



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

**REGION IV  
1600 EAST LAMAR BOULEVARD  
ARLINGTON, TEXAS 76011-4511**

April 30, 2019

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

**SUBJECT: PALO VERDE NUCLEAR GENERATING STATION – NRC INTEGRATED  
INSPECTION REPORT 05000528/2019001, 05000529/2019001,  
05000530/2019001, AND 07200044/2019001**

Dear Mr. Bement:

On March 31, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Palo Verde Nuclear Generating Station Units 1, 2, and 3 and on April 12, 2019, discussed the results of this inspection with Mr. Jack Cadogan, Senior Vice President, Site Operations, and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC inspectors did not identify any finding or violation of more than minor significance.

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,

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Neil F. O'Keefe, Chief  
Project Branch D  
Division of Reactor Projects

Docket Nos. 05000528, 05000529,  
05000530, and 07200044

License Nos. NPF-41, NPF-51, NPF-74

Enclosure:

Inspection Report 05000528/2019001,  
05000529/2019001, 05000530/2019001,  
and 07200044/2019001

w/attachments:

1. Supplemental Information
2. Information Request

**U.S. NUCLEAR REGULATORY COMMISSION**  
**Inspection Report**

Docket Number(s): 05000528, 05000529, 05000530, and 07200044

License Number(s): NPF-41, NPF-51 and NPF-74

Report Number(s): 05000528/2019001, 05000529/2019001, 05000530/2019001, and 07200044/2019001

Enterprise Identifier: I-2019-001-0013  
I-2019-001-0077

Licensee: Arizona Public Service Co.

Facility: Palo Verde Nuclear Generating Station and Independent Spent Fuel Storage Installation

Location: 5801 South Wintersburg Road, Tonopah, AZ 85354

Inspection Dates: January 1, 2019, to March 31, 2019

Inspectors: C. Peabody, Senior Resident Inspector  
D. Reinert, Resident Inspector  
D. You, Resident Inspector  
R. Bywater, Resident Inspector  
R. Alexander, Senior Project Engineer  
L. Carson, Senior Health Physicist  
P. Elkmann, Senior Emergency Preparedness Inspector  
N. Greene, PhD, Senior Health Physicist  
S. Hedger, Emergency Preparedness Inspector  
J. O'Donnell, Health Physicist  
C. Alldredge, Allegations/Enforcement Specialist  
B. Baca, Health Physicist  
O. Masnyk Bailey, Health Physicist (Region I)  
K. Warner, Health Physicist, (Region I)

Approved By: Neil O'Keefe, Chief,  
Project Branch D,  
Division of Reactor Projects

Enclosure

## **SUMMARY**

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting baseline inspections 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. NRC-identified and self-revealed findings, violations, and additional items are summarized in the table below. Licensee-identified non-cited violations are documented in the Inspection Results at the end of this report.

### **List of Findings and Violations**

No findings were identified.

### **Additional Tracking Items**

None.

## PLANT STATUS

Units 1, 2, and 3 operated at or near full power for the duration 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." 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

### 71111.01 - Adverse Weather Protection

#### Seasonal Extreme Weather Sample (IP Section 03.02) (1 Sample)

The inspectors evaluated readiness for seasonal extreme weather conditions prior to the onset of extreme high temperatures.

### 71111.04 - Equipment Alignment

#### Partial Walkdown (IP Section 02.01) (3 Samples)

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

- (1) Unit 3 containment spray system B, on January 24, 2019
- (2) Unit 3 diesel generators A and B jacket water cooling systems, on February 1, 2019
- (3) Unit 3 loss of power sequencer A, on March 22, 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 3 non-class switchgear and battery rooms, Fire Area TB4, on January 16, 2019
- (2) Unit 2 auxiliary feedwater A room, Fire Area 72, on January 17, 2019
- (3) Unit 1 auxiliary feedwater B room, Fire Area 73, on February 20, 2019
- (4) Unit 3 auxiliary feedwater A room, Fire Area 72, on March 22, 2019
- (5) Unit 1 auxiliary feedwater A room, Fire Area 72, on March 25, 2019
- (6) Unit 1 Class 1E switchgear B room, Fire Area 5B, on March 29, 2019

#### 71111.06 - Flood Protection Measures

##### Inspection Activities - Internal Flooding (IP Section 02.02a.) (1 Sample)

The inspectors evaluated internal flooding mitigation protections in the 80' and 100' elevations of the Unit 1, 2, and 3 main steam support structures on March 21, 2019.

##### Inspection Activities - Underground Cables (IP Section 02.02c.) (1 Sample)

The inspectors evaluated cable submergence protection in Unit 3 Bravo diesel fuel oil vault on March 1, 2019.

#### 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)

The inspectors observed and evaluated Unit 3 control room operators during a maintenance activity to replace power switch assemblies for control element assembly 22 on February 12, 2019.

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

The inspectors observed and evaluated a licensed operator continuing training simulator scenario on February 5, 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) (2 Samples)

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

- (1) Unit 1 chemical and volume control system charging pump discharge pressure relief valve failures, on January 24, 2019
- (2) Unit 3 essential chilled water temperature control valve ECB-TV0030, on March 21, 2019

#### 71111.13 - Maintenance Risk Assessments and Emergent Work Control

##### Risk Assessment and Management Sample (IP Section 03.01) (3 Samples)

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

- (1) Unit 2 elevated risk during station blackout generator and high pressure safety injection pump A maintenance, on January 8, 2019

- (2) Unit 1 emergent work for main feedwater pump B mini-flow valve failure, on February 20, 2019
- (3) Unit 3 online risk during diesel generator A super outage, on March 5, 2019

#### 71111.15 - Operability Determinations and Functionality Assessments

##### Sample Selection (IP Section 02.01) (6 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) Unit 3 spent fuel pool decrease in Boron-10 concentration, on January 25, 2019
- (2) Unit 3 control room essential air handling unit B temperature control valve response to handheld radio interference, on February 14, 2019
- (3) Units 1, 2, and 3 analysis of manual compensatory actions to maintain high pressure safety injection operability and availability during reactor water tank full flow recirculation evolutions, on February 20, 2019
- (4) Unit 2 reactor coolant pump vibration monitoring system, on February 22, 2019
- (5) Unit 2 operability of shutdown cooling loop 1 isolation valve SI-653, on March 21, 2019
- (6) Unit 3 pressurizer level control system tuning issues, on March 26, 2019

#### 71111.18 - Plant Modifications

##### Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (2 Samples)

The inspectors evaluated the following temporary or permanent modifications:

- (1) Unit 1 diesel generator A crankcase breather ventilation piping modification DG-1153, on February 28, 2019
- (2) Station blackout generator 1 and 2 modification for permanently adjusting lube oil high pressure alarm set point, on March 20, 2019

#### 71111.19 - Post Maintenance Testing

##### Post Maintenance Test Sample (IP Section 03.01) (4 Samples)

The inspectors evaluated the following post maintenance tests:

- (1) Unit 3 control element assembly power switch assembly test following replacement, on February 12, 2019
- (2) Unit 3 diesel generator B fuel oil transfer pump test following terminal board replacement, on February 21, 2019

- (3) Unit 3 diesel generator A fast start following a diesel super outage, on March 8, 2019
- (4) Unit 3 safety injection valve 615 test following periodic maintenance, on March 19, 2019

#### 71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

##### In Service Testing (IST) (IP Section 03.01) (1 Sample)

77ST-9EW01, Unit 1 essential cooling water A inservice pump test, on January 31, 2019

##### Surveillance Testing (IP Section 03.01) (3 Samples)

- (1) Unit 3 diesel generator A 24 hour surveillance and hot restart, on January 7, 2019
- (2) 77ST-9SB19, Unit 1 core protection calculator system channel C functional test, on January 8, 2019
- (3) 36ST-9SA02, Unit 1 engineered safety features actuation system train B subgroup relay functional testing, on February 21, 2019

#### 71114.06 - Drill Evaluation

##### Drill and/or Simulator-Based Licensed Operator Requalification Training (IP Section 02.01) (see 71114.06 for sample guidance) (1 Sample)

The inspectors evaluated a dress rehearsal drill that required emergency facilities to respond to a fire in a diesel generator room, a steam generator tube rupture, and a steam line break on February 5, 2019.

#### 71114.08 - Exercise Evaluation Scenario Review

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

The inspectors reviewed and evaluated the proposed scenario for biennial emergency plan exercise on February 11, 2019. This review did not constitute approval of the scenario.

## **RADIATION SAFETY**

#### 71124.05 - Radiation Monitoring Instrumentation

##### Calibration and Testing Program (IP Section 02.02) (1 Sample)

The inspectors evaluated the calibration and testing program implementation.

