



102-08090-BJR/MDD
March 27, 2020

BRUCE J. RASH
Vice President, Nuclear
Engineering

Palo Verde
Nuclear Generating Station
P.O. Box 52034
Phoenix, AZ 85072
Mail Station 7602
Tel 623.393.5102

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

Dear Sirs:

Subject: **Palo Verde Nuclear Generating Station (PVNGS) Unit 2
Docket No. STN 50-529
Renewed Operating License Number NPF-51
Relief Request 65 - Unit 2, COVID-19, Request for Relief from Bottom
Mounted Instrumentation Nozzles and a Pressurizer Nozzle to Surge
Line Weld Overlay Examination**

Pursuant to 10 CFR 50.55a(z)(2), *Hardship without a compensating increase in quality and safety*, Arizona Public Service Company (APS) hereby requests Nuclear Regulatory Commission (NRC) approval to extend scheduled PVNGS inservice inspection (ISI) examinations for the reactor vessel bottom mounted instrumentation (BMI) nozzles and a pressurizer nozzle surge line weld overlay from the currently planned Unit 2 Spring of 2020 refueling outage (2R22) to the next refueling outage (2R23) in the Fall of 2021 due to COVID-19 issues.

The U.S. Federal Government made a COVID-19 declaration of emergency pursuant to the Stafford Act on March 13, 2020. The U.S. Center for Disease Control (CDC) has determined that COVID-19 poses a serious public health risk. The CDC identified the majority of U.S. states reporting community spread of COVID-19. Currently APS is in Stage 2, *Enhanced*, of the Pinnacle West/APS Pandemic Plan. Due to the COVID-19 pandemic, there is a desire to eliminate the potential of inadvertently spreading the COVID-19 virus to PVNGS personnel from outside contractors who perform examinations for the ISI program. Site personnel do not have the capability and equipment to perform BMI and pressurizer nozzle surge line weld overlay examinations. Due to the potential spread of COVID-19 to PVNGS personnel, APS has identified the performance of BMI and pressurizer surge line weld overlay examinations as a hardship without a compensating increase in the level of quality and safety in accordance with 10 CFR 50.55a(z)(2). As an alternative, APS is proposing to delay the inspections for one refueling cycle from 2R22 to 2R23.

These augmented examinations in the Unit 2 ISI program are driven by American Society of Mechanical Engineers (ASME) Code Case N-722-1, and Code Case N-770-2. The BMI examinations required by Code Case N-722-1, Table 1, Item Number B15.80 were last examined in the Spring of 2017 during refueling outage 2R20 and the examination frequency is every other refueling outage.

102-08090-BJR/MDD

ATTN: Document Control Desk

U.S. Nuclear Regulatory Commission

Relief Requests 65 – Unit 2, COVID-19, Request for Relief from Bottom Mounted

Instrumentation Nozzles and a Pressurizer Nozzle to Surge Line Weld Overlay Examination

Page 2

The examination required by Code Case N-770-2 for a full structural overlay is also scheduled for the Spring of 2020 during refueling outage 2R22 for weld 5-34-OL, the Pressurizer nozzle to surge line weld overlay. The last examination for weld 5-34-OL was in the Spring of 2017 during refueling outage 2R20 and the examination frequency is every three years.


A pre-submittal meeting for Relief Request 65 was held between APS and the NRC staff on March 26, 2020. APS requests approval of this relief request prior to commencement of the next Unit 2 refueling outage, currently scheduled to begin April 4, 2020.

No commitments are being made to the NRC by this letter.

Should you need further information regarding this relief request, please contact Matthew S. Cox, Licensing Section Leader, at (623) 393-5753.

Sincerely,

Rash, Bruce
(Z77439)

 Digitally signed by Rash, Bruce
(Z77439)
DN: cn=Rash, Bruce (Z77439)
Date: 2020.03.27 21:34:37 -07'00'

BJR/MDD

Enclosure: Relief Request 65 – Unit 2, COVID-19, Request for Relief from Bottom Mounted Instrumentation Nozzles and a Pressurizer Nozzle to Surge Line Weld Overlay Examination

cc: S. A. Morris
S. P. Lingam
C. A. Peabody

NRC Region IV Regional Administrator
NRC NRR Project Manager for PVNGS
NRC Senior Resident Inspector for PVNGS

