



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

May 12, 2020

Mrs. Maria L. Lacal
Executive Vice President/
Chief Nuclear Officer
Arizona Public Service Company
P.O. Box 52034, MS 7602
Phoenix, AZ 85072-2034

SUBJECT: PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3 –
INTEGRATED INSPECTION REPORT 05000528/2020001, 05000529/2020001,
AND 05000530/2020001

Dear Mrs. Lacal:

On March 31, 2020, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Palo Verde Nuclear Generating Station, Units 1, 2, and 3, and discussed the results of this inspection with you 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 of the Enforcement Policy.

If you contest the violation or the 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 Nuclear Generating Station, Units 1, 2, and 3.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; and the NRC Resident Inspector at Palo Verde Nuclear Generating Station, Units 1, 2, and 3.

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 Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

A handwritten signature in black ink, appearing to read "John L. Dixon, Jr.", with a stylized flourish at the end.

John L. Dixon, Jr., Chief
Reactor Projects Branch D
Division of Reactor Projects

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

Enclosure:
As stated

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PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3 – INTEGRATED
INSPECTION REPORT 05000528/2020001, 05000529/2020001, AND 05000530/2020001 –
May 12, 2020

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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: 05000528/2020001, 05000529/2020001, and 05000530/2020001

Enterprise Identifier: I-2020-001-0001

Licensee: Arizona Public Service Company

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

Location: 5801 S Wintersburg Road
Tonopah, AZ 85354

Inspection Dates: January 1 to March 31, 2020

Inspectors: C. Peabody, Senior Resident Inspector
R. Bywater, Resident Inspector
D. You, Resident Inspector
A. Athar, Acting Resident Inspector
J. Drake, Senior Reactor Inspector
S. Hedger, Emergency Preparedness Inspector
D. Johnson, Senior Emergency Preparedness Specialist
S. Makor, Reactor Inspector
D. Reinert, Reactor Inspector
W. Sifre, Senior Reactor 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 Nuclear Generating Station, Units 1, 2, and 3, 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 Incorporate Vendor Recommendations into GE Magne-Blast Medium Voltage Circuit Breaker Maintenance and Overhaul Procedures			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000528, 05000529, 05000530/2020001-01 Open/Closed	[P.2] - Evaluation	71111.12
The inspectors identified a Green non-cited violation of Technical Specification 5.4.1.a for the licensee's failure to incorporate pertinent vendor information into circuit breaker maintenance procedures, including specifications and recommendations per the station's preventive maintenance program. This has led to increased service failures of class 1E medium voltage circuit breakers.			

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
URI	05000528,05000529, 05000530/2019002-02	Fuel Oil transfer system	71111.20	Closed
LER	05000528, 05000530/2017-002-00	LER 2017-002-00 for Palo Verde Nuclear Generating Station, Units 1 and 3, Emergency Diesel Generator Inoperable Due to Fuel Oil Transfer Pump Testing.	71153	Closed
LER	05000529/2019-001-00	LER 2019-001-00 for Palo Verde Nuclear Generating Station, Unit 2, Automatic Actuation of the Reactor Protection System Resulting from a Loss of Reactor Coolant Pumps.	71153	Closed

PLANT STATUS

Unit 1 operated at or near full power for the duration of the inspection period.

Unit 2 entered the inspection period at full power. On March 3, 2020, Unit 2 tripped due to low steam generator levels following a loss of both main feedwater pumps. The unit restarted on March 7, 2020, and operated at or near full power for the remainder of the inspection period.

Unit 3 entered the inspection period at full power. On February 8, 2020, Unit 3 was forced to shut down due to excessive reactor coolant system leakage. The cause of the leakage was the reactor coolant loop 1B pump seal, which was replaced during the forced outage. Unit 3 restarted on February 16, 2020, and operated at or near full power for the remainder of the 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.” From January 1–March 19, 2020, 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.

Starting on March 20, 2020, in response to the National Emergency declared by the President of the United States on the public health risks of the coronavirus (COVID-19), resident inspectors were directed to begin telework and to remotely access licensee information using available technology. During this time the resident inspectors performed periodic site visits each week and during that time conducted plant status activities as described in IMC 2515, Appendix D; and observed risk-significant activities when warranted. In addition, resident and regional baseline inspections were evaluated to determine if all or portions of the objectives and requirements stated in the IP could be performed remotely. If the inspections could be performed remotely, they were conducted per the applicable IP. In the cases where it was determined the objectives and requirements could not be performed remotely, management elected to postpone and reschedule the inspection to a later date.

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 3 containment spray system B on January 4, 2020
- (2) Unit 1 high pressure safety injection B during train A high pressure safety injection work on January 29, 2020
- (3) Unit 1 diesel generator B during planned maintenance on diesel generator A on March 3, 2020

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (4 Samples)

The inspectors evaluated the implementation of the fire protection program by conducting a walkdown and performing a review to verify program compliance, equipment functionality, material condition, and operational readiness of the following fire areas:

- (1) Unit 3 containment spray pump A room, Fire Zone 30A, on January 4, 2020
- (2) Unit 3 essential switchgear A room, Fire Zone 5A, on January 30, 2020
- (3) Unit 2 Class 1E battery rooms and DC switchgear A, Fire Zones 8A and 9A, on March 16, 2020
- (4) Unit 2 essential chiller A room, Fire Zone 1, on March 24, 2020

Fire Brigade Drill Performance Sample (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated fire brigade performance on January 21, 2020.

71111.07A - Heat Sink Performance

Annual Review (IP Section 03.01) (1 Sample)

The inspectors evaluated readiness and performance of:

- (1) Unit 1 diesel generator A jacket water cooler performance on March 4, 2020.

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 3 operators conducting a controlled shutdown and cooldown for a forced outage on February 8–9, 2020.

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

- (1) The inspectors observed and evaluated a simulator scenario for the Deliberate Acts abnormal operating procedure on January 17, 2020.