Alarm set point and calibration method check of personnel contamination monitors, portal monitors and small article monitors:

- IPCM-12
- SAM-12



Failure to meet calibration or source check acceptance criteria:

- SAC-4
- PNR-4
- MGTM

Walk Downs and Observations (IP Section 02.01) (1 Sample)

The inspectors evaluated radiation monitoring instrumentation during plant walkdowns. The inspector observed the following:

Portable survey instruments:

- BC-4
- SAC-4
- RM-20 (multiple)
- FH40GL
- CM-11

Source check demonstration:

- RM-20
- FH40GL
- SAM-12

Area radiation monitors and continuous air monitors:

- RU-1
- RU-2
- RU-3
- RU-8
- RU-12
- RU-15
- RU-16
- RU-33
- RU-34
- RU-37
- RU-140
- RU-142A-D
- RU-149
- RU-152A
- RU-155D
- RU-158D

Personnel contamination monitors, portal monitors and small article monitors:

- iPCM-12
- PCM-12
- SAM-12

## 71124.06 - Radioactive Gaseous and Liquid Effluent Treatment

### Calibration and Testing Program (Process & Effluent Monitors) (IP Section 02.02) (1 Sample)

The inspectors reviewed the following gaseous and liquid effluent monitor instrument calibrations and tests:

- RU-12, Unit 1 Waste Gas Decay Tank Monitor Calibration
- RU-144, Unit 1 Plant Vent Monitor High Calibration
- RU-143, Unit 2 Plant Vent Monitor Low Calibration
- RU-145, Unit 2 Fuel Building B Vent Exhaust Monitor Low Calibration
- RU-143, Unit 3 Plant Vent Monitor Low Calibration
- RU-146, Unit 3 Fuel Building B Vent Exhaust Monitor High Calibration

### Dose Calculations (IP Section 02.05) (1 Sample):

The inspectors reviewed the following liquid and gaseous discharge permits to evaluate public dose calculations:

- Permit 20172058, Unit 2 Refueling Purge
- Permit 20182030, Unit 2 Plant Vent
- Permit 20182103, Unit 2 Fuel Building Vent
- Permit 20181142, Unit 1 Plant Vent
- Permit 20181145, Unit 1 Fuel Building Vent
- Permit 20191015, Unit 1 Fuel Building Vent
- Permit 20192013, Unit 2 Plant Vent
- Permit 20192015, Unit 2 Fuel Building Vent

The inspectors also reviewed the following annual radiological effluent release reports:

- 2016 Annual Radioactive Effluent Release Report
- 2017 Annual Radioactive Effluent Release Report

Abnormal gaseous or liquid tank discharges:

- CR-2018-14265, Oily Waste Separator Tank Overflow

### Instrumentation and Equipment (IP Section 02.04) (1 Sample)

The inspectors reviewed the following radioactive effluent discharge system surveillance test results:

- STWO 4777407, Unit 1 Containment Building Purge Air Filtration Unit
- STWO 4813386, Unit 2 Fuel and Aux Building Essential Air Filtration Unit
- STWO 4836778, Unit 1 Fuel and Aux Building Essential Air Filtration Unit
- STWO 4866355, Unit 3 Fuel and Aux Building Essential Air Filtration Unit

Sampling and Analysis (IP Section 02.03) (1 Sample)

The inspectors reviewed the following radioactive effluent sampling and analysis activities:

- RU-145, Unit 3 Fuel Building Radiation Monitor Filter Change out and Gas Grab Sample
- RU-143, Unit 2 Plant Ventilation Radiation Monitor Filter Change out and Gas Grab Sample
- Unit 2 Primary to Secondary Sampling

Effluent discharges:

- Unit 3 Fuel Building Vent Gas Effluent Discharge Permit
- Unit 2 Plant Vent Gas Effluent Discharge Permit

Walk Downs and Observations (IP Section 02.01) (1 Sample)

The inspectors walked down the following gaseous and liquid radioactive effluent monitoring and filtered ventilation systems to assess the material condition and verify proper alignment according to plant design:

- Unit 2 Plant Vent Radiation Monitoring System
- Unit 3 Plant Vent Radiation Monitoring System
- Unit 3 Fuel Building Radiation Monitoring System
- Unit 3 Fuel Building Ventilation Exhaust System

71124.07 - Radiological Environmental Monitoring Program

Groundwater Protection Initiative (GPI) Implementation (IP Section 02.02) (1 Sample)

The inspectors evaluated the licensee's groundwater monitoring program.

Site Inspection (IP Section 02.01) (1 Sample)

The inspectors evaluated the radiological environmental monitoring program implementation.

Walkdowns and calibration and maintenance record review:

- Air Sampling Station Site 4

The inspectors observed the following environmental sample collections and preparation:

- Sites 4, 6A, 7A, 14A, 15, 17A, 21, 29, 35, and 40
- Goat milk

Licensee actions in response to missed sample, inoperable sampler, lost thermoluminescent detector (TLD) or anomalous measurement:

- Air Sample Site 6A
- Milk Sample Site 53
- TLD Site 16

Sampling program for the potential of licensed material entering groundwater

- Reactor Water Makeup Tank
- Reactor Water Tank
- Holdup Tank
- Essential Pipe Density Tunnel

#### 71124.08 - Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation

##### Radioactive Material Storage (IP Section 02.01) (1 Sample)

The inspectors evaluated radioactive material storage in the follow areas:

- Dry Active Waste Processing and Storage (DAWPS) Facility
- Low Level Radioactive Materials Storage Facility (LLRWSF)

Container check (e.g., swelling, leakage and deformation):

- 10-4191 Main Steam Safety Valve container
- 12-0197 Main Steam Safety Valve container
- 14-210H Shipping Cask
- 17-1-044 55 gallon drum of In Core Instruments (ICI's)
- 17-1-045 55 gallon drum of ICI's
- 17-1-046 55 gallon drum of ICI's
- 18-3-097 Sealand Dry Active Waste (DAW)
- 19-2-004 Sealand DAW
- 19-2-007 Intermodal Asphalt
- 19-2-008 Intermodal Asphalt
- 19-3-006 Sealand DAW

##### Radioactive Waste System Walkdown (IP Section 02.02) (1 Sample)

The inspectors evaluated the following radioactive waste processing systems and processes during plant walkdowns.

Liquid or solid radioactive waste processing systems:

- Dry Active Waste Processing and Storage (DAWPS) Facility
- Low Level Radioactive Materials Storage Facility (LLRWSF)

Radioactive waste resin and/or sludge discharges processes:

- High Integrity Container Receipt, Handling, Use, and Closure
- Self-Engaging Rapid Dewatering Systems (SERDS) Operation

Shipment Preparation (IP Section 02.04) (1 Sample)

The inspectors were not able to evaluate and observe radioactive material shipment preparation processes as no shipments were in process. However, the inspectors reviewed several shipment packages that included surveys, pictures, and assessments in preparation for shipment.

Shipping Records (IP Section 02.05) (1 Sample)

The inspectors evaluated the following non-excepted package shipment records:

- 17-SH-036
- 17-SH-068
- 18-RW-026
- 18-RW-028
- 18-RW-034
- 18-SH-018
- 18-SH-062

Waste Characterization and Classification (IP Section 02.03) (1 Sample)

The inspectors evaluated the radioactive waste characterization and classification for the following waste streams:

- Dry Active Waste streams for Unit 1 (Sample ID: 1-17-042), Unit 2 (Sample ID: 2-17-014), and Unit 3 (Sample ID: 3-18-040)
- Filter analysis associated with shipping packages 18-RW-026 and 18-RW-028
- Unit 2 waste oil analysis (Sample ID: 2-18-037)
- Resin analysis associated with shipping package 18-SH-062

**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)

Units 1, 2, and 3, January 1, 2018–December 31, 2018

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

Units 1, 2, and 3, January 1, 2018–December 31, 2018

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

Units 1, 2, and 3, January 1, 2018–December 31, 2018

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

Units 1, 2, and 3, January 1, 2018–December 31, 2018

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

The inspector reviewed data for the Drill/Exercise Performance indicator for the period January 1, 2018, through December 31, 2018.

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

The inspector reviewed data for the ERO Participation Performance indicator for the period January 1, 2018, through December 31, 2018.

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

The inspector reviewed data for the Alert and Notification Performance indicator for the period January 1, 2018, through December 31, 2018.

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) Units 1 and 3 control element drive mechanism control system power switch assembly failures
- (2) Unit 1 balance of plant engineered safety features actuation system train A troubleshooting, and replacement of the train A engineered safety features load sequencer module

**OTHER ACTIVITIES – TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL**

60854 – Preoperational Testing of an Independent Spent Fuel Storage Inspection (ISFSI)

An ISFSI inspection was conducted at PVNGS on March 19-21, 2019, by inspectors from Region I, Division of Nuclear Materials Safety. The PVNGS ISFSI was licensed as a general 10 CFR Part 72 licensee. The licensee had been utilizing the NAC, Universal Multi-Purpose Canister system (UMS), approved under Certificate of Compliance (CoC) 72-1015, Amendment 5, and NAC UMS Final Safety Analysis Report (FSAR), Revision 11, to load and store spent fuel at their ISFSI. At the time of the on-site inspection, PVNGS's ISFSI pad contained 152 NAC ventilated concrete casks (VCCs), each containing the steel Transportable Storage Container (TSC) with a capacity for 24 pressurized water reactor

(PWR) spent fuel assemblies. The last routine ISFSI inspection was performed in March 2017 (ADAMS Accession No. ML17130B002).