Enclosure

Relief Request 65

**Unit 2, COVID-19, Request for Relief from Bottom Mounted
Instrumentation Nozzles and a Pressurizer Nozzle to Surge Line
Weld Overlay Examination**

Enclosure
Relief Request 65
Unit 2, COVID-19, Request for Relief from
Bottom Mounted Instrumentation Nozzles and a
Pressurizer Nozzle to Surge Line Weld Overlay Examination

Background:

The U.S. Federal Government made a COVID-19 declaration of emergency pursuant to the Stafford Act on March 13, 2020. The U.S. Center for Disease Control (CDC) has determined that COVID-19 poses a serious public health risk. The CDC identified the majority of U.S. states reporting community spread of COVID-19. Currently Arizona Public Service Company (APS) is in Stage 2, *Enhanced*, of the Pinnacle West/APS Pandemic Plan. The following guidelines and restrictions are currently in place at APS:

1. Employees who do not have a critical need to be at APS facilities must work remotely
2. Employees who must work from an APS facility are to practice strict social distancing
3. Unit 2 Spring refueling outage (2R22) scope to be reduced to limit the number of supporting contract personnel

Due to the COVID-19 pandemic, APS has reduced the scope of activities being performed in the 2R22 outage by postponing non-essential modification and maintenance work for the purpose of reducing potential inadvertent spread of the COVID-19 virus. The reduction in outage scope will significantly reduce the number of outside contractors (approximately 300) that will be accessing the Palo Verde Nuclear Generating Station (PVNGS) site owner controlled area. Examples of non-essential modification and maintenance work that has been removed from the 2R22 outage scope include, replacement of an engineered safety features (ESF) transformer (non-Class 1E) and a low-pressure feedwater heater, reduction of scope for refurbishment of cooling towers, robotic inspection of spray pond piping, replacement of essential cooling water vent valves, and removal of heated junction thermocouple vented hub and clamps.

Consistent with this initiative, APS is making efforts to reduce the site risk of spreading the coronavirus across PVNGS by also reducing the number of contractors who support the 2R22 outage examinations for the Inservice Inspection (ISI) program. Typical ISI work scope is scheduled so successive examinations are spread out through a 10-year interval to align closely to the previous intervals, as required by the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPVC) Section XI when practicable. Efforts are made to align required examinations with other scheduled maintenance activities. Because the 2R22 outage falls at the beginning of the first period of the fourth 10-year interval of Unit 2, much of the ISI work scope (more than 70 of the 100 plus inspections) can be deferred to the 2R23 outage within the existing APS ISI programmatic controls. However, there are two ISI examinations that require a relief request to defer. Compliance with 10 CFR50.55a, ASME BPVC Section XI and Code Case N-722-1 requires visual examination of the reactor pressure vessel Bottom Mounted Instrumentation (BMI) Nozzle Penetrations every other outage and Code Case N-770-2 requires the pressurizer nozzle surge line weld overlay be examined in 2R22 by certified staff.

Currently APS does not have the internal capability and equipment to perform the required Code Case inspections and, therefore, a qualified vendor must do the examinations.

In light of the COVID-19 pandemic, the BMI and pressurizer surge line weld overlay examinations are requested to be deferred to eliminate outside contract non-destructive examination (NDE) staff and their specialty equipment to travel to PVNGS in support of the ISI program work scope. This relief request addresses deferrals of the regulatory required examinations for the originally scheduled BMI and the pressurizer surge line nozzle weld overlay examinations as a hardship pursuant to 10 CFR50.55a(z)(2) from 2R22, April 2020, to 2R23, October 2021. The BMI relief is presented first in this Enclosure, followed by the pressurizer nozzle to surge line weld overlay relief.

