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10 CFR 50.55a

September 20, 2021

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

Calvert Cliffs Nuclear Power Plant, Units 1 and 2
Renewed Facility Operating License Nos. DPR-53 and DPR-69
NRC Docket Nos. 50-317 and 50-318

Subject: Proposed Alternative Concerning Pressure Testing of ASME Section XI Class 2 Portions of the Auxiliary Feedwater System

In accordance with 10 CFR 50.55a(z)(1), Exelon Generation Company, LLC (Exelon) is requesting a proposed alternative to the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," on the basis that the proposed alternative will provide an acceptable level of quality and safety. Proposed alternative ISI-05-019 concerns the pressure testing requirements of ASME Section XI Class 2 Auxiliary Feedwater (AFW) piping. Specifically, Calvert Cliffs Nuclear Power Plant (CCNPP), Units 1 and 2 proposes to forego the VT-2 Visual Examination of portions of Inservice Inspection (ISI) Class 2 AFW piping in favor of Inservice Testing (IST) Operability Testing and the proposed alternate visual examinations.

There are no regulatory commitments contained in this letter. Exelon requests your review and approval of this request by June 30, 2022, which coincides with the current end date for the first inspection period.

If you have any questions, please contact Tom Loomis at (610) 765-5510.

Respectfully,

D. P. Helker

David P. Helker
Senior Manager - Licensing and Regulatory Affairs
Exelon Generation Company, LLC

Attachment: Proposed Alternative ISI-05-019 Concerning Pressure Testing of ASME Section XI Class 2 Portions of the Auxiliary Feedwater System

cc: Regional Administrator - NRC Region I
NRC Senior Resident Inspector - Calvert Cliffs Nuclear Power Plant
NRC Project Manager - Calvert Cliffs Nuclear Power Plant
S. Seaman, State of Maryland

Attachment
Proposed Alternative ISI-05-019 Concerning Pressure Testing of ASME Section XI Class 2 Portions of the Auxiliary Feedwater System

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Proposed Alternative Concerning Pressure Testing of ASME Section XI Class 2 Portions of the Auxiliary Feedwater System in Accordance with 10 CFR 50.55a(z)(1) -- Alternative Provides Acceptable Level of Quality and Safety --

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1. ASME Code Component(s) Affected:

Code Class:	2
Reference:	Table IWC-2500-1, IWC-5200
Examination Category:	C-H
Item Number:	C7.10
Description:	Alternative for Pressure Testing ASME Section XI Class 2 Portions of the Auxiliary Feedwater (AFW) System
Component Number:	Multiple lines and components (See Note below)
Drawing Number:	P&ID 60583SH0002 and 60583SH0002-ISI P&ID 62583SH0002 and 62583SH0002-ISI

Note: A more detailed description of the pressure testing boundary is identified below.

The following ISI Class 2 AFW piping and components, between containment penetrations 22 and 21 (Unit 1 and Unit 2) and Steam Generator Nos. 11 and 12 (Unit 1) and Steam Generator Nos. 21 and 22 (Unit 2), require system pressure testing and visual examination each period. This includes the following lines and valves shown on the Calvert Cliffs Nuclear Power Plant (CCNPP) ISI Piping and Instrumentation Diagrams (P&IDs) 60583SH0002-ISI and 62583SH0002-ISI.

Unit 1
- Lines 4" EB-5-1014, 4" EB-13-1001, 4" EB-5-1015, and 4” EB-13-1002
- Valves 1-AFW-129 and 1-AFW-130

Unit 2
- Lines 4" EB-5-2014, 4” EB-13-2001, 4" EB-5-2015, and 4” EB-13-2002
- Valves 2-AFW-129, and 2-AFW-130

See Enclosure 1 for 60583SH0002-ISI (Unit 1) and 62583SH0002-ISI (Unit 2), with the subject piping clouded for identification.

2. Applicable Code Edition and Addenda:

The Fifth 10-year Interval of the CCNPP, Units 1 and 2, Inservice Inspection (ISI) Program is based on the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (BPV) Code, Section XI, 2013 Edition.