Under the provisions of 10 CFR 72.210 and 10 CFR 72.212, PVGNS has decided to adopt and utilize a different storage system to store spent fuel casks at their ISFSI. The licensee has elected to utilize the NAC, Magnastor System under CoC 72-1031, Amendment 7, and FSAR Revision 10. The Magnastor TSC has the capacity to store 37 PWR spent fuel assemblies in each VCC.

The purpose of the inspection was to observe and evaluate the licensee's pre-operational testing and training exercises required to be performed by a general licensee prior to use of the system to load spent fuel assemblies. The NAC Magnastor CoC 72-1031, Appendix A, Technical Specification (TS) 5.8 contains a list of loading, closure, handling, unloading, and transfer operations that are required to be performed. During the inspection the NRC inspectors observed PVNGS perform the following demonstrations from TS 5.8 (c): closing and sealing of the TSC to demonstrate welding; weld inspection and documentation; and leak testing. PVNGS still has a number of demonstrations that are required to be completed before the licensee can utilize the Magnastor system. Those demonstrations are projected to be performed in the summer of 2019.

The ISFSI activities specifically reviewed during the on-site inspection:

- (1) Evaluated and observed dry run operations which included welding, weld inspection and documentation, and leak testing in accordance with TS 5.8 (c).
- (2) Reviewed welder qualification program, welder performance qualifications, welding procedure specifications, and welding procedure qualification records.
- (3) Reviewed NDE program procedure, NDE personnel certification records, the qualification program for visual test and liquid penetrant exams, liquid penetrant procedure, visual testing procedure, and helium leak testing procedure.
- (4) Review Certified Material Test reports for liquid penetrant chemicals and welder filler metals.
- (5) Evaluated and observed licensee's radiation protection implementation during the dry run observations.
- (6) Evaluated and observed licensee's implementation of foreign material exclusion program during welding demonstrations.

The inspectors did not identify any issues of concern requiring documentation.

## **INSPECTION RESULTS**

No findings were identified.

## **EXIT MEETINGS AND DEBRIEFS**

On February 8, 2019, the inspector presented the baseline radiation safety inspection results to Mr. J. Cadogan, Senior Vice President of Site Operations, and other members of the licensee staff. The inspectors verified no proprietary information was retained or documented in this report.

On March 21, 2019, the inspectors presented the results from the ISFSI pre-operational welding demonstration inspection to Ms. Maria Lacal, Senior Vice President of Regulatory Oversight, and other members of the licensee staff. Licensee personnel acknowledged the information presented. The inspectors confirmed that proprietary information was controlled to protect from public disclosure.

On April 12, 2019, the inspector presented the quarterly resident inspector inspection results to Mr. Jack Cadogan, Senior Vice President, Site Operations, and other members of the licensee staff. The inspectors confirmed that proprietary information was controlled to protect from public disclosure.



## DOCUMENTS REVIEWED

### 71111.01—Adverse Weather Protection

| Procedures<br>Number | Title                  | Revision |
|----------------------|------------------------|----------|
| 40OP-9ZZ19           | Hot Weather Protection | 7        |
| 40OP-9HS01           | Site Building HVAC     | 16       |

  

| Calculations<br>Number | Title   | Revision |
|------------------------|---|----------|
| 13-MC-SP-0307          | SP/EW System Thermal Performance Design Bases<br>Analysis | 9        |

### 71111.04—Equipment Alignment

| Condition Reports |
|-------------------|
| 17-02911          |

  

| Work Orders        |
|--------------------|
| 2711244    2781196 |

| Procedures<br>Number | Title   | Revision |
|----------------------|---|----------|
| 40OP-9DG01           | Emergency Diesel Generator A                      | 79       |
| 40ST-9SI13           | Train A LPSI and CS System Alignment Verification | 36       |

  

| Drawings<br>Number | Title                                 | Revision |
|--------------------|---------------------------------------|----------|
| 13-M-DGP-0001      | P & I Diagram Diesel Generator System | 61       |

### 71111.05AQ—Fire Protection Annual/Quarterly

| Miscellaneous Documents<br>Number | Title                                    | Revision<br>or Date |
|-----------------------------------|--|---------------------|
|                                   | PVNGS Updated FSAR                       | 19                  |
|                                   | PVGS Pre-Fire Strategies Manual          | 26                  |
| 13-MC-ZA-0808                     | MSSS Flooding At Elevation 81'           | 6                   |
|                                   | Fire Protection Database Detailed Report | 05/09/1998          |
|                                   | PVNGS Safety Evaluation Report           |                     |

71111.06—Flood Protection Measures

Condition Reports

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|          |          |          |          |
|----------|----------|----------|----------|
| 19-02890 | 19-02658 | 19-02418 | 19-02625 |
|----------|----------|----------|----------|

| Procedures<br>Number | Title                              | Revision |
|----------------------|------------------------------------|----------|
| 40DP-9OPA3           | Auxiliary Building Station Rounds  | 84       |
| 40AL-9RK2B           | Panel B02B Alarm Response          | 59       |
| 40OP-9RD01           | Radwaste Facility Sumps and Drains | 19       |

| Drawings<br>Number | Title                          | Revision |
|--------------------|--------------------------------|----------|
| 01-M-RDP-002       | Radioactive Waste Drain System | 14       |
| 02-M-RDP-002       | Radioactive Waste Drain System | 18       |
| 03-M-RDP-002       | Radioactive Waste Drain System | 13       |

| Miscellaneous Documents<br>Number | Title                            | Revision<br>or Date |
|-----------------------------------|----------------------------------|---------------------|
|                                   | PVNGS Updated FSAR               | 19                  |
|                                   | Pre-Fire Strategies Manual       | 26                  |
| 13-MC-ZA-0808                     | MSSS Flooding at Elevation 81'   | 6                   |
| PO EDC-2019-00144                 | Revise Calculation 13-MC-ZA-0808 | 03/01/2019          |

71111.11—Licensed Operator Requalification Program and Licensed Operator Performance

| Procedures<br>Number | Title   | Revision |
|----------------------|---|----------|
| 40DP-9OP02           | Conduct of Operations   | 72       |
| 01DP-0AP57           | Management of Critical Evolutions and Infrequently Performed Test or Evolutions | 2        |

| Miscellaneous Documents<br>Number | Title   | Date       |
|-----------------------------------|---|------------|
|                                   | Licensed Operator Continuing Training Simulator Evaluation Scenario | 02/05/2019 |

71111.12—Maintenance Effectiveness

Condition Reports

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|          |          |          |          |          |
|----------|----------|----------|----------|----------|
| 18-16615 | 18-02240 | 18-01811 | 19-02330 | 19-02133 |
| 18-10880 | 18-10879 | 19-02364 |          |          |

Work Orders

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4441828      4441462

Miscellaneous Documents

| Number       | Title  | Date       |
|--------------|--|------------|
| 19-02330-006 | Engineering Evaluation<br>Palo Verde Maintenance Rule Database | 02/21/2019 |

71111.13—Maintenance Risk Assessments and Emergent Work Control

Condition Reports

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16-15545

Procedures

| Number     | Title   | Revision |
|------------|---|----------|
| 40DP-9RS01 | Operations Department Online Nuclear Risk Management in Modes 1 and 2 | 4        |
| 70DP-0RA05 | Assessment and Management of Risk When Performing Maintenance         | 23       |
| 40DP-9AP21 | Protected Equipment   | 7        |

Miscellaneous Documents

| Number   | Title  | Date             |
|----------|--|------------------|
| EOOS 4.1 | Scheduler's Evaluation for Palo Verde Unit 1 | 02/21/2019 09:41 |
| EOOS 4.1 | Scheduler's Evaluation for Palo Verde Unit 3 | 03/05/2019       |

71111.15—Operability Determinations and Functionality Assessments

Condition Reports

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|          |          |          |          |          |
|----------|----------|----------|----------|----------|
| 18-16665 | 17-04204 | 18-18476 | 19-02567 | 19-02330 |
| 19-01290 | 18-17794 | 19-01962 | 19-01941 | 14-00853 |
| 19-04380 | 19-04382 |          |          |          |

Work Orders

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5071741

Procedures

| Number     | Title   | Revision |
|------------|---|----------|
| 40DP-9OP26 | Operations Condition Reporting Process and Operability Determination / Functionality Assessment | 46       |
| 73DP-0EE05 | Engineering Preventive Maintenance Program  | 0        |

| Procedures Number | Title   | Revision |
|-------------------|---|----------|
| 40OP-9SV01        | Loose Parts and Vibration Monitoring                  | 14       |
| 73TI-9ZZ35        | Ultrasonic Examination of Reactor Coolant Pump Shafts | 7        |
| 31MT-9RC23        | Reactor Coolant Pump Sulzer Bingham Seal Replacement  | 38       |
| 40TI-9SF01        | Pressurizer Level Control System Tuning               | 0        |

| Miscellaneous Documents Number | Title   | Revision or Date |
|--------------------------------|---|------------------|
| 18-17794-004                   | Level 2 Cause Analysis Report   | 0                |
| TR-100491                      | EPRI: UPS Maintenance and Application Guide<br>Design Basis Manual: Safety Injection System | 38               |
| CRAI 3245187                   | Evaluation of the Class-1E and PK Inverters and Associated Subcomponents                    |                  |
| CRDR 3300933                   | 10 Year SCR Replacement for PN and PK Inverters   |                  |
| RCTSAI 4524360                 | RCP Vibration Monitoring  | 04/17/2014       |
| RCTSAI 4524358                 | RCP Shaft Ultrasonic Inspection Following Seal Replacement                                  | 04/17/2014       |
| RCTS 4524352                   | RCP Vibration Monitoring and Shaft UT Inspections   | 04/18/2014       |
| PVAR 4524366                   | Actions for License Amendments 84, 72, and 56   | 04/17/2014       |

