lines to the atmospheric dump valves. This issue was entered into the licensee's corrective action program as Palo Verde Action Request 3531638.

The performance deficiency was more than minor, and is therefore a finding, because it affected the equipment reliability attribute of the Mitigating Systems Cornerstone, and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to have a very low safety significance because the finding did not result in a loss of system safety function, an actual loss of safety function of a single train for greater than its technical specification allowed outage time, or screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. This finding was determined to have a crosscutting aspect in the area of human performance associated with the decision making component because the licensee failed to conduct effectiveness reviews of safety significant decisions

to verify the validity of assumptions, identify possible unintended consequences, and determine how to improve future decisions [H.1(b)]. (Section 1R12)

- Green. A self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified for the failure of maintenance personnel to adequately establish and implement work order instructions associated with the emergency diesel generators starting air turning gear interlock valves. Specifically, on May 13, 2010, Unit 3 emergency diesel generator train B failed to start within its technical specification allowed time due to the turning gear interlock valve 3JDGBUV0234 being improperly positioned during installation. The turning gear interlock valve was replaced and the engine was started and verified to meet all acceptance criteria. Work orders were revised to reflect plunger depression requirements. This issue was entered into the licensee's corrective action program as Palo Verde Action Request 3475479.

The performance deficiency was more than minor, and is therefore a finding, because it affected the procedure quality attribute of the Mitigating Systems Cornerstone, and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to have a very low safety significance because the finding did not result in a loss of system safety function, an actual loss of safety function of a single train for greater than its technical specification allowed outage time, or screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. This finding was determined to have a crosscutting aspect in the area of problem identification and resolution associated with the operating experience component because the licensee failed to institutionalize operating experience through changes to station processes, procedures, equipment, and training programs [P.2(b)]. (Section 1R12)

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for an inadequate procedure for the application of coatings in containment. Specifically, during construction, Specification 13-AM-314, "Installation Specification for Surface Coating Systems for Concrete," improperly required a dry-film thickness of 2 to 5 mils for Mobil/Valspar 84-V-200, which is beyond the limits of 2 to 5 mils wet-film thickness that was allowed by the vendor instructions. Mobil/Valspar 84-V-200 was found to lack design basis testing and subsequent testing demonstrated that 50 percent of the coating in excess of 2 mils thickness failed as particulate, rather than chips, which increases debris loading on the containment sump. The licensee plans to revise calculation N001-1106-00002, "Debris Generation Due to LOCA within Containment for Resolution of GSI-191," to incorporate the added debris loading from the unqualified coatings as a corrective action. This issue was entered into the licensee's corrective action program as Palo Verde Action Request 3469133.

The performance deficiency was more than minor, and is therefore a finding, because it affected the design control attribute of the Mitigating Systems Cornerstone, and affected the cornerstone objective of ensuring the reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to have a very low safety significance because the finding did not result in a loss of system safety function, an actual loss of safety function of a single train for greater than its technical specification allowed outage time, or screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. This finding was evaluated as not having a crosscutting aspect because the performance deficiency is not reflective of current performance. (Section 4OA2)

Cornerstone: Barrier Integrity

- Green. The inspectors identified a noncited violation of 10 CFR 50.65 a(4), for the failure of work management personnel to assess and manage an increase in risk prior to planned maintenance activities. Specifically, on May 1, 2010, the licensee failed to include maintenance on the containment equipment hatch hoist in the outage risk assessment while containment closure capability was required. The licensee has revised procedures, as a corrective action to restore compliance, to include provisions for operations management and containment coordinators to verify that no work is in progress on equipment that affects containment closure capability while that capability is required. This issue was entered into the licensee's corrective action program as Palo Verde Action Request 3473278.

The performance deficiency was more than minor, and is therefore a finding, because it affected the configuration control attribute of the Barrier Integrity cornerstone, and affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Inspectors determined the finding significance could not be adequately assessed using Manual Chapter 0609 Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," because the licensee did not maintain a quantitative shutdown probabilistic risk model. Using Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," the finding was determined to have very low safety significance because the finding is bound by risk insights from Manual Chapter 0609 Appendix H, "Containment Integrity Significance Determination Process." Using figure 6.2, the inability to close the containment hatch was determined to have very low safety significance because the finding occurred greater than 8 days after the start of the outage. This finding was determined to have a crosscutting aspect in the area of human performance associated with the work control component because the licensee failed to appropriately coordinate work activities by incorporating actions to address the need to keep personnel apprised of work status, the operational impact of work

activities, and plant conditions that may affect work activities [H.3(b)]. (Section 1R13)

B. Licensee-Identified Violations

None

REPORT DETAILS

Summary of Plant Status

Unit 1 operated at full power until August 28, 2010, when an unplanned power reduction to 85 percent power occurred due to a degraded heater drain pump B discharge valve. The Unit returned to essentially full power on August 30, 2010 and remained there for the rest of the inspection period.

Unit 2 operated at essentially full power for the duration of the inspection period.

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

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

Since thunderstorms with potential high winds were in the vicinity of the facility for July 29-30, 2010, the inspectors reviewed the plant personnel's overall response to the weather conditions. The inspectors completed a review of the licensee's actions in response to impending adverse weather involving severe thunderstorm and high wind conditions experienced on July 29-30, 2010. Inspectors verified operations personnel appropriately reviewed the abnormal operating procedure entry conditions and compared actual weather conditions to the entry requirements. The inspectors also verified that all maintenance activities were reviewed for emergent plant risk and restoration, and appropriate protected area announcements were made to advise site personnel to take shelter.

These activities constitute completion of one readiness for impending adverse weather condition sample as defined in Inspection Procedure 71111.01-05.

b. Findings

No findings were identified.

1R04 Equipment Alignments (71111.04)

Partial Walkdown

a. Inspection Scope

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

- July 26, 2010, Unit 1, auxiliary feedwater alignment verification
- August 25, 2010, Unit 2, atmospheric dump valve (ADV) system alignment verification
- September 14, 2010, Unit 2, emergency diesel generator train B alignment verification

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, Updated Final Safety Analysis Report (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 three partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

.1 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:

- August 18, 2010, Unit 3, auxiliary building 100 foot, 120 foot, 140 foot levels
- August 19, 2010, Unit 1, auxiliary building 70 foot, 88 foot, 100 foot levels

- August 23, 2010, Unit 2, turbine building 100 foot, 140 foot levels
- September 2, 2010, Unit 2, diesel generator building 100 foot, 115 foot, 131 foot levels

The inspectors reviewed areas to assess if licensee personnel had implemented a fire protection program that: (1) adequately controlled combustibles and ignition sources within the plant; (2) effectively maintained fire detection and suppression capability; maintained passive fire protection features in good material condition; and (3) 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: (1) fire hoses and extinguishers were in their designated locations and available for immediate use; (2) that fire detectors and sprinklers were unobstructed; (3) that transient material loading was within the analyzed limits; and (4) 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.

