



**Palo Verde  
Nuclear Generating Station**  
5871 S. Wintersburg Road  
Tonopah, AZ 85354  
Mail Station 7636  
Tel 623.393.5764

102-08364-TNW/MSC  
December 3, 2021

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

**Subject: Palo Verde Nuclear Generating Station Units 1, 2, and 3  
Renewed Operating License Nos. NPF-41, NPF-51, and NPF-74  
Docket Nos. STN 50-528, STN 50-529 and STN 50-530  
Snubber Program for the Fourth 10-Year Testing Interval**

In accordance with American Society of Mechanical Engineers Code for Operation and Maintenance of Nuclear Power Plants (ASME OM Code), Subparagraph ISTA-3200(a), Inservice Testing (IST) Plans shall be filed with the regulatory authorities having jurisdiction at the plant site. Arizona Public Service Company (APS) submitted a copy of the Palo Verde Nuclear Generating Station (PVNGS) Units 1, 2, and 3 Fourth 10-Year Interval Pump and Valve IST Program on March 30, 2018, [Agency Documents Access and Management System Accession number ML18093A335]. The Snubber Program Plan was not included with the letter and this oversight was captured in the PVNGS corrective action program. APS is submitting this letter to provide the Snubber Program Plan for the Fourth 10-Year Interval.

No commitments are being made to the Nuclear Regulatory Commission (NRC) by this letter. Should you need further information regarding this submittal, please contact Matthew S. Cox, Licensing Section Leader, at (623) 393-5753.

Sincerely,

**Weber, Thomas**  
**N(Z00499)**

Digitally signed by Weber,  
Thomas N(Z00499)  
Date: 2021.12.03 13:06:04  
-07'00'

Thomas N. Weber  
Director, Nuclear Regulatory Affairs

TNW/MSC/NTA/mg

Enclosure: Palo Verde Snubber IST Program Plan

cc:

S. A. Morris	NRC Region IV Regional Administrator
S.P. Lingam	NRC NRR Project Manager for PVNGS
L. N. Merker	NRC Senior Resident Inspector for PVNGS

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**Palo Verde Snubber IST Program Plan**

Palo Verde Snubber IST Program Plan

73DP-9XI11

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**Procedure Preparer:**  
Jessica Lane

**Owning Unit and Unit Name:**  
9725, Component Programs

**Procedure Usage Requirements**

**Sections**

Information Use:

Refer To 01DP-0AP09,  
Procedure and Work Instruction Use and Adherence.

ALL

Approved by:

**Liu, Francis**  
**(Z10662)**

Digitally signed by  
Liu, Francis (Z10662)  
Date: 2021.09.30  
14:34:40 -07'00'

Effective Date on File

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## 1.0 PURPOSE AND SCOPE

### 1.1 Purpose

- 1.1.1 This document provides the general requirements, as set forth in the ASME OM Code, Subsection ISTD, for the performance and administration of assessing the operational readiness of dynamic restraints (Snubbers). These requirements include Visual Examinations, Functional Testing and Service Life Monitoring.
- 1.1.2 This document references plant procedures and surveillances that implement specific requirements of the IST Snubber Program at Palo Verde Generating Station Units 1, 2 and 3.
- A. The Fourth 10-Year IST Interval began on January 15, 2018 for each of the three Units and is currently scheduled to end on January 14, 2028.
- B. The commercial dates for the units, dockets and operating license numbers are as follows:
1. Unit 1: 1/28/1986, Docket STN 50-528, Operating License NPF-41
  2. Unit 2: 9/19/1986, Docket STN 50-529, Operating License NPF-51
  3. Unit 3: 1/8/1988, Docket STN 50-530, Operating License NPF-74
- 1.1.3 This procedure supports the Engineering Programs Program (PR-0501) within the Optimize Equipment Reliability Program Area (PA-0500).