#### 71111.18—Plant Modifications

##### Condition Reports

|          |          |          |          |
|----------|----------|----------|----------|
| 16-19472 | 19-02927 | 14-00965 | 18-04376 |
|----------|----------|----------|----------|

##### Work Orders

|         |         |
|---------|---------|
| 3094267 | 4805058 |
|---------|---------|

##### Miscellaneous Documents

| Number       | Title   | Revision |
|--------------|---|----------|
| S-19-0005    | 10 CFR 50.59 Screening/Evaluation   | 0        |
| 18-04376-004 | Design Equivalent Change Package: TMOD SBOG#!<br>Lube Oil High Pressure Alarm Set point Schedule Adjustment | 0        |

#### 71111.19—Post Maintenance Testing

##### Condition Reports

|          |          |          |
|----------|----------|----------|
| 16-03732 | 19-03482 | 19-04033 |
|----------|----------|----------|

Work Orders

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|         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|
| 5103635 | 4945749 | 4498502 | 4507037 | 4752532 | 5055992 | 5076980 |
| 4960255 | 5085998 |         |         |         |         |         |

Procedures

| Number     | Title   | Revision |
|------------|---|----------|
| 40OP-9DG01 | Emergency Diesel Generator A                                      | 79       |
| 40OP-9DF01 | Diesel Fuel Oil Storage and Transfer                              | 43       |
| 73ST-9DF01 | Diesel Fuel Oil Transfer Pumps – Inservice Test                   | 28       |
| 40OP-9SF01 | Control Element Drive Mechanism Control System (CEDMCS) Operation | 30       |

71111.22—Surveillance Testing

Work Orders

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|         |         |         |         |
|---------|---------|---------|---------|
| 4802907 | 4936283 | 4937964 | 4940893 |
|---------|---------|---------|---------|

Procedures

| Number     | Title  | Revision |
|------------|--|----------|
| 36ST-9SA02 | ESFAS Train B Subgroup Relay Functional Test   | 47       |
| 40ST-9DG01 | Diesel Generator A Test  | 50       |
| 73ST-9DG07 | Class 1E Diesel Generator Load Rejection 24 Hour Rated Load And Hot Start Test Train A | 10       |
| 77ST-9SB19 | CPCS Channel C Functional Test   | 12       |
| 73ST-9EW01 | Essential Cooling Water Pumps – Inservice Test   | 33       |

71114.06—Drill Evaluation

Miscellaneous Documents

| Number       | Title                                 | Date       |
|--------------|---------------------------------------|------------|
| 1901         | Dress Rehearsal Controller Guide      |            |
|              | TSC – Position Log                    | 02/05/2019 |
|              | Significant Events Log                | 02/05/2019 |
| Form EP-0541 | Palo Verde NAN Emergency Message Form |            |

71124.05—Radiation Monitoring Instrumentation

Procedures

| Number     | Title                           | Revision |
|------------|---------------------------------|----------|
| 74DP-9CY08 | Radiological Monitoring Program | 25       |

| Procedures Number | Title   | Revision |
|-------------------|---|----------|
| 74ST-9SQ23        | Radiation Monitoring Calibration Test for New Scope Area Monitors             | 18       |
| 74ST-9SQ33        | Radiation Monitoring Calibration Test for Main Steam Line Monitors            | 1        |
| 75RP-9EQ04        | Calibration of the Eberline PNR-4 Neutron Dose Rate Instrument                | 9        |
| 75RP-9EQ13        | Canberra Whole Body Counting System Calibration                               | 5        |
| 75RP-9EQ31        | Calibration, Response Check and Operation of the SAM-12 Small Article Monitor | 4        |
| 75RP-9EQ47        | Calibration of the Eberline Model HP Series Frisker Probes                    | 1        |
| 75RP-9EQ66        | Calibration of the Thermo Scientific Model RO-20 Ion Chamber Survey Meter     | 1        |
| 75RP-9ME05        | Scaler Counting Systems Performance Checks                                    | 20       |

#### Audits and Self-Assessments

| Number    | Title   | Date       |
|-----------|---|------------|
| 2Q 2017   | Integrated Performance Assessment Report: Radiation Protection Department | 09/14/2017 |
| 2018-001  | Audit Plan and Report: Chemistry  | 04/06/2018 |
| 218-04312 | 2017 Annual Radiation Protection Program Summary Report                   | 07/11/2018 |
| 2018-007  | Audit Plan and Report: Radiation Safety                                   | 12/14/2018 |

#### Condition Reports

|          |          |          |          |          |
|----------|----------|----------|----------|----------|
| 17-01400 | 17-02247 | 17-08311 | 17-11014 | 17-13020 |
| 17-13492 | 17-15582 | 17-17353 | 18-02590 | 18-09583 |

#### Portable Instrumentation Calibration Data Sheet

| Number       | Title   | Date       |
|--------------|---|------------|
| 4380         | PNR-4/NRD-1 Calibration Data Sheet                | 07/10/2018 |
| 8143         | RO-20 Meter Data Sheet                            | 09/07/2018 |
| 12708085     | DRM 1/2 Calibration Data Sheet                    | 10/01/2018 |
| 112914/12818 | AMS-4 Calibration Data Sheet                      | 10/09/2018 |
| 50           | RAS-1 Air Sampler Calibration Data Sheet          | 10/19/2018 |
| 1182         | RM-20 Count Rate Meter Data Sheet                 | 01/04/2019 |
| 22927        | FH 40 GL Internal Detector Calibration Data Sheet | 01/15/2019 |

Portable Instrumentation Calibration Data Sheet

| Number | Title   | Date       |
|--------|---|------------|
| 11499  | FHZ 612 Teleprobe Detector Calibration Data Sheet | 01/24/2019 |

Stationary Radiation Instrument Calibration Records

| Number    | Title  | Date       |
|-----------|--|------------|
| 668       | Small Article Monitor Calibration Data Sheet | 09/18/2018 |
| FastScan2 | Calibration Verification Data Sheet          | 01/16/2019 |
| 364       | BC-4 Instrument Calibration Data Sheet       | 01/22/2019 |
| 322983    | 3030P Calibration Data Sheet                 | 01/23/2019 |
| 224       | CM-11 Calibration Data Sheet                 | 01/24/2019 |
| 1213      | PM-12 Calibration Cover Sheet                | 01/31/2019 |
| 12020     | iPCM-12 Calibration Cover Sheet              | 02/05/2019 |

Calibration Source Records

| Number    | Title   | Date       |
|-----------|---|------------|
| N997-0358 | Kaman Report of Calibration Model KDA-HR High Range Area Monitor Ion Chamber Detector | 01/23/1980 |
| 8143      | Shepherd Model 89 Verification Sheet  | 10/14/2018 |
| 940521    | CDM-21 Calibrator Verification Report   | 10/24/2018 |

Work Order Records

| Number  | Title  | Date       |
|---------|--|------------|
| 4980211 | 74ST9SQ343 Radiation Monitoring Calibration Test for Waste Gas Decay Tank RMC Monitor (Unit 3) RU-12 | 03/08/2018 |
| 4867547 | 74ST9SQ333 Radiation Monitoring Calibration Test for Main Steam Line Monitors. (Unit 3) (RU-139/140) | 04/23/2018 |
| 4889856 | "B" CTMT Build Refueling Purge Exhaust Monitor (Unit 1 RU-34)  | 07/25/2018 |
| 4898443 | Personnel IARM A-Side (Unit 1 RU-155D)   | 08/28/2018 |
| 4948127 | "A" Essential Cooling Water Radiation Monitor (Unit 3 RU-02)   | 09/13/2018 |
| 4911530 | 74ST9SQ232 Radiation Monitoring Calibration Test for Baseline Area Monitors (Unit 2 RU-148–151)      | 10/23/2018 |

Miscellaneous Documents

| Number                     | Title  | Date |
|----------------------------|--|------|
| LS-6500 (U1, U2, & U3)     | QC: Observed Source Response - dpm             | 2018 |
| U1 MCA Detectors 1, 2, & 3 | QC: 88 and 1332 keV Activity and 1332 keV FWHM | 2018 |

Miscellaneous Documents

| Number                     | Title   | Date       |
|----------------------------|---|------------|
| U2 MCA Detectors 1, 2, & 3 | QC: 88 and 1332 keV Activity and 1332 keV FWHM          | 2018       |
| U3 MCA Detectors 1, 2, & 3 | QC: 88 and 1332 keV Activity and 1332 keV FWHM          | 2018       |
| 237-03041-CAS              | 2 <sup>nd</sup> Quarter 2018 Chemistry Hot Cross Checks | 07/27/2018 |
| 237-03046-CAS              | 4 <sup>th</sup> Quarter 2018 Chemistry Hot Cross Checks | 01/22/2019 |

