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

August 7, 2019

Mr. Robert Bement
Executive Vice President Nuclear/
Chief Nuclear Officer
Arizona Public Service Company
P.O. Box 52034, MS 7602
Phoenix, AZ 85072-2034

SUBJECT: PALO VERDE UNITS 1, 2, 3 – INTEGRATED INSPECTION REPORT 05000528/2019002 AND 05000529/2019002 AND 05000530/2019002

Dear Mr. Bement:

On June 30, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Palo Verde Units 1, 2, 3. On July 16, 2019, the NRC inspectors discussed the results of this inspection with Mr. Todd Horton, Vice President, Site Operations and other members of your staff. The results of this inspection are documented in the enclosed report.

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

If you contest the violation or significance or severity of the violation documented in this inspection report, 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; and the NRC Resident Inspector at Palo Verde.

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/

John L. Dixon, JR, Chief
Reactor Projects Branch D

Docket Nos. 05000528 and 05000529 and 05000530
License Nos. NPF-41 and NPF-51 and NPF-74

Enclosure:
As stated

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PALO VERDE UNITS 1, 2, 3 – INTEGRATED INSPECTION REPORT 05000528/2019002 AND 05000529/2019002 AND 05000530/2019002 – DATED AUGUST 7, 2019

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ADAMS ACCESSION NUMBER: ML19220B489

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Numbers:	05000528, 05000529 and 05000530
License Numbers:	NPF-41, NPF-51 and NPF-74
Report Numbers:	05000528/2019002, 05000529/2019002 and 05000530/2019002
Enterprise Identifier:	I-2019-002-0013
Licensee:	Arizona Public Service Company
Facility:	Palo Verde, Units 1, 2 and 3
Location:	Phoenix, AZ 85072-2034
Inspection Dates:	April 1, 2019 to June 30, 2019
Inspectors:	C. Alldredge, Senior Enforcement Specialist R. Bywater, Resident Inspector L. Carson, Senior Health Physicist J. Drake, Senior Reactor Inspector P. Elkmann, Senior Emergency Preparedness Inspector C. Peabody, Senior Resident Inspector D. Reinert, Reactor Inspector J. Reynoso, Resident Inspector, Diablo Canyon D. You, Resident Inspector
Approved By:	John L. Dixon, JR, Chief Reactor Projects Branch D Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an integrated inspection at Palo Verde Units 1, 3 and 2 in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to https://www.nrc.gov/reactors/operating/oversight.html for more information.

List of Findings and Violations

Failure to Develop Testing Program for Fuel Transfer Tubes			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000528, 05000529, 05000530/2019002-01 Open/Closed	None	71111.08P
The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control." Specifically, the licensee did not establish testing requirements and acceptance limits to detect degradation of the fuel transfer tubes as required by 10 CFR Part 50, Appendix B, Criterion XI. Failure to detect degradation of the fuel transfer tube could result in the fuel transfer tube being rendered inoperable and unable to meet its safety-related functions. The licensee entered this issue into their corrective action program as Condition Report 19-06854.			

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
URI	05000528, 05000529, 05000530/2019002-02	Design and Testing of the Fuel Oil Transfer System	71111.20	Open

PLANT STATUS

Unit 1 completed a planned refueling outage during the inspection period, but otherwise operated at or near rated thermal power.

Units 2 and 3 operated at or near rated thermal power for the entire inspection period.

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors performed plant status activities described in IMC 2515 Appendix D, "Plant Status" and conducted routine reviews using IP 71152, "Problem Identification and Resolution." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

REACTOR SAFETY

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (3 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

(1) Unit 1 auxiliary feedwater system train A, on June 4, 2019
(2) Unit 3 essential chilled water train A, on June 7, 2019
(3) Unit 2 essential spray pond system train B on, June 20, 2019

71111.04S - Equipment Alignment

Complete Walkdown Sample (IP Section 03.02) (1 Sample)

(1) The inspectors evaluated system configurations during a complete walkdown of the Unit 1 essential spray pond system train B, on June 11, 2019.

71111.05Q - Fire Protection

Quarterly Inspection (IP Section 03.01) (6 Samples)

The inspectors evaluated fire protection program implementation in the following selected areas:

(1) Unit 1 condensate storage tank, on April 4, 2019
(2) Unit 2 train A diesel generator room, on April 9, 2019
(3) Unit 1 train A auxiliary feedwater pump room, on June 4, 2019

(4) Unit 2 battery rooms A, B, C, and D, on June 6, 2019
(5) Unit 3 train A and train B essential spray pump rooms, on June 6, 2019
(6) Unit 1 train B diesel generator room, on June 11, 2019

71111.08P - Inservice Inspection Activities (PWR)

PWR Inservice Inspection Activities Sample (IP Section 03.01) (1 Sample)

(1) The inspectors verified that the reactor coolant system boundary, steam generator tubes, reactor vessel internals, risk-significant piping system boundaries, and containment boundary are appropriately monitored for degradation and that repairs and replacements were appropriately fabricated, examined, and accepted by reviewing the following activities from April 8 to April 18, 2019:

03.01.a - Nondestructive Examination and Welding Activities

1. Magnetic particle examination
    a. Steam generator blowdown, SG-48 weld 1
    b. Steam generator blowdown, SG-48 weld 2
2. Ultrasonic examination
    a. Pressurizer, pressurizer spray line weld overlay, Weld 5-30-OL
    b. Pressurizer, pressurizer spray line weld overlay, Weld 5-34-OL
    c. Steam generator blowdown, Weld 58-18R
3. Dye Penetrant Examination
    a. Shutdown cooling, Line SI-72, Weld 75-1

03.01.b - Pressurized-Water Reactor Vessel Upper Head Penetration Examination Activities

- The inspector reviewed the following visual examinations of penetrations: 1 through 16, 34 through 42, and 56 through 64
- There were no relevant indications accepted for continued service
- There were no weld repairs performed this outage

03.01.c – Pressurized-Water Reactor Boric Acid Corrosion Control Activities

The inspectors reviewed 18 condition reports and associated boric acid evaluations.

