



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BLVD
ARLINGTON, TEXAS 76011-4511

February 7, 2013

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 05000528/2012005, 05000529/2012005, AND
05000530/2012005

Dear Mr. Edington:

On December 31, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Palo Verde Nuclear Regulatory Commission Units 1, 2, and 3. The enclosed inspection report documents the inspection results which were discussed on January 11, 2013, with Mr. D. Mims 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.

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

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

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

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

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's Agencywide Document Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Don Allen, Branch Chief
Project Branch E
Division of Reactor Projects

Docket Nos.: 50-528, 50-529, 50-530
License Nos: NPF-41, NPF-51, NPF-74

Enclosure: Inspection Report 05000528/2012005, 05000529/2012005, and 05000530/2012005
w/ Attachment: Supplemental Information & Copy of Request for Information for
Occupational Radiation Safety: ALARA & Access Control (IP 71124.02) and
Occupational Dose Assessment (IP71124.04) Inspections at PVNGS from November 26-
30, 2012, Inspection Report 05000530/2012005

cc w/ encl: Electronic Distribution

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 50-528, 50-529, 50-530
License: NPF-41, NPF-51, NPF-74
Report: 05000528/2012005, 05000529/2012005, 05000530/2012005
Licensee: Arizona Public Service Company
Facility: Palo Verde Nuclear Generating Station, Units 1, 2, and 3
Location: 5951 South Wintersburg Road
Tonopah, Arizona
Dates: October 1 through December 31, 2012

Inspectors:

M. Brown, Senior Resident Inspector
M. Baquera, Resident Inspector
D. Reinert, Resident Inspector
I. Anchondo, Reactor Inspector
L. Carson, Senior Health Physicist
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M. Young, Reactor Inspector
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D. You, Project Engineer
N. Hernandez, Operations Engineer
B. Larson, Senior Operations Engineer
S. Garchow, Senior Operations Engineer

Approved By: Don Allen, Chief, Project Branch E
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000528, 529, 530/2012005; 10/01/2012 – 12/31/2012; Palo Verde Nuclear Generating Station, Integrated Resident and Regional Report; Fire Prot., ISI Activities, Lic. Oper. Requal, Op. Evals., Ident. & Res. of Probs.

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

A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green non-cited violation of License Conditions 2.C.7, 2.C.6, and 2.F for Palo Verde Units 1, 2, and 3 for the licensee's failure to identify and correct a condition adverse to fire protection. Specifically, on November 19, 2012, inspectors questioned operations personnel and identified that operators did not know the locations of sound powered telephone equipment, were unfamiliar with their use, and unfamiliar with procedural guidance for their use. This is a communications device used for post-fire safe shutdown credited in the fire protection program and emergency plan. The lack of familiarity with location and use of these communication devices would have adversely affected operations personnel response to an emergency. The licensee completed a self-assessment of emergency preparedness communication on October 31, 2012, and did not identify these weaknesses. The licensee immediately issued a night order and informed operations personnel of the location of the sound powered phones and procedural guidance. The licensee entered this issue into the licensee's corrective action program as Palo Verde Action Request 4294407.

The failure to identify and correct a condition adverse to fire protection was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it adversely affected the human performance attribute of the Mitigating Systems Cornerstone and its objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the significance of the issue under the Significance Determination Process, as defined in Inspection Manual Chapter 0609.04, "Initial Characterization of Findings," and Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process." The finding was determined to be a low degradation of

the post-fire safe shutdown program element and screens to Green using Step 1.3.1. The inspectors determined this finding has a crosscutting aspect in the area of problem identification and resolution associated with the self and independent assessments component because the licensee failed to conduct a self-assessment of sufficient depth, that was comprehensive and self-critical, which failed to recognize that operator knowledge was lacking for the use of some communication device [P.3(a)] (Section 1R05).

- Green. The inspectors identified a non-cited violation of 10 CFR 55.49, "Integrity of Examinations and Tests," for the failure of the licensee to ensure the integrity of the licensed operator biennial written examinations. During the 2012 biennial written examination cycle, the exams were administered in a simulator environment that lacked positive controls to ensure that operators could not observe the reference material or examinations of other operators. Operators were allowed to review engineering schematics while standing at a table which allowed an angle to observe the computer screen and desk of another examinee approximately 5 feet away. Having the ability to view exam reference material being displayed on the computer screen during exam administration is considered an exam integrity compromise. However, an evaluation of the written exam results and interviews with the licensed operators signed in on an exam security agreement showed that the compromise did not have an actual effect on the equitable and consistent administration of the examination. The licensee entered the finding into the corrective action program as Action Request PVAR-4238204.

The failure of the licensee's training staff to maintain the integrity of examinations administered to licensed operations personnel was a performance deficiency. The performance deficiency was more than minor because it adversely affected the Human Performance attribute of the Mitigating Systems Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Additionally, if left uncorrected, the performance deficiency could have become more significant in that allowing licensed operators to return to the control room without valid demonstration of appropriate knowledge on the biennial written examinations could be a precursor to a more significant event. Using NRC Inspection Manual Chapter 0609, "Significance Determination Process," Attachment 4, Table 1 and 2 worksheets; and the corresponding Appendix I, "Licensed Operator Requalification Significance Determination Process," the finding was determined to have very low safety significance (Green). Although the 2012 finding resulted in a compromise of the integrity of biennial written examinations, compensatory actions were immediately taken, and the equitable and consistent administration of the biennial written examination was not actually affected by this compromise. This finding has a cross-cutting aspect in the area of human performance associated with the work control component because the licensee failed to adequately plan work activities that incorporated job site conditions, including environmental conditions [H.3(a)] (Section 1R11).

- Green. The inspectors identified a Green non-cited violation of Palo Verde Unit 1 License Condition 2.C.7 for the failure of plant personnel to follow station procedures to classify and evaluate a condition adverse to quality. Specifically, after identifying movement of the corridor building as a result of ground saturation from a domestic service water line break, the licensee failed to classify the issue as a condition adverse to quality and perform a functional assessment of the corridor building. The licensee entered the issue into the corrective action program as Condition Report Disposition Request 4301801. To restore compliance, the licensee classified the Unit 1 corridor building movement as a Condition Adverse to Quality and performed a functional assessment, concluding the building was functional. The licensee is evaluating further corrective actions associated with this issue.

The inspectors concluded that the failure of plant personnel to classify the Unit 1 corridor building movement as a condition adverse to quality and perform a functional assessment was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it affected the protection against external factors attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the significance of the issue under the Significance Determination Process, as defined in Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," and concluded the finding was of very low safety significance (Green) because it is assigned a low degradation rating because no significant degradation of the fire protection features of the corridor building occurred. The inspectors determined this finding has a crosscutting aspect in the area of human performance associated with the work practices component because the licensee failed to ensure supervisory and management oversight of work activities, such that nuclear safety is supported [H.4(c)] (Section 1R15).

Cornerstone: Barrier Integrity

- Green. Inspectors identified a non-cited violation of 10 CFR 50.55a(g)(4) involving the licensee's failure to perform a system pressure test of the reactor vessel flange leak off-line of Units 1, 2, and 3 in accordance with the applicable edition of Section XI of the ASME Code. Contrary to the above, prior to October 10, 2012, the licensee failed to perform the required pressure test of the reactor vessel flange seal leak-off line for all three units. Specifically, the licensee failed to implement the ASME Code, Section XI, Class 2 requirements for pressure retaining components as provided by Article IWC-5220, "System Leakage Test." The licensee entered the finding into their corrective action program as Palo Verde Action Request 4269674.

The inspectors determined that the licensee's failure to perform a pressure test of the reactor vessel flange leak-off line was a performance deficiency. The performance deficiency was more than minor because it is associated with the

Barrier Integrity Cornerstone attribute of systems, structures and components and barrier performance, and adversely affects the cornerstone objective to provide a reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Using Manual Chapter 0609, Attachment A, "The Significant Determination Process (SDP) for Findings At-Power," the finding was determined to be of very low safety significance (Green) because the finding did not result in exceeding the reactor coolant system leak rate for a small loss-of-coolant accident, and did not affect other systems used to mitigate a loss-of-coolant accident resulting in a total loss of their function. This issue did not have a cross-cutting aspect associated with it because it is not indicative of current performance (Section 1R08).

- Green. The inspectors identified a Green non-cited violation of 10 CFR Part 50 Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure of operations and engineering personnel to follow station procedures to perform operability determinations and functional assessments. Specifically, plant personnel did not maintain appropriate controls to ensure that the heat load and temperature limits established in the functional assessment for the spent fuel pools were monitored. This issue is captured in Palo Verde Action Request 4251108. To restore compliance, the licensee issued a technical specification component condition record to prohibit entry into Mode 4 following a refueling outage, until decay heat load in the spent fuel pool is verified to be less than the more restrictive limit established in the functional assessment.

The failure to follow Procedure 40DP-9OP26 for performing functional assessments is a performance deficiency. This performance deficiency was more than minor because it is associated with the Barrier Integrity Cornerstone attribute of design control and it adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accident or events. Using Inspection Manual Chapter 0609.04, "Initial Characterization of Findings," and Manual Chapter 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," the inspectors determined that the finding had very low safety significance (Green) because the finding was confirmed not to adversely affect decay heat removal capabilities from the spent fuel pool causing the pool temperature to exceed the maximum analyzed temperature limit specified in the site-specific licensing basis. The inspectors determined that the finding had a cross-cutting aspect in the area of human performance associated with decision making. Specifically, Palo Verde did not communicate the procedural limits established in the spent fuel pool functional assessment to appropriate operations personnel [H.1(c)] (Section 1R15).

Cornerstone: Emergency Preparedness

- Green. A self revealing Green non-cited violation of 10 CFR 50.47(b)(8) was identified for the failure to maintain adequate facilities to support emergency response. Specifically, the licensee found the technical support center battery

disconnect switch had not been restored following maintenance activities. This configuration would have rendered the diesel generator unable to start automatically as designed in the event of a loss of off-site power. The licensee initiated immediate corrective actions to restore the technical support center diesel generator to a functional configuration and has begun implementation of a more formal process for component configuration verification of critical technical support center equipment. The licensee has entered this issue into their corrective action program as Palo Verde Action Request 4165625.

The failure to follow Procedure 40OP-9NG01 for performing a functional test of 480V switchgear following maintenance activities is a performance deficiency. This performance deficiency was more than minor because it is associated with the Emergency Preparedness Cornerstone attribute of facilities and equipment and it adversely affected the cornerstone objective to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The inspectors evaluated the significance of the issue under the Significance Determination Process, as defined in Inspection Manual Chapter 0609.04, "Initial Characterization of Findings," and Manual Chapter 0609, Appendix B, "Emergency Preparedness Significance Determination Process." The finding was determined to be of very low safety significance (Green) because the degraded planning standard function did not result in the loss of technical support center functionality for longer than 7 days. The inspectors determined that the finding had a cross-cutting aspect in the area of human performance associated with resources. Specifically, the licensee's work control procedures did not include critical technical support center systems to ensure that technical support center configuration control was maintained commensurate with its significance [H.2(c)] (Section 40A2).

B. Licensee-Identified Violations

Violations of very low safety significance or severity level IV that were identified by the licensee have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and associated corrective action tracking numbers are listed in Section 40A7 of this report.

REPORT DETAILS

Summary of Plant Status

Unit 1 operated at essentially full power during the inspection period.

Unit 2 operated at essentially full power until September 15, 2012, when the unit began a planned reduction in power in preparation for refueling outage 2R17. The unit shut down and entered the refueling outage on October 6, 2012. Following the refueling outage, the unit returned to essentially full power on November 15, 2012, and remained there for the remainder of the inspection period.

Unit 3 operated at essentially full power until October 24, 2012, when the unit shut down for a short notice outage to repair a degraded charging system valve inside containment. Following the outage, the unit returned to essentially full power on November 4, 2012, and remained there for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R04 Equipment Alignment (71111.04)

.1 Partial Walkdown

a. Inspection Scope

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

- October 31, 2012, Unit 3, auxiliary feedwater, train A
- November 7, 2012, Unit 1, high pressure safety injection, train B
- November 13, 2012, Unit 3, essential cooling water, 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, Updated Final Safety Analysis Report (UFSAR), technical specification requirements, administrative technical specifications, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also inspected accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events

or impact the capability of mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings were identified.