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (2 Samples)

The inspectors evaluated the effectiveness of maintenance to ensure the following structures, systems, and components remain capable of performing their intended function:

- (1) Unit 1 high pressure safety injection pump B breaker closing spring failure on July 17, 2019
- (2) Unit 3 spray pond pump B motor breaker failed to close on December 29, 2019

71111.13 - Maintenance Risk Assessments and Emergent Work Control

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

The inspectors evaluated the accuracy and completeness of risk assessments for the following planned and emergent work activities to ensure configuration changes and appropriate work controls were addressed:

- (1) Unit 1 risk assessment for work on recirculation actuation sump isolation valve SIB676 on January 16, 2020
- (2) Unit 3 risk assessment for replacement of reactor coolant pump seal 1B with fuel in the reactor vessel and controlled leakage past the stop seal on February 12, 2020
- (3) Unit 3 shutdown risk assessment of protected equipment during a forced outage on February 13, 2020
- (4) Unit 1 risk assessment for diesel generator A super outage on March 3, 2020

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (3 Samples)

The inspectors evaluated the licensee's justifications and actions associated with the following operability determinations and functionality assessments:

- (1) Unit 3 turbine drive auxiliary feedwater indications of a steam leak on the steam bypass line on January 31, 2020
- (2) Unit 3 elevated pressurizer safety valve tailpipe temperatures following the forced outage on March 5, 2020
- (3) Unit 3 diesel generator A rendered inoperable during common cause testing on March 19, 2020

71111.17T - Evaluations of Changes, Tests, and Experiments

Sample Selection (IP Section 02.01) (34 Samples)

The inspectors reviewed the following evaluations, screenings, and/or applicability determinations for Title 10 of the *Code of Federal Regulations* (CFR) 50.59 from February 3–7, 2020:

- (1) Screening S-16-0014, Upgrade the Containment Polar Cranes to Single Failure Proof in Each of the Units, Revision 6
- (2) Screening S-16-0029, Combustion Engineering 16x16 Next Generation Fuel, Revision 0
- (3) Screening S-16-0036, Spray Pond Margin Recovery Modification, Revision 3
- (4) Screening S-17-0023, Add Torque Values, Gap Settings, and Lubrication Requirements for the Station Blackout Generator Igniter Plug, Revision 0
- (5) Screening S-17-0025, Engineering Evaluation 4813085 Fire Retardancy Testing Requirements, Revision 0
- (6) Screening S-17-0034, Calculation 13-NC-ZY-0297 to Determine Offsite Doses for a Main Steam Line Break Inside Containment, Revision 0
- (7) Screening S-17-0035, Addition of Drain Line with Isolation Valve to Containment Spray Auxiliary Headers, Revision 0
- (8) Screening S-17-0036, TMOD 16-20383-03, Install Bypass Cable Between Junction Box 1EZYT2NKFJ20 and Breaker 1ENGNL20D2, Revision 0
- (9) Screening S-17-0040, Alternate Technique for Adjusting the Nitrogen Pre-charge Pressure in a Charging Pump Pulsation Dampener, Revision 0
- (10) Screening S-17-0045, DEC-01057, Software Update to Plant Computer and Core Monitoring Computer, Revision 0
- (11) Screening S-17-0053, DMWO 4438815, Installation of a Pipe Extension to Lower the Suction Point of the Spent Fuel Pool Cooling Suction Line, Revision 0
- (12) Screening S-17-0073, T-Mod 17-09932-003, Restoration of Alarm Function for CEDMCS Timer Card Trouble, Revision 0
- (13) Screening S-17-0096, Procedure Change to Allow Operation of the Containment Purge Supply and Exhaust Fans Concurrently with the Containment Equipment Hatch Open, Revision 0
- (14) Screening S-17-0098, Design Equivalent Change 17-14902-003 to Accept the Anomaly on the Flow Baffle Skirt Attachment Weld, Revision 0
- (15) Screening S-18-0041, Valve Lineup to Reduce Differential Pressure Across Feedwater Isolation Valves SGBUV132 and SGBUV137, Revision 0
- (16) Screening S-18-0042, Minor Change on the Plant Computer System, Revision 0
- (17) Screening S-18-0056, Replace Existing Electro-Mechanical Under-Frequency and Under-Voltage within a Single Multi-function Generator Protection Relay, Revision 0
- (18) Screening S-18-0061, DMWO 5035279 Modifies the Auxiliary Feedwater Motor Operated Gate Valves such that the Valves are no Longer Susceptible to Pressure Locking, Revision 1
- (19) Screening S-18-0062, DMWO 4743537 Modifies the Safety Injection Motor Operated Gate Valves and Associated Piping such that the Valves are no Longer Susceptible to Pressure Locking, Revision 1
- (20) Screening S-18-0069, Leave Valve PCNV118 Open During Fuel Movement Inside Containment, Revision 0
- (21) Screening S-18-0070, Engineering Design Change Evaluation 18-07456-007, Spray Pond Pump Operation and Maintenance Manual, February 20, 2019

- (22) Screening S-19-0015, Standard Item Equivalency Process, Revision 0
- (23) Screening S-19-0017, Essential Cooling Water System Train A Flow Balance After Cross Tie to Provide Fuel Pool Cooling Backup, April 8, 2019
- (24) Screening S-19-0022, TMOD 19-03044-009, Install Heated Blankets at the MSIV Actuators, Revision 0
- (25) Screening S-19-0025, Essential Spray Pond Pumps – Acceptable Packing Leak Range, Revision 3
- (26) Screening S-19-0033, Alternate Split Bus Configuration at Reactor Power Levels Greater than 20 Percent, Revision 1
- (27) Screening S-19-0044, Calculation of a Second Value for Reactor Coolant Pump Speed Cross Channel Deviation Alarm Setpoint, Revision 0
- (28) Evaluation E-16-0005, Installation of Permanent Neutron Absorber Inserts in the Spent Fuel Pool, Revision 2
- (29) Evaluation E-17-0001, Revision of the PVNGS [Palo Verde Nuclear Generating Station] Inservice Inspection Program to implement the EPRI Risk Informed Inspection Methods to the Break Exclusion Region, Revision 6
- (30) Evaluation, E-17-0002, Calculation 13-NC-ZY-0251 Addresses Changes to Radiological Consequences Resulting from the Westinghouse Next Generation Fuel Modification, Revision 0
- (31) Evaluation E-17-0003, Update the Essential Spray Pond System Tornado Missile Probabilistic Risk Assessment, Revision 0
- (32) Evaluation E-17-0004, TMOD 17-07348-002, Alignment of Portable Demineralizers, Revision 1
- (33) Evaluation 17-0006, Compensatory Actions for Unit 2 Safety Injection Tank Fill and Drain Header, Revision 0
- (34) Evaluation 18-0001, Open Phase Protection System (OPPS) Monitoring and Detection System, Revision 0

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (1 Sample)

The inspectors evaluated the following temporary or permanent modifications:

- (1) Unit 2 main feedwater lube oil control panel protective relay system

71111.19 - Post-Maintenance Testing

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

The inspectors evaluated the following post maintenance test activities to verify system operability and functionality:

- (1) 36ST-9SB52, Unit 2 reactor trip switch B gear shunt and undervoltage trip functional test following breaker swap out on January 14, 2020
- (2) 40OP-9RC03, Unit 3 reactor coolant pump 1B normal operating pressure and temperature leak check on February 15, 2020
- (3) 40OP-9EW01, Unit 1 essential cooling water system A test procedure following maintenance during the Unit 1 diesel generator A super outage on March 3, 2020

- (4) 40OP-9EC01, Unit 1 essential chilled water A test procedure following maintenance on the refrigerant head pressure control valve during the Unit 1 diesel generator A super outage on March 3, 2020
- (5) 32MT-9ZZ21, Unit 2 essential cooling water pump B motor Meggar, PI, and Doble testing on March 16, 2020

71111.20 - Refueling and Other Outage Activities

Refueling/Other Outage Sample (IP Section 03.01) (2 Samples)

- (1) The inspectors evaluated a Unit 3 forced outage for replacement of a leaking reactor coolant pump seal from February 9–16, 2020.
- (2) The inspectors evaluated a Unit 2 forced outage due to a reactor trip caused by a loss of main feedwater from March 3–7, 2020.