71124.06—Radioactive Gaseous and Liquid Effluent Treatment

Procedures

| Number     | Title  | Revision |
|------------|--|----------|
| 74AL-9SQ01 | Radiation Monitoring Systems Alarm Validation and Response                           | 001      |
| 74RM-9EF20 | Gaseous Radioactive Release Permits and Offsite Dose Assessment                      | 018      |
| 74RM-9EF23 | Secondary System Liquid Discharge  | 016      |
| 74RM-9EF40 | Radiation Monitoring System Operations   | 012      |
| 74RM-9EF41 | Radiation Monitoring System Alarm Response   | 023      |
| 74RM-9EF42 | Radiation Monitor Alarm Setpoint Determination                                       | 033      |
| 74RM-9EF43 | Actions for Non-Functional Radiation Monitors: Preplanned Alternate Sampling Program | 017      |
| 74RM-9EF60 | RMS Sample Collection  | 032      |
| 74RM-9EF63 | RU-143 Sample Operations   | 001      |
| 74RM-9EF65 | RU-145 Sample Operations   | 000      |
| 74RM-9EF80 | RMS/Effluent Action Documentation  | 006      |
| 75RM-9EF01 | Determination of Primary-to-Secondary Leak Rate                                      | 000      |

Audits and Self-Assessments

| Number       | Title   | Date       |
|--------------|---|------------|
| 17-11047-003 | Radiological Monitoring Program                         | 09/07/2017 |
| 2018-001     | Nuclear Assurance Department (NAD): Chemistry           | 04/06/2018 |
| 2018-04312   | 2017 Annual Radiation Protection Program Summary Report | 07/11/2018 |
| 2018-007     | Nuclear Assurance Department (NAD): Radiation Safety    | 12/14/2018 |

Condition Reports

|          |          |          |          |          |
|----------|----------|----------|----------|----------|
| 16-02244 | 17-0299  | 17-01573 | 17-01926 | 17-05289 |
| 17-07961 | 17-11047 | 17-11559 | 17-13603 | 17-17884 |
| 18-02621 | 18-04140 | 18-04530 | 18-06915 | 18-08466 |
| 18-09004 | 18-11148 | 18-12193 | 18-13299 | 18-14265 |
| 18-14342 | 18-17591 | 19-00212 | 19-01531 |          |



Effluent Monitor Calibration Records

| Number        | Title   | Date       |
|---------------|---|------------|
| STWO 04715454 | RU-145 Unit 2 Fuel Building B Vent Exhaust Monitor Low              | 02/22/2017 |
| STWO 04736183 | RU-143 Unit 3 Plant Vent Monitor Low                                | 04/22/2017 |
| STWO 04760261 | RU-146 Unit 3 Fuel Building B Vent Exhaust Monitor High Calibration | 05/10/2017 |
| STWO 04863095 | RU-144 Unit 1 Plant Vent Monitor High                               | 09/15/2017 |
| STWO 04980503 | RU-12 Unit 1 Waste Gas Decay Tank Monitor                           | 03/19/2018 |
| STWO 04904815 | RU-143 Unit 2 Plant Vent Monitor Low                                | 09/20/2018 |

Air Cleaning System Surveillance Test Records

| Number       | Title  | Date       |
|--------------|--|------------|
| STWO 4777407 | Unit 1 Containment Building Purge Air Filtration Unit      | 09/06/2017 |
| STWO 4813386 | Unit 2 Fuel and Aux Building Essential Air Filtration Unit | 12/21/2017 |
| STWO 4836778 | Unit 1 Fuel and Aux Building Essential Air Filtration Unit | 02/09/2018 |
| STWO 4866355 | Unit 3 Fuel and Aux Building Essential Air Filtration Unit | 05/29/2018 |

Gaseous Discharge Permits

| Number   | Title                     | Date       |
|----------|---------------------------|------------|
| 20172058 | Unit 2 Refueling Purge    | 05/02/2017 |
| 20182030 | Unit 2 Plant Vent         | 03/15/2018 |
| 20182103 | Unit 2 Fuel Building Vent | 09/11/2018 |
| 20181142 | Unit 1 Plant Vent         | 11/08/2018 |
| 20181145 | Unit 1 Fuel Building Vent | 11/20/2018 |
| 20191015 | Unit 1 Fuel Building Vent | 01/29/2019 |
| 20192013 | Unit 2 Plant Vent         | 01/31/2019 |
| 20192015 | Unit 2 Fuel Building Vent | 02/05/2019 |

Counting Detector Calibrations

| Number | Title   | Date       |
|--------|---|------------|
| GMAR4L | HpGE Geometry – Unit 3 4500 cc gas Marinelli beaker             | 01/14/2016 |
| PFIL1  | HpGE Geometry – Unit 1 Particulate filter on shelf 1            | 07/20/2016 |
| CCART1 | HpGE Geometry – Unit 1 F&J cartridge on shelf 1                 | 07/22/2016 |
| CP1001 | HpGE Geometry – Unit 2 CP100 charcoal face down shelf 1         | 11/21/2017 |
| GMAR1L | HpGE Geometry – Unit 1 Gas 1L Marinelli beaker on detector face | 12/08/2017 |
| GVIAL1 | HpGE Geometry – Unit 2 9.2 cc gas vial shelf 1                  | 12/14/2017 |

Miscellaneous Documents

| Number | Title   | Date        |
|--------|---|-------------|
|        | Palo Verde Generating Station Daily Status Report | 02/5-8/2019 |

Miscellaneous Documents

| Number      | Title  | Date       |
|-------------|--|------------|
|             | Offsite Dose Calculation Manual (ODCM) Palo Verde Nuclear Generating Station Units 1, 2, and 3 | 03/24/2016 |
| RCTSAI 1566 | 2016 Annual Radioactive Effluent Release Report  | 04/15/2017 |
| 2-17-014    | Waste Stream Report: Unit 2 Dry Active Waste   | 04/18/2017 |
| 1-17-042    | Waste Stream Report: Unit 1 Dry Active Waste   | 10/28/2017 |
| 3-18-040    | Waste Stream Report: Unit 3 Dry Active Waste   | 04/15/2018 |
| RCTSAI 1566 | 2017 Annual Radioactive Effluent Release Report  | 04/25/2018 |

71124.07—Radiological Environmental Monitoring Program

Procedures

| Number     | Title                                   | Revision |
|------------|---|----------|
| 74RM-0EN02 | Radiological Environmental Air Sampling | 21       |
| 74RM-0EN03 | Radiological Environmental Sampling     | 33       |
| 74RM-0EN05 | Environmental TLD Exchange/Reporting    | 15       |
| 74RM-0EN07 | Land Use Census                         | 14       |

Audits and Self-Assessments

| Number                   | Title   | Date       |
|--------------------------|---|------------|
|                          | Integrated Performance Assessment Report – Radiation Protection Department Quarter #1     | 06/22/2017 |
|                          | Integrated Performance Assessment Report – Radiation Protection Department Quarter #2     | 09/14/2017 |
|                          | Integrated Performance Assessment Report – Radiation Protection Department Quarter #3     | 12/19/2017 |
|                          | Integrated Performance Assessment Report – Radiation Protection Department Quarter #4     | 03/09/2018 |
| 218-04312                | Annual Radiation Protection Program Summary Report  | 07/11/2018 |
|                          | Integrated Performance Assessment Report – Radiation Protection 1 <sup>st</sup> Half 2018 | 08/15/2018 |
| SWMS<br>No. 15-04023-003 | Groundwater Protection Initiative NEW 07-07   | 12/06/2018 |
| 2018-007                 | Nuclear Assurance Department (NAD) Audit Plan and Report – Radiation Safety               | 12/14/2018 |

Condition Reports

|          |          |          |          |          |
|----------|----------|----------|----------|----------|
| 17-00760 | 17-01085 | 17-01203 | 17-01859 | 17-03281 |
| 17-03798 | 17-04052 | 17-04054 | 17-04212 | 17-04747 |
| 17-06259 | 17-07102 | 17-07269 | 17-08535 | 17-10101 |
| 17-10463 | 17-10476 | 17-10693 | 17-15048 | 17-17823 |

Condition Reports

|          |          |          |          |          |
|----------|----------|----------|----------|----------|
| 17-18260 | 18-00109 | 18-00633 | 18-01069 | 18-01383 |
| 18-01500 | 18-01583 | 18-03310 | 18-04530 | 18-06018 |
| 18-10111 | 18-10649 | 18-10739 | 18-11127 | 18-11210 |
| 18-12934 | 18-14265 | 18-15019 |          |          |

Groundwater Protection Documents

| Number                   | Title                                       | Revision or Date |
|--------------------------|---|------------------|
| 75DP-9AP01               | Ground Water Protection Program             | 0                |
| SWMS No.<br>15-04023-003 | Groundwater Protection Initiative NEI 07-07 | 12/06/2018       |

Meteorological Calibration Records

| Number     | Title                                     | Date       |
|------------|---|------------|
| WO 4905809 | Met System Redundant Cab                  | 12/12/2017 |
| WO 4905809 | Met System Primary Cab A                  | 11/06/2017 |
| WO 4988254 | Met System Calibration (Primary System)   | 10/10/2018 |
| WO 4988280 | Met System Calibration (Redundant System) | 10/10/2018 |

