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December 2, 2011  
L-11-359

10 CFR 50.55a

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

**SUBJECT:**

Davis-Besse Nuclear Power Station  
Docket No. 50-346, License No. NPF-3  
Response to Request for Additional Information on 10 CFR 50.55a Request RR-A35,  
Proposed Alternative to System Leakage Test Requirements (TAC No. ME6056)

By correspondence dated April 15, 2011 (Accession No. ML11109A119), FirstEnergy Nuclear Operating Company (FENOC) submitted a proposed alternative to certain requirements associated with the inservice inspection program for the Davis-Besse Nuclear Power Station.

By correspondence dated November 3, 2011 (Accession No. ML113060557), the Nuclear Regulatory Commission (NRC) requested additional information to complete its review of the proposed alternative. FENOC's response to this request is attached.

Additionally, piping and instrumentation diagrams are provided as Enclosures A and B, and a piping isometric drawing is provided as Enclosure C.

There are no regulatory commitments contained in this submittal. If there are any questions or additional information is required, please contact Mr. Phil H. Lashley, Supervisor – Fleet Licensing, at (330) 315-6808.

Sincerely,



Barry S. Allen

**Attachment:**

Response to 11/3/11 Request for Additional Information on Request RR-A35, Proposed Alternative to System Leakage Test Requirements

Enclosures:

- A. Piping and Instrumentation Diagram – Reactor Coolant System
- B. Piping and Instrumentation Diagram – Decay Heat Removal / Low Pressure Injection System
- C. Inservice Inspection Piping Isometric – Pressurizer Spray and Surge Lines

cc: NRC Region III Administrator  
NRC Resident Inspector  
NRC Project Manager  
Utility Radiological Safety Board

Attachment  
L-11-359

Response to 11/3/11 Request for Additional Information on Request RR-A35, Proposed  
Alternative to System Leakage Test Requirements

Page 1 of 2

By letter dated April 15, 2011, FirstEnergy Nuclear Operating Company (FENOC) submitted 10 CFR 50.55a Request RR-A35 for Nuclear Regulatory Commission (NRC) review and approval. By letter dated November 3, 2011, NRC staff requested additional information to complete the review. The requested information is presented in bold type, followed by the FENOC response.

**1. For the subject auxiliary pressurizer spray system Test Zone DH16:**

**a. Provide a piping and instrumentation diagram and a piping isometric drawing.**

Response:

The examination boundary for Test Zone DH16, Pressurizer Spray Line, is from valve DH2735 to valve RC51. Piping and instrumentation diagrams are provided as Enclosures A and B. The piping isometric drawing is provided as Enclosure C.

**b. What is the length of the auxiliary pressurizer spray line between RC51 and DH2735?**

Response:

As determined from Enclosure C, the length of the auxiliary pressurizer spray line from the outlet of valve DH2735 to the inlet of valve RC51 is approximately 127 feet.

**c. How many welded connections and what type (butt, socket) are in this segment?**

Response:

As determined from Enclosure C, there are 42 total socket welds in this segment. This includes the outlet weld of valve DH2735, the inlet weld of valve RC51, and 6 additional socket welds on a double root valve appendage.

**d. What is the expected operating pressure of this segment when the reactor coolant pumps are stopped and the decay heat removal pump is operating?**

Response:

As determined by calculation, the average expected operating pressure in this segment when the reactor coolant pumps are stopped and the decay heat removal pump is operating is approximately 97 pounds per square inch absolute (psia). For this calculation, the segment boundaries (with their respective operating pressures) are the outlet of valve DH2735 (125 psia) and the inlet of valve RC51 (68.2 psia). The test pressure cited in Request RR-A35 (77 psia) is located at valve RC51.

**2. Has there been a plant or industry history of degradation of the subject segments in Test Zones DH16 and RC01 by mechanisms such as stress corrosion cracking or fatigue?**

Response:

For Test Zones DH16 and RC01, a review of FENOC's corrective action program (CAP) did not reveal any plant history of degradation due to stress corrosion cracking or fatigue. The review was limited to the period of 1999-2011 due to the current CAP database structure.

For Test Zones DH16 and RC01, a review of inservice inspection pressure test results from the same time period also revealed acceptable results with no stress corrosion or fatigue related leaks noted. Specific test results reviewed were from the years of 2000, 2003, 2004, 2006, 2008, and 2010.