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

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

- (1) Station blackout generator 2 monthly test on January 24, 2020
- (2) Unit 1 control element assemblies operability testing on March 13, 2020

RCS Leakage Detection Testing (IP Section 03.01) (1 Sample)

- (1) Unit 3 reactor coolant system elevated leak rates observed on February 7, 2020

FLEX Testing (IP Section 03.02) (1 Sample)

- (1) FLEX reactor water tank transfer pump test on March 17, 2020

71114.02 - Alert and Notification System Testing

Inspection Review (IP Section 02.01-02.04) (1 Sample)

- (1) The inspectors evaluated the maintenance and testing of the alert and notification system between February 1, 2018, and February 28, 2020.

71114.03 - Emergency Response Organization Staffing and Augmentation System

Inspection Review (IP Section 02.01-02.02) (1 Sample)

- (1) The inspectors evaluated the readiness of the Emergency Preparedness Organization between February 1, 2018, and February 28, 2020. Inspectors also evaluated the licensee's ability to staff their emergency response facilities in accordance with emergency plan commitments.

71114.04 - Emergency Action Level and Emergency Plan Changes

Inspection Review (IP Section 02.01-02.03) (1 Sample)

- (1) The inspectors evaluated the 10 CFR 50.54(q) emergency plan change process and practices between February 1, 2018, and February 28, 2020. The evaluation reviewed screenings and evaluations documenting implementation of the process. In addition, the inspectors evaluated emergency plan revisions 65 and 66 submitted to the NRC on December 12, 2019, and January 10, 2020, respectively. The reviews of the change process documentation or the emergency plan changes do not constitute NRC approval.

71114.05 - Maintenance of Emergency Preparedness

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

- (1) The inspectors evaluated the maintenance of the emergency preparedness program between February 1, 2018, and February 28, 2020. The evaluation reviewed evidence of completing various emergency plan commitments, the conduct of drills and exercises, licensee audits and assessments, and the maintenance of equipment important to emergency preparedness.

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 planning drill involving a seismic event which damaged plant equipment on March 10, 2020.

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

IE01: Unplanned Scrams per 7000 Critical Hours Sample (IP Section 02.01) (3 Samples)

- (1) Unit 1 (January 1, 2019, to December 31, 2019)
- (2) Unit 2 (January 1, 2019, to December 31, 2019)
- (3) Unit 3 (January 1, 2019, to December 31, 2019)

IE03: Unplanned Power Changes per 7000 Critical Hours Sample (IP Section 02.02) (3 Samples)

- (1) Unit 1 (January 1, 2019, to December 31, 2019)
- (2) Unit 2 (January 1, 2019, to December 31, 2019)
- (3) Unit 3 (January 1, 2019, to December 31, 2019)

IE04: Unplanned Scrams with Complications (USwC) Sample (IP Section 02.03) (3 Samples)

- (1) Unit 1 (January 1, 2019, to December 31, 2019)
- (2) Unit 2 (January 1, 2019, to December 31, 2019)
- (3) Unit 3 (January 1, 2019, to December 31, 2019)

MS05: Safety System Functional Failures (SSFFs) Sample (IP Section 02.04) (3 Samples)

- (1) Unit 1 (January 1, 2019, to December 31, 2019)
- (2) Unit 2 (January 1, 2019, to December 31, 2019)
- (3) Unit 3 (January 1, 2019, to December 31, 2019)

EP01: Drill/Exercise Performance (IP Section 02.12) (1 Sample)

- (1) (January 1, 2019, to December 31, 2019)

EP02: ERO Drill Participation (IP Section 02.13) (1 Sample)

- (1) (January 1, 2019, to December 31, 2019)

EP03: Alert & Notification System Reliability (IP Section 02.14) (1 Sample)

- (1) (January 1, 2019, to December 31, 2019)

71152 - Problem Identification and Resolution

Annual Follow-up of Selected Issues (IP Section 02.03) (2 Samples)

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

- (1) Elevated seal bleed off flow from reactor coolant pump 1B following the fall 2019 refueling outage. This issue continued to degrade and culminated in a Unit 3 forced maintenance outage to replace the seal package on February 9–16, 2020.
- (2) Multiple issues encountered with the rod control system while trying to startup following the Unit 2 forced outage on March 4, 2020.

71153 – Follow-up of Events and Notices of Enforcement Discretion

Event Follow-up (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated a Unit 2 reactor trip following loss of both main feedwater pumps and the licensee's response on March 3, 2020.

Event Report (IP Section 03.02) (2 Samples)

The inspectors evaluated the following licensee event reports (LERs):

- (1) LER 05000528, 05000530/2017-002-00, Emergency diesel generator INOPERABLE due to fuel oil transfer pump testing on November 13, 2017

- (2) LER 05000529/2019-001-00, Automatic Actuation of the Reactor Protection System Resulting from a Loss of Reactor Coolant Pumps on August 16, 2019