Miscellaneous Documents

| Number | Title  | Date       |
|--------|--|------------|
| 2016   | Annual Radiological Environmental Operating Report | 04/14/2017 |
| 2017   | Annual Radiological Environmental Operating Report | 04/10/2018 |

71124.08—Radioactive Solid Waste Processing, and Radioactive Material Handling, Storage, and Transportation

Procedures

| Number      | Title  | Revision |
|-------------|--|----------|
| 75RP-9RP15  | Control and Storage of Radioactive Material and Radioactive Wastes | 30       |
| 76DP-0AP12  | Low Level Radioactive Material Storage Facility Overview           | 3        |
| 76-DP-0RP01 | Radioactive Waste Management Program Overview                      | 7        |
| 76-DP-0RP03 | Radwaste Process Control Program                                   | 9        |
| 76-RP-0RW03 | Waste Stream Sampling and Database Maintenance                     | 2        |
| 76-RP-0RW05 | Packaging and Classification of Radioactive Waste                  | 6        |
| 76-RP-0RW06 | Packaging of Radioactive Material                                  | 5        |
| 76-RP-0RW07 | Shipping Radioactive Materials                                     | 16       |
| 76-RP-0RW08 | High Integrity Container Receipt, Handling, Use, and Closure       | 4        |
| 76-RP-0RW09 | Transfer, Storage and Processing of Radioactive Filters            | 8        |

Procedures

| Number         | Title   | Revision |
|----------------|---|----------|
| 76-RP-0RW10    | Handling and Storage of Radioactively Contaminated Chemical Waste and Mixed Waste | 3        |
| 76-RP-0RW82    | Self-Engaging Rapid Dewatering System (SERDS) Operation                           | 4        |
| 91-DP-0EN50-02 | Waste Stream Characterization Administrative Guideline                            | 0        |

Audits and Self-Assessments

| Number    | Title   | Date       |
|-----------|---|------------|
| 24202     | NUPIC Audit: WMG, Inc.  | 03/18/2016 |
| 24365     | NUPIC Audit: Energy Solutions   | 12/04/2017 |
| 2017-002  | NAD Audit: Procurement and Material Control   | 05/05/2017 |
| 2018-007  | NAD Audit: Radiation Safety   | 12/14/2018 |
| 302-03734 | January 2018 Offsite Safety Review Committee Meeting 18-001, Operations, Chemistry and Radiation Protection Subcommittee Report | 01/26/2018 |

Shipping Packages

|           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|
| 17-RW-004 | 17-SH-036 | 17-SH-055 | 17-SH-068 | 18-RW-009 |
| 18-RW-020 | 18-RW-022 | 18-RW-026 | 18-RW-028 | 18-RW-034 |
| 18-SH-018 | 18-SH-062 |           |           |           |

Condition Reports

|          |          |          |          |          |
|----------|----------|----------|----------|----------|
| 17-02737 | 17-04797 | 17-12153 | 17-13693 | 17-17333 |
| 17-18114 | 18-00790 | 18-03801 | 18-07057 |          |

Surveys

| Survey Number  | Title                                     | Date       |
|----------------|---|------------|
| 0-M-20190110-1 | DAWPS Processing Area Monthly Survey      | 01/10/2019 |
| 0-M-20190110-3 | LLRMSF Monthly Survey                     | 01/10/2019 |
| 0-M-20190102-2 | DAWPS Monthly Yard Survey                 | 01/10/2019 |
| 0-M-20190123-1 | DAWPS Storage Area Monthly Routine Survey | 01/23/2019 |

Sample Analyses

| Type       | Sample ID | Date       |
|------------|-----------|------------|
| Unit 1 DAW | 1-17-042  | 12/28/2018 |
| Unit 2 DAW | 2-17-014  | 12/28/2018 |
| Unit 3 DAW | 3-18-040  | 12/28/2018 |
| Unit 2 Oil | 2-18-037  | 09/01/2017 |

Miscellaneous Documents

| Number       | Title  | Date                      |
|--------------|--|---------------------------|
| NBA11C000113 | Radiation Protection Technician Training Program: Packaging Radioactive Material | 08/14/2018                |
| NBA19C000109 | Radiation Protection Technician Training Program: Shipping Radioactive Material  | 07/31/2015                |
|              | 2016 Annual Radioactive Effluent Release Report                                  | 04/15/2017                |
|              | 2017 Annual Radioactive Effluent Release Report                                  | 04/15/2018                |
|              | Employee Training Records: Shipping Radioactive Material                         | 03/31/2017 and 08/11/2017 |
|              | Waste Control Specialist Generator Certification Approval Letter                 | 11/03/2017 and 09/07/2018 |

71151—Performance Indicator Verification

Miscellaneous Documents

| Number    | Title                                     | Revision |
|-----------|---|----------|
| NEI 99-02 | Regulatory Performance Indicator Document | 7        |

71152—Problem Identification and Resolution

Condition Reports

|          |          |          |          |          |
|----------|----------|----------|----------|----------|
| 19-00802 | 18-18324 | 18-19112 | 18-15793 | 18-18212 |
| 19-02376 | 19-02956 | 19-03063 |          |          |

Work Orders

|         |         |
|---------|---------|
| 4481512 | 5101889 |
|---------|---------|

Procedures

| Number     | Title   | Revision |
|------------|---|----------|
| 36ST-9SA05 | FBEVAS, CREFAS, and CRVIAS 18 month Functional Test | 24       |
| 40OP-9SA01 | BOP ESFAS Modules Operation                         | 32       |
| 40OP-9SA02 | De-Energization of BOP ESFAS                        | 25       |
| 40AL-9RK5A | Panel B05A Alarm Response                           | 2        |
| 40DP-9OP06 | Operations Department Repetitive Task Program       | 130      |

Drawings

| Number       | Title   | Revision |
|--------------|---|----------|
| 01-E-SAB-004 | Elementary Diagram ESF Actuation System BOP-ESFAS Intertying Circuits Train A & Train B | 1        |

Miscellaneous Documents

| Number | Title              | Revision |
|--------|--------------------|----------|
|        | PVNGS Updated FSAR | 19       |

4OA5—Other Activities (IP 60854)

Condition Reports

19-04069

Procedures

| Number                | Title   | Revision |
|-----------------------|---|----------|
| GQP 9.0               | PCI Training, Qualification, Examination, and Certification of NDE Personnel                    | 20       |
| GQP 9.1               | PCI Training, Qualification, Examination, and Certification of Inspection and Testing Personnel | 6        |
| GQP 9.2               | PCI High Temperature Liquid Penetrant Examination and Acceptance Standards for Welds            | 10       |
| GQP 9.7               | PCI Liquid Penetrant Examination and Acceptance Standards for Welds (40 – 125 degrees F)        | 19       |
| GQP 9.6               | PCI Visual Examination of Welds   | 18       |
| 75DC-9SF02            | Radiation Protection for Magnastor  | 0        |
| PI-CNSTR-OP-PV-NMS-01 | Closure Welding of Magnastor Canisters for PV   | 1        |
| 30DP-9MP23            | Foreign Material Exclusion Controls   | 6        |
| MSLT-PCI-PV           | Helium Mass Spectrometer Leak Test Procedure  | 4108-0   |

Design Basis Documents

| Number     | Title   | Revision    |
|------------|---|-------------|
| ISFSI FSAR | NAC Magnastor Final Safety Analysis Report            | 10          |
| CoC 1031   | CoC and Technical Specifications for Magnastor System | Amendment 7 |

Miscellaneous Documents

| Number                    | Title   | Revision or Date |
|---------------------------|---|------------------|
| Q-16A                     | Leak Test Specialist NDE LT Level III Personnel Certificate   | 09/19/2018       |
| SAP #27044                | PCI NDE VT/PT Level II Personnel Certificate  | 01/15/2019       |
| CMTRs                     | Spotcheck Penetrant, SKL-SP2 Spotcheck Developer SKD-S2, SKC-S, and Sherwin Certification for D-100, D-350, KO-17, KO-19 Liquid Penetrant Materials | Various dates    |
| Certificate of Compliance | #915501-02 Various Welding Shims and Wire   | Various dates    |

| Miscellaneous Documents |  | Revision |
|-------------------------|--|----------|
| Number                  | Title  | or Date  |
| 8 MC-GTAW               | PCI Welding Procedure Specification Machine Gas Tungsten Arc Welding | 16       |
| PQR-62                  | PCI Procedure Qualification Record for WPS 8                         | 3        |
| PQE-63                  | PCI Procedure Qualification Record for Manual GTAW                   | 6        |
| PQR-600                 | PCI Procedure Qualification Record for Machine GTAW                  | 8        |
| PQR-899                 | PCI Procedure Qualification Record for Machine 8 GTAW                | 4        |

**The following items are requested for the  
Public Radiation Safety Inspection  
at Palo Verde**

**Dates of Inspection: 02/04/2019 to 02/08/2019**

**Integrated Report 2019001**

Inspection areas are listed in the attachments below.

Please provide the requested information on or before **Monday, January 21, 2019**.