3. Applicable Code Requirements:

Table IWC-2500-1, Examination Category C-H, Item Number C7.10, requires all ISI Class 2 pressure retaining components be subject to a system pressure test with a VT-2 visual

examination in accordance with Paragraph IWC-5220. This requires a system pressure test and VT-2 visual examination, to be conducted each inspection period at the system pressure obtained while the system, or portion of the system, is in service performing its normal operating function or at the system pressure developed during a test conducted to verify system operability.

4. Reason for Request:

In accordance with 10 CFR 50.55a(z)(1), relief is requested on the basis that the proposed alternative will provide an acceptable level of quality and safety.

CCNPP, Units 1 and 2 are requesting relief from the current ASME Section XI, ISI Class 2 system pressure testing and visual examination requirements of the piping between containment penetrations 22 and 21 (Unit 1 and Unit 2) and Steam Generator Nos. 11 and 12 (Unit 1) and Steam Generator Nos. 21 and 22 (Unit 2). This piping is inside containment and is inaccessible during plant operation for visual examination. Calvert Cliffs Surveillance Test Procedure (STP) O-73H-1 and STP O-73H-2 ("AFW Pump Large Flow Test") performs operability testing in accordance with the ASME OM Code on the three AFW pumps for each unit, along with valves 1(2)-MS-103 and 1(2)-MS-106, and includes the subject piping within the test boundary. This test is currently performed each operating cycle during Mode 1 (power operation) prior to entering the refueling outage so that CCNPP has time to identify any issues and prepare any repair/replacement activities, if required.

The initial conditions for STP O-73H-1 and STP O-73H-2 (Unit 1 and Unit 2, respectively) require the plant to be in Mode 1 (power operation) or Mode 3 (hot standby) with the Steam Generator pressure greater than 800 psig and all Main Steam Isolation Valves (MSIVs) open. These initial conditions ensure adequate heat is available to supply the turbine driven AFW pumps from main steam, and to prevent a pressure differential between Steam Generators which could lead to inadvertent safety system actuation. There is a very limited amount of time that the plant is in Mode 3 during plant shutdown and startup. Upon plant shutdown there is approximately a 6-hour window where the plant is in Mode 3 and meets the initial conditions for the surveillance test. During shutdown, performance of the surveillance test is undesirable based on the short window where the units meet the initial conditions. The control room operators and equipment operators are focused on more safety significant activities associated with plant shutdown, such as reactor vessel and pressurizer vent valve operability testing, main feedwater check valve operability testing, and testing of pressurizer heater controls from the safe shutdown panel. During plant startup there is approximately a 24-hour window where the plant is in Mode 3 and meets the initial conditions for the surveillance test. During startup, operability testing of the AFW pumps is performed using minimum flow test lines, and not the typical AFW lines, as feeding the Steam Generators with AFW at this time would affect Reactor Coolant System temperature. Maintaining a constant Reactor Coolant System temperature is necessary for the initial approach to criticality. Performance of the surveillance test is also undesirable during startup because the control room operators and equipment operators are focused on more safety significant activities, such as control rod testing, reactor protection system testing, and Reactor Coolant System pressure test.

Compliance with the current ASME Section XI requirements would require STP O-73H-1 and STP O-73H-2 to be run during a refueling outage, in order to perform the associated VT-2 visual examination, which is undesirable for the reasons stated above.

This test occupies Operations resources which are better used for more safety significant activities during the refueling outage. Additionally, performing the surveillance tests at the beginning or end of a refueling outage leaves little time to prepare and execute a repair or replacement strategy when compared to the proposed alternative.