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On August 23, 2010, the inspectors observed a fire department activation for Unit 1, unannounced fire drill. The observation evaluated the readiness of the plant fire department to fight fires. The inspectors verified that the licensee staff identified deficiencies, openly discussed them in a self-critical manner at the drill debrief, and took appropriate corrective actions. Specific attributes evaluated were: (1) proper wearing of turnout gear and self-contained breathing apparatus; (2) proper use and layout of fire hoses; (3) employment of appropriate fire fighting techniques; (4) sufficient firefighting equipment brought to the scene; (5) effectiveness of Incident Commander communications, command, and control; (6) search for victims and propagation of the fire into other plant areas; (7) smoke removal operations; (8) utilization of preplanned strategies; (9) adherence to the preplanned drill scenario; and (10) drill objectives. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one annual fire-protection inspection sample as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

On August 25, 2010, 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.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

- May 13, 2010, Unit 3, emergency diesel generator train B out of service for unplanned maintenance on the air start system
- September 10, 2010, Unit 2, blow down ADVs accumulator nitrogen and instrument air supply lines due to potential presence of foreign material

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

- .1 Introduction. The inspectors identified a Green noncited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure of engineering personnel to promptly identify and correct a deficiency associated with foreign material in the nitrogen and instrument air supply to the atmospheric dump valve. Specifically, between July 2009 and August 2010, corrective actions to address foreign material in the Unit 3 instrument air supply to atmospheric dump valve ADV-185 failed to promptly identify and remove similar debris in remaining instrument air or nitrogen supply lines.

Description. On August 21, 2010, maintenance personnel completed performance of Work Order 3368014 to flush the instrument air and nitrogen supply lines to Unit 2 atmospheric dump valves, ADV-179 and ADV-184. This work order implemented corrective actions for apparent cause condition report disposition request (CRDR) 3357761. This work led to the inadvertent discovery of foreign material remaining in the pneumatic supply lines that the initial scope of the work order had failed to detect and correct. The discovery of the foreign material occurred during a visual observation following a repair to a damaged fitting. The flush described in the work order did not identify nor remove the foreign material.

On July 19, 2009, instrument air check valve SGE-V358 failed to properly seat during its quarterly inservice test. SGE-V358 is the check valve that separates the instrument air supply from the safety related nitrogen supply for Unit 3 atmospheric dump valve ADV-185. The cause of the failure was determined to be a small piece of foreign material found under the valve disc. The check valve was replaced and the instrument air and nitrogen supply lines to the atmospheric dump valve actuator were flushed. To address the extent of condition, and to implement corrective actions for all remaining atmospheric dump valves, work orders were written to flush the instrument air and nitrogen supply lines for the remaining atmospheric dump valves onsite. The flush involved removing a 3/8 inch section of tubing and throttling an instrument isolation valve in that line 1/4 turn open for 5 minutes. A cloth bag was placed over the open tubing during the flush to capture any debris.

There are a total of 12 atmospheric dump valves at the Palo Verde Nuclear Generating Station. Each atmospheric dump valve has an instrument air supply and a safety related nitrogen supply. Check valves separate the two pneumatic sources. Between the first failure in July 2009 and the discovery of foreign material in August 2010, 8 of the 12 atmospheric dump valve pneumatic supply lines had been flushed as described above. Inspectors determined that the corrective action to flush the pneumatic supply lines as described above was inadequate to identify and remove foreign material. In addition, inspectors determined that since one year had transpired since the first failure caused by foreign material that the licensee had not promptly identified and corrected this condition adverse to quality. In addition, inspectors determined that there was no planned effectiveness review for the corrective actions from the July 19, 2009 failure to assess their adequacy.

As a corrective action, the licensee is developing new work orders to flush and inspect the pneumatic supply lines to the atmospheric dump valves. The pneumatic supply lines will be flushed from the one inch line with maximum flow provided by full system pressure. Sections of piping that cannot be flushed will be inspected with a boroscope. All 12 atmospheric dump valves' pneumatic supply lines will be flushed and inspected in this manner.

Analysis. The performance deficiency associated with this finding involved the failure of engineering personnel to promptly identify and correct a condition adverse to quality with the pneumatic supplies to the atmospheric dump valve actuators. The performance deficiency was more than minor, and therefore a finding, because it affected the equipment reliability attribute of the Mitigating Systems Cornerstone, and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to have a very low safety significance because the finding did not result in a loss of system safety function, an actual loss of safety function of a single train for greater than its technical specification allowed outage time, or screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. This finding was determined to have a crosscutting aspect in the area of human performance associated with the decision making component because the licensee failed to conduct effectiveness reviews of safety significant decisions to verify the validity of assumptions, identify possible unintended consequences, and determine how to improve future decisions [H.1(b)].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," states, in part, that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. Procedure 01PR-0AP04, "Corrective Action Program," Revision 3, step 3.1.1, stated, in part, that measures shall be established which ensure adverse conditions and conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material/equipment, and non-conformances are promptly identified. In addition, step 3.1.3, stated, in part, that adverse conditions and conditions adverse to quality shall be promptly corrected. Contrary to the above, on August 21, 2010, maintenance personnel discovered foreign material in the instrument air and nitrogen supply lines to the Unit 2 atmospheric dump valve ADV-184 indicating that previous corrective actions implemented in July 2009 were inadequate to promptly identify and correct the condition adverse to quality in the remaining atmospheric dump valves onsite. Corrective actions are planned that develop and implement new works to adequately flush and inspect the pneumatic supply lines to the atmospheric dump valves. Because the finding is of very low safety significance and has been entered into the licensee's corrective action program as PVAR 3531638, this violation is being treated as an NCV consistent with Section VI.A.1 of the Enforcement Policy: NCV 05000528, 05000529 and 05000530/2010004-01, "Failure to Promptly Identify and Correct a Condition Adverse to Quality for Foreign Material in the Pneumatic Supply Lines to the Atmospheric Dump Valves Actuators."

- .2 Introduction. A Green self-revealing NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified for the failure of maintenance personnel to adequately establish and implement work order instructions associated with the emergency diesel generator starting air turning gear interlock valves. Specifically, on May 13, 2010, Unit 3 emergency diesel generator train B failed to start within its technical specification allowed time due to turning gear interlock valve 3JDGBUV0234 being improperly positioned during installation.

Description. On May 13, 2010, the Unit 3 emergency diesel generator train B failed to meet the starting acceptance criteria of achieving rated voltage and frequency within 10 seconds during its monthly surveillance test. The engine started and reached rated voltage in about 15 seconds and achieved rated frequency in about 17 seconds. Operations personnel stopped the emergency diesel generator and declared it inoperable. Subsequent troubleshooting revealed that the left bank starting air system had an improperly positioned turning gear interlock valve. The improper position of the valve during installation caused a small amount of air to be bled from the air start header resulting in a slow start time.

The emergency diesel generator has a left bank starting air system and a right bank starting air system. During standby conditions, both starting air banks are lined up and would respond to start the emergency diesel upon a start signal. However, one starting air bank is isolated during the surveillance test. The isolated starting air bank is alternated for each monthly surveillance test.

There are four turning gear interlock valves for each emergency diesel generator. The turning gear interlock valves are used to prevent an emergency diesel generator start while the turning gear is engaged. When the engine is in the standby readiness condition, the turning gear is disengaged and the turning gear interlock valves are depressed, permitting starting air to the cranking air valves upon an engine start signal. The position of the turning gear is transmitted to the interlock valves via engagement of a strike plate making physical contact with the interlock valve plunger. When the turning gear is racked in, physical movement of the turning gear moves the strike plate which in turn allows the plunger to move and open the interlock valve. When the interlock valve is open, air is vented from the air start system disabling the cranking air valves and preventing a start of the engine. On May 13, 2010, the slight misposition of the plunger resulted in it not being depressed sufficiently. A small amount of air was bled from the air start system, causing the start sequence to take longer than the technical specification acceptance criteria.

