

Enclosure C
L-22-194

Framatome Inc. document ANP-2718-007Q1NP, Revision 0 "Response to Request for Additional Information on Appendix G Pressure-Temperature Limits for 52 EFPY for Davis-Besse Nuclear Power Station – First Energy Nuclear Operating Company" **Nonproprietary**

(9 Pages Follow)

**Response to Request for Additional
Information on Appendix G
Pressure-Temperature Limits for 52
EFPY for Davis-Besse Nuclear
Power Station – First Energy
Nuclear Operating Company**

ANP-2718-007
Q1NP
Revision 0

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Nature of Changes

Item	Section(s) or Page(s)	Description and Justification
1	All	Initial Issue

Contents

	<u>Page</u>
1.0 INTRODUCTION	1
2.0 REQUEST FOR ADDITIONAL INFORMATION	1
2.1 RAI-1.....	1
2.1.1 Statement of RAI-1.....	1
2.1.2 RAI-1 Response.....	2
3.0 REFERENCES	2

Nomenclature

(If applicable)

Acronym	Definition
CFR	Code of Federal Regulations
DH	Decay Heat
DHRS	Decay Heat Removal System
HR	Hours
LTOP	Low Temperature Overpressure Protection
NRC	Nuclear Regulatory Commission
PSI	Pounds Per Square Inch
PSID	Pounds Per Square Inch Differential
PSIG	Pounds Per Square Inch Gauge
P-T	Pressure-Temperature
RAI	Request for Additional Information
RCS	Reactor Coolant System
RTNDT	Reference Temperature Nil Ductility Temperature
RV	Reactor Vessel
RVCH	Reactor Vessel Closure Head

1.0 INTRODUCTION

By letter dated July 21, 2022 (Agencywide Documents Access and Management System Package Accession No. ML22202A429) Energy Harbor Nuclear Corp. submitted a reanalysis of the protection against low temperature reactor coolant system overpressure events for Davis-Besse Nuclear Power Station, Unit No. 1 (Davis-Besse) Reference 1. The letter included an affidavit (enclosure A) from Framatome Inc. requesting that information provided in ANP-2718P-007, “Appendix G Pressure-Temperature Limits for 52 EFPY [Effective Full Power Years] for the Davis-Besse Nuclear Power Station” (enclosures B), be withheld from public disclosure in accordance with Title 10 of the Code of Federal Regulations (10 CFR) section 2.390.

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the affidavit and the information marked as proprietary in enclosure B. The NRC staff has determined that additional information is needed to for the staff to complete its determination regarding the request for withholding information in enclosure B from public disclosure.

Information considered proprietary to Framatome in the following discussions is enclosed in brackets [].

2.0 REQUEST FOR ADDITIONAL INFORMATION

The NRC request for additional information (RAI) is reproduced from Reference 2 in Section 2.1.1.

2.1 *RAI-1*

2.1.1 **Statement of RAI-1**

The affidavit in enclosure A states, in part, that enclosure B “contains information of a proprietary and confidential nature and is of the type customarily held in confidence by Framatome Inc. and not made available to the public.”

Page 8-20 of enclosure B indicates that the two paragraph under “Development of LTOP [Low Temperature Overpressure Protection] Set Point” and table 8-8 are considered to be proprietary by Framatome. However, some of the information in these paragraphs and table 8-8 is not marked as proprietary in other parts of the document and is publicly available in the nonproprietary version of the document (enclosure C). Some of this information is also publicly available in the technical specifications bases and updated final safety analysis report for Davis-Besse (ML20302A348).

Explain why all the information referenced above should be withheld from public disclosure given that some of the information is publicly available in other sources and was provided in the nonproprietary version of the document. The response should address the applicable requirements in 10 CFR 2.390(b)(ii) and (iii).

2.1.2 RAI-1 Response

Some of the information in the referenced paragraph and table are proprietary, so the paragraph and table were fully bracketed as proprietary for simplicity. However, it is agreed that not all of the information in the referenced paragraph and table are proprietary. Therefore, the proprietary bracketing for the referenced paragraph and table have been updated to only bracket the information that is proprietary. The update to page 8-20 of Reference 1 is shown in Appendix A.

3.0 REFERENCES

1. Davis-Besse Nuclear Power Station, Unit No. 1 Submittal of Reanalysis for Protection Against Low Temperature Reactor Coolant System Overpressure Events (NRC ADAMS Accession Number ML22202A429).
2. Request for Additional Information Regarding Request to Withhold Information in Framatome Inc. Document ANP-2718P-007 from Public Disclosure, Energy Harbor Nuclear Corp., Docket No. 50-346.

Appendix A

The purpose of this appendix is to contain the updated page 8-20 of Reference 1, which has updated proprietary bracketing. Note that the format used for the update to page 8-20 of Reference 1 is consistent with the format of Reference 1.

cooldown the coolant temperature is always lower than the metal temperature and therefore it is not limiting in the development of the LTOP system effective temperature.

The information in Table 8-8 [22, Table 6-2] is provided at the $\frac{1}{4}t$ wall location, relative to the inside surface, where t is the thickness of the base metal. The corresponding reactor coolant temperature during the heatup transient is 225.0 °F, resulting in a temperature difference of []. The minimum LTOP enable temperature is therefore 225.0 °F, plus any adjustments for instrument error [22]. Using a measurement uncertainty correction of 18°F, the corrected LTOP enable temperature is 243°F. Since 243°F is less than the existing LTOP enable temperature of 280°F, the existing value is acceptable with no changes.

Development of LTOP Set Point:

The LTOP allowable pressure limit is taken as the lowest allowable pressure of normal heatup/cooldown from 70°F to 243°F (calculated LTOP enable temperature). The limiting pressure in the RV is [] without location adjustment for pressure. (i.e, uncorrected P-T limits at 70 °F [22], Table 6-9).

LTOP protection [27] is provided by the DHRS valve (DH-4849), which opens at a pressure of 330 psig. Pressure correction factors are reported for the RVCH, beltline, inlet nozzle and outlet nozzle relative to DH-4849. Below 140°F, the maximum pressure difference between DH-4849 and other locations is []. Accounting for this maximum pressure difference between the RV and DH-4849 the maximum allowable pressure at DH-4849 below 140°F is [], compared to the DHRS relief valve maximum set pressure of 330 psig. Above 140°F the most limiting uncorrected allowable pressure would be 625 psig based on the RCS Lowest Service Temperature; considering this value with the maximum correction for any temperature of [], the allowable pressure at DH-4849 would be 625-[], which is greater than the [] applicable below 140°F. Therefore, [] is the most limiting allowable pressure at DH-4849 when LTOP is enabled. Since the DHRS relief valve limits the pressure to less than the maximum allowable pressure, the existing DHRS set point is acceptable as is.

Table 8-8: Reactor Coolant Temperatures for Use in Establishing an LTOP System Effective Temperature [22, Table 6-2]

Transient	Metal Temperature at $\frac{1}{4}t$	Reactor Coolant Temperature	Temperature Difference (Coolant-Metal)
Heatup (75 °F/hr)	[]	225.0°F	[]
Heatup (50 °F/hr)	[]	217.0°F	[]
Cooldown (100-50 °F/hr)	[]	183.0°F	[]
Cooldown (100-25 °F/hr)	[]	193.0°F	[]

¹RT_{NDT} of [] at $\frac{1}{4}T + 50$ °F

