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

August 10, 2012

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

SUBJECT: PALO VERDE NUCLEAR GENERATING STATION – NRC INTEGRATED INSPECTION REPORT 05000528/2012003, 05000529/2012003, AND 05000530/2012003

Dear Mr. Edington:

On June 30, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Palo Verde Nuclear Generating Station Units 1, 2, and 3. The enclosed inspection report documents the inspection results which were discussed on June 29, 2012, with 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.

Six findings of very low safety significance (Green) were identified during this inspection.

All six of these findings were determined to involve violations of NRC requirements. Additionally, the NRC has determined that a traditional enforcement Severity Level IV violation occurred. Further, a licensee-identified violation, which was determined to be of very low safety significance is 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 the 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 the Palo Verde Nuclear Generating Station.

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

Sincerely,

/RA/

Ryan Lantz, Chief
Project Branch D
Division of Reactor Projects

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

Enclosure: Inspection Report 05000528/2012003, 05000529/2012003, and 05000530/2012003 w/ Attachments:
1. Supplemental Information
2. Information Request for activities documented in 71124.01, 71124.03, 71151

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ADAMS ACCESSION NUMBER: ML12223A116

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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:	05000528/2012003, 05000529/2012003, 05000530/2012003
Licensee:	Arizona Public Service Company
Facility:	Palo Verde Nuclear Generating Station, Units 1, 2, and 3
Location:	5951 South Wintersburg Road Tonopah, Arizona
Dates:	April 1 through June 30, 2012
Inspectors:	I. Anchondo, Reactor Inspector M.A. Brown, Senior Resident Inspector M. Baquera, Resident Inspector M. Davis, Senior Resident Inspector J. Drake, Senior Reactor Inspector G. A. George, Senior Reactor Inspector N. Greene, Ph.D., Health Physicist B. Parks, Project Engineer D. Reinert, Resident Inspector L. Ricketson, P.E., Senior Health Physicist T. G. Skaggs-Ryan, Reactor Inspector D. You, Project Engineer
Approved By:	Ryan Lantz, Chief, Project Branch D Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000528, 529, 530/2012003; 04/01/2012 – 06/30/2012, Palo Verde Nuclear Generating Station, Integrated Res. & Region. Report; Fire Prot.; Op.Evals.; PMT; Refuel. Out. Act.; Rad. Haz. Assess. & Expo.; Rad. Mat. Process. & Trans.; Ident. & Res. of Probs; Radioactive Solid Waste Processing; Radioactive Material Handling, Storage, and Transportation.

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by region-based inspectors. Six Green and one Severity Level IV 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 non-cited violation of technical specification 5.4.1.d for the failure of the licensee to follow Procedure 14DP-0FP36, "Hot Work Permit." Specifically, the licensee failed to implement all requirements of the hot work permit and let welding slag impinge on combustible materials in containment. The licensee stopped work and corrected the issue after being informed by the inspectors. This finding has been entered into the licensee's corrective action program as Condition Report Disposition Request 4120969.

  The failure of the licensee to follow Procedure 14DP-0FP36, "Hot Work Permit," was a performance deficiency. The performance deficiency is more than minor, and therefore a finding, because it affected the protection against external events 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 0609.04, "Initial Characterization of Findings," and concluded the finding needed additional screening under IMC 0609, Appendix F, "Fire Protection Significance Determination Process." The inspectors determined that the condition represented a high degradation of the fire prevention and administrative controls fire protection program element due to the failure to observe all areas of vulnerability to a fire from hot work operation. The finding was determined only to affect the ability to maintain cold shutdown and using Figure F.1, the finding was determined to be of very low safety significance (Green). The inspectors determined this finding has a cross-cutting aspect in the area human performance associated with the work practices component because

the licensee failed to communicate human error prevention techniques, such as self and peer checking [H.4(a)] (Section 1R05).

- Green. The inspectors identified a non-cited violation of Technical Specification Limiting Condition for Operation (LCO) 3.0.3 for the failure of plant personnel to place Unit 2 in Mode 3 within 7 hours of initiation of a condition not permitted by Technical Specifications. Specifically, following the failure of essential ventilation dampers during a surveillance test that rendered the train B DC equipment, inverters, and ESF switchgear inoperable, operators exceeded the Technical Specification time requirements before restoring operability of the equipment. The licensee initiated corrective actions to evaluate equipment operability following essential ventilation system failures, revise procedural guidance and implement compensatory measures to ensure the supported equipment remains capable of performing its required safety functions in the event of essential ventilation system failures. The licensee entered the issue into the corrective action program as Palo Verde Action Request (PVAR) 4033786.

  The failure of the licensee to comply with Technical Specifications is a performance deficiency. The resident inspectors performed the initial significance determination for the essential ventilation damper failures using NRC Inspection Manual Chapter 0609, Attachment 0609.04, "Initial Characterization of Findings," and 0609 Appendix A, "The Significance Determination Process (SDP) for Findings at Power." The finding screened to a detailed analysis because it involved an actual loss of safety function of a single train of equipment for greater than its technical specification allowed outage time. A Region IV senior reactor analyst performed a bounding Phase 3 significance determination and found the finding to be of very low safety significance (Green). The bounding change to the core damage frequency was 9E-8/year. The dominant core damage sequences included: loss of offsite power sequences; failure of remaining safety related train A ventilation; failure of operators to provide alternate room cooling; and the failure of the turbine driven auxiliary feedwater pump. The very short exposure period helped to minimize the significance. The inspectors did not assign a cross-cutting aspect to this finding because the inadequate procedural guidance for responding to essential ventilation system failures was made in 1991 and is not reflective of present performance (Section 1R15).

- Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control," for the failure to assure that testing to demonstrate satisfactory performance of the diesel fuel oil transfer pumps was conducted in accordance with written test procedures. Specifically, on April 17, 2011, the licensee failed to conduct post maintenance testing of the Unit 2 diesel generator A fuel oil transfer pump in accordance with the licensee's inservice test procedure. This issue is captured in the corrective action program as PVAR 4161870. Palo Verde subsequently performed successful inservice testing of the Unit 2 A diesel generator fuel oil transfer pump.

  The inspector determined that the failure to perform testing of safety-related plant diesel fuel oil transfer pumps in accordance with written procedures following

maintenance activities is a performance deficiency. The finding was more than minor because it is associated with the Mitigating Systems Cornerstone attribute of equipment performance and it adversely affect the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609.04, the inspectors determined that the finding had very low safety significance (Green) because it did not result in a loss of system safety function, an actual loss of safety function of a single train for greater than its technical specification allowed outage time, or screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The inspectors determined that the finding had a cross-cutting aspect in the area of human performance associated with work practices because the licensee did not communicate human error prevention techniques such as self and peer checking to ensure that the appropriate pump retest was specified in the post maintenance testing instructions [H.4(a)] (Section 1R19).

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50 Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure of engineering personnel to follow Procedure 70TI-9ZC01 "Boric Acid Walkdown Leak Detection," to provide an evaluation of an active boric acid leak prior to the end of the outage. Specifically, a boric acid leak from the packing of the charging backpressure header control valve did not receive an evaluation prior to the end of the outage when it was left in service as an active leak and corrective actions were deferred. The licensee performed the boric acid leakage evaluation and determined that monitoring coupled with mitigating actions of cleaning and greasing were sufficient to support the functionality of the valve. The licensee plans to repair the valve at the soonest available opportunity and prior to restart after any maintenance or refueling outage. This finding has been entered into the licensee's corrective action program as PVAR 4191552.

  The failure of engineering personnel to provide an evaluation of an active boric acid leak prior to the end of the outage is a performance deficiency. The performance deficiency was more than minor, therefore a finding, because if left uncorrected the performance deficiency could possibly become a more significant safety concern in that unevaluated boric acid leaks could result with unmitigated boric acid corrosion of components. 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." Inspectors determined that the finding affected the Mitigating Systems Cornerstone and screened the finding using 0609 Appendix A, "The Significance Determination Process (SDP) for Findings at-Power." Inspectors concluded the finding was of very low safety significance (Green) because the finding is a design or qualification issue confirmed not to result in the loss of operability or functionality. The inspectors determined this finding has a crosscutting aspect in the area of human performance with the decision making component because the licensee failed to make decisions using a systematic process when faced with unexpected circumstances because decisions associated with boric acid

corrosion mitigation and management were made outside of the boric acid corrosion control program [H.1.(a)]. (Section 1R20).

- SLIV. The inspectors identified a Severity Level IV violation of 10 CFR 50.9, "Completeness and Accuracy of Information," for the failure of the licensee to provide complete and accurate information in all material respects in response to Generic Letter 88-20, Supplement 4. Specifically, the licensee asserted that roofs are equipped with roof drains and scuppers as backup. As a result, the licensee concluded roof ponding considerations were not applicable to the Palo Verde Nuclear Generating Station site. Inspectors determined that there are no roof drains installed. The licensee initiated corrective actions to provide an accurate depiction of the roof drainage capabilities to the NRC. This finding has been entered into the licensee's corrective action program as PVAR 3952605.

  The failure of the licensee to provide complete and accurate information for safety related building roof drainage was a performance deficiency. The Significance Determination Process is not suited to assess the significance of the performance deficiency because it affected the ability of the NRC to perform its regulatory oversight function and as such, it was assessed using traditional enforcement. This issue was determined to be a Severity Level IV violation in accordance with NRC Enforcement Policy examples provided in Section 6.9. No crosscutting aspect was assigned because the performance deficiency was assessed using traditional enforcement (Section 4OA2).

Cornerstone: Occupational Radiation Safety

- Green. The inspectors reviewed a self-revealing non-cited violation of Technical Specification 5.4.1, because workers failed to follow radiation exposure permit requirements and entered high radiation area without authorization by entering the wrong room. As corrective action, the licensee coached the workers, restricted their access to the radiologically controlled area, and entered the issue into the corrective action program as CRDR 3988625.

  The failure to follow radiation exposure permit requirements is a performance deficiency. The performance deficiency was more than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute (exposure control) of program and process and affected the cornerstone objective, in that entering an area outside the scope of the radiation exposure permit and not knowing the associated dose rates in the high radiation area had the potential to increase personnel dose. Using the Occupational Radiation Safety Significance Determination Process, the inspectors determined the finding had a very low safety significance because: (1) it was not associated with ALARA planning or work controls, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. The finding had a human performance cross-cutting aspect associated with work practices because the individuals did not use peer or self-checking before entering the unauthorized high radiation area [H.4(a)] (Section 2RS01).

Cornerstone: Public Radiation Safety

- Green. The inspector identified a non-cited violation of 10 CFR 30.41 because the licensee failed to verify a transferee was authorized to receive byproduct material before transferring it. This finding was entered in the licensee's corrective action program as CRDR 4136342.

  The failure to verify a transferee is licensed to receive the type, form, and quantity of byproduct being transferred is a performance deficiency. The significance was more than minor because radioactive material was actually transferred to an entity which was not licensed to receive the material. Thus, the performance deficiency was associated with the cornerstone attribute of Program & Process and adversely affected the associated cornerstone objective because the release of radioactive material to unlicensed entities could cause unplanned radiation dose or environmental contamination. Using Inspection Manual Chapter 0609, Appendix D, "Public Radiation Safety Significance Determination Process, " December 12, 2008, page D-13, the inspectors determined the violation had very low safety significance because the violation involved a radioactive material control issue, was not a transportation issue, and did not result in a dose to public of greater than 0.005 rem. This finding had a crosscutting aspect in the human performance area, work practices component, because personnel did not follow procedures. [H.4(b)] Section 2RS08

B. Licensee-Identified Violations

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

REPORT DETAILS

Summary of Plant Status

Unit 1 operated at essentially full power during the inspection period until April 9, 2012, when operators reduced power to 80 percent to repair a tube leak in low pressure feedwater heater 1A. Unit 1 returned to essentially full power on April 13, 2012 and remained there for the remainder of the inspection period.

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

Unit 3 was shutdown at the beginning of the inspection period for Refueling Outage 3R16. Operators started Unit 3 on April 15, 2012 and subsequently initiated a manual reactor trip due to a control element assembly deviation during low power physics testing. The licensee resolved the issue and restarted Unit 3 on April 16, 2012. Unit 3 returned to essentially full power on April 20, 2012. On June 25, 2012, Unit 3 experienced a reactor power cutback to 50 percent power due to loss of a main feedwater pump when a main feedwater pump mini-flow valve failed open. The licensee resolved the issue and returned Unit 3 to essentially full power on June 26, 2012 and remained there for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

Summer Readiness for Offsite and Alternate-ac Power

a. Inspection Scope

The inspectors performed a review of preparations for summer weather for selected systems, including conditions that could lead to loss-of-offsite power and conditions that could result from high temperatures. The inspectors reviewed the procedures affecting these areas and the communications protocols between the transmission system operator and the plant to verify that the appropriate information was being exchanged when issues arose that could affect the offsite power system. Examples of aspects considered in the inspectors' review included:

- The coordination between the transmission system operator and the plant's operations personnel during off-normal or emergency events
- The explanations for the events
- The estimates of when the offsite power system would be returned to a normal state
- The notifications from the transmission system operator to the plant when the offsite power system was returned to normal

During the inspection, the inspectors focused on plant-specific design features and the procedures used by plant personnel to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant-specific procedures. Specific documents reviewed during this inspection are listed in the attachment. The inspectors also reviewed corrective action program items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. The inspectors' reviews focused specifically on the following plant systems:

- May 2, 2012, non-essential 13.8 kV and 4160 Vac distribution system
- May 3, 2012, essential 4160 Vac distribution system

These activities constitute completion of one readiness for summer weather affect on offsite and alternate-ac power sample as defined in Inspection Procedure 71111.01-05.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial Walkdown

a. Inspection Scope

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

- May 10, 2012, Unit 3, train A emergency diesel generator
- April 25, 2012, Unit 1, train B low pressure safety injection and containment spray systems
- June 28, 2012, Unit 3, train A and train B low pressure safety injection systems

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

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

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

b. Findings

No findings were identified.