During their review, the inspectors noted that one turning gear interlock valve on the left bank, valve 3JDGBUV0234, was replaced in April, 2009. The instructions in the work order recognized the need to fully engage the interlock valve plunger such that when the turning gear is disengaged, the vent path would be sealed. The plunger has a travel length of 5/16 of an inch. For proper engagement, the plunger should be positioned such that 3/16 of an inch is used. This would leave 1/8 of an inch of travel length remaining. The work order instructed 1/8 of an inch depressed which would leave 3/16 of an inch travel length remaining. When questioned, technicians and mechanics

recognized the importance of proper depression of the plunger, but all considered it skill of the craft. Past operating experience at Palo Verde Nuclear Generating Station involved a similar failure mechanism. A loose mounting nut for a turning gear interlock valve allowed the valve to become misaligned, and not make complete contact with the strike plate. The incomplete contact resulted in the plunger not being fully depressed, causing the same result. The event recognized the need for full depression of the plunger, however, the corrective actions focused on the alignment of the strike plate to ensure full engagement. The corrective actions from the event failed to consider that other mechanisms may cause inadequate engagement of the plunger.

Following the slow start event on May 13, 2010 the licensee declared the emergency diesel generator train B inoperable. The turning gear interlock valve was replaced and the engine was started and verified to meet all acceptance criteria. In addition, the turning gear interlock valves for each air start bank on all emergency diesel generators were inspected and verified to have 3/16 of an inch plunger depression with the turning gear disengaged. Technicians and mechanics were coached on the importance of contributing lessons learned to work orders to improve the overall quality of the work instructions. Preventive maintenance work orders for the turning gear interlock valves were revised to specifically state 3/16 of an inch depression for the plunger. In addition, supporting diagrams used to plan the work orders were revised to incorporate valve data sheet information regarding proper plunger depression.

Analysis. The performance deficiency associated with this finding involved the failure of maintenance personnel to adequately establish and implement work order instructions associated with the emergency diesel generator starting air turning gear interlock valves. The performance deficiency was more than minor, and therefore a finding, because it affected the procedure quality attribute of the Mitigating Systems Cornerstone, and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to have a very low safety significance because the finding did not result in a loss of system safety function, an actual loss of safety function of a single train for greater than its technical specification allowed outage time, or screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. This finding was determined to have a crosscutting aspect in the area of problem identification and resolution associated with the operating experience component because the licensee failed to institutionalize operating experience through changes to station processes, procedures, equipment, and training programs [P.2(b)].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," states, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Contrary to the above, work instruction used to replace the Unit 3 air start system turning gear interlock valve 3JDGBUV0234 was inadequate since it did not specify the depth the plunger must be depressed. The turning gear interlock valve was replaced and work orders were revised to reflect plunger depression

requirements. However, because the finding is of very low safety significance and has been entered into the licensee's corrective action program as PVAR 3475479, and Condition Report Action Items 3486807 and 3486780, this violation is being treated as an NCV consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000530/2010004-02, "Inadequate Work Instruction to Replace Emergency Diesel Generator Starting Air Turning Gear Interlock Valves."

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:

- May 8, 2010, Unit 1, containment hatch failure to close
- May 13, 2010, Unit 3, emergency diesel generator train B out of service for unplanned maintenance on the air start system
- August 19, 2010, Unit 3, emergent work for the reactor protection system trip breaker troubleshooting and repair activities
- September 8, 2010, Unit 3, switchyard crane activities concurrent with containment spray alignment verification

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 four maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

Introduction. The inspectors identified a Green NCV of 10 CFR 50.65 a(4), for the failure of work management personnel to assess and manage an increase in risk prior to planned maintenance activities. Specifically, on May 1, 2010, the licensee failed to include maintenance on the containment equipment hatch hoist in the risk assessment while containment closure capability was required.

Description. Palo Verde Unit 1 began its 1R15 refueling outage on April 3, 2010. Procedure 51DP-9OM09, "Outage Planning and Implementation," required that work management was responsible for ensuring that all approved work activities are scheduled with the proper plant condition. It also required that all activities will be reviewed, provided with appropriate logic ties, and be aligned and scheduled with the proper plant conditions. Procedure 70DP-0RA01, "Shutdown Risk Assessments," stated, in part, work that has been reviewed for risk in accordance with the maintenance rule must be re-reviewed when work is moved out of the approved work window and when changes have been made to the outage schedule after the initial shutdown risk assessment.

Work Order 3236820 was established to address a malfunction with the upper limit switch on the west hoist used for positioning the equipment hatch. The work order was inappropriately tagged as non-risk impacting and as such did not receive the appropriate logic tie to the schedule. The work was moved from its original work window, to a later date in the outage, when the containment hatch was required to be able to be closed. A subsequent risk assessment should have been performed at this time and would have determined that maintenance that affected the ability to close the containment equipment hatch during core alterations would have put the unit in a red risk management action level. Outage managers authorized work to commence on May 1, 2010 without performing the risk assessment. Inspectors determined this was a missed opportunity for the licensee to challenge maintenance on the containment hatch hoist while it was required. In addition, the inspectors determined that the work order contained a discrepancy on the use of a single owner danger tag, which should have stopped work and sent the work order for review; yet another missed opportunity. The licensee demonstrated a lack of sensitivity to the importance of the equipment hatch closure capability, despite an event during 2R15 where closure capability was lost on Unit 2.

On May 1, 2010, Unit 1 was in day 28 of refueling outage 1R15, the containment equipment hatch was open and core alterations were in progress. Palo Verde Technical Specification 3.9.3, "Containment Penetrations," requires that the licensee maintain the ability to shut the equipment hatch during core alterations. On the evening of May 1, 2010, maintenance personnel performed corrective maintenance in accordance with Work Order 3236820. The scheduled work was completed at approximately 2:00 a.m. on the morning of May 2, 2010. During an attempt to close the containment hatch on May 8, 2010, maintenance personnel identified that the equipment hatch would not fully close due to a malfunction with the lower limit switch of the west hoist. The inability to

close the containment hatch to mitigate the effects of a fuel handling accident resulted in an unplanned red risk management action level for 7 days.

Analysis. The performance deficiency associated with this finding involved the failure of the licensee to assess and manage an increase in risk prior to planned maintenance activities as required by 10 CFR 50.65 a(4). The performance deficiency was more than minor, and therefore a finding, because it affected the configuration control attribute of the Barrier Integrity Cornerstone, and affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Inspectors determined the finding significance could not be adequately assessed using Manual Chapter 0609 Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," because the licensee did not maintain a shutdown probabilistic risk model. Using Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," the finding is determined to have very low safety significance because the finding is bound by risk insights from Manual Chapter 0609 Appendix H, "Containment Integrity Significance Determination Process." Using figure 6.2, the inability to close the containment hatch is determined to have very low safety significance because the finding occurred greater than 8 days after the start of the outage. This finding was determined to have a crosscutting aspect in the area of human performance associated with the work control component because the licensee failed to appropriately coordinate work activities by incorporating actions to address the need to keep personnel apprised of work status, the operational impact of work activities, and plant conditions that may affect work activities [H.3(b)].

Enforcement. Title 10 CFR 50.65 a(4), states in part, before performing maintenance activities, the licensee shall assess and manage an increase in risk that may result from the proposed maintenance activities. Contrary to the above, the license did not assess nor manage an increase in risk that resulted from proposed maintenance activities. Specifically, on May 1, 2010, the licensee failed to perform a risk assessment prior to commencing maintenance on the containment hatch west hoist while the containment hatch was required to be capable of closing per the shutdown risk assessment. The inability to close the containment hatch to mitigate the effects of a fuel handling accident resulted in an unplanned red risk management action level for 7 days. The licensee has revised procedures, as a corrective action to restore compliance, to include provisions for operations management and containment coordinators to verify that no work is in progress on equipment that affects containment closure capability while that capability is required. However, because this finding is of very low safety significance and has been entered into the licensee's corrective action program as PVAR 3473278, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000528/2010004-03, "Failure to Assess Risk Prior to Maintenance on Containment Hatch".