INSPECTION RESULTS

Failure to Incorporate Vendor Recommendations into GE Magne-Blast Medium Voltage Circuit Breaker Maintenance and Overhaul Procedures			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000528, 05000529, 05000530/2020001-01 Open/Closed	[P.2] - Evaluation	71111.12
<p>The inspectors identified a Green non-cited violation of Technical Specification 5.4.1.a for the licensee's failure to incorporate pertinent vendor information into circuit breaker maintenance procedures including specifications and recommendations per the station's preventive maintenance program. This has led to increased service failures of class 1E medium voltage circuit breakers.</p>			
<p><u>Description:</u> On September 19, 2017, the Unit 2 spray pond pump B 4kV breaker failed to properly recharge during a planned chemistry run. The direct cause was found to be a broken drive pawl assembly and the root cause was determined to be the failure to incorporate vendor guidance and operating experience found in General Electric (GE) Service Advisory Letter (SAL) 352.1. This event is detailed in NRC Inspection Report 05000528, 05000529, 05000530/2018001 as NCV 05000529/2018001-001 (ADAMS Accession No. ML18030A678). However, the station has continued to experience failures of GE Magne-Blast Class 1E medium voltage circuit breakers that have been caused by a failure to incorporate vendor guidance into the in-house breaker maintenance and overhaul program. In particular, the licensee experienced two failures related to a relay closing switch contact issue described in GE SAL 361.1: Unit 3 spray pond pump breaker A failed in November 2018 and Unit 2 high pressure safety injection pump breaker B failed in July 2019.</p> <p>On December 29, 2019, the Unit 3 spray pond pump breaker B failed to close for unknown reasons. The breaker was swapped out successfully with a spare and the failed breaker was further tested by the licensee and GE. The vendor's report on the breaker failure, dated February 25, 2020, noted that the licensee had not implemented four SAL 352.1 recommendations. The report also noted three unsatisfactory component alignment tolerances and seven instances of unsatisfactory original equipment manufacturer (OEM) clearances as well as excessive play in the bushings and interference wear on the interlock switch striker. This information is consistent with inspector discussions with maintenance personnel stating they were unsure of whether the station's in-house refurbishment acceptance criteria for breaker internal tolerances and clearances were consistent with proprietary OEM guidance for refurbishment. In this instance, the breaker met the licensee's in-house acceptance criteria, but not those at the vendor facility for many of the same measurements. The licensee's corrective action program concluded that some combination of unsatisfactory clearances, alignment tolerances, and bushing play were responsible for the trip-free condition that failed to close the breaker on December 29, 2019.</p> <p>The licensee performed a root cause evaluation for the September 2017 breaker failure event</p>			

(17-13171-005). Revision 1 of the root cause evaluation was issued on December 21, 2017, and it reduced the scope of the extent-of-condition action substantively. The vendor guidance review was limited to the date range of 1993–1999 and only required a random sample rather than a complete review. This was a missed opportunity to identify the SAL 361.1 issue which led to two subsequent breaker failures.

The inspectors also reviewed licensee actions to implement GE SAL 352.1 and questioned why some SAL 352.1 recommendations were still unmet. The licensee had considered all the recommendations separately under Condition Report Low Level Evaluation CR-17-13901-001. For Recommendation 3, to replace cast iron bushings with bronze, the licensee opted not to make a status determination as to whether the recommendation had been implemented; however, the document implied that it had. That conclusion had been based on the fact that maintenance personnel familiar with the overhaul evolutions could not recall encountering cast iron bushings during recent maintenance activities. However, this conclusion was incorrect. In fact, most of the bushings encountered were cast iron, not bronze. Therefore, the vendor recommendation was not implemented.

Recommendation 9, to replace the prop spring, was also incorrectly assumed to have been implemented at the station. It referenced GE SAL 348.1 and NRC Information Notice 90-41, which pertain to the affected prop spring design. The station had the replacement parts on hand, but opted to wait until 1,500 cycles to replace the component per station procedures. For unknown reasons, the last time the Unit 3 spray pond pump B breaker was maintained (between overhauls) in March 2017, maintenance workers ignored this step in the procedure, the counter indicated 1,816 cycles, and the prop spring was re-used and not replaced; this was captured in Condition Report CR-20-03639. Considering Recommendation 9 was a Priority 1 (next immediate maintenance opportunity) recommendation, the licensee's option to defer it does not meet vendor recommendations.

Based on the review of the evaluations and actions described above, the inspectors concluded that the licensee was not properly considering vendor recommendations and alignment specifications when developing their preventive maintenance program for Class 1E medium voltage circuit breakers.

Corrective Actions: The licensee's corrective actions included: First, ensure that internal tolerances and clearances needed to refurbish Class 1E circuit breakers to their original condition are understood. The in-house refurbishment program should meet or exceed the OEM vendor refurbishment requirements. Second, ensure that all relevant vendor information and operating experience is properly reviewed and incorporated into the appropriate maintenance and overhaul procedures.

Corrective Action Program Reference: Condition Report CR-19-18776

Performance Assessment:

Performance Deficiency: The licensee failed to implement vendor recommendations or specifications when setting preventive maintenance guidelines in accordance with procedure 30DP-9MP08, "Preventive Maintenance Program," Revision 29, step A.2.2.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent

undesirable consequences. Specifically, the performance deficiency resulted in three subsequent failures of safety related breakers: Unit 3 spray pond pump breaker A failed in November 2018, Unit 2 high pressure safety injection pump breaker B failed in July 2019, and Unit 3 spray pond pump breaker B failed in December 2019.

Significance: The inspectors assessed the significance of the finding using Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The finding was determined to be of very low safety significance (Green) because it (1) was not a design deficiency, (2) did not represent a loss of system and/or function, (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time, (4) did not represent a loss of the probabilistic risk assessment (PRA) function of two separate technical specification systems for greater than 24 hours, (5) did not represent a loss of a PRA system and/or function for greater than 24 hours, and (6) did not result in the loss of a high safety-significant, nontechnical specification train.

Cross-Cutting Aspect: P.2 - Evaluation: The organization thoroughly evaluates issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. The extent of cause actions for Root Cause Evaluation 17-13171-005 were not satisfactory to address the issue prior to additional breaker service failures. This issue is considered indicative of current performance due to the continuing sequence of breaker failures between September 2017 and December 2019 that were due in part to failure to implement vendor guidance.

Enforcement:

Violation: Technical Specification 5.4.1.a, "Procedures," requires, in part, that the licensee implement procedures recommended by Regulatory Guide 1.33, Revision 2. Regulatory Guide 1.33, Appendix A, Section 9.b, recommends procedures for scheduling preventive maintenance of components that have a specified lifetime. The licensee satisfies these requirements, in part, through Procedure 30DP-9MP08, "Preventive Maintenance Program," Revision 29. Procedure 30DP-9MP08, step A.2.2, requires the licensee to consider vendor recommendations or specifications when setting preventive maintenance guidelines.

Contrary to the above, from September 2017 to March 2020, the licensee failed to consider vendor recommendations or specifications when setting preventive maintenance guidelines. Specifically, the licensee was aware of vendor recommendations and missing specifications necessary to maintain the effectiveness of their periodic Class 1E medium voltage circuit breaker refurbishment program, and the licensee did not properly take action to obtain the missing alignment specifications or implement the vendor's recommendations before subsequent preventable breaker failures occurred.

