



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION IV
1600 E. LAMAR BLVD
ARLINGTON, TX 76011-4511

February 1, 2017

EA-16-192

Robert Bement
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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 05000528/2016004, 05000529/2016004, AND
05000530/2016004 AND EXERCISE OF ENFORCEMENT DISCRETION**

Dear Mr. Bement:

On December 31, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Palo Verde Nuclear Generating Station Units 1, 2, and 3. On January 18, 2017, the NRC inspectors discussed the results of this inspection with J. Cadogan and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

NRC inspectors documented one finding of very low safety significance (Green) in this report. This finding involved a violation of NRC requirements. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the NRC Enforcement Policy.

If you contest the violation or significance of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement, U.S. 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 or a finding not associated with a regulatory requirement 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.

The inspectors reviewed licensee event report 05000528/2016-001-00 which reported a condition prohibited by technical specifications resulting from a leak in the reactor coolant pressure boundary on Unit 1 reactor coolant pump 2B discharge pipe instrument nozzle. The leakage was discovered while the unit was shut down for a refueling outage during a scheduled boric acid walk-down inspection of the Unit 1 Reactor Coolant System. The licensee corrected

the condition by repairs to the nozzle per application of Code Case N-733 (no exceptions) with the utilization of a Mechanical Nozzle Seal Assembly. Inspectors concluded that it was not reasonable for the licensee staff to foresee and correct this condition prior to the discovery of the leak. The NRC determined that this issue was of very low safety significance. Based on these facts, I have been authorized, in consultation with the Director, Office of Enforcement, and the Regional Administrator, to exercise enforcement discretion in accordance with Section 3.5 "Violations Involving Special Circumstances," of the NRC Enforcement Policy and will not issue enforcement action for this violation. Section 4OA3 of the enclosed report provides additional information.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Geoffrey B. Miller, Branch 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 05000528/2016004,
05000529/2016004, 05000530/2016004
w/ Attachment: Supplemental Information

PALO VERDE NUCLEAR GENERATING STATION – NRC INTEGRATED INSPECTION
 REPORT 05000528/2016004, 05000529/2016004, AND 05000530/2016004 AND EXERCISE
 OF ENFORCEMENT DISCRETION

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000528, 05000529, 05000530

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

Report: 05000528/2016004, 05000529/2016004, and 05000530/2016004

Licensee: Arizona Public Service Company

Facility: Palo Verde Nuclear Generating Station

Location: 5801 South Wintersburg Road
Tonopah, AZ 85354

Dates: October 1 through December 31, 2016

Inspectors: C. Peabody, Senior Resident Inspector
D. Reinert, PhD, Resident Inspector
D. You, Resident Inspector
J. Drake, Senior Reactor Inspector
W. Sifre, Senior Reactor Inspector
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Approved By: Geoffrey B. Miller
Chief, Project Branch D
Division of Reactor Projects

SUMMARY

IR 05000528, 529, 530/2016004; 10/1/2016 – 12/31/2016; PALO VERDE NUCLEAR GENERATING STATION INTEGRATED INSPECTION REPORT; FOLLOW-UP OF EVENTS AND NOTICES OF ENFORCEMENT DISCRETIONS.

The inspection activities described in this report were performed between October 1 and December 31, 2016, by the resident inspectors at Palo Verde and inspectors from the NRC's Region IV office and other NRC offices. One finding of very low safety significance (Green) is documented in this report. This finding involved a violation of NRC requirements. The significance of inspection findings is indicated by their color (Green, White, Yellow, or Red), which is determined using Inspection Manual Chapter 0609, "Significance Determination Process." Their cross-cutting aspects are determined using Inspection Manual Chapter 0310, "Aspects within the Cross-Cutting Areas." Violations of NRC requirements are dispositioned in accordance with the NRC Enforcement Policy. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process."

Cornerstone: Mitigating Systems

- Green. The inspectors reviewed a self-revealing non-cited violation of Technical Specification 3.7.2 for exceeding the Condition A completion time for an inoperable main steam isolation valve (MSIV) single actuator train and not immediately declaring the affected main steam isolation valve inoperable in accordance with Condition E. Specifically, the Unit 2 main steam isolation valve 171 actuator A was inoperable from July 30, 2016, to August 9, 2016, when a known nitrogen leak was not adequately monitored. The licensee's inadequate monitoring allowed the nitrogen pre-charge pressure in the actuator to decrease to below the minimum acceptable limit for operability. The licensee restored the pre-charge pressure and entered this issue into their corrective action program as Condition Report 16-12740.

The failure to perform adequate monitoring for a degraded condition as required by procedure 40DP-9OP26, "Operations Condition Reporting Process and Operability Determination/Functional Assessment," was a performance deficiency. The performance deficiency was more-than-minor and therefore a finding because it affected the equipment performance attribute of the Mitigating Systems Cornerstone to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically the failure to adequately monitor a known nitrogen leak resulted in depressurizing one of two hydraulic accumulators thereby reducing the reliability of the system to initiate a fast closure of MSIV 171 upon receipt of a main steam isolation signal. The inspectors performed the initial significance determination using NRC Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," Issue Date: June 9, 2012. The finding required a detailed risk evaluation since it represented a loss of function for a single train for greater than the Technical Specification allowed outage time. A Region IV senior reactor analyst determined the finding was of very low safety significance (Green) since the MSIV remained capable of performing its safety function with the alternate actuator. The finding has a cross-cutting aspect in the area of human performance associated with the teamwork component. Specifically, the licensee failed to coordinate activities across organizational boundaries in that the operations personnel did not obtain engineering input to ensure that additional monitoring requirements

for the nitrogen pre-charge leak were adequate to verify continued MSIV 171 operability [H.4]. (Section 4OA3.3)

PLANT STATUS

Unit 1 operated at full power for the entire inspection period.