.2 Complete Walkdown

a. Inspection Scope

On May 23, 2012, the inspectors performed a complete system alignment inspection of the Unit 3, train A essential cooling water system alignment 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 uninterruptable power supply, 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:

- March 30, 2012, Unit 3, containment building, all elevations
- April 19, 2012, Unit 3, emergency diesel generator building, all elevations
- April 25, 2012, Unit 1, auxiliary building, all elevations
- May 10, 2012, Unit 3, auxiliary building, 40 and 51 foot elevations (fire area XIV, train B low-pressure safety injection pump room)

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

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

b. Findings

Introduction. The inspectors identified a Green non-cited violation of technical specification 5.4.1.d for the failure of the licensee to follow Procedure 14DP-0FP36, "Hot Work Permit." Specifically, the licensee failed to implement all requirements of the hot work permit and let welding slag impinge on combustible materials in containment.

Description. On March 30, 2012, during a walkdown of fire areas in Unit 3 containment, inspectors entered the 1A reactor coolant pump bay on the 80-foot elevation. While in this area, inspectors observed combustible materials, such as oily rags, piled on the floor. Inspectors observed sparks and welding slag falling down on to these materials and on the inspectors from the 100-foot elevation. Inspectors immediately notified licensee personnel and welding activities to replace a steam generator spool piece were stopped. Inspectors reviewed the hot work permit and interviewed the fire watch assigned to observe the work. Hot work permit 4098430 required grating to be adequately covered to prevent sparks or slag from falling to lower levels. Procedure 14DP-0FP36, "Hot Work Permit," Section 3.4.3.4, requires that the work group supervisor or designee and personnel are responsible for ensuring all conditions of the

hot work permit are maintained. Section 3.5 establishes hot work fire watch responsibilities to ensure the requirements of the hot work permit are inspected and maintained throughout the job. Inspectors determined that the requirements of the hot work permit were not maintained throughout the job. Through interviews with craft personnel, inspectors determined that human error prevention techniques could have been implemented to ensure the hot work permit was adhered to. The issue was opened in the corrective action program under condition report disposition request 4120969. The licensee is planning corrective actions to address the inadequacies associated with this issue.

Analysis. The inspectors concluded that the failure of the licensee to follow Procedure 14DP-0FP36, "Hot Work Permit," was a performance deficiency. The inspectors concluded the performance deficiency is more than minor, and therefore a finding, because it affected the protection against external events 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 0609.04, "Initial Characterization of Findings," and concluded the finding needed additional screening under IMC 0609, Appendix F, "Fire Protection Significance Determination Process." The inspectors determined that the condition represented a high degradation of the fire prevention and administrative controls fire protection program element due to the failure to observe all areas of vulnerability to a fire from hot work operation. The finding was determined only to affect the ability to maintain cold shutdown and using Figure F.1, the finding was determined to be of very low safety significance (Green). The inspectors determined this finding has a cross-cutting aspect in the area human performance associated with the work practices component because the licensee failed to communicate human error prevention techniques, such as self and peer checking [H.4(a)].

Enforcement. Technical Specification 5.4.1.d requires, in part, written procedures for implement the fire protection program. Procedure 14DP-0FP36, "Hot Work Permit, "Revision 18, requires in part, ensure the requirements of the hot work permit are inspected and maintained. Contrary to the above, on March 30, 2012, the licensee did not ensure the requirements of the hot work permit were inspected and maintained. Specifically, the licensee did not ensure that the grating was adequately covered to prevent sparks or slag from falling to lower levels of containment. The licensee stopped work and corrected the issue after being informed by inspectors. Because this finding is of very low safety significance and has been entered into the licensee's corrective action program as condition report disposition request CRDR 4120969, this violation is being treated as a non-cited violation in accordance with Section 2.3.2 of the Enforcement Policy: NCV 05000530/2012003-01, "Failure to Follow Hot Work Permit Procedure."

1R07 Heat Sink Performance (71111.07)

Triennial Heat Sink Inspection

a. Inspection Scope

The inspectors reviewed licensee programs to verify heat exchanger performance and operability for the following heat exchangers:

- Unit 1, train A essential cooling water heat exchanger
- Unit 1, train A shutdown cooling heat exchanger
- Unit 2, train B essential chiller heat exchanger
- Unit 3, train B essential cooling water heat exchanger
- Unit 3, train B diesel jacket water heat exchanger

The inspectors verified whether testing, inspection, maintenance, and chemistry control programs are adequate to ensure proper heat transfer. The inspectors verified that the periodic testing and monitoring methods, as outlined in commitments to NRC Generic Letter 89-13, utilized proper industry heat exchanger guidance. Additionally, the inspectors verified that the licensee's chemistry program ensured that biological fouling was properly controlled between tests. The inspectors reviewed previous maintenance records of the heat exchangers to verify that the licensee's heat exchanger inspections adequately addressed structural integrity and cleanliness of their tubes. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of five triennial heat sink inspection samples as defined in Inspection Procedure 71111.07-05.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08)

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

.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 four nondestructive examination activities and reviewed 11 nondestructive examination activities that included five types of examinations. The inspectors also reviewed three examinations with relevant indications that had been accepted by licensee personnel for continued service.

The inspectors directly observed the following nondestructive examinations:

SYSTEM	WELD IDENTIFICATION	EXAMINATION TYPE
Feedwater	Auxiliary & Downcomer Feedwater Steam Generator One (Weld 58-1)	Ultrasonic/Liquid Penetrant
Feedwater	Feedwater Steam Generator One (Weld 54-12R)	Magnetic Particle
Pressurizer	Cold Leg 1A Pressurizer Spray (Weld 9-11)	Phased Array Ultrasonic

The inspectors reviewed records for the following nondestructive examinations:

SYSTEM	WELD IDENTIFICATION	EXAMINATION TYPE
Feedwater	3S005-16-02 (Flow Accelerated Corrosion)	Ultrasonic
Steam Generator	Head-to-Shell Steam Generator One (Weld 41-107)	Ultrasonic
Steam Generator	Upper Cone Steam Generator One (Weld 41-106)	Ultrasonic
Feedwater	Feedwater Header to Steam Generator (Welds 3129871-1, 3129871-5, 3129871-7)	Radiograph
Reactor Coolant	Globe Ball Containment Isolation (Welds 3450550-1, 3450550-2)	Radiograph
Steam Generator	Nozzle-to-Shell Blowdown Line Steam Generator One (Weld 41-110)	Ultrasonic
Reactor Coolant	Cold Leg 1A Drain Line (Weld 8-18)	Phased Array Ultrasonic
Reactor Coolant	Cold Leg 2A Charging Line (Weld 13-11)	Phased Array Ultrasonic

SYSTEM	WELD IDENTIFICATION	EXAMINATION TYPE
Reactor Coolant	Cold Leg 2B Letdown Line (Weld 14-18)	Phased Array Ultrasonic
Reactor Coolant	Cold Leg 2A Drain Line (Weld 12-18)	Phased Array Ultrasonic
Reactor Coolant	Cold Leg 1B Drain Line (Weld 10-18)	Phased Array Ultrasonic
Pressurizer	Cold Leg 1B Pressurizer Spay (Weld 11-11)	Phased Array Ultrasonic

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

The inspectors reviewed two welds on the reactor coolant system pressure boundary. The inspectors reviewed records for the following welding activities:

SYSTEM	WELD IDENTIFICATION	WELD TYPE
Feedwater	Feedwater Header to Steam Generator (Welds 3129871-1, 3129871-5, 3129871-7)	Gas Tungsten Arc Welding
Reactor Coolant	Globe Ball Containment Isolation (Welds 3450550-1, 3450550-2)	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 observation and record review, that essential variables for the welding process were identified, recorded in the procedure qualification record, and formed the bases for qualification of the welding procedure specifications. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements for Section 02.01.

b. Findings

No findings were identified.

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

a. Inspection Scope

The licensee did not perform any reactor vessel head examinations during the Unit 3 refueling outage. The next bare metal visual inspection is scheduled for Refueling Outage R18. The next volumetric examinations are scheduled for Refueling Outage R21.

These actions constitute completion of the requirements for Section 02.02.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors evaluated the implementation of the licensee's boric acid corrosion control program for monitoring degradation of those systems that could be adversely affected by boric acid corrosion. The inspectors reviewed the documentation associated with the licensee's boric acid corrosion control walkdown as specified in Procedures 70TI-9ZC01, "Boric Acid Walkdown Leak Detection," Revision 12, and 73DP-9ZC01, "Boric Acid Corrosion Control Program," Revision 3. 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 for Section 02.03.

b. Findings

See section 1R20 that discusses a finding for failure to perform an evaluation as required by Procedure 70T1-9ZC01.

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

a. Inspection Scope

The inspection procedure specified performance of an assessment of in situ screening criteria to assure consistency between assumed nondestructive examination flaw sizing accuracy and data from the Electric Power Research Institute (EPRI) examination technique specification sheets. It further specified assessment of appropriateness of tubes selected for in situ pressure testing, observation of in situ pressure testing, and review of in situ pressure test results. No conditions were identified that warranted in-situ pressure testing.

The inspection procedure specified confirmation that the steam generator tube eddy current test scope and expansion criteria meet technical specification requirements, EPRI guidelines, and commitments made to the NRC. The inspectors evaluated the recommended steam generator tube eddy current test scope established by technical specification requirements. The inspectors compared the recommended test scope to the actual test scope and found that the licensee had accounted for all known flaws and had, as a minimum, established a test scope that met technical specification requirements, EPRI guidelines, and commitments made to the NRC. The scope of the licensee's eddy current examinations of tubes in the steam generators included:

- 100% percent full length bobbin testing using a 0.610-inch-diameter bobbin probe at 80 inches per second
- 100% percent bobbin testing using a 0.590-inch-diameter bobbin probe at 24 inches per second
- 100% percent +Point inspection of bobbin flaw-like signals at tube support structures
- Special interest +Point testing of non resolved freespan bobbin signals
- 100% percent +Point inspection of dent (DNT) signals >2V at tube supports
- 100% percent +Point inspection of freespan DNT signals >5V
- 100% percent +Point inspection of newly reported DNT signals >2V
- 100% percent tube plugging visual inspection
- Tubesheet periphery and tube lane foreign object search and retrieval

The inspection procedure required confirmation that the licensee inspected all areas of potential degradation, especially areas that were known to represent potential eddy current test challenges such as the top-of-tubesheet, tube support plates, and U-bends. The inspectors confirmed that all known areas of potential degradation were included in the scope of inspection and were inspected.

No new degradation mechanisms were identified during the steam generator inspections performed per Procedure 73TI-9RC01, "Steam Generator Eddy Current Examinations," Revision 29. The existing degradation during Refueling Outage 3R16 was fretting wear caused by interaction of tubes and tube supports (eggcrates, diagonal bars, and vertical straps). The greatest wear was identified on Steam Generator SG31 and included two tubes with a 38 percent through-wall indication caused by contact with Vertical Support VS3. A total of six tubes in each steam generator were plugged using PEGASYS rolled plugs. Four tubes in Steam Generator SG31 and one tube in Steam Generator SG32 were stabilized using a 445-inch stake. No indications of loose parts or loose part wear were identified during the eddy current examinations. The inspectors verified that the plugging and stabilization process used were NRC approved repair processes.

The licensee performed a plug integrity visual examination per procedure 81DP-9RC40, "Steam Generator Channel Head Video Inspection," to verify that those tubes that had been previously plugged did not exhibit any leakage. No evidence of plug leakage was identified. Additionally, secondary sludge lancing and foreign object search and retrieval (FOSAR) inspections were performed in both steam generators. No foreign materials were identified.

Finally, the inspection procedure specified review of eddy current test data samples to assess the adequacy of licensee's acquisition and analyses process. No issues were identified.

These actions constitute completion of the requirements of Section 02.04.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed 15 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.

