TENNESSEE VALLEY AUTHORITY
BELLEFONTE NUCLEAR PLANT

Revision 1 To Technical Instruction BLTI-PSI-1 "Preservice Inspection Program"

TECHNICAL INSTRUCTION

BLTI-PSI-1

PRESERVICE INSPECTION PROGRAM

UNIT 1

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Bellefonte Unit 1

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Plant Superintendent

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1.0 STATEMENT OF APPLICABILITY

This program outlines details for performing the preservice nondestructive examinations of the Bellefonte Nuclear Plant ASME Code Class 1, 2, and 3 components (and their supports) containing water, steam, or radioactive material (other than Radioactive Waste Management Systems). The program has been organized to fulfill examination requirements of the Bellefonte Operational Quality Assurance Manual, Part II, Section 5.1 and comply as practical with the requirements of Section XI of the ASME Boiler and Pressure Vessel Code.

The requirements of ASME Section XI are in effect when the requirements of ASME Section III have been satisfied. Criteria for determining that ASME Section III requirements have been satisfied are as follows:

Items	When Section III Requirements Are Satisfied
Pressure Vessels and Pumps	When "N" Stamped
Valves	When "N" Stamped
Piping Systems	When the hydrostatic pressure test is complete and the N-5 data form is completed

Specifics concerning performance of nondestructive examinations are not a part of this program, but are included in nondestructive examination procedures (DPM N80E3).

2.0 PURPOSE

The Preservice Inspection Program (hereinafter PSI) is preliminary in nature and is employed to obtain detailed information for inclusion in the In-service Inspection Program. The examinations required by this program will establish acceptance of components for service.

The PSI Program serves as a means of determining built-in limitations caused by original plant design, geometry, materials of construction of the components, and the current technology or state-of-art of nondestructive testing. The PSI Program will also permit verification of the examination methods selected, finalization of detailed procedures, and will establish preservice examination data to be used as a reference for later in-service examinations.

3.0 CODE OF RECORDS AND CODE CASES

This program was prepared to meet the requirements of the 1977 Edition, Summer 1978 Addenda, of Section XI of the ASME Boiler and Pressure Vessel Code. Steam Generator Tubing Examination Requirements are in accordance with Regulatory Guide 1.83, Rev. 1, and Technical Specification 4.4.6. In accordance with 10 CFR Part 50.55a(b)(2), the extent

3.0 CODE OF RECORDS AND CODE CASES (Continued)

of examination for piping welds (Examination Categories B-J and C-F) is in accordance with the 1974 Edition, Summer 1975 Addenda, of ASME Section XI (Examination Categories B-J, C-F, and C-G). Extent of examination is defined as criteria for the selection of Class 1 and 2 components for examination and as criteria for determining which Class 2 components may be exempt from examination. The extent of examination also specifies the location on the components to be examined (i.e., length of weld).

Reactor Coolant Pump Flywheel Examination Requirements are in accordance with Regulatory Guide 1.14.

The use of Code Cases N-234 and N-235 have been approved for TVA use by NRC.

4.0 METHOD OF IMPLEMENTATION AND RESPONSIBILITIES

Preliminary weld maps and other pertinent component drawings and tables are included in Appendix A of this program to define areas subject to examination (in addition to sections 5.0, 6.0, 7.0, and 8.0). The preliminary piping weld maps should be established by NUC PR from CONST's latest revision weld maps.

Prior to performance of the examinations, each system shall be walked down by the Programs and Procedures Section of the Nuclear Central Office QA and Compliance Branch to verify that the NUC PR drawings depict field configurations. Any drawing revisions that are necessary as a result of the walkdown will be made before the drawings are included in this program.

The QA and Compliance Branch Inspection Section shall prepare scan plans using component drawings for systems or components requiring examinations. The plans should include as a minimum references to components to be examined, methods of examination, examination procedures, and calibration standards. Prior to performing examinations on a system or component, the scan plans shall be established and submitted to the Plant Superintendent for information, and system or component weld maps incorporated in Appendix A of this program.

If variations in piping configurations are discovered or modifications or repairs to piping are made during the course of the PSI, these changes shall be marked on field copies of drawings. This information shall be communicated to the Programs and Procedures Section which shall be responsible for revising the original drawings. The Inspection Section shall revise the scan plan to reflect these changes. Following completion of each system examination, the revised drawings shall be incorporated into this program as a reference for in-service inspections. All latest revision scan plan information and other pertinent information (i.e., as built calibration block drawings) shall be incorporated in this program as a reference for in-service inspections when all examinations required by this program have been completed.

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4.0 METHOD OF IMPLEMENTATION AND RESPONSIBILITIES (Continued)

The preservice examination will be performed by either the Inspection Section or outside contractors. Contract preparation, administration, and supervision will be the responsibility of the Inspection Section.

Inspection plans and/or quality assurance programs submitted by outside contractors shall be reviewed and approved by the NCO QA and Compliance Branch prior to use. All specific NDE Procedures used during the inspection program shall be reviewed and approved in accordance with OQAM, Part II, section 6.3.

Certain ASME Section III examinations performed in shop and/or by CONST will be identified by the Programs and Procedures Section and employed to serve for the ASME Section XI PSI. When in shop examination records are employed, the applicable data package form, with the ANI sign-off, shall be obtained by the Program and Procedures Section. When CONST examination records are employed, CONST examination procedures shall be obtained by the Inspection Section for reference.

Whenever inspection requirements are being accomplished under the jurisdiction of NUC PR, an NCO QA and Compliance Branch Inspection Section representative shall be responsible for coordinating activities or obtaining inspection data. He will be the designated TVA representative to ensure contract compliance and to ensure proper disposition of needed procedure changes to both TVA and/or contractor procedures in accordance with approved vendor QA program and section 6.3, Part II of the OQAM.

Additionally, the Inspection Section representative will be responsible for notifying the Plant Superintendent of all unacceptable indications as soon as practical. Whenever an unacceptable indication is discovered, the procedure and form in Appendix D shall be utilized. In those cases where an outside contractor is furnishing preservice examination services, the contractor will normally initiate the form in Appendix D under the supervision of the Inspection Section representative. See section 17.0 of this program.

As examinations are completed, the Inspection Section representative shall sign for completion the appropriate section of Data Sheet 1 in Appendix C of this program. When all examinations of this program have been completed, Data Sheet 1 shall be signed for completion by the Inspection Section representative and reviewed by Inpsection Section Supervisor, Programs and Procedures Section Supervisor, and Baseline and In-service Inspection Group Supervisor, and approved by NCO QA and Compliance Branch Chief. In the event system or component alterations or repairs are made which require component reexamination, or components are reexamined for other reasons, following sign-off of Data Sheet 1, the appropriate sections of Data Sheet 2 in Appendix C shall be completed and signed by the Inspection Section Representative and reviewed by Inspection Section Supervisor and Programs and Procedures Section Supervisor, and Baseline and In-service Inspection Group Supervisor, and approved by NCO QA and Compliance Branch Chief.

4.0 METHOD OF IMPLEMENTATION AND RESPONSIBILITIES (Continued)

All preservice examinations shall be completed prior to initial plant start up (Operational Mode 2). Prior to initial plant start up, Data Sheet 2, in addition to Data Sheet 1, in Appendix C shall be signed by the Inspection Section representative and reviewed by the supervisor of the Inspection Section, supervisor of the Programs and Procedures Section, and by the supervisor of the Baseline and In-Service Inspection Group. The NCO QA and Compliance Branch Chief and the plant superintendent shall approve the Data Package (Data Sheets 1 and 2). These data sheets shall be filed at the plant site with PSI examination data and final reports discussed in section 16.0 of this program.

PSI Program preparation is the responsibility of the Programs and Procedures Section of the NCO QA and Compliance Branch. Any revisions initiated by other groups shall be submitted to the Programs and Procedure Section for approval prior to incorporating the revisions into this program.

5.0 ABBREVIATIONS AND DEFINITIONS

5.1 AIA - Authorized Inspection Agency

5.2 AI - Authorized Inspector (may denote an ANI or ANII)

5.3 ANI - Authorized Nuclear Inspector

5.4 ANII - Authorized Nuclear In-service Inspector

5.5 Components - Denotes items in a power plant such as vessels, piping systems, pumps, valves, and component supports.

5.6 Examination - Denotes the performance of all visual observation and nondestructive testing such as radiography, ultrasonic, eddy current, liquid penetrant, and magnetic particle methods.

5.7 Inspection - Denotes verifying the performance of examinations and tests by a representative of an Authorized Inspection Agency.

5.8 Maintenance - Routine servicing or work on an item undertaken to correct or prevent an unsatisfactory condition. Maintenance does not include welding, heat treating, or defect removal which affects the pressure boundary. Maintenance includes operations such as lapping of seats, adjustment of stem packing and pump seal maintenance. Maintenance does not require the presence of or verification by an Authorized Nuclear Inspector or an authorized Nuclear In-service Inspector.

5.9 Normal Operation - Normal plant operation conditions include reactor startup, operation at power, hot standby, and reactor cooldown to cold shutdown conditions. Test conditions are excluded.

5.0 ABBREVIATIONS AND DEFINITIONS (Continued)

5.10 Pressure-Retaining Material - Applies to items such as vessel heads, nozzles, pipes, tubes, fittings, valve bodies, bonnets, disks, pump castings, covers, and boltings which join pressure-retaining items.

5.11 Repair - Those operations involving welding, heat treatment, or defect removal which are required to restore an item to a safe and satisfactory operating condition.

5.12 Replacement - Spare and renewal components or pressure retaining parts of a component (e.g., valve body, bonnet, disc, bolting). It also includes the addition of components, such as valves, and system changes, such as rerouting or piping. For the purpose of this procedure, the term replacement shall apply where attachment to the pressure boundary is by welding or mechanical means.

6.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 1

The ASME Class 1 components to be examined for the PSI are outlined in the following paragraphs. The entire length of each weld described will be examined for the PSI. Extent of examination for piping welds will be in accordance with Table IWB-2500 and Table IWB-2600 Category B-J of the 1974 Edition and Addenda through the summer of 1975 Addenda of Section XI of ASME Code.