.2 Complete Walkdown

a. Inspection Scope

On October 16, 2012, the inspectors performed a complete system alignment inspection of the Unit 2 spent fuel pool cooling and cleanup system to verify the functional capability of the system. The inspectors selected this system because it was considered both safety significant and risk significant in the licensee's probabilistic risk assessment. The inspectors inspected the system to review mechanical and electrical equipment line ups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. The inspectors reviewed a sample of past and outstanding work orders to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the corrective action program database to ensure that system equipment-alignment problems were being identified and appropriately resolved. Specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

Quarterly Fire Inspection Tours

a. Inspection Scope

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

- October 9, 2012, Unit 2, containment building, all elevations

- October 16, 2012, Unit 2, fuel building, all elevations
- November 1, 2012, Unit 2, main steam support structure, all elevations
- November 8, 2012, Unit 1, diesel generator rooms, 100', 115' and 131' elevation
- November 20, 2012, Unit 1, 2 and 3, control building, 100' and 140' 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 five quarterly fire-protection inspection samples as defined in Inspection Procedure 71111.05-05.

b. Findings

Failure to Identify and Correct a Condition Adverse to Fire Protection

Introduction. The inspectors identified a Green non-cited violation of License Conditions 2.C.7, 2.C.6, and 2.F for Palo Verde Units 1, 2, and 3 for the licensee's failure to identify and correct a condition adverse to fire protection. Specifically, on November 19, 2012, inspectors questioned operations personnel and identified that operators did not know the locations of sound powered telephone equipment, were unfamiliar with their operation, and unfamiliar with procedural guidance for their use. This is a communications device used for post-fire safe shutdown credited in the fire protection program and emergency plan.

Description. On November 19 through November 20, 2012, inspectors interviewed several licensed operators assessing the implementation and use of communication devices credited in emergencies. Through the interactions, inspectors determined that operations personnel did not have familiarity with the location, operation, and procedural guidance associated with sound powered phones. Sound powered phones are a communications device credited in the UFSAR to be used and available in event of a fire (i.e. fire in the control room) and a station blackout. Inspectors reviewed procedural guidance and training given to operations personnel. Inspectors determined that

licensed operators do not receive training on the use or location of sound powered phones. Training provided to non-licensed operators is limited in scope; training did not discuss the reason or need for sound powered phones nor did it include the location of the headsets or require any actual use of the system. Emergency and fire drills did not use the sound powered phone system to ensure licensee personnel's proficiency in utilizing the system if required. Procedures utilized by operations personnel for manual actions to take in the event of a fire, and blackout emergencies, do not reference sound powered phones. Procedure 40OP-9QF01 "In-Plant Communication Systems," Revision 24, contains information on how to operate the sound powered phone system, but does not give a location of the handsets needed to use the system, nor states when use of this communication system is required. A formal self-assessment completed in October 31, 2012, reviewed emergency preparedness communications at Palo Verde. As a part of the assessment, the licensee evaluated the training that personnel receive on the location and use of communications systems. The licensee determined that the training provided was adequate for identifying the location and use of sound powered phones. Inspectors determined that this was an opportunity where the licensee failed to identify the lack of knowledge of operations personnel to effectively use sound powered phones, a condition adverse to fire protection.

Analysis. The inspectors concluded that the failure to identify and correct a condition adverse to fire protection was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it adversely affected the human performance attribute of the Mitigating Systems Cornerstone and its objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the significance of the issue under the Significance Determination Process, as defined in Inspection Manual Chapter 0609.04, "Initial Characterization of Findings," and Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process." The finding was determined to be a low degradation of the post-fire safe shutdown program element because redundant communications devices were available and screens to green using step 1.3.1. The inspectors determined this finding has a crosscutting aspect in the area of problem identification and resolution associated with the self and independent assessments component because the licensee failed to conduct a self-assessment of sufficient depth, that was comprehensive and self-critical which failed to recognize that operator knowledge was lacking for the use of some communication device [P.3(a)].

Enforcement. Arizona Public Service's Palo Verde Nuclear Generating Station Licensee Conditions 2.C.7, 2.C.6, and 2.F for Units 1, 2, and 3 respectively, state, in part, that Arizona Public Service (APS) Company shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report for the facility, as supplemented and amended, and as approved in the SER through Supplement 11. The Final Safety Analysis Report, Revision 16, Section 17.2F.1.3.2.9, states in part, that conditions adverse to fire protection, such as failures, malfunctions, deficiencies, deviations, defective components uncontrolled combustible material and nonconformances are promptly identified, reported, and corrected. Contrary to the above, on October 31, 2012, the licensee failed to promptly identify and correct a condition adverse to fire protection. Specifically, on November 19, 2012, inspectors questioned operations personnel and identified that operators did not know the locations

of sound powered telephone equipment, were unfamiliar with their use, and unfamiliar with procedure guidance for their use. This is a communication device used for post-fire safe shutdown credited in the fire protection program and emergency plan. The lack of familiarity with location and use of these communication devices would have adversely affected operations personnel response to an emergency. The licensee had completed a self-assessment of emergency preparedness communication on October 31, 2012, and did not identify these weaknesses. The licensee immediately issued a night order informing operations personnel of the location of the sound powered phones and procedural guidance. Because this finding is of very low safety significance and has been entered into the licensee's corrective action program as Palo Verde Action Request 4294407, this violation is being treated as a non-cited violation in accordance with Section 2.3.2 of the Enforcement Policy: NCV 05000528;529;530/2012005-01, "Failure to Identify a Condition Adverse to Fire Protection."

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.

- October 11, 2012, Unit 2, emergency diesel generator train B fuel oil storage vault
- October 15, 2012, Unit 2, spray pond system train B piping vault
- December 4, 2012, Unit 1, control building 74' elevation

These activities constitute completion of one flood protection measures inspection samples and two bunker/manhole samples as defined in Inspection Procedure 71111.06-05.

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors reviewed licensee programs, verified performance against industry standards, and reviewed critical operating parameters and maintenance records for the essential cooling water heat exchanger, train B. The inspectors verified that performance tests were satisfactorily conducted for heat exchangers/heat sinks and reviewed for problems or errors; the licensee utilized the periodic maintenance method outlined in EPRI Report NP 7552, "Heat Exchanger Performance Monitoring Guidelines"; the licensee properly utilized biofouling controls; the licensee's heat exchanger inspections adequately assessed the state of cleanliness of their tubes; and the heat exchanger was correctly categorized under 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one heat sink inspection sample as defined in Inspection Procedure 71111.07-05.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08)

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

a. Inspection Scope

The inspectors observed three nondestructive examination activities and reviewed eight nondestructive examination activities that included four types of examination. The inspectors also reviewed eight examinations with relevant indications that had been accepted by licensee personnel for continued service.

The inspectors directly observed the following nondestructive examinations:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Low Pressure Safety Injection	2PSIAL070 (4262191-1)	Radiographic
Pressurizer	Pressurizer Manway Bolts (5-21)	Visual (VT-1)

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Pressurizer	Cold Leg 1B Drain Line DM Weld (10-18)	Ultrasonic Phased Array

The inspectors reviewed records for the following nondestructive examinations:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Steam Generator	Steam Generator number 1 (41-109)	Magnetic
Shutdown Cooling	Shutdown Cooling Loop 2 (22-6, 22-7, 22-31, 22-17)	Penetrant
Pressurizer	Cold Leg 1A Drain Line DM Weld (8-18)	Ultrasonic Phased Array
Pressurizer	Cold Leg 1A Spray Line DM Weld (9-11)	Ultrasonic Phased Array
Pressurizer	Cold Leg 1B Spray Line DM Weld (11-11)	Ultrasonic Phased Array
Pressurizer	Cold Leg 2A Drain Line DM Weld (12-18)	Ultrasonic Phased Array
Pressurizer	Cold Leg 2B Drain Line DM Weld (14-18)	Ultrasonic Phased Array
Pressurizer	Cold Leg 2A Charging Line DM Weld (13-11)	Ultrasonic Phased Array

During the review and observation of each examination, the inspectors verified that activities were performed in accordance with the ASME Code requirements and applicable procedures. The inspector reviewed indications that were previously examined and verified that licensee personnel dispositioned the indications in accordance with the ASME Code and approved procedures. The inspectors also verified the qualifications of all nondestructive examination technicians performing the inspections were current.

The inspectors reviewed records for the following welding activities:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>WELD TYPE</u>
Low Pressure Safety Injection	4262191-1	Gas Tungsten Arc Welding

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

These actions constitute completion of the requirements of Section 02.01.

b. Findings

Introduction. Inspectors identified a Green non-cited violation of 10 CFR 50.55a(g)(4) involving the licensee's failure to perform a system pressure test of the reactor vessel flange leak-off line of Units 1, 2, and 3 in accordance with the applicable edition of Section XI of the ASME Code.

Description. During a review of the licensee's inservice inspection program, the inspectors noted that the reactor vessel flange seal leak-off line for each of the three units was classified as an ASME Class 2 component. The inspectors identified, through further review and discussion, that the licensee had not performed the required system leakage test of the seal leak-off lines in all three units as described by the applicable sections of the 2001 Edition through 2003 Addenda of the ASME Code. Specifically, the licensee implemented a methodology that looked for leakage and credited a walkdown of the accessible piping sections of each line during Mode 3 conditions, and had invoked a different ASME Code requirement to satisfy those applicable to ASME Class 2 pressure retaining components.

Article IWC-5000, "System Pressure Tests," of Section XI of the 2001 Edition, 2003 Addenda of the ASME Code requires that all pressure retaining components be pressure tested via a system leakage test per IWC-5220, "System Leakage Test." The licensee implemented the examination described in summary number X-RC-01, "RCS Piping Refueling Outage," of their pressure testing program basis document, which is designed to satisfy the requirements of IWA-5243, "Components with Leakage Collection Systems," in lieu of a system leakage test per IWC-5221. The licensee is required to comply with the requirements imposed by Section XI of the ASME Code, or request exemption from particular requirements via a relief request. At the time of the inspection, the licensee planned to invoke ASME Code Case N-805 through a relief request to restore compliance with regulatory requirements.

Analysis. The inspectors determined that the licensee's failure to perform a pressure test of the reactor vessel flange leak-off line was a performance deficiency. The

performance deficiency was more than minor because it is associated with the Barrier Integrity Cornerstone attribute of systems, structures and components and barrier performance, and adversely affects the cornerstone objective to provide a reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Using Manual Chapter 0609, Attachment A, "The Significant Determination Process (SDP) for Findings At-Power," the finding was determined to be of very low safety significance (Green) because the finding did not result in exceeding the RCS leak rate for a small loss-of-coolant accident, and did not affect other systems used to mitigate a loss-of-coolant accident resulting in a total loss of their function. This issue did not have a cross-cutting aspect associated with it because it is not indicative of current performance.

Enforcement. Title 10 CFR 50.55a(g)(4) requires that components classified as ASME Code Class 1, Class 2, and Class 3 meet the requirements set forth in Section XI of the applicable editions of the ASME Boiler and Pressure Vessel Code and Addenda. Title 10 CFR 50.55(a)(g)(4)(ii) requires that inservice examination of components be conducted during successive 120-month inspection intervals and comply with the requirements of the latest edition and addenda of the Code applicable to the specific interval. ASME Code Section XI, Article IWC-5221, requires, for Class 2 pressure retaining components, a system leakage test be performed at the system pressure obtained while the system, or portion of the system, is in service performing its normal operating function. Contrary to the above, prior to October 10, 2012, the licensee failed to perform the required pressure test on the reactor vessel flange seal leak-off line for each of the three units. Because this finding is of very low safety significance and has been entered into the corrective action program as Palo Verde Action Request 4269674, this violation is being treated as a non-cited violation consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000528; 529; 530/2012005-02, "Failure to Perform Pressure Testing of the Reactor Vessel Flange Leak-Off Lines."

