



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

May 12, 2011

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 05000528/2011002, 05000529/2011002, and
05000530/2011002

Dear Mr. Edington:

On March 31, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Palo Verde Nuclear Generating Station, Units 1, 2, and 3, facility. The enclosed integrated inspection report documents the inspection findings, which were discussed on April 8, 2011, 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.

Based on the results of this inspection, the NRC has determined that one Severity Level IV violation of NRC requirements occurred. The NRC has also identified four additional issues that were evaluated under the risk significance determination process as having very low safety significance (Green). The NRC has determined that violations are associated with three of these issues. Additionally, one licensee-identified violation, which was determined to be of very low safety significance, is listed in this report. However, because of the very low safety significance and because it was entered into your corrective action program, the NRC is treating this finding as a noncited violation, consistent with Section 2.3.2 of the NRC Enforcement Policy.

If you contest the violations or the significance of the noncited violations, 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 the facility. In addition, if you disagree with the cross-cutting 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 the facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure(s), and your response, if you choose to provide one for cases where a response is not required, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy or proprietary, information so that it can be made available to the Public without redaction.

Sincerely,

/RA/ D. Allen for

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 05000528/2011002, 05000529/2011002, and 05000530/2011002
w/Attachment: Supplemental Information

cc w/Enclosure:

Distribution via ListServ

Electronic distribution by RIV:
 Regional Administrator (Elmo.Collins@nrc.gov)
 Deputy Regional Administrator (Art.Howell@nrc.gov)
 DRP Director (Kriss.Kennedy@nrc.gov)
 DRP Deputy Director (Troy.Pruett@nrc.gov)
 DRS Director (Anton.Vegel@nrc.gov)
 Senior Resident Inspector (Tony.Brown@nrc.gov)
 Resident Inspector (Joseph.Bashore@nrc.gov)
 Resident Inspector (Mica.Baquera@nrc.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)
 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
 RIV/OEDO ET (Stephanie.Bush-Goddard @nrc.gov)
 DRS/TSB STA (Dale.Powers@nrc.gov)

File located: R:_REACTOS\ PV2011\PV2011002-RP-AB.docx

SUNSI Rev Compl.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	ADAMS	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Reviewer Initials	RL/DA
Publicly Avail		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sensitive	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
RIVSRI:DRP/D	RI:DRP/D	RI:DRP/	SPE:DRP/	C:DRS/EB1	C:DRS/EB2	
TBrown	JBashore	MBaquera	DAllen	TRFarnholtz	NFO'Keefe	
T-DAllen for	T-DAllen for	T-DAllen for	/RA/	/RA/	/RA/	
5/12/2011	5/12/2011	5/10/2011	5/10/2011	5/10/2011	5/11/2011	
C:DRS/OB		C:DRS/PSB1	C:DRS/PSB2	C:DRS/TSB	C:DRP/	
MSHaire		MPShannon	GEWerner	MCHay	RLantz	
/RA/		/RA/	/RA/	DPowers for	DAllen for	
5/10/2011		5/11/2011	5/10/2011	5/11/2011	5/12/2011	

OFFICIAL RECORD COPY

T=Telephone

E=E-mail

F=Fax

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

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

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

Report: 05000528/2011002, 05000529/2011002, and 05000530/2011002

Licensee: Arizona Public Service Company

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

Location: 5951 S. Wintersburg Road
Tonopah, Arizona

Dates: January 1, 2011 through March 31, 2011

Inspectors: M. Brown, Senior Resident Inspector
J. Bashore, Resident Inspector
M. Baquera, Resident Inspector
L. Carson II, Senior Health Physicist
D. Graves, Health Physicist
N. Greene, Health Physicist
R. Kopriva, Senior Reactor Inspector
B. Rice, Reactor Inspector
M. Young, Reactor Inspector

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

SUMMARY OF FINDINGS

IR 05000528/2011002, 05000529/2011002, 05000530/2011002; 01/01/11 - 03/31/11; Palo Verde Nuclear Generating Station, Units 1, 2, and 3; Operability Evaluations, Radioactive Gaseous & Liquid Effluent Treatment, Event Followup

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

A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. The inspectors identified a self-revealing finding after Palo Verde Nuclear Generating Station failed to adequately perform maintenance activities associated with main condenser tube sheet coatings in Unit 3. As a result, a degraded tube was not replugged following coating and failed on January 15, 2011, resulting in high sodium levels in the condensate system. Operators entered the abnormal operating procedures for condenser tube rupture and reduced power to 40 percent power to facilitate troubleshooting and repairs. The licensee concluded that Work Order 3384533 and Procedure 31MT-9ZZ19, "Tube Plugging of Secondary Heat Transfer Components," did not provide adequate instructions for the removal, accountability, and reinstallation of permanent plugs during maintenance. The licensee also concluded that engineering verification inspection practices were inadequate and no procedural guidance existed for the verification. The licensee completed repairs to the main condenser and returned Unit 3 to full power. The licensee entered the performance deficiency into the corrective action program as Palo Verde Action Request 3580739 and implemented immediate corrective actions to revise the pre-job brief checklist and maintenance work instructions for condenser tube plugging. The licensee has not completed all corrective actions for this issue. The inspectors determined that the performance deficiency is more than minor because it affected the equipment reliability attribute of the Initiating Events Cornerstone and affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using NRC Manual Chapter 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," the inspectors concluded that the finding is of very low safety significance (Green) because it did not contribute to both the likelihood of a reactor trip and the

likelihood that mitigation equipment or functions would not be available. This finding had a crosscutting aspect in the area of human performance associated with the resources component because the licensee failed to provide complete, accurate and up-to-date procedures and work packages for tube sheet coating, replugging and verification [H.2(c)]. (Section 4OA3)

Cornerstone: Mitigating Systems

- Severity Level IV. The inspectors identified a Severity Level IV noncited violation of 10 CFR Part 21 after Palo Verde Nuclear Generating Station failed to evaluate an identified deviation within 60 days of discovery to determine if there was a substantial safety hazard. On November 23, 2010, the licensee completed an apparent cause evaluation for a failure of the Unit 3 train B spent fuel pool cooling pump and concluded the cause of the failure was a misalignment by the vendor of the bell alarm bracket within the K-600S 480 VAC Class 1E circuit breaker. Additionally, the apparent cause evaluation identified similar failures of the same type of breaker dating back to April 29, 2009. On December 7, 2010, the extent of condition review identified 76 breakers, including some in safety related applications, installed in the three units that could be impacted by the same failure mechanism. The inspectors questioned whether the licensee should have performed an evaluation in accordance with 10 CFR Part 21 to determine if a defect existed. On February 15, 2011, the licensee completed an evaluation of prior deviations related to the alignment of bell alarm switches and concluded the deviations were defects that were reportable per 10 CFR Part 21. The licensee subsequently submitted Part 21 Report 2011-07-00 on February 24, 2011. The licensee entered the performance deficiency into the corrective action program as Palo Verde Action Request 3593672 and has not completed corrective actions for this issue.

The inspectors concluded that the failure to perform the substantial safety hazard evaluation within 60 days as required by 10 CFR 21.21(a)(1) was a violation of NRC requirements. The inspectors evaluated this violation using the traditional enforcement process because the failure to submit a required report affected the NRC's ability to perform its regulatory function. Consistent with the guidance in Section 2.2.2 and Section 6.9.d of the NRC Enforcement Policy, the inspectors concluded the violation was a Severity Level IV because the licensee failed to make a timely written report that resulted in no or relatively inappreciable potential safety consequences. (Section 1R15)

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criteria V, "Instructions, Procedures, and Drawings," after the licensee failed to promptly evaluate a nonconforming condition for operability as required by Procedure 01PR-0AP04, "Corrective Action Program." Procedure 01PR-0AP04, "Corrective Action Program," step 3.2.1.5, stated "Operability shall be determined immediately upon discovery that an SSC subject to technical specification or that supports SSCs subject to technical specification is in a degraded or nonconforming condition." Operators failed to perform an

operability determination immediately following the licensee's discovery of a potentially degraded and nonconforming condition associated with a manufacturing defect in K-600S 480 VAC Class 1E circuit breakers. On December 7, 2010, an extent of condition review identified 76 breakers installed in the three units that could be susceptible to the same failure mechanism. However, operators did not perform an immediate operability determination until January 28, 2011. Operators subsequently concluded the affected breakers remained capable of performing their safety functions. The licensee entered the performance deficiency into the corrective action program as Palo Verde Action Request 3587124 and has not completed corrective actions for this issue.

The inspectors concluded the finding was more than minor because it affected the equipment performance 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 NRC Manual Chapter 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," the inspectors determined the finding had a very low safety significance (Green) because it did not represent a loss of system safety function, represent actual loss of safety function of a single train for greater than its technical specification allowed outage time, represent an actual loss of safety function of one or more non-technical specification trains of equipment designated as risk-significant per 10 CFR 50.65 for greater than 24 hours, or screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The inspectors concluded that this finding had a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program component because the licensee failed to implement a corrective action program with a low threshold for identifying issues. In this case, the licensee failed to initiate a Palo Verde Action Request that would have required a review for operability when the extent of condition review identified that safety-related components were affected. [P.1.(a)]. (Section 1R15)

- Green. The inspectors identified a noncited violation of Technical Specification 5.4.1, "Procedures," for the failure of operations, engineering, and maintenance personnel to establish and implement procedures recommended in Regulatory Guide 1.33. Specifically, monitoring procedures and preventive maintenance schedules were not developed and implemented to ensure essential chiller oil reservoir level remained in the range to support chiller operability. The licensee has implemented operating procedure revisions and is currently evaluating preventive maintenance practices to preclude compressor oil level from reaching out of specification conditions. Engineering practices, operations procedures, and preventative maintenance schedules did not effectively manage chiller oil inventory and resulted in the chiller becoming inoperable on multiple occasions. The licensee entered the issue into the corrective action program as Palo Verde Action Request 3677610.

The inspectors concluded the performance deficiency was more than minor because it affected the equipment performance 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 NRC Manual Chapter 0609, Attachment 4, "Initial Screening and Characterization of Findings," the inspectors determined the finding had 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. The inspectors determined this finding had a crosscutting aspect in the area of problem identification and resolution associated with the operating experience component because the licensee failed to institutionalize internal operating experience through changes to station processes, procedures, and equipment [P.2.(b)]. (Section 1R15)

Cornerstone: Occupational and Public Radiation Safety

- Green. Inspectors reviewed a self-revealing noncited violation of Technical Specification 5.4.1 for failure to have adequate procedures to prevent resin contamination of the auxiliary building exhaust ventilation system while filling and venting the pre-holdup ion exchanger. This event resulted in posting a high radiation area and unintended dose to radiation workers. Licensee immediate actions included posting the affected area as a high radiation area and decontamination of the affected area and duct. The event was placed in the licensee's corrective action program as Condition Report Disposition Requests 3554716 and 3563863.

The finding was more than minor because it was associated with the program and process attribute of the Occupational Radiation Safety Cornerstone and affected the objective to ensure the adequate protection of the worker health and safety from exposure to unintended radiation from radioactive material during routine civilian nuclear reactor operation. Using Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," the inspectors determined the finding to have very low safety significance because: (1) it was not associated with ALARA planning or work controls; (2) there was no overexposure; (3) there was no substantial potential for an overexposure; and (4) the ability to assess dose was not compromised. The licensee previously had similar issues in Units 1 and 2 in 1985, 1995, and 1996 and, consequently, made modifications to procedures and equipment. These changes were not implemented in Unit 3. However, these issues are not indicative of current performance and thus, resulted in no crosscutting aspect. (Section 2RS06)

B. Licensee-Identified Violations

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

REPORT DETAILS

Summary of Plant Status

Unit 1 operated at essentially full power until March 24, 2011. Unit 1 reduced power to 60 percent power to remove main feedwater pump B from service to troubleshoot and repair a failed overspeed trip valve discovered during testing. Unit 1 returned to essential full power on March 26, 2011 and remained there for the remainder of the inspection period.

Unit 2 operated at essentially full power until March 19, 2011, when the unit began a power coast down in preparation for the refueling outage 2R16. Unit 2 was at 90 percent power at the end of the inspection period.

Unit 3 operated at essentially full power until January 15, 2011, when a leak into the condenser hotwell forced an unplanned power change to 40 percent. Unit 3 returned to essentially full power on January 17, 2011. On January 19, 2011, Unit 3 experienced an automatic reactor trip after main feedwater pump A min-flow valve failed open. Unit 3 returned to essentially full power on January 21, 2011 and remained there for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R04 Equipment Alignments (71111.04)

Partial Walkdown

a. Inspection Scope

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

- January 27, 2011, Unit 1, essential cooling water, train A
- March 15, 2011, Unit 1, essential spray pond system, train A
- March 25, 2011, Unit 3, safety injection system, train A

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could affect the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, UFSAR, technical specification requirements, administrative technical specifications, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also inspected accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The

inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

Quarterly Fire Inspection Tours

a. Inspection Scope

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

- January 27, 2011, Unit 1, auxiliary building 100 foot and 120 foot elevations
- January 31, 2011, Unit 3, train A, containment spray pump room (Fire Zone 30A), high pressure safety injection pump room (Fire Zone 31A), and low pressure safety injection pump room (Fire Zone 32A)
- February 11, 2011, Unit 2, auxiliary feedwater pump rooms 80 foot elevation, condensate storage tank pump house and tunnel, main steam support structure all elevations
- March 11, 2011, Unit 3, auxiliary feedwater pump rooms 80 foot elevation, condensate storage tank pump house and tunnel, main steam support structure all elevations

The inspectors reviewed areas to assess if licensee personnel had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant; effectively maintained fire detection and suppression capability; maintained passive fire protection features in good material condition; and had implemented adequate compensatory measures for out of service, degraded or inoperable fire protection equipment, systems, or features, in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to affect equipment that could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the attachment, the inspectors verified that fire hoses and

extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors reviewed the UFSAR, the flooding analysis, and plant procedures to assess susceptibilities involving internal flooding; reviewed the corrective action program to determine if licensee personnel identified and corrected flooding problems; inspected underground bunkers/manholes to verify the adequacy of sump pumps, level alarm circuits, cable splices subject to submergence, and drainage for bunkers/manholes; and verified that operator actions for coping with flooding can reasonably achieve the desired outcomes. The inspectors also inspected the areas listed below to verify the adequacy of equipment seals located below the flood line, floor and wall penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, and control circuits, and temporary or removable flood barriers. Specific documents reviewed during this inspection are listed in the attachment.

- February 25, 2011, manhole 25 for cable vault associated with start-up transformer NANX02

These activities constitute completion of one bunker/manhole sample as defined in Inspection Procedure 71111.06-05.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

On February 10, 2011, 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:

- February 3, 2011, Unit 3, instrument air system
- February 15, 2011, Unit 3, main feedwater system
- February 25, 2011, failure of 13.8kv splice associated with start-up transformer NANX02

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 three quarterly maintenance effectiveness samples as defined in Inspection Procedure 71111.12-05.

b. Findings

No findings were identified.

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

a. Inspection Scope

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

- January 24, 2011, Unit 2, containment sump to safety injection train B containment isolation valve SIB-UV-676 out of service for planned maintenance
- February 2, 2011, Unit 1, atmospheric dump valve SGBHV178 out of service for planned maintenance
- February 22, 2011, Unit 2, emergency diesel generator, train B, automatic voltage regulator replacement
- March 2, 2011, Unit 1, planned maintenance on valve AFA-HV-32
- March 15, 2011, Unit 2, unplanned maintenance on station blackout generator number 1

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

b. Findings

No findings were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- January 24, 2011, Units 1, 2, and 3, atmospheric dump valve non-conservative technical specification
- February 4, 2011, Unit 2, essential chiller train A oil level low

- February 4, 2011, Units 1, 2, and 3, K-Line breaker bell alarm switch bracket misalignment
- February 18, 2011, Units 1, 2, and 3, unqualified coatings in containment not appropriately accounted per procedure
- February 23, 2011, Unit 2, emergency diesel generator, train B, degrade coatings
- February 24, 2011, Unit 2, emergency diesel generator, train A, automatic voltage regulator common mode failure evaluation
- March 22, 2011, Unit 2, valve vibration during low pressure safety injection pump B surveillance testing

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

b. Findings

1. Failure to Perform a 10 CFR Part 21 Evaluation

Introduction. The inspectors identified a Severity Level IV noncited violation of 10 CFR Part 21 after Palo Verde Nuclear Generating Station failed to evaluate an identified deviation within 60 days of discovery to determine if there was a substantial safety hazard.