All Class 1 components are subject to volumetric and/or surface examination except component connections, piping, and associated valves (and their supports) that are one-inch nominal pipe size and smaller (see section 6.9). Class 1 vessels shall not be examined until the hydrostatic test required by Section III has been completed.

When examinations have been completed on various components, the data sheet(s) in Appendix C shall be completed.

Table A in Appendix A supplies additional information such as reference drawing numbers and Section XI, Table IWB-2500-1, examination categories.

6.1 Reactor Vessels

6.1.1 Reactor Vessel Shell Welds

6.1.1.1 Circumferential Shell Weld - Beltline Region

There is one circumferential weld in the vessel cylindrical shell located behind the thermal shield. This weld will be ultrasonically examined using remote inspection devices from the vessel I.D. with the core internals removed.

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6.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 1 (Continued)

6.1 Reactor Vessels (Continued)

6.1.1.1 (Continued)

All vessel shell sections are machined forgings fabricated of SA-508, Class 2, manganese-molybdenum steel and are clad with weld deposited austenitic stainless steel.

6.1.1.2 Circumferential Shell Welds

There are two circumferential welds in the vessel cylindrical shell located outside of the beltline region. The welds will be ultrasonically examined using remote inspection devices from the vessel I.D. with the core internals removed. The vessel shell section material is identified in section 6.1.1.1.

6.1.1.3 Longitudinal Shell Welds

There are no longitudinal shell welds associated with the reactor vessel.

6.1.1.4 Circumferential Head Weld

There is one circumferential weld in the lower head. The weld will be ultrasonically examined using remote inspection devices from the vessel I.D. with the core internals removed. There is no circumferential weld associated with the closure head. The lower head center disc is fabricated of SA-533, GR.B, Class 1, manganese-molybdenum steel. The lower head dutchman is fabricated of SA-508, Class 2 manganese-molybdenum steel. Both sections are clad with weld deposited austenitic stainless steel.

6.1.1.5 Meridional Head Welds

There are no meridional head welds associated with the reactor vessel.

6.1.1.6 Shell-To-Flange Weld

The shell-to-flange weld will be ultrasonically examined from the vessel I.D. with remote inspection devices.

The shell and flange sections are fabricated of SA-508, Class 2, manganese-molybdenum steel and are clad internally and on the gasket face with weld deposited austenitic stainless steel.

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6.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 1 (Continued)

6.1 Reactor Vessels (Continued)

6.1.1 Reactor Vessel Shell Welds (Continued)

6.1.1.7 Closure Head-To-Flange Weld

The head-to-flange weld will be manually ultrasonically examined from the head O.D.

The closure head center disc is fabricated of SA-533, Gr.B, Class 1, manganese-molybdenum steel and the flange is fabricated from SA-508, Class 2, manganese-molybdenum steel. Both are clad internally and on the gasket face with austenitic stainless steel.

6.1.2 Reactor Vessel Nozzle-To-Vessel Welds And Inside Radiused Sections

There are four inlet nozzles (28-inch I.D.), two outlet nozzles (38-inch I.D.) and two core flooding nozzles (12.25 inch I.D.). The core flooding nozzles contain flow inserts which reduce the inside diameter to 9 inches. The four inlet and two outlet nozzle-to-vessel welds and nozzle inside radiused sections will be ultrasonically examined from the nozzle bore and the vessel I.D. using remote inspection devices. The two core flooding nozzle-to-vessel welds and nozzle inside radiused sections will be ultrasonically examined from the vessel shell I.D.

The nozzles are fabricated of SA-508, Class 2, manganese molybdenum steel and are clad with weld deposited stainless steel.

6.1.3 Reactor Vessel Partial Penetration Welds

The control rod drive penetrations (81) and instrumentation penetrations (62) shall be visually examined in accordance with visual examination method VT-2 (See Section 11.1) for leakage during the system leakage tests conducted in accordance with IWB-5221.

6.1.4 Reactor Vessel Nozzle-To-Safe End Welds

The core flooding nozzle-to-safe end welds shall be ultrasonically examined from the I.D. using remote inspection devices. In addition, these welds will be liquid penetrant examined from the O.D. The inlet and outlet nozzles do not have safe end welds.

The core flooding nozzle safe end is fabricated of SB-166 chromium- nickel-iron alloy.

6.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 1 (Continued)

6.1 Reactor Vessels (Continued)

6.1.9 Reactor Vessel Control Rod Drive Housings

The pressure-retaining welds in the peripheral control rod drive housings shall be liquid penetrant examined.

The housings consist of a 4-1/4-inch O.D. adapter (SA-182, F304 SS) and a 4-1/2-inch O.D. body (SB-167).

6.1.10 Repair Welds In Beltline Region

Base metal weld repairs in the beltline region where the repair depths exceed 10 percent nominal of the vessel wall thickness shall be ultrasonically examined.

6.2 Pressurizer

6.2.1 Pressurizer Circumferential Shell-To-Head Welds

There are two circumferential shell-to-head welds. The entire length of each weld shall be ultrasonically examined.

All shell and head sections are fabricated of SA-533, GR.B, Class 1, manganese-molybdenum steel and are clad with austenitic stainless steel.

6.2.2 Pressurizer Longitudinal Shell-To-Head Welds

There is one longitudinal weld intersecting each circumferential shell-to-head weld. The entire length of each weld shall be ultrasonically examined.

The Pressurizer Shell Section material is identified in section 6.2.1.

6.2.3 Pressurizer Nozzle-To-Vessel Welds and Inside Radiused Sections

There are two 6-inch pressure relief nozzles, one 4 inch spray nozzle, and one 2-1/2-inch pressure relief nozzle in the upper head and one 14-inch surge nozzle in the lower head. The nozzle-to-vessel welds and nozzle inside radiused sections will be ultrasonically examined. (see section 20.2.)

The nozzles in the upper head are fabricated of SB-166. The 14-inch nozzle in the lower head is fabricated of SA-508, Class 2, manganese molybdenum steel.

6.2.4 Pressurizer Heater Penetrations

The pressurizer heater penetrations shall be visually examined in accordance with visual examination method VT-2 (see section 11.1) for leakage during the system leakage tests conducted in accordance with IWB-5221.

6.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 1 (Continued)

6.2 Pressurizer (Continued)

6.2.5 Pressurizer Nozzle-To-Safe End Weld

The 14-inch nozzle in the lower head includes a welded safe end. The nozzle-to-safe end weld shall be ultrasonically and liquid penetrant examined.

The safe end connection is fabricated of SA-336, Class F8, stainless steel.

6.2.6 Pressurizer Pressure Retaining Bolting Larger Than 2 Inches In Diameter

There is no pressure-retaining bolting larger than 2 inches in diameter.

6.2.7 Pressurizer Pressure Retaining Bolting 2 Inches and Smaller In Diameter

There is one manway cover and two heater bundle covers. The bolting shall be visually examined in accordance with visual examination method VT-1 (see section 11.1). The bolting may be examined either in place under tension, or when the bolting is removed.

The manway cover has 16 studs and nuts at 1-7/8 inches in diameter. Each heater bundle cover has 20 studs and nuts at 1-7/8 inches in diameter. The studs and nuts are fabricated to SA-540, Class 4, GR.B23 manganese molybdenum steel.

6.2.8 Pressurizer Integrally Welded Supports (8)

The pressurizer is supported by eight supports (3-1/2 inches thick) integrally welded to the intermediate shell. All supports shall be surface examined.

The supports are fabricated of SA-516, GR.70, steel.

6.3 Steam Generators (2)

6.3.1 Steam Generator Primary Longitudinal and Cirumferential Welds

The primary inlet and outlet head-to-tube sheet welds on each generator shall be ultrasonically examined. There are no primary longitudinal welds.

The tube sheets are SA-508, Class 2, steel forging, clad on the primary side with inconel 600 (NICRFE). The upper and lower heads are fabricated of SA-533, GR.B, Class-1 manganese molybdenum steel clad with austenetic stainless steel.

6.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 1 (Continued)

6.3 Steam Generators (2) (Continued)

6.3.2 Steam Generator Primary Nozzle-To-Head Welds and Inside Radiused Sections

Each generator upper head includes one 38-inch I.D. inlet nozzle. The lower head includes two 32-inch I.D. outlet nozzles. The inlet and outlet nozzle-to-vessel welds and nozzle inside radiused sections will be ultrasonically examined.

The nozzles are fabricated of SA-508, Class 2, manganese molybdenum steel and clad with stainless steel.

6.3.3 Steam Generator Primary Pressure-Retaining Bolting Larger Than 2 Inches In Diameter

There is no pressure-retaining bolting larger than 2 inches in diameter.

6.3.4 Steam Generator Primary Pressure-Retaining Bolting 2 Inches and Smaller In Diameter

There are two manway covers and two inspection covers on the primary side of each generator. All the bolting shall be visually examined in accordance with visual examination method VT-1 (see section 11.1).

The bolting may be examined either in place under tension or when the bolting is removed.

Each manway cover has 16 bolts at 1-7/8 inches in diameter. Each inspection cover has 8 bolts at 1.5 inches in diameter. The bolts are fabricated to SA-540, GR. B23 or B24.

6.3.5 Steam Generator Integrally-Welded Vessel Support

The steam generator support (1-1/2 inches thick) skirt-to-vessel weld for each steam generator shall be ultrasonically examined.

The support skirt is fabricated of SA-533, GR.B, Class 1, manganese molybdenum steel plate.

6.3.6 Steam Generator Tubing

Each steam generator tube bundle consists of 16,013 NiCrFe, SB-163, straight tubes of 0.625 O.D. by 0.034 minimum wall thickness.

All tubes shall undergo a preservice inspection by eddy current examination. The preservice examination shall be performed in accordance with Appendix IV of Section XI and Regulatory Guide 1.83, Rev. 1.

6.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 1 (Continued)

6.3 Steam Generators (2) (Continued)

6.3.6 Steam Generator Tubing (Continued)

6.3.6.1 Acceptance Criteria

6.3.6.1.1 As Used In This Section:

6.3.6.1.1.1 Imperfection means an exception to the dimensions, finish or contour of a tube from that required by the fabrication drawings or specifications.