03.01.d – Pressurized-Water Reactor Steam Generator Tube Examination Activities

- The licensee performed:
    a. 100 percent full length bobbin testing using a 0.610 inch diameter bobbin probe for all tubes
    b. 100 percent X-Probe inspection of all bobbin flaw-like signals at tube support structures that had bobbin indicated depth greater than 20 percent through wall
    c. 100 percent tube plug visual inspection from the primary side in all steam generators
    d. Visual inspection of the channel head hot leg and cold leg primary side in all steam generators, including all visible clad surfaces
- No in situ pressure testing was required

The inspectors reviewed 16 notifications that dealt with inservice inspections issues

and found that items were entered into the corrective action program at the appropriate level and addressed correctly.

71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (1 Sample)

(1) The inspectors observed and evaluated Unit 1 operators conducting a controlled cooldown for a refueling outage on April 6, 2019.

Licensed Operator Requalification Training/Examinations (IP Section 03.02) (1 Sample)

(1) The inspectors observed and evaluated a licensed operator continuing training simulator evaluation scenario on June 18, 2019. The inspectors assessed the performance of the operators and the control room simulator.

71111.12 - Maintenance Effectiveness

Routine Maintenance Effectiveness Inspection (IP Section 02.01) (1 Sample)

The inspectors evaluated the effectiveness of routine maintenance activities associated with the following equipment and/or safety significant functions:

(1) Maintenance effectiveness and reliability of the temperature control valves for the essential chill water system (1JECATV0029, 1JECBTV0030, 2JECATV0029, 2JECBTV0030, 3JECATV0029, 3JECBTV0030)

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (4 Samples)

The inspectors evaluated the risk assessments for the following planned and emergent work activities:

(1) Unit 1 outage risk assessment during reactor coolant system lowered inventory, on April 17, 2019

(2) Unit 1 unplanned yellow shutdown safety function assessment for containment pressure and temperature control, on April 29, 2019

(3) Unit 3 entry into loss of annunciators AOP, on June 8, 2019

(4) Units 1, 2, and 3 online weekly risk assessment, on June 24, 2019

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 02.02) (7 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

(1) Seismic qualification of diesel generator fuel instrumentation, on April 11, 2019

(2) Unit 1 hot leg vent path foreign material exclusion cover configuration change, on April 17, 2019

(3) Unit 1 trisodium basket minimum inventory required, on April 24, 2019

(4) Unit 3 steam generator number 2 non-conforming check valve installed in main steam isolation valve (MSIV-171), on May 1, 2019

(5) GE Magneblast circuit breaker operating experience review, on May 14, 2019

(6) Unit 3 high-powered hand-held radio affecting components in the control room, on May 30, 2019

(7) Startup transformer number 2 carbon monoxide levels in alarm, on June 6, 2019

71111.19 - Post-Maintenance Testing

Post Maintenance Test Sample (IP Section 03.01) (5 Samples)

The inspectors evaluated the following post maintenance tests:

(1) Unit 1 CEDMCS SG8 reset upon CEA31 removal, WO 5115984, on April 1 and 2, 2019

(2) Unit 1 class 1E battery ammeter shunt replacement, WO 3518597, on April 15, 2019

(3) 72PA-9ZZ07, Unit 1 power ascension testing following nuclear fuel design change, on May 10, 2019

(4) WO 4962631, Unit 1, feedwater isolation valve 137 leak testing, on May 14, 2019

(5) Unit 2 train B charging pump testing following pulsation dampener repair, WO 5144591, on June 26, 2019

71111.20 - Refueling and Other Outage Activities

Refueling/Other Outage Sample (IP Section 03.01) (1 Sample)

(1) The inspectors evaluated refueling outage 1R21 activities from April 6 to May 9, 2019.

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Containment Isolation Valve Testing (IP Section 03.01) (1 Sample)

(1) Unit 1 containment isolation valve inspections (SI-225, SI-542, SI-543, SI-133), on April 11 and 17, 2019

Inservice Testing (IP Section 03.01) (3 Samples)

(1) Unit 1 train A high pressure safety injection valve inservice testing, on April 4, 2019

(2) Unit 2 essential spray pond pump B inservice test, on June 11, 2019

(3) Unit 3 train A diesel fuel oil transfer pump DFA-P01 in-service test per procedure 73ST-9DF01, on June 26, 2019

Surveillance Tests (other) (IP Section 03.01) (2 Samples)

(1) 73ST-9ZZ18, Unit 1 steam generator number 2 main steam safety valve testing, on March 25 and 26, 2019

(2) Unit 1 diesel generator B 24-hour continuous load test, load rejection, and hot restart test, on June 10, 2019

71114.01 - Exercise Evaluation

Inspection Review (IP Section 02.01-02.11) (1 Sample)

The inspectors observed the licensee's performance during the biennial emergency preparedness exercise conducted on March 5, 2019, and subsequently observed the presentation of exercise results to site management on March 21, 2019. The inspectors evaluated the design and conduct of the exercise, the performance of the emergency response organization, and the licensee's ability to identify weaknesses and deficiencies resulting from the exercise. The inspectors also participated in a post-exercise Public Meeting conducted by FEMA Region IX.

(1) The exercise scenario simulated an operating basis earthquake and aftershocks, a reactor coolant system leak into containment which escalated into a loss of coolant accident, failures of the high pressure safety injection system and containment spray system, and a radiological release to the environment following a containment penetration failure.

71114.06 - Drill Evaluation

Select Emergency Preparedness Drills and/or Training for Observation (IP Section 03.01) (1 Sample)

(1) The inspectors evaluated an emergency response drill on June 11, 2019.

RADIATION SAFETY

71124.01 - Radiological Hazard Assessment and Exposure Controls

Contamination and Radioactive Material Control (IP Section 02.03) (1 Sample)

The inspectors evaluated licensee processes for monitoring and controlling contamination and radioactive material.

(1) The inspectors verified the following sealed sources are accounted for and are intact:

- Unit 1 refueling outage 21 RW/RAM bag in the containment building, on April 18, 2019
- Unit 1 refueling outage 21 RW/RAM bag in the radwaste and auxiliary buildings, on April 17, 2019
- Unit 1 calibration lab bunker: two shepherd calibration sources, on April 17, 2019

High Radiation Area and Very High Radiation Area Controls (IP Section 02.05) (1 Sample)

(1) The inspectors evaluated risk-significant high radiation area and very high radiation area controls.

Instructions to Workers (IP Section 02.02) (1 Sample)

The inspectors evaluated instructions to workers including radiation work permits used to access high radiation areas.