Description. On October 24, 2010, the Unit 3 train B spent fuel pool cooling pump failed to start. On November 23, 2010, the apparent cause evaluation concluded the cause of the failure was a misalignment by the vendor of the bell alarm bracket within the K-600S 480 VAC Class 1E circuit breaker. Additionally, the apparent cause evaluation identified similar failures of the same type of breaker dating back to April 29, 2009. On

December 7, 2010, the extent of condition review identified 76 breakers, including some in safety related applications, installed in the three units that could be impacted by the same failure mechanism.

The inspectors questioned whether the licensee should have performed an evaluation in accordance with 10 CFR Part 21 to determine if a defect existed. On February 15, 2011, the licensee completed an evaluation of prior deviations related to the alignment of bell alarm switches and concluded the deviations were defects that were reportable per 10 CFR Part 21. The licensee subsequently submitted Part 21 Report 2011-07-00 on February 24, 2011. Additionally, the licensee completed an operability determination for the potentially affected breakers currently installed in the units and concluded that the equipment continued to be able to perform their respective safety functions.

The inspectors also identified that the licensee failed to follow step 3.1.2.1 of Procedure 01PR-0AP04, "Corrective Action Program," which stated that "Nonconforming materials shall be evaluated within thirty days of discovery to identify reportable defects or failure to comply that could create a substantial safety impact (as defined in 10 CFR Part 21) were they to remain uncorrected" and Procedure 90DP-0IP13, "Apparent Cause Evaluation," step 3.2.7, which stated "If, at any time, it is discovered that the event may be reportable to outside agencies, contact Nuclear Regulatory Affairs to determine if the condition is reportable." The licensee entered the performance deficiency into the corrective action program as Palo Verde Action Request 3593672 and has not completed corrective actions for this issue.

Analysis. The inspectors concluded that the failure to perform the substantial safety hazard evaluation within 60 days as required by 10 CFR 21.21(a)(1) was a violation of NRC requirements. The inspectors evaluated this violation using the traditional enforcement process because the failure to submit a required report affected the NRC's ability to perform its regulatory function. Consistent with the guidance in Section 2.2.2 and Section 6.9.d of the NRC Enforcement Policy, the inspectors concluded the violation was a Severity Level IV because the licensee failed to make a timely written report that resulted in no or relatively inappreciable potential safety consequences. The inspectors also concluded that the violation was a performance deficiency under the Reactor Oversight Process because the licensee failed to follow station procedures. Using NRC Manual Chapter 0612, Appendix B, "Issue Screening," the inspectors concluded that the performance deficiency was minor. The inspectors did not evaluate the performance deficiency for crosscutting aspects because the performance deficiency was minor.

Enforcement. Title 10 CFR 21.21(a)(1), requires, in part, that the licensee evaluate deviations and failures to comply to identify defects and failures to comply associated with substantial safety hazards as soon as practicable, and except as provided in paragraph (a)(2) of this section, in all cases within 60 days of discovery. Contrary to the above, the licensee failed to evaluate deviations and failures to comply which had the potential for substantial safety hazards within 60 days of discovery. Specifically, the licensee failed to evaluate several failures of K-600S 480 VAC Class 1E circuit breakers from April 2009 until October 2010. Because the violation is Severity Level IV and has been entered into the licensee's corrective action program as Palo Verde Action

Request (PVAR) 3593672, this violation is being treated as a noncited violation, consistent with the NRC Enforcement Policy: NCV 05000528; 05000529; 05000530/2011002-01, "Failure to Perform a 10 CFR Part 21 Evaluation."

2. Untimely Operability Determination

Introduction. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criteria V, "Instructions, Procedures, and Drawings," after the licensee failed to promptly evaluate a nonconforming condition for operability as required by Procedure 01PR-0AP04, "Corrective Action Program."

Description. On October 24, 2010, the Unit 3 train B spent fuel pool cooling pump failed to start. On November 23, 2010, the apparent cause evaluation concluded the cause of the failure was a misalignment by the vendor of the bell alarm bracket within the K-600S 480 VAC Class 1E circuit breaker. On December 7, 2010, the extent of condition review identified 76 breakers installed in the three units that could be impacted by the same failure mechanism. On January 28, 2011, control room operators completed an immediate operability determination for the nonconforming condition and concluded the affected systems, structures, and components remained capable of performing their safety functions. On February 4, 2011, the licensee completed a prompt operability determination that confirmed the initial conclusion.

The inspectors questioned the timeliness of the operability determination and concluded the operability determinations did not meet procedural requirements. The licensee failed to follow Procedure 01PR-0AP04, "Corrective Action Program," step 3.2.1.5, which stated "Operability shall be determined immediately upon discovery that an SSC subject to Technical Specification (TS) or that supports SSCs subject to TS is in a degraded or nonconforming condition." Additionally, the licensee failed to follow Procedure 90DP-0IP13, "Apparent Cause CRDR Evaluation," step 3.1, which stated, in part, that if, at any time during the evaluation, a condition is identified or additional information becomes available that will likely conclude that a condition exists that may affect the ability of an SSC to meet the Current Licensing Basis, then the Shift Manager or Control Room Supervisor of the affected unit shall be notified immediately. The licensee entered this performance deficiency into the corrective action program as Palo Verde Action Request 3587124 and has not completed corrective actions for this issue. The inspectors concluded that the most significant contributor to this performance deficiency was that personnel performing the apparent cause evaluation and extent of condition review failed to initiate a Palo Verde Action Request to identify that safety-related components were affected by this condition, which would have prompted operators to perform an operability determination.

Analysis. The inspectors concluded that the failure of the licensee personnel to promptly evaluate nonconforming conditions for the effect on operability, in accordance with Procedure 01PR-0AP04, was a performance deficiency. The inspectors determined the performance deficiency was more than minor because it affected the Mitigating Systems Cornerstone equipment performance attribute and objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent

undesirable consequences. Using NRC Manual Chapter 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," the inspectors determined the finding had a very low safety significance (Green) because it did not represent a loss of system safety function, represent actual loss of safety function of a single train for greater than its technical specification allowed outage time, represent an actual loss of safety function of one or more non-Technical Specification trains of equipment designated as risk-significant per 10 CFR 50.65 for greater than 24 hours, or screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The inspectors concluded that this finding had a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program component because the licensee failed to implement a corrective action program with a low threshold for identifying issues. In this case, the licensee failed to initiate a Palo Verde Action Request that would have required a review for operability when the extent of condition review identified that safety-related components were affected [P.1(a)].

Enforcement. Title 10 CFR Part 50, Appendix B, Criteria V, "Instructions, Procedures, and Drawings," required that activities affecting quality be accomplished in accordance with instructions or procedures. Procedure 01PR-0AP04, "Corrective Action Program," step 3.2.1.5, required that "Operability shall be determined immediately upon discovery that an SSC subject to Technical Specification (TS) or that supports SSCs subject to TS is in a degraded or nonconforming condition." Contrary to the above, on December 7, 2010, plant personnel failed to determine operability immediately upon discovery that numerous electrical breakers installed in the units were potentially in a degraded or nonconforming condition. Because this finding is of very low safety significance and was entered into the corrective action program as Palo Verde Action Request 3587124, this violation is being treated as a noncited violation, consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000528; 05000529; 05000530/2011002-02, "Failure to Follow Corrective Action Program Procedure."

3. Failure to Establish Adequate Procedures to Control Essential Chiller Compressor Oil Level

Introduction. A Green NRC identified noncited violation of Technical Specification 5.4.1, "Procedures," was identified for the failure of operations, engineering, and maintenance personnel to establish and implement procedures and preventative maintenance schedules recommended in Regulatory Guide 1.33. Specifically, monitoring procedures and preventive maintenance schedules were not developed and implemented to ensure essential chiller oil reservoir level remained in the range to support chiller operability.

Description. On December 12, 2010 the Unit 2 train A essential chiller was declared inoperable due to the compressor oil reservoir temperature indicator reading two degrees below the operability limit of 120 degrees. The chiller was not running and was in a standby condition at the time. Maintenance personnel determined that actual oil temperature could not be determined accurately because the compressor oil reservoir level was below the local temperature indicator. Maintenance personnel added 2 gallons of oil to the compressor oil reservoir. The chiller was started to raise oil temperature and was subsequently declared operable on December 13, 2010.

On January 6, 2011, the Unit 2 train A essential chiller was declared inoperable due to compressor oil level not being indicated in the lower sight glass and a low out of specification chiller oil temperature. Maintenance determined that there were no indications of leaks or other path for oil to exit the vapor compression cycle. Maintenance personnel also determined that actual oil temperature could not be determined accurately because the compressor oil reservoir level was below the local temperature indicator. Maintenance personnel conferred with the component engineer and added 1 gallon of oil to restore oil level to within the specified range. This brought the total oil inventory in the chiller to 21 gallons. The compressor was started to facilitate visual inspection with the system under pressure. After more than two hours of run time there was no indications of leaks and no visible change in compressor oil reservoir level.

On February 4, 2011, the Unit 2 area operator reported the train A essential chiller oil level below the lower sight glass. At this point, the total oil inventory in this chiller was 21 gallons. Any oil additions in excess of 20 gallons total inventory required the component engineer's approval. The component engineer granted permission to add oil but not to exceed a total inventory of 25 gallons. Maintenance personnel added 2 gallons of oil to the compressor reservoir, bringing the total inventory to 23 gallons.

During standby conditions, Freon in the vapor compression cycle is absorbed by the oil. When the compressor is running, dissolved Freon boils out of the oil. During this process, some oil is carried over into the vapor compression cycle. This results in oil transfer from the compressor reservoir to the evaporator section. Under normal load conditions, oil would boil off with the Freon and return to the compressor. Compressor vanes separate out the oil and it is returned to the reservoir. Prior to the low oil conditions described above, the chiller had been operated under either no load or very low load conditions. Very low load does not provide sufficient heat transfer in the evaporator section to cause the oil to boil off with the Freon. During the winter months there is insufficient load on the chilled water system to provide enough heat transfer at the chiller evaporator to drive the oil back to the compressor. This phenomenon has been well established since 1987; however the licensee had not institutionalized this operating experience in operating procedures or preventive maintenance programs. Operating procedures did not specify additional monitoring requirements following compressor operation at low load. Preventive maintenance programs did not effectively control the oil reservoir level and total oil inventory during seasonal low load conditions.

Operations, maintenance, and component engineering personnel collectively relied on the corrective action program to drive oil additions and removals. An administrative limit of 20 gallons total inventory was established by component engineering to preclude exceeding 25 gallons total oil inventory. However, engineering procedures did not provide appropriate corrective actions, such as recovering the oil from the evaporator section by distillation, when total inventory reached 20 gallons. Maintenance personnel were unaware that operations department personnel operated the machine under no load or very low load conditions. Inspectors questioned the licensee practice of relying on the corrective action program to drive compressor oil level alterations. Inspectors also questioned why oil distillation was not implemented prior to reaching a point that

limited the amount of oil that could be added. Reliance on the corrective action program to drive oil additions and removals resulted in the chiller oil level dropping below the level necessary to support operability on three separate occasions. The licensee implemented operating procedure revisions and is currently evaluating preventive maintenance practices to preclude compressor oil level from reaching out of specification conditions.

Analysis. The inspectors concluded that the failure of operations, engineering, and maintenance personnel to adequately establish and implement monitoring procedures and preventive maintenance schedules was a performance deficiency. The inspectors determined that the performance deficiency was more than minor because it affected the equipment performance 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 NRC Manual Chapter 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," the inspectors determined the finding had 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. The inspectors determined this finding had a crosscutting aspect in the area of problem identification and resolution associated with the operating experience component because the licensee failed to institutionalize internal operating experience through changes to station processes, procedures, and equipment [P.2.(b)].

Enforcement. Technical Specification 5.4.1, "Procedures," requires that procedures be established, implemented, and maintained covering the applicable procedures in Regulatory Guide 1.33. Regulatory Guide 1.33, Appendix A, Section 3 requires procedures for startup, operation, and shutdown of safety-related PWR systems. Regulatory Guide 1.33, Appendix A, Section 9 requires preventive maintenance schedules be developed to specify lubrication schedules. Contrary to these requirements, operating, maintenance, and engineering procedures did not effectively monitor and control essential chiller compressor oil level such that operability was maintained. Corrective actions to enhance monitoring and to improve maintenance strategies are in the process of being implemented. Because the finding is of very low safety significance and has been entered into the licensee's corrective action program as Condition Report Disposition Request 3618044, this violation is being treated as an NCV consistent with Section 2.3.2 of the Enforcement Policy: NCV 05000529/2011002-03, "Failure to Establish Adequate Procedures to Control Essential Chiller Compressor Oil Level."

1R17 Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications (71111.17)

a. Inspection Scope

The inspectors reviewed the effectiveness of the licensee's implementation of evaluations performed in accordance with 10 CFR 50.59, "Changes, Tests, and

Experiments,” and changes, tests, experiments, or methodology changes that the licensee determined did not require 10 CFR 50.59 evaluations.

The inspectors reviewed 12 evaluations required by 10 CFR 50.59; 26 changes, tests, and experiments that were screened out by licensee personnel; and 9 permanent plant modifications. Documents reviewed are listed in the attachment.

The inspectors verified that, when changes, tests, or experiments were made, evaluations were performed in accordance with 10 CFR 50.59 and licensee personnel had appropriately concluded that the change, test or experiment can be accomplished without obtaining a license amendment. The inspectors also verified that safety issues related to the changes, tests, or experiments were resolved. The inspectors reviewed changes, tests, and experiments that licensee personnel determined did not require evaluations and verified that the licensee personnel’s conclusions were correct and consistent with 10 CFR 50.59. The inspectors also verified that procedures, design, and licensing basis documentation used to support the changes were accurate after the changes had been made.

In the inspection of modifications, the inspectors verified that supporting design and license basis documentation had been updated accordingly and was still consistent with the new design. The inspectors verified that procedures, training plans, and other design basis features had been adequately accounted for and updated. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of 12 samples of evaluations; 26 samples of changes, tests, and experiments that were screened out by licensee personnel; and 9 samples of permanent plant modifications as defined in Inspection Procedure 71111.17-04.

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:

- January 25, 2011, Unit 1, essential air handling unit, train B
- January 25, 2011, Unit 2, containment sump to safety injection train B containment isolation valve SIB-UV-676 packing replacement
- January 28, 2011, Unit 1, emergency diesel generator, train B

- January 28, 2011, Unit 3, atmospheric dump valve SGB-HV-0178 calibration
- February 1, 2011, Unit 2, valve SGAUV134, steam generator 1 steam supply to auxiliary feedwater pump, and valve SGAUV134A, steam generator 1 bypass steam supply to auxiliary feedwater pump planned maintenance
- February 4, 2011, Unit 1, high pressure safety injection, train A, fill and vent verification following inadequate system restoration after maintenance on valve 1PSIAV046
- February 25, 2011, Unit 2, emergency diesel generator, train B, automatic voltage regulator replacement

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 seven 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.

- January 4, 2011, Unit 3, high pressure safety injection, train A, ultrasonic examination for void formation in piping
- January 19, 2011, Unit 3, high pressure safety injection pump B
- January 24, 2011, Unit 2, auxiliary feedwater train B in-service test

- February 8, 2011, Unit 2, main steam safety valve trevittesting
- February 9, 2011, Unit 2, low pressure safety injection train A in-service test
- February 28, 2011, Unit 3, steam generator 2 economizer feedwater isolation valve

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

These activities constitute completion of six 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)

Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on February 10, 2011, 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, technical support center, and emergency operations facility to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the corrective action program. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the attachment.

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

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Occupational and Public Radiation Safety

2RS02 Occupational ALARA Planning and Controls (71124.02)

a. Inspection Scope

This area was inspected to assess performance with respect to maintaining occupational individual and collective radiation exposures as low as is reasonably achievable (ALARA) for the Unit 3 reactor head replacement in accordance with Inspection procedure 71007, "Reactor Vessel Head Replacement Inspection." The inspectors used the requirements in 10 CFR Part 20, the technical specifications, and the licensee's procedures required by technical specifications as criteria for determining compliance. During the inspection, the inspectors interviewed licensee personnel and reviewed the following items:

- ALARA work activity evaluations/postjob reviews, exposure estimates, and exposure mitigation requirements
- The methodology for estimating work activity exposures, the intended dose outcome, the accuracy of dose rate and man-hour estimates, and intended versus actual work activity doses and the reasons for any inconsistencies
- Radiation worker and radiation protection technician performance during work activities in radiation areas, airborne radioactivity areas, or high radiation areas
- Audits, self-assessments, and corrective action documents related to ALARA planning and controls for the reactor head replacement

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

b. Findings

No findings were identified.