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

.1 Quarterly Review of Licensed Operator Requalification Program

a. Inspection Scope

On May 24, 2012, the inspectors observed a crew of licensed operators in the plant's simulator during requalification training. The inspectors assessed the following areas:

- Licensed operator performance
- The ability of the licensee to administer the evaluations
- The modeling and performance of the control room simulator
- The quality of post-scenario critiques
- Follow-up actions taken by the licensee for identified discrepancies

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

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 performance of critical evolutions associated with the Unit 3 refueling outage. The inspectors observed the operators' performance of the following activities:

- April 5, 2012, reduced inventory operations during the Unit 3 refueling outage
- April 15, 2012, reactor startup following the Unit 3 refueling outage

In addition, the inspectors assessed the operators' adherence to plant procedures, including the licensee's conduct of operations procedure 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.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

- May 25, 2012, Unit 3, 125VDC inverters
- May 31, 2012, Units 1, 2, and 3, 10CFR50.65(a)(3) periodic assessment of maintenance rule program

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

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

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

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

b. Findings

No findings were identified.

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

a. Inspection Scope

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

- April 11, 2012, Unit 3, Mode 4 entry with atmospheric dump valves ADV-179 and ADV-184 inoperable
- April 25, 2012, Unit 1, train A containment spray and train A low pressure safety injection planned maintenance
- May 22, 2012, Unit 3, train A super-outage

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

b. Findings

No findings were identified.

1R15 Operability Evaluations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed the following assessments:

- April 2, 2012, Unit 3, PNA-N11 125VDC inverter failure
- April 10, 2012, Unit 3, spray pond concrete degradation
- April 18, 2012, Unit 3, control element assembly 57 stopped during testing
- April 20, 2012, Units 1, 2 and 3, incorrect air operated valve pressure regulating valves
- April 21, 2012, Unit 3, valve position indicator for SIA-UV-672 reads 19% with valve closed
- April 23, 2012, Unit 1, train A auxiliary feedwater recirculation flow turbulence
- May 1, 2012, Unit 2, train B engineered safety feature actuation system surveillance test failure
- June 1, 2012, Units 1, 2 and 3, minimum departure from nucleate boiling ratio setpoint analysis
- June 6, 2012, Unit 3, turbine-driven auxiliary feedwater water pump room door failure

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 nine operability evaluations inspection samples as defined in Inspection Procedure 71111.15-05.

b. Findings

Introduction. The inspectors identified a Green non-cited violation of Technical Specification Limiting Condition for Operation (LCO) 3.0.3 for the failure of plant personnel to place Unit 2 in Mode 3 within 7 hours of initiation of a condition not permitted by Technical Specifications. Specifically, following the failure of essential ventilation dampers during a surveillance test that rendered the train B DC equipment, inverters, and ESF switchgear inoperable, operators exceeded the Technical Specification time requirements before restoring operability of the equipment.

Description. At 3:19 a.m. (MST), on January 22, 2012, during a scheduled surveillance test of Unit 2 train B engineered safety features (ESF) actuation system, essential ventilation system dampers HJB-M31 and HJB-M58 failed to operate. These failed dampers impacted the ability of the essential ventilation system to cool the air supplied to the train B DC equipment, inverters, and ESF switchgear under accident conditions and maintaining room air temperatures within the specified limits, as described in Section 9.4.1.3 of the UFSAR. Unit 2 operators implemented Sections 8.19 and 8.21 of Procedure 40ST-9EC03, "Essential Chilled Water and Ventilation Systems Inoperable Action Surveillance," that credits the non-safety related normal ventilation system to maintain operability of the supported equipment. AT 1:00 p.m. (MST) during troubleshooting efforts, operators entered Technical Specification (TS) 3.8.4, "DC Sources – Operating," and TS 3.8.9, "Distribution Systems – Operating." At 2:23 p.m. (MST), following repairs, operators successful operated the essential ventilation system and exited TS 3.8.4 and 3.8.9.

The inspectors challenged the decision to rely on the normal ventilation system for operability of the supported equipment. As described in Section 9.4.1.4 of the UFSAR, the normal ventilation system has no safety design basis and secures during emergency conditions to allow the essential ventilation system to operate. Additionally, Calculation 13MC-HJ-256, "Control Room and Switchgear Room Temperature Rise," identifies that the DC equipment room will exceed its design temperature within 45 minutes following a design-basis accident with no ventilation system operating. Also, the licensee identified in Licensee Event Report 91-0007-01 that the normal ventilation system is not adequate to meet essential cooling loads. The licensee concluded that the train B DC equipment, inverters, and ESF switchgear would not have been able to perform their safety function and were inoperable at the time of the essential ventilation system failures. The inspectors concluded that the licensee failed to comply with the conditions of TS 3.8.4, 3.8.7, and 3.8.9. TS 3.8.7, "Inverters – Operating," permits only one required inverter to be inoperable. In this case, two inverters were inoperable, which required operators to enter Limiting Condition for Operation (LCO) 3.0.3 and be in Mode 3 within seven hours.

The inspectors concluded the most significant contributor to this issue was the inadequate guidance provided by Procedure 40ST-9EC03 to credit the normal ventilation system for operability of the supported equipment. The procedure was revised in 1991 to add the guidance for responding to failures of the essential ventilation system. The licensee initiated corrective actions to evaluate equipment operability following essential ventilation system failures, revise procedural guidance and implement compensatory measures to ensure the supported equipment remains capable of

performing its required safety functions in the event of essential ventilation system failures.

Analysis. The inspectors concluded that the failure of the licensee to comply with Technical Specifications was a performance deficiency. The performance deficiency is more than minor because it adversely affected the equipment performance 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 resident inspectors performed the initial significance determination for the essential ventilation damper failures using the Significance Determination Process, as defined in Inspection Manual Chapter Attachment 0609.04, "Initial Characterization of Findings," and 0609 Appendix A, "The Significance Determination Process (SDP) for Findings at Power." The finding screened to a detailed analysis because it involved an actual loss of safety function of a single train of equipment for greater than its technical specification allowed outage time. A Region IV senior reactor analyst performed a bounding Phase 3 significance determination.

The performance deficiency involved the failure to enter the correct technical specification actions when the ventilation damper malfunctions were found. This was an administrative action, but the licensee had failed to initiate a plant shutdown when required. The analyst bounded the significance of this error by using an exposure period that started when the mistake was made and ended when the damper was restored to service. This exposure period was approximately 10 hours.

The analyst used the "Palo Verde Standardized Plant Analysis Risk (SPAR)" model, Revision 8.20, dated May 31, 2012 to perform simplified calculations. The analyst noted that the normal non-safety ventilation system would not be available for DC room cooling in response to loss of offsite power initiating events. In addition, in response to a safety injection actuation signal (SIAS), the normal ventilation system would secure and ventilation dampers would realign to the safety-related cooling system. A SIAS signal is associated with loss of coolant accidents.

The analyst noted that the SPAR model did not include the SIAS system response in the programming. So, the analyst manipulated the model to accommodate the system response. The analyst first solved the initiating events associated with loss of offsite power events and loss of coolant accidents assuming that the normal ventilation system and the train B safety-related room ventilation system were inoperable. The analyst then compared this value to the nominal case SPAR values for these same sequences, assuming that the ventilation systems worked normally. The incremental conditional core damage probability, assuming one year of exposure, for these sequences was 8.1E-5. The change to the core damage frequency (delta-CDF) considering the 10 hour exposure period was therefore:

Delta-CDF = 8.1E-5 * 10hour/8760 hours per year = 9E-8/year.

Next, the analyst considered all other SPAR model sequences. For these sequences, the analyst assumed that the normal ventilation system was available. The analyst then calculated conditional core damage probability assuming that the safety-related train B

ventilation system was inoperable. By comparing this value to the nominal case where the train B ventilation system was operable, the analyst determined that the incremental conditional core damage probability was 2E-7. For the 10 hour exposure period, the delta-CDF for these sequences was:

Delta-CDF = 2E-10/year.

The total change to the core damage frequency combining all sequences was:

Delta-CDF = 2E-10/year + 9E-8 = 9E-8 per year.

Since the change to the core damage frequency was less than 1.0 E-7/year, the analyst was not required to consider the contribution from external events or calculate the change to the large early release frequency.

Since the calculated delta-CDF was less than 1E-6, and the large early release frequency was not a significant contributor, the finding was of very low safety significance (Green).

The dominant core damage sequences included: loss of offsite power sequences; failure of remaining safety related train A ventilation; failure of operators to provide alternate room cooling; and the failure of the turbine driven auxiliary feedwater pump. The very short exposure period helped to minimize the significance.

The inspectors did not assign a cross-cutting aspect to this finding because the inadequate procedural guidance for responding to essential ventilation system failures was made in 1991 and is not reflective of present performance.

Enforcement. Technical Specification Limiting Condition for Operation (LCO) 3.0.3, requires, in part, that when an LCO is not met and an associated action is not provided, action shall initiate within one hour to place the unit in Mode 3 within seven hours. Contrary to the above, on January 22, 2012, the licensee failed to place Unit 2 in Mode 3 within seven hours when an LCO was not met and an associated action was not provided. Specifically, when essential ventilation dampers failed during a surveillance test, resulting in two inoperable inverters, a condition not allowed by Technical Specification 3.8.7, “Inverters – Operating,” operators failed to place Unit 2 in Mode 3 as required. The licensee repaired the failed dampers and restored system operability. Because this finding is of very low safety significance and has been entered into the licensee’s corrective action program as PVAR 4033786, this violation is being treated as a non-cited violation in accordance with Section 2.3.2 of the Enforcement Policy: NCV 05000529/2012003-02, “Failure to Comply with Technical Specifications.”

1R18 Plant Modifications (71111.18)

Permanent Modifications

a. Inspection Scope

The inspectors reviewed key parameters associated with energy needs, materials, replacement components, timing, heat removal, control signals, equipment protection from hazards, operations, flow paths, pressure boundary, ventilation boundary, structural, process medium properties, licensing basis, and failure modes for the permanent modification identified as Unit 3 control element drive mechanism automatic timer cards.

The inspectors verified that modification preparation, staging, and implementation did not impair emergency/abnormal operating procedure actions, key safety functions, or operator response to loss of key safety functions; postmodification testing will maintain the plant in a safe configuration during testing by verifying that unintended system interactions will not occur; systems, structures and components' performance characteristics still meet the design basis; the modification design assumptions were appropriate; the modification test acceptance criteria will be met; and licensee personnel identified and implemented appropriate corrective actions associated with permanent plant modifications. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample for permanent 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:

- April 9, 2012, Unit 3, essential chiller A
- April 12, 2012, Unit 3, turbine-driven auxiliary feedwater pump
- April 19, 2012, Units 1 and 2, ARD relay replacement in CREFS and CREATS, after corrective maintenance
- April 26, 2012, Unit 1, train A auxiliary feedwater, after preventative maintenance

- May 2, 2012, Unit 2, diesel generator A fuel oil transfer pump test failed surveillance test

- May 21, 2012, Unit 3, PNA-N11 125VDC inverter

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 six post-maintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

Introduction. The inspectors identified a Green, non-cited violation involving the failure to follow the requirements of Procedure 73DP-9XI01, “Pump and Valve Inservice Testing Program,” for the Unit 2 A diesel generator fuel oil transfer pump.

Description. On April 7, 2011, the Palo Verde maintenance technicians removed the Unit 2 A diesel generator fuel oil transfer pump from the main fuel oil storage tank in order to replace Buna-N gasket material with new Viton gaskets. This change was made because long term exposure of Buna-N gaskets to ultra low sulfur diesel fuel may cause gasket material shrinkage and potential leaks. Corrective maintenance work order 3274181 contained instructions for disassembling the pump housing, replacing gaskets, and then reassembling the Unit 2 diesel generator A fuel oil transfer pump.

Surveillance Procedure 73DP-9XI01, “Pump and Valve Inservice Testing Program,” provides the requirements for assessing the operational readiness of pumps and valves whose specific functions are required to bring the reactor from any operating mode to the safe shutdown condition, to maintain the safe shutdown condition, or to mitigate the consequences of an accident. The diesel generator system is relied upon to provide a

standby source of AC power for the two trains of engineered safety features (ESF) equipment for safe plant shutdown and decay heat removal under all conditions.

The fuel oil transfer pumps transfer diesel from each of the fuel oil storage tanks to their respective day tanks to ensure an adequate supply of fuel for the diesel generators. Palo Verde Procedure 73DP-9XI01, "Pump and Valve Inservice Testing Program," Table 1 - Pump Post Maintenance Inservice Test Guideline, states that an inservice flow test is required following any maintenance activity involving pump disassembly not affecting the rotating element. The work scope of the Unit 2 diesel generator A fuel oil transfer pump maintenance performed on April 7, 2011 did involve pump disassembly. However, corrective maintenance work order 3274181 incorrectly specified surveillance procedure 40ST-9DF01, "Fuel Oil Day Tank Accumulated Water Check," as the retest requirement.

On May 2, 2012, the Unit 2 diesel generator A fuel oil transfer pump failed to meet its technical specification acceptance criteria during its biennial comprehensive inservice pump test. This transfer pump had successfully passed quarterly surveillance testing on four occasions between June 2011 and February 2012. However, the biennial test has more stringent acceptance criteria. Thus, due to the inadequate post maintenance retest, the potential effect of the April 7, 2011 maintenance on the hydraulic capability of the pump had gone unrecognized until May 2, 2012.