(1) Alarming Dosimeters

- 18-05806: Unanticipated dose rate alarm in the Unit 1 letdown heat exchanger room, on April 11, 2018
- 18-06005: SRD dose rate alarm Unit 3 Shutdown Heat Exchanger Room, on April 18, 2018
- 18-19995: SRD went into alarm with worker not being in the RCA, on December 18, 2018
- 19-04951: SRD unanticipated dose rate alarm in the Unit 1 140’ RW building area, on April 7, 2019
- 19-04935: SRD unanticipated dose rate alarm while sawing with EMI equipment, on April 6, 2019

Labeling of Containers

- Unit 1 refueling outage 21 RW/RAM bag in the containment building, on April 18, 2019
- Unit 1 refueling outage 21 RW/RAM bag in the radwaste and auxiliary buildings, on April 17, 2019
- Unit 1 calibration lab bunker: two shepherd calibration sources, on April 17, 2019

Radiation Worker Performance and Radiation Protection Technician Proficiency (IP Section 02.06) (1 Sample)

(1) The inspectors evaluated radiation worker performance and radiation protection technician proficiency.

Radiological Hazard Assessment (IP Section 02.01) (1 Sample)

The inspectors evaluated radiological hazards assessments and controls.

(1) The inspectors reviewed the following:

Radiological Surveys

- 0-M-20180110-3: Calibration lab bunker, on January 10, 2018
- 0-M-20190325-2: Calibration lab bunker, on March 25, 2019
- 1-M-20190320-7: 140” RW – Neutron source room quarterly, on March 20, 2019
- 1-M-20190415-31: Unit 1 containment steam generator 1 bowl, cold leg, on April 15, 2019
- 1-M-20190415-35: Unit 1 containment steam generator 2 bowl, hot leg, on April 15, 2019

Risk Significant Radiological Work Activities

- RWP 1-3521: Safety injection check valve V217 rework and changeout, on April 7, 2019
- RWP 1-3306: Steam generator 1 pre-HEPA filter changeout, on April 18, 2019
- RWP 1–3306: Steam generator 2 pre-HEPA filter changeout, on April 16, 2019
- RWP 1–3306: Steam generator 1 and 2 Eddy current testing, on April 17, 2019

Air Sample Survey Records

- 1-19-00350: Core offload, fuel handling building bridge, on April 12, 2019
- 1-19-00352: Fuel movement, spent fuel pool, on April 12, 2019
- 1-19-00351: Core offload, fuel handling building bridge, on April 13, 2019
- 1-19-00394: Steam generator-1 pump bay room hot & cold leg diaphragms removal, on April 15, 2019
- 1-19-00459: Steam generator-2 HEPA filter area

Radiological Hazards Control and Work Coverage (IP Section 02.04) (1 Sample)

The inspectors evaluated in-plant radiological conditions during facility walkdowns and observation of radiological work activities.

(1) Radiological work package for areas with airborne radioactivity

- RWP 1-3521: safety injection check valve V217 rework and changeout, on April 17, 2019
- RWP 1-3306: steam generator 1 pre-HEPA filter changeout, on April 18, 2019
- RWP 1–3306: Steam Generator – 2 pre-HEPA filter changeout, on April 16, 2019

- RWP 1–3306: Steam Generator 1 and 2 Eddy current testing, on April 17, 2019

71124.02 - Occupational ALARA Planning and Controls

Implementation of ALARA and Radiological Work Controls (IP Section 02.03) (1 Sample)

The inspectors reviewed as low as reasonably achievable practices and radiological work controls.

(1) The inspectors reviewed the following activities:
- RWP 1-3306 Primary Side Steam Generator Maintenance
- RWP 1-3319 Reactor Coolant Pump Maintenance with Motor Replacement
- RWP 1-3502 Valve, Flange, and Pump Maintenance and Inspection
- RWP 1-3521 High Risk - Inboard Loop Discharge Check Valve Disassembly, Inspection and Repair

Radiation Worker Performance (IP Section 02.04) (1 Sample)

The inspectors evaluated radiation worker and radiation protection technician performance during:

(1)
- Maintenance of CV217
- Steam Generator 1 & 2 Maintenance to include eddy current testing

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

OR01: Occupational Exposure Control Effectiveness Sample (IP Section 02.15) (1 Sample)

(1) April 27, 2018 through April 19, 2019

PR01: Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences (RETS/ODCM) Radiological Effluent Occurrences Sample (IP Section 02.16) (1 Sample)

(1) April 27, 2018 through April 19, 2019

71152 - Problem Identification and Resolution

Annual Follow-up of Selected Issues (IP Section 02.03) (1 Sample)

The inspectors reviewed the licensee's implementation of its corrective action program related to the following issues:

(1) Evaluation to determine atmospheric discharge valve acoustic interference effects on Security Plan implementation

Semiannual Trend Review (IP Section 02.02) (1 Sample)

(1) The inspectors reviewed the licensee's corrective action program for trends in human performance regarding "questioning attitude" that might be indicative of a more significant safety issue.

INSPECTION RESULTS

Observation: Integrating Radiological Information during the Biennial Emergency Preparedness Exercise	71114.01
The inspectors observed that the emergency response organization could be more effective in integrating available radiological information about plant conditions during the March 5, 2019, exercise. Specifically, the emergency response organization was slow to recognize that a change in protective action recommendations was required when the wind shifted after the General Emergency declaration. Information was available that radiological conditions were worsening and that protective action guides were exceeded at 2 miles downwind. If that information had been used to evaluate the newly-affected downwind sector, the emergency response organization could have promptly recognized that a change in protective action recommendations was necessary, even if there was not enough information to completely define the change. A prompt recognition might have caused the dose assessment staff to take different actions and allowed the subsequent protective action recommendation to be developed more quickly. The inspectors observed that the dose assessment staff relied upon dose assessment reports as the sole indicator of the need to make protective action recommendations. The staff did not appear to apply all available radiological information to inform their understanding of the need for protective measures as the situation changed.	