5. Proposed Alternative and Basis for Use:

In accordance with 10 CFR 50.55a(z)(1), CCNPP, Units 1 and 2, is proposing alternative examination requirements on the basis that these alternative actions will provide an acceptable level of quality and safety. For the segment of the subject pipe, periodic flow testing is performed in accordance with the Inservice Testing (IST) Program surveillance procedures. These surveillance procedures are performed to verify operability of the AFW pumps (3 per unit) and various AFW and main steam check valves, and to ensure that the AFW system can provide adequate flow to each Steam Generator to perform the required safety-related function. These surveillance procedures also demonstrate a flow path from the condensate storage tank to each Steam Generator, via the AFW pumps and system piping. The surveillance procedures require flow to be measured, recorded, and compared to established acceptance criteria to provide the assurance that flow is not impaired during operation. During performance of the surveillance test, the containment sump contains passive safety instrumentation that would identify significant leakage impacting the ability to satisfy the safety function in the subject piping and would alert the control room. Operability testing of the AFW pumps and piping is performed in accordance with the IST Program prior to each refueling outage. During IST surveillances, if the minimum flow values are not achieved, the AFW pump(s) would be declared inoperable and an Issue Report would be created in accordance with the Exelon Corrective Action Program, with further corrective actions, as required, to identify the cause of the failure and restore the pump(s) and/or system to an operable status.

Additionally, CCNPP, Units 1 and 2 will perform external visual inspection on the subject pipe segments associated with each Steam Generator to ensure the piping is not experiencing unacceptable degradation. The secondary side of the Steam Generator is maintained full during most outages to minimize corrosion of the Steam Generator tubes by maintaining them in a wetted environment with optimal chemistry. If the Steam Generator is filled, this activity is performed using the motor driven auxiliary feed pump. The secondary side of the Steam Generator is not filled during outages when Steam Generator tubes receive eddy current testing and Steam Generator secondary side examinations are performed. The frequency of eddy current testing is controlled by the CCNPP Technical Specifications. CCNPP, Units 1 and 2, require Steam Generator eddy current testing every 6 years which is the maximum frequency currently allowed by the Technical Specifications. The next outage where CCNPP will perform eddy current testing of the Steam Generator tubes is 2025 (Unit 2) and 2026 (Unit 1). CCNPP, Units 1 and 2 will perform a VT-2 visual examination of the subject piping associated with each Steam Generator for signs of leakage each outage the secondary side of the Steam Generator is filled. This VT-2 will be performed while the Steam Generator is being filled with flow through the subject piping or following completion of the Steam Generator fill activity. This VT-2 will not be performed during outages that perform the eddy current testing. The subject pipe segments are uninsulated and therefore the VT-2 will be performed on the bare pipe surface. Performing this VT-2 visual examination provides reasonable assurance that the subject piping has not experienced unacceptable degradation that has led to any through-wall leakage.

In summary, the proposed alternative will utilize IST Program surveillance tests performed each refueling cycle and perform a VT-2 visual inspection during each refueling outage the secondary side of the Steam Generator is filled, to demonstrate leak tightness of the subject piping. The VT-2 visual inspections will be performed each refueling outage the Steam Generator secondary side is filled, which will result in a VT-2 visual examination of the subject piping at a frequency that is equal to or greater than the ASME XI requirements (three inspections per interval); therefore, the proposed alternative provides an acceptable level of quality and safety.

6. Duration of Proposed Alternative:

Relief is requested for the Fifth ISI Interval for CCNPP, Units 1 and 2.

7. Precedent:

The following is a list of approved Request for Alternatives related to system pressure testing of ISI Class 2 piping and components:

- Letter from G. A. Wilson (NRC) to D. A. Heacock (Dominion), “Millstone Power Station, Unit Nos. 2 and 3 - Relief from the Requirements of the ASME Code (TAC Nos. ME9013 and ME9014),” January 23, 2013, ADAMS Accession No. ML13011A158.

- Letter from S. S. Koenick (NRC) to B. C. Hanson (Exelon Nuclear), “Safety Evaluation of Relief Requests I4R-05, I4R-06, I4R-07, I4R-08, I4R-09, I4R-11, I4R-12, and I4R-13, for the Fourth 10-Year Interval of the Inservice Inspection Program for Limerick Generating Station, Units 1 and 2 (CAC Nos. MF7589 AND MF7590),” February 6, 2017, ADAMS Accession No. ML17006A268 (Relief Requests I4R-07, I4R-08, and I4R-13).