Unit 2 operated at full power for the entire inspection period.

Unit 3 entered the inspection period at full power then shut down for a planned refueling outage on October 7, 2016. The unit was restarted on November 5, 2016, and returned to full power for the remainder of the inspection period. On December 15, 2016, Unit 3 declared an emergency action level of Alert following an explosion and failure of Diesel Generator B. Diesel Generator repairs since exceeded the normal Technical Specification allowed outage time of 10 days. The licensee was granted two Emergency License Amendments to continue operation for 62 days during extended diesel generator repairs. (ADAMS ML16358A676 and ML17004A020)

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

On November 17, 2016, the inspectors completed an inspection of the station's readiness for seasonal extreme weather conditions. The inspectors reviewed the licensee's adverse weather procedures for cold weather protection and evaluated the licensee's implementation of these procedures. The inspectors verified that prior to the onset of winter weather conditions, the licensee had corrected weather-related equipment deficiencies identified during the previous winter.

The inspectors selected three risk-significant systems that were required to be protected from cold weather:

- Auxiliary Building Air Cooling Units
- Containment Purge Air Handling Units
- Diesel Generator Building

The inspectors reviewed the licensee's procedures and design information to ensure the systems would remain functional when challenged by adverse weather. The inspectors verified that operator actions described in the licensee's procedures were adequate to maintain readiness of these systems. The inspectors walked down portions of these systems to verify the physical condition of the adverse weather protection features.

These activities constituted one sample of readiness for seasonal adverse weather, as defined in Inspection Procedure 71111.01.

b. Findings

No findings were identified.

.2 Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

On November 18, 2016, the inspectors reviewed licensee preparations for incoming anticipated rainfall that would impact an ongoing modification to the Unit 3 Fuel Oil transfer pump vault that was being excavated. The inspectors reviewed the scope of the preparations, and subsequently discussed the effectiveness of the temporary measures taken to protect implementation of the modification and the quality-related equipment inside the affected vault.

On November 23, 2016, the inspectors completed an inspection of the station's readiness for impending heavy rainfall conditions. The inspectors reviewed plant design features, the licensee's procedures to respond to relatively heavy rainfall, and the licensee's planned implementation of these procedures. The inspectors evaluated operator staffing and accessibility of controls and indications for those systems required to control the plant.

These activities constituted two samples of readiness for impending adverse weather conditions, as defined in Inspection Procedure 71111.01.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

Partial Walk-Down

a. Inspection Scope

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

- October 27, 2016, Unit 3 shutdown cooling B lineup
- November 1, 2016, Unit 1 auxiliary feedwater system A
- November 17, 2016, Unit 2 containment purge isolation system
- December 15, 2016, Unit 3 diesel generator A

The inspectors reviewed the licensee's procedures and system design information to determine the correct lineup for the systems. They visually verified that critical portions of the systems or trains were correctly aligned for the existing plant configuration.

These activities constituted four partial system walk-down samples as defined in Inspection Procedure 71111.04.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

Quarterly Inspection

a. Inspection Scope

The inspectors evaluated the licensee's fire protection program for operational status and material condition. The inspectors focused their inspection on four plant areas important to safety:

- October 13, 2016, Unit 3 hotwork on reactor coolant pump 2B seal injection check valve in containment on the 80'
- October 27, 2016, Unit 2 condensate storage tank pumphouse, Fire Zone 83
- December 15, 2016, Unit 3 diesel generator A engine room, Fire Zone 21B
- December 15, 2016, Unit 3 diesel generator A fuel oil day tank room, Fire Zone 23A

For each area, the inspectors evaluated the fire plan against defined hazards and defense-in-depth features in the licensee's fire protection program. The inspectors evaluated control of transient combustibles and ignition sources, fire detection and suppression systems, manual firefighting equipment and capability, passive fire protection features, and compensatory measures for degraded conditions.

These activities constituted four quarterly inspection samples, as defined in Inspection Procedure 71111.05.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08)

.1 Non-destructive Examination (NDE) Activities and Welding Activities

a. Inspection Scope

The inspector directly observed the following nondestructive examinations:

<u>System</u>	<u>Weld Identification</u>	<u>Examination Type</u>
Safety Injection	3-025-006	Dye Penetrant
Safety Injection	13-086-SI-072-H001	Visual (VT-3)
Safety Injection	3-025-026	Ultrasonic
Safety Injection	3-025-019	Ultrasonic
Safety Injection	3-025-007	Ultrasonic

<u>System</u>	<u>Weld Identification</u>	<u>Examination Type</u>
Safety Injection	3-025-007	Dye Penetrant
Safety Injection	3-025-001	Dye Penetrant
Reactor Coolant	3-020-006-10-OL	Ultrasonic
Reactor Coolant	3-006-100-4	Visual (VT-3)
Reactor Coolant	3-006-100-2	Visual (VT-2)

The inspector reviewed records for the following nondestructive examinations:

<u>System</u>	<u>Weld Identification</u>	<u>Examination Type</u>
Safety Injection	3-025-007	Phased Array Ultrasonic
Feedwater	450671	Radiograph
Safety Injection	3-024-008	Ultrasonic
Safety Injection	3-021-014	Ultrasonic
Safety Injection	3-026-002	Ultrasonic
Safety Injection	3-026-001	Ultrasonic
Safety Injection	16-0956	Dye Penetrant

During the review and observation of each examination, the inspector observed whether activities were performed in accordance with the ASME Code requirements and applicable procedures. The inspector reviewed 12 indications that were previously examined and observed whether the licensee evaluated and accepted the indications in accordance with ASME Code and/or an NRC approved alternative. The inspector also reviewed the qualifications of all nondestructive examination technicians performing the inspections to determine whether they were current.