Observation: Emergency Response Organization Did not consider Manual Dose Assessments during an Exercise	71114.01
The inspectors observed that the emergency response organization did not consider performing a dose assessment using manual inputs when the wind shifted after the General Emergency declaration during the March 5, 2019, emergency preparedness exercise. The licensee has the capability to perform dose assessment with manual inputs and that method might have resulted in the subsequent protective action recommendation being developed more quickly. However, the inspectors observed there was no discussion in the dose assessment group about the possible benefits of the manual method, and there was no intentional decision made to wait for the next data update before performing a new dose assessment. The inspectors discussed the manual dose assessment method with licensee staff following the exercise and concluded that dose assessment staff had a bias against using the manual method and were unlikely to consider its use under other circumstances.	

Observation: Repeat Performance Issues Observed during Second Emergency Response Drill	71114.06
The inspectors observed an Emergency Response Organization (ERO) Mini-Drill in the Emergency Operations Facility on June 11, 2019. The inspectors observed many of the weaknesses described as observations from the NRC graded evaluation that was performed in March 2019, but the team's observations appear above in this report. During this drill, the licensee was not able to completely and satisfactorily demonstrate the emergency classification and protective action recommendation skills.	

The licensee did self-identify the missed opportunities during their critique and entered them into the corrective action program. The licensee also took immediate corrective actions to suspend qualifications and provide remedial training to ERO position players whose actions and decision making led to the unsatisfactory performance during the drill.

Furthermore, the licensee is continuing to evaluate the ongoing recent ERO drill performance issues at a high level and is taking action to provide additional training to ERO staff as well as scheduling additional drill opportunities in 2019-2020 to provide ERO staff an opportunity to improve proficiencies and verify their continuing capability to ensure adequate protection of public health and safety during an emergency.

Observation: Operator Human Performance Issue in Challenging the Unknown	71152

The inspectors have noted a trend amongst plant operators when confronted with a scenario with unknown conditions and/or uncertain consequences. The inspectors reviewed the licensee's Standards and Expectations with respect to "Questioning Attitude," and determined that the operators were not exhibiting fundamental human performance characteristics when it involved situations where the conditions were unknown. Their literature states that an attribute of a questioning attitude is challenging the unknown and individuals are expected to stop when faced with uncertain conditions. However, the inspectors have noted three instances where this was not demonstrated.

- On February 20, 2019, the Unit 3 operators discovered that the diesel fuel oil transfer pump B was inoperable which resulted in making the diesel generator B inoperable. In response, the control room was conducting a common cause test to verify that the diesel generator A was operable. The operators decided to make use of a procedure that would only test the operability of the diesel fuel oil transfer pump A. The inspectors questioned whether this would also cause diesel generator A to be inoperable. Despite this question, the control room proceeded to use the procedure to test the diesel fuel oil transfer pump A. An in-depth inspection found that the use of the procedure did cause a period where both trains of diesel generators were inoperable.

- On February 20, 2019, the Unit 3 diesel generator B was declared inoperable when the diesel fuel oil transfer pump B tripped shortly after starting (planned diesel fuel oil transfer pump B test). The licensee discovered a significant amount of water intrusion into the diesel fuel oil vault. This had the effect of causing excessive condensation in the fuel oil transfer pump junction box grounding the internal terminal board. Prior to this date, routine entries into diesel fuel oil vault B noted water leakage into the vault as evidenced by the presence of standing water. These were documented in condition reports (CR) 18-02885, 08-08777, and 18-18808. Additionally, two of these condition reports were classified as Not a Condition Adverse to Quality (NCAQ).

- On February 13, 2019, Unit 3 control room identified that the keying of a hand-held radio used by plant operators would affect the temperature controller for the train B control room emergency air temperature control system. The decision was made to keep the train inoperable (system was made inoperable for control valve corrective maintenance the day before). A prompt operability determination on February 14, 2019, (with input from the engineering department) determined that the system was operable/degraded. The total time between discovering this condition to when it was evaluated to be operable/degraded was approximately 20 hours. During this time, two

shifts of control room operators did not question whether the continued use of handheld radios should be a concern to other equipment, nor did they check to see if this affected the train A controller as instructed in Procedure 40DP-9OP26, "Operations Condition Reporting Process and Operability Determination/Functional Assessment," step 4.1.1.J.

The licensee has taken corrective action to address each of these three instances. The inspectors have communicated this trend to the licensee and will continue to monitor plant performance for any further trends.

Failure to Develop Testing Program for Fuel Transfer Tubes			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000528, 05000529, 05000530/2019002-01 Open/Closed	None	71111.08P

The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control." Specifically, the licensee did not establish testing requirements and acceptance limits to detect degradation of the fuel transfer tubes as required by 10 CFR Part 50, Appendix B, Criterion XI. Failure to detect degradation of the fuel transfer tube could result in the fuel transfer tube being rendered inoperable and unable to meet its safety-related functions. The licensee entered this issue into their corrective action program as Condition Report 19-06854.

Description:

During a review of the boric acid corrosion control program, the inspectors noted that a boric acid leak had been identified on the expansion joints for the fuel transfer tube outer housing, by design, the space between the fuel transfer tube and the expansion bellows is dry. The inspectors questioned the source of the boric acid. Procedure 70TI-9ZC01, Revision 21, Section 1.3, requires that the source of a boric acid leak be identified. Contrary to this requirement, the inspectors noted that the source of the boric acid leak from the fuel transfer tube bellows had never been identified. The inspectors asked for the latest test results on the fuel transfer tube to verify pressure boundary integrity. The licensee stated that no testing had been performed on the fuel transfer tube since initial construction.

Based upon a review of the Combustion Engineering Standard Safety Analysis Report and the Update Final Safety Analysis Report, the Fuel Transfer Tube Assembly has four Safety Related, Quality Related (Q) functions, including decay heat removal for the spent fuel pool and the reactor during the Fuel Transition Mode of Refueling Operations under a scenario where a loss of off-site power is assumed in conjunction with a single mechanical failure. During this mode of operation when the core is being off loaded or re-loaded, the spent fuel pool cooling system may be augmented by one train of shutdown cooling (using either the low pressure spray injection (LPSI) or containment spray (CS) Pump) and associated auxiliaries. The shutdown cooling train in service is aligned such that it would provide cooling to both the reactor core and the spent fuel pool. Flow through the Fuel Transfer Tube PCE-M01 is credited for heat removal purposes in this case. This function was part of DMWO 00793132, Fuel Transfer Tube Assembly Subcomponent Reclassification, which was implemented in 1997. When the design and licensing basis of the Fuel Transfer Tube PCE-M01 was changed to credit it as a decay heat removal pathway, the Fuel Transfer Tube PCE-M01 and the associated Fuel Transfer Tube Assembly subcomponents were not

reclassified as required by the guidance established in Regulatory Guide 1.26, Revision 1 to which the licensee is committed.