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

Minor Violation

71111.15

Minor Violation: During a review of LER 05000528, 05000530/2017-002-00, "Emergency diesel generator INOPERABLE due to fuel oil transfer pump testing," the inspectors identified a minor violation of 10 CFR Part 50, Appendix B, Criterion V for the licensee's failure to maintain an adequate diesel generator fuel oil transfer pump testing procedure.

Screening: The inspectors determined the performance deficiency was minor. An inadequate procedure caused the Unit 3 diesel generator A to be inoperable when the day tank level gauge, not seismically qualified, was valved in as part of a common cause test when the opposite train diesel generator was declared inoperable due to a failed surveillance. However, it was determined that diesel generator A would have been able to perform its safety function since at the time no seismic event occurred. Also, an auxiliary operator was standing by to quickly isolate the level gauge if necessary. This closes out LER 05000528, 05000530/2017-002-00.

Enforcement: This failure to comply with 10 CFR Part 50, Appendix B, Criterion V, constitutes a minor violation that is not subject to enforcement action in accordance with the NRC's Enforcement Policy. The licensee has taken action to restore compliance.

Unresolved Item (Closed)	Fuel Oil transfer system URI 05000528, 05000529, 05000530/2019002-02	71111.20
<p>Description: The inspectors observed excavation efforts for repairs to leaking domestic water piping. During the excavation, three pipes were uncovered. The workers had only expected two pipes to be in the location. Review of site drawings identified the third line as nonsafety-related piping comprising a portion of the fuel oil transfer system connected to all three units. This piping was also connected to the bulk fuel oil tanks and associated loads in the water treatment facility. The inspectors questioned whether this was acceptable per the licensing basis and had the following questions regarding the fuel oil system for the diesel generators:</p> <ol style="list-style-type: none"> The inspectors requested the licensee demonstrate that the alternative method of testing the buried portions of the fuel oil transfer system provided results that were equivalent or superior to the method specified in Section XI of the ASME Code. The inspectors 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." <p>The inspectors reviewed various documents pertaining to the fuel oil system.</p> <p>Company Correspondence ID 450-00575, dated June 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 American Society of Mechanical Engineers (ASME) Code, Section XI, paragraph IWA-2240, for the proposed ultrasonic examination to determine the fuel level in the fill line. ASME, 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 to changing the methodology of the pressure test, the licensee also changed the pressure at which the test was performed. ASME Code IWD-5221, "Pressure," states, "The system leakage test shall be conducted at the system pressure obtained while the system, or portion of the system, is in service performing its normal operating function or at the system pressure developed during a test conducted to verify system operability (e.g., to demonstrate system safety function or satisfy technical specification surveillance requirements)." The inspectors noted that the licensee was also</p>		

performing a “flow verification test,” which meets the requirements of the system pressure test for buried piping as allowed in ASME Code Edition 2013.

After reviewing the safety evaluation report, related to the operation of Palo Verde Nuclear Generating Station, Units 1, 2, and 3, Docket Nos. STN 50-528, STN 50-529, and STN 50-530, dated November 1981, the inspectors determined that the use of redundant locked valves had been an approved exception for the separation of the fuel oil systems for the three units.

The NRC inspectors did not identify any findings or violations of more than minor significance. This unresolved item is closed.

Corrective Action Reference(s): 19-05734, 19-05914

EXIT MEETINGS AND DEBRIEFS

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

- On February 7, 2020, the inspectors presented the Inspection Procedure 71111.17T, “Evaluation of Changes, Tests, and Experiments,” inspection results to Mr. M. McLaughlin, Vice President, Operations Support, and other members of the licensee staff.
- On March 5, 2020, the inspectors presented the Emergency Preparedness Program Inspection Exit Meeting inspection results to Mr. J. Cadogan, Senior Vice President for Site Operations, and other members of the licensee staff.
- On April 2, 2020, the inspectors presented the Emergency Preparedness Program Inspection Re-exit Meeting (with Residents' Quarterly Exit) inspection results to Mrs. M. Lacal, Executive Vice President/Chief Nuclear Officer, and other members of the licensee staff.
- On April 14, 2020, the inspectors presented the Fuel Oil Transfer System inspection results to Mr. B. Rash, Vice President, Engineering, and other members of the licensee staff.
- On May 1, 2020, the inspectors presented the integrated inspection results to Mr. J. Cadogan, Senior Vice President for Site Operations, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.04	Drawings	01-M-SIP-001	P&I Diagram: Safety Injection & Shutdown Cooling System	59
		01-M-SIP-002	P&I Diagram: Safety Injection & Shutdown Cooling System	41
	Procedures	40ST-9SI07	High Pressure Safety Injection System Alignment Verification	21
		40ST-9SI14	Train B LPSI and CS System Alignment Verification	2
71111.05	Corrective Action Documents	Condition Reports	20-00124, 20-02409, 20-01325	
	Miscellaneous		PVGS Pre-Fire Strategies Manual	28
		NPL36-D-003B-02	Unit 2 Fire Drill Package	02/21/2020
71111.07A	Corrective Action Documents	Condition Reports	20-02904	
	Miscellaneous	20-0161	Eddy Current Examination Report: U1 DG A Jacket Water Cooler	03/05/2020
	Work Orders		5074226	
71111.11Q	Miscellaneous		Standard Maneuver Plan: 75 EFPD 100 to 19%, Unit 3 Cycle 22	0
	Procedures	40OP-9ZZ05	Power Operations	150
		40OP-9ZZ24	Short Notice Outage	54
71111.12	Corrective Action Documents	Condition Reports	19-10419, 18-17577	
	Miscellaneous		Corrective maintenance work mechs from L2 Eval 19-10419-007	12/17/2019
			GE Energy – Philadelphia, PA: SAL 361.1	01/17/2007
	Procedures	32MT-9ZZ34	Maintenance of AM-4.16-250-9H GE Magne-Blast Circuit Breakers	38
	Corrective Action Documents	Condition Reports	20-02023	
71111.13	Miscellaneous		Unit 1 Operator Logs	03/02/2020
			Scheduler's Evaluation for PV Unit 1	03/02/2020
			Scheduler's Evaluation for PV Unit 1	01/14/2020
	Procedures	02DP-0RS01	Online Integrated Risk	8