The inspector directly observed a portion of the following welding activity:

<u>System</u>	<u>Weld Identification</u>	<u>Weld Type</u>
Feedwater	4506710	GTAW (Gas Tungsten Arc Weld)

The inspector reviewed records for the following welding activities:

<u>System</u>	<u>Weld Identification</u>	<u>Weld Type</u>
Feedwater	4099739	GTAW
Safety Injection	4662446	GTAW
Auxiliary Feedwater	3558251	GTAW

The inspector reviewed whether the welding procedure specifications and the welders had been properly qualified in accordance with ASME Code Section IX requirements. The inspector also determined that essential variables were identified, recorded in the procedure qualification record, and formed the bases for qualification of the welding procedure specifications.

b. Findings

No findings were identified.

.2 Vessel Upper and Lower Head Penetration Inspection Activities

a. Inspection Scope

The licensee did not perform inspections of the upper head penetrations. No inspections were required this outage. The inspector reviewed the remote visual inspection of the bottom mounted instrument penetrations of the lower reactor head.

b. Findings

No findings were identified.

.3 Boric Acid Corrosion Control (BACC) Inspection Activities

a. Inspection Scope

The inspector reviewed the licensee's implementation of its boric acid corrosion control program for monitoring degradation of those systems that could be adversely affected by boric acid corrosion. The inspector reviewed the documentation associated with the licensee's boric acid corrosion control walk-down as specified in Procedure 73DP-9ZC01, "Boric Acid Corrosion Control Program," Revision 7. The inspector reviewed whether the visual inspections emphasized locations where boric acid leaks could cause degradation of safety-significant components, and whether engineering evaluation used corrosion rates applicable to the affected components and properly assessed the effects of corrosion-induced wastage on structural or pressure boundary integrity. The inspector observed whether corrective actions taken were consistent with the ASME Code and 10 CFR 50, Appendix B, requirements.

b. Findings

No findings were identified.

.4 Steam Generator Tube Inspection Activities

The licensee did not perform inspections of the steam generator tubes. No inspections were required this outage. No primary side inspections were performed. Therefore, the inspector determined this section of Inspection Procedure 71111.08 was not applicable.

.5 Identification and Resolution of Problems

a. Inspection Scope

The inspector reviewed 23 condition reports which dealt with inservice inspection activities and found the corrective actions for inservice inspection issues were appropriate. From this review the inspector 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.

b. Findings

No findings were identified.

The activities described in subsections .1 through .4 above constitute completion of one inservice inspection sample, as defined in Inspection Procedure 71111.08.

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

.1 Review of Licensed Operator Requalification

a. Inspection Scope

On December 13 and 14, 2016, the inspectors observed a portion of an annual requalification test for licensed operators. The inspectors assessed the performance of the operators and the evaluators' critique of their performance.

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

b. Findings

No findings were identified.

.2 Review of Licensed Operator Performance

a. Inspection Scope

On November 4, 2016, the inspectors observed the performance of on-shift licensed operators in the Unit 3 main control room. At the time of the observations, the plant was in a period of heightened activity due to startup from the Unit 3 refueling outage. The inspectors observed the operators' performance of the pre-job brief and the control room oversight and communications of the activity.

In addition, the inspectors assessed the operators' adherence to plant procedures, including 40OP-9ZZ02, "Initial Reactor Startup Following Refuelings," and other operations department policies.

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

b. Findings

No findings were identified.

.3 Biennial Review

a. Inspection Scope

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

These reviews included observations of portions of the operating tests by the inspectors. The operating tests observed included 15 job performance measures and 4 scenarios that were used in the current biennial requalification cycle. These observations allowed the inspectors to assess the licensee's effectiveness in conducting the operating test to ensure operator mastery of the training program content. The inspectors also reviewed medical records of eight licensed operators for conformance to license conditions and the licensee's system for tracking qualifications and records of license reactivation for three operators.

The results of these examinations were reviewed to determine the effectiveness of the licensee's appraisal of operator performance and to determine if feedback of performance analyses into the requalification training program was being accomplished. The inspectors interviewed members of the training department and reviewed minutes of training review group meetings to assess the responsiveness of the licensed operator requalification program to incorporate the lessons learned from both plant and industry events. Examination results were also assessed to determine if they were consistent with the guidance contained in NUREG 1021, "Operator Licensing Examination Standards for Power Reactors," Revision 10, Supplement 1, and NRC Inspection Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process."

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

The licensee completed the required requalification examinations on December 23, 2016, but did not have final results in time to meet the reporting requirements for the 2016004 resident report. The final results will be reported in January 2017 and will be included in the 2017001 resident report. The inspectors will compare these results to the Appendix I, "Licensed Operator Requalification Significance Determination Process."

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

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed two instances of degraded performance or condition of safety-related structures, systems, and components (SSCs):

- December 20, 2016, Unit 2 control element assembly 15 upper gripper coil stack failure on November 6, 2014

- December 22, 2016, Unit 1 pressurizer main spray valve, body to bonnet leaks and a stuck-open spray valve resulting in a reactor trip on September 7, 2016

The inspectors reviewed the extent of condition of possible common cause SSC failures and evaluated the adequacy of the licensee's corrective actions. The inspectors reviewed the licensee's work practices to evaluate whether these may have played a role in the degradation of the SSCs. The inspectors assessed the licensee's characterization of the degradation in accordance with 10 CFR 50.65 (the Maintenance Rule), and verified that the licensee was appropriately tracking degraded performance and conditions in accordance with the Maintenance Rule.

These activities constituted completion of two maintenance effectiveness samples, as defined in Inspection Procedure 71111.12.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed three risk assessments performed by the licensee prior to changes in plant configuration and the risk management actions taken by the licensee in response to elevated risk:

- October 19, 2016, Unit 3 outage protected train A walkdown and risk assessment
- October 24, 2016, Unit 3 shutdown risk assessment
- December 2, 2016, Unit 1 weekly risk assessment during engineered safety features actuation system (ESFAS) subgroup relay testing

The inspectors verified that these risk assessment were performed timely and in accordance with the requirements of 10 CFR 50.65 (the Maintenance Rule) and plant procedures. The inspectors reviewed the accuracy and completeness of the licensee's risk assessments and verified that the licensee implemented appropriate risk management actions based on the result of the assessments.