**Enclosure
Relief Request 65**

**Unit 2, COVID-19, Request for Relief from
Bottom Mounted Instrumentation Nozzles and a
Pressurizer Nozzle to Surge Line Weld Overlay Examination**

I. Deferral of Bottom Mounted Instrumentation Examinations

1) ASME Code Component(s) Affected

| | |
|-----------------------|---|
| Components: | Reactor Vessel (RV) Bottom Mounted Instrumentation (BMI) Nozzle Penetration |
| Code Class: | Class 1 |
| Code Case: | N-722-1 (Ref.2) |
| Examination Category: | B-P [Class 1 Pressurizer Water Reactor (PWR) Components Containing Alloy 600/82/182] |
| Item Number | 15.80 |
| Description: | 61 BMI Nozzles welded to the inside surface of the RV with partial penetration J-groove welds |
| Size: | 3 Inch Nominal Nozzle Outside Diameter (OD) at the BMI Nozzle to RV J-Groove Weld |

2) Applicable Code Edition and Addenda

The American Society of Mechanical Engineers (ASME) ISI Code of Record for the fourth 10-year inservice inspection interval for Palo Verde Nuclear Generating Station (PVNGS) Unit 2 is ASME Code, Section XI, 2013 Edition (Ref. 1). Palo Verde Unit 2 entered the fourth inspection interval on November 1, 2018.

3) Applicable Code Requirement

ASME Code Case N-722-1, *Additional Examinations for PWR Pressure Retaining Welds in Class 1 Components Fabricated with Alloy 600/82/182 Materials*, in accordance with 10 CFR 50.55a, *Codes and Standards* (Ref. 2).

4) Reason for Request - 10 CFR 50.55a(z)(2) Hardship

Potential for inadvertent spread of COVID-19 virus by contract inspectors recently traveling to states with reported COVID-19 cases. The U.S. Federal Government has made a COVID-19 declaration of emergency pursuant to the Stafford Act on March 13, 2020. The U.S. Center for Disease Control (CDC) has determined that COVID-19 poses a serious public health risk. The CDC identified the majority of U.S. states reporting community spread of COVID-19. Currently APS is in Stage 2, *Enhanced*, of the Pinnacle West/APS Pandemic Plan. The following guidelines and restrictions are currently in place at APS:

1. Employees who do not have a critical need to be at APS facilities must work remotely
2. Employees who must work from an APS facility are to practice strict social distancing
3. 2R22 scope to be reduced to limit the number of supporting contract personnel

Enclosure
Relief Request 65
Unit 2, COVID-19, Request for Relief from
Bottom Mounted Instrumentation Nozzles and a
Pressurizer Nozzle to Surge Line Weld Overlay Examination

Currently APS does not have the internal capability and equipment to perform the inspection and this must be done by the vendor. The four contractors needed to perform the BMI inspections have recently travelled to states that have confirmed cases of COVID-19.

5) Proposed Alternative and Basis for Use

Proposed Alternative

Delay required inservice inspections by contract personnel from 2R22 to 2R23.

Basis for Use

Code Case N-722-1 requires visual examination of the reactor pressure vessel Bottom Mounted Instrumentation (BMI) Nozzle Penetrations every other outage. The (BMI) visual inspections are performed in order to detect leakage as a result of Primary Water Stress Corrosion Cracking (PWSCC) operating experience (OE). As identified in Reference 3 the inspections are performed to address safety concerns attributed to nozzle ejection as a result of a large circumferential crack below the bottom of the J-groove weld and the structural loss of the ferritic head material due to boric acid wastage.

As part of the design, each BMI nozzle has an anti-ejection collar to prevent nozzle ejection. In addition, APS monitors the sump for leakage to prevent structural loss of the bottom head. Technical Specifications (TS) 3.4.14, *RCS Operational LEAKAGE*, for each Unit, limits system operation in the presence of leakage from Reactor Coolant System (RCS) components to leakage amounts that do not compromise safety. Surveillance Requirement (SR) 3.4.14.1 requires the performance of RCS water inventory balance to verify RCS leakage is within limits to ensure that the integrity of the Reactor Coolant Pressure Boundary (RCPB) is maintained. The RCS water inventory balance surveillance is performed in accordance with SR 3.4.14.1 which utilizes the emergency response facilities data acquisition and display system (ERFDADS) calculation to determine the RCS water inventory balance. The ERFDADS also includes an indicator that provides an iteratively calculated RCS leakage value that is displayed in the control room in various locations to ensure prompt action is taken in accordance with surveillance and plant procedure requirements. The ERFDADS is utilized to support operators in ensuring TS requirements and action levels are not violated should small leakage occur.

