



Jaime H. McCoy
Vice President Engineering

May 2, 2018

ET 18-0013

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

Subject: Docket No. 50-482: Relief Request Number I4R-06, Request for Relief from ASME Code Case N-729-4 for Reactor Vessel head Penetration Nozzle Weld

To Whom It May Concern:

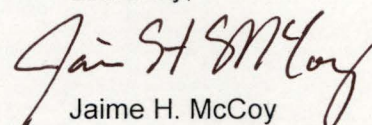
Pursuant to 10 CFR 50.55a(z)(1), Wolf Creek Nuclear Operating Corporation (WCNOC) hereby requests Nuclear Regulatory Commission (NRC) approval of 10 CFR 50.55a Request Number I4R-06 for the fourth ten-year interval of WCNOC's Inservice Inspection (ISI) Program. The Attachment provides 10 CFR 50.55a Request I4R-06, which requests relief from the Visual Exam requirements provided in Table 1, Item B4.10, Note 1 of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code Case N-729-4. Relief Request I4R-06 is for the alternative examination of penetration nozzle 1. Since the visual examination area required by ASME Code Case N-729-4 is obstructed, an alternative exam will be performed in accordance with Table 1, Item B4.20, Note 6 of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code Case N-729-4.

Performance of the proposed alternative volumetric examination and leak path assessment of this Request will be performed in Refueling Outage 22, which is currently in progress. Therefore, approval is requested prior to the completion of outage, currently scheduled May 15, 2018. Relief is only being requested for the duration of Refueling Outage 22.

During a telephone discussion with the NRC staff on April 25, 2018, the penetration 1 Leak Path Assessments for Refueling Outages 21 and 22 were requested to be provided with this relief request. Enclosure I, provided by WesDyne, used a single 0degree transducer for the leak path. Enclosure II, provided by Framatome, used both of the Angle Beam transducers. Both reports show that there is no leak path.

This letter contains no commitments. If you have any questions concerning this matter, please contact me at (620) 364-4156, or Cynthia R. Hafenstine at (620) 364-4204.

Sincerely,


Jaime H. McCoy

JHM/rit

A047
NRR

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Attachment: 10 CFR 50.55a Request Number I4R-06

Enclosures: I Refuel 21 WesDyne leak path assessment for penetration 1
II Refuel 22 Framatome leak path assessment for penetration 1

cc: K. M. Kennedy (NRC), w/a, w/e
B. K. Singal (NRC), w/a, w/e
N. H. Taylor (NRC), w/a, w/e
Senior Resident Inspector (NRC), w/a, w/e

**Wolf Creek Nuclear Operating Corporation
10 CFR 50.55a Request I4R-06
Relief Requested In Accordance with
10 CFR 50.55a(z)(1)**

10 CFR 50.55a Request Number I4R-06

**Relief Requested
In Accordance with 10 CFR 50.55a(z)(1)**

**Proposed Alternative in Accordance with 10 CFR 50.55a(z)(1)
Acceptable Level of Quality and Safety**

1. ASME Code Component(s) Affected

Component:	Reactor Vessel Closure Head (RVCH) Nozzles
Code Class:	Class 1
Examination Category:	B-P
Code Item Number:	B4.10 (Code Case N-729-4, Alternative Examination Requirements for PWR Reactor Vessel Upper Heads with Nozzles Having Pressure-Retaining Partial-Penetration Welds, Section XI, Division 1)
Description:	Control Rod Drive Mechanism (CRDM) Nozzles
Size:	4.00 Inch (Nominal Outside Diameter)
Material:	RVCH SA533 Grade B, Class 1 Nozzle SB 167 N06600 (Alloy 600) Alloy 82/182 weld material

2. Applicable code Edition and Addenda

- American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) Section XI, 2007 Edition through 2008 Addenda
- Code Case N-729-4 as conditioned by 10 CFR 50.55a(g)(6)(ii)(D)

3. Applicable Code Requirement

10 CFR 50.55a(g)(6)(ii)(D)(1) requires that examinations of the reactor vessel head be performed in accordance with ASME Code Case N-729-4 subject to the conditions specified in paragraphs 10 CFR 50.55a(g)(6)(ii)(D)(2) through (4).

Table 1 of Code Case N-729-4 requires a Visual Examination (VE) to be performed each refueling outage (RF) while implementing Notes 1, 2, 3, and 4 of Table 1. Note 4 of Table 1 is conditioned by 10 CFR 50.55a(g)(6)(ii)(D)(3).