Eddy current testing indications below 20 percent of the nominal tube wall thickness, if detectable, may be considered as imperfections.

6.3.6.1.1.2 Degradation means a service-induced cracking, wastage, wear, or general corrosion occurring on either inside or outside of a tube.

6.3.6.1.1.3 Degraded Tube means a tube containing imperfections 20 percent of the nominal wall thickness caused by degradation.

6.3.6.1.1.4 Percent Degradation Means the percentage of the tube wall thickness affected or removed by degradation.

6.3.6.1.1.5 Defect means an imperfection of such severity that it exceeds the plugging limit. A tube containing a defect is defective.

6.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 1 (Continued)

6.3 Steam Generators (2) (Continued)

6.3.6 Steam Generator Tubing (Continued)

6.3.6.1 (Continued)

6.3.6.1.1 (Continued)

6.3.6.1.1.6 Plugging Limit means the imperfection depth at or beyond which the tube shall be removed from service because it may become unserviceable prior to the next inspection and is equal to 40 percent of the nominal tube wall thickness.

6.3.6.1.1.7 Unserviceable describes the condition of a tube if it leaks or contains a defect large enough to affect its structural integrity in the event of a seismic occurrence greater than the operating basis earthquake, a loss-of-coolant accident requiring actuation of the engineered safeguards, or a steam line or feedwater line break.

6.3.6.1.1.8 Tube Inspection means an inspection of the entire length of the steam generator tube.

6.3.6.1.1.9 Preservice Inspection means a tube inspection of each steam generator tube performed by eddy current techniques prior to service to establish a baseline condition of the tubing. This inspection will be performed prior to initial power operation using the equipment and techniques subsequent in-service inspections.

6.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 1 (Continued)

6.3 Steam Generators (2) (Continued)

6.3.6 Steam Generator Tubing (Continued)

6.3.6.1 (Continued)

6.3.6.1.2 All defective tubes and tubes containing through-wall cracks shall be plugged.

6.4 Piping

The following Class 1 piping systems are subject to examination:

Core Flood (NL)
Decay Heat Removal (ND)
Reactor Coolant (NC)
Make-Up and Purification (NV)
Reactor Coolant Drain, Vents, and Miscellaneous Piping (NK)

Specific material specifications for each piping system are included in the weld map isometrics in Appendix A.

6.4.1 Piping Dissimilar Metal Welds

The entire length of each safe end weld shall be surface and ultrasonically examined.

6.4.2 Piping Pressure-Retaining Bolting Larger Than 2 Inches In Diameter

For pressure-retaining bolting larger than two inches in diameter the bolts shall be ultrasonically examined and shall also be surface examined if removed. Nuts, threads in base material and flange ligaments between threaded stud holes shall be visually examined in accordance with visual examination method VT-1 (see section 11.1).

The rest of this section to be completed later.

6.4.3 Piping Pressure-Retaining Bolting 2 Inches and Smaller In Diameter

All pressure-retaining bolting less than two inches in diameter shall be visually examined in accordance with visual examination method VT-1 (see section 11.1). These examinations shall include bolts, studs, and nuts. (See weld map isometrics in Appendix A for location of bolted connections.)

The bolting may be examined either in place under tension or when the bolting is removed.

6.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 1 (Continued)

6.4 Piping (Continued)

6.4.4 Circumferential and Longitudinal Pipe Welds

The entire length of each circumferential and longitudinal pipe weld four inches in diameter and greater shall be ultrasonically and surface examined. The entire length of each circumferential and longitudinal pipe welds less than four inches in diameter shall be surface examined. (See section 3.0.)

6.4.5 Branch Pipe Connection Welds

All branch pipe connection welds exceeding two inches in diameter shall be ultrasonically and surface examined. Each branch pipe connection weld two inches in diameter and smaller shall be surface examined. (See section 3.0.)

6.4.6 Piping Socket Weld

Each socket weld shall be surface examined. CONST Section III examination data will be used for surface examination of field welds. (Complete Data Sheet 1 in Appendix C when CONST examination procedure(s) are obtained.) (See section 3.0.)

6.4.7 Piping Integrally Welded Supports

All piping integrally welded external support attachments having piping required to be examined (Examination Category B-J), and whose support base material design thickness is 5/8 inch and greater shall be surface examined. Integrally welded external support attachments include those supports which have attachment welds to the piping pressure-retaining boundary.

6.4.8 Piping Support Components

All piping support components having piping required to be examined (Examination Category B-J), shall be visually examined during the preservice inspection in accordance with visual examination methods VT-3 and VT-4 (see section 11.1). This examination includes integrally welded and nonintegrally welded component supports. Component supports extend from the piping to and including the attachment to the supporting structure. The support settings of constant and variable spring type hangers, snubbers, and shock absorbers shall also be verified.

6.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 1 (Continued)

6.5 Reactor Coolant Pumps (4) - RCP

6.5.1 RCP Pressure-Retaining Bolting Larger Than 2 Inches In Diameter

The main flange on each pump includes 24 studs and nuts at 4-1/2 inches in diameter.

The bolts shall be ultrasonically examined and shall also be surface examined if removed. Nuts, threads in the base material and flange ligaments between threaded stud holes shall be visually examined in accordance with visual examination method VT-1 (see section 11.1).

All bolting may be examined either in place under tension or when the bolting is removed.

The main flange bolts are fabricated to SA-540, Class 3 Grade B-23.

6.5.2 RCP Pressure-Retaining Bolting 2 Inches and Smaller In Diameter

There is no pressure-retaining seal assembly bolting.

6.5.3 RCP Integrally Welded Supports

Each RCP has three integrally welded support lugs (5 inches thick). These welds shall be surface examined.

The lugs are fabricated of SA-182, type 316 stainless steel.

6.5.4 RCP Support Components

Each RCP includes three support components bolted to the pump support lugs. Each support component shall be visually examined in accordance with visual examination method VT-3 (see section 11.1).

6.5.5 RCP Casing Welds

Each pump includes suction nozzle which is welded to the pump casing. The nozzle-to-casing weld cannot be ultrasonically examined and achieve meaningful results due to limitations of examining cast material. In lieu of this requirement the casing weld shall be surface examined (see Request for Relief (Later)).

The nozzle and casing material are SA-351 GR CF8A.

6.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 1 (Continued)

6.5 Reactor Coolant Pumps (4) - RCP (Continued)

6.5.6 RCP Casings

The internal pressure boundary surfaces of each pump casing shall be visually examined in accordance with visual examination method VT-1 (see section 11.1).

6.5.7 RCP Flywheel

Each RCP flywheel shall undergo an ultrasonic examination and a surface examination in accordance with Regulatory Guide 1.14.

Shop examination data will be used to satisfy examination requirements.

Each pump has a one piece flywheel fabricated from an SA-508, Class 4, forging.

6.6 Valves

6.6.1 Valve Pressure-Retaining Bolting Larger Than 2 Inches In Diameter

For pressure-retaining bolting two inches in diameter or larger the bolts shall be ultrasonically examined and shall also be surface examined if removed. Nuts, threads in base material and flange ligaments between threaded stud holes shall be visually examined in accordance with visual examination method VT-1 (see section 11.1). (See Appendix A, Table G for valves).

The rest of this section to be completed later.

6.6.2 Valve Pressure Retaining Bolting 2 Inches and Smaller In Diameter

Class 1 bolting less than two inches in diameter shall be visually examined in accordance with visual examination method VT-1 (see section 11.1). These examinations include bolts, studs, and nuts. (See Appendix A, Table G for valves).

The bolting may be examined either in place under tension, when the connection is disassembled, or when the bolting is removed.

6.6.3 Valve Integrally Welded Supports

All valve integrally welded support attachments having piping required to be examined (Examination Category B-J), and whose support base material design thickness is 5/8 inch and greater shall be surface examined. (See Appendix A, Table G for valves).

6.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 1 (Continued)

6.6 Valves (Continued)

6.6.3 (Continued)

Integrally welded attachments include those supports which have attachment welds to the valve pressure retaining boundary.

6.6.4 Valve Component Supports

All valve component supports having piping required to be examined (Examination Category B-J) shall be visually examined in accordance with visual examination methods VT-3 and VT-4 (see section 11.1). This examination includes integrally welded and nonintegrally welded component supports. Component supports extend from the valves to and including the attachment to the supporting structure. The support settings of constant and variable spring type hangers, snubbers, and shock absorbers shall be verified. (See Appendix A, Table G for valves).

6.6.5 Pressure Retaining Valve Body Welds

All valve body welds shall be ultrasonically and surface examined. (See Appendix A, Table G for valves).

6.6.6 Valve Bodies

The internal pressure boundary surfaces of one valve in each group of valves of the same constructional design, (e.g., globe, gate or check valve) manufacturing method and that are performing similar functions in the system shall be visually examined in accordance with visual examination method VT-1 (see Section 11.1). The examination shall include valves exceeding four inches in nominal pipe size. (See valve data in Appendix A, Table F for groups of valves).

6.7 Makeup and Purification Letdown Coolers (2)-MPLC

6.7.1 MPLC Tube Sheet To Head Weld Inlet

There is one tube sheet inlet weld to head (10 inch x 3 inch concentric cone) per cooler. The tube sheet to head weld shall be ultrasonically examined.

The tube sheet inlet is fabricated of Inconel 600 SB-564, 9 inch diameter and 2-1/2 thick. The head (concentric cone) is fabricated of T-304 SA-182 and 7/8 inch thick.

6.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 1 (Continued)

6.7 Makeup and Purification Letdown Coolers (2)-MPLC (Continued)

6.7.2 MPLC Tube Sheet To Head Weld Outlet

There is one MPLC tube sheet outlet weld to head (10 inch x 3 inch concentric cone) per cooler. The tube sheet to head weld shall be ultrasonically examined.

The tube sheet outlet is fabricated of T304-SA182, 9 inch diameter and 2-1/2 inch thick. The head (concentric cone) is fabricated of T304-SA182 and 7/8 inch thick.