2RS06 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)

a. Inspection Scope

This area was inspected to: (1) ensure the gaseous and liquid effluent processing systems are maintained so radiological discharges are properly mitigated, monitored, and evaluated with respect to public exposure; (2) ensure abnormal radioactive gaseous or liquid discharges and conditions, when effluent radiation monitors are out-of-service, are controlled in accordance with the applicable regulatory requirements and licensee procedures; (3) verify the licensee's quality control program ensures the radioactive effluent sampling and analysis requirements are satisfied so discharges of radioactive materials are adequately quantified and evaluated; and (4) verify the adequacy of public dose projections resulting from radioactive effluent discharges. The inspectors used the requirements in 10 CFR Part 20; 10 CFR Part 50, Appendices A and I; 40 CFR Part 190; the Offsite Dose Calculation Manual, and licensee procedures required by the Technical

Specifications as criteria for determining compliance. The inspectors interviewed licensee personnel and reviewed and/or observed the following items:

- Radiological effluent release reports since the previous inspection and reports related to the effluent program issued since the previous inspection, if any
- Effluent program implementing procedures, including sampling, monitor setpoint determinations and dose calculations
- Equipment configuration and flow paths of selected gaseous and liquid discharge system components, filtered ventilation system material condition, and significant changes to their effluent release points, if any, and associated 10 CFR 50.59 reviews
- Selected portions of the routine processing and discharge of radioactive gaseous and liquid effluents (including sample collection and analysis)
- Controls used to ensure representative sampling and appropriate compensatory sampling
- Results of the interlaboratory comparison program
- Effluent stack flow rates
- Surveillance test results of technical specification-required ventilation effluent discharge systems since the previous inspection
- Significant changes in reported dose values, if any
- A selection of radioactive liquid and gaseous waste discharge permits
- Part 61 analyses and methods used to determine which isotopes are included in the source term
- Offsite dose calculation manual changes, if any
- Meteorological dispersion and deposition factors
- Latest land use census
- Records of abnormal gaseous or liquid tank discharges, if any
- Groundwater monitoring results
- Changes to the licensee's written program for identifying and controlling contaminated spills/leaks to groundwater, if any

- Identified leakage or spill events and entries made into 10 CFR 50.75 (g) records, if any, and associated evaluations of the extent of the contamination and the radiological source term
- Offsite notifications, and reports of events associated with spills, leaks, or groundwater monitoring results, if any
- Audits, self-assessments, reports, and corrective action documents related to radioactive gaseous and liquid effluent treatment since the last inspection

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

These activities constitute completion of the one required sample, as defined in Inspection Procedure 71124.06-05.

b. Findings

Introduction. Inspectors reviewed a self-revealing Green noncited violation of Technical Specification 5.4.1 for failure to have adequate procedures to prevent resin contamination of the auxiliary building exhaust ventilation system while filling and venting the pre-holdup ion exchanger. This event resulted in posting a high radiation area, as well as unintended dose to radiation workers.

Description. On October 29, 2010, two operators began filling and venting the pre-holdup ion exchanger (3MCHND03) after maintenance on ion exchanger drain header valve 3PCHNV486. The purpose of the pre-holdup ion exchanger is to process diverted reactor coolant system water before sending the water to the radwaste hold-up tank. In order to fill and vent the pre-holdup ion exchanger operators used Technical Document (TD) 35213, "3MCHND03** Deminx Pre-Holdup Ion Exchanger (35118)" and Procedure 40OP-9CH02, "Purification System." As instructed in these documents, the operators filled the pre-holdup ion exchanger from the bottom of the vessel using reactor makeup water through the resin sluice supply header connection. The resin sluice supply header is normally used for fluidizing and transferring resin out of an ion exchanger. The documents provided no instruction for establishing and monitoring a certain flow rate. Consequently, failure to establish and monitor the flow rate and using the resin sluice header while filling the pre-holdup ion exchanger cavity resulted in overfilling it and blowing resin into the train A auxiliary building ventilation system. This resulted in contamination of the auxiliary building ventilation system pre-filters, a bank of upstream high efficiency particulate air filters, and a charcoal bed.

While venting the pre-holdup ion exchanger, the operators' electronic personnel dosimeter started to chirp at a faster rate than anticipated, but did not alarm. The operators also observed black water initially followed by clean water and terminated the operation. The operators informed radiation protection and they surveyed the pre-holdup ion exchanger area. Survey 3-M-20101029-18 identified that dose rates in the pre-holdup ion exchanger area had increased and required posting as a high radiation

area. The maximum dose rate in the affected area was 250 mrem per hour at 30 cm. In addition, the operators received an unintended dose of about two mrem each.

Further investigation of this event found two small holes in the auxiliary building ventilation duct. The recovery plan was implemented with maintenance Work Order 3555311. This work included the ventilation duct repairs, as well as decontamination and clean up of the contaminated areas, and cleanup of resin found in the auxiliary building ventilation system. The upstream high efficiency particulate air filters had approximately 30 radioactive resin beads removed from its compartment. A total dose of 101 mrem was expended for this work. No resin was found past the upstream high efficiency particulate air filter bank and thus, did not discharge out of the plant.

In 1985, 1995, and 1996, similar events occurred in Units 1 and 2, involving resin contamination in the auxiliary building air ventilation system. As a result, procedure and system changes were implemented in Units 1 and 2 to prevent such events from recurring. Units 1 and 2 pre-holdup ion exchangers have procedure directions to fill from the top. Additionally, modifications were made to these units which installed longer piping in efforts to minimize any resin contamination to the ventilation systems. These changes were not implemented in Unit 3 because it was deemed as not cost effective. The licensee is planning to install resin traps in the ion exchanger vent piping to prevent resin from entering the plant vent header in all three units.

Analysis. The performance deficiency associated with this self-revealing finding involved inadequately written procedures for filling and venting of the pre-holdup ion exchanger. The finding was more than minor because it was associated with the program and process attribute of the Occupational Radiation Safety Cornerstone and affected the objective to ensure the adequate protection of the worker health and safety from exposure to unintended radiation from radioactive material during routine civilian nuclear reactor operation. Using Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," the inspectors determined the finding to have very low safety significance (Green) because: (1) it was not associated with ALARA planning or work controls; (2) there was no overexposure; (3) there was no substantial potential for an overexposure; and (4) the ability to assess dose was not compromised. The licensee previously had similar issues in Units 1 and 2 in 1985, 1995, and 1996 and consequently, made modifications to procedures and equipment. These changes were not implemented in Unit 3. However, these issues are not indicative of current performance and thus, resulted in no crosscutting aspect.

Enforcement. Technical Specification 5.4.1 requires, in part, that written procedures in Appendix A of Regulatory Guide 1.33, "Quality Assurance Requirements," be established, implemented, and maintained. Section 7 of Regulatory Guide 1.33 requires general procedures for controlling radioactivity and radiation exposure. Contrary to the above, on October 29, 2010, when filling and venting of the pre-holdup ion exchanger vessel (3MCHND03) with inadequate procedures, licensee operators overfilled the vessel and blew radioactive resin into the auxiliary building ventilation system creating an uncontrolled release of radioactivity and a high radiation area. The procedures were

inadequate in that there was no instruction to establish and monitor a fill flow rate and operators were directed to fill the pre-holdup ion exchanger from the bottom rather than from the top of the cavity. Since this violation was of very low safety significance and was documented in the licensee's corrective action program as Condition Report Disposition Requests 3554716 and 3563863, it is being treated as a noncited violation, consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000530/2011002-04, "Failure to Have Adequate Procedures to Prevent Resin Contamination of the Auxiliary Building Ventilation Exhaust System."

2RS07 Radiological Environmental Monitoring Program (71124.07)

a. Inspection Scope

This area was inspected to: (1) ensure that the radiological environmental monitoring program verifies the impact of radioactive effluent releases to the environment and sufficiently validates the integrity of the radioactive gaseous and liquid effluent release program; (2) verify that the radiological environmental monitoring program is implemented consistent with the licensee's technical specifications and/or offsite dose calculation manual, and to validate that the radioactive effluent release program meets the design objective contained in Appendix I to 10 CFR Part 50; and (3) ensure that the radiological environmental monitoring program monitors non-effluent exposure pathways, is based on sound principles and assumptions, and validates that doses to members of the public are within the dose limits of 10 CFR Part 20 and 40 CFR Part 190, as applicable. The inspectors reviewed and/or observed the following items:

- Annual environmental monitoring reports and offsite dose calculation manual
- Selected air sampling and thermoluminescence dosimeter monitoring stations
- Collection and preparation of environmental samples
- Operability, calibration, and maintenance of meteorological instruments
- Selected events documented in the annual environmental monitoring report which involved a missed sample, inoperable sampler, lost thermoluminescence dosimeter, or anomalous measurement
- Selected structures, systems, or components that may contain licensed material and has a credible mechanism for licensed material to reach ground water
- Records required by 10 CFR 50.75(g)
- Significant changes made by the licensee to the offsite dose calculation manual as the result of changes to the land census or sampler station modifications since the last inspection

- Calibration and maintenance records for selected air samplers, composite water samplers, and environmental sample radiation measurement instrumentation
- Interlaboratory comparison program results
- Audits, self-assessments, reports, and corrective action documents related to the radiological environmental monitoring program since the last inspection

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

These activities constitute completion of the one required sample as defined in Inspection Procedure 71124.07-05.

b. Findings

No findings were identified.

2RS08 Radioactive Solid Waste Processing, and Radioactive Material Handling, Storage, and Transportation (71124.08)

a. Inspection Scope

This area was inspected to verify the effectiveness of the licensee's programs for processing, handling, storage, and transportation of radioactive material. The inspectors used the requirements of 10 CFR Parts 20, 61, and 71 and Department of Transportation regulations contained in 49 CFR Parts 171-180 for determining compliance. The inspectors interviewed licensee personnel and reviewed the following items:

- The solid radioactive waste system description, process control program, and the scope of the licensee's audit program
- Control of radioactive waste storage areas including container labeling/marketing and monitoring containers for deformation or signs of waste decomposition
- Changes to the liquid and solid waste processing system configuration including a review of waste processing equipment that is not operational or abandoned in place
- Radio-chemical sample analysis results for radioactive waste streams and use of scaling factors and calculations to account for difficult-to-measure radionuclides
- Processes for waste classification including use of scaling factors and 10 CFR Part 61 analysis
- Shipment packaging, surveying, labeling, marking, placarding, vehicle checking, driver instructing, and preparation of the disposal manifest

- Audits, self-assessments, reports, and corrective action reports, radioactive solid waste processing, and radioactive material handling, storage, and transportation performed since the last inspection

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

These activities constitute completion of the one required sample as defined in Inspection Procedure 71124.08-05.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

40A1 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 fourth 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 Unplanned Scrams per 7000 Critical Hours (IE01)

a. Inspection Scope

The inspectors sampled licensee submittals for the unplanned scrams per 7000 critical hours performance indicator for Palo Verde Units 1, 2 and 3 for the period from the first quarter 2010 through the fourth 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 narrative logs, issue reports, event reports, and NRC integrated inspection reports for the period of January 2010 through December 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 unplanned scrams per 7000 critical hours samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.3 Unplanned Scrams with Complications (IE02)

a. Inspection Scope

The inspectors sampled licensee submittals for the unplanned scrams with complications performance indicator for Palo Verde Units 1, 2 and 3 for the period from the first quarter 2010 through the fourth 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 narrative logs, issue reports, event reports, and NRC integrated inspection reports for the period of January 2010 through December 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 non were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of three unplanned scrams with complications samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.4 Unplanned Power Changes per 7000 Critical Hours (IE03)

a. Inspection Scope

The inspectors sampled licensee submittals for the unplanned power changes per 7000 critical hours performance indicator for Palo Verde Units 1, 2 and 3 for the period from the first quarter 2010 through the fourth 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 narrative logs, issue reports, maintenance rule records, event reports, and NRC integrated inspection reports for the period of January 2010 through December 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 unplanned transients per 7000 critical hours 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 Confirmatory Action Letter Follow-up Inspection

a. Inspection Scope

The inspectors reviewed the Site Integrated Improvement Plan tasks listed below for an in-depth review and final closure. These tasks were previously reviewed and closed on an interim basis pending completion of all actions and effectiveness reviews. The inspectors considered the following during the review of the licensee's actions: (1) Site Integrated Improvement Plan task matches the Condition Report Action Item (CRAI) description; (2) corrective actions address and correct the Site Integrated Improvement Plan task; (3) corrective actions address the action plan problem statement and primary causes; (4) verification of Site Integrated Improvement Plan task completion; (5) timely completion of corrective actions in accordance with the Site Integrated Improvement Plan schedule; (6) review of metrics and measures for improved performance; (7) independent verification of improved performance; and (8) closure of Site Integrated Improvement Plan task in accordance with procedures. The inspectors also: (1) reviewed results of self assessments and effectiveness reviews that were conducted to assess the success of Confirmatory Action Letter corrective actions; (2) reviewed the status and progress of the component design basis review project; (3) reviewed trends associated with metrics used by Palo Verde Nuclear Generating Station to gauge the success of performance improvement initiatives; (4) reviewed results of Safety Culture Surveys performed in 2009 and 2010; (5) reviewed progress and effectiveness of improvements in implementing the Operability Determination process; and (6) reviewed the results of Palo Verde Nuclear Generating Station reviews of key performance areas identified in the Site Integrated Improvement Plan and the Confirmatory Action Letter.

- Task 1.2.E.22 (Confirmatory Action Letter Item 5 and Site Integrated Improvement Plan Action Plan 5, Strategy 1) (CRAI 3066447) – Perform self assessments on all Engineering Programs based on the schedule and criteria identified in the SIBP: #15.1.7 and developed as part of the interim action for CRAI 3065077

- Task 3.4.7.j (Confirmatory Action Letter Item 6 and Site Integrated Improvement Plan Action Plan 6, Strategy 10) (CRAI 3047302) – Implement an interactive automated trending program to facilitate identification of developing trends at both the line and site levels.
- Task 11.6.13 (Confirmatory Action Letter Item 5 and Site Integrated Improvement Plan Action Plan 4, Strategy 5) (CRAI 3115690) – Complete Component Design Basis Review Project per project schedule
- Task 3.7.5.ii (Confirmatory Action Letter Item 1 and Site Integrated Improvement Plan Action Plan 15, Focus Area 4) (CRDR 3014822) –CDBR has identified procedural inadequacies that are inconsistent with design assumption. Evaluation needs to be performed to determine apparent cause for so many issues in this area.
- Task 6.5.2.k (Confirmatory Action Letter Item 4 and Site Integrated Improvement Plan Action Plan 11, Strategy 2) (CRAI 3022280) –Fourth quarter 2009, review and determine if additional analysis is required for declining human performance, including organizational and programmatic trends. Generate and document PVAR/CRDR for trends.
- Task 2.1.D.5.g (Confirmatory Action Letter Item 8 and Site Integrated Improvement Plan Action Plan 6, Strategy 5)(CRAI 3075737) –Incorporate the expected behaviors from 2.1.D.5.b CRAI 3075713 into all individual 2010 PMPs.

The inspectors considered all of the above tasks closed.

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

b. Findings

No findings were identified.

.2 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.

.3 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.

40A3 Event Follow-up (71153)

.1 (Closed) LER 05000529/2008-001-01, Inoperable Boron Dilution Alarm Monitoring System

This LER is a supplement to LER 05000529/2008001-00, which was closed in NRC Inspection Report 05000528; 05000529; 05000530/2008004, and dispositioned as a Licensee-Identified violation in Section 40A7. This supplement provided the root cause and contributing cause of the event and provided corrective actions.

The inspectors reviewed the LER and identified no additional concerns. This LER is closed.

.2 (Closed) Licensee Event Report 05000530/2009-001-00: Manual Reactor Trip Due to a Loss of Instrument Air to the Containment

On December 3, 2009, Unit 3 operators initiated a manual reactor trip in response to a loss of instrument air to the containment building. A solenoid coil failure on instrument air containment isolation valve 3JIAAUV0002 caused the loss of instrument air.

The inspectors documented two findings associated with the event – for the failure of operations personnel to adequately establish and implement procedures associated with the loss of instrument air to containment, and for the failure of engineering personnel to adequately evaluate an identified adverse condition associated with the containment isolation valve. These findings were dispositioned as NCV 05000528; 05000529; 05000530/2009005-05, “Inadequate Procedures to Diagnose and Mitigate a Loss of Instrument Air to the Containment” and FIN 05000530/2010002-01, “Failure to Take Adequate Corrective Actions for an Identified Adverse Condition.”