Please submit this information using the same lettering system as below. For example, all contacts and phone numbers for Inspection Procedure 71124.05 should be in a file/folder titled "5-A," applicable organization charts in file/folder "5-B," etc.

The information should be provided in electronic format or a secure document management service. If information is placed on a *secured document management system*, please ensure the inspection exit date entered is at least 30 days later than the onsite inspection dates, so the inspectors will have access to the information while writing the report.

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

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

If you have any questions or comments, please contact Natasha Greene at 817-200-1154 or via e-mail at [Natasha.Greene@nrc.gov](mailto:Natasha.Greene@nrc.gov).

**PAPERWORK REDUCTION ACT STATEMENT**

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



**5. Radiation Monitoring Instrumentation (71124.05)**

Date of Last Inspection: **January 23, 2017**

- A. List of contacts and telephone numbers for the following areas below. Please include area code and prefix. If work cell numbers are appropriate, then please include them as well.
1. Process monitor calibration (Include Chemistry, Systems Engineering and I&C, as applicable)
  2. Radiation protection instrument calibration (Portable and Stationary)
  3. Installed instrument calibrations (Include Systems Engineering and I&C)
  4. Count room and Laboratory instrument calibrations (Include RP and Chemistry, as applicable)
  5. EP contacts for Equipment Important to Emergency Response/Preparedness (EITER)
  6. Licensing/Regulatory Affairs
- B. Applicable organization charts, including position or job titles. Please include as appropriate for your site, Site Management, RP, Chemistry, Maintenance (I&C), Engineering, and Emergency Protection. (Recent pictures are appreciated.)
- C. Copies of audits, self-assessments, vendor or NUPIC audits for contractor support, LARs, and LERs, performed since the date of the last inspection, related to:
1. Portable Radiation instruments: Area radiation monitors, portable continuous air monitors (AMS3/4), portable survey instruments (count rate, dose rate, occupational air sampling), electronic dosimeters, teledosimetry
  2. Stationary Radiation Instruments: Portal monitors, small article monitors, personnel contamination monitors, or whole body counters
  3. Installed Radiation Instruments: Area radiation monitors (RMS), process monitors (non-effluent), criticality monitors, accident monitors
  4. Count Room instrumentation (Chemistry and RP, if separate RP Ops and Effluents): Gamma Spec, LSC, Gross Alpha, Gross Beta, including bench-top counters
- D. Procedure indexes for radiation protection procedures and other related disciplines.
1. Calibration, use, and operation of continuous air monitors, portable survey instruments, temporary area radiation monitors, electronic dosimeters, teledosimetry
  2. Calibration use and operation of portal monitors, small article monitors, personnel contamination monitors, and whole body counters
  3. Calibration of installed area radiation monitors, process monitors, criticality monitors, and accident monitors
  4. Calibration use and operation of Count Room instrumentation (GS, LSC, GA, GB) (include bench top counters here)  
NOTE: Please ensure that RP, Chemistry, and I&C procedures are included, as appropriate.
- E. Please provide specific procedures related to the following areas noted below. Additional procedures may be requested by number after the inspector reviews the procedure index.
1. Calibration of portable ion chambers
  2. Calibration of Friskers
  3. Calibration of telescoping high range instruments

4. Calibration of portable neutron instruments
  5. Calibration of SAMs
  6. Whole body counter calibration
  7. Laboratory instrumentation quality control
  8. Calibration of Containment/Drywell high range radiation monitor
- F. Please provide a list of NRC Regulatory Guides and NUREGs that you are currently committed to relative to this program. Please include the revision and/or date for the commitment and where this may be located in your current licensing basis documents.
- G. Please provide a summary list of corrective action documents (including corporate and sub-tiered systems) written since the date of the last inspection, related to the following programs:
1. Area radiation monitors, continuous air monitors, portable survey instruments, electronic dosimeters, and teledosimetry
  2. Portal monitors, small article monitors, personnel contamination monitors, and whole body counters
  3. Installed radiation monitors, criticality monitors, accident range monitors
  4. Count room radiation instruments
- NOTE: These lists should include a description of the condition that provides sufficient detail that the inspectors can ascertain the regulatory impact, the significance level assigned to the condition, the status of the action (e.g., open, working, closed, etc.) and the search criteria used. Please provide in document formats which are "sortable" and "searchable" so that inspectors can quickly and efficiently determine appropriate sampling and perform word searches, as needed. (Excel spreadsheets are the preferred format.) If codes are used, please provide a legend for each column where a code is used.
- H. State the required calibration frequency and provide the most recent calibration data for the whole body counters, at least one portable survey instrument, one area radiation monitor, one air sampler, one continuous air monitor, and one drywell/containment high-range monitor.
- I. Provide a list of any scheduled calibrations, while we are onsite, for the instrumentation noted in request above, in 5-I.
- J. Provide the alarm set point values for the portal and personnel contamination monitors in operation.
- K. Radiation Monitoring System health report for the previous 12 months
- L. Provide the following lists of instruments to include make, model, identifier (S/N or plant ID), and location:
1. Portable radiation instruments currently in use (for EADs just make, model, and quantity).
  2. Stationary radiation instruments currently in use.
  3. Installed Radiation monitors
    - a. Area radiation monitors and
    - b. Process radiation monitors.
 (Include their instrumentation designator, function and calibration procedure number and title.) Please indicate which, if any, detectors have been

- replaced within the past 2 years (since the last inspection).
- c. Radiation instrumentation abandoned in place.
- d. Radiation instrumentation covered by the maintenance rule.

- M. Provide a list of sources used routinely for source check of portable, stationary, and installed radiation monitoring instruments.
- N. Provide the NIST traceability and calibration or verification of the primary sources for instrument calibration and the procedures used to achieve this.

**6. Radioactive Gaseous and Liquid Effluent Treatment (71124.06)**

Date of Last Inspection: **January 23, 2017**

- A. List of contacts and telephone numbers for the following areas. Please include area code and prefix. If work cell numbers are appropriate, then please include them as well.
  - 1. Radiological effluent control (liquid & gaseous) and reporting (RP, Chemistry, RW, Ops, etc.)
  - 2. Effluent Monitor calibration (liquid and gaseous) and maintenance (RP, Chemistry, I&C, Maintenance, Systems Engineering, EP, etc.)
  - 3. Engineered safety feature air cleaning systems for effluent release (Systems Engineering, I&C, Maintenance, etc.)
  - 4. Licensing/Regulatory Affairs
- B. Applicable organization charts including position or job titles for the above individuals and also for their supportive Management. Please include as appropriate for your site, Site Management, RP, Chemistry, Maintenance (I&C), Engineering, and Emergency Protection. (Recent pictures are appreciated.)
- C. Copies of audits, self-assessments, vendor or NUPIC audits of contractor support, and LERs written since the date of the last inspection, related to:
  - 1. Radioactive effluents and effluent radiation monitors
  - 2. Engineered Safety Feature Air cleaning systems
- D. Procedure indexes for the following areas and related disciplines.
  - 1. Radioactive effluents and effluent radiation monitors (to include the flow monitors)
  - 2. Engineered Safety Feature Air cleaning systems (both TS and non-TS systems for effluents)
- E. Please provide specific procedures related to the following areas noted below. Additional procedures may be requested by number after the inspector reviews the procedure indexes.
  - 1. Sampling and analysis of radioactive effluents
  - 2. Effluent monitor setpoint determination
  - 3. Generating radioactive effluent release permits
  - 4. Effluent Monitor Calibrations (Include associated flow monitors)
  - 5. Laboratory instrumentation quality control
  - 6. In-place testing of HEPA filters and charcoal adsorbers for TS effluent exhaust systems and other effluent air-cleaning systems, but not breathing air systems

- F. Please provide a list of NRC Regulatory Guides and NUREGs that you are currently committed to relative to this program. Please include the revision and/or date for the commitment and where this may be located in your current licensing basis documents.
- G. Please provide a summary list of corrective action documents (including corporate and sub-tiered systems) written since the date of the last inspection, associated with:
1. Radioactive effluents
  2. Effluent radiation monitors (include associated effluent flow monitors)
  3. Engineered Safety Feature Air cleaning systems (effluents, not breathing air)  
NOTE: These lists should include a description of the condition that provides sufficient detail that the inspectors can ascertain the regulatory impact, the significance level assigned to the condition, the status of the action (e.g., open, working, closed, etc.) and the search criteria used. Please provide in document formats which are "sortable" and "searchable" so that inspectors can quickly and efficiently determine appropriate sampling and perform word searches, as needed. (Excel spreadsheets are the preferred format.) If codes are used, please provide a legend for each column where a code is used.
- H. Annual Radioactive Effluent Release Reports for the latest two calendar years
- I. Current revision of the Offsite Dose Calculation Manual (or other name, but include all parts for effluents) and any changes made since the last inspection.
- J. The inter-laboratory comparison results for laboratory quality control performance of effluent sample analysis for the latest two calendar years
- K. Effluent sampling schedule for the week of the inspection
- L. Provide the last three annual trends of vent/stack effluent flow rates, by chart or table.
- M. Operations department (or other responsible dept.) log records for effluent monitors removed from service or out of service or a list of the same and compensatory actions taken during the out of service condition.
- N. Listing or log of liquid and gaseous release permits since the date of the last inspection
- O. A list of the technical specification-required air cleaning systems with the two most recent surveillance test dates of in-place filter testing (of HEPA filters and charcoal adsorbers) and laboratory testing (of charcoal efficiency) and the work order numbers associated with the surveillances (and their system number/name).
- P. System Health Report for radiation monitoring instrumentation. Also, please provide a specific list of all effluent radiation monitors that were considered inoperable for 7 days or more since the date of the last inspection. If applicable, please provide the relative Special Report and condition report(s). If not covered by maintenance rule, please provide rationale.
- Q. A list of significant changes made to the gaseous and liquid effluent process monitoring system since the date of the last inspection. If applicable, please provide the corresponding UFSAR section in which this change was documented.