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

a. Inspection Scope

There were no inspections during refueling outage 2R17. The next visual inspection is scheduled for 2R18 in spring of 2014. The next volumetric inspection is scheduled for 2R21 in fall of 2018.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors evaluated the implementation of the licensee's boric acid corrosion control program for monitoring degradation of those systems that could be adversely affected by boric acid corrosion. The inspectors reviewed the documentation associated

with the licensee's boric acid corrosion control walkdown as specified in Procedure 73DP-9ZC01, "Boric Acid Corrosion Control Program," Revision 4, and Procedure 70TI-9ZC01, "Boric Acid Walkdown Leak Detection," Revision 14. The inspectors also reviewed the visual records of the components and equipment. The inspectors verified that the visual inspections emphasized locations where boric acid leaks could cause degradation of safety-significant components. The inspectors also verified that the engineering evaluations for those components where boric acid was identified gave assurance that the ASME Code wall thickness limits were properly maintained. The inspectors confirmed that the corrective actions performed for evidence of boric acid leaks were consistent with requirements of the ASME Code. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements of Section 02.03.

b. Findings

No findings were identified.

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

a. Inspection Scope

There were no inspections during refueling outage 2R17. The next steam generator inspections are scheduled for 2R18 in the spring of 2014.

b. Findings

No findings were identified.

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

a. Inspection scope

The inspectors reviewed 17 condition reports which dealt with inservice inspection activities and found the corrective actions for inservice inspection issues were appropriate. The specific condition reports reviewed are listed in the documents reviewed section. From this review the inspectors concluded that the licensee has an appropriate threshold for entering inservice inspection issues into the corrective action program and has procedures that direct a root cause evaluation when necessary. The licensee also has an effective program for applying industry inservice inspection operating experience. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements of Section 02.05.

b. Findings

No findings were identified.

Completion of Sections .1 through .5 constitutes completion of one sample as defined in Inspection Procedure 71111.08-05.

1R11 Licensed Operator Requalification Program and Licensed Operator Performance (71111.11)

.1 Quarterly Review of Licensed Operator Requalification Program

a. Inspection Scope

On November 27, 2012, the inspector observed a crew of licensed operators in the plant's simulator during requalification testing. The inspectors assessed the following areas:

- Licensed operator performance
- The modeling and performance of the control room simulator
- The quality of post-scenario critiques

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

b. Findings

No findings were identified.

.2 Quarterly Observation of Licensed Operator Performance

a. Inspection Scope

On October 6, 2012, the inspectors observed the performance of on-shift licensed operators in the plant's main control room. At the time of the observations, the plant was in a period of heightened activity due to a planned shutdown in preparation for the refueling outage. The inspectors observed the operators' performance of the following activities:

- October 6, 2012, Unit 2 reactor shutdown in preparation for the refueling outage

In addition, the inspectors assessed the operators' adherence to plant procedures, including 40DP-9OP02, Conduct of Shift Operations, and other operations department policies.

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

b. Findings

No findings were identified.

.3 Biennial Inspection

a. Inspection Scope

To assess the performance effectiveness of the licensed operator requalification program, the inspectors conducted personnel interviews, reviewed both the operating tests and written examinations, and observed ongoing operating test activities.

The inspectors reviewed operator performance on the written exams and operating tests. These reviews included observations of portions of the operating tests by the inspectors. The operating tests observed included 9 job performance measures and 5 scenarios that were used in the current biennial requalification cycle. These observations allowed the inspectors to assess the licensee's effectiveness in conducting the operating test to ensure operator mastery of the training program content. The inspectors also reviewed medical records of 16 licensed operators for conformance to license conditions.

The results of these examinations were reviewed to determine the effectiveness of the licensee's appraisal of operator performance and to determine if feedback of performance analyses into the requalification training program was being accomplished. The inspectors interviewed members of the training department and reviewed minutes of training review group meetings to assess the responsiveness of the licensed operator requalification program to incorporate the lessons learned from both plant and industry events. Examination results were also assessed to determine if they were consistent with the guidance contained in NUREG 1021, "Operator Licensing Examination Standards for Power Reactors", Revision 9, Supplement 1, and NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process."

In addition to the above, the inspectors reviewed examination security measures, simulator fidelity and existing logs of simulator deficiencies.

On November 14, 2012, the licensee informed the lead inspectors of the results of the written examinations and operating tests for the Licensed Operator Requalification Program. The inspectors compared these results to NRC Inspection Manual Chapter 0609, Appendix I, "Licensed Operator Requalification Significance Determination Process," values and determined that there were no findings based on these results and because all of the individuals that failed the applicable portions of their examinations and/or operating tests were remediated, retested, and passed their retake exams prior to returning to shift.

The inspectors completed one inspection sample of the biennial licensed operator requalification program.

b. Findings

.1 Failure to Maintain Licensed Operator Examination Integrity

Introduction. The NRC inspectors identified a Green non-cited violation of 10 CFR 55.49, "Integrity of Examinations and Tests," for the failure to ensure the integrity of biennial written examinations. During the 2012 biennial written examination cycle, the exams were administered in a simulator environment that lacked positive controls to ensure that operators could not observe the reference material or examinations of other operators. Operators were allowed to review engineering schematics while standing at a table which allowed an angle to observe the computer screen and desk of another examinee approximately 5 feet away. Having the ability to view exam reference material being displayed on the computer screen during exam administration is considered an exam integrity compromise. However, an evaluation of the written exam results and interviews with the licensed operators signed in on an exam security agreement showed that the compromise did not have an actual effect on the equitable and consistent administration of the examination.

Description. The licensee administers the required biennial written examinations in the plant referenced simulator. There was a proctor inside the simulator and two other instructors inside the simulator's control booth.

On August 30, 2012, the inspectors observed an operator reviewing an engineering drawing at a table near the control booth of the simulator. This table was turned approximately 45 degrees so that it was facing another operator who was seated at a nearby desk with a computer. The position of the standing operator gave him a clear view of the seated operator's computer screen, which was displaying reference material for the same examination. The proctor indicated that some operators chose to review engineering drawings at this table versus returning to their assigned seat with the drawing.

The inspectors questioned the licensee staff about the vantage point of operators who chose to stand behind the table, facing the computer and desk of another examinee. Licensee staff immediately placed additional examination guidelines in place, including operators are not allowed to move freely around the simulator, proctors will bring the reference material and engineering drawings to the examinees, and that this table is not allowed to be used as a place for the exam to be taken. The licensee entered this issue in their corrective action program in PVAR-4238204.

The licensee evaluated the conduct of the biennial written examinations from 2010 and 2012, to determine its effect on the equitable and consistent administration of the examination. This evaluation was submitted to the NRC on September 10, 2012. The scope of the evaluation included review of exam security agreements signed by the licensed operators during exam administration, interviews with the proctors, and a review of exam performance to see if there was a noticeable increase in satisfactory performance in the written exam. Based on this review, there was no indication that the

ability to see another operator's computer screen and desk had an actual effect on the results of the 2010 or 2012 biennial written examinations.

Analysis. The failure of the licensee's training staff to maintain the integrity of examinations administered to licensed operations personnel was a performance deficiency. The failure also constitutes a violation of 10 CFR 55.49. Because the equitable and consistent administration of the examination was not actually affected, this performance deficiency was not screened through traditional enforcement in accordance with Inspection Procedure 71111.11, Appendix E. The Significance Determination Process (SDP) was used to evaluate this performance deficiency.

The performance deficiency was more than minor, and therefore a finding, because it adversely affected the Human Performance attribute of the Mitigating Systems Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Additionally, if left uncorrected, the performance deficiency could have become more significant in that allowing licensed operators to return to the control room without valid demonstration of appropriate knowledge on the biennial written examinations could be a precursor to a more significant event. Using NRC Inspection Manual Chapter 0609, "Significance Determination Process," Attachment 4, Table 1 and 2 worksheets (issue date June 19, 2012); and the corresponding Appendix I, "Licensed Operator Requalification Significance Determination Process (SDP)" Flowchart Block #11 (issue date December 6, 2011), the finding was determined to have very low safety significance (Green). Although the 2012 finding resulted in a compromise of the integrity of biennial written examinations, compensatory actions were immediately taken when the compromise was discovered and the equitable and consistent administration of the biennial written examination was not actually affected by this compromise.

This finding has a cross-cutting aspect in the area of human performance associated with the work control component because the licensee failed to adequately plan work activities that incorporated job site conditions, including environmental conditions. The analysis provided by the licensee indicated that there are no indications or evidence that the equitable and consistent administration of the examination was actually affected. During initial discussions with the licensee, it was stated that since NUREG 1021 guideline of 3 feet between examinees was met, the vantage point from this table to the computer screen in question was acceptable. The licensee now understands that NUREG 1021 guidance delineates minimum requirements, but other factors, such as the use of vertical computer screens, the orientation of the operators relative to one another, and height differences gained from standing as opposed to sitting must be taken into account when determining if the examination environment is acceptable [H.3(a)].

Enforcement. Title 10 CFR 55.49, "Integrity of Examinations," requires, in part, that facility licensees shall not engage in any activity that compromises the integrity of any application, test or examination. The integrity of a test or examination is considered compromised if any activity, regardless of intent, affected or, but for detection, would have affected the equitable and consistent administration of the test or examination. This includes activities related to the preparation, administration, and grading of tests

and examinations. Contrary to the above, during the 2010 and 2012 biennial written examinations, the licensee engaged in an activity that compromised the integrity of a test required by 10 CFR Part 55. Specifically, training personnel administered the biennial written examination to licensed operators without adequate examinee controls in place to control positions of the operators during the exam to ensure that the equitable and consistent administration of the examination was maintained. Administering the biennial written examination in this manner is considered a compromise of the integrity of the test in that it is a practice that, but for detection, would affect the equitable and consistent administration of the examinations.

The inspectors determined that the compromise of the 2012 biennial written examination did not result in an actual effect on the equitable and consistent administration of the examination. Because this finding is of very low safety significance and has been entered into the licensee's corrective action program to address recurrence as Action Request PVAR-4238204, this violation is being treated as a non-cited violation consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000528; 529; 530/2012005-03; "Failure to Maintain Licensed Operator Examination Integrity."

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

- October 19, 2012, Units 1, 2, and 3, spent fuel pool cooling and cleanup system
- November, 12, 2012, Unit 2 high pressure safety injection system

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

- Implementing appropriate work practices
- Identifying and addressing common cause failures
- Scoping of systems in accordance with 10 CFR 50.65(b)
- Characterizing system reliability issues for performance
- Charging unavailability for performance
- Trending key parameters for condition monitoring

- Ensuring proper classification in accordance with 10 CFR 50.65(a)(1) or -(a)(2)
- Verifying appropriate performance criteria for structures, systems, and components classified as having an adequate demonstration of performance through preventive maintenance, as described in 10 CFR 50.65(a)(2), or as requiring the establishment of appropriate and adequate goals and corrective actions for systems classified as not having adequate performance, as described in 10 CFR 50.65(a)(1)

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

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

b. Findings

No findings were identified.

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

a. Inspection Scope

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

- October 9, 2012, Unit 2, refueling outage 2R17
- October 24, 2012, Unit 3, short notice outage (SNO)
- November 8, 2012, Unit 3, essential cooling water heat exchanger A leak
- December 18, 2012, Unit 1, Surveillance Requirement SR 3.0.3 entry and risk assessment for missed surveillance testing required by SR 3.3.6.2

The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that licensee personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When licensee personnel performed emergent work, the inspectors verified that the licensee personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk

analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met. Specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings were identified.

1R15 Operability Evaluations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed the following assessments:

- October 12, 2012, Units 1, 2, and 3, loss of spent fuel pool cooling functionality assessment
- October 30, 2012, Unit 1, corridor building movement due to domestic service water system leak
- November 26, 2012, Unit 3, pressurizer relief valve leakage and reactor coolant gas vent system leakage
- December 7, 2012, Units 1, 2, and 3, inadequate flood barrier associated with auxiliary building smoke removal system exhaust duct

The inspectors selected these operability and functionality assessments based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure technical specification operability was properly justified and to verify 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'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. Additionally, the inspectors 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 four operability evaluations inspection samples as defined in Inspection Procedure 71111.15-05.

b. Findings

.1 Inadequate Tracking of Functional Assessment for Spent Fuel Pool Heat Load

Introduction. The inspectors identified a Green non-cited violation of 10 CFR Part 50 Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure of operations and engineering personnel to follow station procedures to perform operability determinations and functional assessments. Specifically, plant personnel did not maintain appropriate controls to ensure that the heat load and temperature limits established in the functional assessment for the spent fuel pools were monitored.