On December 15, 2016, the inspectors also observed portions of one emergent work activity that had the potential to affect the functional capability of mitigating systems, the Unit 3 train B diesel generator failure.

The inspectors verified that the licensee appropriately developed and followed a work plan for these activities. The inspectors verified that the licensee took precautions to minimize the impact of the work activities on unaffected SSCs.

These activities constituted completion of four maintenance risk assessments and emergent work control inspection samples, as defined in Inspection Procedure 71111.13.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed four operability determinations that the licensee performed for degraded or nonconforming SSCs:

- October 4, 2016, Unit 1 operability determination of pressurizer vent valve HV-109 following loss of closed indication
- October 12, 2016, Unit 1 operability determination of diesel generator B with notch in the diesel generator exhaust fan inlet screen
- October 19, 2016, Unit 3 operability determination of containment sump water level
- October 20, 2016, Unit 1 operability determination performed following diesel generator A spurious start

The inspectors reviewed the timeliness and technical adequacy of the licensee's evaluations. Where the licensee determined the degraded SSC to be operable, the inspectors verified that the licensee's compensatory measures were appropriate to provide reasonable assurance of operability. The inspectors verified that the licensee had considered the effect of other degraded conditions on the operability of the degraded SSC.

These activities constituted completion of four operability and functionality review samples, as defined in Inspection Procedure 71111.15.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

On December 12, 2016, the inspectors reviewed one permanent plant modification that affected risk-significant SSCs, Class 1E instrument AC power system inverter replacement.

The inspectors reviewed the design and implementation of the modification. The inspectors verified that work activities involved in implementing the modification did not adversely impact operator actions that may be required in response to an emergency or other unplanned event. The inspectors verified that post-modification testing was adequate to establish the operability of the SSC as modified.

These activities constituted completion of one sample of permanent modifications, as defined in Inspection Procedure 71111.18.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed two post-maintenance testing activities that affected risk-significant SSCs:

- October 22, 2016, Unit 3 high pressure safety injection pump B
- December 2, 2016, Unit 3 high pressure safety injection pump A following lubrication replacement

The inspectors reviewed licensing- and design-basis documents for the SSCs and the maintenance and post-maintenance test procedures. The inspectors observed the performance of the post-maintenance tests to verify that the licensee performed the tests in accordance with approved procedures, satisfied the established acceptance criteria, and restored the operability of the affected SSCs.

These activities constituted completion of two post-maintenance testing inspection samples, as defined in Inspection Procedure 71111.19.

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

During the station's Unit 3 refueling outage that concluded on November 5, 2016, the inspectors evaluated the licensee's outage activities. The inspectors verified that the licensee considered risk in developing and implementing the outage plan, appropriately managed personnel fatigue, and developed mitigation strategies for losses of key safety functions. This verification included the following:

- Review of the licensee's outage plan prior to the outage
- Review and verification of the licensee's fatigue management activities
- Monitoring of shut-down and cool-down activities
- Verification that the licensee maintained defense-in-depth during outage activities
- Observation and review of reduced-inventory
- Observation and review of fuel handling activities
- Monitoring of heat-up and startup activities

These activities constituted completion of one refueling outage sample, as defined in Inspection Procedure 71111.20.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed two risk-significant surveillance tests and reviewed test results to verify that these tests adequately demonstrated that the SSCs were capable of performing their safety functions:

Other surveillance tests:

- October 12, 2016, Unit 3 high pressure nitrogen supply to containment inservice test
- October 18, 2016, Unit 3 emergency core cooling system trisodium phosphate surveillance test

The inspectors verified that these tests met technical specification requirements, that the licensee performed the tests in accordance with their procedures, and that the results of the test satisfied appropriate acceptance criteria.

These activities constituted completion of two surveillance testing inspection samples, as defined in Inspection Procedure 71111.22.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

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

4OA2 Problem Identification and Resolution (71152)

.1 Routine Review

a. Inspection Scope

Throughout the inspection period, the inspectors performed daily reviews of items entered into the licensee's corrective action program and periodically attended the licensee's condition report screening meetings. The inspectors verified that licensee personnel were identifying problems at an appropriate threshold and entering these problems into the corrective action program for resolution. The inspectors verified that the licensee developed and implemented corrective actions commensurate with the

significance of the problems identified. The inspectors also reviewed the licensee's problem identification and resolution activities during the performance of the other inspection activities documented in this report.

b. Findings

No findings were identified.

.2 Semiannual Trend Review

a. Inspection Scope

The inspectors reviewed the licensee's corrective action program, performance indicators, system health reports, work order backlog site level indicators, work order backlog review packages, and other documentation to identify trends that might indicate the existence of a more significant safety issue. The inspectors verified that the licensee was taking corrective actions to address identified adverse trends.

These activities constituted completion of one semiannual trend review sample, as defined in Inspection Procedure 71152.

b. Observations and Assessments

The station's work order backlog review team has been generally acceptable in managing the corrective maintenance work order backlog. This licensee staff team is assembled every outage at Palo Verde to update priorities to address work order backlogs. Their performance in addressing timely completion of critical and non-critical corrective maintenance is effective.

c. Findings

No findings were identified.

.3 Annual Follow-up of Selected Issues

a. Inspection Scope

The inspectors selected one issue for an in-depth follow-up:

- On November 2, 2016, the inspectors reviewed the licensee's follow up corrective actions to the Unit 2 loss of charging flow event on March 20, 2015.