ENCLOSURE 1

EXCERPTS FROM APPLICABLE AUXILIARY FEEDWATER ISI PIPING AND INSTRUMENT DRAWINGS

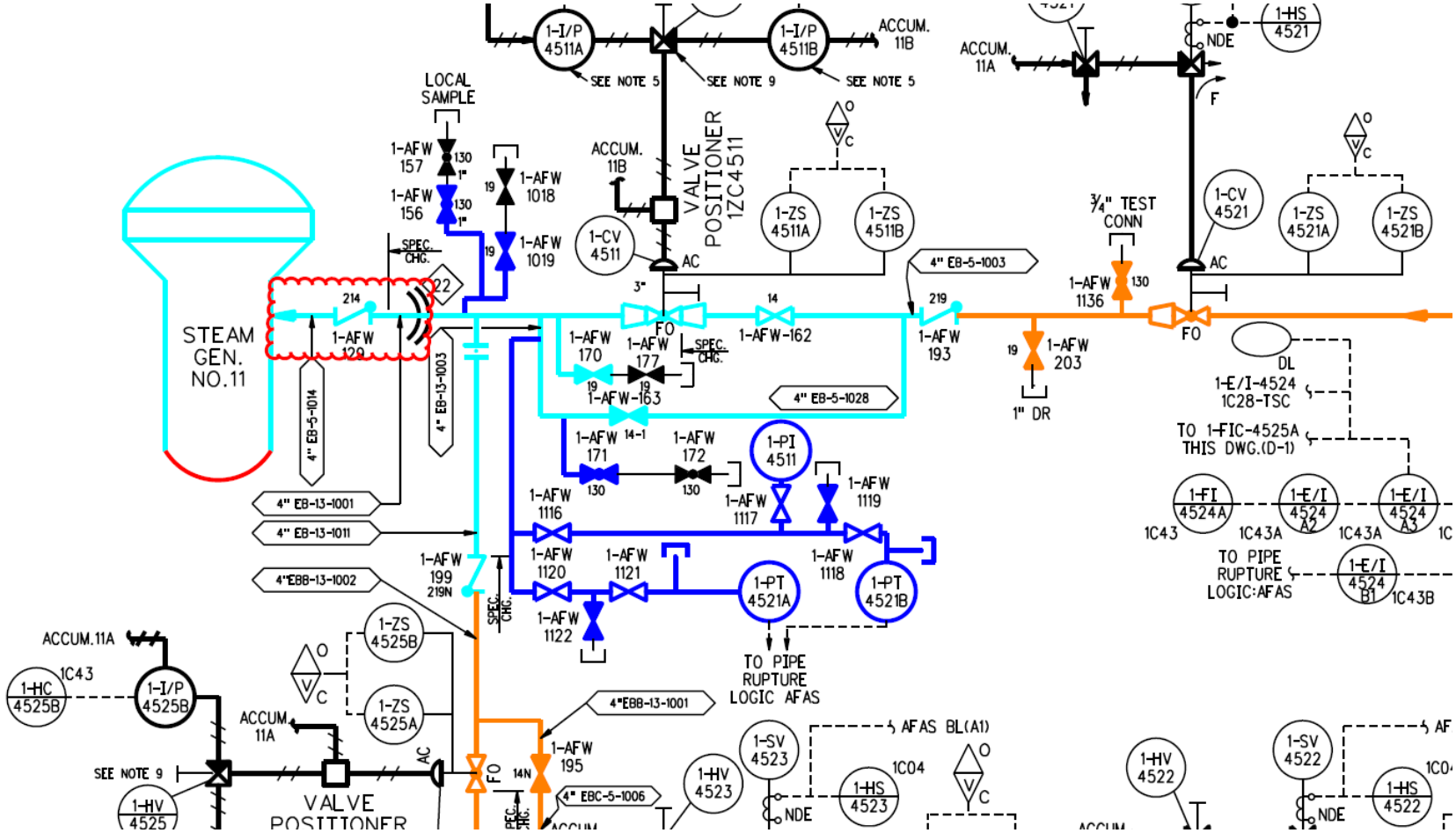

Figure 1. Calvert Cliffs, Unit 1, Auxiliary Feedwater piping between Penetration 22 and Steam Generator No. 11 (from ISI P&ID 60583SH0002-ISI)