Description. On September 20, 2012, the licensee's engineering staff identified a nonconforming condition involving the spent fuel pool transfer canal gate seals. The gate seals are designed as non-quality related components. For a postulated accident scenario involving a seismic event with a loss of offsite power, the non-quality related gate seals would be assumed to fail, and a portion of the water inventory will be drained from the spent fuel pool. Following the loss of offsite power and normal spent fuel pool cooling, the spent fuel pool bulk temperature will rise until the essential cooling water system can be aligned to provide emergency cooling to the spent fuel pool. However, the water inventory loss due to the non-quality related transfer canal gate seal will result in a faster rate of heat up than the licensee had previously analyzed. This condition could cause the maximum spent fuel pool bulk temperature to exceed the limits defined by the structural and environmental design of the fuel building.

The licensee performed a functional assessment to verify that the spent fuel pool cooling system would continue to maintain the pool bulk temperature below the analyzed limits. During normal operation, the licensee administratively controls the maximum decay heat load that is allowed to be present in the pool, and maintains the pool temperature below an administrative limit to ensure that the pool bulk temperature limit will not be exceeded under accident conditions. To account for the water inventory assumed lost through the transfer canal gate seal; the licensee placed a more restrictive administrative limit on the allowable heat load in the pool during normal conditions. The licensee examined the actual heat load present on September 20, 2012, in the spent fuel pools in each unit and concluded that the spent fuel pool cooling system remained functional because the actual decay heat loads were well below the new, lower limit.

Procedure 40OP-9OP26, "Operations PVAR Processing and Operability Determination/Functional Assessment," Revision 33, Step 3.2.12 required that if a functional assessment contains specific conditions of limitations for which the assessment remains valid, the shift manager shall ensure that the appropriate controls are in place to ensure monitoring of the limitations. Unit 2 concluded a scheduled refueling and maintenance outage in early November 2012. The inspectors questioned whether the conditions of the functional assessment continued to be met, since the Unit 2 spent fuel pool now contained additional, freshly offloaded spent fuel. Normally, during reactor restart activities, a check of the decay heat load is performed by the reactor

engineering department prior to transitioning from Mode 5 to Mode 4. This check was performed, but the lower administrative limit evaluated in the September 20, 2012 functional assessment was not incorporated into the mode change checklist. The licensee had also not put into place any other controls to ensure that the heat load limit established by the functional assessment remained valid. Consequently, the licensee exceeded the conditions established by their functional assessment when Unit 2 entered Mode 4 on November 1, 2012. If an accident had occurred, Unit 2 would have been in a configuration that was not bounded by the licensee's accident analysis. When the inspectors identified that the licensee's functional assessment was no longer valid, the licensee re-evaluated the spent fuel pool heat up analysis. The licensee placed a lower, more restrictive, limit on the spent fuel pool bulk temperature. However, both the spent fuel pool temperature alarm setpoint and the area operator log sheets were nonconservative with respect to this new temperature limit. Thus, an increase in spent fuel pool temperature beyond the specific limits established in the functional assessment could go undetected. This issue is captured in Palo Verde Action Request 4251108. The licensee has subsequently issued a technical specification component condition record to prohibit entry into Mode 4 following a refueling outage until decay heat load in the spent fuel pool is verified to be less than the more restrictive limit established in the functional assessment.

Analysis. The failure to follow Procedure 40DP-9OP26 for performing functional assessments is a performance deficiency. This performance deficiency was more than minor because it is associated with the Barrier Integrity Cornerstone attribute of design control and it adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accident or events. Using Inspection Manual Chapter 0609.04, "Initial Characterization of Findings," and Manual Chapter 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," the inspectors determined that the finding had very low safety significance (Green) because the finding was confirmed not to adversely affect decay heat removal capabilities from the spent fuel pool causing the pool temperature to exceed the maximum analyzed temperature limit specified in the site-specific licensing basis. The inspectors determined that the finding had a cross-cutting aspect in the area of human performance associated with decision making. Specifically, Palo Verde did not communicate the procedural limits established in the spent fuel pool functional assessment to appropriate operations personnel [H.1(c)].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings" requires in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. 40DP-9OP26, "Operations PVAR Processing and Operability Determination/Functional Assessment," required that if an operability determination or functional assessment contains specific conditions or limitations for which the functional assessment remains valid, the shift manager that ensure the appropriate controls are in place to ensure monitoring of the limitations. Contrary to the above, between September 20, 2012 and November 2, 2012, the licensee failed to perform a functional assessment in accordance with documented procedures. Specifically, the licensee did

not maintain appropriate controls to ensure that the decay heat load and temperature limits established in the functional assessment for the spent fuel pools were monitored. The licensee has subsequently issued a technical specification component condition record to prohibit entry into Mode 4 following a refueling outage until decay heat load in the spent fuel pool is verified to be less than the more restrictive limit established in the functional assessment. Because this finding was determined to be of very low safety significance and was entered into the licensee's corrective action program as Palo Verde Action Request 4251108, this violation is being treated as a non-cited violation consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000528; 529; 530 /2012005-04, "Inadequate Tracking of Functional Assessment for Spent Fuel Pool Heat Load".

.2 Failure to Classify and Evaluate a Condition Adverse to Quality

Introduction. The inspectors identified a Green non-cited violation of Palo Verde Unit 1 License Condition 2.C.7 for the failure of plant personnel to follow station procedures to classify and evaluate a condition adverse to quality. Specifically, after identifying movement of the corridor building as a result of ground saturation from a domestic service water line break, the licensee failed to classify the issue as a condition adverse to quality and perform a functional assessment of the corridor building.

Description. On October 29, 2012, plant personnel in Unit 1 identified that a missile barrier door between the control building and corridor building could not be opened. Upon investigation, operators noticed indications of a shift between the two buildings, as evidenced by buckling of fire protection flashing between the two buildings. The licensee entered the issue in the corrective action program as PVAR 4277199. The licensee concluded the shift was due to upheaval of the corridor building as a result of ground swell from water saturation following a domestic service water line break in August 2012. Following this determination, Unit 1 operators concluded that the control building remained functional. The Action Request Review Committee (ARRC) reviewed the PVAR and did not classify the issue as a condition adverse to quality (CAQ) or assign a Condition Report Disposition Request (CRDR) for evaluation.

The inspectors challenged these actions. The fire hazards analysis in the licensee's Updated Final Safety Analysis Report (UFSAR) identifies numerous fire protection features of the corridor building. Specifically, portable CO₂ fire extinguishers and manual hose reels in the corridor building are credited for fire suppression in the control building. Additionally, the corridor building and control building share a common wall, which is a 3-hour rated fire barrier, and the metal flashing would retard the passage of heat and/or smoke. Also, the corridor building contains safe shutdown related cables and preaction system valves for the control building cable spreading rooms.

Procedure 01DP-0AP12, "Palo Verde Action Request Processing," defined issues that affect items and activities governed under the Quality Assurance Program, such as the fire protection plan, as a condition adverse to quality, and required these conditions be assigned a Condition Report Disposition Request for evaluation in the corrective action program. Additionally, procedure 40DP-9OP26, "Operations PVAR Processing and Operability Determination/Functional Assessment," requires functional assessments for

conditions associated with fire protection plan related structures, systems, and components (SSC). The inspectors determined that the corridor building is a fire protection plan related SSC and required a functional assessment and the upheaval of the building should have been classified as a CAQ.

The inspectors also identified that an earlier evaluation of the domestic service water line break, completed on October 9, 2012, only assessed functionality of the control building and did not assess functionality or impact of the leak on the corridor building.

The licensee entered the issue into the corrective action program as CRDR 4301801. To restore compliance, the licensee classified the Unit 1 corridor building movement as a CAQ and performed a functional assessment, concluding the building was functional. The licensee is evaluating further corrective actions associated with this issue.

The inspectors determined the most significant contributor to this issue was the failure of the licensee to ensure adequate supervisory and management oversight of work activities. Specifically, the licensee's initial review of this issue concluded that management review of earlier issues that were identified associated with the domestic service water leak failed to recognize that the condition had degraded to the point of being a condition adverse to quality and requiring further evaluation.

Analysis. The inspectors concluded that the failure of plant personnel to classify the Unit 1 corridor building movement as a condition adverse to quality and perform a functional assessment was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it affected the protection against external factors attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the significance of the issue under the Significance Determination Process, as defined in Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," and concluded the finding was of very low safety significance (Green) because it is assigned a low degradation rating because no significant degradation of the fire protection features of the corridor building occurred. The inspectors determined this finding has a crosscutting aspect in the area of human performance associated with the work practices component because the licensee failed to ensure supervisory and management oversight of work activities, such that nuclear safety is supported [H.4(c)].

Enforcement. Arizona Public Service's Palo Verde Nuclear Generating Station Unit 1 Licensee Condition 2.C.7 states, in part, that APS shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report for the facility, as supplemented and amended, and as approved in the SER through Supplement 11. The Final Safety Analysis Report, Revision 16, Section 17.2F.1.3.2.3, states in part, that activities governing the fire protection program shall be prescribed by documented instructions, procedures, or drawings, and shall be accomplished in accordance with these documents. Procedure 01DP-0AP12, "Palo Verde Action Request Processing," defined issues that affect items and activities governed under the Quality Assurance Program, such as the fire protection plan, as a condition adverse to quality, and required these conditions be assigned a Condition

Report Disposition Request for evaluation in the corrective action program. Additionally, procedure 40DP-9OP26, "Operations PVAR Processing and Operability Determination/Functional Assessment," required functional assessments for conditions associated with fire protection plan related structures, systems, and components. Contrary to the above, on October 29, 2012, the licensee failed to perform a functional assessment for conditions associated with fire protection plan related structures. Specifically, plant personnel identified a shift between the Unit 1 corridor building and control building, which are structures associated with fire protection plan. After concluding the corridor building had heaved due to ground swell following a domestic service water line break, the licensee failed to classify the issue as a condition adverse to quality and perform a functional assessment for the corridor building. The licensee subsequently classified the corridor building movement as a condition adverse to quality and performed the functional assessment to incorporate all relevant information as corrective action to restore compliance. Because this finding is of very low safety significance and has been entered into the licensee's corrective action program as CRDR 4301801, this violation is being treated as a non-cited violation in accordance with Section 2.3.2 of the Enforcement Policy: NCV 05000528/2012005-05. "Failure to Classify and Evaluate a Condition Adverse to Quality."

1R18 Plant Modifications (71111.18)

Temporary Modifications

a. Inspection Scope

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

- October 9, 2012, Unit 2, temporary cooling to nuclear cooling water heat exchanger for plant cooling water system outage
- October 31, 2012, Unit 2 temporary adjustment of logarithmic power discriminator settings
- December 26, 2012, Unit 3 feedwater mini-flow valve travel stop

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

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

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

- November 15, 2012, Unit 2, essential cooling water heat exchanger, train B replacement
- November 20, 2012, Unit 2, essential chiller train B relay and oil pump replacement
- November 23, 2012, Unit 2, atmospheric dump valve, ADV-185, repairs
- November 29, 2012, Unit 2, low pressure safety injection to containment spray cross tie valve, train B, bolting replacement
- November 29, 2012, Unit 3, charging header to RCS backpressure control valve, CH-240, repairs
- December 4, 2012, Unit 2, control element drive motor control system (CEDMCS) modifications
- December 17, 2012, Unit 1, reactor trip switchgear train B breaker 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 post-maintenance 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 post-maintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

The inspectors reviewed the outage safety plan and contingency plans for the Unit 2 refueling outage, conducted October 6 through November 9, 2012, and for the Unit 3 short notice outage, conducted October 24 through November 1, 2012, to confirm that licensee personnel had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense in depth. During the refueling outage, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities listed below.