4. Reason for Request

For One Penetration Nozzle – Number 1

In RF 22, the VEs were scheduled to be performed in accordance with Code Case N-729-4, Table 1 Item No. B4.10. The VE was completed on all penetrations except for Penetration No.1, approximately 60% of which was obscured by a foreign substance. Initial attempts to remove the substance from the inspection area of Penetration No.1 were unsuccessful. Further methods to remove the substance from the examination area will have to be aggressive enough that the results of a VE would be indeterminate.

Therefore, the VE of penetration 1 was not able to be performed as required by Code Case N-729-4, Table 1 Item No. B4.10.

Wolf Creek Nuclear Operating Corporation (WCNOC) has volumetrically examined the RVCH penetrations previously in 2006, 2013, and 2016. There was no degradation identified in any of these examinations. Results from the exam performed in RF22 will be compared to the data from the previous two exams for any changes in leak path data, thus providing further assurance of no new leak path.

5. Proposed Alternative and Basis for Use

WCNOC proposes to perform volumetric examination of essentially 100% of the penetration 1 nozzle tube as identified by Figure 2 of Code Case N-729-4. A demonstrated volumetric leak path assessment will also be performed. This combination (volumetric examination of the nozzle tube and volumetric leak path assessment) will provide confirmation that there is no leakage through Penetration 1. WCNOC believes the combination of a volumetric exam and leak path assessment will provide an acceptable level of assurance on the condition of penetration 1.

WCNOC has examined the RVCH previously in 2006, 2013 and 2016 - degradation was not identified in any of these examinations. Results from the exam performed in RF22 will be compared to the data from the previous two exams for any changes in leak path data, thus providing further assurance of no new leak path.

WCNOC will clean the RVCH and perform a supplemental VE of penetration 1 prior to the returning the RVCH to service in Refueling Outage 22. Following this, WCNOC will return to the normal inspection process required by N-729-4, as conditioned by 10 CFR 50.55a, for the duration of the Fourth Inservice Inspection (ISI) Interval.

Therefore, performing a volumetric examination and leak path assessment of penetration 1 in lieu of the VE provides an acceptable level of quality and safety.

If an unacceptable indication by the volumetric examination or leak path assessment is identified, WCNOC will revert to the requirements of Code Case N-729-4 and 10 CFR 50.55a(g)(6)(ii)(D).

6. Duration of Proposed Alternative

The proposed alternative will be utilized only during WCNOC RF22. WCNOC will return to the normal inspection protocol for the remainder of ISI Interval Four, which began September 3, 2015 and ends on September 2, 2025.

7. Precedent

None

8. References

1. ASME Boiler and Pressure Vessel Code Case N-729-4 "Alternative Examination Requirements for PWR Reactor Vessel Upper Heads With Nozzles Having Pressure-Retaining Partial-Penetration Welds Section XI, Division 1," June 22, 2012.

2. NUREG/CR-7142, "Ultrasonic Phased Array Assessment of the Interference Fit and Leak Path of the North Anna Unit 2 Control Rod Drive Mechanism Nozzle 63 with Destructive Validation," August 2012.
3. AREVA NONDESTRUCTIVE EXAMINATION PROCEDURE 54-ISI-603-009, "Automated Ultrasonic Examination of RPV Closure Head Penetrations Containing Thermal Sleeves."

Enclosure I to ET 18-0013

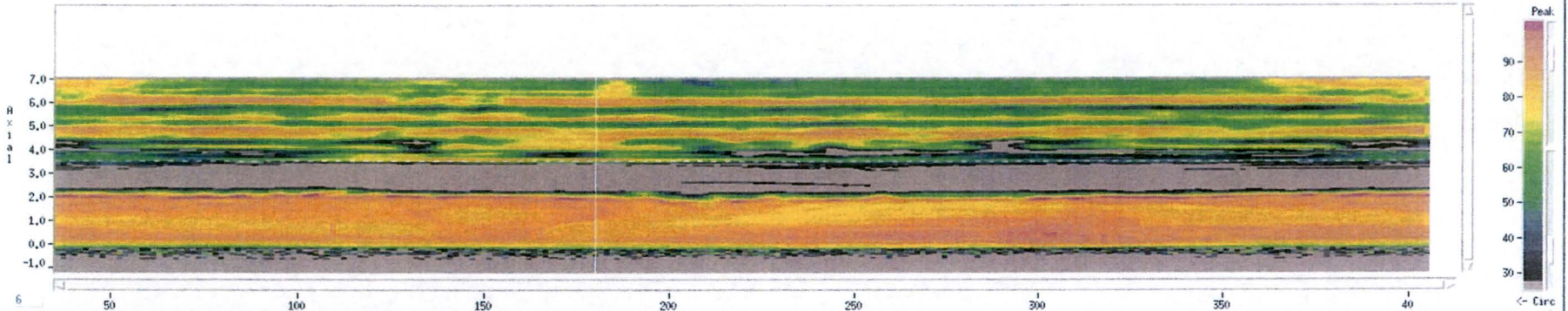
**Refuel 21 WesDyne leak path assessment for penetration 1
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Analysis - SAP-1-R21-CP02-01-01 - Locked