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- March 17, 2010, Unit 3, cracks in concrete of ultimate heat sink structures
- April 8, 2010, Units 1, 2 and 3 atmospheric dump valves (ADV) due to foreign material found in Unit 2 ADV instrument air piping
- July 1, 2010, Unit 3, improper application of coatings in containment
- July 1-26, 2010, Unit 2, pressurizer safety valve weeping past disc and seat
- September 7, 2010, Unit 3, low pressure safety injection, train B, with engineered safety feature floor drain line plugged

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 five operability evaluations inspection samples as defined in Inspection Procedure 71111.15-04.

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:

- July 16, 2010, Unit 1, ADV accumulator drop test following replacement of nitrogen supply header rupture disk

- July 28, 2010, Unit 1, diesel fuel oil transfer pump train A level and pressure switch calibrations
- August 19, 2010, Unit 3, emergent work for the reactor protection system trip breaker troubleshooting and repair activities
- August 24, 2010, Unit 2, blow down instrument air supply line to atmospheric dump valves ADV 179 and ADV 184

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.

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 bases for returning tested systems, structures, and components not meeting the test acceptance criteria were correct
- 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.

- May 19, 2010, Unit 1, low pressure safety injection header check valve surveillance test
- July 15, 2010, Unit 3, containment spray pump train B inservice test
- July 26, 2010, Unit 1, auxiliary feedwater inservice test, train N
- August 3, 2010, Unit 3, steam generator safety valves pressure setpoint verification
- August 17, 2010, Unit 1, emergency diesel generator, train A, monthly surveillance test

- August 24, 2010, Unit 2, steam generator number 2, main steam line number 2, ADV inservice test
- September 9, 2010, Unit 2, reactor coolant system leak rate inservice test

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

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

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Training Observation

a. Inspection Scope

The inspectors evaluated the conduct of simulator based licensed operator continuing training evolutions on August 25, 2010 and September 15, 2010, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the control room (simulator) to determine whether the event classification and notifications were performed in accordance with procedures. The inspectors also attended the licensee 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 simulator scenarios and other documents listed in the attachment. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two samples as defined in Inspection Procedure 71114.06-05.

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 3rd Quarter 2010 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 Reactor Coolant System Specific Activity (BI01)

a. Inspection Scope

The inspectors sampled licensee submittals for the reactor coolant system specific activity performance indicator for Palo Verde Nuclear Generation Station Units 1, 2, and 3 for the period from the third quarter 2009 through the second quarter 2010. 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 reactor coolant system chemistry samples, technical specification requirements, issue reports, event reports, and NRC integrated inspection reports for the period of third quarter 2009 through the second quarter 2010, to validate the accuracy of the submittals. 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. In addition to record reviews, the inspectors observed a chemistry technician obtain and analyze a reactor coolant system sample. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of three reactor coolant system specific activity samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.3 Reactor Coolant System Leakage (BI02)

a. Inspection Scope

The inspectors sampled licensee submittals for the reactor coolant system leakage performance indicator for Palo Verde Nuclear Generation Station Units 1, 2, and 3 for the period from the third quarter 2009 through the second quarter 2010. 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 logs, reactor coolant system leakage tracking data, issue reports, event reports, and NRC integrated inspection reports for the period of third quarter 2009 through the second quarter 2010 to validate the accuracy of the submittals. 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 reactor coolant system leakage samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

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

40A2 Identification and Resolution of Problems (71152)

.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

No findings were identified.

.3 Selected Issue Follow-up Inspection

a. Inspection Scope

In addition to the routine review, the inspectors selected the below listed issues for a more in-depth review. 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.

- April 14, 2010, Units 1, 2 and 3, ultimate heat sink structures concrete cracks
- July 7, 2010, Units 1, 2 and 3, unqualified coatings in containment

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

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

b. Findings

Introduction. The inspectors identified a Green NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for an inadequate procedure for the application of coatings in containment. Specifically, Specification 13-AM-314, "Installation Specification for Surface Coating Systems for Concrete," improperly required a dry-film thickness of 2 to 5 mils for Mobil/Valspar 84-V-200, which is beyond the limits of 2 to 5 mils wet-film thickness that was allowed by the vendor instructions. Mobil/Valspar 84-V-200 was found to lack design basis testing and subsequent testing demonstrated that 50 percent of the coating in excess of 2 mils dry-film thickness failed as particulate, rather than chips, which increases debris loading on the containment sump.

Description. On April 10, 2009 a review of coatings in containment, associated with the resolution of GSI-191, found that Mobil/Valspar 84-V-200 lacked a design basis accident (DBA) test to demonstrate that it was qualified for use in containment. An immediate operability determination was completed and cited that because Mobil/Valspar 84-V-200 was sufficiently similar to a Keeler and Long 4129 epoxy, a coating which had a DBA test, the coating would fail as chips, not fail as particulate, and in chip form it would not be transported to the sump. The inspectors challenged the licensee on their assumptions and requested additional information validating the similarity of the two coatings. To validate the failure mode of Mobil/Valspar 84-V-200, DBA testing had to be completed. A prompt operability determination assumed that all unqualified coatings in containment failed as particulate and calculations demonstrated operability.

The licensee performed DBA testing for the Mobil/Valspar 84-V-200, which preliminary demonstrated satisfactory results; however inspectors discovered a discrepancy in the testing methodology. The licensee had used a pH buffering agent which could affect the results of the DBA test non-conservatively. The DBA test was performed again, using the approved pH buffer, and resulted with fifty percent failure as particulate of Mobil/Valspar 84-V-200 applied in excess of 2 mils dry-film thickness; less than 2 mils was demonstrated to be acceptable.

Specification 13-AM-314, "Installation Specification for Surface Coating Systems for Concrete," requires the application of Mobil/Valspar 84-V-200 dry-film thickness to be within 2 to 5 mils. This is contrary to vendor instruction which specified an application of a wet-film thickness of 2 to 5 mils; which results with a thinner dry-film thickness of approximately 1 to 2 mils. Review of construction documents associated with the application of Mobil/Valspar 84-V-200 confirmed multiple occurrences of coating thickness well in excess of the vendor instructions and acceptable DBA test limits. The introduction of the resulting debris loading negatively impacted the net positive suction head to the containment sump. This issue, along with other considerations, has caused the licensee to submit a supplemental response to the Office of Nuclear Reactor Regulation regarding the licensee's resolution of GSI-191.

Analysis. The performance deficiency involved an inadequate procedure for the application of coatings in containment. The performance deficiency was more than

minor, and therefore a finding, because it affected the design control attribute of the Mitigating Systems Cornerstone, and affected the cornerstone objective of ensuring the reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to have a very low safety significance because the finding did not result in a loss of system safety function, an actual loss of safety function of a single train for greater than its technical specification allowed outage time, or screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. This finding was evaluated as not having a crosscutting aspect because the performance deficiency is not reflective of current performance.