Industry operating experience (OE), however, has shown the susceptibility of stress corrosion cracking in stainless steel. This OE includes instances of outer diameter initiated stress corrosion cracking (ODSCC) of the pressurizer auxiliary spray lines at the Calloway and Wolf Creek nuclear plants. FENOC evaluated the OE and determined that the susceptibility for ODSCC exists at Davis-Besse. In response to the OE, FENOC evaluated and implemented recommendations from the Pressurized Water Reactor Owners Group (PWROG) interim strategy for identifying ODSCC. This guidance is considered a "Good Practice" recommendation per the Nuclear Energy Institute's "Guideline for the Management of Materials Issues [NEI 03-08]." Additionally, FENOC and its industry peers are collaborating on research to address stress corrosion cracking of stainless steels. The PWROG is leading this initiative that has thus far produced PA-MS-0563, "Industry Roadmap – Stress Corrosion Cracking of Stainless Steels." FENOC continues to monitor industry activities related to ODSCC for incorporation into Fleet programs.

LEGEND

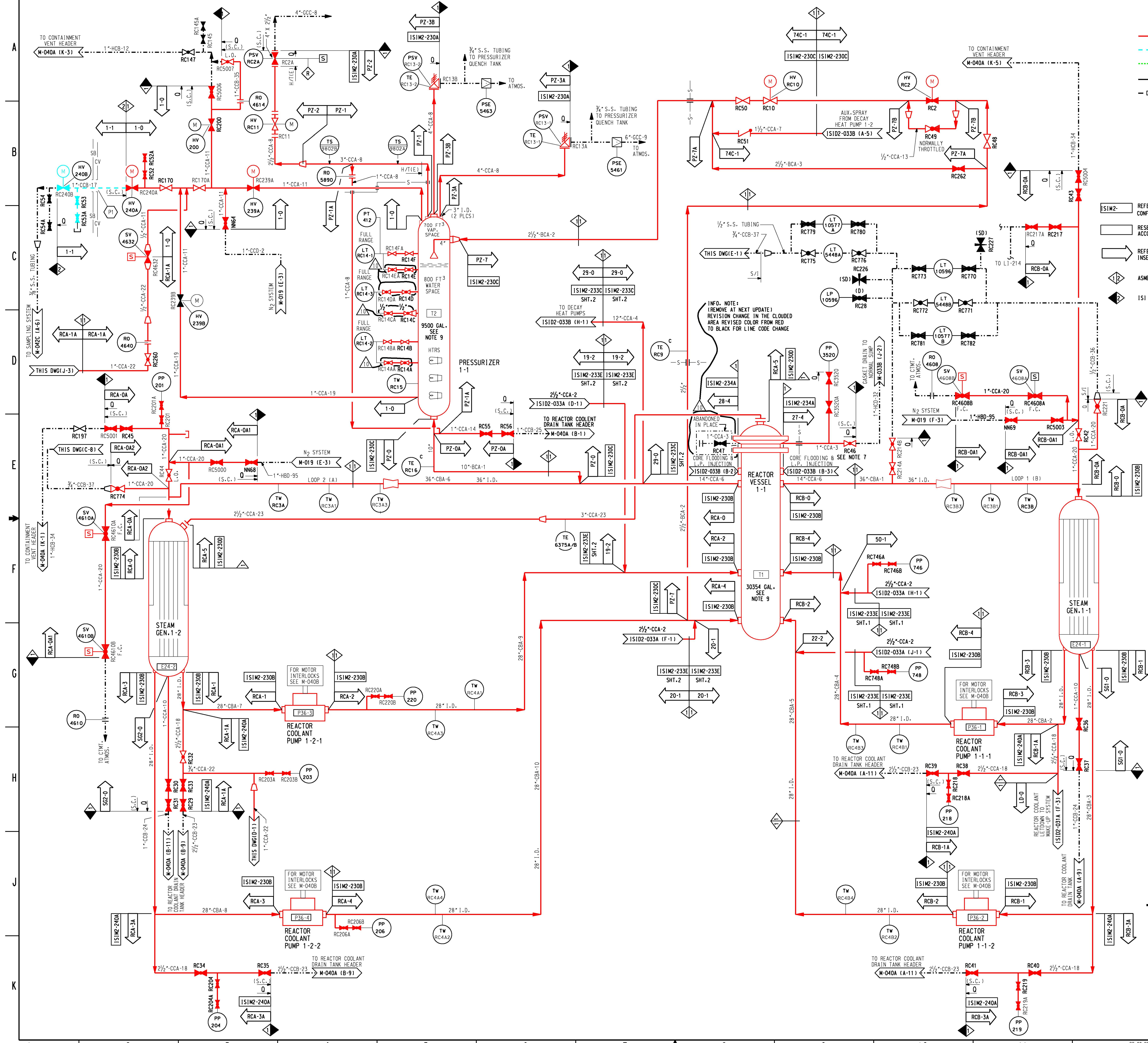
- ASME SECTION XI CLASS 1 PIPING (RED)
- - - ASME SECTION XI CLASS 2 PIPING (BLUE)
- - - ASME SECTION XI CLASS 3 PIPING (GREEN)
- REFERENCE & CONTINUITY
- O - HVAC DUCT