Regulatory Guidance 1.26, “Quality Group Classifications And Standards For Water-, Steam-, And Radioactive-Waste-Containing Components Of Nuclear Power Plants,” Revision 1, Section C.1.b, states in part that systems or portions of systems important to safety that are designed for reactor shutdown or residual heat removal should be classified as Quality Group B. Implementation of Work order DMWO 00793132, which credited the fuel transfer tube with decay heat removal function, should have resulted in the fuel transfer tube being designated as a Quality Group B component.

Corrective Actions: The licensee has entered the issue into their corrective action program and requested Sargent & Lundy to develop this study to document the bases for the classification of the subcomponents that make up the Fuel Transfer Tube Assembly. The licensee is developing plan to locate the source of the boric acid leak and make necessary repairs, as well as determine a testing program for the fuel transfer tube.

Corrective Action References:

Condition Report 19-06854

Performance Assessment:

Performance Deficiency: Contrary to the requirements of 10 CFR Part 50, Appendix B, Criterion XI, “Test Controls,” the licensee failed to develop a testing program for the fuel transfer tubes to ensure it remained capable of performing its functions under design conditions.

Screening: The inspectors determined the performance deficiency was more than minor because if left uncorrected, it would have the potential to lead to a more significant safety concern. The inspectors determined the performance deficiency was more than minor because if left uncorrected, it would have the potential to lead to a more significant safety concern. The failure to perform the required testing of the fuel transfer tubes is a performance deficiency. The performance deficiency is more than minor because it is associated with the protection against external factors attribute of the Mitigating Systems Cornerstone, and affects the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequence. Specifically, the licensee failed to perform examinations/testing required to provide reasonable assurance that the fuel transfer tube could perform its intended function during design basis events, and therefore, maintain the ability to provide cooling to the irradiated fuel assemblies. Using NRC Inspection Manual Chapter 0609, Appendix G, Attachment 1, Exhibit 3, “Mitigating Systems,” the inspectors determined the finding is of very low safety significance (Green) because the finding did not involve the loss of operability or functionality of the component.

Significance: The inspectors assessed the significance of the finding using Appendix G, “Shutdown Safety SDP.” Using NRC Inspection Manual Chapter 0609, Appendix G, Attachment 1, Exhibit 3, “Mitigating Systems,” the inspectors determined the finding is of very low safety significance (Green) because the finding was related to the qualification of the component and the component remained operable or functional.

Cross-Cutting Aspect: None The finding was not assigned a cross cutting aspect because of the age of the issue and it is not indicative of current plant performance.

Enforcement:
Violation: 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 systems, structures, and components will perform satisfactorily in service is identified and performed in accordance with written procedures which incorporate the requirements and acceptance limits contained in applicable design documents. Contrary to the above, from initial commercial operations until May 2019, the licensee failed to establish a test program to assure that all testing, required to demonstrate that the fuel transfer tubes will perform satisfactorily in service, was identified and performed in accordance with written procedures which incorporate the requirements and acceptance limits contained in applicable design documents. Specifically, the licensee did not establish examinations and testing required by 10 CFR Part 50 Appendix B, Criterion XI, Test Control," to detect degradation of the fuel transfer tube. Since the violation is of very low safety significance and is documented in the licensee's corrective action program as Condition Report 19-06854, it is being treated as a non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

Unresolved Item (Open)	Design and Testing of the Fuel Oil Transfer System 05000528, 05000529, 05000530/2019002-02	71111.20

Description: While observing excavation efforts for repairs to leaking domestic water piping the inspectors noted that there were three pipes uncovered, but that the workers had only expected two pipes to be in the location. A review of site drawings identified the third line as non-safety related piping that connected the safety related diesel fuel oil systems to each other as well as the bulk fuel oil system and associated loads in the water treatment facility. The emergency Diesel Generator fuel oil transfer system was designed to Section III, Subsection ND of the ASME Code. The Updated Final Safety Analysis Report, Section 1.8 states that the licensee is committed to Regulatory Guide 1.137, "Fuel-Oil Systems For Standby Diesel Generators," Revision 1. Section B, item e of Regulatory Guide states in part, "e. Section 7.3 of ANSI N195-1976, "Fuel-Oil Systems For Standby Diesel Generators," states that the arrangement of the fuel-oil system shall provide for inservice inspection and testing in accordance with ASME Boiler and Pressure Vessel Code, Section XI, 'Rules for Inservice Inspection of Nuclear Power Plant Components.'" For those portions of the fuel-oil systems for standby diesel generators that are designed to Section III, Subsection ND of the Code, an acceptable method of meeting the requirements of Section 7.3 is to ensure that the system arrangement would allow:

(1) Pressure testing of the fuel-oil system to a pressure 1.10 times the system design pressure at 10-year intervals. In the case of storage tanks, recommendations of the tank vendor should be taken into account when establishing the test pressure.
(2) A visual examination to be conducted during the pressure test for evidence of component leakages, structural distress, or corrosion. In the case of buried components, a loss of system pressure during the test constitutes evidence of component leakage.

Company Correspondence ID#: 450-00575 Date: 06/18/2018, indicates that the licensee shifted to an alternative pressure test for the buried portions of the diesel fuel oil transfer system. The licensee cited ASME Section XI paragraph IWA-2240 for the proposed ultrasonic examination to determine the fuel level in the fill line. The licensee stated as justification that, ASME Code Section XI, IWA-2240 ALTERNATIVE EXAMINATIONS states, "Alternative examination methods, a combination of methods, or newly developed techniques may be

substituted for the methods specified in this Division, provided the Inspector is satisfied that the results are demonstrated to be equivalent or superior to those of the specified method."

In addition, ANSI N195-1976, "Fuel-Oil Systems For Standby Diesel Generators," section 5.3, "Multiple Reactor Unit Nuclear Stations," states in part, "Multiple reactor unit nuclear stations should be designed with completely independent fuel oil systems for each unit."