- Configuration management, including maintenance of defense in depth, is commensurate with the outage safety plan for key safety functions and compliance with the applicable technical specifications when taking equipment out of service.
- Clearance activities, including confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing.
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error.
- Status and configuration of electrical systems to ensure that technical specifications and outage safety-plan requirements were met, and controls over switchyard activities.
- Monitoring of decay heat removal processes, systems, and components.
- Verification that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system.
- Reactor water inventory controls, including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss.

- Controls over activities that could affect reactivity.
- Refueling activities, including fuel handling and sipping to detect fuel assembly leakage.
- Startup and ascension to full power operation, tracking of startup prerequisites, walkdown of the drywell (primary containment) to verify that debris had not been left which could block emergency core cooling system suction strainers, and reactor physics testing.
- Licensee identification and resolution of problems related to refueling outage activities.

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

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

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

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

- Preconditioning
- Evaluation of testing impact on the plant
- Acceptance criteria
- Test equipment
- Procedures
- Jumper/lifted lead controls
- Test data

- Testing frequency and method demonstrated technical specification operability
- Test equipment removal
- Restoration of plant systems
- Fulfillment of ASME Code requirements
- Updating of performance indicator data
- Engineering evaluations, root causes, and 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.

- October 10, 2012, Unit 2, train B integrated safeguards testing
- October 12, 2012, Unit 2, containment isolation valve leak test
- October 18, 2012, Unit 1, low pressure safety injection pumps, train A, minflow inservice test
- October 22, 2012, Unit 1, high pressure safety injection pump, train A inservice test
- November 5, 2012, Unit 2, high pressure safety injection system, check valve leak test
- November 15, 2012, Unit 2, control room emergency air temperature control system surveillance test

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)

Training Observations

a. Inspection Scope

The inspectors observed a tabletop training evolution for licensed operators on November 27, 2012, which required emergency plan implementation by a licensee operations crew. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the post-evaluation critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that the licensee evaluators noted the same issues and entered them into the corrective action program. As part of the inspection, the inspectors reviewed the scenario 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

Cornerstones: Public Radiation Safety and Occupational Radiation Safety

2RS2 Occupational ALARA Planning and Controls (71124.02)

a. Inspection Scope

This area was inspected to assess performance with respect to maintaining occupational individual and collective radiation exposures as low as is reasonably achievable (ALARA). The inspector 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 inspector interviewed licensee personnel and reviewed the following items:

- Site-specific ALARA procedures and collective exposure history, including the current 3-year rolling average, site-specific trends in collective exposures, and source-term measurements
- ALARA work activity evaluations/post job reviews, exposure estimates, and exposure mitigation requirements

- The methodology for estimating work activity exposures, the intended dose outcome, the accuracy of dose rate and man-hour estimates, and intended versus actual work activity doses and the reasons for any inconsistencies
- Records detailing the historical trends and current status of tracked plant source terms and contingency plans for expected changes in the source term due to changes in plant fuel performance issues or changes in plant primary chemistry
- Radiation worker and radiation protection technician performance during work activities in radiation areas, airborne radioactivity areas, or high radiation areas
- Audits, self-assessments, and corrective action documents related to ALARA planning and controls since the last inspection

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

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

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment (71124.04)

a. Inspection Scope

This area was inspected to: (1) determine the accuracy and operability of personal monitoring equipment; (2) determine the accuracy and effectiveness of the licensee's methods for determining total effective dose equivalent; and (3) ensure occupational dose is appropriately monitored. The inspector 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 inspector interviewed licensee personnel, performed walkdowns of various portions of the plant, and reviewed the following items:

- External dosimetry accreditation, storage, issue, use, and processing of active and passive dosimeters
- The technical competency and adequacy of the licensee's internal dosimetry program
- Adequacy of the dosimetry program for special dosimetry situations such as declared pregnant workers, multiple dosimetry placement, and neutron dose assessment

- Audits, self-assessments, and corrective action documents related to dose assessment 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 71124.04-05.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

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

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 third quarter 2012 performance indicators for any obvious inconsistencies prior to its public release in accordance with Inspection Manual Chapter 0608, "Performance Indicator Program."

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

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index for Units 1, 2, and 3 - heat removal system performance indicator for the period from the fourth quarter 2011, through the third quarter 2012. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports, mitigating systems performance index derivation reports, and NRC integrated inspection reports for the period of

October 1, 2011, through September 30, 2012, to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

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

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index for Units 1, 2 and 3 - residual heat removal system performance indicator from the fourth quarter 2011 through the third quarter 2012. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's operator narrative logs, issue reports, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports for the period of October 1, 2011, through September 30, 2012, to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

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

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index for Units 1, 2 and 3 - cooling water systems performance indicator from the fourth quarter 2011 through the third quarter 2012. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's operator narrative logs, issue reports, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports for the period of October 1, 2011, through September 30, 2012, to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

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

40A2 Problem Identification and Resolution (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

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

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure, they were considered an

integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

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

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

b. Findings

No findings were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors focused their review on repetitive equipment issues, but also considered the results of daily corrective action item screening discussed in Section 4OA2.2, above, licensee trending efforts, and licensee human performance results. The inspectors nominally considered the 6-month period of July 2012 through December 2012.

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

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

b. Findings

No findings were identified.

.4 Selected Issue Follow-up Inspection

a. Inspection Scope

During a review of items entered in the licensee's corrective action program, the inspectors recognized a corrective action item documenting an issue that warranted further scrutiny:

- September 6, 2012, all units, technical support center (TSC) diesel generator availability

The inspectors considered the following during the review of the licensee's actions: (1) complete and accurate identification of the problem in a timely manner; (2) evaluation and disposition of operability/reportability issues; (3) consideration of extent of condition, generic implications, common cause, and previous occurrences; (4) classification and prioritization of the resolution of the problem; (5) identification of root and contributing causes of the problem; (6) identification of corrective actions; and (7) completion of corrective actions in a timely manner.

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

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

b. Findings

Technical Support Center Diesel Generator Not Restored Following Maintenance

Introduction. A self revealing Green non-cited violation of 10 CFR 50.47(b)(8) was identified for the failure to maintain adequate facilities to support emergency response. Specifically, the licensee found the TSC battery disconnect switch had not been restored following maintenance activities. This configuration would have rendered the diesel generator unable to start automatically as designed in the event of a loss of off-site power. The licensee initiated immediate corrective actions to restore the TSC diesel generator to a functional configuration and has begun implementation of a more formal process for component configuration verification of critical TSC equipment.

Description. On May 16, 2012, the TSC diesel generator did not start when manually operated as part of planned, monthly maintenance. Electricians discovered all equipment conditions were as expected with the exception that the starting battery disconnect switch was in the open, or off, position. In this configuration the TSC diesel generator would not have automatically started in the event of a loss of off-site power. The licensee took immediate corrective actions to restore the TSC diesel generator to the appropriate lineup and completed the planned preventative maintenance run of the

diesel generator. The licensee's evaluation of the mispositioned battery disconnect switch identified that on May 9, 2012, the TSC diesel generator had been tagged out for planned electrical maintenance. Since no other work had been performed since that date, it was concluded that the battery disconnect switch had been left open during the tag removal and equipment restoration process.

Procedure 40OP-9NG01, "480V Non-Class 1E Switchgear," Revision 41 provided instructions for energizing and de-energizing 480V non-class 1E load centers including those associated with the TSC diesel generator. Appendix C, step 6.6 required that a functional test be conducted when perform a breaker position check. A functional test was not performed during the tag removal and equipment restoration process following the maintenance activities on May 9, 2012.

The licensee initiated root cause evaluation report 4251214 to examine multiple occurrences in which TSC equipment availability was challenged. The licensee noted that facilities maintenance performs the tagging activities for the TSC. Other pieces of safety-related plant equipment are facilitated by the operations department according to the station's more formal "Power Block Clearance and Tagging" procedure, 4DP-9OP29. The power block tagging process required electronic documentation of permit changes, independent verification of component positioning, and more administrative barriers to ensure positive configuration control of essential power block equipment. The root cause evaluation concluded that Palo Verde has not recognized the regulatory and emergency preparedness importance of critical TSC equipment. The root cause report has prescribed a corrective action to prevent recurrence to elevate the prioritization of the TSC diesel generator, HVAC system, and uninterruptible power supply in the "Operations Processing of Work Orders" procedure, 40DP-9WP01. This will ensure that critical emergency preparedness equipment will be treated with a more rigorous attention to configuration control.

Analysis. The failure to follow Procedure 40OP-9NG01 for performing a functional test of 480V switchgear following maintenance activities is a performance deficiency. This performance deficiency was more than minor because it is associated with the Emergency Preparedness Cornerstone attribute of facilities and equipment and it adversely affected the cornerstone objective to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The inspectors evaluated the significance of the issue under the Significance Determination Process, as defined in Inspection Manual Chapter 0609.04, "Initial Characterization of Findings," and Manual Chapter 0609, Appendix B, "Emergency Preparedness Significance Determination Process." The finding was determined to be of very low safety significance (Green) because the degraded planning standard function did not result in the loss of TSC functionality for longer than 7 days. The inspectors determined that the finding had a cross-cutting aspect in the area of human performance associated with resources. Specifically, the licensee's work control procedures did not include critical TSC systems to ensure that TSC configuration control was maintained commensurate with its significance [H.2(c)].

Enforcement. Title 10 CFR 50.47(b)(8), "Emergency Plans" requires that adequate emergency facilities and equipment to support the emergency response are provided

and maintained. Contrary to the above, from May 9, 2012 to May 16, 2012, the licensee failed to maintain adequate facilities to support emergency response. Specifically, the licensee did not restore the TSC emergency diesel generator to a configuration that would have automatically started in the event of a loss of off-site power. The licensee initiated immediate corrective actions to restore the TSC diesel generator to a functional configuration and has begun implementation of a more formal process for component configuration verification of critical TSC equipment. Because this finding was determined to be of very low safety significance and was entered into the licensee's corrective action program as Palo Verde Action Request 4165625, this violation is being treated as a non-cited violation consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000528; 529; 530 /2012005-06, "TSC Diesel Generator Not Restored Following Maintenance."

40A3 Followup of Events and Notices of Enforcement Discretion (71153)

.1 (Closed) Licensee Event Report 05000529/2011-002-00, Inoperable Steam Generator Low Pressure Reactor Trip and Main Steam Isolation Signal Channels

On May 5, during surveillance testing in Unit 2, the Channel A set point for Steam Generator Low Pressure Reactor Trip and Main Steam Isolation Signal was found to be at 950 psia, below its required value of 955 psia. Subsequently the channel was placed into bypass and set point was restored and declared operable.

The licensee concluded the cause of the event was an inadequate procedure that did not validate set points prior to being required. Corrective actions include revision of the procedure to include verification of steam generator low pressure set point is operable prior to changing modes. Inspectors reviewed this issue and documented a licensee-identified finding in Section 40A7 of the Palo Verde Integrated Inspection Report 2012004.

.2 (Closed) Licensee Event Report 05000528/2012-003-00, Unit 1 Main Steam Isolation Valve Actuator Train Inoperable Due to Low Nitrogen

On June 25, 2012 during replacement of an air hydraulic pump in Unit 1, the plant mechanics reported the nitrogen pre-charge pressure for the train A actuator accumulator was low. Mechanics located a small leak on a fitting for the train A pressure transmitter. The fitting was tightened and the nitrogen pre-charge pressure was restored to within specifications. An engineering evaluation performed determined the loss of nitrogen pressure fell below the pressure requirements to fast close the main steam isolation valve from June 2 through June 25, 2012.

The licensee concluded the cause of the event was an inadequate procedure that resulted with excess oil in the oil reservoir for the main steam isolation valve accumulator. This excess oil would inhibit an alarm from alerting the operators of a low nitrogen precharge pressure prior to becoming inoperable. In March of 2012, the licensee identified that the work instructions for the calibration of the pressure transmitter for the main steam isolation valve accumulator were inadequate to ensure the integrity of the precharge volume and resulted in a leak in the nitrogen precharge system. As a

result of these maintenance performance deficiencies, the main steam isolation valve accumulator developed a nitrogen leak that went undetected after the accumulator was rendered inoperable. Inspectors reviewed this issue and documented a licensee-identified finding in Section 4OA7 of this report.