This issue is entered in the corrective action program as PVAR 4161870. The licensee wrote a temporary approved procedure action to revise the acceptance criteria for the biennial inservice pump test. The quarterly inservice pump test conducted on June 1, 2011, was credited as a valid post maintenance test and the results were used to establish new pump performance reference values and acceptance criteria in accordance with ASME operations and maintenance code requirements. With these new pump performance reference values, the pump met the biennial inservice test criteria on May 2, 2012. The licensee also confirmed that no other diesel generator fuel oil transfer pumps had received inadequate post maintenance tests following similar maintenance activities.

Analysis. The failure to follow Procedure 73DP-9XI01 for developing retest criteria for plant equipment following maintenance activities is a performance deficiency. The finding is more than minor because it is associated with the Mitigating Systems Cornerstone attribute of of equipment performance and it adversely affect the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609.04, the inspectors determined that the finding had very low safety significance (Green) because it did not result in a loss of system safety function, an actual loss of safety function of a single train for greater than its technical specification allowed outage time, or screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The inspectors determined that the finding has a cross-cutting aspect in the area of human performance associated with work practices. Specifically, Palo Verde did not communicate human error prevention techniques such as self and peer checking to ensure that the appropriate pump retest was specified in the post maintenance testing instructions [H.4(a)].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," requires in part, that a test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents. Contrary to the above, between April 7, 2011 and June 1, 2011, the licensee failed to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures. Specifically, the licensee failed to perform an inservice pump test in accordance with Procedure 73DP-9XI01, "Pump and Valve Inservice Testing Program," Revision 26. The licensee has subsequently credited the quarterly inservice pump test conducted on June 1, 2011 as a valid post maintenance test and the results were used to establish new pump performance reference values. This issue was entered into the licensee's corrective action program as Palo Verde Action Request 4161870. Because this finding was determined to be of very low safety significance and was entered into the license's corrective action program, this violation is being treated as a noncited violation consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000529/2012003-03, "Inadequate Post Maintenance Test of the Diesel Fuel Oil Transfer Pump."

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

The inspectors reviewed the outage safety plan and contingency plans for the Unit 3 refueling outage, conducted March 17 through April 17, 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
- Maintenance of secondary containment as required by the technical specifications
- Refueling activities, including fuel handling and sipping to detect fuel assembly leakage
- Startup and ascension to full power operation, tracking of startup prerequisites, walkdown of the 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 one refueling outage and other outage inspection sample as defined in Inspection Procedure 71111.20-05.

b. Findings

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 engineering personnel to follow Procedure 70TI-9ZC01 "Boric Acid Walkdown Leak Detection," to provide an evaluation of an active boric acid leak prior to the end of the Unit 3 refueling outage. Specifically, a boric acid leak from the packing of the charging backpressure header control valve did not receive an evaluation prior to the end of the outage when it was left in service as an active leak and corrective actions were deferred.

Description. On March 17, 2012, at the beginning of the Unit 3 refueling outage, inspectors and engineering personnel performed a walkdown in containment to identify components that may be leaking. During the activity, inspectors noted Valve CHV-240 had obvious signs of leakage and corrosion, as denoted by rust colored boric acid deposits. This condition had been identified by the licensee on March 7, 2012 and documented in the corrective action program as PVAR 4079089. Engineering personnel requested to repack the valve at this time. A work scope change request was made to address the condition under work order 4082309. The decision was made to only adjust the packing and not repack the valve as the valve had been repacked 18 months prior. Procedure 70TI-9ZC01 "Boric Acid Walkdown Leak Detection," requires an evaluation of any leaks that have evidence of corrosion as indicated by red or rust colored boric acid

deposits. This procedure requires that if the leakage requires an evaluation, the corrective maintenance work order be attached to the parent corrective action document. While the request for the boric acid leak evaluation was documented, the corrective maintenance work order was not attached as required per procedure. Also, the inspectors noted that scope change review board notes were not documented in the corrective action program, as required by the procedure. Additionally, the procedure requires that boric acid leakage evaluations be completed prior to the end of the outage for items that have maintenance deferred. When restarting the unit from the refueling outage, the licensee discovered on April 12, 2012, that the leak became worse after the packing adjustment, becoming an active leak. Subsequent attempts to tighten the packing on the valve failed to restrict further leakage. The licensee made a decision to proceed with start up with the valve in this degraded condition and defer maintenance of the identified boric acid leakage item to a future date. A boric acid leakage evaluation needed to be completed prior to the end of the outage for items that have maintenance deferred and was not done. As such, there was no engineering evaluation of the degraded condition documented to support long-term functionality of the valve. However, the licensee's interim actions under an operability determination decision-making issue were appropriate to support monitoring of the degraded condition, despite these actions being outside of the boric acid corrosion control program. The licensee performed the boric acid leakage evaluation after unit startup and determined that monitoring coupled with mitigating actions of cleaning and greasing were sufficient to support the functionality of the valve. The licensee plans to repair the valve at the soonest available opportunity and prior to restart after any maintenance or refueling outage.

Analysis. The inspectors concluded that the failure of the engineering personnel to provide an evaluation of an active boric acid leak prior to the end of the outage was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because if left uncorrected the performance deficiency could possibly become a more significant safety concern in that unevaluated boric acid leaks could result in excessive boric acid corrosion of components, and subsequent increases in system leakage. 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." Inspectors determined that the finding affected the Mitigating Systems Cornerstone and screened the finding using 0609 Appendix A, "The Significance Determination Process (SDP) for Findings at-Power." Inspectors concluded the finding was of very low safety significance (Green) because the finding is a design or qualification issue confirmed not to result in the loss of operability or functionality. The inspectors determined this finding has a crosscutting aspect in the area of human performance with the decision making component because the licensee failed to make decisions using a systematic process when faced with unexpected circumstances because decisions associated with boric acid corrosion mitigation and management were made outside of the boric acid corrosion control program [H.1.(a)].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and be accomplished in accordance with these instructions, procedures,

or drawings. Procedure 70TI-9ZC01 “Boric Acid Walkdown Leak Detection,” Revision 12, provided guidelines and instructions for evaluating boric acid corrosion. Step 3.6.11 states, in part, evaluations for boric acid leakage items which were deferred should be completed prior to the end of the outage. Contrary to the above, from April 14, 2012 through June 7, 2012, engineering personnel failed to accomplish an activity affecting quality in accordance with the prescribed instructions, procedures, and drawings. Specifically, plant personnel failed to follow Procedure 70TI-9ZC01 and provide a timely evaluation for boric acid active leakage items with maintenance deferred. The licensee performed the boric acid leakage evaluation after unit startup and determined that monitoring coupled with mitigating actions of cleaning and greasing were sufficient to support the functionality of the valve. The licensee will repair the valve at the soonest available opportunity and prior to restart after any maintenance or refueling outage. Because this finding is of very low safety significance and has been entered into the licensee’s corrective action program as PVAR 4191552, this violation is being treated as a non-cited violation in accordance with Section 2.3.2 of the Enforcement Policy: NCV 05000530/2012002-04, “Failure to Perform Boric Acid Evaluation.”

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.

- April 12, 2012, Unit 3, containment building purge supply local leak rate test
- April 24, 2012, Unit 2, train A safety injection combined suction to refueling water tank valve CH-531 inservice test
- May 16, 2012, technical support center, diesel generator
- June 18, 2012, Unit 2, pump A auxiliary feedwater inservice test

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

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

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on May 29, 2012, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the Technical Support Center to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the corrective action program.

As part of the inspection, the inspectors reviewed the drill package and other documents listed in the attachment.

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

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstones: Public Radiation Safety and Occupational Radiation Safety

2RS01 Radiological Hazard Assessment and Exposure Controls (71124.01)

a. Inspection Scope

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

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

- Performance indicator events and associated documentation reported by the licensee in the Occupational Radiation Safety Cornerstone
- The hazard assessment program, including a review of the licensee's evaluations of changes in plant operations and radiological surveys to detect dose rates, airborne radioactivity, and surface contamination levels
- Instructions and notices to workers, including labeling or marking containers of radioactive material, radiation work permits, actions for electronic dosimeter alarms, and changes to radiological conditions
- Programs and processes for control of sealed sources and release of potentially contaminated material from the radiologically controlled area, including survey performance, instrument sensitivity, release criteria, procedural guidance, and sealed source accountability

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

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

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

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

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

b. Findings

Introduction. The inspectors reviewed a self-revealing, Green non-cited violation of Technical Specification 5.4.1, because workers failed to follow radiation exposure permit (REP) requirements.

Description. On November 21, 2011, four radiation workers, including a radiation protection technician, were briefed to enter the Unit 3 containment building to perform thermography and leak rate inspection activities at the pressurizer and reactor drain tank. At the time, the entire containment was posted as a locked high radiation area. The job was assigned to REP 3-1007, Task 1. This REP allowed access to a locked high radiation area with dose rates greater than 1 rem per hour at 30 centimeters. However, it was not intended that the workers enter areas with dose rates this high. Prior to entry, the workers were explicitly briefed on the two areas of concern and the intended travel path to these locations was discussed. Survey 3-M-20101118-5 was used for this briefing of radiological conditions. Per this survey, the maximum dose rates in the two areas were noted as 40 millirem per hour at 30 centimeters.

Upon entry into the containment building, the workers proceeded to the 120-foot elevation to inspect leak off lines, bypass valves, and spray valves. No leaks were identified. Thus, the workers continued to the 80-foot elevation of the containment building to continue their investigation. The plan was to proceed directly to the reactor drain tank. However, once the workers entered the 80-foot elevation from the stairwell, they stopped short of the intended pathway to the reactor drain tank and entered the reactor coolant pump 2B bay room. REP 3-1007, Task 1, specifically noted that there shall be no entry into areas not explicitly identified and discussed during the formal pre-job briefing. This area had not been identified and discussed. Additionally, the REP restricted access below the 136-foot elevation of the steam generator bays, which included the 80-foot elevation of the reactor coolant pump 2B bay room. As noted in the Adverse CRDR 3988625, the lead radiation protection technician inadvertently led the

other three workers to the reactor coolant pump 2B bay door, thinking it was the reactor drain tank entry.

Shortly after entering the hallway of the reactor coolant pump 2B bay room, all four workers received an electronic dosimeter dose rate alarm. All workers immediately exited the area and proceeded outside of containment.

The maximum dose rates recorded on the workers' electronic dosimeters ranged from 560 to 698 millirem per hour. Surveys 3-M-20111121-7 and 2-97-00450 were used to determine the dose rates in the reactor coolant pump 2B bay room. The maximum general area dose rate was 1,500 millirem per hour. Thus, the actual dose rates potentially entered versus the intended dose rates discussed during the pre-job briefing were nearly a factor of 38 times higher.

Analysis. The failure to follow REP requirements was a performance deficiency. The performance deficiency was more than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute (exposure control) of program and process and affected the cornerstone objective, in that entering an area outside the scope of the REP and not knowing the associated dose rates in the high radiation area had the potential to increase personnel dose. Using the Occupational Radiation Safety Significance Determination Process, the inspectors determined the finding had a very low safety significance (Green) because: (1) it was not associated with ALARA planning or work controls, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. The finding has a human performance cross-cutting aspect associated with work practices because the individuals did not use peer or self-checking before entering the unauthorized high radiation area [H.4(a)].

Enforcement. Technical Specification 5.4.1.a requires implementation of applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Section 7(e) of the Appendix requires procedures for access control to radiation areas including a radiation work permit system. Procedure 75DP-9RP01, Revision 18, "Radiation Exposure and Access Control," Step 2.1.6, implements this requirement. It states that each individual has the responsibility of "reading the applicable Radiation Exposure Permit (REP) for their specific job or task and obeying all instructions and requirements." REP 3-1007, Task 1, "LHRA – Containment Entries (Plant Modes 1 & 2)," did not allow entry into areas not explicitly identified and discussed during the formal pre-job briefing. It also restricted access to the steam generator bays below 136-foot elevation. Contrary to the above, on November 21, 2011, four radiation workers failed to follow instructions and requirements of REP 3-1007, Task 1, when they entered an unauthorized area that was not explicitly briefed and was located below the 136-foot elevation of the steam generator bay, the lowest elevation to which access was permitted. As corrective action, the licensee restricted the workers access to the radiologically controlled area, coached the workers, and entered the issue into the corrective action program as CRDR 3988625. Because the violation was of very low safety significance and was entered into the licensee's corrective action program, the violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the

NRC Enforcement Policy: NCV 05000530/2012003-05, "Failure to Follow Procedures and Radiation Exposure Permit Requirements."

2RS03 In-plant Airborne Radioactivity Control and Mitigation (71124.03)

a. Inspection Scope

This area was inspected to verify in-plant airborne concentrations are being controlled consistent with ALARA principles and the use of respiratory protection devices on-site do not pose an undue risk to the wearer. The inspectors used the requirements in 10 CFR Part 20, the technical specifications, and the licensee's procedures required by technical specifications as criteria for determining compliance. During the inspection, the inspectors interviewed licensee personnel, performed walkdowns of various portions of the plant, and reviewed the following items:

- The licensee's use, when applicable, of ventilation systems as part of its engineering controls
- The licensee's respiratory protection program for use, storage, maintenance, and quality assurance of NIOSH certified equipment, qualification and training of personnel, and user performance
- The licensee's capability for refilling and transporting SCBA air bottles to and from the control room and operations support center during emergency conditions, status of SCBA staged and ready for use in the plant and associated surveillance records, and personnel qualification and training
- Audits, self-assessments, and corrective action documents related to in-plant airborne radioactivity control and mitigation since the last inspection

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

These activities constitute completion of the one sample as defined in Inspection Procedure 71124.03-05.

b. Findings

No findings were identified.