The inspectors assessed the licensee's problem identification threshold, cause analyses, extent of condition reviews and compensatory actions. The inspectors verified that the licensee appropriately prioritized the planned corrective actions and that these actions were adequate to correct the condition.

These activities constituted completion of one annual follow-up sample as defined in Inspection Procedure 71152.

b. Findings

No findings were identified.

40A3 Follow-up of Events and Notices of Enforcement Discretion (71153)

These activities constituted completion of four event follow-up samples, as defined in Inspection Procedure 71153.

.1 (Closed) Licensee Event Report 05000528/2016-001-00, Leakage from Reactor Coolant Pump 2B Discharge Pipe Instrument Nozzle

(Closed) Unresolved Item 05000528/2016002-01, Leakage from Reactor Coolant Pump 2B Discharge Pipe Instrument Nozzle

(Closed) Enforcement Discretion EA-16-192, Leakage from Reactor Pump 2B Discharge Pipe Instrument Nozzle

On April 10, 2016, during Unit 1 Refueling Outage 19, the licensee discovered a pressure boundary leak at the instrument nozzle of the 2B reactor coolant pump. The licensee identified this condition during a planned visual inspection of the hot leg and cold leg nozzles. During operation, the leak was not detected by either the licensee's RCS (Reactor Coolant System) leak rate determination procedure or by the containment atmospheric radiation monitor trend reviews. Furthermore, the leak was not visually detectable during the previous refueling outage. Visual evidence of the leakage was consistent with a small leak of short duration with no "popcorn" buildup of boric acid at the leakage site. The licensee determined that the cause of the leakage was primary water stress corrosion cracking of the alloy 600 instrument nozzle. The licensee corrected the leakage per application of Code Case N-733 (no exceptions) with the utilization of a Mechanical Nozzle Seal Assembly to seal the nozzle.

NRC inspectors reviewed the circumstances surrounding the discovery of the leak, observed portions of the repair activity during the refueling outage, and reviewed the licensee's apparent cause evaluation of the event. Inspectors determined that RCS boundary leakage is a severity level IV violation of LCO 3.4.14.Condition A, which requires that RCS operational leakage shall be limited to no pressure boundary leakage. If pressure boundary leakage exists, required action LCO 3.4.14. Condition B requires the licensee to place the Unit in operational MODE 3 within 6 hours, and within operational MODE 5 within 36 hours. Based on a review of the event, inspectors concluded that for a period that began on an unknown date that was very likely more than 36 hours before April 8, 2016, and ending when the reactor shut down on April 8, 2016, RCS operational leakage was limited to no pressure boundary leakage and the licensee did not place the unit in operational MODE 3 within 6 hours and within operational MODE 5 within 36 hours.

The issue is considered within the traditional enforcement process because there was no performance deficiency associated with the violation of NRC requirements. Inspection Manual Chapter 0612, Power Reactor Inspection Reports, Section 0612-09 states, in part, that such violations are dispositioned using traditional enforcement and may warrant enforcement discretion. The NRC Enforcement Policy, Section 6.1 ("Reactor Operations"), was reviewed to evaluate the significance of this violation. This violation was more than minor and best characterized as Severity Level IV (very low

safety significance) because it is similar to Enforcement Policy Section 6.1.d.1. Additionally, a qualitative assessment of the observed RCS operational leakage concluded the risk was of very low safety significance (Green). The basis for this qualitative risk determination was that the leakage rate was very small with little boron residue accumulation and no appreciable accumulation on nearby components. Any leakage was within the capability of RCS makeup systems.

The NRC decided to exercise enforcement discretion in accordance with Section 3.5 of the NRC Enforcement Policy and not issue enforcement action for the violation of Technical Specification 3.4.14.a (EA-16-192) for the following reasons: this issue is of very low safety significance (Green); it was determined that this issue was not within the licensee's ability to foresee and correct; the licensee's actions did not contribute to the degraded condition; and the actions taken were reasonable to identify and address this condition. Furthermore, because the licensee's actions did not contribute to this violation, it will not be considered in the assessment process or the NRC's Action Matrix. Specific documents reviewed during this inspection are listed in the attachment. This licensee event report 05000528/2016-001 and Unresolved Item 05000528/2016002-01, "Leakage from Reactor Coolant Pump 2B Discharge Pipe Instrument Nozzle" are closed.

2. (Closed) Licensee Event Report 05000529/2016-001-00, Main Steam Isolation Valve Actuator Train Inoperable due to Low Nitrogen Pre-Charge Pressure

a. Event Summary

On August 9, 2016, the licensee entered Technical Specification (TS) Limiting Condition for Operation (LCO) 3.7.2, Condition A for Unit 2 main steam isolation valve 171 actuator A to perform a nitrogen pre-charge check. The check identified a low nitrogen pre-charge pressure on actuator A. A subsequent engineering evaluation determined that the MSIV 171 actuator A was inoperable since July 30, 2016, due to a nitrogen leak on the accumulator. This inoperability period exceeded the seven-day required action completion time for one MSIV actuator. The licensee restored the actuator to operable status and exited LCO 3.7.2, Condition A on August 9, 2016. The accumulator leak was repaired on October 5, 2016.

The licensee's investigation concluded that station operators had an insufficient understanding of the MSIV hydraulic fluid reservoir level trends in relation to the nitrogen pre-charge required for MSIV operability. Inadequate reservoir level monitoring led to the extended inoperability period. The inspectors reviewed the licensee event report and dispositioned this issue as a self-revealing non-cited violation. This licensee event report is closed.

b. Findings

Introduction. The inspectors reviewed a Green self-revealing non-cited violation of Technical Specification 3.7.2 for exceeding the Condition A completion time for an inoperable MSIV single actuator train and not immediately declaring the affected MSIV inoperable in accordance with Condition E. Specifically, the Unit 2 MSIV 171 actuator A was inoperable from July 30 to August 9, 2016, when a known nitrogen leak was not adequately monitored. The licensee's inadequate monitoring allowed the nitrogen pre-charge pressure in the train A actuator to decrease to below the minimum acceptable limit for operability.