The inspectors reviewed the LER and identified no additional concerns. This LER is closed.

.3 (Closed) Licensee Event Report 05000529/2009-002-00: Condition Prohibited by Technical Specification 3.6.3 for Inoperable Containment Isolation Valves

On August 21, 2009, the Unit 2 steam generator blowdown sample solenoid-operated containment isolation valve 2SGAUV211 failed to close during a scheduled surveillance test. Between that date and October 5, 2009, four additional Unit 2 steam generator blowdown containment isolation valves failed to close in the same manner as valve 2SGAUV211. The licensee initially determined that a common mode failure existed, resulting in the inoperability of the valves for longer than the action completion times of Technical Specification 3.6.3, “Containment Isolation Valves.”

The licensee completed an apparent cause evaluation and concluded the failures were caused by a manufacturing defect in the Cutler-Hammer Model ARD660UR control relay. On March 19, 2010, Westinghouse Electric Company submitted a notification of the defect to the NRC in accordance with 10CFR Part 21, “Reporting of Defects and Noncompliance.”

The inspectors reviewed the LER and did not identify any concerns. This LER is closed.

.4 (Closed) Licensee Event Report 05000528/2010-001-00, Automatic Reactor Trip Due to a Loss of a Non-Class 13.8 kV (Calvert) Bus

On March 7, 2010, Unit 1 experienced an automatic reactor trip subsequent to a ground fault on the non-class 13.8 kV (Calvert) intermediate bus 1E-NAN-A03. The fault resulted in a loss of power to the 13.8 kV bus 1E-NAN-S01 resulting in a loss of power to two of the four reactor coolant pumps. The loss of two reactor coolant pumps caused an automatic reactor trip. The reactor was cooled down to Mode 5 conditions and repairs were made to the faulted bus. Inspectors reviewed this issue and documented a Green self-revealing finding in section 4OA2 of Inspection Report 05000528;529;530/2010003, FIN 05000528/2010003-02, “Failure to Establish Procedures to Restore the Required Configuration of 13.8kV Electrical Bus Ducting”, for the failure of maintenance personnel to follow procedures and adequately perform work order to ensure the ducting for 13.8kV bus was weather tight. The licensee documented the cause for the bus failure in CRDR 3444792. Inspectors reviewed the root cause evaluation and the licensee event report and determined that no additional violations of NRC requirements exists. This Licensee Event Report is closed.

.5 Downpower Due to High Condenser Hotwell Sodium Levels

a. Inspection Scope

On January 15, 2011, Unit 3 operators entered abnormal operating procedures and reduced power to 40 percent in response to high sodium levels in the main condenser hotwell. Plant personnel identified and repaired a leaking condenser tube and returned Unit 3 to full power. The inspectors reviewed the licensee actions associated with this event and identified one finding as documented below.

b. Findings

Introduction. The inspectors identified a self-revealing finding after Palo Verde Nuclear Generating Station failed to adequately perform maintenance activities associated with main condenser tube sheet coatings in Unit 3. As a result, a degraded tube was not replugged following coating and failed, resulting in high sodium levels in the condensate system.

Description. On January 14, 2011, Unit 3 operators received a high sodium alarm for main condenser hotwell 1C and, on January 15, 2011, entered the abnormal operating procedures for condenser tube rupture, reducing power to 40 percent power to facilitate troubleshooting and repairs. The licensee completed a root cause analysis of the event on March 4, 2011, and concluded that Work Order 3384533 and Procedure 31MT-9ZZ19, "Tube Plugging of Secondary Heat Transfer Components," did not provide adequate instructions for the removal, accountability, and reinstallation of permanent plugs during maintenance. Additionally, temporary plugs were installed prior to coating and the work order did not provide direction to remove the temporary plugs and verify removal. The licensee also concluded that engineering verification inspection practices were inadequate and no procedural guidance existed for the verification. The licensee completed repairs to the main condenser and returned Unit 3 to full power. The licensee entered the performance deficiency into the corrective action program as Palo Verde Action Request 3580739 and implemented immediate corrective actions to revise the pre-job brief checklist and maintenance work instructions for condenser tube plugging. The licensee has not completed all corrective actions for this issue. The inspectors concluded that the most significant contributor to this performance deficiency was that the licensee failed to provide complete, accurate and up-to-date procedures and work packages for tube sheet coating, replugging and verification.

Analysis. The inspectors concluded that the failure to adequately perform condenser coatings was a performance deficiency. The inspectors determined that the performance deficiency was more than minor because it affected the equipment reliability attribute of the Initiating Events Cornerstone and affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The inspectors determined that the performance deficiency is more than minor because it affected the equipment reliability attribute of the Initiating Events Cornerstone and affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using

NRC Manual Chapter 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," the inspectors concluded that the finding had a very low safety significance (Green) because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. This finding had a crosscutting aspect in the area of human performance associated with the resources component because the licensee failed to provide complete, accurate and up-to-date procedures and work packages for tube sheet coating, replugging and verification [H.2(c)].

Enforcement. This finding does not involve enforcement action because no regulatory requirement violation was identified. Because this finding does not involve a violation and has very low safety significance, it is identified as FIN 05000530/2011002-05, "Inadequate Condenser Maintenance Activities."

.6 Reactor Trip Due to Loss of Main Feedwater

On January 19, 2011, Unit 3 reactor tripped due to a loss of main feedwater. The loss of main feedwater occurred due to the failure of Main Feedwater Pump "A" minimum flow valve which redirected feedwater flow back to the main condenser. As a result, both feedwater pumps increased speed to compensate and Main Feedwater Pump "B" tripped on low suction pressure and the reactor subsequently tripped on low steam generator level. No personnel injuries or equipment damage occurred. The inspectors responded to the site and reviewed the licensee actions. The inspectors did not identify any issues or findings associated with this event.

40A5 Other Activities

.1 Reactor Vessel Head Replacement Inspection (71007)

a. Inspection Scope

1. Design and Planning Inspections

The inspectors used the guidance in Inspection Procedure 71007 to perform the following reactor vessel head design and planning inspection activities.

Engineering and Technical Support

Inspections were conducted by resident and regional office-based specialist inspectors to review engineering and technical support activities performed prior to, and during, the reactor vessel head replacement outage. This review verified that selected design changes and modifications to structures, systems, and components described in the UFSAR for transporting the new and old reactor vessel heads were reviewed in accordance with 10 CFR 50.59. Additionally, key design aspects and modifications associated with the reactor vessel head replacement were also reviewed. Finally, the inspectors determined if the licensee had confirmed that the existing reactor vessel head conformed to design requirements and that there were no fabrication deviations from design requirements.

Lifting and Rigging

The inspectors reviewed engineering design, modification, and analysis associated with reactor vessel head lifting and rigging activities. This included: (1) crane and rigging equipment; (2) reactor vessel head component drop analysis; (3) safe load paths; and (4) load laydown areas.

Radiation Protection

The inspectors reviewed radiation protection program controls, planning, and preparation in: (1) ALARA planning; (2) dose estimates and tracking; (3) exposure and contamination controls; (4) radioactive material management; (5) radiological work plans and controls; (6) emergency contingencies; and (7) project staffing and training plans. This review was performed as part of the baseline inspections conducted during the 1R15 outage and additional information is documented in Section 2RS02 of this report.

2. Reactor Vessel Head Fabrication Inspections at Licensee Facility

The inspectors used the guidance in Inspection Procedure 71007 to perform the following reactor vessel head fabrication inspection activities.

Heat Treatment

The inspectors verified that the material heat treatment used to enhance the mechanical properties of the reactor vessel head material carbon, low alloy, and high alloy chromium steels is conducted per ASME code and approved vendor procedures consistent with the applicable ASME Code, Section III, requirements. Also, inspections were performed to verify that adequate heat treatment procedures were available to assure that requirements associated with the following areas were met: (1) furnace atmosphere; (2) furnace temperature distribution and calibration of measuring and recording devices; (3) thermocouple installation; (4) heating and cooling rates; (5) quenching methods; and (6) record and documentation requirements.

Nondestructive Examination (NDE)

Inspections were conducted to ensure the manufacturing control plan included provisions for monitoring NDE to ascertain that the NDE was performed in accordance with applicable code, material specification, and contract requirements.

Welding

The inspectors reviewed the documentation for the weld overlay welding operations that established a layer of stainless steel cladding on the inside of the reactor vessel head to determine if it was accomplished per design. The inspectors also selected a sample of dome-to-flange and control rod drive mechanism flange-to-nozzle welds and reviewed the following items: (1) certified mill test reports of the dome, flange, weld material rods, and control rod drive mechanism nozzles; (2) certified mill test reports for the welding material for the reactor vessel head cladding; (3) cladding weld records, weld rod material control requisitions, traceability of weld material rods, weld procedure

qualification, welder qualifications, and nonconformance reports; (4) control rod drive mechanism nozzle cladding welding inspection records, weld rod material control requisitions, traceability of weld material rods, weld procedure qualification, welder qualifications, and nonconformance reports; (5) control rod drive mechanism to nozzle welding and welds inspection records, weld rod material control requisitions, traceability of weld material rods, weld procedure qualification, welder qualifications, and nonconformance reports; and (6) NDE procedures, NDE records of the welds, NDE personnel qualifications, and certification of the NDE solvents.

Procedures

Inspections were completed to ensure that repair procedures had been established and that these procedures were consistent with applicable ASME code, material specification, and contract requirements by verifying: (1) repair welding was conducted in accordance with procedures qualified to Section IX of the ASME code; (2) all welders had been qualified in accordance with Section IX of the ASME code; (3) records of the repair were maintained; and (4) that requirements had been established for the preparation of certified material test reports and that the records of all required examinations and tests were traceable to the procedures to which they were performed.

Code Reconciliation

The inspectors reviewed the required documentation, supplemental examinations, analysis, and ASME code documentation reconciliation to ensure that the original ASME code N-Stamp remains valid, and that the replacement head complies with appropriate NRC rules and industry requirements. The inspectors also ensured that the design specification was reconciled and a design report was prepared for the reconciliation of the replacement head, verifying that they were certified by professional engineers competent in ASME code requirements.

Quality Assurance Program

Inspections were conducted to ensure that: (1) machining was carried out under a controlled system of operation; (2) a drawing/document control system was in use in the manufacturing process; and (3) part identification and traceability was maintained throughout processing and was consistent with the manufacturer's quality assurance program. In addition, the inspectors ensured that only the specified drawing and document revisions were available on the shop floor and were being used for fabrication, machining, and inspection.

Compliance Inspection

The inspectors verified that the original ASME Code, Section III, data packages for the replacement reactor vessel head were supplemented by documents included in the ASME Code, Section XI, (pre-service inspection) data packages; examined selected manufacturing and inspection records of the finished machined reactor vessel head; and verified compliance with applicable documentation requirements.

3. Reactor Vessel Head Removal and Replacement Inspections

The inspectors used the guidance in Inspection Procedure 71007 to perform the following reactor vessel head removal and replacement inspection activities:

Lifting and Rigging

The inspectors reviewed preparations and procedures for rigging and heavy lifting including crane and rigging inspections, testing, equipment modifications, laydown area preparations, and training for the following activities:

- Area preparation for the outside systems
- Lattice boom crawler crane assembly, disassembly, and operation
- Hydraulic gantry lift system
- Outside bridge and trolley transfer system
- Elevated cantilevered handling device installation and use
- Reactor vessel head lift rig and polar crane
- Downender/upender fixture
- Old reactor vessel head removal
- New reactor vessel head placement
- Transport of old reactor vessel head to storage location

Major Structural Modifications

The inspectors observed that there were no major structural modifications that were made to facilitate reactor vessel head replacement.

Containment Access and Integrity

The inspectors observed there were no modifications to the existing containment access structure or integrity to allow for the reactor vessel head to be removed and installed. The new and old reactor vessel head were moved in and out of containment using the existing equipment hatch.

Outage Operating Conditions

The inspectors reviewed and observed the establishment of operating conditions including: (1) defueling; (2) reactor coolant system draindown; (3) system isolation; (4) safety tagging; (5) radiation protection controls; (6) controls for excluding foreign materials in the reactor vessel; (7) verification of the suitability of reinstalled (reused) components for use; and (8) the installation, use, and removal of temporary services. Section 1R20 of this report documents additional activities that were performed during the outage.

Storage of Removed Reactor Vessel Head

The inspectors reviewed the radiological safety plans and observed the transport, storage, and radiological surveys of the old reactor vessel head to its onsite storage

location. This review was performed as part of the baseline inspections conducted during the 1R15 outage and additional information is documented in Section 2RS02 of this report.

4. Reactor Vessel Head Post Installation Verification and Testing Inspections

The inspectors used the guidance in Inspection Procedure 71007 to perform the following post installation verification and testing inspection activities. Selective inspections were performed of the following areas: (1) containment testing; (2) licensee's post installation inspections and verifications program and its implementation; (3) reactor coolant system leakage testing and review of test results; (4) procedures required for equipment performance testing to confirm the design and to establish baseline measurements; and (5) preservice inspection of new welds.

b. Findings

No findings were identified.

2. Surveillance Testing Associated with Temporary Instruction (TI) 2515/177, "Managing Gas Accumulation In Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems."

a. Inspection Scope

On January 26, 2011, the inspectors reviewed the Unit 3 high pressure safety injection train A, alignment surveillance test to verify that the procedure was acceptable for (1) testing associated with power operation, shutdown operation, maintenance, and system modifications; (2) void determination and elimination methods; and (3) post-event evaluation.

The inspectors reviewed Procedure 40 ST-9SI07, "High Pressure Safety Injection System Alignment Verification", Revision 15, used for conducting surveillances and determining void volumes to ensure that the void criteria were satisfied and will be reasonably ensured to be satisfied until the next scheduled void surveillance (TI 2515/177, Section 04.03.a). Also, the inspectors reviewed procedures used for filling and venting following conditions which may have introduced voids into the systems to verify that the procedures acceptably addressed testing for such voids and provided acceptable processes for their reduction or elimination (TI 2515/177, Section 04.03.b). Specifically, the inspectors verified that:

- Gas intrusion prevention, refill, venting, monitoring, trending, evaluation, and void correction activities were acceptably controlled by approved operating procedures (TI 2515/177, Section 04.03.c.1)
- Procedures ensured the system did not contain voids that may jeopardize operability (TI 2515/177, Section 04.03.c.2)

- Procedures established that void criteria were satisfied and will be reasonably ensured to be satisfied until the next scheduled void surveillance (TI 2515/177, Section 04.03.c.3)
- The licensee entered changes into the corrective action program as needed to ensure acceptable response to issues. In addition, the inspectors confirmed that a clear schedule for completion was included for corrective action program entries that have not been completed (TI 2515/177, Section 04.03.c.5)
- Procedures included independent verification that critical steps were completed (TI 2515/177, Section 04.03.c.6)

The inspectors verified the following with respect to surveillance and void detection:

- Specified surveillance frequencies were consistent with TS SR requirements (TI 2515/177, Section 04.03.d.1)
- Surveillance frequencies were stated or, when conducted more often than required by TSs, the process for their determination was described (TI 2515/177, Section 04.03.d.2)
- Surveillance methods were acceptably established to achieve the needed accuracy (TI 2515/177, Section 04.03.d.3)
- Surveillance procedures included up-to-date acceptance criteria (TI 2515/177, Section 04.03.d.4)
- Procedures included effective follow-up actions when acceptance criteria are exceeded or when trending indicates that criteria may be approached before the next scheduled surveillance (TI 2515/177, Section 04.03.d.5)
- Measured void volume uncertainty was considered when comparing test data to acceptance criteria (TI 2515/177, Section 04.03.d.6)
- Venting procedures and practices utilized criteria such as adequate venting durations and observing a steady stream of water (TI 2515/177, Section 04.03.d.7)
- An effective sequencing of void removal steps was followed to ensure that gas does not move into previously filled system volumes (TI 2515/177, Section 04.03.d.8)
- Qualitative void assessment methods were included only when expectations are that the void will be significantly less than allowed by acceptance criteria (TI 2515/177, Section 04.03.d.9)
- Venting results were trended periodically to confirm that the systems are sufficiently full of water and that the venting frequencies are adequate. The inspectors also verified that records of the quantity of gas at each location are maintained and trended as a means of preemptively identifying degrading gas accumulations (TI 2515/177, Section 04.03.d.10)

- Surveillances were conducted at any location where a void may form, including high points, dead legs, and locations under closed valves in vertical pipes (TI 2515/177, Section 04.03.d.11)
- The licensee ensured that systems were not pre-conditioned by other procedures that may cause a system to be filled, such as by testing, prior to the void surveillance (TI 2515/177, Section 04.03.d.12)
- Procedures included gas sampling for unexpected void increases if the source of the void is unknown and sampling is needed to assist in determining the source (TI 2515/177, Section 04.03.d.13)

The inspectors verified the following with respect to filling and venting:

- Revisions to fill and vent procedures to address new vents or different venting sequences were acceptably accomplished (TI 2515/177, Section 04.03.e.1)
- Fill and vent procedures provided instructions to modify restoration guidance to address changes in maintenance work scope or to reflect different boundaries from those assumed in the procedure (TI 2515/177, Section 04.03.e.2)

The inspectors verified the following with respect to void control:

- Void removal methods were acceptably addressed by approved procedures (TI 2515/177, Section 04.03.f.1)
- The licensee had reasonably ensured that the high pressure safety injection system is free of damage following a gas-related event in which pump acceptance criteria was exceeded (TI 2515/177, Section 04.03.f.2)

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

This inspection effort counts towards the completion of TI 2515/177 which will be closed in a later Inspection Report.

b. Findings

No findings were identified.