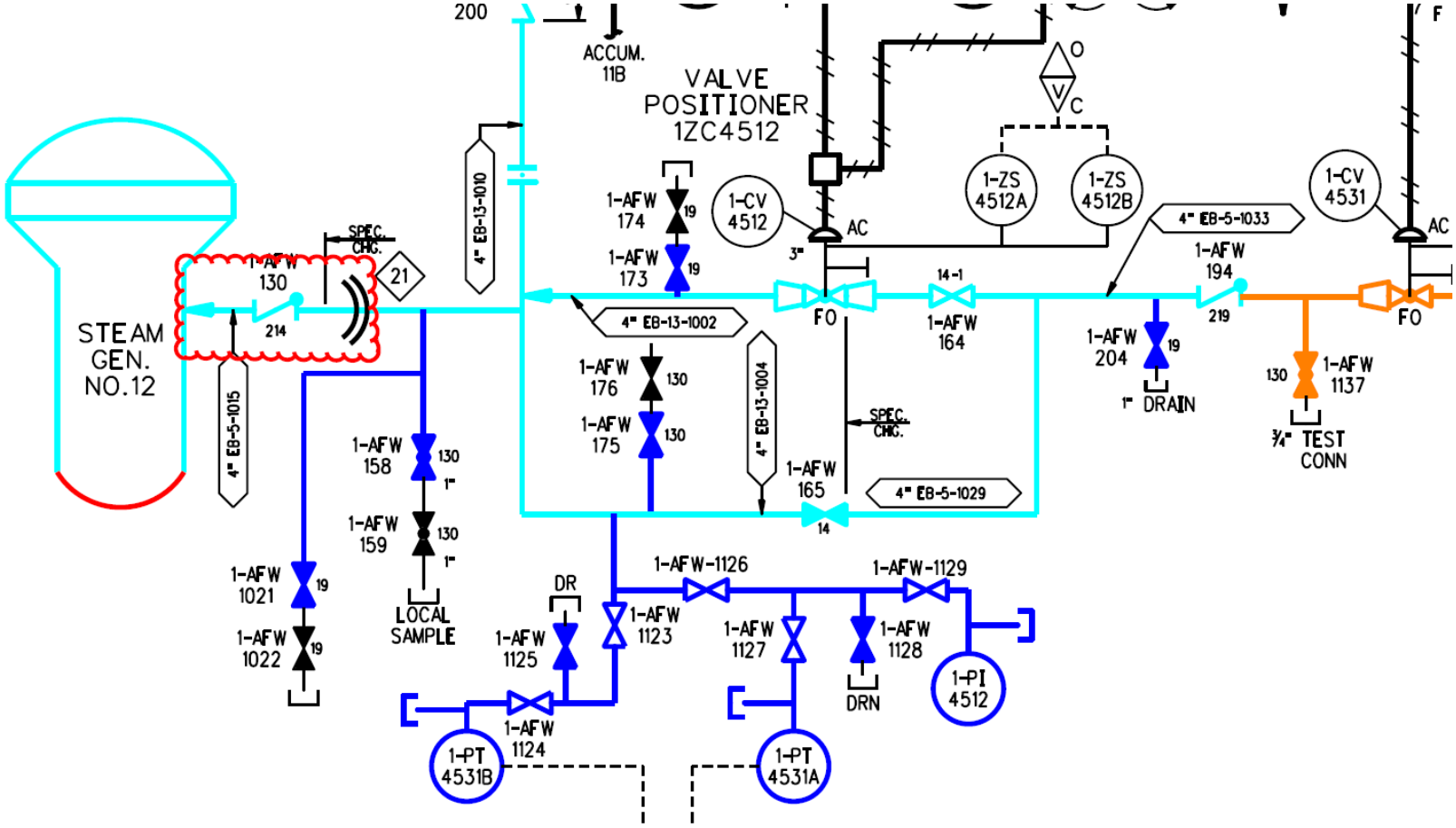

Figure 2. Calvert Cliffs, Unit 1, Auxiliary Feedwater piping between Penetration 21 and Steam Generator No. 12 (from ISI P&ID 60583SH0002-ISI)