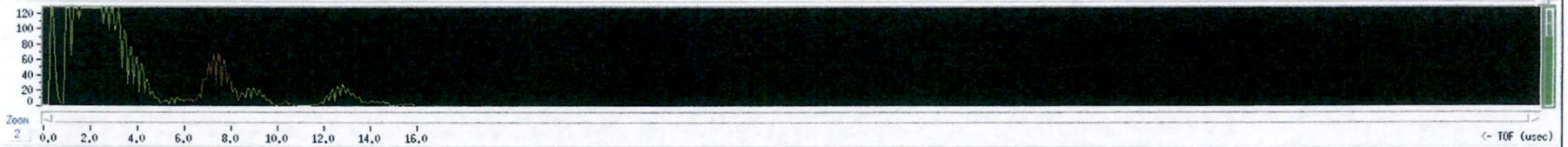
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Leak Path Assessment

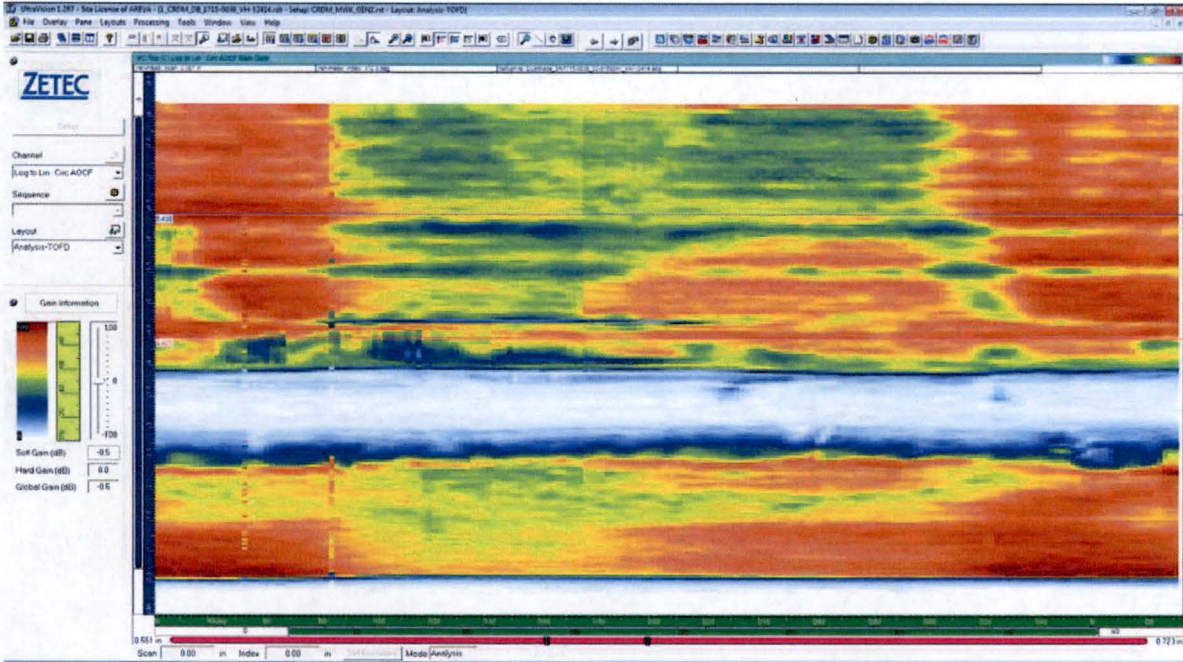
Enclosure II to ET 18-0013

**Refuel 22 Framatome leak path assessment for penetration 1
(1 page)**

Wolf Creek - CRDM #1 – UTLP Signature

Disposition – NDD for UTLP

AOCF:



COAF:

