



10 CFR 50.73

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102-07764-MLL/SPD
August 22, 2018

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Dear Sirs:

Subject: **Palo Verde Nuclear Generating Station (PVNGS) Unit 1**
Docket No. STN 50-528 / License No. NPF 74
Licensee Event Report 2018-004-01

Enclosed please find Licensee Event Report (LER) 50-528/2018-004-01 that has been prepared and submitted pursuant to 10 CFR 50.73. This LER supplement provides the cause and corrective actions for a previously reported inoperable Engineered Safety Feature Pump Room Exhaust Air Cleanup System Air Filtration Unit.

In accordance with 10 CFR 50.4, copies of this LER supplement are being forwarded to the Nuclear Regulatory Commission (NRC) Regional Office, NRC Region IV, and the Senior Resident Inspector.

Arizona Public Service Company makes no commitments in this letter. If you have questions regarding this submittal, please contact Matthew Kura, Nuclear Regulatory Affairs Department Leader, at (623) 393-5379.

Sincerely,

A handwritten signature in blue ink, appearing to read "Maria L. Lecal", is written over a faint, larger blue ink signature that reads "Maria L. Lecal".

MLL/SPD

Enclosure

cc:	K. M. Kennedy	NRC Region IV Regional Administrator
	M. D. Orenak	NRC NRR Project Manager for PVNGS
	C. A. Peabody	NRC Senior Resident Inspector PVNGS

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LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form
<http://www.nrc.gov/reading-mv/doc-collections/nuregs/staff/sr1022/r3/>)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. Facility Name Palo Verde Nuclear Generating Station (PVNGS) Unit 1	2. Docket Number 05000528	3. Page 1 OF 3
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4. Title
Engineered Safety Feature Pump Room Exhaust Air Cleanup System Failure Resulting in a Condition Prohibited by Technical Specifications

5. Event Date			6. LER Number			7. Report Date			8. Other Facilities Involved	
Month	Day	Year	Year	Sequential Number	Rev No.	Month	Day	Year	Facility Name	Docket Number
05	17	2018	2018	004	01	08	22	2018	Facility Name	Docket Number
										05000
									Facility Name	Docket Number
										05000

9. Operating Mode 1	11. This Report Is Submitted Pursuant to the Requirements of 10 CFR §: (Check all that apply)			
	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
10. Power Level 100	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.77(a)(1)
	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 73.77(a)(2)(ii)
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(iii)
<input type="checkbox"/> 50.73(a)(2)(i)(C) <input type="checkbox"/> Other (Specify in Abstract below or in NRC Form 366A)				

12. Licensee Contact for this LER

Licensee Contact

Matthew Kura, Department Leader, Nuclear Regulatory Affairs

Telephone Number (include Area Code)

623-393-5379

13. Complete One Line for each Component Failure Described in this Report

Cause	System	Component	Manufacturer	Reportable To ICES	Cause	System	Component	Manufacturer	Reportable To ICES
X	VG	FLT	C733	Y					

14. Supplemental Report Expected☐ Yes (If yes, complete 15. Expected Submission Date) ☒ No**15. Expected Submission Date**

Month Day Year

Abstract (Limit to 1400 spaces, i.e., approximately 14 single-spaced typewritten lines)

On May 17, 2018, PVNGS Unit 1 received "A" train (1A) Engineered Safety Feature (ESF) Pump Room Exhaust Air Cleanup System (PREACS) Air Filtration Unit (AFU) carbon sample test results that exceeded the acceptance criteria of the Technical Specification (TS) Ventilation Filter Testing Program. The Unit 1 Control Room (CR) staff declared the AFU inoperable and entered TS Limiting Condition for Operation (LCO) 3.7.13, ESF PREACS. The carbon filter replacement and testing was completed on May 18, 2018, and the Unit 1 CR staff declared the 1A ESF PREACS AFU operable.

The 1A ESF PREACS AFU was inoperable since the date the initial carbon sample was drawn on May 10, 2018. The duration exceeded the Required Action Completion Time for Conditions A and B of LCO 3.7.13 that expired on May 17, 2018. The cause of the event was accelerated degradation of the carbon filter after the filter efficiency decreased below 99 percent.

Corrective actions include revision of the current filter testing procedure to ensure safety related carbon filters are proactively replaced or tested more frequently when filter efficiency decreases below 99 percent.

PVNGS reported a similar event on September 19, 2016, due to a Unit 3 Control Room Essential Filtration System (CREFS) AFU carbon sample test result exceeding acceptance criteria resulting in a condition prohibited by TS LCO 3.7.11, CREFS (LER 2016-001-00). The cause of this event was exposure to a high amount of volatile organic compounds from a CR renovation project.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

(See NUREG-1022, R.3 for instruction and guidance for completing this form
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to InfoCollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOF-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
Palo Verde Nuclear Generating Station (PVNGS) Unit 1	05000-528	YEAR	SEQUENTIAL NUMBER	REV NO.
		2018	- 004	- 01

NARRATIVE

All times are Mountain Standard Time and approximate unless otherwise indicated.