Description. The function of the main steam supply system is to deliver steam from the steam generators to the high pressure turbine. Each main steam line has one MSIV. Each MSIV has a hydraulic actuation system that provides the motive force to quickly close each MSIV if necessary to isolate the steam generators from the main steam system. For each MSIV, this actuation system includes two accumulators pre-charged with nitrogen, a single hydraulic fluid reservoir, and a single hydraulic pump that takes suction on the hydraulic reservoir and maintains the nitrogen pressure in both accumulators.

On October 6, 2015, Unit 2 operators received an MSIV 171 hydraulic fluid reservoir low level alarm in the main control room. This alarm provides an indirect indication of a potential loss nitrogen pre-charge pressure in one or both accumulators. The alarm does not provide a direct indication of MSIV operability. Operators performed a nitrogen pre-charge check in accordance with the alarm response procedure and confirmed a low nitrogen pre-charge in actuator A. Maintenance personnel restored the nitrogen pressure, but because the specific location of the nitrogen leak could not be identified, operators performed an immediate operability determination in accordance with station procedure 40DP-9OP26, "Operations Condition Reporting Process and Operability Determination/Functional Assessment."

Procedure 40DP-9OP26, Step E.1.13 requires that a senior reactor operator (SRO) must document within the IOD any additional monitoring requirements and the time frames necessary to correct or re-evaluate the degraded condition. Because the SRO judged that there was a potential for continued degradation of the nitrogen leak, area operators increased their frequency of observing and logging the hydraulic fluid reservoir level from weekly to twice per day. Operators also selected a perceived conservative hydraulic fluid reservoir level monitoring threshold to consider taking additional actions before which they would receive a repeat main control room low level alarms.

On October 7, 2015, the SRO concluded that the train A actuator was operable but degraded. However, the additional monitoring requirements would eventually prove to be inadequate because the operators did not recognize that an adequate hydraulic fluid oil reservoir level does not ensure that there remains an acceptable nitrogen pre-charge to ensure MSIV fast closure capability.

On July 4, 2016, the recorded hydraulic fluid reservoir level lowered to the conservative monitoring threshold. No action was taken and the level recovered the next day. The oil level again lowered to the monitoring threshold on July 25, 2016, after which the level dropped below the monitoring threshold. On August 9, 2016, operations personnel declared MSIV 171 inoperable to perform the nitrogen pre-charge check to assess the lowering hydraulic fluid reservoir level. The check revealed unacceptable nitrogen pre-charge pressure in actuator A. Actuator A could not have provided the fast close function of the MSIV. The licensee restored the nitrogen pre-charge, and the actuator train was declared operable. A past operability evaluation concluded that the nitrogen pre-charge in the MSIV actuator had been below that required to perform the MSIV fast close function from July 30 through August 9, 2016.

Analysis. The failure to perform adequate monitoring for a degraded condition as required by procedure 40DP-9OP26, "Operations Condition Reporting Process and

Operability Determination/Functional Assessment,” was a performance deficiency. The performance deficiency was more-than-minor and therefore a finding because it affected the equipment performance attribute of the Mitigating Systems Cornerstone to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically the failure to adequately monitor a known nitrogen leak resulted in depressurizing one of two hydraulic accumulators thereby reducing the reliability of the system to initiate a fast closure of MSIV 171 upon receipt of a main steam isolation signal. The inspectors performed the initial significance determination using NRC Inspection Manual Chapter 0609, Appendix A, Exhibit 2, “Mitigating Systems Screening Questions,” Issue Date: June 9, 2012. The finding required a detailed risk evaluation since it represented a loss of function for a single train for greater than the Technical Specification allowed outage time. A Region IV senior reactor analyst determined the finding was of very low safety significance (Green) since the MSIV remained capable of performing its safety function with the alternate actuator. The finding has a cross-cutting aspect in the area of human performance associated with the teamwork component. Specifically, the licensee failed to coordinate activities across organizational boundaries in that the operations personnel did not obtain engineering input to ensure that additional monitoring requirements for the nitrogen pre-charge leak were adequate to verify continued MSIV 171 operability [H.4].

Enforcement. Technical Specification 3.7.2 requires, in part, that in Mode 1, four MSIVs and their associated actuator trains shall be operable. Condition A requires, in part, that with a single actuator train inoperable on one MSIV, restore the MSIV actuator train to an operable status within 7 days. Condition E requires, in part, that if the required action and associated completion time of Condition A are not met, then immediately declare the affected MSIV inoperable. Contrary to the above, from July 30 to August 9, 2016, while in Mode 1 with a single actuator train inoperable on one MSIV, the licensee failed to restore the MSIV actuator train to an operable status in 7 days and then failed to immediately declare the affected MSIV inoperable. Specifically, the Unit 2 MSIV 171 actuator A was inoperable for greater than seven days, and the licensee did not declare the associated MSIV inoperable. The licensee’s immediate corrective actions were to restore the nitrogen pre-charge pressure for actuator A. Because this finding is of very low safety significance and has been entered into the licensee’s corrective action program as Condition Report 16-12740, this violation is being treated as a non-cited violation in accordance with Section 2.3.2 of the Enforcement Policy: NCV 05000529/2016004-01, “Inadequate monitoring of MSIV nitrogen pre-charge pressure.”