In the event that unidentified leakage increases greater than 0.10 gallons per minute (gpm) above the normal, steady state value for a given plant condition during the performance of the RCS water inventory balance, administrative procedures require that the controls and actions for monitoring RCS leakage under the boric acid corrosion control program (BACCP) be implemented. The program also addresses abnormal trends in RCS primary system leakage indicators, which may provide indication of leaks much smaller than TS and RCS leakage levels. APS would investigate the increased leakage and has the ability to shutdown the unit in a controlled manner prior to a nozzle failure, if unacceptable increased leakage were to occur.

**Enclosure
Relief Request 65
Unit 2, COVID-19, Request for Relief from
Bottom Mounted Instrumentation Nozzles and a
Pressurizer Nozzle to Surge Line Weld Overlay Examination**

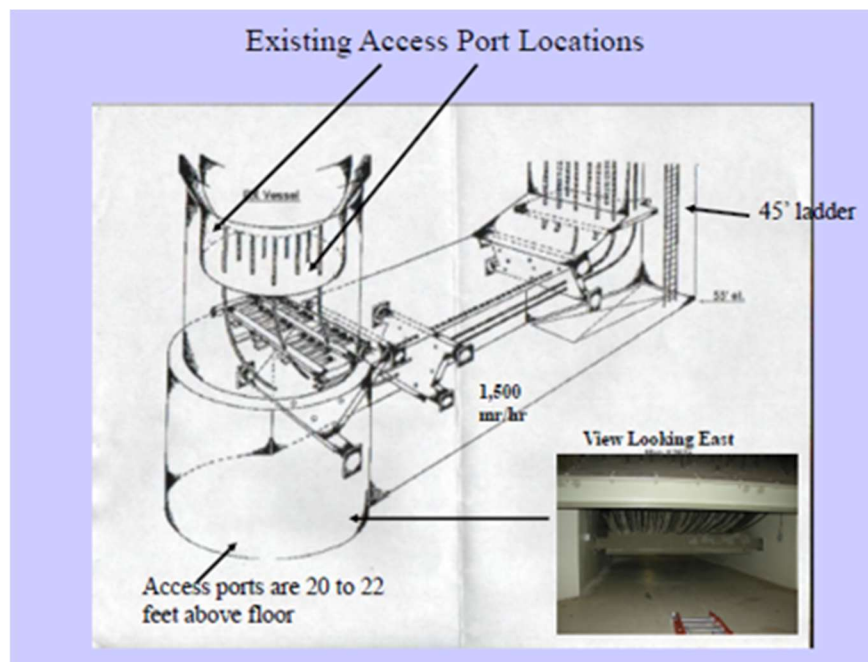
Previous Operating Experience (OE)

On October 6, 2013, leakage in the annulus was discovered in BMI penetration 3 in Unit 3 during refueling outage 3R17. Both ultrasonic testing (UT) and eddy current testing (ECT) examinations of the 60 remaining BMI nozzles showed no unacceptable indications. The ultrasonic examinations performed identified and characterized a group of axially-oriented flaws associated with the nozzle which appeared to have originated in a void of the J-groove weld on the outside diameter (OD) of the BMI nozzle. The longest flaw was approximately 1.88 inches long and the deepest flaw penetrated approximately 0.378 inches into the 1.125 inch nozzle wall. The UT examination inside the bore could not reliably detect or characterize flaws beyond the OD of the nozzle to any measurable depth into the J-groove weld. No flaws were identified on the nozzle inside diameter (ID) as a result of the ECT examination. No circumferential flaws were identified.

The last BMI inspection for Unit 2 was performed in the Spring of 2017 during refueling outage 2R20 with no relevant indications. To date there have been no observed BMI leaks in Unit 2. Since PWSSC can also be attributed to material condition, the heat numbers for the BMI nozzles used in Units 2 and 3 were reviewed. Unit 2 was made from one heat number, which was a different heat number from Unit 3.

Other Considerations

Consideration and feasibility of performing a coarse, long distance visual inspection for the BMI nozzles was considered in preparation of the subject relief request. Below is an image of the location:



The BMI nozzles are in a locked high radiation area. Dose rates in the area are 1000 millirem per hour (mr/hr) or greater. To enter the area personnel must wear a restraint harness and climb down an approximately 45-foot ladder. Confined space permits and an emergency plan

Enclosure
Relief Request 65
Unit 2, COVID-19, Request for Relief from
Bottom Mounted Instrumentation Nozzles and a
Pressurizer Nozzle to Surge Line Weld Overlay Examination

must also be in place prior to entering. Entry windows in the insulation must be opened to obtain access. Only a small subset of nozzles and limited access could be obtained. For dose and coverage concerns a robot is used that can travel along the reactor vessel insulation. Due to personnel safety, dose and visual limitations, no alternative inspections of the nozzles or the general area were determined to be practical during 2R22.