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," states in part, activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances, and shall be accomplished in accordance with these instructions, procedures, or drawings. Specification 13-AM-314, "Installation Specification for Surface Coating Systems for Concrete," Revision 7, stated in part, clear epoxy shall be applied in accordance with the manufacturer's instruction. The manufacturer's instructions were to apply Mobil/Valspar 84-V-200 to a wet-film thickness of 2 to 5 mils. Contrary to the above, the license did not have procedures appropriate to the circumstances. Specifically, during construction, Specification 13-AM-314, "Installation Specification for Surface Coating Systems for Concrete," Revision 7, inappropriately required a minimum dry-film thickness of between 2 to 5 mils for the application Mobil/Valspar 84-V-200. Design basis accident testing demonstrated that 50 percent of Mobil/Valspar 84-V-200 in excess of 2 mils dry-film thickness failed as particulate, rather than chips, which increases debris loading on the containment sump. The increased debris loading negatively impacts the net positive suction available at the containment sumps. The licensee plans to revise calculation N001-1106-00002, "Debris Generation Due to LOCA within Containment for Resolution of GSI-191," Revision 3, to incorporate the added debris loading from coatings associated with the improper application of Mobil/Valspar 84-V-200 in containment, as a corrective action. However, because this finding is of very low safety significance and has been entered into the licensee's corrective action program as PVAR 3469133, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000528, 05000529, 05000530/2010004-04, "Unqualified Coatings in Containment".

40A3 Event Follow-up (71153)

Event Follow Up

a. Inspection Scope

The inspectors reviewed the below listed event for plant status and compensatory 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.

- August 18, 2010, compensatory measures and event notification follow-up after local heavy rains impacted equipment required to implement the emergency plan

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

No findings were identified.

40A5 Other Activities

Temporary Instruction 2515/180, "Inspection of Procedures and Processes for Managing Fatigue"

a. Inspection Scope

The inspectors reviewed the licensee's implementation of 10 CFR Part 26, Subpart I, "Managing Fatigue" to determine whether the necessary procedures and processes are in place to reasonably ensure the requirements specified in Subpart I are being addressed. This review used, in part, guidance provided to the industry in NEI 06-11, Revision 1, "Managing Personnel Fatigue at Nuclear Power Reactor Sites" and Regulatory Guide 5.73, "Fatigue Management for Nuclear Power Plant Personnel." The inspectors confirmed that the licensee had procedures in place that described:

- The process to be followed after any individual makes a self-declaration that he or she is not fit to safely and competently perform his or her duties for any part of a working tour as a result of fatigue
- The process for implementing the work hour controls
- The process for conducting fatigue assessments
- Disciplinary actions that may be imposed on an individual following a fatigue assessment, and the conditions and considerations for taking those disciplinary actions

The inspectors reviewed the licensee's training program to verify implementation and testing of specified knowledge and abilities specified in 10 CFR 26.203(c)(1) and (c)(2). The inspectors confirmed that the licensees' process for developing the annual Fitness for Duty report include provisions for documenting the summary of instances where work hour controls were waived.

The inspectors also confirmed that the licensee had a process in place to retain the following records for at least 3 years or until the completion of all related legal proceedings, whichever is later:

- Work hours for individuals who are subject to the work hour control;
- Shift schedules and shift cycles of individuals who are subject to the work hour controls
- Waivers and the bases for the waivers
- Work hour reviews
- Fatigue assessments

These activities constitute completion of Temporary Instruction 2515/180, "Inspection of Procedures and Processes for Managing Fatigue."

b. Findings

No findings were identified.

40A6 Meetings

Exit Meeting Summary

On September 30, 2010, the inspectors presented the inspection results to Mr. D. Mims, Vice President, Regulatory Affairs and Plant Improvement, 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.

40A7 Licensee-Identified Violations

None

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION
KEY POINTS OF CONTACT

Licensee Personnel

R. Barnes, Director, Regulatory Affairs
R. Bement, Vice President, Nuclear Operations
R. Buzard, Section Leader, Compliance
J. Cadogan, Director of Nuclear Engineering Design and Technical Services
K. Chavet, Compliance
L. Cortopossi, Plant Manager, Nuclear Operations
T. Dickerson, Radiological Engineer
E. Dutton, Director Nuclear Assurance
J. Gaffney, Director, Radiation Protection
T. Gray, Support Services Department Leader, Radiation Protection
B. Haley, ISI Supervisor
D. Hautala, Senior Engineer, Regulatory Affairs
D. Hansen, ISI
J. Hesser, Vice President, Engineering
G. Hettel, Operations Director
J. McDonnell, Department Leader, Radiation Protection
D. Mims, Vice President, Regulatory Affairs and Plant Improvement
D. Steinsiek, Programs Engineering Department Leader
J. Summy, Director, Plant Engineering
M. Wagner, Planning/ALARA Section Leader, Radiation Protection
M. Webb, Section Leader, Compliance
T. Weber, Department Leader, Regulatory Affairs
M. White, Fire Protection Specialist

NRC Personnel

J. Bashore, Acting Senior Resident Inspector
G. Repogle, Senior Reactor Analyst, Region IV

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000528/529/530/2010004-01	NCV	Failure to Promptly Identify and Correct a Condition Adverse to Quality for Foreign Material in the Pneumatic Supply Lines to the Atmospheric Dump Valves Actuators (Section 1R12)
05000530/2010004-02	NCV	Inadequate Work Instruction to Replace Emergency Diesel Generator Starting Air Turning Gear Interlock Valves (Section 1R12)
05000528/2010004-03	NCV	Failure to Assess Risk Prior to Maintenance on Containment Hatch (Section 1R13)
05000528/529/530/2010004-04	NCV	Unqualified Coatings in Containment (Section 4OA2)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
40DP-9OP09	System Status Control	50
40AO-9ZZ21	Acts of Nature	26

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Unit 1 Control Room Log	July 29-30, 2010
	Unit 2 Control Room Log	July 29-30, 2010
	Unit 3 Control Room Log	July 29-30, 2010

Section 1RO4: Equipment Alignment

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
40OP-9SG01	MAIN STEAM Appendix A, C	63
73ST-9XI20	ADVs – Inservice Test	27
73ST-9AF01	AFN – P01 Inservice Test	13
40OP-9AF02	Non-Essential Auxiliary Feedwater Pump Operation	17
40OP-9AF01	Essential Auxiliary Feedwater System	50
40ST-9AF06	Auxiliary Feedwater Pump AFN-P01 Monthly Valve Alignment	8
40ST-9AF07	Auxiliary Feedwater Pump AFA-P01 Monthly Valve Alignment	5
40ST-9AF08	Auxiliary Feedwater Pump AFB-P01 Monthly Valve Alignment	5
40OP-9DG02	Emergency Diesel Generator B	62

PALO VERDE ACTION REQUESTS

3519859

WORK ORDER

3368014

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
02-M-SGP-0001	P & I Diagram Main Steam System	70
01-M-AFP-001	P & I Diagram Auxiliary-Feedwater System	37
02-M-DGP-001	P & I Diagram Emergency Diesel Generator	51

Section 1RO5: Fire Protection

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Pre-Fire Strategies Manual Control	7
	Updated Final Safety Analysis Report Section 9.5	15
	Pre-Fire Strategies Manual Control	21
NPL38-03.001B	Drill Critique	August 23, 2010

Section 1R11: Licensed Operator Requalification Program

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
EPIP 01	Satellite Technical Support Center Actions	35
EPIP 99	EPIP Standard Appendices	30

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	NRC Form 361, Reactor Plant Event Notification	
	Form EP -0541, Palo Verde NAN Emergency Message Form	August 25, 2010
	Simulator PI Evaluation Combined Form	6
	Simulator Evaluation Summary Sheet	August 25, 2010
	Simulator Scenario SES-0-05-P-03, RCP Seal Failure/Control Channel Failure/ESD	August 25, 2010
	Crew Critique Form	August 25, 2010
	Simulator Setup Evaluation Checklist	August 25, 2010