.3 NRC Event Number 52435: Alert Due to Catastrophic Failure of a Diesel Generator

During a scheduled surveillance test run of the Unit 3 B train diesel generator on December 15, 2016, there was a catastrophic failure of a piston to include crankcase damage. The diesel generator subsequently tripped. The Emergency Plan was entered and an ALERT was declared at 4:10 a.m. Mountain Standard Time (MST) based on an explosion resulting in visible damage to a safety system required for safe shutdown. The licensee’s fire department responded and no fire was observed. Unit 3 remained online at 100 percent power. The inspectors briefed senior NRC managers of the event via a conference call facilitated by the Headquarters Operations Center. Additionally, the inspectors responded to the site to ensure that no other safety systems were

impacted and to verify the completeness and adequacy of the licensee's emergency declaration. The licensee exited the emergency at 6:36 a.m. MST.

40A6 Meetings, Including Exit

Exit Meeting Summary

On October 25, 2016, the inspector presented the inservice inspection results to Ms. M. Lacal, Senior Vice President of Regulatory and Oversight, and other members of the licensee staff. The licensee confirmed that any proprietary information reviewed by the inspector had been returned or destroyed.

On December 16, 2016, the inspectors debriefed Ms. M. Lacal, Senior Vice President, Regulatory and Oversight, and other members of the licensee's staff of the on-site portion of the licensed operator requalification program inspection. An exit will be conducted telephonically with members of the licensee staff once results of the operating tests and written examinations are submitted in January 2017. The inspectors did not review any proprietary information during this inspection.

On January 18, 2017 the inspectors presented the inspection results to J. Cadogan, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

J. Cadogan, Sr. Vice President of Nuclear Operations
M. Lacal, Sr. Vice President of Regulatory and Oversight
J. Allison, Section Leader Simulator Support
G. Andrews, Director Regulatory Affairs
R. Davis, Director, Nuclear Security and Emergency Preparedness
D. Elkington, Section Leader, Compliance
J. Fearn, Manager, Emergency Preparedness
K. Graham, Director Plant Engineering
B. Hansen, Department Leader, ISFSI Engineering
D. Heckman, Nuclear Regulatory Affairs
K. House, Director Design Engineering
C. Kharrl, Plant General Manager for Operations
M. McGhee, Department Leader, Nuclear Regulatory Affairs
M. McLaughlin, Plant General Manager of Site Support
C. Moeller, Director, Technical Support (Acting)
M. Radspinner, Department Leader, System Engineering
B. Rash, Vice President, Engineering
H. Ridenour, Director Maintenance
R. Routolo, Manager, Radiation Protection (Acting)
D. Wheeler, Director Performance Improvement

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000529/2016-004-01	NCV	Inadequate monitoring of MSIV nitrogen pre-charge pressure (Section 4OA3.3)
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Closed

05000528/2016-001-00	LER	Leakage from Reactor Coolant Pump 2B Discharge Pipe Instrument Nozzle (Section 4OA3.1)
05000528/2016-002-01	URI	Leakage from Reactor Coolant Pump 2B Discharge Pipe Instrument Nozzle (Section 4OA3.2)
05000529/2016-001-00	LER	Main Steam Isolation Valve Actuator Train Inoperable due to Low Nitrogen Pre-Charge Pressure (Section 4OA3.3)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
40OP-9ZZ17	Cold Weather Protection	38
91DP-0EN31-01	Management of Sumps and Manholes Administrative Guideline	3

Condition Reports (CRs)

16-18720

Work Orders (WOs)

4688553

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision</u>
13-E-SPU-001	Essential Spray Pond Conduit and Grounding	9

Section 1R04: Equipment Alignment

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
40ST-9SI12	Shutdown Cooling Flow Verification	8
40ST-9ZZM6	Operations Mode 6 Surveillance Logs	24
40OP-9DG01	Emergency Diesel Generator A	75
40ST-9AF07	Auxiliary Feedwater Pump AFA-P01 Monthly Valve Alignment	6

Condition Reports (CRs)

16-19684 16-17820 16-17831

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision</u>
03-M-SIP-001	Safety Injection & Shutdown Cooling System	48
03-M-SIP-002	Safety Injection & Shutdown Cooling System	36

Section 1R05: Fire Protection

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
14DP-0FP01	Firewatch	12
	Pre-Fire Strategies	25

Condition Reports (CRs)

16-19684

Work Orders (WOs)

3558251

Section 1R08: Inservice Inspection Activities

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
73DP-9WP05	Weld Filler Material Control	8
73WP-0ZZ07	Welding of Stainless and Nickel Alloys	18
73WP-0ZZ05	Welding of Ferritic and Martensitic Steels	14
73WP-0ZZ04	Welding of Carbon and Low Alloy Steels to Stainless and Nickel Alloys	19
73TI-9ZZ09	Ultrasonic Examination of Pipe and Vessel Welds	17
73TI-9ZZ07	Liquid Penetrant Examination	17
73TI-0ZZ13	Radiographic Examination	18
73DP-9WP04	Welding and Brazing Control	17
73DP-9ZC01	Boric Acid Corrosion Control Program	7
70TI-9ZC01	Boric Acid Walkdown Leak Detection	19

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
3INT-ISI-3	3rd Inspection Interval, Inservice Inspection Program Summary Manual, PVNGS Unit 3	3
IR-2014-585	Palo Verde Pressurizer and Replacement Steam Generator Nozzle Inner Corner Region and Nozzle-to-Shell Weld Examinations	July 2014

Condition Reports (CRs)

16-02193	16-11779	16-10977	15-02301	16-16383
15-01994	16-09346	16-09161	16-12416	16-16195
15-04652	15-04645	16-02788	15-08378	16-16101
16-11230	16-17017	16-16932	16-16739	16-16086
16-16877	16-16689	16-16375		

Section 1R11: Licensed Operator Requalification Program and Licensed Operator Performance