6) Duration of Proposed Alternative

The duration of the request is for the duration of the next Unit 2 operating fuel cycle (2R23), which is Fall 2021.

7) Precedents

None

8) References

1. American Society of Mechanical Engineers Boiler and Pressure Vessel Code Section XI, 2013 Edition supplemented by 10 CFR 50.55a(g)(6)(ii)(E), *Reactor Coolant Pressure Boundary Visual Inspections*
2. ASME Code Case N-722-1, *Additional Examinations for PWR Pressure Retaining Welds in Class 1 Components Fabricated with Alloy 600/82/182 Materials Section XI, Division 1*
3. MRP206, *Inspection and Evaluation Guidelines for Reactor Vessel Bottom-Mounted Nozzles in U.S. PWR Plants*

**Enclosure
Relief Request 65**

**Unit 2, COVID-19, Request for Relief from
Bottom Mounted Instrumentation Nozzles and a
Pressurizer Nozzle to Surge Line Weld Overlay Examination**

II. Deferral of Pressurizer Nozzle to Surge Line Weld Overlay Examinations

1) ASME Code Component(s) Affected

| | |
|-----------------------|---|
| Components: | Pressurizer nozzle to surge line weld overlay Weld 5-34-OL and 20-1-OL |
| Code Class: | Class 1 |
| Code Case: | N-770-2 (Ref. 1) |
| Examination Category: | Class 1 Pressurized Water Reactor (PWR) Pressure Retaining Dissimilar Metal Piping and Vessel Nozzle Butt Welds Containing Alloy 82/182 |
| Item Number | F-1- Cracked butt weld reinforced by full structural weld overlay of Alloy 52/152 materials |
| Description: | Pressurizer weld 5-34-OL encapsulates weld 5-34, the pressurizer surge nozzle to safe end weld and the adjacent weld 20-1, the pressurizer surge nozzle safe end to surge line weld |
| Size: | 12" Nozzle |

Weld 5-34-OL for the Pressurizer Surge Nozzle is a full structural overlay; all examinations for this weld also include the adjacent similar metal weld 20-1-OL.

2) Applicable Code Edition and Addenda

The American Society of Mechanical Engineers (ASME) ISI Code of Record for the fourth 10-year inservice inspection interval for Palo Verde Nuclear Generating Station (PVNGS) Unit 2 is ASME Code, Section XI, 2013 Edition (Ref. 2). Palo Verde Unit 2 entered the fourth inspection interval on November 1, 2018, and currently the ASME Section XI, 2013 Edition is utilized for Appendix VIII, *Performance Demonstration for Ultrasonic Examinations*.

3) Applicable Code Requirements

ASME Code Case N-770-2, *Alternative Examination Requirements and Acceptance Standards for Class 1 PWR Piping and Vessel Nozzle Butt Welds Fabricated With UNS N06082 or UNS W86182 Weld Filler Material With or Without Application of Listed Mitigation Activities Section XI, Division 1*, (Ref. 1)

Item F-1:

Once during the first or second refueling outage following overlay. Weld overlay examination volumes that show no indication of crack growth or new cracking shall be placed into a population to be examined on a sample basis. Twenty-five percent of this population shall be added to the ISI Program in accordance with -2410 and shall be examined once each

Enclosure
Relief Request 65
Unit 2, COVID-19, Request for Relief from
Bottom Mounted Instrumentation Nozzles and a
Pressurizer Nozzle to Surge Line Weld Overlay Examination

inspection interval [Note (10)]. For each overlay in the 25% sample that has an analyzed life of less than 10 years, at least one inservice examination shall be performed prior to exceeding the life of the overlay.

Note 10: The 25% sample shall consist of the same welds in the same sequence during successive intervals to the extent practical provided the 25% sample contains the welds that experience the highest operating temperature in the Inspection Item. If hot leg and cold leg welds are included in the same Inspection Item, the initial 25% sample does not need to include the cold leg welds. Those welds not included in the 25% sample shall be examined prior to the end of the mitigation evaluation period if the plant is to be operated beyond that time.