40A6 Meetings

Exit Meeting Summary

On January 28, 2011, the inspectors presented the inspection results of the inspection of Sections 2RS02, 2RS06, 2RS07, and 2RS08 above to Mr. R. Bement, Vice President, Nuclear Operations, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On February 11, 2011, the team leader presented the preliminary inspection results for Section 1R17 above to Mr. J. Cadogan, Director, Plant Engineering, and other members of the licensee's staff. The licensee acknowledged the findings during the meeting. While some

proprietary information was reviewed during this inspection, no proprietary information was included in this report.

On April 8, 2011, the resident inspectors presented the inspection results to Mr. D. Mims, Vice President, Regulatory Affairs and Performance 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

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of Section 2.3.2 of the NRC Enforcement Policy for being dispositioned as noncited violations.

Technical Specification 5.4.1, "Procedures," requires that procedures be established, implemented, and maintained covering the applicable procedures in Regulatory Guide 1.33. Regulatory Guide 1.33, Appendix A, Section 3 requires procedures for startup, operation, and shutdown of safety-related PWR systems. Contrary to these requirements, on December 16, 2010, engineering personnel determined that an inadequate fill and vent had occurred on a segment of piping for the high pressure safety injection train A discharge piping following maintenance on December 9, 2010. It was subsequently determined that the affected piping did not impact operability of the high pressure safety injection system train A, nor prevent the system from fulfilling its safety function. The licensee took immediate corrective action to determine the scope of the affected piping, complete fill and vent operations, and verify system readiness via ultrasonic testing of high pressure safety injection system piping. Corrective actions to improve system restoration have been implemented. The finding is of very low safety significance and has been entered into the licensee's corrective action program as Condition Report Disposition Request 3571997:

SUPPLEMENTAL INFORMATION
KEY POINTS OF CONTACT

Licensee Personnel

R. Barnes, Director, Regulatory Affairs
R. Bement, Vice President, Nuclear Operations
K. Bjornn, Senior Engineer, Design Engineering
W. Butler, Engineer II, Design Engineering
J. Cadogan, Director, Plant Engineering
L. Contopasso, Plant Manager
T. Curtiss, Licensing, Nuclear Regulatory Affairs
T. Dickerson, Radiological Engineer
J. Gaffney, Director, Radiation Protection
T. Gray, Support Services Department Leader, Radiation Protection
D. Hautala, Senior Engineer, Regulatory Affairs
R. Henry, SRP, Site Representative
R. Hicks, Senior Engineer, NFM-TA
M. Hooshmand, Department Leader, Design Engineering
G. Jones, Supervisor, Radiation Monitoring Systems, Radiation Protection
M. Kabassian, Manager, Self-Assessment Performance Improvement
C. Kharri, Manager, Unit 1 Operations
E. Kirkland, Supervisor, HVAC, Engineering
D. Kissinger, Senior Engineer, EFIN
F. Lake, Performance Improvement Team Department Leader, CAP 2A
J. McDonnell, Radiological Services Department Leader, Radiation Protection
M. McGhee, Compliance Section Leader, Nuclear Regulatory Affairs
D. Mims, Vice President, Regulatory Affairs and Performance Improvement
H. Al-Nakib, Department Leader, Engineering Modifications
N. Nelson, Senior Technician, Radiation Monitoring Systems, Radiation Protection
P. Paramithas, Director, Design Engineering/Projects
J. Rodriguez, Engineer II, Nuclear Regulatory Affairs
R. Roehler, Senior Engineer, Nuclear Regulatory Affairs
J. Santchi, Nuclear Training Department Leader, Tech/Mtce Training Admin
E. Shouse, EPE, Site Representative
R. Stroud, Licensing Section Leader, Nuclear Regulatory Affairs
T. Szumski, Senior Engineer, EFIN
J. Tolar, Senior Engineer, Design Engineering
C. Tubman, Radioactive Material Control Section Leader, Radiation Protection
M. Van Dop, Department Leader, Design Engineering
M. Wagner, Planning/ALARA Section Leader, Radiation Protection
M. Webb, Compliance Section Leader, Nuclear Regulatory Affairs
T. Weber, Department Leader, Nuclear Regulatory Affairs
A. Wullbrandt, Senior Engineer, NFM-TA

NRC Personnel

M. Brown, Senior Resident Inspector

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
40OP-9EW01	Essential Cooling Water (EW) Train A	19
40AC-0ZZ06	Locked Valve, Breaker, and Component Control	14
40DP-9OP10	Components Locked for Operational Convenience	117
40OP-9SP01	Essential Spray Pond (SP) Train A	48
40OP-9SI02	Recovery from Shutdown Cooling to Normal Operating Lineup	91

PALO VERDE ACTION REQUESTS

3544958 3550789 3498221 3452935 3544963

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
01-M-EWP-001	Essential Cooling Water System	31
01-M-SPP-001	P & I Diagram Essential Spray Pond System	51
01-M-SIP-001	Safety Injection and Shutdown Cooling System	48

Section 1R05: Fire Protection

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
14AC-0FP05	Pre- Fire Strategies Manual	22
14AC-0FP05	Pre- Fire Strategies Manual	21

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
13-A-ZYD-021	Fire Protection Area Floor Plan at Elevation 100' 0"	16
13-A-ZCD-101	Containment Building & Main Steam Support Structure Floor Plan at El 55', 80', 120', 140'	2
02-M-FPP-006	P & I Diagram Fire Protection System	14
03-M-FPP-006	P & I Diagram Fire Protection System	14
AO-M-FPP-001	P & I Diagram Fire Protection System	37
AO-M-FPP-005	P & I Diagram Fire Protection System	36

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Updated Final Safety Analysis Report, Section 9B	14
	Updated Final Safety Analysis Report, Section 9B	15
	Updated Final Safety Analysis Report, Section 9.5	11

Section 1R06: Flood Protection Measures

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
91DP-0EN32	Management of Manholes	1

PALO VERDE ACTION REQUESTS

3588800 3587225

WORK ORDER

358803

Section 1R11: Licensed Operator Requalification Program

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Licensed Operator Continuing Training Simulator Scenario SES-0-09-AJ-04, FRP – HPSC Leak/MVAC	4
	Evaluated Scenario Briefing Sheet	February 10, 2011
	Simulator Evaluation Checklist	February 10, 2011
	EOP Operations Expectations	15
	Simulator PI Evaluation Combined Form	6
Form EP-0541	Palo Verde NAN Emergency Message Form	February 10, 2011
	Simulator Evaluation Summary Sheet	February 10, 2011

Section 1R12: Maintenance Effectiveness

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
91DP-0EN32	Management of Manholes	1
70DP-0MR01	Maintenance Rule	31

PALO VERDE ACTION REQUESTS

3588800 3587225 3417207 3425034 3418281 3411547 3578987
3583915 3584979

WORK ORDER

358803

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	(a)(1) Evaluation for the IA System	2
	System History Report, Instrument and Service Air	February 3, 2011
	PVNGS Maintenance Rule System Basis, Instrument and Service Air System	0
	(a)(1) Monitoring Report	February 2, 2011
	Failure Analysis Report for Palo Verde Solenoid Investigation	March 2011
	Performance Criteria Formulation Bases, Feedwater System	1
	PVNGS Maintenance Rule System Basis, Feedwater System	2
	Returned to (a)(2) Monitoring Report	February 1, 2011

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	17
70DP-0RA04	Component Risk Significance Determination	2
40DP-9AP21	Protected Equipment	4
73DP-9XI01	Pump and Valve Inservice Testing Program – Component Tables	24
73DP-9ZZ26	MOV Testing With Quiklook	1
39MT-9ZZ32	Motor Operated Valve Diagnostic Testing	14
40ST-9DG02	Diesel Generator B Test	44
73ST-DG02	Class 1E Diesel Generator and Integrated Safeguards Test	22

32MT-9PE01	Cleaning, Inspection, and Testing of the Class 1E Diesel Generator	25
------------	--	----

PALO VERDE ACTION REQUESTS

3587157	3514606	3587410	3587157	3610252	3624127	3620552
3610292						

CONDITION REPORTS / DISPOSITION REQUESTS

3588265	3621333
---------	---------

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
01-M-SGP-001, Sheet 2	P & I Diagram Main Steam System	65
01-M-AFP-001	P & I Diagram Auxiliary Feedwater	37
72-16900-710	Instantaneous Pre-Position Module Schematic Diagram	December 2, 1993

WORK ORDER

3581231	3516364	3414741	3610292	3618433	3610572	3617012
960574	260059	769052	811441			

PERMITS

182767

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Scheduler's Risk Evaluation for PV Unit 1	February 2-4, 2011
	Work week schedule for PV Unit 1	February 2-4, 2011

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Unit 1 Control Room Operator's Log	February 2, 2011
	Scheduler's Risk Evaluation for PV Unit 2	January 24- 29, 2011
	Work week schedule for PV Unit 2	January 24- 29, 2011
	Scheduler's Risk Evaluation for PV Unit 1	March 2, 2011
	Work week schedule for PV Unit 1	February 28 – March 2, 2011
	Unit 1 Control Room Operator's Log	March 2, 2011
	Unit 2 Emergency Diesel Generator Troubleshooting Game Plan	February 23, 2011
	Test Procedure, Instantaneous Pre-Position Modules	May 18, 1994
	Troubleshooting Game Plan, EDG 2B Not at Rated Voltage, Revision 6 Scheduler's Risk Evaluation for PV Unit 2	February 22, 2011
	Work week schedule for PV Unit 2	February 22, 2011
	Scheduler's Risk Evaluation for PV Unit 2	March 15, 2011
	Work week schedule for PV Unit 2	March 15-16, 2011
	Unit 2 Control Room Operator's Log	March 15, 2011

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
81DP-0ZZ01	Civil System, Structure, and Component Monitoring Program	16
40DP-9OP26	Operations PVAR Processing and Operability Determination / Functional Assessment	26
38DP-0MI01	Control of Painting and Coatings Operations	14
40DP-9OP26	Operations PVAR Processing and Operability Determination / Functional Assessment	29
33MT-9EC01	Essential Chiller	10
40DP-9ZZ04	Time Critical Action (TCA) Program	5
90DP-0IP13	Apparent Cause CRDR Evaluation	7
01PR-0AP04	Corrective Action Program	6

PALO VERDE ACTION REQUESTS

3311997	3469133	3600187	3388691	3389475	3398582	3391721
3577381	3567676	3588556	3612033	3608633	3608532	3600315
3610252	3624127	3620552	3663838	3550129	3593672	3611299
3587124						

CONDITION REPORTS / DISPOSITION REQUESTS

3578587	3568377	3589252	3618044	3611544	3604872	3653654
3621333	2913417	3562519	3587796	3552833	3483865	3321826
3554643						

CONDITION REPORTS ACTION ITEM

3588512	3578588	3578589	3568378	3606893	3635027	3666432
---------	---------	---------	---------	---------	---------	---------

CONDITION REPORTS ACTION ITEM

3666497 3666513 3602234 3562569

WORK ORDER

3577382 3577755 3577897 3567696 3589280 3590553 2775314
2775976 2774316 3570502 3394109 3512285 3475892 3375002
3170768 3214239 3087019 3166518 3166521 3600300 3600299
3610292 3618433 3610572 3617012

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
72-16900-710	Instantaneous Pre-Position Module Schematic Diagram	December 2, 1993

SPECIFICATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
13-AM-314	Installation Specification for Surface Coating Systems for Concrete	7
A0-AN-0449	Specification for Coating Activities at Palo Verde Nuclear Generating Station	5

CALCULATION

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
N001-1106-0002	Debris Generation Due to LOCA within Containment for Resolution of GSI-191	3

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Quality assurance records for the application on Valspar 200 in containment	1980-1986

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	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
	Essential Chillers – Oil Additions or Removal Log	February 4, 2011
	Adverse CRDR 3578587 Evaluation	0
	Notes of Discussion between PVNGS and Carrier	February 17, 2011
	Control Room Operators Log	February 4, 2011
	Engineering Evaluation Request 87-EC-079	October 5, 1987
	Engineering Evaluation Request 87-EC-019	January 9, 1989
	Control Room Operators Log	January 6, 2011
	Control Room Operators Log	December 12, 2010
13- VTD-C150- 0001	Carrier Descriptive Bulletin for Hermetic Centrifugal Liquid Chillers	0
13-VTD-C150- 0007	Carrier Troubleshooting Guide	2
13-VTD-C150- 0002	Carrier Instruction Manual for Centrifugal Refrigeration Machine	3
	Adverse CRDR 3618044 Evaluation	0
	Prompt Operability Determination, Unit 2 Spray Pond Piping Coating Failure Impact on Emergency Diesel Generator Heat Exchangers	0
	Unit 2 Emergency Diesel Generator Troubleshooting Game Plan	February 23, 2011

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Test Procedure, Instantaneous Pre-Position Modules	May 18, 1994
	Technical Specifications, section 3.8.1, AC Sources Operating	
	Technical Specifications Bases, section 3.8.1, AC Sources Operating	
	License Document Change Request 06-B021	January 25, 2007
SABD-6.03	Time Critical Actions for LOCA, Non-LOCA, and Fire Protection Accident Analysis	00
	Licensing Document Change Request 07-B014, TS Bases 3.7.4, "Atmospheric Dump Valves (ADVs)"	July 13, 2007
	Calculation A-PW2-FE-0166, Revision 03, PVNGS Replacement Steam Generators and Power Uprate - Steam Generator Tube Rupture Events	3
	Palo Verde Nuclear Generating Station Event Reporting Manual	42

Section 1R17: Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
01DP-0AP08	PVNGS Standards for Portable Document Format (PDF) and Digital Signatures	23
39MT-9ZZ32	Motor Operated Valve Diagnostic Testing	14
40AO-9ZZ23	Loss of SFP Level or Cooling	13
40DP-9OP08	Diesel Generator Test Record	47

40EP-9EO03	Loss of Coolant Accident	28
40EP-9EO09	Functional Recovery	43
40EP-9EO10	Standard Appendices	66
40OP-9AS01	Auxiliary Steam	49
40OP-9CH12	Refueling Water Tank (RWT) Operations	33
40OP-9RC02	Reactor Coolant System Fill and Vent	36
70DP-0DG02	Emergency Diesel Generator Reliability Guidelines	3
70DP-0MR01	Maintenance Rule	27
71DP-0AC01	Engineering Product Review Board	4
73ST-9RC02	Reactor Coolant System Transient and Operational Cycles	10
74DP-9CY04	Systems Chemistry Specifications	70
74DP-9DF01	Diesel Fuel Oil Program	10
81DP-0CC05	Design and Technical Document Control	42
81DP-0DC13	Deficiency (DF) Work Order	26
81DP-0EE10	Plant Modifications	4
81DP-0EE10	Design Change Process	25
81DP-9ZZ01	Penetration Seal Determinations	4
93DP-0LC03	Licensing Document Maintenance	19
93DP-0LC07	10 CFR 50.59 and 72.48 Screenings and Evaluations	22
93DP-0LC17	10 CFR 50.59 and 72.48 Guidance Manual	5

PALO VERDE ACTION REQUESTS

3272845	3314756	3343913	3418309	3471320	3085457	3284044
3588931	3587036	3587036	3590163			

CALCULATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
01-CC-ZA-0224	Unit 1 conduit supports - 70' auxiliary building	3
01-EC-MA-0221	AC Distribution	11
02-EC-MA-0221	AC Distribution	13
02-EC-PK-0207	DC Battery Sizing and Minimum Voltage	9
03-EC-MA-0221	AC Distribution	11
13-JC-MO-204	89-10 Program Valve Spring Pack, Maximum Displacements Calculation	9
13-JC-ZZ-201	MOV Thrust, Torque and Actuator Sizing Calculation	14
13-MC-AF-0209	TDAFP Warming Line Sizing Calculation	5
13-MC-CH-0532	CVC System – Letdown Line	17
13-MC-DF-0306	As Built Calculation for Sizing the Diesel Fuel Storage and Day Tanks	9
13-MC-ED-0506	Feedwater Heater Extraction Steam and Drain System	24
13-MC-ED-0526	Feedwater Heater Extraction Steam and Drain System	21
13-MC-HA-0052	Auxiliary Building Essential Cooling System Heat Load Calculation	8
13-MC-SI-0215	HPSI System Performance Evaluation and Surveillance Requirement Basis Calculation	5
13-MC-SI-0220	Containment Spray System Hydraulic Analysis and Pump Surveillance Testing Requirements	6
13-MC-SI-0240	Low Pressure Safety Injection System Hydraulic Performance Analysis and System Surveillance Criteria	0
13-MC-XM-0500	MOV Bolt Torque Calculation	8

CALCULATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
13-MC-ZZ-217	Gate Valve Open Thrust Required During Potential Pressure Locking Condition	4
N001-1105-00038	Design Report of 16x12x16 Inch 1512# Stainless Steel Gate Valve	5
N001-2101-00094	Borg Warner MOV Weak-Link Analysis	10
TA-13-C00-2000-001	Emergency Operating Procedure (EOP) Setpoint Document	6

CONDITION REPORTS ACTION ITEM

3300914 3357441 2989017

CONDITION REPORTS / DISPOSITION REQUESTS

3279887 3307843 940282

DESIGN MODIFICATION WORK ORDERS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
219913	Install strain gages (QSS) on "solid section" of valve stem in support of MOVAT tests.	April 17, 2008
2391184	Condensate Demineralizer Low TDS Sump Hi-Hi Level Alarm Setting Change	July 16, 2010
2578794	Replace Solenoid Operated Vales 1,2,3 JSGAUV0134A and 1,2,3 JSGAUV0138A with Motor Operated Valves	November 16, 2010
2832799	Revise Motor Operated Valves open torque switch bypass duration. This will involve approximately 114 Limitorque valve operators.	February 26, 2008
2835485	(Mod DG-991) Replace existing 2301-PLS and EGB 50- PLS governors with 2301-A and EGB 50-P electronic governors and governor actuators, respectively.	November 10, 2008

DESIGN MODIFICATION WORK ORDERS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
2909756	Replace Actuator Gears to Improve Margin on 1, 2, 3, J-SI-651 AND 652 Valves	April 17, 2008
2938489	RAS Air Entrapment Resolution	December 20, 2010
3368666	Provide design documentation for the replacement of PC Cleanup Pumps, 13MPCNP02A/B with a new Flowserve mechanical cartridge seal, new pump seal cover, and new seal water supply line.	May 28, 2010
3479906	Permanently cut and cap the delay coil vent valves RC-V061 and RC-V063 in all units (that are unused) to prevent an un-isolable leak at power.	October 15, 2010

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
01-M-CHP-0001	P&I Diagram Chemical and Volume Control System	29
01-M-SGP-0001	P&I Diagram Main Steam System	64
01-P-AFF-0131	M.S.S.S Isometric Turbine Driven Pump Auxiliary	9
01-P-CHF-0142	Containment Bldg. Isometric Chemical Volume Control System Let Down Line	2
02-M-CHP-0001	P&I Diagram Chemical and Volume Control System	29
02-M-SGP-0001	P&I Diagram Main Steam System	71
02-P-AFF-0131	M.S.S.S Isometric Turbine Driven Pump Auxiliary	6
02-P-CHF-0142	Containment Bldg. Isometric Chemical Volume Control System Let Down Line	2
03-A-ZYD-0306	Fuel Building Penetrations (Sheet 4)	2
03-CH-952-H-006	Pipe Support Assembly	0

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
03-M-CHP-0001	P&I Diagram Chemical and Volume Control System	29
03-M-CHP-0002	P & I Diagram Chemical and Volume Control System (Sheet 1)	44
03-M-HFP-0001	P & I Diagram HVAC – Fuel Building	9
03-M-SGP-0001	P&I Diagram Main Steam System	56
03-P-CHF-0501	Fuel Building Chemical & Volume Control System Isometric	0
03-P-CHG-0142	Containment Bldg. Isometric Chemical Volume Control System Let Down Line	2
03-P-ZFC-0503	Fuel Building Level-3 HVAC Plan Between El. 140'-0" & Roof (Sheets 1 and 2)	1
13-E-ZTC-0010	Turbine Building Conduit & Tray Plan at EL. 100FT Level ILZTIL	30
13-E-ZTC-0010	Turbine Building Conduit & Tray Plan at EL. 100FT Level ILZTIL	31
13-M-FPR-0014	Appendix R Safety Function Diagram Main Steam System	15
13-M-FPR-0014	Appendix R Safety Function Diagram Main Steam System	10
13-M-FPR-0014	Appendix R Safety Function Diagram Main Steam System	11
13-M-FPR-0014	Appendix R Safety Function Diagram Main Steam System	12
13-M-FPR-0014	Appendix R Safety Function Diagram Main Steam System	13
13-M-FPR-0014	Appendix R Safety Function Diagram Main Steam System	14
13-M-FPR-0021	Appendix ESFAS Logic Diagram (SIAS/CIAS)	5
13-E-ZAC-017	Auxiliary Building Conduit and Tray Plan at El. 100' Level 1 ZAIC	30
13-E-ZCC-046 Sht. 1.	Main Steam Support Structure Conduit & Tray Plan at El. 120 Ft. & 140 Ft. ZC2E.ZC3E	20

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
54119-A, Sht.1-2	Weir, Atwood & Morrill Valves, 24-in. CL150 Tricentric Valve with Limitorque SMB-1/H5BC	3

ENGINEERING DESIGN CHANGES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
EDC-2000-00678	Update document to reflect strain gauge (QSS) installation on MOV 2JSIBHV0692	October 20, 2000
EDC-2007-00150	Increase the Opening and Closing Valve Thrust and Torque for MOVs 13JSIAUV651 & 13JSIBUV652	August 28, 2007
EDC-2007-00181	Revise Actuator Setting for MOV 1JSIAUV651	August 28, 2007
EDC-2007-00182	Revise Actuator Setting for MOV 1JSIBUV652	August 28, 2007
EDC-2007-00183	Revise Actuator Setting for MOV 2JSIAUV651	August 28, 2007
EDC-2007-00184	Revise Actuator Setting for MOV 2JSIBUV652	August 28, 2007
EDC-2007-00185	Revise Actuator Setting for MOV 3JSIAUV651	August 28, 2007
EDC-2007-00186	Revise Actuator Setting for MOV 3JSIBUV652	August 28, 2007
EDC-2007-00710	Replace existing solenoid operated valves JSGAUV0134A and JSGAUV0138A with motor operated valves	July 24, 2007
EDC-2007-00711	Replace existing solenoid operated valves JSGAUV0134A and JSGAUV0138A with motor operated valves	June 10, 2007
EDC-2007-00979	Install cables and conduits in Aux and MSSS Building for 1JSGAUV0134A and 1JSGAUV0138A SOV to MOV replacement	August 26, 2008

ENGINEERING DESIGN CHANGES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
EDC-2007-01001	Replace the existing Mechanical Dial Position Indicator (MDPI) gearing with the MDPI gearing associated with an actuator worm ratio of 80:1 for MOV 3JSIAUV0651 IAW DMWO 2909756	December 6, 2007
EDC-2007-01002	Replace the existing Mechanical Dial Position Indicator (MDPI) gearing with the MDPI gearing associated with an actuator worm ratio of 80:1 for MOV 3JSIBUV0652 IAW DMWO 2909756	December 6, 2007
EDC-2008-00236	Replace motor-operated valves JSIAUV674 and JSIBUV676 with torque-seated butterfly valves with metal seats	February 9, 2009
EDC-2008-00278	Update SDOC to show the strain gage (QSS) APN options for MOV tag's 13-SI-651/652 that are listed in the SWMS BOM for these MOVS	April 25, 2008
EDC-2008-00463	Replace existing solenoid operated valves JSGAUV0134A and JSGAUV0138A with motor operated valves	August 14, 2008
EDC-2008-00464	Replace existing solenoid operated valves JSGAUV0134A and JSGAUV0138A with motor operated valves	August 14, 2008
EDC-2008-00465	Replace existing solenoid operated valves JSGAUV0134A and JSGAUV0138A with motor operated valves	August 14, 2008
EDC-2008-00466	Replace existing solenoid operated valves JSGAUV0134A and JSGAUV0138A with motor operated valves	August 14, 2008
EDC-2008-00679	Per DMWO 2391184 the Low TDS Hi-Hi level setpoint, EQID LSHH-42, will be changed. Currently LSHH-42 activates the 2nd low TDS sump pump and sends Hi-Hi alarm to control room when setpoint is reached. The Hi-Hi alarm setpoint will be separated from the 2nd pump actuation setpoint. The 2nd pump actuation will keep the current EQID and remain at current setpoint. The Hi-Hi alarm will have a new EQID and have a setpoint higher than that of the 2nd pump actuation setpoint. This EDC will update the affected documents associated with the DM to reflect changes being made	December 21, 2008

ENGINEERING DESIGN CHANGES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
EDC-2008-00682	Per DMWO 2391184 the Low TDS Hi-Hi level setpoint, EQID LSHH-42, will be changed. Currently LSHH-42 activates the 2nd low TDS sump pump and sends Hi-Hi alarm to control room when setpoint is reached. The Hi-Hi alarm setpoint will be separated from the 2nd pump actuation setpoint. The 2nd pump actuation will keep the current EQID and remain at current setpoint. The Hi-Hi alarm will have a new EQID and have a setpoint higher than that of the 2nd pump actuation setpoint. This EDC will update the affected documents associated with the DM to reflect changes being made	December 12, 2008
EDC-2008-00683	Per DMWO 2391184 the Low TDS Hi-Hi level setpoint, EQID LSHH-42, will be changed. Currently LSHH-42 activates the 2nd low TDS sump pump and sends Hi-Hi alarm to control room when setpoint is reached. The Hi-Hi alarm setpoint will be separated from the 2nd pump actuation setpoint. The 2nd pump actuation will keep the current EQID and remain at current setpoint. The Hi-Hi alarm will have a new EQID and have a setpoint higher than that of the 2nd pump actuation setpoint. This EDC will update the affected documents associated with the DM to reflect changes being made	December 10, 2008
EDC-2008-00875	Replace MDPI gearing on DCID 1JSIBUV0652 IAW DMWO 2909756	March 12, 2010
EDC-2008-00934	Engineering best-estimate analysis that supports revising the LOCA and functional recovery procedures with respect to Containment Spray termination	December 27, 2008
EDC-2009-00105	Vent line addition to Refueling Water Tank (RWT) to reduce the vacuum drawn by the Refueling Building HVAC when combined with the vacuum from RWT rapid drain-down during an accident	January 28, 2010
EDC-2009-00455	Updates design Calculations for hydraulic evaluation of maximum recirculation from and to the Refueling Water Tank using a HPSI, LPSI, or CS pump	June 15, 2009
EDC-2010-00398	Update to Drawing 01-P-CHF-142	May 17, 2010
EDC-2010-00761	Remove un-used vent valve 3PRCEV061 in containment	October 13, 2010

ENGINEERING DESIGN CHANGES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
EDC-2010-00762	Remove un-used vent valve 3PRCEV063	October 14, 2010
EDC-2010-00766	RC DBM changes in support of DMWO 3479906	October 14, 2010
EDC-99-00050	FOR VALVE 2JCHBHVO530: Update Document to reflect Strain Gage (QSS) installation on valve stem	September 14, 2000
EDC-99-00051	FOR VALVE 2JSIAHVO685: Update Document to reflect Strain Gage (QSS) installation on valve stem	August 3, 2000
EDC-99-00053	FORVALVE2JSIEWVO689: Update Document to reflect Strain Gage (QSS) installation on valve stem	May, 25, 2000
EDC-99-00054	FOR VALVE 2JSIBHVO693: Update Document to reflect Strain Gage (QSS) installation on valve stem	May 25, 2000
EDC-99-00055	FOR VALVE 2JSIBHVO695: Update Document to reflect Strain Gage (QSS) installation on valve stem	October 20, 2000
EDC-99-00061	FOR VALVE 2JCPBW003A: Update Document to reflect Strain Gage (QSS) installation on valve stem	August 22, 2000
EDC-99-00062	FOR. VALVE 2JCPBUV0003B: Update Document to reflect Strain Gage (QSS) installation on valve stem	December 13, 2000

50.59 EVALUATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
E-07-0025	The calculation was revised to evaluate the effects of material and other changes needed to mitigate erosion/corrosion of system piping	0

50.59 EVALUATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
E-07-0026	The modification replaces the obsolete Woodward Diesel Generator Engine electronics governor package with the most current and more reliable model 2301A Woodward governor package as recommended by Woodward	4
E-08-0005	The proposed change is to replace the following solenoid operated valves with motor operated valves in Units 1, 2, 3: JSGAUV0134A, S/G #1 Steam Supply to AFA-P01 Bypass Valve and JSGAUV0138A, S/G #2 Steam Supply to AFA-P01 Bypass Valve	3
E-08-0012	Engineering best-estimate analysis that supports revising the LOCA and functional recovery Emergency Operating Procedures with respect to Containment Spray termination	0
E-09-0004	Impact on the Reactor Coolant System and connected NSSS systems of a Use-As-Is Disposition for leaving degraded Reactor Coolant Pump (RCP) diffuser wedge assemblies in-place for Unit-3 RCP 1A	0
E-09-0005	Replace the damaged NEMA 4 cast iron junction box with a NEMA 12 sheet metal junction box for EDG 3A	0
E-09-0007	Install a Simplified Head Assembly (SHA) that is designed to reduce the time, associated dose, and number of polar crane picks for the disassembly and reassembly of the reactor vessel closure head (RVCH) as well as to increase personnel safety. The SHA replaces the current head lift skirt and results in changes to the current Reactor Head Vent piping, cooling ductwork, head lift rig, and the missile shield. Revision 4 is prepared to address a manufacturing deviation for the Unit 3 Reactor Head Vent System	4

50.59 EVALUATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
E-09-0008	Palo Verde Units 1, 2 and 3 will install a Replacement Reactor Vessel Closure Head (RRVCH) to include a new reactor head (including Inconel 690 nozzles and reactor head vent nozzle extension), new CEDM housings, new CEDMs, new reactor head insulation and new Reactor Vessel Level Monitoring System housings. Insulation and lifting lugs are redesigned to accommodate a Simplified Head Assembly being installed concurrently with the RRVCHs under DMWO 3095435. Additional details are provided under the screening introduction section provided below. Revision 5 is prepared to address Revision 3 to DMWO 2992340 which addresses minor changes to the RVHV piping	5
E-10-0002	A new location of the Loss of Condenser Vacuum analysis of record (LOCV-TA) superseding Westinghouse Electric Company calculation A-PV2-FE-0160 [SDOC MN725-A-00201] and changing the bounding analysis in the UFSAR [LDCR 2009-F080]	0
E-10-0003	Charging system hydraulic analysis	1
E-10-0005	Replace the degraded oil impingement cleaner (OIC) for the Unit 2 auxiliary building normal air handling unit (2MHANA01A) with dry filter media. Revision 001 to 10 CFR 50.59 Evaluation E-10-0005 corrects the DFWO number for the document under review. The correct DFWO number is DFWO 3463793	1
E-10-0011	Installation of a pneumatic cross-tie between the service air and the instrument air systems inside the containment building	0

50.59 SCREENS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
S-08-0259	Modification 2391184 separates the circuit that actuates the Low Total Dissolved Solids (TDS) 2 nd pump and the alarm circuit for the Low TDS Hi-Hi Level alarm from a common shared relay switch	0