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
40DP-9OP02	Conduct of Shift Operations	69
40OP-9ZZ02	Initial Reactor Startup Following Refuelings	60
40DP-9OP02	Conduct of Shift Operations	69
15DP-00T05	NRC Examination Security	7
	License Operator Continuing Training Program Description	67
15DP-00T03	LOCT Biennial Written Exam Development and Sample Plan	4
40DP-00P09	Operator Licensing and Requalification Process	1
01DP-0EM13	Licensed Operator Medical Examinations	25
15DP-00T04	LOCT Annual and Biennial Exam Administration	5
PV-E1284	Simulator Post-Exam Activities Security Checklist	4
PV-E1283	Simulator Pre-Exam Activities Security Checklist	6
PV-E1282	Pre-Exam Activities Security Checklist	2
PV-E1281	Exam Security Briefing Checklist	4
PV-E1891	Exam Security Briefing Acknowledgement Form	1
NLR10-12-001	Activation Reactivation	12
	2015 Transient Test Baseline Comparison –MTI-003	6
	2015 Simulator Transient Testing	2
ODP-33	Operations NRC Communications	1
40DP-9ZZ04	Time Critical Action Program	12
15DP-0TR08	Systematic Approach to Training (SAT)	8
15DP-00T06	LOCT Scenario and JPM Development	3

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
15DP-00T02	LOCT Annual and Biennial Operating Examination Sample Plan Development	4

Condition Reports (CRs)

15-01906	15-06372	15-07297	15-08352	15-10910
16-09217	16-19916			

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
SES-0-04-P-07	Licensed Operator Continuing Training Sim Eval Scenario	
SES-0-09-AH-05	Licensed Operator Continuing Training Sim Eval Scenario	
EP-0801A	Emergency Action Level Chart	
	Week 1 Operations Test	December 2016
	Week 0 Operations Test	December 2016
	Week 4 Operations Test	December 2016
	Simulator Discrepancy Report	December 2016
	Operator License Activation/Reactivation Card	December 2016
	Operations Training Department Critical Task List	December 2016
	UFSAR Time Critical Actions	December 2016

Section 1R12: Maintenance Effectiveness

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
70DP-0MR01	Maintenance Rule	42

Condition Reports (CRs)

16-15245	16-14219	16-08130	16-15134	16-03073
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Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/</u> <u>Date</u>
1503	Maintenance Rule (a)(1) Tracking Form	0

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
1243	Maintenance Rule (a)(1) Tracking Form Palo Verde MRule Database Performance Criteria Formulation Bases: Reactor Coolant	4 September 26, 2014

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
40DP-9AP21	Protected Equipment	7
70DP-0RA01	Shutdown Risk Assessments	53

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
	Appendix B, Protected Equipment Scheme	October 16, 2016
	Shutdown Safety Function Assessment	October 19, 2016
	Scheduler's Evaluation for PV Unit 3	December 15, 2016
	Scheduler's Evaluation for PV Unit 1	December 2, 2016

Section 1R15: Operability Determinations and Functionality Assessments

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
40ST-9ZZ10	Post Accident Monitoring Instrumentation Channel Checks	33
40DP-9OP26	Operations Condition Reporting Process and Operability Determination/Functional Assessment	41

Condition Reports (CRs)

16-1610	15-11790	15-09553	16-15292	16-16660
16-15577				

Work Orders (WOs)

4709044

Section 1R18: Plant Modifications

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
93DP-0LC07	10 CFR 50.59 and 72.48 Screenings and Evaluations	27

Condition Reports (CRs)

16-19278

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision</u>
3232547	Engineering Disposition for DMWO 3232547	2
E-14-0002	10 CFR 50.59 Screening/Evaluation	2
13-ES-A034	Inverter Reliability Study	
3232547	Design Input Requirements Checklist	1

Section 1R19: Post-Maintenance Testing

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
73ST-9XI33	HPSI pump and check valve full flow test	59
73ST-9SI10	HPSI Pumps Miniflow – Inservice Test	51

Condition Reports (CRs)

16-16861

Work Orders (WOs)

4660817

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision</u>
03-M-DIP-001	P&I Diagram: Safety Injection and Shutdown Cooling System	48

Section 1R20: Refueling and Other Outage Activities

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
40ST-9ZZ09	Containment Cleanliness Inspection	24
40OP-9ZZ07	Plant Shutdown Mode 1 to Mode 3	40

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/</u> <u>Date</u>
	Specific Maneuver Plan: EOC Shutdown 96% to 20%	0
	Palo Verde Unit 3 Control Room Logs	October 7, 2016
	3R19 Single Line view of outage file	August 8, 2016

Section 1R22: Surveillance Testing

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
74ST-9SI03	ECCS Trisodium Phosphate Surveillance Test	21
01DP-0RS03	Surveillance Test Interval Control	5
73ST-9CL01	Containment Leakage Type "B" and "C" Testing	44
	Palo Verde Technical Specifications	197

Condition Reports (CRs)

16-16725

Work Orders (WOs)

4678178 4678231

Section 4OA2: Problem Identification and Resolution

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
40AO-9ZZ05	Loss of Charging or Letdown	29
40DP-9WP01	Operations Processing Of Work Orders	32
51DP-9OM03	Site Scheduling	34

Condition Reports (CRs)

4636321	15-01314	2752421	4646291	4645834
16-15920	4645836	4645842	4646899	4646901
4646903	16-17964			

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
NLR15C040300	Licensed Operator Continuing Training: Loss of Letdown or Charging AOP	June 17, 2015
	Site Level Indicators	November 2016
	3R16 Critical and Non Critical Work Order Review	
	Palo Verde Online Work Management Quickview Database	

Section 40A3: Follow-up of Events and Notices of Enforcement Discretion

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
<u>40DP-9OP26</u>	<u>Operations Condition Reporting Process and Operability Determination/Functional Assessment</u>	<u>41</u>

Condition Reports (CRs)

15-01640-012	16-12740-005	15-08556-001
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