6.7.3 MPLC Head To Nozzle Weld

There are two MPLC heads (10 inch x 3 inch concentric cones) welds to 3 inch nozzles per cooler. The head (concentric cone) to nozzle welds shall be ultrasonically examined.

The heads (concentric cones) are fabricated of T-304 SA-182. The nozzles are fabricated to SA-312.

6.7.4 MPLC Primary Pressure Retaining Bolting Larger Than 2 Inches In Diameter

There is no MPLC pressure retaining bolting larger than two inches in diameter.

6.7.5 MPLC Primary Pressure-Retaining Bolting 2 Inches and Smaller In Diameter

The rest of this section to be completed later.

6.8 Pressure-Retaining Components

All pressure-retaining components shall be visually examined for leakage during the ASME Section III hydrostatic pressure tests and shall be visually examined in accordance with visual examination method VT-2 (see section 11.1) for leakage during the system leakage tests conducted in accordance with IWB-5221.

6.9 Exempted Components

Components exempted from examination include component connections, piping, and associated valves and their support that are 1-inch nominal pipe size and smaller, except for steam generator tubing; components connected to and part of the reactor coolant pressure boundary (defined in 10 CFR 50, Section 50.2(V); revised January 1, 1975) but exempted from Class 1 requirements by regulations of the regulatory authority having jurisdiction at the plant site; reactor vessel head connections and associated piping, 2-inch nominal pipe size and smaller, made inaccessible by control rod drive penetrations.

7.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 2

ASME Class 2 components to be examined for the PSI are outlined in the following paragraphs. All components to be examined for the in-service inspections during the service life of the plant will be examined for the PSI. Extent of examination for piping welds will be in accordance with Paragraph IWC-2411 and Table IWC-2520 Category C-F and C-G and Paragraph IWC-1220 of the 1974 Edition and Addenda through the Summer 1975 Addenda of Section XI of ASME Code. The Programs and Procedures Section will select areas to be examined.

Components that are exempted from examination in accordance with IWC-1220 of ASME Section XI are discussed in section 7.9 of this program.

Class 2 vessels shall not be examined prior to the field hydrostatic test.

When examinations have been completed on various components, the data sheet(s) in Appendix C shall be completed.

Table B in Appendix A supplies additional information such as reference drawing numbers and Table IWC-2500-1 examination categories of the 1977 Edition and Summer 1978 Addenda of Section XI of ASME Code.

7.1 Steam Generators (2)

7.1.1 Steam Generator Secondary Circumferential Welds

There are two circumferential shell welds at gross structural discontinuities on each generator. The entire length of these two welds from one steam generator shall be ultrasonically examined.

The vessel shell sections are fabricated SA-533, GR.B, Class 1 steel plate.

7.1.2 Steam Generator Secondary Circumferential Head Welds

There are no secondary side circumferential head welds.

7.1.3 Steam Generator Secondary Side Tubesheet-To-Shell Weld

Each steam generator includes two tubesheet-to-shell welds. The entire length of these two welds from one steam generator shall be ultrasonically examined.

The tubesheets are SA-508, Class 2 steel forgings.

7.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 2 (Continued)

7.1 Steam Generators (2) (Continued)

7.1.4 Steam Generator Secondary Side Nozzle-To-Vessel Welds

Each steam generator includes two 14-inch feedwater nozzles (5-3/4-inch min. thickness), one 6-inch auxiliary feedwater nozzle (5-3/4-inch min. thickness) and two 24-inch steam outlet nozzles (5-3/4-inch min. thickness). All of the nozzle-to-vessel welds from each steam generator shall be ultrasonically and magnetic particle examined.

The nozzles are SA-508, Class 2 steel forgings.

7.1.5 Steam Generator Secondary Side Integrally Welded Support Attachments

There are no secondary side integrally welded support attachments.

7.1.6 Steam Generator Secondary Side Component Supports

There are no component supports (including mechanical and hydraulic supports) on the secondary side.

7.1.7 Steam Generator Secondary Side Pressure-Retaining Bolting Larger Than Two Inches In Diameter

There is no steam generator secondary side bolting larger than two inches in diameter.

7.2 Decay Heat Removal Coolers (2) - DHRC

7.2.1 DHRC Circumferential Welds

There are two circumferential welds located at structural discontinuities on the tube side of each cooler. The entire length of these welds from one cooler shall be ultrasonically examined.

The welds include the channel cylinder section to channel flange weld and the channel cylinder section to channel head weld. The channel is fabricated from SA-240, TP-304, stainless steel.

7.2.2 DHRC Nozzle-To-Vessel Welds

The channel cylinder section of each cooler includes one inlet nozzle (18-inch I.D. and 3/8-inch thick) and one outlet nozzle (18-inch I.D. and 3/8-inch thick). A total of two nozzle-to-vessel welds equal to less than 1/2-inch nominal thickness from the one cooler shall be liquid penetrant examined. (see section 20.1.)

The nozzles are fabricated from SA-240, TP-304, stainless steel.

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7.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 2 (Continued)

7.2 Decay Heat Removal Coolers (2) - DHRC (Continued)

7.2.3 DHRC Integrally Welded Support Attachments

There are no integrally welded support attachments.

7.2.4 DHRC Integrally Welded Component Supports

There are no integrally welded component supports on the Class 2 side of the DHRC.

7.2.5 DHRC Pressure-Retaining Bolting Larger Than Two Inches In Diameter

There is no DHRC bolting larger than 2 inches in diameter.

7.3 Piping

The following ASME Class 2 piping systems are subject to examination.

Main and Reheat Steam (SM)
Feedwater (CF)
Decay Heat Removal (ND)
Core Flooding (NL)
Reactor Building Spray (NS)
Auxiliary Feedwater (CA)
Makeup and Purification (NV)
Startup and Recirculation (CR)

Material specifications for each piping system are included in weld map isometrics in Appendix A.

7.3.1 Piping Integrally Welded Supports

All piping integrally welded support attachments having piping required to be examined (Examination Category C-F) and whose material thickness exceeds 3/4 inch shall be surface examined. Integrally welded external support attachments include those supports which have attachment welds to the piping pressure-retaining boundary.

7.3.2 Piping Component Supports

All piping component supports having piping required to be examined (Examination Category C-F), shall be visually examined using visual examination methods VT-3 and VT-4 (see section 11.1). This examination includes integrally welded, and nonintegrally welded support components. Component supports extend from the piping to and including the attachment to the supporting structure.

The support settings of constant and variable spring type hangers, snubbers, and shock absorbers shall be verified.

7.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 2 (Continued)

7.3 Piping (Continued)

7.3.3 Piping Pressure-Retaining Bolting Larger Than Two Inches In Diameter

Piping pressure-retaining bolting larger than two inches in diameter shall be ultrasonically examined.

The rest of the section to be completed later.

7.3.4 Piping Circumferential Welds

Circumferential welds subject to examination include those welds at structural discontinuities and welds within three pipe diameters of the centerline of rigid pipe anchors, or anchors at the penetrations of the primary containment, or at rigidly anchored components.

The entire length of circumferential piping welds equal to or less than one-half inch in nominal wall thickness shall be surfaced examined.

The entire length of circumferential piping welds over one-half inch in nominal wall thickness shall be surface and ultrasonically examined.

Selection of areas to be examined shall be in accordance with IWC-2411 and Table IWC-2520 of the 1974 Edition, Summer 1975 Addenda of ASME Section XI. (See section 3.0.)

7.3.5 Piping Longitudinal Welds

Areas subject to examination include longitudinal welds in fittings (i.e., tees, elbows, reducers).

The entire length of these welds that are one-half inch or less in nominal wall thickness shall be surface examined.

The entire length of these welds over one-half inch nominal wall thickness shall be surface and ultrasonically examined.

Selection of areas to be examined shall be in accordance with IWC-2411 and Table IWC-2520 of the 1974 Edition, Summer 1975 Addenda of ASME Section XI. (See section 3.0.)

7.3.6 Pipe Branch Connection Welds

The entire length of pipe branch connection weld joints shall be surface examined. This includes both circumferential welds and longitudinal welds in the branch connection.

7.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 2 (Continued)

7.3 Piping (Continued)

7.3.6 (Continued)

Selection of areas to be examined shall be in accordance with IWC-2411 and Table IWC-2520 of the 1974 Edition, Summer 1975 Addenda of ASME Section XI. (See section 3.0.)

7.4 Decay Heat Removal Pumps (2) - DHRP

7.4.1 DHRP Casing Welds

There is no DHRP casing welds.

7.4.2 DHRP Pressure-Retaining Bolting

The DHRP does not have any pressure retaining bolting exceeding 2 inches in diameter.

7.4.3 DHRP Integrally-Welded Supports

There are not integrally-welded supports associated with the DHRP.

7.4.4 DHRP Support Components

Each DHRP includes two support components bolted to the pump feet, which are integrally forged with the pump casing.

Each support component shall be visually examined in accordance with visual examination method VT-3 (see Section 11.1).

7.5 Valves

7.5.1 Valve Integrally Welded Supports

All valve integrally welded support attachments in piping systems requiring examination (Examination Category C-F) and whose material thickness exceeds 3/4 inch shall be surface examined. Integrally welded support attachments include those supports which have attachment welds to the valve pressure-retaining boundary. (See Appendix A, Table H for valves).

7.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 2 (Continued)

7.5 Valves (Continued)

7.5.2 Valve Component Supports

All valve component supports in piping systems requiring examination (Examination Category C-F) shall be visually examined using visual examination methods VT-3 and VT-4 (see section 11.1). This examination includes integrally welded and nonintegrally welded component supports. Component supports extend from the valve to and including the attachment to the supporting structure. (See Appendix A, Table H for valves).

The support settings of constant and variable spring type hangers, snubbers, and shock absorbers shall be verified.

7.5.3 Valve Pressure Retaining Bolting

Valve pressure-retaining bolting greater than two inches in diameter shall be ultrasonically examined. (See Appendix A, Table H for valves).

The rest of this section to be completed later.

7.5.4 Valve Body Welds

Valve body welds shall be surface examined. (See Appendix A, Table H for valves).

The rest of this section to be completed later.

7.6 Reactor Building Spray Pumps (2)-RBSP

7.6.1 RBSP Cashing Welds

There is no RBSP casing welds.