1. REPORTING REQUIREMENT(S):

This Licensee Event Report (LER) is being submitted pursuant to 10 CFR 50.73(a)(2)(i)(B) to report a condition prohibited by Technical Specification (TS) Limiting Condition for Operation (LCO) 3.7.13, Engineered Safety Feature (ESF) Pump Room Exhaust Air Cleanup System (PREACS)(EIS:VG). PVNGS Unit 1 received "A" train (1A) ESF PREACS Air Filtration Unit (AFU) carbon sample test results that exceeded TS 5.5.11, Ventilation Filter Testing Program (VFTP) acceptance criteria on May 17, 2018, for a sample obtained on May 10, 2018.

The 1A ESF PREACS AFU was inoperable since May 10, 2018, which exceeded the Required Action Completion Time for Conditions A and B of LCO 3.7.13 that expired on May 17, 2018.

2. DESCRIPTION OF STRUCTURE(S), SYSTEM(S) AND COMPONENT(S):

Two separate heating, ventilation, and air conditioning (HVAC) systems are provided for the Fuel Building. The normal system is a once-through air system and functions during normal plant operation only. The essential system is a filtered exhaust system and functions only in the event of a fuel handling accident, a loss of coolant accident (LOCA), or during required testing.

The Fuel Building HVAC system is designed to maintain an environment to ensure the operability of Fuel Building equipment and to provide the required ventilation to maintain the level of airborne radioactivity below permissible limits.

The Fuel Building and Auxiliary Building Essential AFUs are designed to exhaust the Fuel Building air during a fuel handling accident and maintain the building at a slight negative pressure to avoid spread of radioactive contamination. These AFUs also provide filtration for the essential pump rooms (PREACS function), located below the 100 foot elevation of the Auxiliary Building, during a LOCA and maintain them at slight negative pressure compared to the adjacent areas.

The Fuel Building and Auxiliary Building Essential AFUs are designed with a fan, pre-filter, two High-Efficiency Particulate Air (HEPA) filters and a carbon adsorption filter. The purpose of the carbon filter is to filter out radioiodine during postulated accident situations via a chemical reaction between the iodine and the activated carbon.

The carbon is tested every 18 months in accordance with TS Surveillance Requirements. This surveillance requirement involves sending a representative carbon sample to a laboratory for testing per ASTM D3803-1989, Standard Test Method for Nuclear-Grade Activated Carbon.

Technical Specification LCO 3.7.13 requires two ESF PREACS trains be operable during Modes 1, 2, 3, and 4. The Required Action for Condition A, for a single inoperable train, specifies restoration of the inoperable train within 7 days. Condition B requires entry into Mode 3 within 6 hours and be in Mode 5 within 36 hours if the Required Action and associated completion time is not met.

3. INITIAL PLANT CONDITIONS:

On May 17, 2018, PVNGS Unit 1 was in Mode 1 (Power Operation), at 100 percent power, normal operating temperature and pressure. There were no other structures, systems, or components out of service that contributed to this event.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
Palo Verde Nuclear Generating Station (PVNGS) Unit 1	05000-528	YEAR	SEQUENTIAL NUMBER	REV NO.
		2018	- 004	- 01

4. EVENT DESCRIPTION:

On May 17, 2018, PVNGS Unit 1 received "A" train (1A) ESF PREACS AFU carbon sample test results that exceeded the acceptance criteria of the TS VFTP. The Unit 1 Control Room (CR) staff declared the AFU inoperable and entered TS Limiting Condition for Operation (LCO) 3.7.13, ESF PREACS.

The initial sample result departed from the expected carbon efficiency trend and a second carbon sample was obtained on May 17, 2018, and sent offsite for testing. The results of the second sample test were received on May 19, 2018, and this sample also exceeded the TS VFTP acceptance criteria. The carbon filter replacement and testing was completed on May 18, 2018 and the Unit 1 CR staff declared the 1A ESF PREACS AFU operable.

The 1A ESF PREACS AFU was inoperable since May 10, 2018, which exceeded the Required Action Completion Time for Conditions A and B of LCO 3.7.13 that expired on May 17, 2018.

5. ASSESSMENT OF SAFETY CONSEQUENCES:

This event did not result in a potential transient more severe than those analyzed in the Updated Final Safety Analysis Report (UFSAR) or result in an abnormal release of radioactive materials to the environment. There were no actual safety consequences as a result of this event and the event did not adversely affect the health and safety of the public. The event would not have prevented the fulfillment of a safety function and the condition did not result in a safety system functional failure as defined by 10 CFR 50.73 (a)(2)(v).

6. CAUSE OF THE EVENT:

The cause of the event was accelerated degradation of the carbon filter after the filter efficiency decreased below 99 percent.

7. CORRECTIVE ACTIONS:

As an immediate corrective action, the 1A ESF PREACS AFU carbon filter was replaced, testing was completed, and the system was declared operable on May 18, 2018. Additionally, PVNGS will be revising the current filter testing procedure to ensure safety related carbon filters are proactively replaced or tested more frequently when filter efficiency decreases below 99 percent.

8. PREVIOUS SIMILAR EVENTS:

PVNGS reported a similar event on September 19, 2016, due to a Unit 3 CR Essential Filtration System (CREFS) AFU carbon sample test result exceeding acceptance criteria resulting in a condition prohibited by TS LCO 3.7.11, CREFS (LER 2016-001-00). The cause of this event was exposure to a high amount of volatile organic compounds from a CR renovation project.