4) Reason for Request - 10 CFR 50.55a(z)(2) Hardship

Arizona Public Service Company (APS) scheduled an ultrasonic examination for the Pressurizer Surge Nozzle weld overlay, 5-34-OL, in the Unit 2 refueling outage 2R22 in April 2020. Ultrasonic examinations for Code Case N-770-2 overlays are performed by examiners qualified to ASME Section XI Appendix VIII Supplement 11, *Qualification Requirements for Full Structural Overlaid Wrought Austenitic Piping Welds* (Ref. 2). Appendix VIII examinations require a Performance Demonstration Initiative (PDI) certification. No site NDE examiners have the applicable Appendix VIII certification to perform the examination for weld 5-34-OL. APS requests that the pressurizer surge nozzle overlay examination for weld 5-34-OL be postponed from 2R22, April 2020, until the 2R23, October 2021, to support a reduction of contract staff due to the COVID-19 pandemic.

Palo Verde site personnel do not have the certification to perform the weld overlay examination. A contract ultrasonic technician, certified to an Appendix VIII overlay procedure, would be required to travel to PVNGS to perform this examination. Travel of the one ultrasonic technician during the COVID-19 pandemic represents a hardship without compensating increase in the level of quality and safety.

5) Proposed Alternative and Basis for Use

Proposed Alternative

Delay required inservice inspections by contract personnel from 2R22 to 2R23.

Basis for Use

Code case N-770-2, requires a minimum of 25% examination population for Item Number F-1. PVNGS has nine full structural overlays installed in Unit 2. Weld 5-34-OL is currently not included in the 25% weld population for the F-1 examination population. For the fourth interval, the Unit 2 ISI Program has eight examinations scheduled, where five of the nine F-1 weld overlays will be examined. Overall, weld 5-34-OL is scheduled to be examined three times in the fourth interval. Weld 5-34-OL examination frequency is based the Design Report PV-23Q-405 (Ref. 3). The examination frequency for weld 5-34-OL is currently based upon the time for the circumferential dissimilar metal to reach minimum allowable overlay thickness, as shown in Table 1 below. The postulated time to reach minimum allowable overlay thickness is 3 years for the dissimilar metal weld and four years for the similar metal safe end to pipe weld. The last examination performed on weld 5-34-OL was documented on report number 17-UTE-2017. No flaws were detected in the

Enclosure
Relief Request 65
Unit 2, COVID-19, Request for Relief from
Bottom Mounted Instrumentation Nozzles and a
Pressurizer Nozzle to Surge Line Weld Overlay Examination

overlay or in the base metal of the dissimilar and similar metal welds during the April 2017 examination.

Table 1: Limiting Crack Growth Results-Pressurizer and Hot Pressurizer Surge Nozzle (Excerpt from Table 5-1 Ref. 3)

| Flaw (1) | Time to Reach Overlay Minimum Allowable Overlay Thickness (2) |
|--------------------------|--|
| Circumferential (DMW) | 3 years |
| Axial (DMW) | >60 years |
| Circumferential (SSW) | 4 years |
| Axial (SSW) | 29 years |

- (1) DMW = Dissimilar Metal Weld; SSW = Stainless steel weld
(2) Includes growth into overlay

Weld 5-34-OL was installed in 2008 where Alloy 52 material overlayed welds 5-34, the pressurizer surge nozzle-safe end dissimilar metal weld, and the adjacent 20-1, pressurizer surge nozzle safe end-surge line similar metal weld, as discussed in Relief Request 36. The weld is considered a full structural overlay for the following reasons as documented in section 2.2 of the Design Report (Ref. 3):