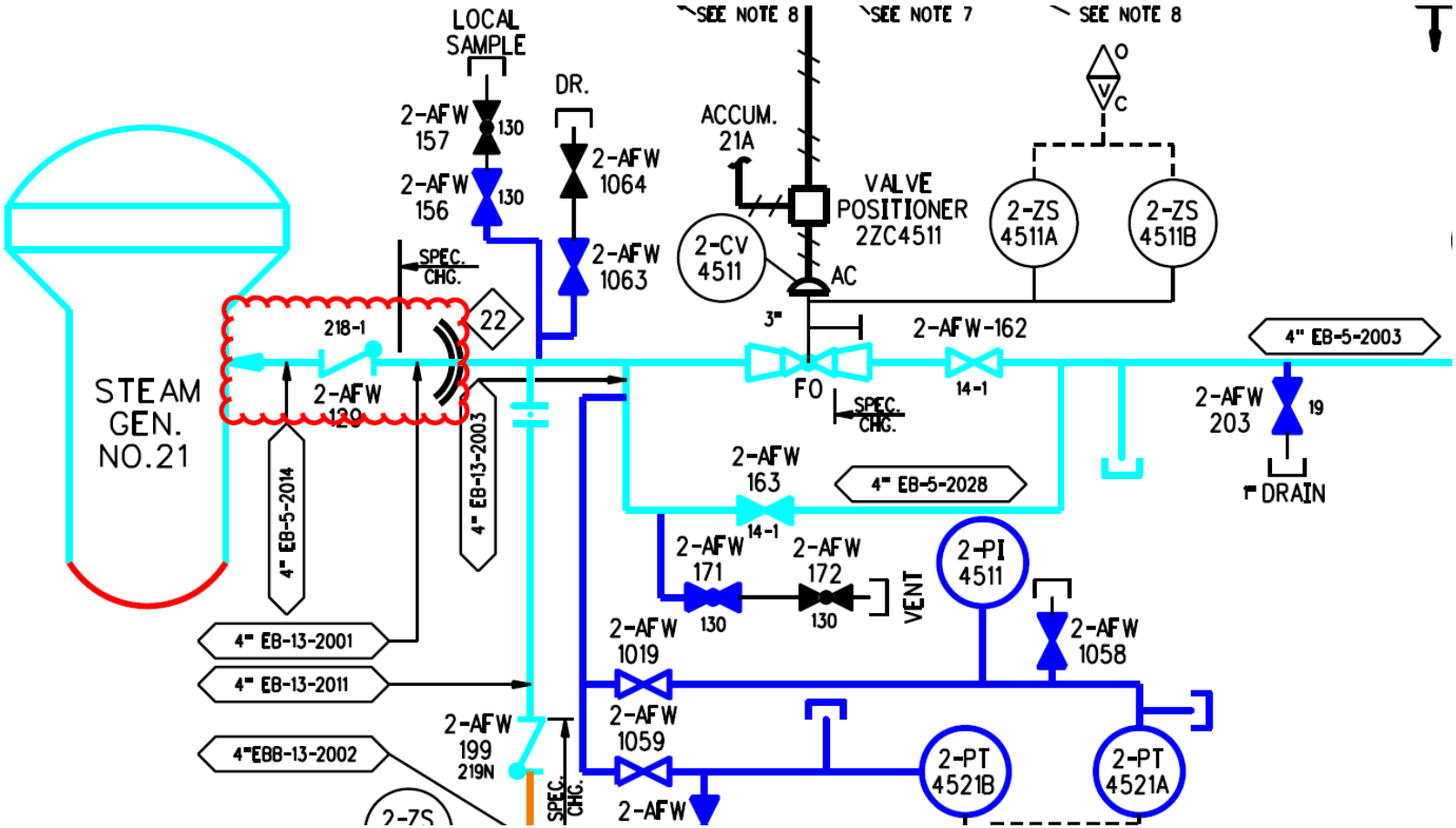

Figure 3. Calvert Cliffs, Unit 2, Auxiliary Feedwater piping between Penetration 22 and Steam Generator No. 21 (from ISI P&ID 62583SH0002-ISI)