7.6.2 RBSP Pressure Retaining Bolting Larger Than Two Inches In Diameter

There is no RBSP pressure retaining bolting larger than two inches in diameter.

7.6.3 RBSP Integrally-Welded Supports

There is no RBSP integrally-welded supports.

7.6.4 RBSP Support Components

Each RBSP has two support components bolted to the pump feet which are integrally forged with the pump casing. The support components shall be visually examined in accordance with visual examination method VT-3 (see section 11.1).

7.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 2 (Continued)

7.7 Makeup and Purification Pumps (3)-MPP

7.7.1 MPP Casing Weld

There is one MPP casing weld to nozzle greater than 4 inches per pump. The casing to nozzle weld from one pump is to be surface examined.

The casing is fabricated of SA-182 F304 forging. The nozzle is fabricated of SA-182 F304 forging.

7.7.2 MPP Pressure Retaining Bolting Larger Than Two Inches In Diameter

There are sixteen 2-1/2-inch studs and nuts for trust end cover. The bolting from one pump shall be ultrasonically examined.

The nuts are fabricated from SA-194 2H and studs are fabrcated from SA 193 B7.

7.7.3 MPP Integrally Welded Supports

Each MPP has four integrally welded supports (Later) thick. The welds shall be surface examined.

7.7.4 MPP Support Components

Each MPP has two support components bolted to the pump integrally welded supports. The support components shall be visually examined in accordance with visual examination method V7-3 (see section 11.1).

7.8 Pressure-Retaining Components

All pressure-retaining components shall be visually examined in accordance with visual examination method VT-2 (see section 11.1).

7.9 Exempted Components

7.9.1 Exempted Components (Except Piping Welds)

Components exempted from examination include (a) components of systems or portions of systems that during normal operating conditions are not required to operate or perform a system function but remain flooded under static conditions at a pressure of at least 80 percent of the pressure that the component or system will be subjected to when required to operate; (b) components of

7.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 2 (Continued)

7.9 Exempted Components (Continued)

7.9.1 (Continued)

systems or portions of systems other than residual heat removal systems and emergency core cooling systems, that are not required to operate above a pressure of 275 psig or above a temperature of 200°F; (c) component connections (including nozzles in vessels and pumps) associated valves and vessels (and their supports) that are 4-inch nominal pipe size and smaller. (See Appendix A, Table E).

7.9.2 Exempted Component (Piping Welds Only)

(a) Piping in systems where both the design pressure and temperature are equal to or less than 275 psig and 200°F respectively. (See Appendix A, Table E).

(b) Piping in systems or portions of systems, other than emergency core cooling systems, which do not function during normal reactor operation. (See Appendix A, Table E).

(c) Piping that is 4-inch nominal pipe size and smaller.

8.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 3

ASME Class 3 components shall be subjected to the following examinations and tests.

8.1 System Pressure Tests

8.1.1 System In-service Tests

Pressure-retaining components within the boundary of systems or portions of systems required to operate in support of normal plant safety functions of shutting down and maintaining the reactor in the cold shutdown condition, and pressure retaining piping, pumps, and valves within the boundary or systems or portions of systems required to operate in support of residual heat removal from spent fuel storage pool, shall be visually examined in accordance with visual examination method VT-2 (see section 11.1) while the applicable systems are in service under operating pressure in accordance with IWD-5221 of ASME Section XI.

8.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 3 (Continued)

8.1 System Pressure Tests (Continued)

8.1.2 System Functional Tests

Pressure retaining components within the boundary of systems or portions of systems required to operate in support of the post accident safety functions of emergency core cooling, containment heat removal and atmospheric cleanup, and long-term residual heat removal from the reactor vessel shall be visually examined in accordance with visual examination method VT-2 (see section 11.1) during a system functional test conducted to verify operability in systems in accordance with IWD-5222 of ASME Section XI.

8.2 Component Supports and Restraints

Component supports and restraints within the boundaries of the systems identified in sections 8.1.1 and 8.1.2 for components exceeding 4-inch nominal pipe size shall be visually examined in accordance with visual examination method VT-3 (see section 11.1).

8.3 Snubbers and Hangers

Mechanical and hydraulic snubbers and spring loaded and constant weight support hangers within the boundaries of the systems identified in sections 8.1.1 and 8.1.2 for components exceeding 4-inch nominal pipe size shall be visually examined in accordance with visual examination method VT-4 (see section 11.1).

9.0 HYDROSTATIC PRESSURE TESTS

A preservice hydrostatic pressure test is not required.

10.0 AUTHORIZED INSPECTOR

TVA shall employ an Authorized Inspector(s) in accordance with ASME Section XI. The Inspector shall verify, assure, or witness that the code requirements have been met. He shall have the prerogative and authorization to require requalification of any operator or procedure when he has reason to believe the requirements are not being met. TVA shall provide access for the AI in accordance with IWA-2140 of ASME Section XI. Requirements for interface with the ANI and ANII are included in OQAM Part II, section 2.3 and 5.1 respectively.

11.0 EXAMINATION METHODS

11.1 Visual Examination

Visual examinations that require clean surfaces or decontamination for valid interpretation of results shall be preceded by appropriate cleaning processes.

11.1.1 Visual Examination VT-1

The VT-1 visual examination shall be conducted to determine the condition of the part, component, or surface examined, including such conditions as cracks, wear, corrosion, erosion, or physical damage on the surfaces of the part or components.

11.1.1.1 Direct Visual Examination VT-1

Direct VT-1 visual examination may be conducted when access is sufficient to place the eye 24 inches (610 mm) of the surface to be examined and at an angle not less than 30 degrees to the surface. Mirrors may be used to improve the angle of vision. Lighting, natural or artificial, shall be sufficient to resolve a 1/32-inch (0.8 mm) black line on an 18 percent neutral gray card.

11.1.1.2 Remote Visual Examination VT-1

Remote VT-1 visual examination may be substituted for direct examination. Remote examination may use aids such as telescopes, borescopes, fiber optics, cameras, or other suitable instruments provided such systems have a resolution capability at least equivalent to that attainable by direct visual examination.

11.1.2 Visual Examination VT-2

The VT-2 visual examination shall be conducted to locate evidence of leakage from pressure-retaining components, or abnormal leakage from components with or without leakage collection systems as required during the conducting of system pressure or functional test.

11.0 EXAMINATION METHODS (Continued)

11.1 Visual Examination (Continued)

11.1.2 Visual Examination VT-2 (Continued)

The visual examination, VT-2, may be conducted without the removal of insulation by examining the accessible and exposed surfaces and joints of the insulation. Essentially vertical surfaces of insulation need only be examined at the lowest elevation where leakage may be detectable. Essentially horizontal surfaces of insulation shall be examined at each insulation joint.

For components whose external insulation surfaces are inaccessible for direct examination, only the examination of surrounding area, including floor areas or equipment surfaces located underneath the components, for evidence of leakage, or other areas to which such leakage may be channeled, shall be required.

Discoloration or residue on surfaces examined shall be given particular attention to detect evidence of boric acid accumulations from borated reactor coolant leakage.

The visual examination shall be conducted during the system leakage tests conducted after refueling outages and prior to startup. VT-2 visual examination shall be conducted in accordance with ASME Section XI, IWA-5240.

11.1.3 Visual Examination VT-3

The VT-3 visual examination shall be conducted to determine the general mechanical and structural conditions of components and their supports such as the presence of loose parts, debris, or abnormal corrosion products, wear, erosion, corrosion, and the loss of integrity at bolted or welded connections.

VT-3 may require, as applicable to determine structural integrity, the measurement of clearances, detection of physical displacement, structural adequacy of supporting elements, connections between load carrying structural members, and tightness of bolting.

For component supports and component interiors, the visual examination may be performed remotely with or without optical aids to verify the structural integrity of the component.

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11.0 EXAMINATION METHODS (Continued)

11.1 Visual Examination (Continued)

11.1.4 Visual Examination VT-4

The VT-4 visual examination shall be conducted to determine conditions relating to the operability of components or devices such as mechanical and hydraulic snubbers, component supports, pumps, valves, and spring loaded and constant weight hangers.

VT-4 shall confirm functional adequacy, verification of the settings, or freedom of motion. This examination may require (1) disassembly of components or devices and (2) operability test.

11.2 Surface Examination

11.2.1 Magnetic Particle Examination

Magnetic particle examination (MT) shall be conducted in accordance with Article 7, Section V of the ASME Code.

11.2.2 Liquid Penetrant Examination

Liquid penetrant examination (PT) shall be conducted in accordance with Article 6, Section V of the ASME Code.

11.3 Volumetric Examination

11.3.1 Radiographic Examination

Radiographic techniques, employing penetrating radiation such as X-rays, gamma rays, or thermalized neutrons, may be utilized with appropriate image recording devices such as photographic film or papers, electrostatic systems, direct-image orthicons, or image converters. For radiographic examinations (RT) employing either X-ray equipment or radioactive isotopes and photographic films, the procedure shall be as specified in Article 2, Section V, of the ASME Code.

11.3.2 Ultrasonic Examination

(a) Ultrasonic examination (UT) of Class 1 and Class 2 vessel welds in ferritic material greater than 2 inches (51 mm) in thickness shall be conducted in accordance with Article 4 of Section V of the ASME Code.

11.0 EXAMINATION METHODS (Continued)

11.3 Volumetric Examination (Continued)

11.3.2 (Continued)

(b) Ultrasonic examination of Class 1 and Class 2 ferritic steel piping systems shall be conducted in accordance with Appendix III, of 1977 Edition, Summer 1978 Addenda, of Section XI of the ASME Boiler and Pressure Vessel Code, amended as follows:

(1) For examination of welds, reflectors that produce a response greater than 50 percent of the reference level shall be recorded.

(c) If the requirements of (a) and (b) are not applicable, the ultrasonic examination shall be conducted in accordance with the applicable requirements of Article 5 of Section V amended as follows:

(1) For examination on welds, reflectors that produce a response greater than 50 percent of the reference level shall be recorded.