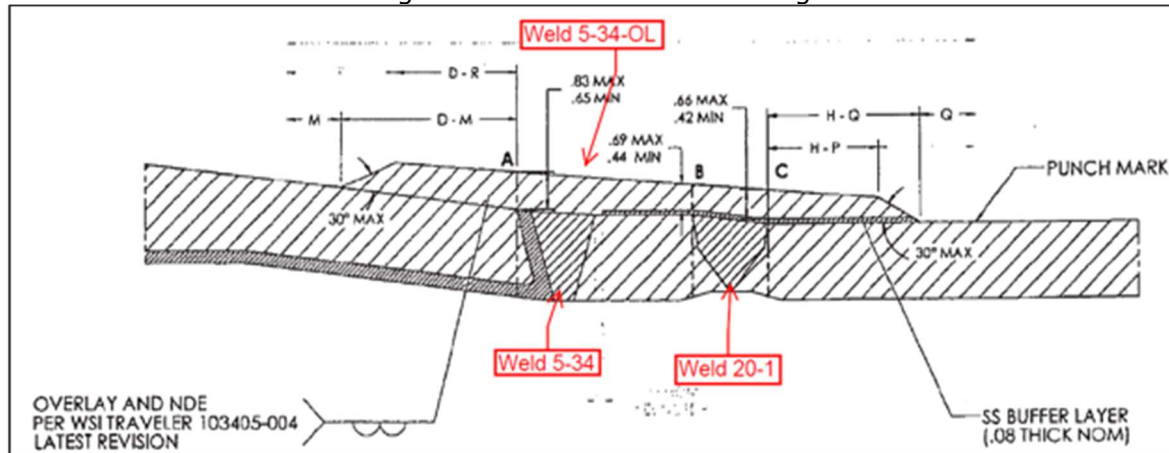
1. The design basis for the repair is a circumferentially oriented flaw that extends 360° around the component, and is through the original component wall. This conservative assumption eliminates concerns about primary water stress corrosion cracking (PWSCC) susceptibility of the original Alloy 82/182 dissimilar metal weld (DMW). In addition, potential concerns about the integrity of the original butt weld material are not applicable, since no credit is taken in the design process for the load carrying capability of this weld.
2. As required by ASME Code, Section XI, IWB-3641, a combination of internal pressure, deadweight, seismic, and other dynamic stresses is used in the design of weld overlay repairs. Thermal and other secondary stresses are not required to be included for structural sizing calculations (since the repairs are applied using a gas tungsten arc weld (GTAW) process that produces a high toughness weld deposit), but they are addressed later in subsequent stress, fatigue, and stress corrosion cracking evaluations.
3. Following the repair, the surface finish of the overlay must be sufficiently smooth to allow preservice and future inservice ultrasonic examinations through the overlay material and into a portion of the original base metal. The purpose of these examinations is to demonstrate that the overlay design basis does not degrade with time due to flaw propagation.

When 5-34-OL was installed in 2008, no examinations were performed on either weld 5-34 or 20-1 per Relief Request 36. Prior to the overlay installation, an ultrasonic examination was performed on weld 5-34 and report UT-05-024 documented no recordable indications in 2005. In

**Enclosure
Relief Request 65
Unit 2, COVID-19, Request for Relief from
Bottom Mounted Instrumentation Nozzles and a
Pressurizer Nozzle to Surge Line Weld Overlay Examination**

2000, an ultrasonic examination was performed on weld 20-1 and report 00-2201 documented no recorded indications.

Figure 1: Weld 5-34-OL Drawing



Following installation of overlay 5-34-OL, the weld received a surface examination and surface preparations to optimize the surface for ultrasonic examinations. The preservice ultrasonic examination in 2008 utilized a Phased Array examination where no cracks were detected. Subsequent examinations of weld 5-34-OL included the adjacent similar metal weld per examination reports 11-UT-2008 (2011 examination), 14-UTE-2037 (2014 examination) and 17-UTE-2017 (2017 examination). All three inservice examinations contain no reportable indications in the underlying base metal and overlay metals subject to examination per Ref. 1. Although Appendix VIII procedures used are qualified to include the outer 25% of the base material, the ultrasonic equipment and screen ranges used for the examinations are capable of detecting deeper flaws.

The three year life for weld 5-34-OL and four year life for weld 20-1-OL provided in Table 1 are based on a conservative analysis. The Crack Growth Evaluation of Pressurizer Surge Nozzle Weld Overlay (Ref. 4) applies the design fatigue cycles for each year of operation and assumes 360° of the base metal is flawed through 75% of the weld. The fatigue calculation assumes a heat up and cool down of 12.5 cycles per year, where Surveillance Test Work Orders (STWO) 4915281 and 4788084 for 73ST-9RC02, *Reactor Coolant System Transient and Operational Cycles*, documented 5 heat-up and 5 cool-down cycles during the Unit 2 Operating Cycles 20 and 21.