### 1.2 Scope

- 1.2.1 This program applies to the snubber engineer for snubber inservice testing.
- 1.2.2 This procedure applies to all engineering and maintenance activities affecting snubbers determined to be included in the IST Snubber Program.
- 1.2.3 Snubbers excluded from the IST Snubber Program are snubbers installed on nonsafety related systems, and then only if snubber failure, or the failure of the system on which the snubbers are installed, will have no adverse effect on any safety related system.



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## 2.0 RESPONSIBILITIES

### 2.1 Snubber Engineer

- 2.1.1 Maintains qualifications per Work Assignment "ENG:SCTN XI SNUBBER PRGM" per Job Qualification Card ESP02-XX-003, Section XI Snubber Program.
- 2.1.2 Controls inspection and testing of all IST program snubbers.
- 2.1.3 Generates and maintains the Surveillance Test Procedures necessary to satisfy ISTD requirements.
- 2.1.4 Performs technical review of the visual and functional test results.
- 2.1.5 Provides technical support in the event of a snubber failure and initiates the appropriate documents (that is, CR or Work Orders). Also, if necessary, generates scope expansion.
- 2.1.6 Performs snubber operability determinations, evaluates functional test results and performs failure analysis of all failed snubbers, per ISTD requirements and initiates appropriate corrective actions.
- 2.1.7 Maintains a record of snubber related Surveillance Testing data to monitor failures and degradation of snubbers and establish a Service Life Program.
- 2.1.8 Processes completed Surveillance Test Packages per 73DP-9ZZ14, Surveillance Testing.
- 2.1.9 Controls the software used to test the snubbers. Issues a copy of scope to the machine operator.
- 2.1.10 Ensures that vendors providing personnel for testing, inspection, operation of test machines, or any other activities related to snubbers meet the qualification requirements specified in this procedure.
- 2.1.11 Reviews Maintenance test procedures associated with Hydraulic and Mechanical snubbers.

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0**3.0 DEFINITIONS**

- 3.1 **Defined Test Plan Group (DTPG)** — A population of snubbers from which samples are selected for testing.
- 3.2 **Examination** — Observing, visual monitoring or measuring to determine conformance to PVGS-specified requirements.
- 3.3 **Hydraulic Snubbers** — Dynamic restraint devices in which load is transmitted through a hydraulic fluid.
- 3.4 **Inaccessible Snubbers** — Snubbers that are in a high radiation area or other conditions that would render accessibility impractical for the snubbers to be examined under normal plant operating conditions without exposing plant personnel to undue hazards.
- 3.5 **Maintenance** — Replacement of parts, adjustments, and similar actions that do not change the design (configuration and material) of an item.
- 3.6 **Mechanical Snubber** — Dynamic restraint devices in which load is transmitted entirely through mechanical component.
- 3.7 **Normal Operating Conditions** — Operating conditions during reactor startup, operating at power, hot standby, reactor cooldown and cold shutdown.
- 3.8 **Operational Readiness Testing** — Measurement of the parameters that verify snubber operational readiness (may also be referred to as “Functional Testing” in Implementation Procedures).
- 3.9 **Repair** — The process of restoring a component to its original design configuration.
- 3.10 **Service Life** — The period of time a snubber is expected to meet the operational readiness requirements without maintenance.
- 3.11 **Snubber** — A device which provides restraint to a component or system during a sudden application of forces but allows essentially free motion during thermal movement.
- 3.12 **Surveillance Testing** — General reference term for inservice and preservice examination, inservice and perservice testing, and service life monitoring activities required by the ASME OM Code.

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## 4.0 INSTRUCTIONS

### 4.1 General

4.1.1 The PVGS IST Snubber Program complies with the requirements of:

- PVGS Technical Specifications
- ASME OM Code 2012 Edition, Section IST, Subsections ISTA and ISTD
- 73DP-9XI01, Pump and Valve Inservice Testing Program for the Fourth 10-Year IST Interval
- Rules for Inservice Inspection of Nuclear Power Plant Components, ASME B&PV Code - Section XI, edition/addenda per the site's applicable ASME Section XI, ISI program, post 2006 Editions and addenda
- 10 CFR 50.55a, Codes and Standards, published in August 2017

4.1.2 The snubber preservice and in-service examination and test plan for the Fourth IST 10-Year Interval was developed per the conditions, clarifications, and requirements of 10 CFR 50.55a that became effective in 2017. The edition and addenda of the ASME OM Code for the Snubber IST Program for the Fourth 10-Year IST Interval is the 2012 Edition, Subsections ISTA & ISTD (the Code), which was the referenced Code in 10 CFR 50.55a, published in August 2017, or 12 months prior to the start of the Fourth IST 10-Year Interval.