(2) For examination of welds, all reflectors which produce a response greater than 100 percent of the reference level shall be investigated to the extent that the operator can determine the shape, identity, and location of all such reflectors in terms of the acceptance-rejection standards of IWA-3100(b).

(3) The size of reflectors shall be measured between points which give amplitudes equal to 100 percent of the reference level.

11.3.3 Eddy Current Examination

Eddy current examination (ET) of heat exchanger tubing shall be conducted in accordance with the provisions of Appendix IV of Section XI of the ASME Boiler and Pressure Vessel Code.

12.0 QUALIFICATIONS OF NONDESTRUCTIVE EXAMINATION PERSONNEL

Personnel performing nondestructive examination operations shall be qualified in accordance with IWA-2300 of ASME Section XI (DPM N75C01 for NUC PR).

13.0 ACCEPTANCE CRITERIA

All acceptance standards for ASME Class 1, 2, and 3 components shall be in accordance with IWA-3000 and IWB-3000, IWC-3000, or IWD-3000 of ASME Section XI except where ASME Section III examinations are employed to satisfy ASME Section XI requirements.

If acceptance standards for a particular component, Examination Category, or examination method are not specified, indications that exceed the acceptance standards for materials and welds specified in the Section III edition applicable to the construction of the component shall be evaluated to determine disposition.

14.0 REPAIRS

This section provides requirements for repair of the pressure-retaining boundary of ASME Class 1, 2, and 3 components (and their supports). The repair program is included in OQAM Part II, Section 2.3.

Repairs shall be performed in accordance with the Design Specification and Construction Code of the component or system. Later editions of the Construction Code or Section III, either in its entirety or portions thereof, may be used. If repair welding cannot be performed in accordance with these requirements, then IWA-4000 and IWB-4000, IWC-4000, or IWD-4000 of ASME Section XI as applicable may be used.

Material shall conform to the requirements of either the original design specifications or ASME Section III.

After repairs by welding on the pressure retaining boundary of components, a hydrostatic pressure test shall be performed in accordance with IWA-5000 and IWB-5000, IWC-5000, or IWD-5000 of ASME Section XI as applicable. The following may be exempted from the hydrostatic pressure tests exclusive of those repairs employing a temper bead technique:

(1) cladding repairs

(2) heat exchanger tube plugging

(3) piping, pump, and valve repairs that do not penetrate through the pressure boundary

(4) pressure vessel repairs where the repaired cavity does not exceed 10 percent of the minimum design wall thickness

(5) component connections, piping, and associated valves that are one inch nominal pipe size and smaller

14.0 REPAIRS (Continued)

Repaired areas shall be examined in accordance with applicable nondestructive examination methods to establish a new preservice record (see sections 6.0, 7.0, and 8.0). The examination shall include the method that detected the flaw. If the repair is performed in accordance with the provisions of the code applicable to the construction of the component, any additional nondestructive examinations required by the construction code shall be performed (excluding pressure test requirements). These requirements are not applicable if the repair includes the complete removal or isolation of the item bearing the flaw, such as heat exchanger tube plugging.

The services of an Authorized Inspection Agency shall be used when making a repair. The ANI shall assure that the repair welding procedures and welders are qualified in accordance with IWA-4000 of ASME Section XI. (See section 10.0.)

The records and reports of section 16.0 shall be completed for all repairs.

15.0 REPLACEMENTS

This section provides the requirements for replacement of ASME Class 1, 2, and 3 components. Additional requirements are included in OQAM, Part II, Section 2.3.

Replacements shall meet the requirements of the edition of the Construction Code to which the original component or part was constructed (the code edition and addenda shall be specified). Replacements ordered as spares for future use at an unspecified time shall meet the requirements of the Construction Code edition used for the original part or component that is intended to be replaced. DPM N76A10 shall be used as applicable. Replacements for parts or components originally constructed without code requirements shall be in accordance with the original design, fabrication, and inspection requirements for the part or component being replaced.

Alternatively, replacements may meet all or portions of the requirements of later editions of the Construction Code, provided that the following requirements are met:

(1) The requirements affecting the design, fabrication, and examination of the replacement are reconciled with TVA's specifications.

(2) Mechanical interfaces, fits, and tolerances that provide satisfactory performance are not changed by the later edition of the Construction Code.

(3) Modified or altered designs are reconciled with TVA's specification through the stress analysis report, design report, or other suitable method which demonstrates the satisfactory use for the specified design and operating conditions, which ever is applicable.

15.0 REPLACEMENTS (Continued)

(4) Materials are compatible with the installation and system requirements.

Prior to authorizing the installation of a replacement, an evaluation of the suitability of the replacement shall be conducted. If a replacement is required because of failure of a part or component, the evaluation shall consider cause(s) of failure of the existing part or component to assure that the selected replacement is suitable. If cause of failure appears to be a deficiency in the specification for the existing part or component, the specification for the replacement shall reflect appropriate corrective provisions. Any such corrective provisions shall be consistent with relevant requirements of the Construction Code in effect at the time of specification revision. The report of the evaluation shall be made a part of the record.

Welding required for the installation of a replacement shall be performed by welders who are qualified, and by using procedures that are qualified, in accordance with Section III and IX, and the additional heat treating and impact test required by IWB-4000 of ASME Section XI.

The application of the ASME NA symbol is neither required nor prohibited for the installation of replacements.

The following items and parts are exempt from the requirements of this article:

(1) gaskets;

(2) instruments;

(3) electrical conducting and insulating materials;

(4) piping, valves, and fittings one inch in nominal pipe size and less, except that materials and primary stress levels shall be consistent with the requirements of the applicable Construction Code. Detailed stress analysis and consideration of secondary stress is not required;

(5) nonstructual pump and valve internals except when the original equipment was constructed in accordance with a construction code or code case;

(6) pump seal package and valve packing.

The following reports and records shall, to the extent required by the Construction Code and this section, be maintained by TVA, as applicable:

(1) Certified design specification

(2) Certified stress report

(3) Design report

15.0 REPLACEMENTS (Continued)

(4) Overpressure protection report

(5) Manufacturer's data report

(6) Material certification

(7) Evaluation report of replacements

Revisions to existing reports, records, and specifications may be shown as an amendment, or as a supplement, and attached to the original record or report to provide an up-to-date record of the replacement.

A preservice inspection shall be made in accordance with IWB-2200, IWC-2200, and IWD-2100 for components and parts replaced, as applicable, and including the joints that connect the replaced component or part to the system, prior to return of the plant to service (see sections 6.0, 7.0, and 8.0).

ASME Section XI repairs and replacements may be coordinated as necessary with the Metallurgy and Standards Group of the Mechanical Branch. Repairs and replacements which require NDE shall be coordinated with the Inspection Section of the QA and Compliance Branch.

15.1 Installation of Replacements - ASME Class 1

Flanged joints may be used in piping systems. Expanded joints shall not be used in piping systems.

Threaded joints in which the threads provide the only seal shall not be used in pipe joint configurations. If a seal weld is employed as the sealing medium, the stress analysis of the joint shall include the stresses in the weld resulting from the relative deflection of the mated parts.

Flared, flareless, and compression-type tube fittings may be used for tubing sizes not exceeding one inch O.D. within the limitations of applicable standards and requirements (2) and (3) below. In the absence of such standards or specifications, the cognizant engineer shall determine that the type fitting selected is adequate and safe for the design conditions in accordance with the following requirements.

(1) The design pressure or pressure ratings shall be reconciled with TVA's specifications.

(2) Fittings and their joints shall be suitable for tubing with which they are to be used in accordance with the minimum wall thickness of the tubing and method of assembly recommended by the manufacturer.

15.0 REPLACEMENTS (Continued)

15.1 Installation of Replacements - ASME Class 1 (Continued)

(3) Fittings shall not be used in services that exceed the manufacturer's maximum pressure-temperature recommendations.

(4) Fittings shall be installed in accordance with the manufacturer's recommendations.

The methods of ASME Section III, Appendix E, shall be used to determine bolt size and torquing loads, unless mating parts built to other requirements make this impractical.

The rules and requirements of section 14.0 shall apply to the attaching of replacements to the system where such attachment is by welding.

Materials shall comply with the requirements to which the original component or part was constructed. As an alternative, materials may comply with the requirements of ASME Section III, NB-2000 provided the requirements of section 15.0 are met.

15.2 Installation of Replacements - ASME Class 2

Nonwelded piping joints shall meet the requirements of NC-3671 of ASME Section III.

The methods of ASME Section III, Appendix E, shall be used to determine bolt size and torquing loads, unless mating parts built to other requirements make this impractical.

The rules and requirements of section 14.0 shall apply to the attaching of replacements to the system where such attachment is by welding.

Materials shall meet the requirements to which the original component or part was constructed. As an alternative, materials may meet the requirements of ASME Section III, NC-2000 provided the requirements of section 15.0 are met.

15.3 Installation of Replacements - ASME Class 3

Nonwelded pipe joints shall meet the requirements of ND-3671 of ASME Section III.

The methods of ASME Section III, Appendix E, shall be used to determine bolt size and torquing loads, unless mating parts built to other requirements make this impractical.

The rules and requirements of section 14.0 shall apply to the attaching of replacements to the system where such attachment is by welding.

15.0 REPLACEMENTS (Continued)

15.3 Installation of Replacements - ASME Class 3 (Continued)

Materials shall comply with the requirements to which the original component or part was constructed. As an alternative, materials may comply with the requirements of ASME Section III, ND-2000 provided the requirements of section 15.0 are met.

16.0 RECORDS AND REPORTS

16.1 Recording of and Report of Examinations

A detailed report of all examinations shall be prepared by the performing or responsible organization and should contain but not be limited to the following information:

Title Page

Table of Contents

I. Introduction - The introduction should include the following information: plant, unit number, preservice or in-service inspection and cycle number, systems, components and vessels examinations were performed on, organization examinations were performed by, dates examinations were performed, ASME Section XI Code of Record.

II. Summary - The summary should include a brief description of the overall inspection: program, performance, personnel, equipment, procedures, evaluations, and results.

III. Discussion - The discussion should discuss the governing documents (ASME Code, Technical Specifications, etc.), inspection schedule, materials, calibration standards, calibration performance, reporting, recording, interpretation, and brief evaluation.