50.59 SCREENS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
S-08-0347	40OP-9IA01 Revision 38 Instrument Air System. Allow the performance of the hand lift "pop" test of the IA receiver relief valves with or without the associated IA receiver's compressor running	1
S-08-0369	Change motor operated valves 1,2,3JSGAUV0134 S/G #1 Steam Supply to Aux Feed Pump AFA-P01 and 1,2,3JSGAUV0138 S/G #2 Steam Supply to Aux Feed Pump AFA-P01 from Torque-seated to Limit Switch-seated, and change the valve stem nut from a 4G to a 2G fit. Revision 1 of this Screening issued to include clarifications to the introduction, Question 1 and Question 5 based on PVAR 3272169	1
S-09-0012	Replace the "C" phase Unit 2 main transformer, 2EMANX01C, with a refurbished Westinghouse transformer	0
S-09-0068	Maximum recirculation flow rates when aligning either of the HPSI, LPSI, or CS pumps on the maximum recirculation flow path from and to the Refueling Water Tank. These calculation changes will support subsequent revision to Procedure 40OP-9CH12, which provides instruction for the maximum recirculation line up	0
S-09-0079	Revision of Uncertainty Calculation 13-JC-DF-0202 relating to Diesel Fuel Oil Storage Tank (DFOST) level measurements. This work results from revision of source calculation 13-MC-DF-0306 to Rev. 8. This Screening also covers changes to related procedures and calibration tasks / Work Scope Libraries affected by this revision of 13-JC-DF-0202	0
S-09-0118	Maximum recirculation flow rates when aligning either of the HPSI, LPSI, or CS pumps on the maximum recirculation flow path from and to the Refueling Water Tank. These calculation changes will provide the hydraulic basis for subsequent revision to operating and surveillance procedures that describe the maximum recirculation line up	0

50.59 SCREENS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
S-09-0143	The calculation (Rev. 9) is being revised (1) to correct minor errors in two tables from Revision 8 of the calculation, (2) to make minor administrative changes to the calculation and to add clarifying notes to enhance the reader understanding, (3) to incorporate a higher ground temperature from a more representative reference, (4) incorporate day tank allocation from EDC-2008-00830 to preclude vortex formation, (5) redefine the historical Design Criteria Manual and UFSAR section 9.5.4 15% allowance of the tank volume for testing requirement to the more representative ANSI N195-1976 requirement	0
S-09-0144	VDP 17347 incorporates three vendor documents into the PVNGS Nuclear Information Records Management System (NIRM)	0
S-09-0149	Maximum allowable amount of steam leakage into the Auxiliary Feed Water Turbine Driven Pump Rooms to raise the room temperature to 150 degrees F during a Station Blackout Event	0
S-09-0218	Procedure 73ST-9RC02, Rev. 7 and Vendor Data Package (VDP) A17398	0
S-09-0220	The proposed activity will install a thermal relief valve manifold assembly on the Main Steam Isolation Valve Actuators, DCIDs 3JSGEUV0170/171/180/181**VALVOP and the Main Feedwater Isolation Valve Actuators, Design Component Identifications 13JSGA/BUV0132/137/174/177 VALVOP to improve the reliability of maintaining actuator/accumulator hydraulic pressure between 5,000 to 5,400 psig. In addition, the new thermal relief valve manifold assembly will supply Operations with an optional method for bleeding the hydraulic fluid from the accumulators back to the hydraulic reservoir to reduce the pressure to within the specified operating range when ambient weather conditions cause the accumulator pressure to rise above the vendor recommended limit of 5,400 psig	0
S-09-0225	70DP-0DG02, Rev. 3 – Emergency Diesel Generator Reliability Guidelines (cancellation of procedure)	0

50.59 SCREENS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
S-09-0294	Changing lubricity from a Diagnostic Parameter to a Control Parameter for the EDGST and SBOG	0
S-09-0306	The proposed activity, PCP 3397353, provides update to the SWMS (CPXCOMP) Characteristics screen to reflect instrument calibration data (setpoint and require accuracy) for several time delay relays associated with the Station Blackout (SBO) Generators backup control system	0
S-09-0332	Replace carbon steel piping/fittings which have experienced severe wall thinning with stainless steel equivalents during U3R15	2
S-09-0332	Replace carbon steel piping/fittings which have experienced severe wall thinning with stainless steel equivalents during U3R15. Portions of the following NQR lines in the Extraction Steam and Drain (ED) System are being replaced: 3PEDNL003 (20 in.), 3PEDNL004 (18 in.), 3PEDNL157 (16 in.), 3PEDNL218 (16 in.), 3PEDNL447 (10 in.), and 3PEDNL473 (8 in.)	2
S-09-0332	Replace carbon steel piping/fittings which have experienced severe wall thinning with stainless steel equivalents during U3R15. Portions of the following NQR lines in the Extraction Steam and Drain (ED) System are being replaced: 3PEDNL003 (20 in.), 3PEDNL004 (18 in.), 3PEDNL157 (16 in.), 3PEDNL218 (16 in.), 3PEDNL447 (10 in.), and 3PEDNL473 (8 in.)	2
S-10-0017	This modification will replace the four obsolete Containment Building Relative Humidity sensors and associated transmitters in each of the three Units	0
S-10-0062	Modification Project ID #CH-642 proposed activity installs a vendor supplied valve kit on Motor Operated Valve (MOV), Design Component Identifications JCHBHV0255 and JCHAHV0524 to convert the valves from a rising, rotating stem design; to a rising, non-rotating stem design	0
S-10-0074	Removed Auxiliary Steam System From Service by changing the sequence when ASN-V088 is closed isolating the Main Condenser earlier in the shutdown sequence	1

50.59 SCREENS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
S-10-0137	This 50.59 Revision 02 supports Broke-Fix Mod DMWO 3479906 Revision 00 authorizes the removal of two valves 1,2,3PRCEV061 and 2,3PRCEV063 and the associated downstream piping and blind flange; and the subsequent capping the inlet stub with a class 1 pipe cap (at each location)	2
S-10-0171	Modification Project ID #CH-642 proposed activity installs a vendor supplied valve kit on Motor Operated Valve (MOV), Design Component Identifications JCHBHV0255 and JCHAHV0524 to convert the valves from a rising, rotating stem design; to a rising, non-rotating stem design	0
S-10-0229	Starting and aligning a Station Blackout Generator (SBOG) to a unit in a refueling outage for providing electrical power to the Fuel Pool Cooling (PC) pump "B"	1
S-10-0248	Correct Diesel Fuel Oil Transfer Pump Stresses and Deflections Comparison of Calculated and Allowable Values to match vendor stress report	0
S-10-0275	Correct a non-conservative calculation error in Calculation 13-CC-ZY-0201 "Evaluation for Cranes in the Vicinity of Category – I Structures" revision 0, for the allowable load drop analysis for the roof of the Category I Structures of the Auxiliary Building, the Control Building, the Fuel Building and the MSSS	0

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Engineering Product Review Board Monthly Report – November 2009	0
	Engineering Product Review Board Monthly Report – October 2009	0
	Engineering Product Review Board Monthly Report – August 2009	0

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Engineering Product Review Board Monthly Report – February 2009 & March 2009	0
	Engineering Product Review Board Monthly Report – June 2008	0
	Engineering Product Review Board Monthly Report – April 2008	0
	Engineering Product Review Board Meeting Agenda	January 27, 2010
	Engineering Product Review Board Meeting Agenda	December 10, 2010
01-J-ZZI-0004	Controlled Motor Operated Data Base	30
02-J-ZZI-0004	Controlled Motor Operated Data Base	24
03-J-ZZI-0004	Controlled Motor Operated Data Base	29
13-P-ZZG-0012	Piping Material Classification	36
3368294	10 CFR 50.59 Program Self Assessment Report	1
ACT 3219055	Perform Impact Review to identify any Impacts per DMWO 2391184	October 17, 2008
ACT 3219185	Perform Impact Review to identify any Impacts per DMWO 2391184	October 10, 2008
Audit 2009-007	Design Control	July 17, 2009
DBM-RC	Reactor Coolant System	27
DF-DG-PE	Diesel Generator, Class 1E Standby Generation, Fuel Oil Storage and Transfer System	22
LDCR 2009-F022	This LDCR provides a description of exceptions taken to Regulatory Guide 1.155, Station Blackout	May 22, 2009

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
PCP 3397353	PCP Lube Report	November 05, 2009
PV-12Q-301	Technical Basis for Excusing the Counting of Certain Plant	1
SIR04049	Transient and Fatigue Monitoring System Review for the Palo Verde Nuclear Generating Station, Units 1, 2, and 3	2
SIR06515	Cycle Counting and Cycle-Based Fatigue Methodology Report for the Palo Verde Nuclear Generating Station for Units 1, 2, and 3	2
VTD-I075-00007	INGERSOLL-RAND Install, Operation and Maintenance Instruction for 4X11 CA-8 High Pressure Safety Injection Pumps	6
VTD-I075-00009	INGERSOLL-RAND Installation, Operation and Maintenance Instructions for 8X20WDF Low Pressure Safety Injection Pumps	4
VTD-I075-00012	INGERSOLL-RAND Installation, Operation and Maintenance for 8X23WDF Containment Spray Pumps	5
VTD-I075-00070	INGERSOLL-RAND Installation, Operation and Maintenance Instructions for 4X11 CA-8 High Pressure Safety Injection Pumps (with Modified Thrust Bearing)	4

Section 1R19: Postmaintenance Testing

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
73DP-9ZZ26	MOV Testing With Quiklook	1
73DP-9XI01	Pump and Valve Inservice Testing Program- Component Tables	24
73ST-9XI34	AFA-P01 Steam Supply Valves - Inservice Test	7
73ST-9AF04	AFA-P01 Full Flow – Inservice Test	13

40ST-9DG02	Diesel Generator B Test	44
40OP-9DG02	Diesel Generator B	62
73ST-9XI20	ADVs – Inservice Test	28
39MT-9SG01	Calibrate the Atmospheric Dump Valve (ADV) SGB-HV-0178	1
40ST-9SI07	High Pressure Safety Injection System Alignment Verification	15
40DP-9OP29	Power Block Permit and Tagging	42
40DP-9OP38	Operations Technical Documents	12
73ST-DG02	Class 1E Diesel Generator and Integrated Safeguards Test	22
32MT-9PE01	Cleaning, Inspection, and Testing of the Class 1E Diesel Generator	25
32MT-9ZZ74	Molded Case Circuit Breaker Test	34

PALO VERDE ACTION REQUESTS

3586445	3586736	3587332	3587402	3514606	3516364	3585690
3587164	3588715	3585009	3588814	3514606	3610252	3624127
3620552	3610292	3584289	3584760			

CONDITION REPORTS / DISPOSITION REQUESTS

3571997	3621333
---------	---------

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
02-J-AFE-0057	Instrument Loop Wiring Diagram Auxiliary Feedwater System	5
02-J-ZZI-004	Controlled Motor Operated Data Base	24

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
02-E-SGF-0001	Control Wiring Diagram Main Steam System Steam Gen 1 to Aux FDW Pump A Steam Supply Valve 2J-SGA-UV-134 and Valve 2J-SGA-UV-134A	10
02-M-SGP-0001	P & I Diagram Main Steam System	71
02-E-SGB-0001	Elementary Diagram Main Steam System Steam Gen 1 to Aux FDW Pump A Steam Supply Valve 2J-SGA-UV-134 and 2J-SGA-UV-134A	16
01-M-SIP-001	P & I Diagram Safety Injection & Shutdown Cooling System	48
01-M-SIP-002	P & I Diagram Safety Injection & Shutdown Cooling System	37
HPSI A D-003	PVNGS Unit 1 HPSI A Discharge INS ON	0
E-14273-311-012	Safety Injection System HPSI Pump Discharge Unit 1 – Train A	01

WORK ORDER

3546659	3460724	3586804	3586418	3586421	3585101	3371730
3529241	3370648	3750458	3610292	3618433	3610572	3617012
960574	260059	769052	811441	3513015	3584799	3513015

TECHNICAL DOCUMENTS

37222

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
13-EN-0306	Installation Specification for Cable Splicing and Terminations	11
13-PN-0220	Specification for Installation of Valve Stem Packing	16

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Scheduler's Risk Evaluation for PV Unit 2 for January 24-29, 2011	
	Work week schedule for PV Unit 2 for January 24-29, 2011	
	Engineering Evaluation, "Gas Voids Identified in HPSI Discharge Piping Following Maintenance on 1PSIAV046	
	Ultrasonic Thickness Examination Report 10-1119	December 17, 2011
	CRDR 3571997 Apparent Cause Evaluation (ACE) Report, Voids in Unit 1 HPSI "A" Discharge Piping	0
	Unit 2 Emergency Diesel Generator Troubleshooting Game Plan	February 23, 2011
	Test Procedure, Instantaneous Pre-Position Modules	May 18, 1994
	Troubleshooting Game Plan, EDG 2B Not at Rated Voltage	3

Section 1R22: Surveillance Testing

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
73ST-9AF03	AFB-P01 Recirc Flow – Inservice Test	22
73ST-9SI10	HPSI Pumps Miniflow – Inservice Test	45
73ST-9XI16	Economizer FWIVs – Inservice Test	31
73ST-9SI11	Low Pressure Safety Injection Pumps Miniflow-Inservice Test	26
40DP-9OP02	Conduct of Shift Operations	53
73ST-9ZZ18	Main Steam and Pressurizer Safety Valve Set Pressure Verification	24
02DP-0ZZ02	PVNGS Site Tagging Standard	8

40ST-9SI07 High Pressure Safety Injection System Alignment Verification 15

PALO VERDE ACTION REQUESTS

3583652

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
01-M-AFP-001	P & I Diagram Auxiliary-Feedwater System	37
01-M-CTP-001	P & I Diagram Condensate Storage and Transfer	22
01-M-SIP-001	P & I Diagram Safety Injection & Shutdown Cooling System	48
01-M-SIP-002	P & I Diagram Safety Injection & Shutdown Cooling System	37
01-M-SGP-001	P & I Diagram Main Steam System	64

WORK ORDER

3356661 3359323 3426805 3371559 3359283 3359334 3359334

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Unit 2 Standing Order, Compensatory Action for PVAR 3284044	August 29, 2009
	Furmanite America, Calibration Department, Certificate of Calibration, Digital Ring Gauge	August 20, 2010
	Furmanite America, Calibration Department, Certificate of Calibration, Load Cell	April 23, 2009
	Calibration Check Report	February 7, 2011
	Trevitest Valve Certificates	February 7-8, 2011
	Ultrasonic Thickness Examination Report 11-004	January 4, 2011

Section 1EP6: Drill Evaluation

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
40EP-9EO04	Steam Generator Tube Rupture	25

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	PV Guide, Feb 2011 IPX Rehearsal Exercise 11-E-SFE-03001	

Section 2RS02: Occupational ALARA Planning and Controls

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
75RP-9RP07	Radiological Surveys and Air Sampling	20
75RP-9OP02	Control of High Radiation Areas, Locked High Radiation Areas and Very High Radiation Areas	25
75DP-9RP01	Radiation Exposure and Access Control	17

RADIATION EXPOSURE PERMITS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
3-1433	Prepare Old Reactor Vessel Closure Head (ORVCH) Interfaces/Commodities and Materials for Removal	
3-1434	Prepare Old Reactor Vessel Closure Head (ORVCH) for Long Term Storage	
3-1435	Prep and Move Replacement Reactor Vessel Closure Head (RRVCH)	
3-1439	Move the Old Reactor Vessel Closure Head Out of Containment and Transport to ORVCHSF	

Section 2RS06: Radioactive Gaseous and Liquid Effluent Treatment

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
74CH-9ZZ66	Determination of Primary-To-Secondary Leak Rate	21
74DP-9CY08	Radiological Monitoring Program	22
74OP-9SS01	Primary Sampling Instructions	35
74RM-9EF20	Gaseous Radioactive Release Permits and Offsite Dose Assessment	15
74RM-9EF23	Secondary System Liquid Discharge	14
74RM-9EF42	Radiation Monitor Alarm Setpoint Determination	25
74RM-9EF60	RMS Sample Collection	27
74ST-9SQ16	RU-145 and RU-146 Quarterly Functional Test Procedure	10
74ST-9SQ26	Radiation Monitoring Calibration Test for RU-143	13
33ST-9HJ02	Surveillance Testing of the Control Room Nuclear Air Treatment System	16
33TI-9HA01	Nuclear Air Treatment System Testing – Auxiliary Building	4
40OP-9CH02	Purification System	30
43OP-3CH02	Purification System	2