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		40DP-9AP21, Appendix B	Protected Equipment Scheme	02/11/2020
		40DP-9RS03	Online Integrated Risk	0
		75RP-0RP02	Radiological Survey Schedule	11
	Work Orders		4699034	
71111.15	Corrective Action Documents	Condition Reports	19-10645, 20-01384, 20-01242, 19-04741, 19-18663, 16-03732	
	Drawings	40OP-9DF01	Diesel Fuel Oil Storage and Transfer (DF)	43
		40OP-9DG01	Emergency Diesel Generator A	79
	NDE Reports		Palo Verde Unit 3 Control Room Logs	02/20/2019
	Procedures	01DP-0AP22-02	Procedure Writer's Guide – Operations Supplement	1
		40OP-9AF01	Essential Auxiliary Feedwater System	68
		40OP-9DF01	Diesel Fuel Oil Storage and Transfer (DF)	44
71111.17T	Calculations	13-MC-SP-0306	Hydraulic Analysis of SP System	6
		13-MC-SP-0307	SP/RW System Thermal Performance Design Basis Analysis	9
		13-MC-SP-0307, Appendix N	Replacement Steam Generator and Power Uprate Evaluation	9
		13-MC-SP-307, Appendix NI	Spray Pond Sludge Evaluation	9
		13-NC-SP-201	Spray Pond Tornado Missile Damage Frequency	3
	Corrective Action Documents	Condition Reports	18-18141, 19-13292, 19-14008, 19-17423, 19-14008, 15-05143, 19-00126, 19-07570, 17-01659, 16-14042, 16-20383	
	Drawings	01-M-SGP-001	Main Steam System	71
		13-E-MAA-001	Main Single Line Diagram	31
		13-P-ZZG-0012	Piping Material Classification	52
	Miscellaneous	1006937	Extension of the EPRI Risk-Informed Inservice Inspection (RI-ISI) Methodology to Break Exclusion Region (BER) Programs	0-A
		13-CN-0380	Installation Specification for Seismic Cat IX and Non-Seismic Scaffolding	24
		13-N-001-1900-1221-1	Spent Fuel Pool Criticality Analysis for 900 ppm Boron Credit	3

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		13-NS-A106	Probabilistic Risk Assessment of Tornado Missile Damage to the Station Ultimate Heat Sink	0
		13-NS-A106	Probabilistic Risk Assessment of Tornado Missile Damage to the Station Ultimate Heat Sink	0
		13-NS-A29	Tornado Generated Missile Criteria	12/02/2009
		13-NS-C067	Risk-Informed Inservice Inspection Consequence Evaluation of Class 1 & 2 Piping for Palo Verde Nuclear Generating Station Units 1,2, and 3.	2
		13-NS-C068	Risk-Informed In-Service Inspection Break Exclusion Region (BER) Consequence Evaluation	2
		13-NS-C069	Risk-Informed In-Service Inspection Break Exclusion Region (BER) Weld Selection Impact Assessment	2
		13-NS-I08	Probabilistic Risk Assessment of Tornado Missile Damage to the Station Ultimate Heat Sink	03/10/2009
		15-F029	Change to UFSAR Section 8.2.2 updates the UFSAR to reflect Open Phase Condition (OPC) detection system modification	04/30/2019
		16-15545-023	Engineering Evaluation - For the Unit 3 Train B Emergency Diesel Generator failure, calculate the maximum allowed outage time for the Emergency Technical Specification Change Request and provide PRA input required for submission of the Emergency Technical Specification Change Request.	2
		17-07348-002	Temporary Modification - CST External Filtration and Demineralizer Skid System Operation	1
		17-09932-003	Acknowledge and clear Unit 3 CEA 74 Timer Failure Alarm to restore all other Unit 3 CEDMCS alarms	0
		17-14902-003	Design Change Package - Anomaly Near the Toe of the Flow Baffle Pad to Reactor Vessel Cladding Weld	0
		19-03044-009	Temporary Modification - Main Steam Isolation Valve Oil Temperature Heating	0
		19-10797-001	Item Equivalency Evaluation of ASCO/Solenoid Valve/Model HT8211D14-Replaced by ASCO/Solenoid Valve/Model EFHT8210G014 120/60 VAC	0

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		19-13198-001	Material Replacement Evaluation for the Spring in Lonergan DB-10M Safety Relief Valve from Carbon Steel to Chromium-Vanadium Alloy Steel for the Auxiliary Steam System	0
		19-14294-002	Item Equivalency Evaluation of Siemens Motor Model 1080 2664 09 – Replaced by Siemens Motor Model 1630 0560 71	0
		19-15820-001	Evaluate 6" 630 Century valve in lieu of original 6" model 465 Hills-McCanna valve.	0
		2018-00934	Engineering Document Change - 18-07456-007 - Spray Pond Pump Operation and Maintenance Manual	3
		73ST-9SG01	MSIVs - Inservice Test	46
		AF-1701 (5035279)	Design Equivalent Change Package - MOV Pressure Locking Modification for Auxiliary Feed Valves 1,2,3JAFUCUV0036, 1,2,3JAFUAUV0037 and 1,2,3JSGAUV0138	0
		DEC-00847	Change vibration set points for the Unit 1 Feedwater Pump Turbine low pressure shaft	0
		DEC-01057	Plant Monitoring System (PMS) Printer Driver and Firmware Upgrade	1
		DEC-17-16810-001	Plant Computer (PC) database and software changes	0
		EDC 2018-00934	Spray Pond Pump Operation and Maintenance Manual	02/20/2019
		EDC-2016-00860	Update the Station Blackout Generator Technical Manual, VTD-S903-0003, to provide torque values, gap setting, and lubrication requirement for the igniter plug.	8
		EDC-2017-00527	SDOCs for Spent Fuel Pool Inserting Testing	08/03/2017
		EER 87-RJ-035	PMS does not alarm subgroup deviation for part length groups P1 and P2	12/17/1987
		ENG 19-02656-003	Review of the Standard Item Equivalency Process	08/25/2019
		ENG TM0D 17-07348	Develop a TMOD to install a GE Skid to filter the Unit 3 CST	06/05/2017
		ENG-DM 3282819	Engineering Disposition - Polar Crane Upgrade Modification	3