- ISIM2- REFERENCE TO THE PIPING ISOMETRIC DRAWING FOR DETAILS ON THE PIPING CONFIGURATION, AND THE LOCATION AND IDENTIFICATION OF WELDS AND SUPPORTS.
- RESERVED FOR SPECIAL ISI REQUIREMENTS. (MAY BE ACCOMPANIED BY SPECIFIC NOTES.)
- REFERENCE TO THE ISI ITEM NUMBER DESIGNATION USED IN THE FIRST 10 YEAR INSERVICE INSPECTION INTERVAL.
- ASME SECTION XI CLASS CHANGE
- ISI PROGRAM BOUNDARY

NOTES:

1. DELETED
2. FOR ISI BOUNDARY DIAGRAM INDEX SHEET AND GENERAL NOTES, SEE ISID2-001.
3. FOR PIPING SYMBOLS AND P & ID INDEX, SEE DRAWING M-001.
4. UNLESS OTHERWISE NOTED, ALL VENT CONNECTIONS ARE 1/2" AND DRAIN CONNECTIONS ARE 1". LINE IDENTIFICATION IS THE SAME AS THE HEADER.
5. FOR ISI PURPOSES ONLY THE CLASS 1 PIPING SYSTEMS SUPPLIED BY B & M HAVE BEEN ASSIGNED THE FOLLOWING LINE DESIGNATIONS WHICH ARE SIMILAR TO BUT ARE NOT TO BE CONFUSED WITH M601/M602 DESIGNATIONS:
  - 36"-CBA-1,6
  - 28"-CBA-2 TO 5.7 TO 10
  - 10"-BCA-1
  - 2 1/2"-BCA-2 & 3
6. THE FOLLOWING LINE NUMBERS ARE ASSOCIATED WITH THE TE-ITEM NUMBERS LISTED:
 

LINE NO.	TE ITEM NO.
36"-CBA-1	RCB-0
28"-CBA-2	RCB-3
28"-CBA-3	RCB-1
28"-CBA-4	RCB-4
28"-CBA-5	RCB-2
36"-CBA-6	RCA-0
28"-CBA-7	RCA-1
28"-CBA-8	RCA-3
28"-CBA-9	RCA-2
28"-CBA-10	RCA-4
10"-BCA-1	PZ-0
2 1/2"-BCA-2	PZ-7
2 1/2"-BCA-3	PZ-7A
7. RC46 MAY BE CLOSED IF LEAKAGE EXISTS.
8. THE INSTRUMENTATION VALVES OFF THE REACTOR COOLANT SYSTEM PIPING ARE SHOWN ON P & ID M-030B. THE ISI CLASS 1 BOUNDARY EXTENDS TO THE SECOND VALVE OFF THE PIPING.
9. WHERE NOTED THE TANK CAPACITY IS NOMINAL. WHERE APPLICABLE, SEE DB-PF-06705 (TANK LEVEL CALIBRATION CURVES) FOR INDICATED LEVEL VS. VOLUME RELATIONSHIP. (REF. PCAOR 96-0976).