CONDITION REPORTS / DISPOSITION REQUESTS

3566337	3563863	3548234	3468503	3518568	3442578	3436961
3420420	3409770	3402485	3381471	3363000	3554716	3327701
3429865	3457777	3322939	3306336	3314848	3293599	

10 CFR 50.75(g) CONDITION REPORTS

3327187 3338069 3390054 3395866 3442148 3449508 3474762
3523280

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
2010-008	Radiation Protection Audit Report	September 30, 2010
302-02882-CPS	NAD Bi-Monthly Department Report (Radiation Protection)	November 10, 2010
302-02850-CPS	NAD Bi-Monthly Department Report (Radiation Protection)	September 16, 2010
302-02723	Nuclear Assurance Fourth Quarter/Annual Report	February 10, 2010
QTR10-003	Radiation Protection Mid-Cycle Quarterly Rollup Report	May 18, 2010

RELEASE PERMITS

20102151 20103046 20103047 20103048 20103050 20103121 20113001
20113002 20113003

IN-PLACE FILTER TESTING

<u>SYSTEM</u>	<u>TEST</u>	<u>DATE</u>
Fuel and Auxiliary Building Essential Air System – Train A	Surveillance Testing for the Auxiliary/Fuel Building Nuclear Air Treatment System	January 09, 2008
Auxiliary Building Normal Exhaust	Nuclear Air Treatment System Testing per 33TI-9HA01	March 11, 2009
Fuel and Auxiliary Building Essential Air System – Train B	Surveillance Testing for the Auxiliary/Fuel Building Nuclear Air Treatment System	May 20, 2010
Control Room Essential Air System – Train A	Surveillance Testing of Nuclear Air Treatment System	July 26, 2010

IN-PLACE FILTER TESTING

<u>SYSTEM</u>	<u>TEST</u>	<u>DATE</u>
Containment Building Purge Air Filtering Unit	Carbon Analysis per 33TI-9CP02	August 20, 2010
Auxiliary Building Normal Exhaust	Carbon Analysis per 33TI-9HA02	January 03, 2011

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Annual Radioactive Effluent Release Report	2008
	Annual Radioactive Effluent Release Report	2009
	Radiation Monitor Operability Log Units 1, 2, and 3	2009 – 2010

Section 2RS07: Radiological Environmental Monitoring Program

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
74DP-9CY08	Radiological Monitoring Program	22
74RM-0EN02	Radiological Environmental Air Sampling	19
74RM-0EN03	Radiological Environmental Sampling	28
74RM-0EN09	Quarterly Radiological Environmental Sample Analysis Verification	11
74RM-0EN10	Weekly Radiological Environmental Sample Collection Verification	16

CONDITION REPORTS / DISPOSITION REQUESTS

3307735 3309449 332686 3336850 3364722 3450674 3514730

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
2010-008	Radiation Protection	September 30, 2010

CALIBRATION AND MAINTENANCE RECORDS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
03348002	Redundant Meteorological System	May 26, 2010
03348014	Primary Meteorological System	May 28, 2010
03349371	Redundant Meteorological System	December 01, 2010
03349373	Primary Meteorological System	December 02, 2010
EG7057	Mass Flow Meter	2008-2010

Section 2RS08: Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
15TD-0TT01	Radiation Protection Training Guide	6
75DC-9SF01	Radiation Protection Requirements for Dry Cask Storage	4
75RP-9RP28	Radioactive Process Filter Management	2
76RP-0RW05	Packaging and Classification of Radioactive Material	3
76RP-0RW06	Packaging of Radioactive Material	2
76RP-0RW07	Shipping Radioactive Material	9
76RP-0RW79	CD-600 System Operations	5
90DP-01P10	Condition Reporting	48

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
2010-008	Nuclear Assurance Department Radiation Protection Audit	August 2010

CONDITION REPORTS / DISPOSITION REQUESTS

2431813 3319685 3319686 3322686 3329069 3343903 3520626

RADIOACTIVE MATERIAL SHIPMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
09-RW-011	Sealands of DAW	September 30, 2009
09-SH-003	Box of Equipment	January 29, 2009
09-SH-044	Drums of Resin Samples	July 29, 2009
10-RW-025	Sealands of DAW	June 21, 2010
10-SH-020	Sealands of DAW	August 21, 2010
10-SH-035	Pu-239 Source	September 01, 2010
10-SH-092	Good Samaritan Hospital	December 15, 2010
10-SH-093	Estrella Banner Hospital	December 15, 2010
10-SH-094	Goodyear Airport	December 22, 2010

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	2008 Annual Radioactive Effluent Release Report	
	2009 Annual Radioactive Effluent Release Report	

Section 40A2: Identification and Resolution of Problems

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
90DP-0IP10	Condition Reporting	47
01PR-0AP04	Corrective Action Program	5
01DP-0AP12	Palo Verde Action Request Processing	14
01DP-0AP16	PVNGS Self-Assessment and Benchmarking	7
60DP-0QQ02	Trend Analysis and Coding	22
60DP-0QQ20	Offsite Safety Review Committee (OSRC)	6
01DP-0AC09	Site Integrated Improvement Plan (SIIP)	0
73DP-0AP05	Engineering Programs Management and Health Reporting	9
93DP-0LC05	Regulatory Interaction and Correspondence Control	17
30DP-0RA01	Component Failure Trending	10
88DP-4EQ04	Equipment Qualification Impact Assessment	11
81DP-0DC14	Design Basis Manual Control	6
73TD-0ZZ03	System Engineering Handbook	15

PALO VERDE ACTION REQUESTS

3581625 351659 3581662 3581822 3582694 3582723 3582731
3582787

CONDITION REPORTS / DISPOSITION REQUESTS

3014822

CONDITION REPORTS ACTION ITEM

3456708 3581652 3581659 3581662 3581822 3582694 3582723
3582731 3582787 3022280 3075737

SIBP/SIIP CLOSURE DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
1.2.E.22	Palo Verde Nuclear Generating Station (PVNGS) SIBP/SIIP Action/Task Closure Document	Nov 23, 2010
3.4.7.j	Palo Verde Nuclear Generating Station (PVNGS) SIBP/SIIP Action/Task Closure Document	Dec 16, 2010
11.6.13	Palo Verde Nuclear Generating Station (PVNGS) SIBP/SIIP Action/Task Closure Document	Jan 04, 2011
3.7.5.ii	Palo Verde Nuclear Generating Station (PVNGS) SIBP/SIIP Action/Task Closure Document	Oct 26, 2010
6.5.2.k	Palo Verde Nuclear Generating Station (PVNGS) SIBP/SIIP Action/Task Closure Document	Mar 25, 2010
2.1.D.5.g	Palo Verde Nuclear Generating Station (PVNGS) SIBP/SIIP Action/Task Closure Document	Mar 12, 2010

SELF-ASSESSMENTS

3457600	3161971	3456708	3496143	3424561	3456721	3456581
3456855	3426662	3425398				

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
10-001	Offsite Safety Review Committee Meeting Minutes	January 28, 2010
10-002	Offsite Safety Review Committee Meeting Minutes	May 20, 2010
PG 1301-01	Palo Verde Human Performance Policy Guide	20

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
PG 1304-01	PVNGS Performance Management Policy Guide	8
PG 1304-02	Integrated Performance Assessment (IPA)	1
PG 1306-01	PVNGS Change Management	6

Section 40A3: Event Follow-Up

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
40EP-9EO01	Standard Post Trip Actions	17
31MT-9ZZ19	Tube Plugging of Secondary System Heat Transfer	29
40AO-9ZZ10	Condenser Tube Rupture	20
93DP-0LC05	Regulatory Interaction and Correspondence Control	17

PALO VERDE ACTION REQUESTS

3583915 3582590 3580739 3673473

CONDITION REPORTS / DISPOSITION REQUESTS

3444792 3581575 3387859

WORK ORDER

3384533

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	CRDR 3444792 Significant Root Cause Investigation Report, Unit One Calvert Bus 1ENANA03 Bus Failure and Reactor Trip	1
	Event Notification System Report ENS 45748	March 7, 2010
	Licensee Event Report (LER) 05000528/2010-001-00, Automatic Reactor Trip Due to a Loss of a Non-Class 13.8 kV (Calvert) Bus	May 6, 2010
P&I Diagram 03- M-FWP-001	Feedwater System	13

Section 40A5: Other Activities

71007 – Head Replacement Inspection Documents Reviewed

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
PS-PGN-103	General Intermediate and Final Post Weld Heat Treatment Procedure for Replacement Reactor Vessel Closure Head and Control Element Drive Mechanism	2
DS-ECT-01	Eddy Current Imaging Procedure for Inspection of RVH Penetrations	4
DS-UT-01	Ultrasonic Acquisition Procedure for RVH Penetrations	5
PP-NDE-013	NDE Program Plan Palo Verde Replacement RV Closure Head & CEDM Unit 1, 2, &3	3
PP-NDE-014	Replacement Reactor Vessel Head PSI Plan	2
QM-200	Quality Assurance Manual for ASME III and KEPIC-MN & SN Construction and Material Organization Applications	13
PS-N05065V1	Visual and Dimensional Inspection Procedure	0
EPPP0301	Procedure for Liquid Penetrant Examination	0

EPAV1102	Visual (VT-1, VT-3) Examination Procedure for Palo Verde #1/2/3 RRVCH	0
PS-PGN-101	General Welding Procedure for Replacement Reactor Vessel Closure Head and Control Element Drive Mechanism	1

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
10034E13	Palo Verde Units 1, 2, and 3 SHA Lower Shroud	4
10034E51	Palo Verde Units 1, 2, and 3 SHA Upper Shroud	5
10034E52	Palo Verde Units 1, 2, and 3 SHA Upper Shroud	4
10035E48	Palo Verde Units 1, 2, and 3 SHA Reactor Vessel Head Vent Assembly	3
10036E42	Palo Verde Units 1, 2, and 3 SHA Reactor Vessel Head Vent Design Isometric	4
10036E66	Palo Verde Units 1, 2, and 3 SHA Head Vent Line Assembly	4

NONCONFORMANCE REPORTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
MN741-A00076	Palo Verde 1, 2, 3 RVH/CEDM: N050651-13201M01-W00001 / Welding Manufacturing	0
MN741-A00073	Palo Verde 1, 2, 3 RVH/CEDM: N050651-13201M01-A001A / Upper Pressure Housing Assy.	0
MN741-A00069	Non-Conformance Report for CEDM Upper Pressure Housing	0
MN740-A00142	Non-Conformance Report for RVH CLS Head and Lug Assembly # 1-J	0
MN740-A00155	Palo Verde 1, 2, 3 RVH/CEDM: N050651-11101M03-0301B / Closure Head Final Assembly	0

CERTIFIED MATERIAL TEST REPORTS

POSCO SS- 59003/0 07-026	56101/0	58810/0	59531/0	157957	56156/0
62156/0	62151/0	62539/0	62888/0	62894/0	SMP-026- 080-0901-01 SMP-026- 081-0901-01
CN 2008080003	55655/0	246336	COF 0608008	CC-SY06- 081901	CN 2006090002 255157D
NQC-08- 012	NQC-08-017				

CALCULATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
PV-111CN-900	Palo Verde RRVCH ASME Section XI Code Reconciliation Methodology	2
PV-132CN-011	Palo Verde Units 1, 2, and 3 RCEDM ASME Section XI Code Reconciliation Methodology	1
CN-MRCDA-08-71	Palo Verde Nuclear Generating Station Units 1, 2, and 3 Reactor Vessel Gas Vent System (RVGVS) Piping Analysis for the Simplified Head Assembly (SHA)	6

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
13-MN-740	Technical Specification for Replacement Reactor Vessel Heads for Palo Verde Nuclear Generating Station Units-1, 2, and 3	1
13-MN-741	Technical Specification for Control Element Drive Mechanisms for Palo Verde Nuclear Generating Station Units-1, 2, and 3	1
AHTR-RRVCH-01	Accumulated Heat Treatment Time Record	May 18, 2009
PWHT-08-050	Heat Treatment Record	June 10, 2008
PWHT-07-093	Heat Treatment Record	October 15, 2007

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
DAR-MRCDA-07-8	Palo Verde Nuclear Generating Station Units, 1, 2, and 3 RVLMS	3
PV-111AR-001	Design Report for Palo Verde Units 1, 2, & 3 Replacement Reactor Vessels Closure Head	2
PV-132AR-001	Design Report for Palo Verde Nuclear Power Plant Units 1, 2, and 3 Control Element Drive Mechanism	1
DS-ME-06-3	Design Specification Replacement Reactor Vessel Closure Head	5
A-A-0308-139	Welding Procedure Specification	December 27, 2006
QA-A-0308-132	Procedure Qualification Record	April 18, 2005
A-A-0308-140	Welding Procedure Specification	December 27, 2006
QA-A-0308-009	Procedure Qualification Record	December 15, 1988
A-A-0308-141	Welding Procedure Specification	January 17, 2007
QA-A-0308-037	Procedure Qualification Record	June 22, 1998
A-F-0308-113	Welding Procedure Specification	October 31, 2006
QA-F-0308-012	Procedure Qualification Record	April 20, 2005
A-T-0308-121	Welding Procedure Specification	October 31, 2006
QA-T-0308-022	Procedure Qualification Record	April 19, 2005
DOOSAN IPS 201111	Palo Verde RRVCH/CEDM	January 11, 2010
DOOSAN IPS 100202	Palo Verde RRVCH/CEDM	February 2, 2010
	Replacement Reactor Vessel Head & Control Element Drive Mechanism for Palo Verde Units 1, 2, and 3 Monthly Progress Report	March 2010

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
TRV 100422772 (#1)	Palo Verde #1/2/3 RRVCH(Unit #1) Head Cladding Traveler	
E100415-TUBE- 01	Report of Eddy Current Examination Palo Verde #1 RRVCH	May 16, 2010
E100415-ROOF- 01	Report of Eddy Current Examination Palo Verde #1 RRVCH	May 16, 2010
U100417-01	Report of Ultrasonic Examination Palo Verde #1 RRVCH	May 18, 2010
U100512-022- 001	Report of Ultrasonic Examination Palo Verde #1 RRVCH	May 13, 2010
P090706-055- 001	Report of Liquid Penetrant Examination Palo Verde #1 RVH	July 7, 2009
P090714-034- 001	Report of Liquid Penetrant Examination Palo Verde #1 RVH	July 15, 2009
P100415-013- 001	Report of Liquid Penetrant Examination Palo Verde #1 RVH	April 17, 2010
U0080902-005- 001	Report of Ultrasonic Examination Palo Verde #1 RVH	September 4, 2008
R071025-016- 001	Report of Radiographic Examination Palo Verde #1 RVH	October 30, 2007
M081021-035- 001	Report of Magnetic Particle Examination Palo Verde #1 RVH	October 22, 2008
V100520-001- 001	Report of Visual Examination Palo Verde #1 RVH	May 21, 2010
A-DHI1-06-001	Arizona Public Service Co. Audit Report No. A-DHI1-06-01	February 17, 2006
A-DHI1-08-12	Arizona Public Service Co. Audit Report No. A-DHI1-08-12	December 24, 2008
IW-08-07-042	Chemical Analysis Report – Palo Verde 1 RRVH	August 7, 2008
IW-09-09-118	Chemical Analysis Report – Palo Verde #1 RRVH	September 30, 2009
E-09-0008	Reactor Vessel Head Replacement 50.59 Screening and Evaluation	0

Section 40A7: Licensee-Identified Violations

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
40ST-9SI07	High Pressure Safety Injection System Alignment Verification	15
40DP-9OP29	Power Block Permit and Tagging	42
40DP-9OP38	Operations Technical Documents	12

PALO VERDE ACTION REQUESTS

3514606

CONDITION REPORTS / DISPOSITION REQUESTS

3571997

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
01-M-SIP-001	P & I Diagram Safety Injection & Shutdown Cooling System	48
01-M-SIP-002	P & I Diagram Safety Injection & Shutdown Cooling System	37
HPSI A D-003	PVNGS Unit 1 HPSI A Discharge INS ON	0
E-14273-311-012	Safety Injection System HPSI Pump Discharge Unit 1 – Train A	01

WORK ORDER

3529241 3370648 3750458

TECHNICAL DOCUMENTS

37222

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Engineering Evaluation, "Gas Voids Identified in HPSI Discharge Piping Following Maintenance on 1PSIAV046 Ultrasonic Thickness Examination Report 10-1119	December 17, 2010
	CRDR 3571997 Apparent Cause Evaluation (ACE) Report, Voids in Unit 1 HPSI "A" Discharge Piping	0