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		ENG-DM 3304346	Design Modification: Spray Pond Bypass Line / Margin Recovery Modification	9
		EO-18-EG-01	Standard Item Equivalency Process	0
		MB1344	Safety Evaluation of Topical Report TR-1006937, "Extension of the EPRI Risk Informed ISI Methodology to Break Exclusion Region Programs"	06/27/2002
		MN591-A00001	Degradation Mechanism Evaluation for Class 1, Class 2 and BER Program Piping Welds for Palo Verde Units 1, 2 and 3	0
		N-0001-0507-00070	SNAP-IN Installation Tool (Palo Verde)	0
		N-001-05057-00069	Palo Verde Test Insert with End Curls	0
		N0001-0507-00067	NETCO Inserts Dimensional Sizing Procedure	1
		N001-0507-00071	SNAP-IN Removal Tool Assembly (Palo Verde)	0
		SABD-6.05	CEAPDS and PMS CPC/CEAC Deviation Alarm Setpoints	1
		SI-1682 (4743537)	Design Equivalent Change Package - MOV Pressure Locking Modification for Safety Injection Valves 1,2,3JSIBUV0671 and 1,2,3JSIAHV0686	0
		VTD-B265-0001	Instructions for Bingham - Willamette Multi-Stage Vertical Pumps, Wet Pit Type VCM & VTM	08/28/1991
		VTD-S903-00003	Solar Turbines Installation and Maintenance Instructions for Centaur Taurus Gas Turbine-Driven Generator Set	8
	Procedures	40OP-9CP01	Containment Purge System	28
		40OP-9ZZ04	Plant Startup Mode 2 to Mode 1	77
		40OP-9ZZ23	Outage GOP	81
		73DP-9XI03	ASME Section XI Inservice Inspection	20
		73ST-9SP01	Essential Spray Pond Pumps - Inservice Test	55
		80DP-0CC01	Control of Software and Data for Digital Process Control and Monitoring Systems (PCMS)	22
		81DP-0DC17	Temporary Configuration Changes	43
		81DP-0EE10	Design Change Process	48
		87DP-0MC06	Item Equivalency Evaluation (IEE)	33

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		93DP-0LC07	10 CFR 50.59 and 72.48 Screenings and Evaluations	28
		93DP-0LC07-01	10 CFR 50.59 and 72.48 Administrative Guideline	5
		IP-ENG-001	Standard Design Process	0
	Work Orders		4894744, 4894745, 3148202, 4438816, 4618004, 4438815, 4991847, 5192259, 4813085, 4655939, 5101219, 4876832	
71111.19	Corrective Action Documents	Condition Reports	19-18235	
		Condition Reports	19-18235	
	Procedures	32MT-9ZZ21	4.16kV Motor Operational Testing	7
		36ST-9SB44	RPS Matrix Relays to Reactor Trip Response Time Test	25
		36ST-9SB52	RTSG Shunt and Undervoltage Trip Functional Test	12
		40OP-9EC01	Essential Chilled Water Train A	31
		40OP-9EW01	Essential Cooling Water System (EW) Train A	32
	Work Orders		5081066	
			5074182, 5019142, 5019098	
71111.20	Calculations	13-MC-DF-0306	As Built Calculation for Sizing the Diesel Fuel Storage and Day Tanks	11
	Drawings	01-M-DFP-001	P & I Diagram Diesel Fuel Oil and Transfer System	13
		01-M-DGP-0001	P & I Diagram Diesel Generator System	63
		AO-W-FSP-0300	Water Reclamation Facility Fuel Oil System P&ID	20
	Miscellaneous		AC POWER DIST IDR-# 1 Excerpt Diesel Fuel Oil Transfer System	07/09/1980
			High Impact Team Charter for RCP 3-1B Seal Degradation	
			Update Final Safety Analysis Report	20
		ANSI N195-1976	Fuel-Oil Systems For Standby Diesel Generators	04/12/1976
		ASME Code Section XI	American Society Of Mechanical Engineers Code, Section XI, Edition 2007 and 2013	
		PVNGS SER NUREG-0857	Safety Evaluation Report - related to the operation of Palo Verde Nuclear Generating Station: Units 1, 2, and 3, Docket Nos. STN 50-528, STN 50-529, and STN 50-530	11/01/1981
		PVNGS SER NUREG-0857	Safety Evaluation Report related to the Operation of Palo Verde Nuclear Generating Station: Units 1, 2, and 3, Docket Nos. STN 50-528, STN 50-529, and STN 50-530 Arizona Public Service Company, et al.	November 1981

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		Regulatory Guide 1.137	Fuel-Oil Systems For Standby Diesel Generators	1
71111.22	Procedures	14MT-9BD31	FLEX RWT Transfer Pump Inspections and Tests	5
		40ST-9GT03	Station Blackout Generator 2 Monthly Test	6
	Work Orders		5062342, 5146842	
71114.02	Miscellaneous		Palo Verde Nuclear Generating Station, Alert and Notification System (ANS) FEMA 350 Report, July 2019	5
71114.03	Miscellaneous	240-02821 CS/ma	2018 1st Quarter - Emergency Preparedness Augmentation Drill Report	01/31/2018
		240-02827	May 2018 ERO Augmentation Drill Report	06/05/2018
		240-02832	2018 3rd Quarter - Emergency Preparedness Augmentation Drill Report	08/23/2018
		240-02843	2018 4th Quarter - Emergency Preparedness Augmentation Drill Report	01/15/2019
	Procedures	EP-902	Notifications	15
71114.04	Miscellaneous		PVNGS Emergency Plan	59-66
		102-08023-CS/LH	Palo Verde Nuclear Generating Station (PVNGS), Units 1, 2, and 3 and Independent Spent Fuel Installation; Docket Nos. 50-528, 50-529, 50-530, and 72-44; License Nos. NPF-41, NPF-51, and NPF-74; PVNGS Emergency Plan, Revision 65	12/12/2019
		102-08042-CS/LH	Palo Verde Nuclear Generating Station (PVNGS), Units 1, 2, and 3 and Independent Spent Fuel Installation; Docket Nos. 50-528, 50-529, 50-530, and 72-44; License Nos. NPF-41, NPF-51, and NPF-74; PVNGS Emergency Plan, Revision 66	01/10/2020
		Evaluation Tracking Number 2018-001E	Revision 61 to the PVNGS Emergency Plan	05/18/2018
		Evaluation Tracking Number 2018-002E	Revision 62 Palo Verde Nuclear Generating Station Emergency Plan	08/29/2018
		Evaluation Tracking Number 2019-001e	Revision 64 to the PVNGS Emergency Plan	06/21/2019
		Evaluation	Numerous Changes/Corrections to the PVNGS Emergency	08/07/2019