Inspectors had the following questions regarding the diesel fuel oil transfer systems associated with all three units.

a. The inspector requested the licensee demonstrate that the alternative method provided results that were equivalent or superior to the method specified in Section XI of the ASME Code.
b. The inspector had questions as to whether the use of isolation valves DFBV069, DFBV021, and DFAV015 was an adequate alternative to the requirement in ANSI N195-1976, "Fuel-Oil Systems For Standby Diesel Generators," section 5.3, "Multiple Reactor Unit Nuclear Stations," states in part, "Multiple reactor unit nuclear stations should be designed with completely independent fuel oil systems for each unit," given that the licensee is treating these valves as Category B in their IST program and Design Calculation 13-MC-DF-0306, "As Built Calculation for Sizing the Diesel Fuel Storage and Day Tanks," has zero leakage allowance from these valves.

Planned Closure Actions: Review documents provided by the licensee as they are available.

Licensee Actions: The inspectors did not perceive any immediate safety or security concerns. The licensee documented the unresolved item in Condition Reports 19-05734 and 19-05914.

EXIT MEETINGS AND DEBRIEFS

The inspectors verified no proprietary information was retained or documented in this report.

- On April 18, 2019, the inspectors presented the Inservice Inspection results to M. Lacal, Senior Vice President, Regulatory and Oversight and other members of the licensee staff.

- On April 19, 2019, the inspectors presented the Occupational Safety Cornerstone Inspection IP 71124.01/02 and PI IP 71151 ORS/PRS results to M. Lacal, Senior Vice President, Regulatory and Oversight and other members of the licensee staff.

- On May 1, 2019, the inspectors presented the Inservice inspection Re-Exit to M. Kura, Department Leader of Compliance and Environmental and other members of the licensee staff.

- On June 13, 2019, the inspectors presented the Re-Exit for the Biennial Emergency Preparedness Exercise Inspection (IP71114.01) to M. Lacal, Senior Vice President, Nuclear Regulatory and Oversight and other members of the licensee staff.

- On July 16, 2019, the inspectors presented the integrated inspection results to Mr. Todd Horton, Vice President, Site Operations and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.04	Corrective Action Documents	Condition Report	19-08707, 19-09298, 19-09299	
	Drawings	01-M-AFP-001	P&I Diagram: Auxiliary-Feedwater System	44
		01-M-SPP-002	P&I Diagram: Essential Spray Pond System	22
		02-M-SPP-001	P&I Diagram Essential Spray Pond System	64
		03-M-ECP-001	P & I Diagram Essential Chilled Water System	24
	Miscellaneous		System Health Report: Essential Spray Pond	06/11/2019
	Procedures	40DP-9OP19	Locked Valve, Breaker, and Component Tracking	139
		40ST-9AF07	Auxiliary Feedwater Pump AFA-P01 Monthly Valve Alignment	6
	Work Orders		3304346	
71111.05Q	Corrective Action Documents	Condition Report	19-05102, 19-05215, 19-05859, 19-05875, 19-07759, 19-08833, 19-08971, 19-10240	
	Drawings	01-M-DFP-001	Diesel Fuel Oil and Transfer System	13
		01-M-DGP-001	Diesel Generator System	63
		02-M-DFP-001	Diesel Fuel Oil and Transfer System	12
		02-M-DGP-001	Diesel Generator System	61
	Miscellaneous		PVNGS Pre-Fire Strategies Manual	26
			PVNGS Updated FSAR	19
		5112780	Transient Combustible Control Permit Form	
	Procedures	14DP-0FP33	Control of Transient Combustibles	30
		32ST-9PK01	7-Day Surveillance Test of Station Batteries	39
		40DP-9ZZ17	Control of Doors, Hatches, and Floor Plugs	63
71111.08P	Corrective Action Documents	Condition Report	17-16162, 19-00979, 17-16162, 18-02532, 18-02531, 19-01692, 18-02809, 19-00666, 18-03447, 18-07850, 19-00253, 18-18823, 18-03060, 18-09495, 18-03582, 18-14146, 18-02812, 18-18821	
	Drawings	01-P-DFF-0701	Diesel Fuel ISO (Isometric) Markup Supply Line	10
		03-M-DFP-001	Diesel Fuel Oil and Transfer System	10
		DMWO 00793132	Provide Backup Air Supply to Spent Fuel Pool Transfer Canal Gate Seal and Pump Discharge Pressure Indicator	7

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Miscellaneous		APS Correspondence 476-00-575 buried portions of DF transfer system Letter	
			Palo Verde Nuclear Generating Station, Unit 1 – Relief Request No. 57 To Approve Alternate	
			Requirements For The Reactor Pressure Vessel Head Nozzles To Perform A Bare Metal Examination Per ASME Code Case N-729-4	02/16/2018
			Safety Manual	46
		13-MS-A166	Fuel Transfer Tube Assembly Subcomponent Classification Evaluation	0
		17-VT-1045	1R20 As-Found	2
		17-VT-1103	As-Left Rx Head	1
		40OP-9RC03, R6	RCS Leakage Source Determination	
		S-09-0039	50.59 Screen for permanent scaffolding	1
		SWMS No. 17-09564	Welding Program Self-Assessment	
		SWMS No. 4362861	Formal Self-Assessment of the Inservice Inspection Program	08/16/2013
	Procedures	01-C-ZAS-0623	Shutdown Heat Exchanger Room B – Excel Platform	0
		13-CN-0380	Installation Specification for Seismic Cat IX and Non-Seismic Scaffolding	24
		14DP-0FP33	Control of Transient Combustibles	30
		14DP-0FP43	Fire Protection Program Responsibilities, Authorities, and Management Expectations	1
		32ST-1QH01	61 Day Cathodic Protection Surveillance Test of the Diesel	12
		32ST-1QH02	12 Month Surveillance Test of The Diesel Fuel Storage Tank	9
		40ST-9DF01	Fuel Oil Day Tank Accumulated Water Check	10
		40ST-9DG01	Diesel Generator A Test	50
		40ST-9DG02	Diesel Generator B Test	55
		70TI-9ZC01	Boric Acid Walkdown Leak Detection	18, 19, 20, 21
		73DP-9WP04	Welding and Brazing Control	20