- A. The visual examination, service life monitoring and operational readiness (Functional test) testing of all IST Program snubbers at PVGS are implemented per 73DP-9XI10, Snubber Inservice Testing (IST) Program, to assess the required operational readiness of these snubbers during a seismic or other dynamic events.
- B. The Snubber IST Program, as defined within 73DP-9XI10, Snubber Inservice Testing (IST) Program, establishes visual examination, operational readiness testing (Functional test) and service life monitoring requirements, pertaining to all program snubbers that are required for safe shutdown of the reactor, maintaining the safe shutdown condition, mitigating the consequences of an accident, or ensuring the integrity of the reactor coolant pressure boundary.
- C. The snubbers included in this program are identified within 73DP-9XI10, Snubber Inservice Testing (IST) Program, and listed in 73ST-9ZZ22, Mechanical Snubber Function Test.





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D. The IST Snubber Program described in 73DP-9XI10, Snubber Inservice Testing (IST) Program, adheres to the requirements of the ASME OM Code, 2012 Edition, as required by 10CFR50.55a(b)(3)(v)(B).

**4.2 Examination, Testing and Monitoring Requirements**

4.2.1 Visual examinations and operational readiness testing (Functional test) are performed per 73ST-9ZZ21, Snubber Visual Examination, 73ST-9ZZ22, Mechanical Snubber Function Test and 73ST-9ZZ10, Hydraulic Snubber Functional Testing.

**NOTE**

Integral and nonintegral attachments for snubbers are evaluated within the PVGS ISI Program, per the requirements of the ASME Code Section XI.

4.2.2 The examination boundaries are the snubber assembly from pin to pin inclusive.

4.2.3 Snubbers shall be examined, as specified in 73ST-9ZZ21, Snubber Visual Examination, prior to conducting any maintenance, stroking, or testing, and prior to removal, for any reason, from installed location.

4.2.4 The Program Snubbers are grouped into Defined Test Plan Groups (DTPG) by design type, and size, and per ISTD-5250, for testing purposes. The DTPG PVGS are specified in 73DP-9XI10, Snubber Inservice Testing (IST) Program.

4.2.5 The service life of all snubbers in this program are monitored per 73ST-9ZZ23, Service Life Monitoring for Snubbers, to ensure that the service life is not exceeded before the next scheduled system or plant outage, or during a period when a snubber is required to be operationally ready.

4.2.6 The replacement or reconditioning of snubbers are documented, and records retained per PVGS procedures.

**4.3 Examination and Testing Methods**

4.3.1 Visual examinations are performed by individuals qualified per ISTA-1500(e).

4.3.2 Visual examinations and operational readiness testing shall be performed to verify the requirements specified within implementation procedures per the requirements of Subsection ISTD of the ASME OM Code.

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#### 4.4 Examination and Testing Frequency

- 4.4.1 Inservice visual examinations are performed at the frequency specified by 73ST-9ZZ21, Snubber Visual Examination.
- 4.4.2 Inservice operational readiness testing is performed every refueling outage in accordance to 73ST-9ZZ22, Mechanical Snubber Function Test and 73ST-9ZZ10, Hydraulic Snubber Functional Testing.
- 4.4.3 Preservice visual examinations are performed on new and modified systems after placing a system in service as specified in 73ST-9ZZ21, Snubber Visual Examination, per paragraph ISTD-4100 of the ASME OM Code.