4OA5 Other Activities

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

As documented in Inspection Reports 05000528/2010002; 2010003; 2010005; 2011002; 2011003; 2011005; 2012003, 05000529/2010002; 2010003; 2010005; 2011002; 2011003; 2011005; 2012003, and 05000530/2010002; 2010003; 2010005; 2011002; 2011003; 2011005; 2012003 the inspectors completed activities associated with TI 2515/177.

.2 Temporary Instruction 2515/182 - Review of the Industry Initiative to Control Degradation of Underground Piping and Tanks

Leakage from buried and underground pipes has resulted in ground water contamination incidents with associated heightened NRC and public interest. The industry issued a guidance document, Nuclear Energy Institute (NEI) 09-14, "Guideline for the Management of Buried Piping Integrity" (ADAMS Accession No. ML1030901420) to describe the goals and required actions (commitments made by the licensee) resulting from this underground piping and tank initiative. On December 31, 2010, NEI issued Revision 1 to NEI 09-14, "Guidance for the Management of Underground Piping and Tank Integrity," (ADAMS Accession No. ML110700122), with an expanded scope of components which included underground piping that was not in direct contact with the soil and underground tanks. On November 17, 2011, the NRC issued TI-2515/182 "Review of the Industry Initiative to Control Degradation of Underground Piping and Tanks" to gather information related to the industry's implementation of this initiative.

The inspectors reviewed the licensee's programs for buried pipe, underground piping and tanks in accordance with TI-2515/182 to determine if the program attributes and completion dates identified in Sections 3.3 A and 3.3 B of NEI 09-14 Revision 1 were contained in the licensee's program and implementing procedures. For the buried pipe and underground piping program attributes with completion dates that had passed, the inspectors reviewed records to determine if the attribute was in fact complete and to determine if the attribute was accomplished in a manner which reflected good or poor practices in program management.

Based upon the scope described above, Phase I was found to meet all applicable aspects of NEI 09-14, Revision 1, as set forth in Table 1 of TI-2515/182.

.3 (Closed) Temporary Instruction 2515/187 – Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns

Inspectors verified that licensee's walkdown packages, as documented in APS SDOC 13-CN396-A00001, "Palo Verde Nuclear Generating Station Post Fukushima Flooding Walkdown Report," contained the elements as specified in NEI 12-07 Walkdown Guidance document:

The inspectors accompanied the licensee on their walkdown of the Unit 3 auxiliary building 40' and 51' elevations and verified that the licensee confirmed the following flood protection features:

- Visual inspection of the flood protection feature was performed if the flood protection feature was relevant. External visual inspection for indications of degradation that would prevent its credited function from being performed was performed.
- Critical SSC dimensions were measured.
- Available physical margin, where applicable, was determined.
- Flood protection feature functionality was determined using either visual observation or by review of other documents.
- Exterior passive flood protection features were verified.

The inspectors independently performed their walkdown and verified that the following flood protection features were in place.

- August 8, 2012, East Wash embankment
- December 17, 2012, Unit 3 auxiliary building and main steam support structure roofs and scuppers

The inspectors verified that noncompliances with current licensing requirements, and issues identified in accordance with the 10 CFR 50.54(f) letter, Item 2.g of Enclosure 4, were entered into the licensee's corrective action program. In addition, issues identified in response to Item 2.g that could challenge risk significant equipment and the licensee's ability to mitigate the consequences will be subject to additional NRC evaluation.

No NRC-identified or self-revealing findings were identified.

.4 (Closed) Temporary Instruction 2515/188 – Inspection of Near-Term Task Force Recommendation 2.3 Seismic Walkdowns

The inspectors accompanied the licensee on their seismic walkdowns of the Unit 1 charging pump B, charging pump E and essential cooling water heat exchanger B, as well as the Unit 3 train B atmospheric dump valves and emergency diesel generator B, and verified that the licensee confirmed that the following seismic features associated with these items were free of potential adverse seismic conditions:

- Anchorage was free of bent, broken, missing or loose hardware
- Anchorage was free of corrosion that is more than mild surface oxidation
- Anchorage was free of visible cracks in the concrete near the anchors
- Anchorage configuration was consistent with plant documentation.
- SSCs will not be damaged from impact by nearby equipment or structures.
- Overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls are secure and not likely to collapse onto the equipment.
- Attached lines have adequate flexibility to avoid damage.
- The area appears to be free of potentially adverse seismic interactions that could cause flooding or spray in the area.
- The area appears to be free of potentially adverse seismic interactions that could cause a fire in the area.
- The area appears to be free of potentially adverse seismic interactions associated with housekeeping practices, storage of portable equipment, and temporary installations (e.g., scaffolding, lead shielding).

The inspectors independently performed their walkdown and verified that the following systems were free of potential adverse seismic conditions:

- August 2, 2012: Unit 2, 120 V vital ac voltage regulator D (2EPNDV28)
- August 2, 2012: Unit 2, 480 V motor control center M35 (2EPHAM35)
- August 2, 2012: Unit 2, circulating water pump A (2MECAP01)
- August 2, 2012: Unit 2, essential cooling water pump A (2MEWAP01)

Observations made during the walkdown that could not be determined to be acceptable were entered into the licensee's corrective action program for evaluation.

Additionally, inspectors verified that items that could allow the spent fuel pool to drain down rapidly were added to the SWEL and these items were walkdown by the licensee.

No NRC-identified or self-revealing findings were identified.

5. Inspection Procedure 92723 – Follow Up Inspection for Three or More Severity Level IV Traditional Enforcement Violations in the Same Area in a 12-Month Period

a. Inspection Scope

Consistent with the guidance provided in Inspection Procedure 92723, the inspectors evaluated the licensee's response to multiple Severity Level (SL) IV violations that occurred within a single traditional enforcement area. Specifically, the inspectors examined the licensee's response to a number of recent SL IV violations associated with impeding the regulatory process. These violations involved the following regulatory issues:

- Failure to ensure all licensed operator medical conditions were met (10 CFR 55.3)
- Failure to perform evaluation in accordance with 10 CFR Part 21
- Failure to report LER's in accordance with 10 CFR 50.73
- Accuracy and completeness of information provided to the NRC (10 CFR 50.9 (a))

Documents reviewed by the inspectors are listed in the attachment.

b. Findings and Observations

Based on the review of the licensee's common cause evaluation, as documented in CRDR 3869713, the inspectors determined that an adequate assessment of these conditions had been performed including the identification of common causes. The inspectors also determined that the licensee had implemented a sufficient range of corrective actions to address the identified common causes and minimize the potential for reoccurrence of these issues.

No NRC-identified or self-revealing findings were identified.

40A6 Meetings, Including Exit

Exit Meeting Summary

The inspectors briefed Mr. T. Mock, and other members of the licensee's staff of the results of the licensed operator requalification program inspection on August 30, 2012. The inspectors telephonically exited on December 12, 2012. The licensee representatives acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On October 18, 2012, the inspectors presented the inspection results of the review of inservice inspection activities to Mr. D. Mims, Senior Vice President, 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.

On November 30, 2012, the inspector presented the results of the radiation safety inspection to Mr. R. Bement, Vice President, Nuclear Operations, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On January 11, 2013, the inspectors presented the inspection results to Mr. D. Mims, 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 violations of very low safety significance (Green) and Severity Level IV were identified by the licensee and are violations of NRC requirements which meet the criteria of the NRC Enforcement Policy for being dispositioned as a Non-Cited Violation.

- .1 Title 10 CFR 50.59(c)(2)(ii) requires, in part, that a licensee shall obtain a license amendment prior to implementing a proposed change, test, or experiment if the change, test, or experiment would result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the final safety analysis report (as updated). Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires in part, that measures shall be established to assure that applicable regulatory requirements and the design basis, for those structures, systems, and components to which this appendix applies, are correctly translated into specifications, drawings, procedures, and instructions. Contrary to the above, prior to October 12, 2012, the licensee failed to obtain a license amendment prior to implementing a change that resulted in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety and failed to establish measures to assure the design basis of structures, systems, and components were correctly translated into specifications, drawing, procedures, and instructions.

Specifically, the licensee identified that a spoils pile created during construction of the water reclamation facility 45 acre reservoir in 2005 was placed in an embankment and obstructed the channel in the East Wash flood plain. This obstruction impacted the East Wash flood plain design requirement to support the site drainage design function of diverting flood waters away from the unit, and would have restricted the flow during a probable maximum flood. The documentation developed to construct the 45 acre reservoir did not adequately evaluate the impact of placing the spoils pile in the East Wash channel. The licensee determined that the 10 CFR 50.59 screening was

inadequate and failed to recognize that the obstruction could cause a probable maximum flood to overflow the East Wash channel and potentially impact site flooding due to a probable maximum flood. The licensee implemented corrective actions to remove the spoils pile and conduct training for personnel involved in major water reclamation facility civil projects on performing 50.59 screenings that potentially impact the site. The inspectors concluded that the finding is of very low safety-significance (Green) because the obstruction in the East Wash would not have resulted in an increase in the likelihood or consequence of a probable maximum flood event and has been entered into the licensee's corrective action program as CRDRs 3685138 and 4221529. Additionally, the inspectors concluded that the violation of 10 CFR 50.59 is Severity Level IV because it resulted in a condition evaluated as having very low safety significance (Green) by the Significance Determination Process.

- .2 Technical specification 5.4.1.a, states, in part, that Written procedures shall be established, implemented, and maintained for the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Revision 2, Appendix A, February 1978, Appendix A, Section 9, states, in part, maintenance that can affect the performance of safety related equipment should be properly preplanned and performed in accordance with written procedures. Contrary to the above, on November 1, 2011 and on March 7, 2012, the licensee failed to properly preplan and perform maintenance that can affect the performance of safety related equipment, in accordance with written procedures.

Specifically, the licensee identified that in November 2011, a calculational error resulted with excess oil in the oil reservoir for the main steam isolation valve accumulator. This excess oil would inhibit an alarm from alerting the operators of a low nitrogen precharge pressure prior to becoming inoperable. In March of 2012, the licensee identified that the work instructions for the calibration of the pressure transmitter for the main steam isolation valve accumulator were inadequate to ensure the integrity of the precharge volume and caused a leak in the nitrogen precharge system. As a result of these maintenance performance deficiencies, the main steam isolation valve accumulator developed a nitrogen leak that went undetected after the accumulator was rendered inoperable. From June 2 to June 25, 2012, train A of the main steam isolation valve accumulator would not have been able to perform its fast closure function. The licensee immediately corrected the low precharge condition upon discovery and inspected all other main steam isolation valves. Inspectors concluded that the finding is of very low safety-significance (Green) because it was not a design or qualification deficiency, did not result in a loss of safety function, did not result in a loss of function of a train of safety equipment out greater than its allowed outage time, or a loss of function of high importance maintenance rule equipment greater than 24 hours. The licensee has entered the issue in the corrective action program as CRDR 4196302.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

C. Moeller, Manager, Radiation Protection
D. Hansen, Senior Consultant Engineer
D. Mims, Senior Vice President, Regulatory and Oversight
D. Wheeler, Department Leader, Performance Improvement
E. Fernandez, Senior Engineer
F. Oreshack, Consultant, Regulatory Affairs
J. Bettencourt, Technical Advisor, Radiation Protection
J. Bungard, Supervisor, Radiological Engineering
J. Cadogan, Vice President, Nuclear Engineering
J. Cox, Engineer, Program Engineering
J. McDonnell, Department Leader, Radiation Protection
K. House, Director, Nuclear Design Engineering
M. Brannin, Senior Engineer, Program Engineering
M. McGhee, Manager, Regulatory Affairs
M. Radspinner, Department Leader, System Engineering
P. Anderson, Engineer, Program Engineering
R. Barnes, Director, Regulatory Affairs
R. Bement, Senior Vice President, Site Operations
R. Routolo, Operations Department Leader, Radiation Services
R. Folley, Engineer, Engineer Inspections
S. Lantz, Section Leader, Radiation Protection Technical Services
S. Pobst, Section Leader, Engineering
T. Gray, Department Leader, Radiation Protection
T. Mock, Director, Operations
T. Weber, Department Leader, Regulatory Affairs