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		73DP-9WP05	Weld Filler Material Control	10
		73DP-9XI03	ASME Section XI Inservice Inspection	23
		73DP-9ZC01	Boric Acid Corrosion Control Program	6, 7, 8
		73TI-9ZZ05	Dry Magnetic Examination	19
		73TI-9ZZ07	Liquid Penetrant Examination	19
		73TI-9ZZ10	Ultrasonic Examination of Welds in Ferritic Components	14
		73TI-9ZZ17	Visual Examination of Welds, Bolting, and Components	14
		73TI-9ZZ18	Visual Examination of Component Supports	16
		73TI-9ZZ19	Visual Examination of Pump and Valve Interval Surfaces	16
		73TI-9ZZ22	Visual Examination for Leakage	12
		73TI-9ZZ23	Ultrasonic Examination of Reactor Coolant Pump Flywheels	10
		73TI-9ZZ24	Eddy Current Surface Examination	8
		MN756-A00001 (PDI-UT-1_Rev_G)	PDI Generic Procedure for the Ultrasonic Examination of Ferritic Pipe Welds	2
		MN756-A00002 (PDI-UT-2_Rev_H)	PDI Generic Procedure for the Ultrasonic Examination of Austenitic Pipe Welds	3
		MN756-A00004 (PDI-UT-8_Rev H)	PDI Generic Procedure for the Ultrasonic Examination of Weld Overlaid Similar and Dissimilar Metal Welds	2
		MN756-A00005 (PDI-UT-10_Rev G)	PDI Generic Procedure for the Ultrasonic Examination of Dissimilar Metal Welds	2
		MRP-058	Materials Reliability Program: Boric Acid Corrosion Guidebook, Managing Boric Acid Corrosion Issues at PWR Power Stations	2
		PR-0904	Fire Protection Program Requirement Description	2
	Radiation Surveys	73TI-9ZZ17	Visual Examination of Welds, Bolting, and Components R14	
71111.11Q	Miscellaneous		Licensed Operator Continuing Training Simulator Evaluation Scenario	04/09/2019
			Technical Requirements Manual: App TA, Reactor Coolant System Pressure and Temperature Limits Report	61
	Procedures	40EP-9EO01	Standard Post Trip Actions	23
		40EP-9EO07	Loss of Offsite Power / Loss of Forced Circulation	31

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		40ST-9RC01	RCS and Pressurizer Heatup and Cooldown Rates	19
71111.12	Corrective Action Documents	Condition Report	18-10879, 19-02330	
	Miscellaneous		Palo Verde Maintenance Rule Manager Database	
		13-JS-A058	Assessment of Electronic Compatibility (EMC) of the 800 MHz Radio System, Digital Equipment, and Cordless Phone with Plant Equipment	
	Work Orders		5040131, 5025814, 5025815, 4982926, 4954803, 4977854, 4921776, 4961977, 493351	
71111.13	Corrective Action Documents	Condition Report	19-06677, 19-06681, 19-08797	
	Miscellaneous		Unit One 21 Refueling Outage Shutdown Risk Assessment Final Report	04/03/2019
			Shutdown Safety Function Assessment RCS Head Off	04/28/2019 3:00PM
			Shutdown Safety Function Assessment RCS at Below RV Flange	04/28/2019 9:00PM
			Shutdown Safety Function Assessment RCS at Below RV Flange	04/29/2019 3:00AM
			Shutdown Safety Function Assessment RCS at Below RV Flange	04/29/2019 9:30AM
			Unit 1 Archived Operator Logs	04/29/2019
	Procedures	02DP-0RS01	Online Integrated Risk	7
		02DP-9RS01	Operational Risk Management	1
		40AO-9ZZ15	Loss of Annunciators	9
		40DP-9RS02	Shutdown Risk Management	3
		40DP-9RS02-01	PVNGS Refueling Outage Shutdown Risk Manager Desk Guide	0
		40OP-9ZZ23	Outage GOP	65
		70DP-0RA01	Shutdown Risk Assessments	
71111.15	Corrective Action Documents	Condition Report	19-02133, 19-02330, 19-02364, 19-02567, 19-04079, 19-04080, 19-04391, 19-05808, 19-05321, 19-06277, 19-07626, 19-08125	
	Drawings	01-M-DGP-001	Diesel Generator System	63

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Miscellaneous		Shutdown Safety Function Assessment RCS at Below RV Flange	04/28/2019 11:00PM
		04111121DEDCATD	Flowserve Raleigh: 10CFR21 Dedication of Commercial Grade Items	
		13-JS-A058	Assessment of Electronic Compatibility of the 800 MHz Radio System, Digital Equipment, and Cordless Phone with Plant Equipment	3
		19-02908-001	Level 3 Evaluation Report	03/29/2019
		EER 89-RC-050	Breathable FME Device	04/21/1989
		EER 89-RC-061	Breathable FME Device	04/27/1989
		IEEE Std C57.104	IEEE Guide for the Interpretation of Gases Generated in Oil-Immersed Transformers	02/02/2008
		VTD-A391-00010	Anchor/Darling Instruction Manual for Main Steam Isolation Valves (MSIV) and Feedwater Isolation Valves (FWIV)	14
	Procedures	01DP-0AP50-03	Project Management (Procurement Management)	1
		40DP-9OP26	Operations Condition Reporting Process and Operability Determination/Functional Assessment	46
		74ST-9SI03	ECCS Trisodium Phosphate Surveillance Test	22
	Work Orders		4965110, 5102351	
71111.19	Corrective Action Documents	Condition Report	19-04444, 19-04503, 19-05550, 19-09265, 19-09375, 19-09492, 19-09531	
	Engineering Evaluations	NA-01-C22-2019-010	Unit 1 Cycle 22 Startup Test Predictions (LPPT & PAT)	00
	Procedures	40OP-9CH13	Charging Pump Stabilizer and Discharge Pulsation Dampener Operation	30
		40OP-9SF-01	Control Element Drive Mechanism Control System (CEDMCS) Operation	30
		73ST-9CH06	Charging Pumps – Inservice Test	35
	Work Orders		5115984, 3518597, 5144591	
71111.20	Corrective Action Documents	Condition Report	19-07265, 19-07239, 19-07130, 19-07076, 19-06681, 19-06677, 19-06471, 19-06223, 19-05808, 19-04769, 18-07701	
	Miscellaneous		Unit ONE 21 Refueling Outage: Shutdown Risk	04/04/2019