Section 1R12: Maintenance Effectiveness

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
73ST-9XI20	ADVs Inservice Test	27
30DP-9MP03	System Cleanliness and Foreign Material Exclusion Controls	16
70DP-0RA05	Assessment and Management of Risk When Performing Maintenance in Modes 1 and 2	15
40ST-9DG02	Emergency Diesel Generator Surveillance Test Train B	43
40OP-9DG02	Diesel Generator Test Train B	59
43ST-3ZZ02	Inoperable Power Sources Action Statement	39
90DP-0IP10	Condition Reporting	43
90DP-0IP10	Condition Reporting	44
90DP-0OP13	Apparent Cause CRDR Evaluation	1
90DP-0OP13	Apparent Cause CRDR Evaluation	2
01PR-0AP04	Corrective Action Program	3
01PR-0AP04	Corrective Action Program	4
90DP-0IP14	Adverse CRDR Evaluation	1
90DP-0IP14	Adverse CRDR Evaluation	2

PALO VERDE ACTION REQUESTS

3425103 3520022 3519821 3425640 3355183 3426364 33351233
3475479

CONDITION REPORTS / DISPOSITION REQUESTS

3357761 3425538 3521811 3426364 3212612 3352031 3476071
3093675 280113

CONDITION REPORTS ACTION ITEM

3426365 3476072 3102531 3486909 3486807 3486780

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
M400-0301-00132	Model #910132 Arrangement and Assembly Drawing	1
02-M-SGP-001	P & I Diagram Main Steam System	69
01-M-GAP-001	P & I Diagram Service Gas System (N2 and H2 Supply)	17
02-P-GAF-173	M.S.S.S. Isometric Service Gas System High Pressure Nitrogen	0
M018-00118	Standby Mode Starting Air System & Alarms	11

WORK ORDER

3368014 3415351 3475480 3475571 3476267 3475572

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	VTD-K085-00024 Kerotest "Y" Type Check Valve With Soft Main Seat (Series 31000S) Operation and Maintenance Instructions	001
	Operability/Functionality Evaluation, ADV Supply Air Line Cleanliness Degradation	0
	CRDR 3357761 SGEV358 Leakage Resulted in Failure to Meet Surveillance Requirements for ADV Inservice Test Apparent Cause Evaluation (ACE) Report	2

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	CRDR 3212612 Unit 3 Instrument Air Supply Check Valve SGE-V357 Failed during Quarterly Surveillance Test 73ST-9SG05, ADV Nitrogen Accumulator Drop Test Apparent Cause Evaluation (ACE) Report	0
	CRDR 3425538 3-ADV-184 Failed the Accumulator Drop Test Apparent Cause Evaluation (ACE) Report	0
	Adverse CRDR 3352031 Evaluation	0
VTD-C628-00051	Cooper Energy Instruction Manual of KSV Turbo Charged Diesel Generating Unit for Nuclear Power Plant Emergency Standby Service	11
	CRDR 3476071 EDG 3B Slow Start Event Apparent Cause Evaluation (ACE) CRDR Evaluation Report	1
	CRDR 2-8-0113 Root Cause of Equipment Failure Investigation for Emergency Diesel Generator 2B Slow Start	April 1, 1998
	Unit 3 control room operator logs	May 13, 2010
	Scheduler's Risk Evaluation for PV Unit 3	May 13, 2010
	Work week schedule for PV Unit 3	May 13, 2010

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
70DP-0RA05	Assessment and Management of Risk When Performing Maintenance in Modes 1 and 2	14
01DP-9ZZ01	Systematic Troubleshooting	6
70DP-0RA04	Component Risk Significance Determination	2
70DP-0RA01	Shutdown Risk Assessments	33
40DP-9OP29	Power Block Permit and Tagging	39

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
51DP-9OM09	Outage Planning and Implementation	11
40DP-9WP01	Operations Processing of Work Orders	17
AC-0241	Maintenance Work Order and Process Control	1
AC-0203	Conduct of Maintenance	1
70DP-0RA05	Assessment and Management of Risk When Performing Maintenance in Modes 1 and 2	15
40DP-9OP34	Switchyard Administrative Control	19
70DP-0RA04	Component Risk Significance Determination	2
70DP-0RA05	Assessment and Management of Risk When Performing Maintenance in Modes 1 and 2	15
40ST-9DG02	Emergency Diesel Generator Surveillance Test Train B	43
40OP-9DG02	Diesel Generator Test Train B	59
43ST-3ZZ02	Inoperable Power Sources Action Statement	39

PALO VERDE ACTION REQUESTS

3517291 3478220 3473278 3474072 3453840 3236811 3473253
3475479

WORK ORDER

3517306 3517307 3236860 3327255 3321145

PERMITS

172291 173268

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Scheduler's Risk Evaluation for PV Unit 3	August 18-20, 2010
	Work week schedule for PV Unit 3	August 18-20, 2010
	Troubleshooting Game Plan, The Channel B Reactor Trip Switchgear Breaker Tripped Open Unexpectedly	2
	Technical Specification 3.9.3	
	Unit 1 Control Room Logs	May 1-10, 2010
	Scheduler's Risk Evaluation for PV Unit 3	September 8, 2010
	Work week schedule for PV Unit 3	September 8, 2010
	Unit 3 control room operator logs	May 13, 2010
	Scheduler's Risk Evaluation for PV Unit 3	May 13, 2010
	Work week schedule for PV Unit 3	May 13, 2010

Section 1R15: Operability Evaluations

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
40DP-9OP26	Operations Palo Verde Action Request Processing and Operability Determination / Functional Assessment	27
73ST-9ZZ18	Main Steam and Pressurizer Safety Valve Set Pressure Verification	22
40DP-9OP26	Operations Palo Verde Action Request Processing And Operability Determination / Functional Assessment	26

Section 1R15: Operability Evaluations

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
30DP-9WP02	Maintenance Work Order Process and Control	56
01PR-0AP04	Corrective Action Program	5
90DP-0IP10	Condition Reporting	47
01DP-0AP12	Palo Verde Action Request Processing	14
40DP-9WP01	Operations Processing of Work Orders	18
40DP-9OP06	Operations Department Repetitive Task Program	111 and 112
70DP-9SP01	Spray Pond Piping Integrity Verification	3
40ST-9ZZM1	Operations Mode 1 Surveillance Logs	55 and 56
81DP-0ZZ01	Civil System, Structure, and Component Monitoring Program	16
40DP-9OP26	Operations Palo Verde Action Request Processing And Operability Determination / Functional Assessment	26

PALO VERDE ACTION REQUESTS

3519859	3491071	3498189	3525180	3197703	3426942	3447451
3456981	3448458	3522505	3390656	2989553	3448335	3511230
3311997	3469133					

CONDITION REPORTS / DISPOSITION REQUESTS

3498551	3493874	3525815	2910912	3457836	3391325	2953739
2945536						

CONDITION REPORTS ACTION ITEM

3493875	3498552	2898253	2898255	2910973	2943911
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DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
13-N001-607-31-15	Pres. Safety Valve RC 200-203	10
01-M-RDP-002	P & I Diagram Radioactive Waste Drain System (Aux Bldg)	13
02-M-RDP-002	P & I Diagram Radioactive Waste Drain System (Aux Bldg)	17
03-M-RDP-002	P & I Diagram Radioactive Waste Drain System (Aux Bldg)	13
01-M-RDP-003	P & I Diagram Radioactive Waste Drain System (Aux Bldg)	6
02-M-RDP-003	P & I Diagram Radioactive Waste Drain System (Aux Bldg)	7
03-M-RDP-003	P & I Diagram Radioactive Waste Drain System (Aux Bldg)	5
01-P-RDF-201	Auxiliary Building Isometric, Radioactive Waste Drain System	3
02-P-RDF-201	Auxiliary Building Isometric, Radioactive Waste Drain System	3
03-P-RDF-201	Auxiliary Building Isometric, Radioactive Waste Drain System	2
13-C-SPS-0375	Nuclear Service Spray Ponds Plan	14
13-C-OOA-0004	Typical Reinforced Concrete Details, sheet 1	13