NRC Personnel

V. Gaddy, Chief, Operations Branch
E. Uribe, Reactor Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000528; 529; 530/2012005-01	NCV	Failure to Identify and Correct a Condition Adverse to Fire Protection (Section 1R05)
05000528; 529; 530/2012005-02	NCV	Failure to Perform Pressure Testing of the Reactor Vessel Flange Leak-Off Lines (Section 1R08)

05000528; 529; 530/2012005-03	NCV	Failure to Maintain Licensed Operator Examination Integrity (Section 1R11)
05000528; 529; 530/2012005-04	NCV	Inadequate Tracking of Functional Assessment for Spent Fuel Pool Heat Load (Section 1R15)
05000528/2012005- -05	NCV	Failure to Classify and Evaluate a Condition Adverse to Quality (Section 1R15)
05000528; 529; 530/2012005-06	NCV	Technical Support Center Diesel Generator Not Restored Following Maintenance (Section 4OA2)

Closed

2515/177	TI	Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal and Containment Spray Systems (NRC Generic Letter 2008-01) (4OA5)
05000529/2011- 002-00	LER	Inoperable Steam Generator Low Pressure Reactor Trip and Main Steam Isolation Signal Channels (Section 4OA3)
05000528/2012- 003-00	LER	Unit 1 Main Steam Isolation Valve Actuator Train Inoperable Due to Low Nitrogen (Section 4OA3)
2515/187	TI	Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns (Section 4OA5)
2515/188	TI	Inspection of Near-Term Task Force Recommendation 2.3 Seismic Walkdowns (Section 4OA5)

Discussed

2515/182	TI	Review of the Industry Initiative to Control Degradation of Underground Piping and Tanks (Section 4OA5)
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LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS</u>
40OP-9AF01	Essential Auxiliary Feedwater System	57
40OP-9AF02	Non-Essential Auxiliary Feedwater Pump Operation	18
40ST-9SI07	High Pressure Injection System Alignment Verification	16
40DP-9OP19	Locked Valve, Breaker, and Component Tracking	120
40OP-9SI04	Safety Injection System Venting	32

Section 1R04: Equipment Alignment

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS</u>
40OP-9PC01	Fuel Pool Cooling	9

PALO VERDE ACTION REQUESTS

4268384 3402809 4004848

CONDITION REPORTS / DISPOSITION REQUEST

3996662

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS</u>
13-M-AFP-001	P & I Diagram Auxiliary Feedwater System (AF)	26
13-M-SGP-002	P & I Diagram Main Steam System	22
01-M-SIP-001	P&I Diagram Safety Injection and Cooling System	49
01-M-SIP002	P&I Diagram Safety Injection and Cooling System	37
01-M-ECP-001	P&I Diagram Essential Chilled Water System	33

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS</u>
EO010-PL-007	PVNGS Job Performance Measure – Align Train B EW to Spent Fuel Pool Cooling	7
Calc 13-MC-PC-0217	Spent Fuel Cooling System – Shutdown Cooling and Pool Cooling Heat Transfer Evaluation	5

Section 1R05: Fire Protection

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS</u>
40OP-9QF01	In-Plant Communications	24
40AO-9ZZ19	Control Room Fire	27
14FT-9FP06	Fire Equipment Locker and Emergency Equipment Cabinet Inspection	21
14FT-9QF01	Sound Powered Telephone Functional Test	6

PALO VERDE ACTION REQUESTS

3401098	3547086	4294893	4294407
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WORK ORDER

3278525

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Pre-Fire Strategies Manual	23
	NFPA 72D, Standards for the maintenance, installation and use of proprietary protective signaling systems, 1986	
	NFPA 72E, Standard on Automatic Fire Detectors, 1987	
	NFPA 72H, National Fire Alarm and Signaling Code, 2013	
	PVNGS Pre-Fires Strategies Manual	23
	Operations night order	December 14, 2012

CALCULATION

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
13-MC-FP-0316	10CFR50 APPENDIX R MANUAL ACTION FEASIBILITY	12

Section 1R06: Flood Protection Measures

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS</u>
40DP-9ZZ17	Control of Doors, Hatches and Floor Plugs	52
91DP-0EN31-01	Management of Sumps and Manholes Administrative Guideline	2

PALO VERDE ACTION REQUESTS

3590255 4034858 4117009 4264522

WORK ORDER

3696892

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS</u>
Drawing 03-M-OWP-003	P&I Diagram Oily Waste and Non-Radioactive Waste System (Control Building)	3
Drawing 13-P-ZJL-301	Control Building Equipment Location Plan at EL 74'-0" & 84'-0"	8

Section 1R07: Heat Sink Performance

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS</u>
70TI-9EW01	Thermal Performance Testing of Essential Cooling Water Heat Exchangers	9
70TI-9EW02	EW Heat Exchanger Improved Test Setup	2
70TI-9EW03	EW Heat Exchanger Improved Test Performance	1

PALO VERDE ACTION REQUESTS

3044413 3136597

Section 1RO8: Inservice Inspection Activities

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
73DP-9ZC01	Boric Acid Corrosion Control Program	4
70TI-9ZC01	Boric Acid Walkdown Leak Detection	14
WCAP-15988-NP	Generic Guidance for an Effective Boric Acid Inspection Program for Pressurized Water Reactors	1
SI-UT-175	Procedure for Encoded, Phased Array Ultrasonic Examination of Dissimilar Metal Piping Welds Zetec OMNISCAN Raster 03	3
73TI-9ZZ07	Liquid Penetrant Examination	14
73TI-9ZZ22	Visual Examination of Welds, Bolting, and Components	6
73TI-9ZZ17	Visual Examination of Welds, Bolting, and Components	10
73TI-9ZZ09	Ultrasonic Examination of Pipe and Vessel Welds	15
73WP-0ZZ07	Welding of Stainless and Nickel Alloys	16
31MT-9RC30	Reactor Vessel Head Removal and Installation	49
31MT-9RC32	Reactor Vessel Stud Cleaning and Inspection	13
73TI-9ZZ5	Dry Magnetic Particle Examination	15

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
	Radiograph Shot Plan for 2PSIAL70 1" Weld #1	October 10, 2012
X-RC-01	RCS Piping Refueling Outage	

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
02-M-RCP-001	Reactor Coolant System	33

PALO VERDE ACTION REQUESTS (PVARs)

4268674	4269793	4269428	4268436	4264664
6262321	3716592	3716594	3935029	4121035
4147093	3997602	4012475	3383346	3383517
3718225	4012482			

WORK ORDERS

3760489	3760488	3760487	3760486	3760485
3760484	3760490	4261054	4255691	4255482
4255680				

CONDITION REPORTS / DISPOSITION REQUESTS

4161681	3128987
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Section 1R11: Licensed Operator Requalification Program

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS</u>
40DP-9OP02	Conduct of Shift Operations	58
40OP-9ZZ07	Plant Shutdown Mode 1 to Mode 3	37
40OP-9ZZ23	Outage GOP	62
01DP-0AP12	Palo Verde Action Request Processing Licensed Nuclear	18
01DP-0EM13	Operator Medical Examinations	20
15DP-0CC02	Simulator Design Control	0
15DP-0OT02	LOCT Annual and Biennial Operating Examination Sample Plan Development	1
15DP-0OT03	LOCT Biennial Written Exam Development and Sample Plan	1
15DP-0OT04	LOCT Annual and Biennial Exam Administration	1
15DP-0OT05	NRC Examination Security	1

CONDITION REPORTS / DISPOSTION REQUESTS

3557393 4256323

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
	Unit 2 Cycle 17 36hr Look Ahead Operations	October 5, 2012
	Licensed Operator Continuing Training Simulator Scenario	November 27, 2012

Section 1R12: Maintenance Effectiveness

PROCEDURE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
70DP-0MR01	Maintenance Rule	33

PALO VERDE ACTION REQUEST

3424074

CONDITION REPORT / DISPOSTION REQUEST

3996660

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS</u>
	Performance Criteria Formulation Basis – Spent Fuel Pool Cooling and Cleanup System	2
	PVNGS Maintenance Rule System Basis – Pool Cooling System (PC)	1

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS</u>
70DP-0RA01	Shutdown Risk Assessments	43
51DP-9OM09	Outage Planning and Implementation	15

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS</u>
41AL-1RK1B	Last Unit On-Line	42
40OP-9NA03	13.8kV Electrical System (NA)	34
41ST-1ZZ02	Inoperable Power Sources Action Statement	44
51DP-9OM07	Short Notice Outage (SNO) Management	7

PALO VERDE ACTION REQUESTS

4303703	4270870	4271320	4271430	4270870
4271320	4285944	4273792	4273171	

WORK ORDER

4303720

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
	Unit 3 Forced Outage Scope Review & Challenge	October 25, 2012

Section 1R15: Operability Evaluations

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS</u>
40AO-9ZZ23	Loss of SFP Level or Cooling	18
13-MC-PC-0218	Loss of Spent Fuel Pool (SFP) Make-up and Leakage	5
40AL-9PC01	Fuel Pool Cooling and Cleanup System Local Alarm Panel PCN-E02 Responses	0

PALO VERDE ACTION REQUESTS

4251106	4251108	4264758	4247031	4312471
4277199	4288950	4261369	4252159	4226972
4280551	4290499	4290670		

CONDITION REPORTS / DISPOSTION REQUESTS

4249451 4294805 4236395

WORK ORDERS

3956860 4249301 4291057 4290313 4291056
4277899 4294803 4260364

CACULATION

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
13-NC-PC-0203	Loss of Spent Fuel Pool Cooling Evaluations	13

Section 1R18: Plant Modifications

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS</u>
40OP-9ZZ 02	Initial Reactor Startup Following Refuelings	53
31MT-9PW02	Installation & Removal of Temporary Cooling Towers to NC Heat Exchanger for PW System Outage	1
	PW System Outage	11
31MT-9NC01	Installation and Removal of Temporary Nuclear Cooling Water Pump	1
40AO-9ZZ23	Loss of SPF Level or Cooling	18
40OP-9PW01	Plant Cooling Water	35

PALO VERDE ACTION REQUESTS

4261402 4273432

CONDITION REPORT / DISPOSITION REQUEST

4196308

WORK ORDERS

4203292 4202704 4246951 4281751 4261770

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
99-00024	50.59 Evaluation for Procedure 31MT-9PW02	1

DRAWING

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
01-M-PWP-001	P & I Diagram Plant Cooling Water System	7

Section 1R19: Post-Maintenance Testing

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS</u>
36ST-9SB52	RTSG Shunt and Undervoltage Trip Functional Test	8
36ST-9SB02	18 Month Surveillance Test for Westinghouse Type DS-416 Reactor Trip Breakers	6
36ST-9SB44	RPS Matrix Relays to Reactor Trip Response Time Test	20
73ST-9XI20	ADVs – Inservice Test	33
31MT-9SG04	Atmospheric Dump Valve Disassembly and Assembly	19
01DP-9ZZ01	Systematic Troubleshooting	9
40OP-9EC02	Essential Chilled Water train “B” (EC)	22
73ST-9XI06	CH and SS Valves – Inservice Test	21
73ST-9SP01	Essential Spray Pond Pumps – Inservice Test	39
73ST-9EW01	Essential Cooling Water Pumps – Inservice Test	23
73TI-9ZZ22	Visual Examination for Leakage – Interval 3	6

PALO VERDE ACTION REQUESTS

4281410 4272112 4271842 4284950 4285079
4281204 4281213 4281208 4282412 4283051
4283033 4274231 4274199 4274191 4274236

4274232	4262290	4079089		
<u>WORK ORDERS</u>				
4012499	3852750	3789925	3789906	3789930
3772287	4251811	4251811	3678547	4262310
3771985	3771988	3497433	4268881	4136212