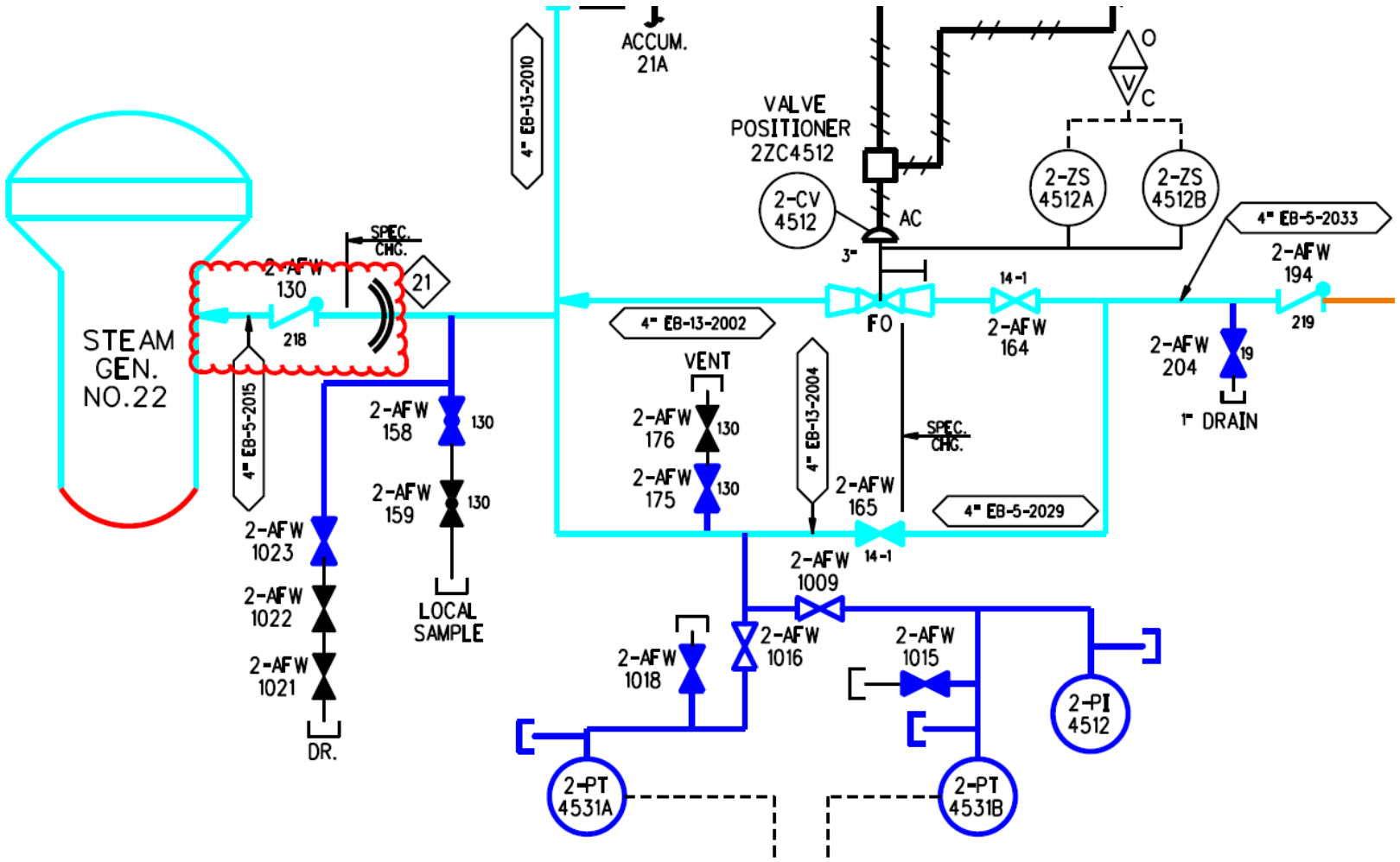

Figure 4. Calvert Cliffs, Unit 2, Auxiliary Feedwater piping between Penetration 21 and Steam Generator No. 22 (from ISI P&ID 62583SH0002-ISI)