9	11/20/00	INC. DCN ISID2-30A-12 PER DCR 01-1689	INITIALS ON FILE
8	09/20/00	INC. DCN ISID2-30A-9 PER DCR 00-2289 (REF. RFA 00-0287)	INITIALS ON FILE
7	09/21/00	INC. DCN ISID2-030A-8 PER DCR 00-1768	INITIALS ON FILE
6	08/14/00	INC. DCN ISID2-030A-7 PER DCR 99-0001	INITIALS ON FILE
5	08/14/00	INC. DCN ISID2-30A-10 PER EWR 01-0296-00, DCN'S ISID2-30A-11, 13 & 14 PER EWR 01-0308-00 AND DCN ISID2-30A-15 PER ECR 02-0740-00	SBW JOR CTD MGP

ISSUED FOR SECOND 10 YEAR ISI PROGRAM

SCALE: N.T.S. DESIGNED: DRAWN: CB DATE:

**DAVIS-BESSE NUCLEAR POWER STATION**  
UNIT NO. 1

THE TOLEDO Edison COMPANY

INSERVICE INSPECTION DIAGRAM  
REACTOR COOLANT SYSTEM

DRAWING NO. ISID2-030A REV. 10

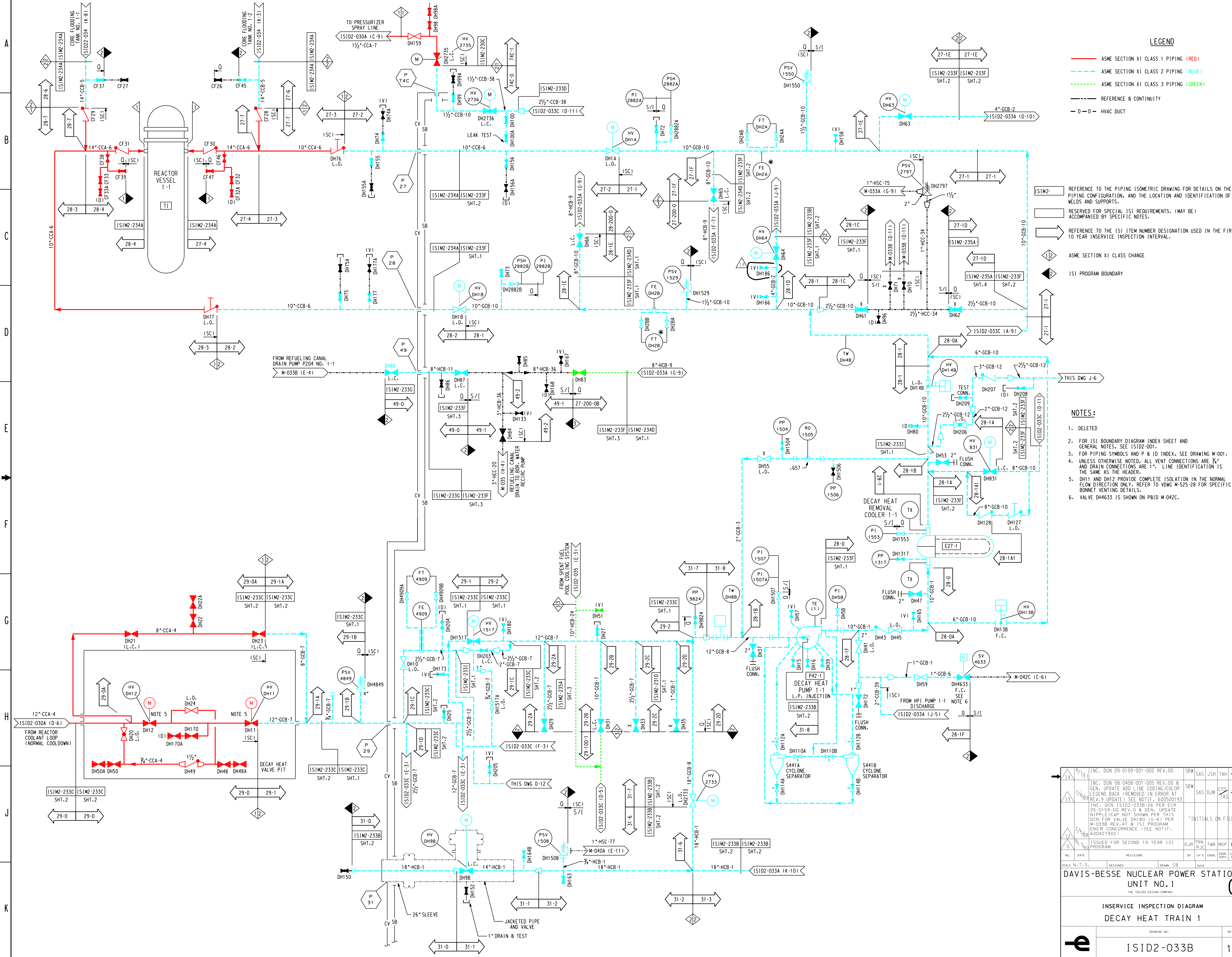
LEGEND

- ASME SECTION XI CLASS 1 PIPING (RED)
- ASME SECTION XI CLASS 2 PIPING (BLUE)
- ASME SECTION XI CLASS 3 PIPING (GREEN)
- REFERENCE & CONTINUITY
- HVAC DUCT

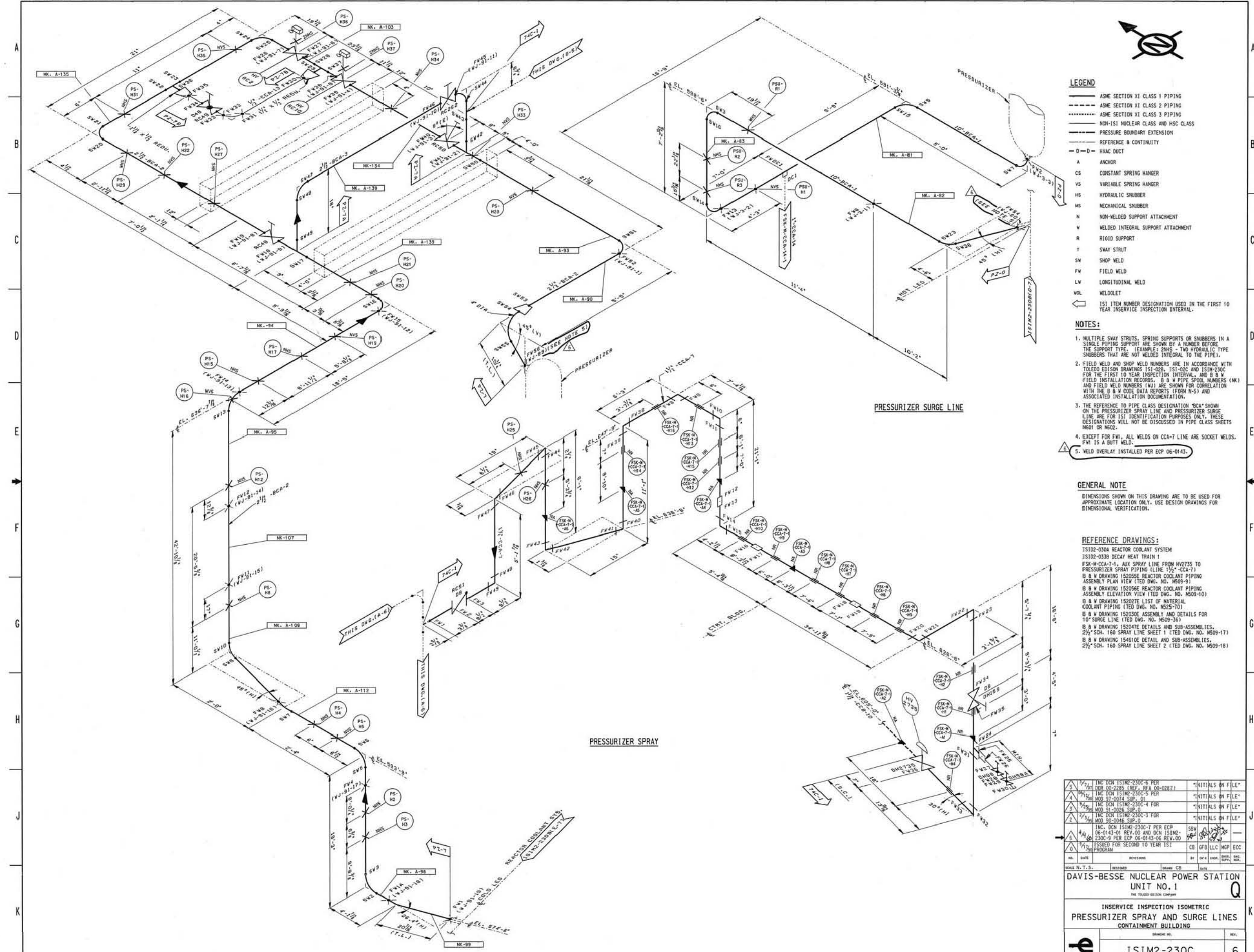
- REFERENCE TO THE PIPING ISOMETRIC DRAWING FOR DETAILS ON THE PIPING CONFIGURATION, AND THE LOCATION AND IDENTIFICATION OF WELDS AND SUPPORTS.
- RESERVED FOR SPECIAL ISI REQUIREMENTS. (MAY BE ACCOMPANIED BY SPECIFIC NOTES).
- REFERENCE TO THE ISI ITEM NUMBER DESIGNATION USED IN THE FIRST 10 YEAR INSERVICE INSPECTION INTERVAL.
- ASME SECTION XI CLASS CHANGE
- ISI PROGRAM BOUNDARY