IV. Evaluation - Evaluation is based on the indication's location, metal path, general shape, and any tests that could be applied, such as damping. The evaluation section also should contain a listing of each examination performed and the evaluated results.

V. Summary of Notifications - The summary of notifications shall give a short summary of each notification report along with the indication discrepancy and its location. It should also contain the final disposition and the date of completion.

16.0 RECORDS AND REPORTS (Continued)

16.1 Recording of and Report of Examinations (Continued)

VI. Scan Plan - The Scan Plan shall give a detailed description of all areas subject to examination during the inspection. It shall contain the following information: examination area, code category, weld size and/or number, reference drawing, examination method, procedure, calibration block, and any reference details pertaining to the exam area, such as the weld number, meridional welds, pump studs.

VII. Weld and Hanger Maps - The Weld and Hanger Maps are the reference drawings for the inspection. The weld maps are isometric drawings showing the location of both field and shop welds on each vessel, component, and piping system subject to examination. The hanger maps are also isometrics showing the location of hangers, snubbers, and supports for each vessel, component, or piping system subject to examination.

VIII. Log by System - The log is the daily status of the inspection section representative of the areas subject to examination during the inspection. This log keeps an up-to-date status of work complete and incomplete.

IX. Personnel Certifications

X. Equipment Certifications

XI. NDE Procedures

XII. Calibration Block Drawings

XIII. Calibration Sheets

XIV. Examination Report Forms

For eddy current examination of heat exchanger tubing, the report shall include a record indicating the tube(s) examined (this may be marked on a tube sheet sketch or drawing), the extent to which each tube was examined, the location and depth of each reported indication, and the identification of the operator(s) and data evaluator(s) who conducted each examination or part thereof, and magnetic tape and strip charts.

All procedures and equipment shall be identified sufficiently to permit duplication of the examination at a later date. This shall include initial calibration data for the equipment and any significant changes.

All required and pertinent information will be recorded on the appropriate data sheets by the performing organization. When portions of the inspection work are contracted, a detailed report will be submitted to TVA by the contractor with all pertinent and required information. TVA will retain the original copies of all raw data taken.

16.0 RECORDS AND REPORTS (Continued)

16.1 Recording of and Report of Examinations (Continued)

The NCO Inspection Section shall review and submit the final report to the Plant Superintendent for review. These final reports shall be filed at the plant site with the data sheets of Appendix C of this program as discussed in section 5.0 of this program. Data Sheet 1 in Appendix C will be completed and used as a cover sheet for the final report and to document the review process.

16.1.1 Repair and Replacement Reports

The plant shall prepare a summary of repairs and replacements for all Class 1 and 2 components. The report shall include the applicable requirements of IWA-6220 of ASME Section XI and shall be submitted to the NCO Metallurgy and Standards Group within 45 days after initial plant startup before the completion of PSI. After reviewing the summary report, the NCO Metallurgy and Standards Group shall forward it to the Quality Assurance and Compliance Branch for submittal to the NRC via the Manager, Nuclear Regulation and Safety, Office of Power, within 90 days after completion of PSI.

16.2 PSI Report for Class 1 and 2 Components

A PSI report(s) for Class 1 and 2 components shall be prepared and submitted to NRC within ninety days after completion of the PSI. The report shall be prepared by the Inspection Section, and submitted to the Regulatory Staff for submittal to NRC.

The PSI report shall have a cover sheet providing the following information:

(1) Date of completion of report

(2) Name of owner and address of corporate offices

(3) Name and address of nuclear generating plant in which the nuclear power unit is located

(4) Name or number assigned to the nuclear power unit by TVA

All reports shall have a summary providing the following information:

(1) National Board Number assigned by the manufacturer to the pressure vessel or component

(2) Names of the components or parts of the components for which this is a record, including such information regarding size, capacity, material, location, and drawings as may aid accurate identification.

18.0 CALIBRATION BLOCKS

Calibration blocks will be used for ultrasonic examinations (a calibration tube will be used for eddy current examination of steam generator tubing). The blocks will be fabricated to the general requirements of ASME Section V and ASME Section XI. The blocks shall be fabricated of the material to be examined or equivalent P number. Mill tests reports shall be obtained and retained by the Inspection Section of the NCO QA and Compliance Branch for all calibration blocks.

The Inspection Section of the QA and Compliance Branch, shall maintain as built calibration block drawings. Copies of the original drawings and any revisions shall be submitted to the Programs and Procedures Section of the QA and Compliance Branch. The calibration blocks shall be stored at the plant site and maintained by the plant.

19.0 REQUEST FOR RELIEF

Where TVA has determined that certain code requirements or examinations are impractical, TVA will submit written request for relief to NRC with information to support the determinations and any proposed alternate examinations. The impractical code requirements or examinations shall be identified in this program, and references to particular requests for relief shall be included.

When impractical examination requirements are identified in the field, the Inspection Section shall notify the Programs and Procedures Section of the QA and Compliance Branch such that the information may be included in this program and requests for relief may be prepared if necessary. The Inspection Section shall submit sketches to the Programs and Procedures Section to identify areas which cannot be examined in accordance with code requirements.

20.0 AUGMENTED INSPECTIONS

Augmented inspections are performed in addition to ASME Section XI Code Requirements. The augmented inspections may be required by the NRC or self-imposed by TVA.

20.1 Decay Heat Removal Coolers (DHRC) Nozzles

The DHRC nozzles have one seam weld per nozzle. In addition to the requirements of section 7.2.2, a total of two seam welds (½ inch or less in nominal thickness) from the one cooler shall be liquid penetrant examined. The welds shall be distributed between the two coolers (one inlet nozzle and one outlet nozzle).

This is a TVA imposed augmented inspection.

17.0 NOTIFICATION OF INDICATION (Continued)

Part I of the "Notification of Indication" shall be completed and signed by the NDE Level II or III examiner detecting the indication. The Inspection Section representative of the NCO QA and Compliance Branch shall review and sign the form. If the indication is detected by an outside contractor, the contractor's field supervisor shall review and sign the form.

Part II of the form shall be completed for evaluation of findings by a TVA NDE Level III individual. This individual shall indicate under "Disposition" his recommended disposition of the indication. He shall reference examination procedures to be used if reexamination is a requirement. He shall then sign and date the form. Copies of the form shall be distributed to the Plant Superintendent, the Inspection Section representative, the Programs and Procedures Section, and if appropriate, the Field Services Group Supervisor or CONST. One copy shall be filed with the examination report.

Upon receipt of the Notification of Indication form, the Plant Superintendent shall be responsible for determining the organization to implement the disposition. If NUC PR is responsible for the repair, the Plant Superintendent shall be responsible for preparing instructions to repair the indication in accordance with N-OQAM, Part II, Section 2.3 and the recommended disposition on the form. Dispositions other than restoring to original requirements shall be processed as modifications in accordance with N-OQAM, Part II, Section 3.0. If CONST is responsible for the repair, it shall be performed in accordance with the recommended disposition on the Notification of Indication Form and to the satisfaction of the NDE Level III individual. The plant or CONST, as appropriate, shall coordinate with the NCO QA and Compliance Branch to conduct reexamination when reexamination is a requirement. Additionally, coordination with the AIA representative shall be made when appropriate, as follows:

(a) Make available to the ANII any records he needs to accomplish his duties.

(b) Give adequate notice to the AIA that an ANII and/or ANI will be required for repair work.

Detailed requirements for interfacing with the AIA for repairs to code items are contained in N-OQAM, Part II, Section 2.3.

Upon completion of the action required to repair the indication, the Inspection Section representative shall review the repair instructions to assure completion, and shall sign and date the Notification of Indication form, Part II. The review shall include referencing the repair instructions on the completed form. The signed form shall remain with the examination report for use as a quality assurance record. In addition, if the component requires reexamination, one copy of the completed form shall be filed with the new examination report. The reexamination report number shall also be referenced on the completed form by the Inspection representative. Additional distribution of the form shall be performed as noted for Part II of the form.

APPENDIX A
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BELLEFONTE PRESERVICE INSPECTION PROGRAM - CLASS 1 COMPONENTS

COMPONENT	PROGRAM REFERENCE SECTION	ITEM NO. FROM TABLE IWB-2500-1,SECT. XI	EXAMINATION CATEGORY FROM TABLE IWB-2500-1	METHOD OF INSPECTION	REFERENCE DWG. NO.
A. REACTOR VESSEL	6.1				
1. Circumferential Shell Welds Beltline Region	6.1.1.1	B1.11	B-A	UT	(Later)
2. Circumferential Shell Welds	6.1.1.2	B1.11	B-A	UT	(Later)
3. Longitudinal Shell Welds	6.1.1.3	B1.12	B-A	UT	(Later)
4. Circumferential Head Welds	6.1.1.4	B1.21	B-A	UT	(Later)
5. Meridional Head Welds	6.1.1.5	B1.22	B-A	UT	(Later)
6. Shell-to-Flange Weld	6.1.1.6	B1.30	B-A	UT	(Later)
7. CIosure Head-to-Flange Weld	6.1.1.7	B1.40	B-A	UT	(Later)
8. Nozzle-to-Vessel Welds	6.1.2	B3.90	B-D	UT	(Later)
9. Nozzle Inside Radiused Sections	6.1.2	B3-100	B-D	UT	(Later)
10. Partial Penetration Welds	6.1.3	B4.11	B-E	VT-2	(Later)
11. Nozzle-to-Safe End Welds	6.1.4	B5.10	B-F	UT, PT	(Later)

APPENDIX A
TABLE A (Continued)
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BELLEFONTE PRESERVICE INSPECTION PROGRAM - CLASS 1 COMPONENTS