WORK ORDER

3521748	3522374	3492929	3493873	3491692	3494659	3525084
3525095	3523383	3491692	3196487	3198791	3472512	3525204
3112650	2983255	2963470	2958467	2995376	2967234	2967232
2990931	2944904	2905974	2906733	2942620		

OPEN DOOR/HATCH FLOOR PLUG PERMIT

3525102 33525471

CALCULATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
13-MC-ZA-0809	As Built Auxiliary Building Flooding Calculation	6
13-CC-SP-0015	Spray Pond Concrete Wall and Slab Design	5
13-MC-SP-0307	SP/EW Thermal Performance Design Bases Analysis	5
N001-1106-0002	Debris Generation Due to LOCA within Containment for Resolution of GSI-191	3

SPECIFICATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
13-CM-0107	Waterstops, Joint Fillers, and Joint Sealants	1
13-CN-0365	Installation Specification for Forming, Placing, Finishing and Curing of Grout Concrete	9
13-AM-314	Installation Specification for Surface Coating Systems for Concrete	7

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Certificate of Conformance for Valve Serial Number BS08615 Model 31709NA Pressurizer	September 14, 2009
	Safety Valve Test Traveler for Valve Serial Number BS08615	August 24, 2009
	Stabilization Report for Valve Serial Number BS08615	August 26, 2009
	Safety Valve Test Data for Valve Serial Number BS08615	August 26, 2009
	Valve Lift Report for Valve Serial Number BS08615	August 26, 2009
	ODMI Evaluation/Implementation Plan, Unit 2 Pressurizer PSV-200 Tailpipe Leakage	0

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Unit 2 Control Room logs	July 1-26, 2010
	Unit 2 RCS Leakage Summary Report	May 25, 2010 through July 8, 2010
	Surveillance Test Log for 73ST-9ZZ18	November 26, 2009
	VTD-D243-0002, Instructions for Installation and Maintenance Pressurizer Safety Valves Consolidated Type 31700 Closed Bonnet Maxiflow Safety Valves	0
	Final Safety Analysis Report section 7.6.2.1.3.3	14
	Operability / Functionality Evaluation, Essential Spray Pond Concrete Cracks	1
	Operability / Functionality Evaluation, Essential Spray Pond Concrete Cracks	2
	Operability / Functionality Evaluation, Essential Spray Pond Concrete Cracks	3
	Design Criteria Manual DCM-SP Part 2, Essential Spray Pond System (S/S Portion)	2
	Design Guide (Bechtel) C-2.30, Waterproofing and Waterstops	1
	American Concrete Institute ACI 116, Cement and Concrete Terminology	90
	Design Basis Manual (DBM) SP, Essential Spray Pond System	20
	Updated Final Safety Analysis Report, Sections 3.8.4.1.6, 3.8.4.7 and 9.2.4.4	15
	Regulatory Guide 1.27, Ultimate Heat Sink for Nuclear Power Plants	2 January 1976
	Component Observation Report (COR) 07-3-003, Concrete, Structural Steel, Protective Coatings	April 27, 2007
	Component Observation Report (COR) 07-2-005, Concrete, Structural Steel/Misc. Protective Coatings, and Expansion Joints	April 26, 2007

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	ACI 349.3, Evaluation of Existing Nuclear Safety Related Concrete Structures	June 17, 2002
	Quality assurance records for the application on Valspar 200 in containment	1980-1986
	Operability / Functionality Evaluation, Original Construction Epoxy Coatings in Containment	1
Generic Letter 2004-02	Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors	September 13, 2004

Section 1R19: Postmaintenance Testing

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
36ST-9SB03	Plant Protection System Power Supply Calibration	15
36ST-9SB04	PPS Functional Test – RPS/ESFAS Logic	18
36ST-9SB44	RPS Matrix Relays to Reactor Trip Response Time Test	19
73ST-9XI20	ADVs-Inservice Test	27
31ST-9DF02	Diesel Fuel Oil Tank Condensate Removal	8
74ST-9DF01	Diesel Generator Fuel Oil Surveillance Test	13
73ST-9DF01	Diesel Fuel Oil Transfer Pump – Inservice Test	21
30DP-9MP03	System Cleanliness and Foreign Material Exclusion Controls	16

PALO VERDE ACTION REQUESTS

3517291 3519821 3425640

CONDITION REPORTS / DISPOSITION REQUESTS

3521811 3425538 3357761

CONDITION REPORTS ACTION ITEM

3426365

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
N001-1303-1630	Plant Protection System Schematic–Initiation Relay Pane A	January 20, 1984
N001-1303-1628	Plant Protection System Schematic–Initiation Relay Pane A	January 23, 1984
N001-1303-1814	Plant Protection System Schematic–Initiation Relay Pane B	January 20, 1984
N001-1303-1815	Plant Protection System Schematic–Initiation Relay Pane B	January 20, 1984
N001-1303-1626	Plant Protection System Schematic–RPS Initiation Relay Matrix	January 23, 1984
N001-1303-0805	Plant Protection System Schematic–Initiation Reset Panel	July 24, 1978
N001-1303-1914	Plant Protection System–Aux/Matrix Relay Card Bistable Schematic	January 20, 1984
01-M-SGP-001 sheet 2	Main Steam System	63
M400-0301-00132	Model #910132 Arrangement and Assembly Drawing	1
02-M-SGP-001	P & I Diagram main Steam System	69

WORK ORDER

3517306	3517307	3355941	3368014	3331328	3331407	3331364
3359766	3359774	3359767				

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Troubleshooting Game Plan, The Channel B Reactor Trip Switchgear Breaker Tripped Open Unexpectedly	2
	VTM E146-0004, Vendor Technical Manual for ABB Electro-Mechanics, INC Plant Protection System (PPS)	8
VTD-K085-00024	Kerotest “Y” Type Check Valve With Soft Main Seat (Series 31000S) Operation and Maintenance Instructions	001

Section 1R22: Surveillance Testing

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
73ST-9SI06	Containment Spray Pumps and Check Valves- Inservice Test	31
73ST-9SI05	Leak Test of HPSI/LPSI Containment Isolation Valves	26
73ST-9AF01	AFN – P01 Inservice Test	13
40ST-9DG01	Diesel Generator A Test	40
40OP-9DG01	Emergency Diesel Generator A	65
73ST-9ZZ18	Main Steam and Pressurizer Safety Valve Set Pressure Verification	24
01DP-0ISI7	Heat Stress Prevention Program	4
73ST-9XI20	ADVs – Inservice Test	27
40ST-9RC02	ERFDADS (Preferred) Calculation of RCS Water Inventory	51

CONDITION REPORTS / DISPOSITION REQUESTS

2930774

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
01-E-AFB-002	Elementary Diagram Auxiliary Feedwater System Auxiliary Feedwater Pump 1M-AFN-P01 & Thermocouples	7
01-M-AFP-001	P & I Diagram Auxiliary-Feedwater System	37