Cornerstone: Occupational and Public Radiation Safety

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

a. Inspection Scope

This area was inspected to verify compliance with 10 CFR 30.41, "Transfer of Byproduct Material." The inspectors reviewed the licensee's response, dated May 2, 2012, to a request from the NRC for information dated March 19, 2012.

b. Findings

Introduction. The inspector identified a Green, non-cited violation of 10 CFR 30.41 for the failure of the licensee to verify a transferee was authorized to receive byproduct material before transferring it.

Description. According to the record for Shipment 10 SH-076, a LMP-10 halide (R-11) detector was shipped to NUCON International on October 6, 2010, for calibration. The detector contained a 153 millicurie tritium (H-3) sealed source. NUCON International's radioactive material license (Ohio Department of Health 03225250036) did not, at the time of shipment, authorize possession of tritium in the type, form, or quantity shipped by the licensee. The shipper did not follow the established procedural guidance. Procedure 76RP-0RW07, "Shipping Radioactive Material," Revision 9, Steps 3.3.1, instructed shippers to obtain a copy of the current revision of the consignee's radioactive material license and evaluate the shipment for compliance with the terms and conditions of the license. Alternately, Step 3.3.2 allowed the shipper to obtain a written certification from the consignee stating they are authorized to receive the type and quantity of material being offered for transport. Compliance with either of these steps in the shipping procedure would likely have prevented radioactive material from being transferred to an unlicensed transferee.

Analysis. The failure to verify a transferee is licensed to receive the type, form, and quantity of byproduct being transferred is a performance deficiency. The significance was more than minor because radioactive material was actually transferred to an entity which was not licensed to receive the material. Thus, the performance deficiency was associated with the cornerstone attribute of Program & Process and adversely affected the associated cornerstone objective because the release of radioactive material to unlicensed entities could cause unplanned radiation dose or environmental contamination. Using Inspection Manual Chapter 0609, Appendix D, "Public Radiation Safety Significance Determination Process," December 12, 2008, page D-13, the inspectors determined the violation had very low safety significance because the violation involved a radioactive material control issue, was not a transportation issue, and did not result in a dose to the public of greater than 0.005 rem. This finding had a crosscutting aspect in the human performance area, work practices component, because personnel did not follow procedures. [H.4(b)]

Enforcement. Title 10 CFR 30.41(a) states, "No licensee shall transfer byproduct material except as authorized pursuant to this section." Title 10 CFR 30.41(c) states, "Before transferring byproduct material to a specific licensee of the Commission or an Agreement State, the licensee transferring the material shall verify that the transferee's license authorizes the receipt of the type, form, and quantity of byproduct material to be transferred." Contrary to the above, on October 6, 2010, the license did not verify that a transferee's license authorized the receipt of the type, form and quantity of byproduct material before transferring byproduct material. Consequently, the licensee transferred 153 millicuries of tritium (H-3) to NUCON International (Ohio Department of Health radioactive material license 03225250036), a company not licensed to receive radioactive in this type, form, and quantity. Because the violation had very low safety

significance and has been entered into the licensee's corrective action program as CRDR 4136342, this violation is being treated as a NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000528/2012003-06; 05000529/2012003-06; 05000530/2012003-06; Failure to verify a transferee was licensed to receive byproduct material.

4. OTHER ACTIVITIES

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

4OA1 Performance Indicator Verification (71151)

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the performance indicator data submitted by the licensee for the first 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 Safety System Functional Failures (MS05)

a. Inspection Scope

The inspectors sampled licensee submittals for the safety system functional failures performance indicator for Palo Verde Units 1, 2, and 3 for the period from the second quarter 2011 through the first 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, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73." The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, issue reports, event reports, and NRC integrated inspection reports for the period of April 2011 through March 2012 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of three safety system functional failures samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index - Emergency ac Power System (MS06)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - emergency ac power system performance indicator for Palo Verde Units 1, 2, and 3 for the period from the second quarter 2011 through the first 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, mitigating systems performance index derivation reports, issue reports, event reports, and NRC integrated inspection reports for the period of April 2011 through March 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 - emergency ac power system samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.4 Mitigating Systems Performance Index - High Pressure Injection Systems (MS07)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - high pressure injection systems performance indicator for Palo Verde Units 1, 2, and 3 for the period from the second quarter 2011 through the first 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 April 2011 through March 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 - high pressure injection system samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.5 Occupational Exposure Control Effectiveness (OR01)

a. Inspection Scope

The inspectors reviewed performance indicator data for the fourth quarter of 2011 through the first quarter 2012. The objective of the inspection was to determine the accuracy and completeness of the performance indicator data reported during these periods. The inspectors used the definitions and clarifying notes contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, as criteria for determining whether the licensee was in compliance.

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

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

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed performance indicator data for the fourth quarter of 2011 through the first quarter 2012. The objective of the inspection was to determine the accuracy and completeness of the performance indicator data reported during these periods. The inspectors used the definitions and clarifying notes contained in NEI

Document 99-02, “Regulatory Assessment Performance Indicator Guideline,” Revision 6, as criteria for determining whether the licensee was in compliance.

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

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

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

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

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

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

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

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

b. Findings

Introduction. The inspectors identified a Severity Level IV non-cited violation of 10 CFR 50.9, "Completeness and Accuracy of Information," for the failure of the licensee to provide complete and accurate information in all material respects in response to Generic Letter 88-20, Supplement 4. Specifically, the licensee asserted that roofs are equipped with roof drains and scuppers as backup. As a result, roof ponding considerations are not applicable to the Palo Verde Nuclear Generating Station site. Inspectors determined that there are no roof drains installed.

Description. During the inspectors' review of an engineering evaluation used to support the structural integrity of the safety related seismic Category I buildings in the event of a design basis probable maximum precipitation (PMP) event, described in further detail in Palo Verde inspection report 2012002, Section 4OA2.3, inspectors identified that design basis information was not readily available to support the review. Specifically, there was no calculation or documentation to support the safety related seismic Category I buildings' roof drainage to prevent ponding in the event of a design basis PMP event. Through the review process it was identified that Generic Safety Issue 103 "Design for Probable Maximum Precipitation," was reviewed by the licensee and addressed in the licensee's response to Generic Letter 88-20, Supplement 4. Generic Safety Issue 103 informed the licensee of developments made in the assessment of PMP events and asked the licensee to review the impacts of these refined PMP assessments on their sites. The licensee asserted that roofs are equipped with roof drains and scuppers as backup. As a result, roof ponding considerations are not applicable to the Palo Verde Nuclear Generating Station site. Inspectors determined through walkdowns that there are no roof drains installed in any safety related seismic Category I buildings.

Analysis. The inspectors concluded that the failure of the licensee to provide complete and accurate information for safety related building roof drainage was a performance deficiency. The significance determination process is not suited to assess the significance of a violation of 10 CFR 50.9 because it affected the ability of the NRC to perform its regulatory oversight function and as such, it was assessed using traditional enforcement.

This violation was determined to be a Severity Level IV violation based on NRC Enforcement Policy examples provided in Section 6.9. No crosscutting aspect was

assigned because the performance deficiency was assessed using traditional enforcement.

Enforcement. Title 10 CFR 50.9, "Completeness and Accuracy of Information," requires, in part, that information provided to the Commission by a licensee shall be complete and accurate in all material respects. Contrary to the above, on June 30, 1995, the licensee did not provide information that was complete and accurate in all material respects. Specifically, the licensee asserted in its response to Generic Letter 88-20, Supplement 4, that roofs are equipped with roof drains and scuppers as backup. As a result, roof ponding considerations are not applicable to the Palo Verde Nuclear Generating Station site. Inspectors determined that there are no roof drains installed. The licensee has initiated corrective actions to provide an accurate depiction of the roof drainage capabilities to the NRC. Because this finding is of very low safety significance and has been entered into the licensee's corrective action program as PVAR 3952605, this violation is being treated as a non-cited violation in accordance with Section 2.3.2 of the Enforcement Policy: NCV 05000528; 05000529; 05000530/2012003-07 "Failure to Provide Complete and Accurate Information Regarding Safety Related Roof Drainage Capabilities."

.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 January 2012 through June 2012 although some examples expanded beyond those dates where the scope of the trend warranted.

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 In-depth Review of Operator Workarounds

a. Inspection Scope

The inspectors conducted a cumulative review of operator workarounds for Units 1, 2, and 3 and assessed the effectiveness of the operator workaround program to verify that the licensee is: (1) identifying operator workaround problems at an appropriate threshold; (2) entering them into the CAP; and (3) identifying and implementing appropriate corrective actions. The review included walkdowns of the control room panels, interviews with licensed operators and reviews of the control room discrepancies log, the lit annunciators' log, the operator workaround list, the operator burdens list, operations concerns list, the operator challenges tracking system, and site performance metrics for operator burdens, lit annunciators, control room discrepancies, and long term tagouts.

These activities constitute completion of one operator workaround program inspection sample as defined in Inspection Procedure 71152-05.

b. Findings

No findings were identified.

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

Event Report Review

a. Inspection Scope

The inspectors reviewed the below Licensee Event Reports and related documents to assess: (1) the accuracy of the Licensee Event Report; (2) the appropriateness of corrective actions; (3) violations of requirements; and (4) generic issues.

b. Observations and Findings

1. (Closed) Licensee Event Report 05000529/2010-002-00 and Licensee Event Report 05000529/2010-002-01, "Inoperable Emergency Diesel Generator Due to Fuel Oil Transfer Pump Failure"

On September 15, 2010, the diesel fuel oil transfer pump (DFOTP) for emergency diesel generator (EDG) 2A failed during a surveillance test. An electrical short to ground occurred in the DFOTP's motor termination box, due to water collecting in the termination box, causing the failure. The condition would have prevented EDG-2A from meeting its mission time, for a period of time that exceeded technical specification requirements. This resulted in a condition prohibited by technical specifications.

In 2009, the licensee reported a similar failure of the DFOTP for EDG-2B, in LER 05000529/2009-001-00. As a result, the inspectors dispositioned this issue as NOV 05000528; 05000529; 05000530/2010008-01, "Failure to Correct and Prevent Recurrence of a Significant Condition Adverse to Quality Associated with the Emergency

Diesel Generator Fuel Oil Transfer Pumps." The inspectors subsequently closed the NOV in Section 4OA5 of NRC Integrated Inspection Report 05000528/2011004, 05000529/2011004, and 5000530/2011004.

The licensee issued LER 2010-002-01 as a supplement, following completion of the root cause analysis. The analysis confirmed the cause of the condition was that the diesel fuel oil storage tank vault electrical conduit and penetrations did not prevent the intrusion of water in the motor termination box. A degraded condition on the outer jacket of the 120 VAC control cable allowed water to migrate through a tear in the cable's outer jacket and the water within the control cable's outer jacket drained directly into the motor termination box. The licensee replaced control and power cables for all six DFOTPs, replace the motor terminal boxes for the Unit 2 A and B DFOTPs, and revised installation specifications regarding the proper cleaning and splicing of applicable cables.

The inspectors reviewed the LERs and did not identify any additional concerns. Both LERs are closed.

2. (Closed) Licensee Event Report 05000528;05000530/2011-001-00, "Unit 1 and Unit 3 Emergency Diesel Generator Actuation on Loss of Offsite Power to Class 4.16kV Bus"

   On February 21, 2011, a valid actuation of the circuitry that starts the emergency diesel generators (EDGs) for Unit 1 train B and Unit 3 train A occurred due to an undervoltage condition on their respective 4.16kV safety buses. The EDGs started and loaded as designed.

   The cause of the undervoltage condition was a cable splice failure on the cable for 'Y' winding of the AE-NAN-X02 startup transformer. The licensee's investigation concluded the splice failure occurred due to inadequate maintenance performed on the cable on February 7, 2011. Inspectors reviewed this issue and documented a Green self-revealing finding in Section 4OA2 of NRC Integrated Inspection Report 05000528/2011003, 05000529/2011003, and 05000530/2011003.

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

3. (Closed) Licensee Event Report 05000528/2011-004-00, "Unit 1 Reactor Trip Due to Reactor Protection System Actuation which Resulted from a Dropped CEA"

   On August 6, 2011, during control element assembly (CEA) surveillance testing, the Unit 1 reactor tripped due to an automatic actuation of the reactor protection system. The actuation occurred when CEA 37 of shutdown group B full inserted causing a deviation of greater than 9.9 inches from other CEAs in its subgroup. This deviation resulted in a valid reactor trip actuation signal from the reactor protection system. All safety systems operated as expected.

   The licensee's investigation concluded the cause of the dropped CEA was a loose terminal lug on the CEA power switch assembly that created a high resistance

connection and led to the improper operation of the control element drive mechanism (CEDM) upper gripper coil, resulting in the full insertion of CEA 37.