#### 4.5 ASME OM Code Case OMN-13

- 4.5.1 Code Case OMN-13 Rev. 2, which allows the extension of the visual examination interval, is approved for use by the NRC in Regulatory Guide 1.192 Rev. 3, may be used during the Fourth 10-Year IST Interval.

#### 4.6 Examination, Testing and Monitoring Evaluation

- 4.6.1 Snubbers that do not appear to conform to the visual examination requirements of 73ST-9ZZ21, Snubber Visual Examination and 73ST-9ZZ10, Hydraulic Snubber Functional Testing are evaluated and appropriate corrective action taken.
- 4.6.2 Snubbers that appear not to conform to visual examination acceptance requirements and are later confirmed as operational as a result of operational readiness testing (Functional testing), may be declared acceptable for the purpose of establishing the next visual examination interval, providing that the unacceptable condition did not affect operational readiness of the snubber.
- 4.6.3 Snubbers that do not meet the operational readiness testing (Functional testing) acceptance criteria are evaluated to determine the cause of the failure and appropriate corrective actions are taken.
- 4.6.4 The service life of every snubber is evaluated at least once each fuel cycle using manufacturing input and engineering information gained through consideration of the snubber service conditions and inservice operational readiness test results per the following:
- 73ST-9ZZ23, Service Life Monitoring for Snubbers
  - 73ST-9ZZ22, Mechanical Snubber Function Test

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0**4.7 Repair, Replacement and Modification Requirements**

- 4.7.1 Repairs, replacements and modifications performed on snubbers under this program shall conform, as applicable, to the requirements specified within the PVGS Repair and Replacement Program and implemented per 73DP-9ZZ17, Repair/Replacement - ASME Section XI.

**4.8 Limiting Condition for Operability (LCO)**

- 4.8.1 Per the requirements of PVGS Technical Specification, paragraph 3.0.8, each safety related snubber shall be operable. Non-safety related snubbers whose failure or failure of the associated system(s) would adversely affect any safety related system shall be functional. The applicability of the LCO is whenever the supported system is required to be operable.

- A. ACTION: Separate condition entry is allowed for each individual snubber. Table 1 is applicable to each condition:

Table 1: LCO ACTION

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required snubber(s) inoperable	A1. Enter LCO 3.0.8	Immediately

**4.9 Scheduling**

- 4.9.1 The Visual examinations and operational readiness testing schedules are established, tracked, and maintained by the Programs Engineering Department.
- 4.9.2 The Snubber Testing Program will identify, and track expanded, or additional testing and/or examinations as specified and required by 73ST-9ZZ22, Mechanical Snubber Function Test, per Subsection ISTD of the ASME OM Code.

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0**4.10 Reports and Records:**

- 4.10.1 Reports and records for the visual examinations and operational readiness testing are maintained on all snubbers in the scope of the program.
- 4.10.2 Applicable records and reports, as required for repair and replacements, are maintained for all snubbers.
- 4.10.3 Records of the service life of all program snubbers listed in this program, including the date at which the service life commences, and associated installation and maintenance records, are maintained.
- 4.10.4 All Surveillance Test records are processed and turned over via 30DP-9WP02, Maintenance Work Order Process and Control.

**5.0 REFERENCES****5.1 Implementing References**

- 5.1.1 30DP-9WP02, Maintenance Work Order Process and Control
- 5.1.2 73DP-9XI10, Snubber Inservice Testing (IST) Program
- 5.1.3 73DP-9ZZ14, Surveillance Testing
- 5.1.4 73DP-9ZZ17, Repair/Replacement - ASME Section XI
- 5.1.5 73ST-9ZZ10, Hydraulic Snubber Functional Testing
- 5.1.6 73ST-9ZZ21, Snubber Visual Examination
- 5.1.7 73ST-9ZZ22, Mechanical Snubber Function Test
- 5.1.8 73ST-9ZZ23, Service Life Monitoring for Snubbers

**5.2 Developmental References**

- 5.2.1 Developmental References listed in the Basis Information.

**6.0 RECORDS**

- 6.1 The following records are generated by this procedure:
  - 6.1.1 None