NOTES:

- DELETED
- FOR ISI BOUNDARY DIAGRAM INDEX SHEET AND GENERAL NOTES, SEE IS1D2-001.
- FOR PIPING SYMBOLS AND P 8 ID INDEX, SEE DRAWING M-001.
- UNLESS OTHERWISE NOTED, ALL VENT CONNECTIONS ARE 7/8" AND DRAIN CONNECTIONS ARE 1". LINE IDENTIFICATION IS THE SAME AS THE HEADER.
- DH11 AND DH12 PROVIDE COMPLETE ISOLATION IN THE NORMAL FLOW DIRECTION ONLY. REFER TO DWG M-525-28 FOR SPECIFIC BONNET VENTING DETAILS.
- VALVE DH4633 IS SHOWN ON P81D M-042C.



14	1/11	INC. DUN 09-0109-001-002 REV.00	SBW	SAS	JSH	TAH	
13	1/6	INC. DUN 08-0408-001-005 REV.00 & GEN. UPDATE ADD LINE CODING/COLOR LEGEND BACK (REMOVED IN ERROR AT REV.9 UPDATE) SEE NOTIF. 600500193	SBW	SAS	DJM	CTD	TAS
12	2/5	INC. DCN IS1D2-033B-26 PER ECR 05-0159-00 REV.0 & GEN. UPDATE NIPPLE/CAP NOT SHOWN PER THIS DCN FOR VALVE DH180 (G-6) PER M-033B REV.47 & ISI PROGRAM ENGR. CONCURRENCE (SEE NOTIF. 600427902)					"INITIALS ON FILE"
11	3/7	ISSUED FOR SECOND TO YEAR ISI PROGRAM	DJR	TRN	RJC	TWB	MGP
10				CH*	ENGR.	ENGR. SUPV.	ECC
SCALE: N.T.S.		DESIGNED:	DRAWN: CB		DATE:		
<b>DAVIS-BESSE NUCLEAR POWER STATION</b>							
<b>UNIT NO. 1</b>							
<b>INSERVICE INSPECTION DIAGRAM</b>							
<b>DECAY HEAT TRAIN 1</b>							
DRAWING NO.		REV.					
IS1D2-033B		14					



LEGEND

- ASME SECTION XI CLASS 1 PIPING
- - - ASME SECTION XI CLASS 2 PIPING
- ..... ASME SECTION XI CLASS 3 PIPING
- NON-ISI NUCLEAR CLASS AND HSC CLASS
- PRESSURE BOUNDARY EXTENSION
- REFERENCE & CONTINUITY
- D - D- HVAC DUCT
- A ANCHOR
- CS CONSTANT SPRING HANGER
- VS VARIABLE SPRING HANGER
- HS HYDRAULIC SNUBBER
- MS MECHANICAL SNUBBER
- N NON-WELDED SUPPORT ATTACHMENT
- W WELDED INTEGRAL SUPPORT ATTACHMENT
- R RIGID SUPPORT
- T SWAY STRUT
- SW SHOP WELD
- FW FIELD WELD
- LW LONGITUDINAL WELD
- WOL WELD-OLETT
- ISI ITEM NUMBER DESIGNATION USED IN THE FIRST 10 YEAR INSERVICE INSPECTION INTERVAL.