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		Tracking Number 2019-002e	Plan Revision 64	
		Evaluation Tracking Number 2019-003e	Emergency Plan Revision 65	11/21/2019
		Evaluation Tracking Number 2019-004e	Emergency Plan Revision 66	12/12/2019
		Screening Tracking Number 2019-011s	Change in Notification Process and Communications Equipment with Offsite Agencies	12/03/2019
	Procedures	16DP-0EP22	Emergency Plan Maintenance	12, 13, 14
71114.05	Corrective Action Documents	Condition Reports	18-02598, 18-04925, 18-07580, 18-10461, 18-11148, 18-11979, 18-12725, 18-14077, 18-16169, 18-18246, 18-20137, 19-02003, 19-02103, 19-02232, 19-02712, 19-03318, 19-03810, 19-03963, 19-03969, 19-03714, 19-04338, 19-07679, 19-08797, 19-08901, 19-09184, 19-09910, 19-09947, 19-12962, 19-13384, 19-13928, 19-17244, 19-18312, 19-18597, 20-00112	
	Corrective Action Documents Resulting from Inspection	Condition Reports	20-01449, 20-03012, 20-03079, 20-03080, 20-03630	
	Miscellaneous		1904 ERO Mini Drill - ERO Green Team (June 4, 2019) 1905 ERO Mini Drill - ERO Blue Team (June 11, 2019) 1906 ERO Mini Drill - ERO Red Team (June 18, 2019)	10/29/2019
			1908 - Health Physics Drill Report	10/11/2019
			1910 ERO Mini Drill Report -ERO White Team (December 10, 2019)	01/02/2020
			1911 - Environmental Monitoring Drill Report	12/06/2019
			Emergency Preparedness Self-Assessment Report, NRC Baseline Inspection, Completed - 1/29/2018 to 2/2/2018	02/20/2018
			2019 EP Department Self-Assessment Report, SWMS No. 19-00512, Completed 1/7/2019 to 1/11/2019	01/28/2019

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		EP-0801	EAL Classification Matrix, Hot Conditions (RCS greater than 210F)	H
		EP-0930	EAL Classification Matrix, All Conditions	A, B
		EP-802	EAL Classification Matrix, Cold Conditions (RCS equal to/less than 210F)	H
		ID: 240-02825 CS/MA	1801 Full-Scale Dress Rehearsal - ERO Red Team (February 2018) - Rev 1	09/25/2018
		ID: 240-02828	2018 Onsite Contaminated Injury/Health Physics Drill Report	06/22/2018
		ID: 240-02833 CS/sw	1806 ERO Mini Drill - ERO Green Team (July 10, 2018) 1807 ERO Mini Drill - ERO White Team (July 24, 2018) 1808 ERO Mini Drill - ERO Blue Team (August 14, 2018)	09/12/2018
		ID: 240-02834 CS/MA	1802 Full-Scale Exercise - ERO Red Team (March 2018)	09/21/2018
		ID: 240-02837 CS/sw	1809 - Health Physics Drill Report	10/11/2018
		ID: 240-02838 CS/sw	ERO Off Hours Drive In Drill	10/12/2018
		ID: 240-02857 CS/sw	1902 Full-Scale NRC Graded Exercise - ERO Gold Team (March 2019)	05/15/2019
		ID: 240-02861 CS/sw	2019 Onsite Contaminated Injury/Health Physics Drill Report	06/19/2019
		ID: 240-02867	2019 Annual Review of PVNGS Emergency Plan Letters of Agreement and Offsite Emergency Response Plan	07/17/2019
		ID: 240-2859 CS/sw	1901 Full-Scale Dress Rehearsal - ERO Gold Team (February 2019)	07/13/2019
		KLD TR-1057	Palo Verde Nuclear Generating Station 2018 Population Update Analysis	12/06/2018
		KLD TR-1139	Palo Verde Nuclear Generating Station 2019 Population Update Analysis	12/05/2019
		Letter #: 240-02826	2018 Annual Review of PVNGS Emergency Plan Letters of Agreement	05/22/2018
		LP Number: NRE28C000112	NRE28 RP Teams Continuing Training	01/11/2019
		LP Number:	NRE98 RPM Continuing Training	01/18/2018

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		NRE98C000133		
		NAD Audit 2014-009	Nuclear Assurance Department (NAD) Audit Plan and Report, Audit 2048-009 Emergency Preparedness	10/30/2014
		NAD Audit 2015-010	Nuclear Assurance Department (NAD) Audit Plan and Report, Audit 2015-010 Emergency Preparedness	11/24/2015
		NAD Audit 2016-010	Nuclear Assurance Department (NAD) Audit Plan and Report, Audit 2016-010 Emergency Preparedness	12/14/2016
		NAD Audit 2017-008	Nuclear Assurance Department (NAD) Audit Plan and Report, Audit 2017-008 Emergency Preparedness	01/25/2018
		NAD Audit 2018-006	Nuclear Assurance Department (NAD) Audit Plan and Report, Audit 2018-006 Emergency Preparedness	11/07/2018
		NAD Audit 2019-008	Nuclear Assurance Department (NAD) Audit Report 2019-008, Emergency Preparedness	11/22/2019
	Procedures	01DP-0AP12	Condition Reporting Process	28-34
		16DP-0EP20	Conduct of Emergency Preparedness Operation	22
		16DP-0EP22	Emergency Plan Maintenance	14
		16DP-0EP23	Emergency Preparedness Drill/Exercise Administration	12
		16DP-0EP25	Emergency Preparedness Training Program Description	18
		16DP-0EP28	Emergency Facility/Kit Inventories and Inspections	7
		16DP-0EP29	Emergency Preparedness Offsite Program	9
		16DP-0EP31	Emergency Preparedness Equipment Out of Service	12
		60DP-0QQ19	Internal Audits	4, 6, 21, 30
		EP-900	Emergency Response Organization (ERO) Position Checklists	19
		EP-901	Classifications	11, 12
		EP-904	ERO/ERF Activation and Operation	8
71114.06	Corrective Action Documents	Condition Reports	20-03336, 20-03349	
	Miscellaneous		Form EP-0541	
			Significant Events Log	03/10/2020
			2020 Emergency Preparedness Scenario 2002	03/04/2020
	Procedures		PVNGS Emergency Plan	66
71151	Corrective Action	Condition Reports	19-16961, 19-17817, 19-18712, 20-00328	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Documents			
	Miscellaneous		Palo Verde Nuclear Generating Station, Alert and Notification System (ANS) FEMA 350 Report, July 2019	5
			NRC Quarterly Performance Indicators: Palo Verde	
			NRC Quarterly Performance Indicators: Palo Verde	
		19-09761-001	Fuel Oil Transfer Pump: NRC ROP PI Safety System Functional Failure Exclusion Evaluation	
		19-09761-001	Fuel Oil Transfer Pump: NRC ROP PI Safety System Functional Failure Exclusion Evaluation	
		LP Number: SES-STA-09-00	PT-100X FH/SGTL/SGTR/ESD (FRP)	10/25/2017
	Procedures		Palo Verde Nuclear Generating Station, Siren Operating Manual	10/9/2019
		16DP-0EP27	Emergency Preparedness Equipment Testing	17
		16DP-0EP37	Prompt Notification System	7
71152	Corrective Action Documents	Condition Reports	20-03500, 20-03363, 20-03216, 20-03162, 20-03111, 20-03076, 20-03075, 20-03026	