The licensee replaced and retested the power switch assembly for CEA 37. Additionally, the licensee plans to inspect all accessible terminal and lug connections in all three units and is currently implementing a design modification to position the CEDM upper gripper in the hold position if a voltage imbalance is sensed between phases of the power supply.

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

4. (Closed) Licensee Event Report 05000529/2012-001-00, "Technical Specification LCO 3.1.7 Completion Time Exceeded"

   On January 25, 2012, a reactor power cutback occurred in Unit 2 due to a loss of one main feedwater pump. Regulating groups 4 and 5 control element assemblies (CEAs) fully inserted as required and group 3 CEAs automatically inserted below the Technical Specification Transient Insertion Limits. Technical Specification LCO 3.1.7, "Regulating CEA Insertion Limits," are not applicable for two hours after a reactor power cutback and then require CEA positions to be restored to within limits in the next two hours or be in Mode 3 within the following six hours. Operators restored groups 4 and 5 CEAs to within limits at 1144 and withdrew group 3 CEAs to the upper group stop at 1124. The upper group stop (145.5 inches) was below the insertion limit (greater than or equal to 147.75 inches). The licensee identified that group 3 CEAs were not in compliance with TS LCO 3.1.7 limits at 2030, which exceeded the LCO completion times.

   The licensee determined that the cause of the failure to comply with the LCO was inadequate procedural guidance necessary to ensure regulating CEA group 3 was fully withdrawn above the insertion limits. Corrective actions include procedure revisions to provide the needed guidance to ensure CEA insertion limits are met following a reactor power cutback. Inspectors reviewed this issue and documented a Green NCV in Section 4OA7 of NRC Integrated Inspection Report 05000528/2012002, 05000529/2012002, and 05000530/2012002.

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

5. (Closed) Licensee Event Report 05000528; 05000529; 05000530/2012-001-00, "Technical Specification LCO 3.1.7 Incorrect PDIL Setpoint Values"

   On March 8, 2012, at approximately 5:52 p.m. (MST), all Palo Verde units entered Technical Specification (TS) Limiting Condition for Operation (LCO) 3.1.7 Regulating Control Element Assembly (CEA) Insertion Limits, Condition D, when the power dependent insertion limit (PDIL) alarm setpoint was determined to be non-conservative. During an investigation of an event described in LER 05000529/2012-001-00, Palo Verde personnel determined that the Regulating CEA PDIL alarm setpoint was incorrectly set at 144 inches since April 19, 2005, when the specified CEA fully withdrawn position was changed from greater than or equal to (>/=)144.75 inches to

>/=147.75 inches. As an immediate corrective action, the PDIL alarm setpoint for all three units was changed to 147 inches. This corrective action allowed each unit to exit TS LCO 3.1.7 on March 11, 2012.

The licensee determined the cause of the event was a failure to revise the PDIL alarm setpoint in the software for the plant monitoring system (PMS) computers following changes to the COLR requirements which specified the fully withdrawn position for regulating CEAs. The root cause for failing to change the PDIL alarm setpoint was determined to be the figures for the Core Operating Limits Report (COLR) were not directly tied to any basis document. Corrective actions include development of a safety analysis basis document for the COLR and revision to the setpoint checklist safety analysis basis document to include the PMS PDIL alarms. Inspectors reviewed this issue and documented a Green NCV in Section 4OA7 of this report.

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

4OA5 Other Activities

(Closed) Unresolved Item 05000528; 05000529; 05000530/2011005-04, "Assumption that Low Pressure Safety Injection Pump Fails to Trip on a Recirculation Actuation Signal not Included in Analysis"

While inspecting per Temporary Instruction (TI) 2515/177, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," the inspector reviewed the licensee's analysis that determined the required refueling water tank transfer volume after a recirculation actuation signal is initiated. The inspector asked why the licensee had not analyzed for the failure of a low pressure safety injection pump to trip off upon initiation of a recirculation actuation signal.

The licensee provided the inspector a license amendment request, dated November 30, 2009, and the associated safety evaluation report issued by the Office of Nuclear Reactor Regulation which, among other changes, discussed the basis for not evaluating the single failure of a low pressure safety injection pump to trip off upon initiation of a RAS. The licensee's basis included qualitative and probabilistic justification for not evaluating the subject single failure that was not discussed in the body of the safety evaluation report issued by the NRC. The Inspector was concerned that even though the license amendment request had been approved without exception, there was no discussion in the body of the safety evaluation report about the acceptability of the licensee's basis for not evaluating the subject single failure.

The inspector concluded at the time that further discussions with the Office of Nuclear Reactor Regulation were needed to determine whether or not the licensee was required to perform the subject single failure analysis and whether the failure to perform the analysis constituted a violation of regulatory requirements. Subsequently, the Office of Nuclear Reactor Regulation concluded that additional information was needed from the licensee, in relation to the subject license amendment request, to ensure the safe operation of the plant; however, inspectors determined that a violation of regulatory

requirements did not occur because the NRC had approved the licensee amendment request without exception. This unresolved item is closed.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On April 5, 2012, the inspectors presented the inspection results of the review of inservice inspection activities to Mr. R. Bement, Senior Vice President, Site Operations, and other members of the licensee staff.

On April 12, 2012, the inspectors presented the results of the radiation safety inspection to Mr. R. Bement and other members of the licensee staff.

On May 11, 2012, the inspectors presented the heat sink performance inspection results to Mr. D. Mims, Senior Vice President, Regulatory & Oversight, and other members of the licensee staff.

On June 22, 2012, the inspectors presented the results of the radiation safety inspections to Mr. D. Mims and other members of the licensee staff.

On June 29, 2012, the inspectors presented the final inspection results to Mr. D. Mims and other members of the licensee staff.

The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspections should be considered proprietary. No proprietary information was identified.

4OA7 Licensee-Identified Violations

The following finding of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as a non-cited violation.

.1 Title 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” requires, in part, that measures shall be established to assure that the design basis shall be correctly translated into specifications, drawings, procedures, and instructions. Contrary to the above, prior to March 8, 2012, the licensee did not correctly translate the design basis for the control element assembly (CEA) fully withdrawn position, as specified in the Core Operating Limits Report (COLR), into specifications, drawings, procedures and instructions. Consequently, the licensee failed to properly set the Power Dependent Insertion Limit (PDIL) alarm setpoints, as required by Technical Specification 3.1.7, “Regulating Control Element Assembly (CEA) Insertion Limits.” The licensee reset the alarm setpoints to accurately reflect the COLR. The licensee submitted LER 05-528;529/530/2012-001-00 to document the condition. The licensee plans to develop a safety analysis basis document for the COLR as corrective actions documented under CRDR 4086279. Inspectors concluded that the finding is of very low safety significance (Green) because the PDIL alarms have no direct safety function and an evaluation

concluded the incorrect alarm setpoint was bounded by assumptions in the safety analyses.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

P. Anderson, Program Engineer
M. Austin, Team Leader, Chemistry
R. Barnes, Director, Regulatory Affairs
R. Bement, Senior Vice President, Site Operations
B. Berryman, Plant Manager, Plant Operations
M. Brannin, Program Engineer
J. Cadogan, Director, Plant Engineering
K. Chavet, Consultant, Nuclear Regulatory Affairs
D. Coxon, Operations, Department Leader
T. Dickinson, Technical Advisor, Radiation Protection
E. Dutton, Director, Nuclear Assurance Department
D. Elkinton, Senior Consultant, Regulatory Affairs
M. Fallon, Director, Communications
R.C. Folley, Welding Engineer, Inservice Inspection
F. Gaber, Engineer, System Engineering
T. Gray, Support Services Department Leader, Radiation Protection
W.B. Haley, Inservice Inspection SL
D.B. Hansen, Engineering
D. Hautala, Regulatory Affairs
R. Henry, Director
K. House, Director, Design Engineer
J. Jenkins, Engineer, System Engineering
M. Lacal, Vice President, Operations Support
F. Lake, Director, Performance Improvement Department
M. McGhee, Department Leader, Nuclear Regulatory Affairs
D. Mims, Senior Vice President, Regulatory & Oversight
C. Moeller, Manager, Radiation Protection
F. Oreshack, Consultant, Nuclear Regulatory Affairs
S. Payne, Engineer, System Engineering
M. Powell, Director, Nuclear Fuel Management
M. Radspinner, Department Leader, System Engineering
M. Ray, Director, Emergency Preparedness/Security
B. Routolo, Operations Department Leader, Radiation Protection
M. Shea, Director, Safety Culture
R. Stroud, Section Leader, Licensing
B. Thiele, Program Engineer, Department Leader
T. Weber, Department Leader, Regulatory Affairs

NRC Personnel

I. Anchondo, Reactor Inspector
M.A. Brown, Senior Resident Inspector
M. Baquera, Resident Inspector
M. Davis, Senior Resident Inspector
J. Drake, Senior Reactor Inspector
G. George, Senior Reactor Inspector
N. Greene, Ph.D., Health Physicist
B. Parks, Project Engineer
D. Reinert, Resident Inspector
L. Ricketson, P.E., Senior Health Physicist
T. G. Skaggs-Ryan, Reactor Inspector
D. You, Project Engineer

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000530/2012002-01	NCV	Failure to Follow Hot Work Permit Procedure (Section 1R05)
05000529/2012003-02	NCV	Failure to Comply with Technical Specifications (Section 1R15)
05000529/2012003-03	NCV	Inadequate Post Maintenance Test of the Diesel Fuel Oil Transfer Pump (Section 1R19)
05000530/2012002-04	NCV	Failure to Perform Boric Acid Evaluation (Section 1R20)
05000530/2012003-05	NCV	Failure to Follow Procedures and Radiation Exposure Permit Requirements (Section 2RS01)
05000528/2012003-06; 05000529/2012003-06; 05000530/2012003-06	NCV	Failure to verify a transferee was licensed to receive byproduct material (2RS08)
05000528; 05000529; 05000530/2012003-07	NCV	Failure to Provide Complete and Accurate Information Regarding Safety Related Roof Drainage Capabilities (Section 4OA2)

Closed

05000529/2010-002-00; 05000529/2010-002-01	LER	Inoperable Emergency Diesel Generator Due to Fuel Oil Transfer Pump Failure (Section 4OA3)

05000528;05000530/2010-002-00	LER	Unit 1 and Unit 3 Emergency Diesel Generator Actuation on Loss of Offsite Power to Class 4.16kV Bus (Section 4OA3)
05000528/2011-004-00	LER	Unit 1 Reactor Trip Due to Reactor Protection System Actuation which Resulted from a Dropped CEA (Section 4OA3)
05000529/2012-001-00	LER	Technical Specification LCO 3.1.7 Completion Time Exceeded (Section 4OA3)
05000528; 05000529; 05000530/2012-001-00	LER	Technical Specification LCO 3.1.7 Incorrect PDIL Setpoint Values (Section 4OA3)
05000528; 5000529; 05000530/2011005-04	URI	Assumption that Low Pressure Safety Injection Pump Fails to Trip on a Recirculation Actuation Signal not Included in Analysis (Section 4OA5)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

PROCEDURES

NUMBER	TITLE	REVISION
70DP-0RA05	Assessment and Management of Risk When Performing Maintenance in Modes 1 and 2	18
40OP-9NA03	13.8 kV Electrical System (NA)	33
40OP-9PB01	4.16 kV Class 1E Power (PB)	24
40ST-9PB01	Class 1E Power Supply Transfer	3
40OP-9NB01	4.16 Non-Class 1E Power (NB)	24
40OP-9ZZ19	Hot Weather Protection	5
40DP-9OP34	Switchyard Administrative Control	19
AC-1103	Administrative Control and Compliance of NERC Standards at PVNGS	0

MISCELLANEOUS

NUMBER	TITLE	DATE
Standard NUC-001-2	Nuclear Plant Interface Coordination	April 10, 2010

Section 1R04: Equipment Alignment

PROCEDURES

NUMBER	TITLE	REVISION
40OP-9DG01	Emergency Diesel Generator A	66
40OP-9EW01	Essential Cooling Water System (EW) Train A	21
40OP-9EW02	Essential Cooling Water System (EW) Train B	18
40ST-9SI13	LPSI and CS System Alignment Verification	26

PVARS

NUMBER				
3776512	3831220	3831238	3544963	3853509

CRDRS

NUMBER
3547343

DRAWINGS

NUMBER	TITLE	REVISION
01-M-SIP-001	P & I Diagram Safety Injection & Shutdown Cooling System	37
01-M-SIP-001	P & I Diagram Safety Injection & Shutdown Cooling System	48

MISCELLANEOUS

NUMBER	TITLE	REVISION
01-P-EWF-201	Auxiliary Building Isometric Essential Cooling Water System EWWS Pump Loop – Train A	3
01-P-EWF-202	Auxiliary Building Isometric Essential Cooling Water System EWWS Pump Loop – Train B	4

Section 1R05: Fire Protection

PROCEDURES

NUMBER	TITLE	REVISION
14AC-0FP05	Pre-Fire Strategies Manual	23
14DP-0FP36	Hot Work Permit	18
14DP-0FP34	Firewatch Duties	13