NOTES:

1. MULTIPLE SWAY STRUTS, SPRING SUPPORTS OR SNUBBERS IN A SINGLE PIPING SUPPORT ARE SHOWN BY A NUMBER BEFORE THE SUPPORT TYPE. (EXAMPLE: SW-2 TWO HYDRAULIC TYPE SNUBBERS THAT ARE NOT WELDED INTEGRAL TO THE PIPE.)
2. FIELD WELD AND SHOP WELD NUMBERS ARE IN ACCORDANCE WITH TOLEDO EDISON DRAWINGS 151-02B, 151-02C AND 151M-230C FOR THE FIRST YEAR INSPECTION INTERVAL, AND B & W FIELD INSTALLATION RECORDS. B & W PIPE SPOOL NUMBERS (MK) AND FIELD WELD NUMBERS (WJ) ARE SHOWN FOR CORRELATION WITH THE B & W CODE DATA REPORTS (FORM N-5) AND ASSOCIATED INSTALLATION DOCUMENTATION.
3. THE REFERENCE TO PIPE CLASS DESIGNATION "SCA" SHOWN ON THE PRESSURIZER SPRAY LINE AND PRESSURIZER SURGE LINE ARE FOR ISI IDENTIFICATION PURPOSES ONLY. THESE DESIGNATIONS WILL NOT BE DISCUSSED IN PIPE CLASS SHEETS M601 OR M602.
4. EXCEPT FOR FW-1, ALL WELDS ON CCA-7 LINE ARE SOCKET WELDS. FW-1 IS A BUTT WELD.
5. WELD OVERLAY INSTALLED PER ECP 06-0143.

GENERAL NOTE

DIMENSIONS SHOWN ON THIS DRAWING ARE TO BE USED FOR APPROXIMATE LOCATION ONLY. USE DESIGN DRAWINGS FOR DIMENSIONAL VERIFICATION.

REFERENCE DRAWINGS:

- 15102-030A REACTOR COOLANT SYSTEM
- 15102-030B DECAY HEAT TRAIN 1
- FSK-M-CCA-7-1, AUX SPRAY LINE FROM HV2735 TO PRESSURIZER SPRAY PIPING LINE 1 1/2" CCA-7
- B & W DRAWING 152055E REACTOR COOLANT PIPING ASSEMBLY PLAN VIEW (TED DWG. NO. M509-9)
- B & W DRAWING 152056E REACTOR COOLANT PIPING ASSEMBLY ELEVATION VIEW (TED DWG. NO. M509-10)
- B & W DRAWING 152027E LIST OF MATERIAL COOLANT PIPING (TED DWG. NO. M525-70)
- B & W DRAWING 152030E ASSEMBLY AND DETAILS FOR 10" SURGE LINE (TED DWG. NO. M509-36)
- B & W DRAWING ISOCATE DETAILS AND SUB-ASSEMBLIES, 2 1/2" SCH. 160 SPRAY LINE SHEET 1 (TED DWG. NO. M509-17)
- B & W DRAWING 15461E DETAIL AND SUB-ASSEMBLIES, 2 1/2" SCH. 160 SPRAY LINE SHEET 2 (TED DWG. NO. M509-18)

5	1/2" INC DCN 151M2-230C-5 PER MOD 00-2285 (REF. PSA 00-0287)	"INITIALS ON FILE"
4	1/2" INC DCN 151M2-230C-5 PER MOD 97-0074 SUP. 01	"INITIALS ON FILE"
3	1/2" INC DCN 151M2-230C-4 FOR MOD 01-0006 SUP. 0	"INITIALS ON FILE"
2	1/2" INC DCN 151M2-230C-3 FOR MOD 90-0046 SUP. 0	"INITIALS ON FILE"
1	1/2" INC. DCN 151M2-230C-7 PER ECP 06-0143-01 REV.00 AND DCN 151M2-230C-9 PER ECP 06-0143-06 REV.00	SBW
0	ISSUED FOR SECOND TO YEAR ISI PROGRAM	CB GFB LLC MCP ECC

SCALE N.T.S. DESIGNED DRAWN CB DATE

**DAVIS-BESSE NUCLEAR POWER STATION UNIT NO. 1**

THE TOLEDO EDISON COMPANY

INSERVICE INSPECTION ISOMETRIC PRESSURIZER SPRAY AND SURGE LINES CONTAINMENT BUILDING

ISSUED FOR SECOND TO YEAR ISI PROGRAM

151M2-230C 6