- R. A list of any occurrence in which a non-radioactive system was contaminated by a radioactive system since the date of the last inspection. Please include any relevant condition report(s).
- S. Current Part 61 analyses for hard to detect radionuclides
- T. Latest Land Use Census (coordinate with 71124.07)
- U. Effluent based procedures for EALs or EOPs.

**7. Radiological Environmental Monitoring Program (71124.07)**

Date of Last Inspection: **January 23, 2017**

- A. List of contacts and telephone numbers for the following areas. Please include area code and prefix. If work cell numbers are appropriate, then please include them as well.
  1. Radiological environmental monitoring (RP, Chemistry, I&C, etc.)
  2. Meteorological monitoring (RP, Chemistry, EP, I&C, System Engineering, etc.)
  3. Maintenance and calibration of the above equipment
  4. Licensing/Regulatory Affairs
- B. Applicable organization charts including position or job titles. Please include as appropriate for your site, Site Management, RP, Chemistry, Maintenance (I&C), Engineering, and Emergency Protection. (Recent pictures are appreciated.)
- C. Copies of audits, self-assessments, vendor or NUPIC audits of contractor support, and LERs written since the date of the last inspection, related to:
  1. Radiological environmental monitoring program (including contractor environmental laboratory audits, if used to perform environmental program functions)
  2. Environmental TLD processing facility
  3. Meteorological monitoring program
- D. Procedure index for the following areas and other related disciplines.
  1. Radiological environmental monitoring program
  2. Meteorological monitoring program
  3. Maintenance and calibration of related instrumentation, including the meteorological tower
- E. Please provide specific procedures related to the following areas noted below. Additional procedures may be requested by number after the inspector reviews the procedure indexes.
  1. Sampling, collection and preparation of environmental samples
  2. Sample analysis (if performed onsite)
  3. Laboratory instrumentation quality control
  4. Meteorological Tower sensor calibrations
- F. Please provide a list of NRC Regulatory Guides and NUREGs that you are currently committed to relative to this program. Please include the revision and/or date for the commitment and where this may be located in your current licensing basis documents.

- G. Please provide a summary list of corrective action documents (including corporate and sub-tiered systems) written since the date of the last inspection, related to the following programs:
1. Radiological environmental monitoring (include TLDs and air sample pumps or their infrastructure)
  2. Meteorological monitoring (include Met Tower sensors and support equipment)

These lists should include a description of the condition that provides sufficient detail that the inspectors can ascertain the regulatory impact, the significance level assigned to the condition, the status of the action (e.g., open, working, closed, etc.) and the search criteria used. Please provide in document formats which are “sortable” and “searchable” so that inspectors can quickly and efficiently determine appropriate sampling and perform word searches, as needed. (Excel spreadsheets are the preferred format.) If codes are used, please provide a legend for each column where a code is used.

- H. Copies of the two most recent calibration packages for the meteorological tower instruments
- I. Copies of the Annual Radiological Environmental Operating Reports and Land Use Census for the latest two calendar years, and current revision of the Offsite Dose Calculation Manual. Please include any supportive documentation for the changes made to the ODCM since the last inspection.
- J. Copy of the environmental laboratory’s inter-laboratory comparison program results for the latest two calendar years, if not included in the Annual Radiological Environmental Operating Report
- K. Data from the environmental laboratory documenting the analytical detection sensitivities for the various environmental sample media (i.e., air, water, soil, vegetation, and milk)
- L. Quality Assurance audits (e.g., NUPIC) for contracted services
- M. Current NEI Groundwater Protection Initiative (GPI) Plan and status. Provide the most recent monitoring results for each monitoring well per the GPI. Provide a separate list of any missed samples, as applicable.
- N. Technical requirements manual or licensee controlled specifications which list the meteorological instruments’ calibration requirements
- O. If applicable, per NEI 07-07, provide any reports that document any spills/leaks to groundwater since the date of the last inspection. Please indicate what external communications were made regarding each spill/leak.
- P. Provide any new entries into 10 CFR 50.75(g) files since the date of the last inspection.
- Q. Please identify your three *highest X/Q* (chi/Q) and/or D/Q sectors, as currently used in the selection of your required REMP sampling locations. If these are *different* values from your most recent meteorological assessment, please provide that assessment and indicate the three *highest X/Q* and/or D/Q sectors per your latest assessment. Also indicate your noted *predominant* and *least prevalent* wind direction/sector, as used in your REMP analysis.

- R. Provide the height of the highest effluent release point. Please indicate if the height accounts for plant grade elevation. Please also provide the *most probable* atmospheric release height, if different from the highest effluent release point.
- S. Please provide a schedule of any planned REMP sampling activities while we, the NRC, are scheduled to be onsite performing this inspection.

**8. Radioactive Solid Waste Processing, and Radioactive Material Handling, Storage, and Transportation (71124.08)**

Date of Last Inspection: **January 23, 2017**

- A. List of contacts and telephone numbers for the following areas. Please include area code and prefix. If work cell numbers are appropriate, then please include them as well.
  - 1. Solid Radioactive waste processing (RP, Chemistry, Ops, Maintenance, I&C, Engineering, etc.)
  - 2. Transportation of radioactive material/waste (RP, Maintenance, Ops, Security, Chemistry, etc.)
  - 3. personnel involved in solid radwaste processing, transferring, and transportation of radioactive waste/materials)
  - 4. Licensing/Regulatory Affairs
- B. Applicable organization charts including position or job titles. Please include as appropriate for your site, Site Management, RP, Chemistry, Maintenance (I&C), Engineering, and Emergency Protection. (Recent pictures are appreciated.)
- C. Copies of audits, department self-assessments, and LERs written since the date of the last inspection, related to:
  - 1. Solid radioactive waste management
  - 2. Radioactive material/waste transportation program
- D. Procedure index for the following areas and other related disciplines.
  - 1. Solid radioactive waste management
  - 2. Radioactive material/waste transportation
- E. Please provide specific procedures related to the following areas noted below. Additional procedures may be requested by number after the inspector reviews the procedure indexes.
  - 1. Process control program and any changes made since the last inspection
  - 2. Solid and liquid radioactive waste processing
  - 3. Waste stream sampling and analysis
  - 4. Waste characterization and classification
  - 5. Radioactive material/waste packaging & shipping
- F. Please provide a list of NRC Regulatory Guides and NUREGs that you are currently committed to relative to this program. Please include the revision and/or date for the commitment and where this may be located in your current licensing basis documents.
- G. Please provide a summary list of corrective action documents (including corporate and sub-tiered systems) written since the date of the last inspection, related to:

1. Solid radioactive waste
2. Transportation of radioactive material/waste

NOTE: These lists should include a description of the condition that provides sufficient detail that the inspectors can ascertain the regulatory impact, the significance level assigned to the condition, the status of the action (e.g., open, working, closed, etc.) and the search criteria used. Please provide in document formats which are “sortable” and “searchable” so that inspectors can quickly and efficiently determine appropriate sampling and perform word searches, as needed. (Excel spreadsheets are the preferred format.) If codes are used, please provide a legend for each column where a code is used.

- H. Copies of training lesson plans for 49 CFR 172, Subpart H, for radwaste processing, packaging, and shipping
- I. Provide a summary list or log of radioactive material and radioactive waste shipments for the two most recent calendar years, in addition to the current calendar year.
- J. Please provide at least two different radioactive waste stream sample analysis results and resulting scaling factors for the latest two calendar years.
- K. A listing of all onsite radwaste storage facilities. Please include a summary or list of the items stored in each facility with the most recent dose rates/surveys.
- L. A list of any significant (e.g., DAW, resins, Type B or greater) radioactive shipments that will be completed during our onsite inspection period. If available, please provide the applicable shipping manifests/waste characterizations and most recent surveys for each shipment.
- M. A list of significant changes made to the liquid or solid radwaste processing systems since the date of the last inspection. If applicable, please provide the corresponding UFSAR section in which this change was documented. Provide any supportive documentation for the changes made or have it readily available for review.
- N. List of radioactive waste processing systems or equipment abandoned in place since the last inspection.
- O. Please provide a schedule of radioactive material or waste processing or shipment activities during the inspection week. Please indicate the current storage location of the stored RAM or waste prepared for shipment, as well as any supportive surveys of its measured dose rates. If available, please indicate its current stated waste class.



PALO VERDE NUCLEAR GENERATING STATION – NRC INTEGRATED INSPECTION  
 REPORT 05000528/2019001, 05000529/2019001, 05000530/2019001, AND  
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