PVARS

NUMBER
4116811

CRDR

NUMBER
4120969

WORK ORDERS

NUMBER
3129871

MISCELLANEOUS

NUMBER	TITLE	REVISION
4098430	Hot Work Permit	

Section 1R07: Heat Sink Performance

PROCEDURES

NUMBER	TITLE	REVISION
73DP-9ZZ11	Heat Exchanger Program	9
70TI-9EW03	EX Heat Exchanger Improved Test Performance	1
73DP-0ZZ04	Service Water Reliability Program	7
73DP-9ZZ21	Heat Exchanger Visual Inspection	2
73DP-9ZZ10	Guidelines for Heat Exchanger Thermal Performance Analysis	7

70TI-9EW02	EW Heat Exchanger Improved Test Setup	2
74DP-9CY04	Systems Chemistry Specifications	75
70DP-9SP01	Spray Pond Piping Integrity Verification	4

CRDRS

NUMBER

3773314	3894185	3323079	3551432	3418285
3018138	3990027	3418284	3323079	3894145
4099309				

PVARS

NUMBER

3791096	3447451	3448458	4159561	4089905
3824155				

WORK ORDERS

NUMBER

3537555	3375000	3293991	3172975	3374892
3164125	3320956	3551925	3428603	3172985
2986480	3475802	3715398		

CALCULATIONS

NUMBER	TITLE	REVISION
13-MC-DG-0411	DG Heat Exchanger Minimum Flow Rate vs Inlet SP Water Temperature	4
13-MC-PC-0217	Spent Fuel Cooling System – Shutdown Cooling and Pool Cooling Heat Transfer Evaluation	5
01-MC-SP-0501	Essential Spray Pond System, ECWS Heat Exchanger TRN A&B	4
13-MC-SP-0309	Essential Spray Pond System Chemistry Design Basis Analysis	0
13-MC-EW-0305	EW System Hydraulic Calculation	4

13-MC-SP-0502	Essential Spray Pond System	17
13-MC-SP-0307	SP/EW System Thermal Performance Design Bases Analysis	9

THERMAL PERFORMANCE ANALYSES

NUMBER	TITLE	REVISION / DATE
13-MS-B061	Essential Cooling Water Heat Exchanger Test Protocol	0
13-MS-B062	Shutdown Cooling Heat Exchanger Test Protocol	0
255-01126	1SIA Heat Exchanger Thermal Performance Analysis	August 10, 2007
255-01132	1R13 EWA Heat Exchanger Thermal Performance Analysis	May 28, 2008
513-00010	1R15 EWA Heat Exchanger Thermal Performance Analysis	April 25, 2011

MISCELLANEOUS

NUMBER	TITLE	REVISION / DATE
102-03576	Letter to USNRC, Revised Response to Notice of Deviation 50-528/529/530/93-17-02	December 29, 1995
102-03932	Letter to USNRC, Initial Service Water Test Program Revision	May 16, 1997
161-028801	Response to NRC Generic Letter 89-13, “Service Water System Problems Affecting Safety Related Equipment”	January 26, 1990
161-04031	Additional Information Regarding NRC Generic Letter 89-13, “Service Water System Problems Affecting Safety Related Equipment”	July 1, 1991
102-02678	Revised Response to NRC Generic Letter 89-13	October 1, 1993
PROTO-HX-STP	PROTO-HX Software Test Plan	0

PROTO-HX-COC	PROTO-HX Certificate of Compliance	0
PROTO-HX-SII	PROTO-HX Software Installation Instructions	0
PROTO-HX-SITR	PROTO-HX Software Installation Test Results	0

Section 1RO8: Inservice Inspection Activities

PROCEDURES

NUMBER	TITLE	REVISION / DATE
81DP-0RA02	Flow Accelerated Corrosion (FAC) Program Detail Procedure	12
MRS-SSP-2128-CVER	Rolled Mechanical Tube Plugging and Stabilizer Installation	2
73DP-9WP05	Weld Filler Material Control	7
73DP-9WP04	Welding and Brazing Control	14
73TI-9ZZ67	Flow Verification Test on Diesel Fuel Oil Day Tank Overflow Line	1
73TI-9ZZ10	Ultrasonic Examination of Welds in Ferritic Components	12
73TI-9ZZ07	Liquid Penetrant Examinations	14
73TI-0ZZ13	Radiographic Examinations	16
73TI-9RC01	Steam Generator Eddy Current Examinations	29
73DP-9EE02	Inservice Inspection Examination Activities	11
31MT-9RC32	Reactor Vessel Stud Cleaning and Inspection	12
31MT-9RC30	Reactor Vessel Head Removal and Installation	48
30DP-9MP02	Fastener Tightening/Preload	8

SI-UT-175	Procedure for Encoded Phased Array Ultrasonic Examination of Dissimilar Metal Piping Welds	B
SI-NDE-06	Calibration of Ultrasonic NDE Equipment	4
90DP-0IP10	Condition Reporting	52
03-MS-A125	U3R16 Steam Generator Condition Monitoring Evaluation	April 2012
73WP-0ZZ04	Welding of Carbon and Low Allow Steel to Stainless and Nickel Alloys	14
70TI-9ZC01	Boric Acid Walkdown Leak Detection	12
73DP-9ZC01	Boric Acid Corrosion Control Program	3
31MT-9RC01	Reactor Vessel Missile Shield, Cable Support Structure, Riser Duct and RV Flange Insulation Removal and Installation	37
73TI-9RC09	Bare Metal Visual Examination of Reactor Vessel Upper Head	2
73TI-9RC10	Bare Metal Visual Examination of Reactor Vessel Bottom Head	2
71TI-9ZZ22	Visual Examination for Leakage – Interval 3	6
73TI-9ZZ18	Visual Examination of Component Supports	12
73TI-9ZZ17	Visual Examination of Welds, Bolts, and Components	10
73TI-9ZZ14	Ultrasonic Examination of Bolting	12
73TI-9ZZ09	Ultrasonic Examination of Pipe and Vessel Welds	14
73TI-9ZZ07	Liquid Penetrant Examination	14
73TI-9ZZ06	Wet Magnetic Particle Examination	15
73TI-9ZZ05	Dry Magnetic Particle Examination	14

73TI-0ZZ13	Radiographic Examination	16
73DP-9EE02	Inservice Inspection Examination Activities	11
73DP-9XI03	ASME Section XI Inservice Inspection	12

PVARS

NUMBER

4042892	4039524	4035873	4035870	3875931
4033138	4028798	4028736	4027257	3868286
4027252	4027238	4026813	4026722	3868256
4026701	4020999	4012475	4011667	3868169
4010136	4010129	4010106	4010098	3866884
4010062	4005629	4005565	4005495	3866206
4005483	4005356	4004432	4004427	3866188
4004420	4004166	4004018	3997602	3854761
3996663	3996660	3996655	3996340	3853845
3996337	3989285	3989277	3989270	3853756
4004420	4004166	4004018	3997602	3854761
3996663	3996660	3996655	3996340	3853845
3996337	3989285	3989277	3989270	3853756
3989263	3981931	3981927	3980169	3853725
3980095	3980056	3971538	3970725	3853696
3946952	3946717	3935160	3935102	3853643
3935029	3931040	3918957	3918570	3853632
3917751	3916299	3910586	3907718	3852143
3906165	3905317	3905287	3892577	3844141
3892574	3892571	3892568	3892513	3842075
3892510	3892508	3892479	3892341	3841891
3892333	3892331	3892328	3889328	3837403
3889322	3889078	3889065	3889048	3837384
3889045	3887527	3887523	3887519	3590979
3887485	3887462	3887457	3886861	3589137
3883409	3883062	3882201	3882195	3584130
3882191	3882187	3882133	3881006	3582926
3881000	3880992	3880344	3877026	3582803

3875940	3875937	3875935	3853705	3844144
3874471	3873627	3869523	3853691	3842077
3868272	3868268	3868263	3853641	3842066
3868243	3868240	3868231	3853630	3838865
3868156	3868152	3868148	3844149	3837386
3866881	3866875	3866869	3842771	3595133
3866202	3866199	3866190	3842071	3589945
3854898	3854891	3854767	3841889	3584206
3854755	3854750	3854743	3837398	3583271
3853842	3853838	3853833	3596192	3582806
3853750	3853745	3853730	3589955	3842080
3837393	3853702	3853699	3584545	3842069
3595138	3853688	3853682	3583288	3706585
3589951	3853638	3853635	3582815	3753336
3584538	3853627	3853625	3582795	3917741
3583285	3844146	3582811	3841886	3624130
3845472	3660716	3783503	3591033	4112026
3783518	3413707	3583168	4114489	3413956

MISCELLANEOUS

NUMBER	TITLE	REVISION / DATE
	Analyst Guidelines Training Manual	14
	Lube Teleconference Summary Notes	October 6, 2011
	Zoomerang Survey Results of Lubricants on Reactor Vessel Studs and Nuts	September 8, 2011
SWMS No. 2968935	PVNGS Self-Assessment Boric Acid Corrosion Control Program Report	

Section 1RO8: Inservice Inspection Activities

MISCELLANOUS

NUMBER	TITLE	DATE
	Analyst Guidelines Training Manual	14
	Lube Teleconference Summary Notes	October 6, 2011

	Zoomerang Survey Results of Lubricants on Reactor Vessel Studs and Nuts	September 8, 2011
SWMS No. 2968935	PVNGS Self-Assessment Boric Acid Corrosion Control Program Report	

Section 1R11: Licensed Operator Requalification Program

PROCEDURES

NUMBER	TITLE	REVISION
40OP-9ZZ16	RCS Drain Operations	73
40DP-9ZZ30	Reduced Inventory Operations	2
40OP-9ZZ02	Initial Reactor Startup Following Refuelings	50
40OP-9ZZ03	Reactor Startup	55

PVARS

NUMBER
4139451

MISCELLANEOUS

NUMBER	TITLE	DATE
	Licensed Operator Continuing Training Simulator Scenario	May 23, 2012

Section 1R12: Maintenance Effectiveness

PROCEDURES

NUMBER	TITLE	REVISION
70DP-0MR01	Maintenance Rule	32

PVARS

NUMBER				
4136286	4136126	4136121	4172962	4162692

CRDS

NUMBER		
3991218	4028633	4175812

CRAIS

NUMBER
4175813

WORK ORDERS

NUMBER
4164496

MISCELLANEOUS

NUMBER	TITLE	REVISION / DATE
	Periodic Assessment of Maintenance Rule Program January 2010 through June 2011	January 5, 2012
	System History Report, Class 1E 120 VAC Power System (PN)	May 31, 2012
	PVNGS Maintenance Rule System Basis, Class 1E 120 VAC Power System (PN)	2

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

PROCEDURES

NUMBER	TITLE	REVISION
01DP-0AP12	Palo Verde Action Request Processing	17
70DP-0RA05	Assessment and Management of Risk When Performing Maintenance in Modes 1 and 2	18
02DP-9RS01	Operational Risk Management	0
40DP-9AP21	Protected Equipment	5
30DP-9MP01	Conduct of Maintenance	66
70DP-0RA01	Shutdown Risk Assessments	42
40DP-9AP21	Protected Equipment	5

43ST-3ZZ02	Inoperable Power Sources Action Statement	37

PVARS

NUMBER

4129409 4129469 4172511 4172291

WORK ORDERS

NUMBER

37744461 3541633 3582381

MISCELLANEOUS

NUMBER	TITLE	REVISION
	U3 DG "A" Outage FRAG	May 21, 2012
	Scheduler's Evaluation for PV Unit 3	May 18, 2012

Section 1R15: Operability Evaluations

PROCEDURES

NUMBER	TITLE	REVISION
73ST-9AF02	AFA-P01 Recirc Flow – Inservice Test	50
40DP-9OP26	PVAR Processing and Operability Determination/Functional Assessment	31
40AO-9ZZ06	Loss of Instrument Air	35
36ST-9SA02	ESFAS Train B Subgroup Relay Functional Test	40
40ST-9EC03	Essential Chill Water and Ventilation Systems Inoperable Action Surveillance	14
40AO-9ZZ20	Loss of HVAC	5
40DP-9OP26	Operations PVAR Processing and Operability Determination/Functionality Assessment	32
70DP-9SP01	Spray Pond Piping Integrity Verification	4

81DP-0ZZ01	Civil System Structure and Component Monitoring Program	20

PVARS

NUMBER				
4149410	3977805	3778394	4147449	4178765
3879166	4187056	4033786	4179956	4180405
4139451	4143033	4139569	4119122	3447451
3448458	4089905	4132059		

CRDRS

NUMBER				
3880900	4034185	93582	4036719	4136210

CRAIS

NUMBER
4030967

WORK ORDERS

NUMBER			
3715952	4119127	3448229	4095552

CALCULATIONS

NUMBER	TITLE	DATE
CEN-356(V)	Modified Statistical Combination of Uncertainties	May 1988

MISCELLANEOUS

NUMBER	TITLE	REVISION / DATE
	Engineering Action Request #90-0301	February 8, 1990
	Correspondence #109-00606	May 25, 1990
	Updated Final Safety Analysis Report	
	System Training Manual: Safety Injection System (Volume 40)	4
	Arizona Public Service Company, Et Al., Docket No. Stn. 50-528, Palo Verde Nuclear Generating Station, Unit 1, Amendment to Facility Operating License, Amendment No. 133, License No. NPF-41	