Section 1R20: Refueling and Other Outage Activities

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS</u>
40DP-9OP02	Conduct of Shift Operations	58
40OP-9ZZ07	Plant Shutdown Mode 1 to Mode 3	37
40OP-9ZZ23	Outage GOP	62
40OP-9ZZ11	Mode Change Checklist	87
40OP-9ZZ16	RCS Drain Operation	74
31ST-9SI01	Cleaning/Inspection of ECCS Sumps	13

Section 1R22: Surveillance Testing

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS</u>
73ST-9CL01	Containment Leakage Type "B" and "C" Testing	38
40DP-9OP02	Conduct of Shift Operations	57
73ST-9SI11	Low Pressure Safety Injection Pumps Minflow – Inservice Test	29
33ST-9HJ04	Testing of the Control Room Emergency Air Temperature Control System	14
36ST-9SA02	ESFAS train B Subgroup Relay Functional Test	41
36ST-9SA04	ESFAS train B Subgroup Relay Shutdown Functional Test	22
73ST-9DG02	Class 1E Diesel Generator and Integrated Safeguards Test train B	23
73ST-9SI10	HPSI Pumps Miniflow – Inservice Test	47

Section 1R22: Surveillance Testing

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS</u>
73ST-9S05	Leak Test of HPSI/LPSI Containment Isolation Check Valves	31

PALO VERDE ACTION REQUESTS

4280813	4234728	4235735	3841840
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CONDITION REPORTS / DISPOSTION REQUESTS

4240900	4241368
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WORK ORDERS

3843807	3830421	3843849	3734322	3772342
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MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
	ASME OM Code 2001	

Section 1EP6: Drill Evaluation

PROCEDURE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
79IS-9ZZ05	PVNGS Severe Accident Management Guidelines	12

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
79IS-9ZZ05	Emergency Preparedness SAMG Tabletop Scenario	NOVEMBER 2012

Section 2RS2: Occupational ALARA Planning and Controls

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS</u>
75RP-0RP03	ALARA Program Overview	4
75RP-0RP06	ALARA Committee	6
75RP-9RP02	Radiation Exposure Permits	25
75RP-9RP12	ALARA Reports	5
75RP-9RP24	Source Term Reduction	2
75DP-0RP01	RP Program Overview	8

AUDIT

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
2012-009	Radiation Protection Audit Report	September 14, 2012

CONDITION REPORTS / DISPOSITION REQUESTS

4113175	4117342	4117344	4167238	4194870
4210049	4229573	4241534	4281060	

RADIATION EXPOSURE PERMITS-ALARA PLANS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS</u>
REP-3-3002	Cold Leg Small Bore Nozzle-to-Safe End Dissimilar Metal Weld Ultrasonic Examination Assessment Surveys	2
REP-3-3002	Reactor Destack/Restack	2
REP-3-3306	Primary Side Steam Generator Maintenance	2
REP-3-3501	RP Tours, Inspections, and Routine Surveys	2

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
	2011 Annual ALARA/Management Evaluation Report	August 17, 2012
	PVNGS Radiological Trends	
	U2R17 Radiological Safety Perspective	

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
	ALARA 3R16 Outage Report	
	ALARA 5 Year Plan	October 6, 2012

Section 2RS04: Occupational Dose Assessment

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS</u>
75RP-9ME21	TLD, Issue, Exchange, Termination	13
75RP-9ME23	Exposure Evaluation for Lost, Damaged, or Suspect Dosimetry, and Anticipated EPD Dose Rate Alarm	11
75RP-9ME24	Dosimetry Processing, Evaluation, and Documentation	4
75RP-9RP03	Bioassay Analysis	8
75RP-9RP18	Medical Uptakes of Radioisotopes	8a
75DP-0RP01	RP Program Overview	8

AUDIT/SELF-ASSESSMENT

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
2012-009	Radiation Protection Audit Report	September 14, 2012
	NVLAP Onsite Assessment 2012	April 12, 2012

CONDITION REPORTS / DISPOSITION REQUESTS

4074709 4078063 4110128 4113175 4117344

PALO VERDE ACTION REQUESTS

4075029 4262351 4298703 4299402

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
11-02	ANI Information Bulletin: Neutron Monitoring	July 2012

Section 40A1: Performance Indicator Verification

PROCEDURE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
71DP-0AP01	Mitigating System Performance Index Program	1

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
NEI 99-02	Regulatory Assessment Performance Guideline Cooling Water (CW) Mitigating System Performance Indicator (MSPI) Margins 3 rd Qtr 2012 HPSI and RHR Mitigating System Performance Indicator (MSPI) Margins 3 rd Qtr 2012 OP6 – EDG and AFW Mitigating System Performance Indicator (MSPI) Margins 3 rd Qtr 2012	

Section 40A2: Identification and Resolution of Problems

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS</u>
EP-0900	Emergency Response Organization (ERO) Position Checklists	3
16DP-0EP31	Emergency Preparedness Equipment Out of Service	5
16DP-0EP24	Emergency Response Facility Functionality Evaluation	2

PALO VERDE ACTION REQUESTS

2715749	4165625	2733690	4172150	4219843
4246906	3830282	3433099	4219843	4217694
4241885	4255835	4230209	4230209	3259652
3029093	3366053	3366680	3373005	3270801

3471924 4293030

CONDITION REPORTS / DISPOSTION REQUESTS

4254424 4237389 4237193 4253746
4273540

WORK ORDERS

3611698 3746624 3596593 281826 3831900
4170198 268094

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<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
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	PVNGS September 2012 CRDR Trending Review	
	CRDR Trend Review - August 2012 CRDR Data	
	Monthly CRDR Trend Review - August 2012 Review of July 2012 Data	

Section 40A5: Other Activities

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS</u>
83DP-0AP01	Buried Piping and Tanks Program	2
81DP-0ZZ01	Civil System, Structure, and Component Monitoring Program	21
01DP-0EM13	Licensed Operator Medical Examinations	21a

PALO VERDE ACTION REQUESTS

4047672	4184052	4216417	4221758	4219973
4221708	4221745	4259459	4293351	4293271
4293568	4293563	3952605	4284035	4284016
4219650	4208593	4172033	3676535	4220894

CONDITION REPORTS / DISPOSTION REQUESTS

4223862 4223885 4221587 4260286 3685138
3869713

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
	Buried Piping and Tanks Program Organization and Administration List	October 17, 2012
	Buried Piping and Tanks Program and Procedures List	October 17, 2012
13-CS-A027	Buried Piping and Tanks Program Risk Ranking	1
13-CS-A032	Buried Piping and Tanks Program Inspection Plan	0
	Buried Piping and Tank Program Inspection Status	October 17, 2012
	PVNGS GPUP Initiatives Committee Agenda and Meeting Record	October 3, 2012
	Letter from Stevenson & Associates to Westinghouse Electric Company, "PO 4500439056 – APS 50.54f NTTF Recommendation 2.3 Seismic Walkdowns Qualifications / Certificates for Seismic Walkdown Engineers and Peer Reviewer,"	July 12, 2012
	Palo Verde Fukushima Walkdown Plan of the Day for August 1, 2012 and August 2, 2012	
	Palo Verde Fukushima Walkdown Plan of the Day	July 26, 2012
	Palo Verde Fukushima Walkdown Plan of the Day	July 27, 2012
	Palo Verde Fukushima Walkdown Plan of the Day	August 1, 2012
	Palo Verde Fukushima Walkdown Plan of the Day	August 2, 2012
	Electric Power Research Institute (EPRI) document 1025286 titled, "Seismic Walkdown Guidance," May 2012	

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
3685138	Palo Verde Nuclear Generating Station Post Fukushima Flooding Walkdown Report	0
	Palo Verde Cause Analysis Manual	

PAPERWORK REDUCTION ACT STATEMENT

This letter does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing information collection requirements were approved by the Office of Management and Budget, control number 3150-0011.

The following items are requested for the Occupational Radiation Safety: ALARA & Access Control (IP 71124.02) and Occupational Dose Assessment (IP71124.04) Inspections at PVNGS from November 26-30, 2012, Inspection Report Number 05000-530/2012-005

Please provide the requested information to **Louis C. Carson II** in the Region IV Arlington Office by **November 16, 2012**. *In an effort to keep the requested information organized please submit the information to us using the same numbering/lettering system below. Thank you for your support.*

Inspection areas are listed in the attachments below.

Please submit this information using the same lettering system as below. For example, all contacts and phone numbers for Inspection Procedure 71124.02 should be in a file/folder titled "1- A," applicable organization charts in file/folder "1- B," etc.

If information is placed on *ims.certrec.com*, please ensure the inspection exit date entered is at least 30 days later than the onsite inspection dates, so the inspectors will have access to the information while writing the report.

In addition to the corrective action document lists provided for each inspection procedure listed below, please provide updated lists of corrective action documents at the entrance meeting. The dates for these lists should range from the end dates of the original lists to the day of the entrance meeting.

If more than one inspection procedure is to be conducted and the information requests appear to be redundant, there is no need to provide duplicate copies. Enter a note explaining in which file the information can be found.

If you have any questions or comments, please contact **Louis C. Carson II** at (817)200-1221 or **Louis.Carson II @nrc.gov**.

1. Items needed to support the ALARA Planning & Controls (71124.02) Inspection to be conducted by Louis C. Carson II are as follows:

Date of Last Inspection: **October 28, 2011**

- A. List of contacts and telephone numbers for ALARA program personnel
- B. Applicable organization charts
- C. Copies of audits, self-assessments, and LERs, written since date of last inspection, focusing on ALARA

- D. Procedure index for ALARA Program
- E. Please provide specific procedures related to the following areas noted below. Additional Specific Procedures may be requested by number after the inspector reviews the procedure indexes.
 - 1. ALARA Program
 - 2. ALARA Committee
 - 3. Radiation Work Permit Preparation
- F. A summary list of corrective action documents (including corporate and subtiered systems) written since date of last inspection, related to the ALARA program. In addition to ALARA, the summary should also address Radiation Work Permit violations, Electronic Dosimeter Alarms, and RWP Dose Estimates

NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide documents which are "searchable."

- G. List of work activities greater than 1 rem, since date of last inspection.
Include original dose estimate and actual dose.
- H. Site dose totals and 3-year rolling averages for the past 3 years (based on dose of record)
- I. Outline of source term reduction strategy
- J. A major focus of this inspection will be the results of the power upgrade outage, please provide the following:

Annual PVNGS ALARA Report for 2011

Last post Refueling-Power- Outage Report (Unit -3)

List of ALARA Package that Exceeded the Original Dose Projections

Provide Written Justifications if Dose were Exceeded by 50% & 5 Person-Rem

2. Occupational Dose Assessment (Inspection Procedure 71124.04) to be reviewed:

Date of Last Inspection: January 2010

- A List of contacts and telephone numbers for the following areas:
 - 1. Dose Assessment personnel
- B Applicable organization charts
- C Audits, self assessments, surveillances, vendor or NUPIC audits of contractor support, and LERs written since January 2010 related to:
 - 1. Occupational Dose Assessment

- D Procedure indexes for the following areas
1. Occupational Dose Assessment
- E Please provide specific procedures related to the following areas. Additional Specific Procedures may be requested after the inspector reviews the procedure indexes.
1. Radiation Protection Program
 2. Radiation Protection Conduct of Operations
 3. Personnel Dosimetry Program
 4. Radiological Posting and Warning Devices
 5. Air Sample Analysis
 6. Performance of High Exposure Work
 7. Declared Pregnant Worker
 8. Bioassay Program
- F List of corrective action documents (including corporate and subtiered systems) written since January 2010 associated with:
1. NVLAP accreditation
 2. Dosimetry (TLD/OSL, etc.) problems
 3. Electronic alarming dosimeters
 4. Bioassays or internally deposited radionuclides or internal dose
 5. Neutron dose
- NOTE: The lists should indicate the significance level of each issue and the search criteria used.
- G List of positive whole body counts since, January 2010 names redacted if desired
- H Part 61 analyses/scaling factors
- I The most recent National Voluntary Laboratory Accreditation Program (NVLAP) accreditation report on the licensee or dosimetry vendor, as appropriate

Please provide this information to me by **November 16, 2012**; thank you in advance. If you have any questions pertaining to the requested information or the up-coming inspection please call me at (817) 200.1221. Also, my Email address is Louis.Carson@nrc.gov.