For susceptibility to PWSCC of the Alloy 82/182 DMW, the Design Report section 5.3.1 of Ref. 3 states:

For PWSCC, the analysis showed that the Ks at normal operating conditions are negative up to the full thickness for the circumferential flaw and up to 95% of the full thickness for the axial flaw, and that the axial flaw does not reach 95% in less than 60 years; thus there is no PWSCC growth for the DMW location.

Due to the conservative nature of the calculation and three previous inservice examinations detecting no inservice flaws in the original base metal and welds, it is not expected that a crack would exceed critical flaw size by 2R23 outage scheduled for October 2021. No known industry

Enclosure
Relief Request 65
Unit 2, COVID-19, Request for Relief from
Bottom Mounted Instrumentation Nozzles and a
Pressurizer Nozzle to Surge Line Weld Overlay Examination

experience exists for flaw propagation or failure of an Alloy 82/182 weld that has been mitigated with a full structural weld overlay.

In addition, APS monitors the sump for leakage to prevent structural loss of the bottom head. Technical Specifications (TS) 3.4.14, *RCS Operational LEAKAGE*, for each Unit, limits system operation in the presence of leakage from Reactor Coolant System (RCS) components to leakage amounts that do not compromise safety. Surveillance Requirement (SR) 3.4.14.1 requires the performance of RCS water inventory balance to verify RCS leakage is within limits to ensure that the integrity of the Reactor Coolant Pressure Boundary (RCPB) is maintained. The RCS water inventory balance surveillance is performed in accordance with SR 3.4.14.1 which utilizes the emergency response facilities data acquisition and display system (ERFDADS) calculation to determine the RCS water inventory balance. The ERFDADS also includes an indicator that provides an iteratively calculated RCS leakage value that is displayed in the control room in various locations to ensure prompt action is taken in accordance with surveillance and plant procedure requirements. The ERFDADS is utilized to support operators in ensuring TS requirements and action levels are not violated should small leakage occur.

In the event that unidentified leakage increases greater than 0.10 gallons per minute (gpm) above the normal, steady state value for a given plant condition during the performance of the RCS water inventory balance, administrative procedures require that the controls and actions for monitoring RCS leakage under the boric acid corrosion control program (BACCP) be implemented. The program also addresses abnormal trends in RCS primary system leakage indicators, which may provide indication of leaks much smaller than TS and RCS leakage levels. APS would investigate the increased leakage and has the ability to shutdown the unit in a controlled manner prior to a nozzle failure, if unacceptable increased leakage were to occur.

Postponing the 5-34-OL examination will not result in a reduction in safety or quality. Currently, no site staff at PVNGS have the ASME Section XI, Appendix VIII certification to perform the weld overlay examination. To perform the examination, a contractor will be required to travel to PVNGS. In light of the travel recommendations that exist from the COVID-19 and risk to examiners traveling pose to themselves and site personnel, performance of the Pressurizer Surge Nozzle overlay 5-34-OL is considered a hardship per 10CFR50.55a(z)(2).

6) Duration of Proposed Alternative

The duration of the request is for the duration of the next Unit 2 operating fuel cycle (2R23), which is Fall 2021.

7) Precedents

None

8) References

1. N-770-2, *Alternative Examination Requirements and Acceptance Standards for Class 1 PWR Piping and Vessel Nozzle Butt Welds Fabricated With UNS N06082 or UNS W86182 Weld Filler Material With or Without Application of Listed Mitigation Activities Section XI, Division 1*
2. 2013 ASME Boiler and Pressure Vessel Code, Section XI, *Rules for Inservice Inspection of Nuclear Power Plant Components*, 2013 Edition

Enclosure
Relief Request 65
Unit 2, COVID-19, Request for Relief from
Bottom Mounted Instrumentation Nozzles and a
Pressurizer Nozzle to Surge Line Weld Overlay Examination

3. SDOC N001-0604-00903 (Supplier DWG No PV23Q405), *Design Report for Preemptive Weld Overlay Repairs Pressurizer and Hotleg Dissimilar Metal Welds Palo Verde Nuclear Generating Stations Units 1, 2 and 3 For Arizona Public Service, Rev. 1, dated May 11, 2011*
4. SDOC N001-0604-00901, *Crack Growth Evaluation of Pressurizer Surge Nozzle with Weld Overlay Repair with Airback, PV-23-Q-319*