WORK ORDER

3495392 3251024 3359575 3342838 3343540 3415351

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	ASME OM Code	
VTM – B265- 00002	Bingham-Williamette Auxiliary Feedwater Pumps	6
	Component Data Sheet, 1MAFNP01 Motorx Auxiliary Feedwater Pump	July 26, 2010
	Trevitest Valve Certificate No. 185 TT 101772/BD_5692_.001, Safety Valve 3JSGEPSSV0691	August 2, 2010
	Trevitest Valve Certificate No. 185 TT 101772/BD_5692_.004, Safety Valve 3JSGEPSSV0576	August 2, 2010
	Trevitest Valve Certificate No. 185 TT 101772/BD_5692_.009, Safety Valve 3JSGEPSSV0577	August 2, 2010
	Trevitest Valve Certificate No. 185 TT 101772/BD_5692_.013, Safety Valve 3JSGEPSSV0578	August 2, 2010
	Trevitest Valve Certificate No. 185 TT 101772/BD_5693_.001, Safety Valve 3JSGEPSSV0579	August 3, 2010
	Trevitest Valve Certificate No. 185 TT 101772/BD_5693_.003, Safety Valve 3JSGEPSSV0692	August 3, 2010
	Trevitest Valve Certificate No. 185 TT 101772/BD_5693_.005, Safety Valve 3JSGEPSSV0575	August 3, 2010
	Trevitest Valve Certificate No. 185 TT 101772/BD_5693_.007, Safety Valve 3JSGEPSSV0574	August 3, 2010
	Trevitest Valve Certificate No. 185 TT 101772/BD_5693_.009, Safety Valve 3JSGEPSSV0573	August 3, 2010
	Surveillance Test Log for 73ST-9ZZ18	August 3, 2010
	Furmanite Calibration Check Report	August 2, 2010
	Furmanite Calibration Check Report	August 3, 2010

Section 1EP6: Drill Evaluation

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
EPIP 01	Satellite Technical Support Center Actions	35
EPIP 99	EPIP Standard Appendices	30

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
NRC Form 361	Reactor Plant Event Notification	
Form EP -0541	Palo Verde NAN Emergency Message Form	August 25, 2010
	Simulator PI Evaluation Combined Form	6
	Simulator Evaluation Summary Sheet	August 25, 2010
	Simulator Scenario SES-0-05-P-03, RCP Seal Failure/Control Channel Failure/ESD	August 25, 2010
Form EP -0541	Palo Verde NAN Emergency Message Form	September 15, 2010
	Simulator Evaluation Summary Sheet	September 15, 2010
	Simulator Scenario SES-0-09-AN-02, Slipped CEA / Loss PNB / FRP (MVAC-2)	February 10, 2010

Section 40A1: Performance Indicator Verification

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
74DP-0LC01	RCS Activity Performance Indicator	5
74OP-9SS01	Primary Sampling Instructions	33
74ST-9RC02	RCS Specific Activity Surveillance Test	13

Section 40A1: Performance Indicator VerificationPROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
40ST-9RC02	ERFDADS (Preferred) Calculation of RCS Water Inventory	51
74CH-9ZZ15	RCS Gross Activity and Dose Equivalent I-131 Determination	5

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Technical Specification 3.4.16, RCS Leak Detection Instrumentation	
	Technical Specification 3.4.17, RCS Specific Activity	
	NEI 99-02, Regulatory Assessment Performance Guideline	6
	Regulatory Guide 1.45	1

Section 40A2: Identification and Resolution of ProblemsPROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
30DP-9WP02	Maintenance Work Order Process and Control	56
01PR-0AP04	Corrective Action Program	5
90DP-0IP10	Condition Reporting	47
01DP-0AP12	Palo Verde Action Request Processing	14
40DP-9WP01	Operations Processing of Work Orders	18
40DP-9OP06	Operations Department Repetitive Task Program	111 and 112

Section 40A2: Identification and Resolution of Problems

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
70DP-9SP01	Spray Pond Piping Integrity Verification	3
40ST-9ZZM1	Operations Mode 1 Surveillance Logs	55 and 56
81DP-0ZZ01	Civil System, Structure, and Component Monitoring Program	16
40DP-9OP26	Operations Palo Verde Action Request Processing And Operability Determination / Functional Assessment	26

PALO VERDE ACTION REQUESTS

3447451	3456981	3448458	3522505	3390656	2989553	3448335
3511230	3311997	3469133				

CONDITION REPORTS / DISPOSITION REQUESTS

2910912	3457836	3391325	2953739	2945536
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CONDITION REPORTS ACTION ITEM

2898253	2898255	2910973	2943911
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DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
13-C-SPS-0375	Nuclear Service Spray Ponds Plan	14
13-C-OOA-0004	Typical Reinforced Concrete Details, sheet 1	13

WORK ORDER

3112650	2983255	2963470	2958467	2995376	2967234	2967232
2990931	2944904	2905974	2906733	2942620		

CALCULATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
13-CC-SP-0015	Spray Pond Concrete Wall and Slab Design	5
13-MC-SP-0307	SP/EW Thermal Performance Design Bases Analysis	5
N001-1106-0002	Debris Generation Due to LOCA within Containment for Resolution of GSI-191	3

SPECIFICATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
13-CM-0107	Waterstops, Joint Fillers, and Joint Sealants	1
13-CN-0365	Installation Specification for Forming, Placing, Finishing and Curing of Grout Concrete	9
13-AM-314	Installation Specification for Surface Coating Systems for Concrete	7

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Operability / Functionality Evaluation, Essential Spray Pond Concrete Cracks	1
	Operability / Functionality Evaluation, Essential Spray Pond Concrete Cracks	2
	Operability / Functionality Evaluation, Essential Spray Pond Concrete Cracks	3
	Design Criteria Manual DCM-SP Part 2, Essential Spray Pond System (S/S Portion)	2
	Design Guide (Bechtel) C-2.30, Waterproofing and Waterstops	1
	American Concrete Institute ACI 116, Cement and Concrete Terminology	90
	Design Basis Manual (DBM) SP, Essential Spray Pond System	20

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Updated Final Safety Analysis Report, Sections 3.8.4.1.6, 3.8.4.7 and 9.2.4.4	15
	Regulatory Guide 1.27, Ultimate Heat Sink for Nuclear Power Plants	2 January 1976
	Component Observation Report (COR) 07-3-003, Concrete, Structural Steel, Protective Coatings	April 27, 2007
	Component Observation Report (COR) 07-2-005, Concrete, Structural Steel/Misc. Protective Coatings, and Expansion Joints	April 26, 2007
	ACI 349.3, Evaluation of Existing Nuclear Safety Related Concrete Structures	June 17, 2002
	Quality assurance records for the application on Valspar 200 in containment	1980-1986
	Operability / Functionality Evaluation, Original Construction Epoxy Coatings in Containment	1
Generic Letter 2004-02	Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors	September 13, 2004

Section 40A3: Event Follow-Up

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
EPIP-01	Satellite Technical Support Center Actions	34
EPIP-01	Satellite Technical Support Center Actions	35
40AO-9ZZ21	Acts of Nature	26

PALO VERDE ACTION REQUESTS

3517526 3517810 3518360 3518157 3517915 3517908 3517906

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
NRC Form 361	Reactor Plant Event Notification, EN# 46188	August 18, 2010

Section 40A5: Other Activities

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
01DP-0EM10	Fitness for Duty Program	27
01DP-0AP17	Managing Personnel Fatigue	2
01DP-0EM11	Behavior Observation Program	15
OM14.ID1	Fatigue Management Rule Program	17A

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
NEI 06-11	Managing Personnel Fatigue at Nuclear Power Reactor Sites	1
Regulatory Guide 5.73	Fatigue Management for Nuclear Power Plant Personnel	
	General Employee Training, Instructor Lesson Guide Course No GFFD100, "Fitness For Duty"	0
	General Employee Training, Instructor Lesson Guide Course No GFFDCI, "Fitness For Duty Current Issues"	0
	General Employee Training, Instructor Lesson Guide Course No GFFDSUPFATR & TI, "Fatigue Management For Supervisors"	0