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Assessment Final Report	
		40OP-9ZZ02	Initial Reactor Startup Following Refuelings	61
		Specific Maneuver Plan	Unit 1 Cycle 21 EOC Shutdown 100% to 26.67%	0
	Procedures	31MT-9RC25	Pressurizer Manway Removal and Installation	25
		40OP-9ZZ16	RCS Drain Operations	83
		40ST-9ZZ09	Containment Cleanliness Inspection	24
71111.22	Corrective Action Documents	Condition Report	19-00043, 19-04774, 19-04775, 19-05913, 19-07104, 19-07094	
	Drawings	01-M-SPP-001	Essential Spray Pond System	68
		01-M-SPP-002	Essential Spray Pond System	22
		02-M-SPP-001	Essential Spray Pond System	64
		02-M-SPP-002	Essential Spray Pond System	18
		03-M-DFP-001	P&I Diagram Diesel Fuel Oil & Transfer System	10
		03-M-SPP-001	Essential Spray Pond System	66
		03-M-SPP-002	Essential Spray Pond System	19
	Miscellaneous	SP-1338	Bypass Line/Margin Recovery	
	Procedures	73ST-9DF01	Diesel Fuel Oil Transfer Pumps – Inservice Test	7
		73ST-9DG08	Class 1E Diesel Generator Load Rejection, 24 Hour Rated Load and Hot Start Test Train B	14
		73ST-9SP01	Essential Spray Pond Pumps – Inservice Test	55
		73ST-9XI13	Train A HPSI Injection and Miscellaneous SI Valves – Quarterly – Inservice Test	35
		73ST-9ZZ18	Main Steam and Pressurizer Safety Valve Set Pressure Verification	28
		73ST-9ZZ26	Check Valve Non-Intrusive Testing or Examination – Inservice Testing	7
	Work Orders		4840248, 295973, 291105	
71114.01	Corrective Action Documents	Condition Report	17-00231, 17-00502, 17-00747, 17-01447, 17-01689, 17-01961, 17-03147, 17-03149, 17-03628, 17-03632, 17-09847, 17-15409, 17-15499, 18-03367, 18-03439, 18-07564, 18-10460, 18-12940, 18-13485, 18-14077, 18-14491, 18-15127, 18-15933, 18-15954, 18-17934, 18-19004, 19-02103, 19-03288, 19-03304, 19-03306,	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			19-03310, 19-03313, 19-03315, 19-03318, 19-03319, 19-03389, 19-03407-002, 19-03407-005, 19-03407-018, 19-03407-019, 19-03425, 19-03432, 19-03833, 19-03834, 19-03905, 19-03949, 19-03963, 19-03969, 19-03970, 19-03972, 19-03999, 19-04008	
	Miscellaneous		PVNGS Emergency Plan	63
			Summary Facts/Analysis: PVNGS Exercise-Identified Relative to the PAR Development Process	04/08/2019
	Procedures	16DP-0EP22	Emergency Plan Maintenance	13
		16DP-0EP23	Emergency Preparedness Drill/Exercise Administration	11
		16DP-0EP25	Emergency Preparedness Training Program Description	16
		16DP-0EP34	Emergency Response Organization	4
		40DP-9OP02	Conduct of Operations	72A
		EP-0900	Emergency Response Organization Position Checklists	17
		EP-0901	Classifications	10
		EP-0902	Notifications	14
		EP-0903	Accident Assessment	5
		EP-0904	ERO/ERF Activation and Operation	7
		EP-0905	Protective Actions	9
71124.01	Corrective Action Documents		1-18-02621, 1-18-13026, A-18-14639, 1-19-02467, 1-19-05878, 1-19-04869, 18-05806 18-06005, 18-19995, 19-04951, 19-04935, 19-05818	
	Procedures	75DP-0RP01	RP Program Overview	12
		75DP-0RP02	Radioactive Contamination Control	24
		75DP-0RP08	Managing Radiological Risk	3
		75DP-9RP01	Radiation Exposure and Access Control	21
		75RP-0RP01	Radiological Posting and Labeling	36
		75RP-9OP02	Control of High Radiation Areas, Locked High Radiation Areas and Very High Radiation Areas	31
		75RP-9RP02	Radiation Work Permits	32
		75RP-9RP07	Radiological Surveys and Air Sampling	31
		75RP-9RP10	Conduct of R.P. Operations	36
		75RP-9RP26	Radioactive Source Control	17

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Self-Assessments	2018-007	Audit Plan and Report Radiation Safety	
		218-04311	2017 Annual ALARA/Management Evaluation Report	June 21, 2018
71124.02	ALARA Plans	2-3319 06	Reactor Coolant Pump Maintenance with Motor Replacement	
		3-3319 07,08	Reactor Coolant Pump Maintenance with Motor Replacement	
		3306	Primary Side Steam Generator Maintenance	
		3502 00	Valve, Flange and Pump Maintenance and Inspection	
		3521 00	High Risk - Inboard Loop Discharge Check Valve Work	
	Corrective Action Documents	Condition Report	18-17433, 19-02062, 19-05818	
	Procedures	75DP-0RP03	ALARA Program Overview	6
		75DP-0RP06	ALARA Committee	8
		75DP-0RP08	Managing Radiological Risk	3
		75RP-9RP02	Radiation Work Permits	32
		75RP-9RP12	ALARA Reports	6
	Radiation Work Permits (RWPs)	1-3306	Primary Side Steam Generator Maintenance	6
		1-3319	Reactor Coolant Pump Maintenance with Motor Replacement	9
		1-3502	Valve, Flange, and Pump Maintenance and Inspection	7
		1-3521	High Risk - Inboard Loop Discharge Check Valve Disassembly, Inspection and Repair	0
71152	Corrective Action Documents		A 19-01661, 4457080, 4457293, 4463978	
		Condition Report	18-18808, 18-08777, 18-02885, 19-02567, 19-02330, 19-07346, 19-02658, 19-03652, 19-09672	
	Miscellaneous	13-JS-A058	Assessment of Electronic Compatibility of the 800 MHz Radio System, Digital Equipment, and Cordless Phone with Plant Equipment	
	Procedures	40DP-9OP26	Operations Condition Reporting Process and Operability Determination/Functional Assessment	46