Section 1R18: Plant Modifications

WORK ORDERS

NUMBER

2641860

PVARS

NUMBER

4132849	4134253	4090677	4102089	4098417
4098290	4097124	4095537	4094729	4095825
4095821	4095820	4095816	4136409	

MISCELLANEOUS

NUMBER	TITLE	REVISION
E-10-0008	50.59 Evaluation for DMWO 2641850	2
	Design Input Requirements Checklist for DMWO 2641860	2

Section 1R19: Post-Maintenance Testing

PROCEDURES

NUMBER	TITLE	REVISION
90DP-0IP10	Condition Reporting	52
90DP-0IP14	Adverse CRDR Evaluation	8
73ST-9DF01	Diesel Fuel Oil Transfer Pump – Inservice Test	24
73ST-9DF02	Diesel Fuel Oil Transfer Pumps – Comprehensive Pump Test	6
73DP-9XI01	Pump and Valve Inservice Testing Program	26
32TM-9ZZ82	Time Delay Relay Test	19
73ST-9AF04	AFA-P01 Full Flow – Inservice Test	15

33MT-9EC01	Essential Chiller	11
40ST-9ZZ04	Weekly Shutdown Electrical Distribution Checks	12

PVARS

NUMBER				
4155634	4156339	4172472	4172120	4182686
4130709	4136171	4162692		

CRAIS

NUMBER
3470600

WORK ORDERS

NUMBER				
3774511	3589503	3576578	3559912	3969549
4162709				

CRDRS

NUMBER
41757197

DRAWINGS

NUMBER	TITLE	REVISION
01-E-SGB-0002	Elementary Diagram Main Steam System Steam Gen 2 to Aux FDW Pump A Steam Supply Valve 1J-SGA-138 & Valve 1J-SGA-138A	21

Section 1R22: Surveillance Testing

PROCEDURES

NUMBER	TITLE	REVISION
16DP-0EP24	Emergency Response Facility Functionality Evaluation	2
73ST-9AF02	AFA-P01 Recirc Flow – Inservice Test	50
73ST-9CL07	Containment Ventilation Purge Isolation Valves (8") – Penetration 78 and 79	19
73ST-9XI03	SI Train A Valves- Inservice Test	33

PVARS

NUMBER

4165625 4112051

CRDRS

NUMBER

3487481

WORK ORDERS

NUMBER

3596593 3645546 3922289 3544441 3582562

MISCELLANEOUS

NUMBER	TITLE	REVISION / DATE
	Procedure Change Request 3510579	
	Procedure Change Request 3510490	

Section 1EP6: Drill Evaluation

PVARS

4178653

MISCELLANEOUS

NUMBER	TITLE	REVISION
	Palo Verde Emergency Preparedness May 2012 Tabletop Drill Scenario	
	PVNGS Emergency Plan	48

Section 2RS01: Radiological Hazard Assessment and Exposure Controls

PROCEDURES

NUMBER	TITLE	REVISION
75DP-0RP01	RP Program Overview	8
75DP-0RP02	Radioactive Contamination Control	17
75DP-9RP01	Radiation Exposure and Access Control	18

75RP-0RP01	Radiological Posting and Labeling	30
75RP-9OP02	Control of High Radiation Areas, Locked High Radiation Areas and Very High Radiation Areas	25
75RP-9RP07	Radiological Surveys and Air Sampling	23
75RP-9RP26	Radioactive Source Control	14
76RP-0RW09	Transfer, Storage, and Processing of Radioactive Filters	5

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

NUMBER	TITLE	DATE
SWMS 3837392	Inadequate Collective Radiation Exposure Performance Improvements	September 16, 2011
SWMS 3989142	Benchmark Report on RP ALARA /Planning	September 29, 2011
302-03095	NAD Bi-Monthly Report – Radiation Protection	November 15, 2011
302-03113	NAD Bi-Monthly Report – Radiation Protection	January 17, 2012

RADIOLOGICAL SURVEY MAPS

NUMBER	TITLE	DATE
2-97-00450	80’ Containment	February 26, 1997
3-M-20111121-7	C080 Elevation Overview Containment	November 21, 2011
1-M-20120320-1	R140 Neutron Source Room Radwaste	March 20, 2012
2-M-20120320-1	R140 Neutron Source Room Radwaste	March 20, 2012
1-M-20120403-2	R100 RW Truck Bay Low Level Storage Area	April 3, 2012
2-M-20120405-1	R100 RW Truck Bay Low Level Storage Area	April 5, 2012
3-M-20120407-20	C140 Elevation Overview Containment	April 7, 2012
3-M-20120409-11	C090 Elevation Overview Containment	April 9, 2012

CONDITION REPORTS

CRDR 3911019	CRDR 3928982	CRDR 3969551	CRDR 3980139	CRDR 3988625
CRDR 3970627	CRDR 3971165	CRDR 3996791	CRDR 4095688	CRDR 4095742
CRDR 4101890	CRDR 4110128	CRDR 4111711	CRDR 4113045	CRDR 4122335

RADIATION EXPOSURE PERMITS

NUMBER	TITLE	REVISION
3-3503, Task 2	HRA – General Tours, Inspections, and Job Planning Walkdowns	0
3-1007, Task 1	LHRA – Containment Entries (Plant Modes 1 & 2)	0
1-3511, Task 1	RA – Insulator Outage Support Activities	0
9-1006	Process Filter Change Out and Transport to Storage Area	0
9-1218, Task 1	Load Filter HIC(s) in HLSA – 112' HLSA and Truck Bay	0

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	DATE
TSP C-100-28	Temporary Shielding Package for 100' Containment at 1A Side Bay PZR Spray Line RC-062-BCAA-3"	March 22, 2012
	Radioactive Source Inventory: Units 1, 2, and 3 (SourceTRAX)	April 9, 2012
Appendix B to 75RP-9OP02	LHRA/VHRA Key Control Log for Unit 3	April 12, 2012
	Radiation Protection Qualifications	April 12, 2012

Section 2RS03: In-plant Airborne Radioactivity Control and Mitigation

PROCEDURES

NUMBER	TITLE	REVISION
01DP-0IS08	PVNGS Respiratory Protection Equipment Usage	17
14DP-9IS01	Respiratory Equipment Maintenance Inspection and Repair	13
14DP-9IS03	Filling Breathing Air Cylinders	3

CONDITION REPORTS

PVAR 4124212 PVAR 4125149

RADIATION WORK PERMITS

NUMBER	TITLE
3-3306	Primary Side Steam Generator Maintenance
3-3001	Remove and Replace Reactor Vessel Head and Upper Guide Structure
3-3015	Cavity Decon

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	DATE
	Laboratory Report/Compressed Air/Gas Quality Testing	November 28, 2011

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

PROCEDURES

NUMBER	TITLE	REVISION
01DP-0AP12	Palo Verde Action Request Processing	17
76RP-0RW07	Shipping Radioactive Material	9

CONDITION REPORTS

3783691	3889149	4136342

RADIOACTIVE SHIPMENTS

10-SH-076	11-SH-064	11-SH-068	12-SH-002	12-SH-005

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	DATE
	List of Palo Verde Action Requests Initiated by Radioactive Material Control Personnel	
	List of Palo Verde Action Requests Initiated by Shipping Personnel	
	Radiation Protection Operations Night Order 11-005, Issue: 1 Administrative Guidance for DAWPS Activities with HVAC System Inoperable	December 15, 2011

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	DATE
	Radiation Protection Operations Night Order 11-005, Issue: 2 Administrative Guidance for DAWPS Activities with HVAC System Inoperable	January 31, 2012
	Radiation Protection Operations Night Order 11-005, Issue: 3 Administrative Guidance for DAWPS Activities with HVAC System Inoperable	April 13, 2012
03225250036	Ohio Department of Health License for Radioactive Material	April 13, 2010

Section 4OA1: Performance Indicator Verification

PROCEDURES

NUMBER	TITLE	REVISION
75RP-0LC01	Performance Indicator Occupational Radiation Safety Cornerstone	3
75RP-0LC02	Performance Indicator Public Radiation Safety Cornerstone	2

PVARS

NUMBER

4022900 4136286 3946750 3793744 4010705
4136286

CRDRS

NUMBER

4023670

WORK ORDERS

NUMBER

3774446 3541633 3582381

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	DATE
	Performance Indicator Data Sheet	February 2012
	Performance Indicator Data Sheet	March 2012

Section 4OA2: Identification and Resolution of Problems

CRDRS

NUMBER

4131981

WORK ORDERS

NUMBER

3473684

MISCELLANEOUS

NUMBER	TITLE	DATE
	PVNGS Ops Work Arounds	June 7, 2012
	PVNGS Ops Burden Work	June 7, 2012
	Online CRDL Work	June 7, 2012
	Longstanding Permits in the Field Greater than 60 Days	June 5, 2012

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 Inspection
at Palo Verde Nuclear Generating Station
April 9-13, 2012
Integrated Report 2012003

The items listed below are needed to support the Radiation Safety inspection to be conducted by Natasha Greene (817-200-1154) and Larry Ricketson (817-200-1165).
.

1. Radiological Hazard Assessment and Exposure Controls (71124.01)

   NOTE: Please submit this information using the same lettering system as below. For example, all contacts and phone numbers for the above inspector should be in a file/folder titled 1- A, Applicable organization charts in file/folder 1- B, etc.

Please provide the requested information for regional inspector review by March 19, 2012.

A List of contacts and telephone numbers for the following areas:
   1 Radiation Protection Organization Staff and Technicians

B Applicable organization charts

C Audits, self assessments, surveillances, vendor or NUPIC audits of contractor support, and LERs written since October 24, 2011, related to:
   1. Access Control to Radiologically Significant Areas
   2. Radioactive material control
   3. Locked High Radiation Area Key Control

D Procedure indexes for the following areas
   1. Access Control to Radiologically Significant Areas
   2. Radioactive material control
   3. Locked High Radiation Area Key Control
   4. Radiation Protection Programs

E Please provide specific procedures related to the following areas. Additional Specific Procedures will be requested by number after the inspector reviews the procedure indexes.
   1. Radiation Protection Program Description

2. Radiation Protection Conduct of Operations
3. Posting of Radiological Areas
4. High Radiation Area Controls
5. RCA Access Controls and Radworker Instructions
6. Conduct of Radiological Surveys
7. Radioactive Source Inventory and Control

F List of corrective action documents (including corporate and subtiered systems) written since October 24, 2011, associated with Radiological hazard assessment including:
1. Control of access to radiologically controlled areas
2. Electronic dosimeter alarms
3. Locked high radiation area key control

NOTE: The lists should indicate the significance level of each issue and the search criteria used.

Also include a summary of corrective action documents since October 24, 2011, involving unmonitored releases, unplanned releases, or releases in which any dose limit or administrative dose limit was exceeded (for Public Radiation Safety Performance Indicator verification in accordance with of IP 71151)

G List of radiologically significant work activities scheduled to be conducted during the inspection week(s)

H Radioactive source inventory list

2. In-Plant Airborne Radioactivity Control and Mitigation (71124.03)

NOTE: In an effort to keep the requested information organized, please submit this information to us using the same lettering system below. For example, all contacts and phone numbers for the above inspector should be in a file/folder titled 2- A, Applicable organization charts in file/folder 2- B, etc.

A List of contacts and telephone numbers for the following areas:
[If different than Part 1]
1 Respiratory Protection Program
2 Self contained breathing apparatus

B Applicable organization charts
[If different than Part 1]

C Copies of audits, self-assessments, surveillances, vendor or NUPIC audits for contractor support (SCBA), and LERs, written since October 24, 2011, related to:
1 Installed air filtration systems, such as containment purge, spent fuel pool ventilation, and auxiliary building ventilation
2 Self contained breathing apparatuses

D. Procedure index for:
[If different than Part 1]

1 use and operation of continuous air monitors
2 use and operation of temporary air filtration units
3 Respiratory protection

E. Please provide specific procedures related to the following areas. Additional Specific Procedures will be requested by number after the inspector reviews the procedure indexes.
1 Respiratory protection program
2 Use of self contained breathing apparatuses
3 Air quality testing for SCBAs
4 containment purge
5 auxiliary building ventilation

F. A summary list of corrective action documents (including corporate and subtiered systems) written since October 24, 2011, related to the Airborne Monitoring program including:
1 continuous air monitors -
2 Self contained breathing apparatuses
3 respiratory protection program
4 Installed air filtration systems, such as containment purge, spent fuel pool ventilation, and auxiliary building ventilation

NOTE: The lists should indicate the significance level of each issue and the search criteria used.

G List of SCBA qualified personnel - reactor operators and emergency response personnel

H Surveillance records for self-contained breathing apparatuses (SCBAs) staged in the plant for use since October 24, 2011.

I SCBA training and qualification records for control room operators, shift supervisors, STAs, and OSC personnel for the last year.

J A selection of personnel may be asked to demonstrate proficiency in donning, doffing, and performance of functionality check for respiratory devices.