COMPONENT	PROGRAM REFERENCE SECTION	ITEM NO. FROM TABLE IWB-2500-1,SECT. XI	EXAMINATION CATEGORY FROM TABLE IWB-2500-1	METHOD OF INSPECTION	REFERENCE DWG. NO.
A. REACTOR VESSEL (CONT.)					
12. Closure Studs	6.1.5	B6.20, B6.30	B-G-1	UT, MT	(Later)
13. Closure Nuts	6.1.5	B6.10	B-G-1	MT	(Later)
14. Ligaments	6.1.5	B6.40	B-G-1	UT	(Later)
15. Washers	6.1.5	B6.50	B-G-1	VT-1	(Later)
16. Bolts	6.1.6	B7.10	B-G-2	MT	(Later)
17. Vessel Interior	6.1.8	B13.10	B-N-1	VT-3	(Later)
18. Core Support Structure	6.1.8	B13.30	B-N-3	VT-3	(Later)
19. Control Rod Drive Housings	6.1.9	B14.10	B-O	PT	(Later)
20. Repair Welds in Beltline Region	6.1.10	B1.51	B-A	UT	(Later)
B. PRESSURIZER	6.2				
1. Circumferential Shell-To-Head Welds	6.2.1	B2.11	B-B	UT	(Later)
2. Longitudinal Shell-To-Head Welds	6.2.2	B2.12	B-B	UT	(Later)
3. Nozzle-to-Vessel Welds	6.2.3	B3.110	B-D	UT	(Later)

APPENDIX A
TABLE A (Continued)
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BELLEFONTE PRESERVICE INSPECTION PROGRAM - CLASS 1 COMPONENTS

COMPONENT	PROGRAM REFERENCE SECTION	ITEM NO. FROM TABLE IWB-2500-1, SECT. XI	EXAMINATION CATEGORY FROM TABLE IWB-2500-1	METHOD OF INSPECTION	REFERENCE DWG. NO.
B. PRESSURIZER (CONT.)					
4. Nozzle Inside Radiused Sections	6.2.3	B3.120	B-D	UT	(Later)
5. Heater Penetrations	6.2.4	B4.20	B-E	VT-2	(Later)
6. Nozzle-to-Safe End Welds	6.2.5	B5.20	B-F	UT, PT	(Later)
7. Pressure Retaining Bolting	6.2.7	B7.20	B-G-2	VT-1	(Later)
8. Integrally Welded Supports	6.2.8	B8.20	B-H	ST	(Later)
C. STEAM GENERATORS	6.3				
1. Primary Head-to-Tube Sheet Weld	6.3.1	B2.40	B-B	UT	(Later)
2. Primary Nozzle-to-Head Welds	6.3.2	B3.130	B-D	UT	(Later)
3. Nozzle Inside Radiused Sections	6.3.2	B3.140	B-D	UT	(Later)
4. Pressure-Retraining Bolting	6.3.4	B7.30	B-G-2	VT-1	(Later)
5. Integrally Welded Supports	6.3.5	B8.30	B-H	UT	(Later)

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TABLE A (Continued)
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BELLEFONTE PRESERVICE INSPECTION PROGRAM - CLASS 1 COMPONENTS

COMPONENT	PROGRAM REFERENCE SECTION	ITEM NO. FROM TABLE IWB-2500-1, SECT. XI	EXAMINATION CATEGORY FROM TABLE IWB-2500-1	METHOD OF INSPECTION	REFERENCE DWG. NO.
C. STEAM GENERATORS (CONT.)					
5. Tubing	6.3.6	N/A	N/A	ET	(Later)
D. PIPING	6.4				
1. Safe End Welds	6.4.1	B5.50	B-F	UT, PT	(Later)
2. Pressure-Retaining Bolting	6.4.2	B6.150, B6.160, B6.170	B-G-1	UT, ST, VT-1	(Later)
3. Pressure-Retaining Bolting	6.4.3	B7.50	B-G-2	VT-1	ISI-0046-C ISI-0056-C
4. Circumferential Welds 4 Inches and Greater	6.4.4	B9.11	B-J	UT, ST	ISI-0047-C ISI-0046-C
5. Longitudinal Welds 4 Inches and Greater	6.4.4	B9.12	B-J	UT, ST	(Later)
6. Circumferential Welds Less Than 4 Inches	6.4.4	B9.21	B-J	ST	ISI-0046-C ISI-0056-C
7. Longitudinal Welds Less Than 4 Inches	6.4.4	B9.22	B-J	ST	(Later)

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BELLEFONTE PRESERVICE INSPECTION PROGRAM - CLASS 1 COMPONENTS

COMPONENT	PROGRAM REFERENCE SECTION	ITEM NO. FROM TABLE IWB-2500-1, SECT. XI	EXAMINATION CATEGORY FROM TABLE IWB-2500-1	METHOD OF INSPECTION	REFERENCE DWG. NO.
D. PIPING (CONT.)					
8. Branch Pipe Connection Welds Greater Than 2 Inches	6.4.5	B9.31	B-J	UT, ST	ISI-0046-(
9. Branch Pipe Connection Welds 2 Inches and Less	6.4.5	B9.32	B-J	ST	(Later)
10. Socket Welds	6.4.6	B9.40	B-J	PT	(Later)
11. Integrally-Welded Supports	6.4.7	B10.10	B-K-1	ST	(Later)
12. Component Supports	6.4.8	B11.10	B-K-2	VT-3, VT-4	(Later)
E. REACTOR COOLANT PUMPS	6.5				
1. Pressure-Retaining Bolting	6.5.1	B6.180, B6.190	B-G-1	UT, ST	(Later)
2. Pressure-Retaining Bolting	6.5.1	B6.200	B-G-1	VT-1	(Later)
3. Integrally-Welded Supports	6.5.3	B10.20	B-K-1	ST	(Later)
4. Component Supports	6.5.4	B11.20	B-K-2	VT-3, VT-4	(Later)

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TABLE A (Continued)
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BELLEFONTE PRESERVICE INSPECTION PROGRAM - CLASS 1 COMPONENTS

COMPONENT	PROGRAM REFERENCE SECTION	ITEM NO. FROM TABLE IWB-2500-1, SECT. XI	EXAMINATION CATEGORY FROM TABLE IWB-2500-1	METHOD OF INSPECTION	REFERENCE DWG. NO.
E. REACTOR COOLANT PUMPS (CONT.)					
5. Casing Welds	6.5.5	B12.10	B-L-1	PT	(Later)
6. Casings	6.5.6	B12.20	B-L-2	VT-1	(Later)
7. Flywheel	6.5.7	N/A	N/A	UT, PT	(Later)
F. VALVES	6.6				
1. Pressure-Retaining Bolting	6.6.1	B6.210, B6.220, B6.230	B-G-1	UT, ST, VT-1	(Later)
2. Pressure-Retaining Bolting	6.6.2	B7.70	B-G-2	VT-1	(Later)
3. Integrally-Welded Supports	6.6.3	B10.30	B-K-1	ST	(Later)
4. Component Supports	6.6.4	B11.30	B-K-2	VT-3, VT-4	(Later)
5. Valve Body Welds	6.6.5	B12.30	B-M-1	UT, ST	(Later)
5. Valve Bodies Greater Than 4 Inches	6.6.6	B12.40	B-M-2	VT-1	(Later)

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BELLEFONTE PRESERVICE INSPECTION PROGRAM - CLASS 1 COMPONENTS

COMPONENT	PROGRAM REFERENCE SECTION	ITEM NO. FROM TABLE IWB-2500-1, SECT. XI	EXAMINATION CATEGORY FROM TABLE IWB-2500-1	METHOD OF INSPECTION	REFERENCE DWG. NO.
G. MAKEUP AND PURIFICATION LETDOWN COOLERS	6.7				
1. Tube Sheet To Head Weld Inlet	6.7.1	B2.40	B-B	UT	(Later)
2. Tube Sheet To Head Weld Outlet	6.7.2	B2.40	B-B	UT	(Later)
3. Head To Nozzle Weld	6.7.3	B3.130	B-D	UT	(Later)
4. Pressure Retaining Bolting	6.7.4	B7.30	B-G-2	VT-1	(Later)

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TABLE A (Continued)
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BELLEFONTE PRESERVICE INSPECTION PROGRAM - CLASS 1 COMPONENTS

COMPONENT	PROGRAM REFERENCE SECTION	ITEM NO. FROM TABLE IWB-2500-1,SECT. XI	EXAMINATION CATEGORY FROM TABLE IWB-2500-1	METHOD OF INSPECTION	REFERENCE DWG. NO.
H. PRESSURE RETAINING COMPONENTS	6.8				
1. Reactor Vessel	6.8	B15.10	B-P	VT-2	(Later)
2. Pressurizer	6.8	B15.20	B-P	VT-2	(Later)
3. Steam Generators	6.8	B15.30	B-P	VT-2	(Later)
4. Heat Exchangers	6.8	B15.40	B-P	VT-2	(Later)
5. Piping	6.8	B15.50	B-P	VT-2	(Later)
6. Pumps	6.8	B15.60	B-P	VT-2	(Later)
7. Valves	6.8	B15.70	B-P	VT-2	(Later)

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BELLEFONTE PRESERVICE INSPECTION PROGRAM - CLASS 2 COMPONENTS

COMPONENT	PROGRAM REFERENCE SECTION	ITEM NO. FROM TABLE IWC-2500-1, SECT. XI	EXAMINATION CATEGORY FROM TABLE IWC-2500-1	METHOD OF INSPECTION	REFERENCE DWG. NO
A. STEAM GENERATORS	7.1				
1. Circumferential Welds	7.1.1	C1.10	C-A	UT	(Later)
2. Tubesheet-to-Shell Welds	7.1.3	C1.30	C-A	UT	(Later)
3. Nozzle-to-Vessel Welds Over ½ Inch Nominal Thickness	7.1.4	C2.20	C-B	UT, MT	(Later)
B. DECAY HEAT REMOVAL HEAT EXCHANGERS	7.2				
1. Circumferential Welds	7.2.1	C1.10	C-A	UT	(Later)
2. Nozzle-to-Vessel Welds ½ Inch or Less Nominal Thickness	7.2.2	C2.10	C-B	PT	(Later)
C. PIPING	7.3				
1. Integrally-Welded Supports	7.3.1	C3.40	C-C		(Later)
2. Component Supports	7.3.2	C3.50, C3.60	C-E	VT-3, VT-4	(Later)
3. Pressure-Retaining Bolting	7.3.3	C4.20	C-D	UT	(Later)

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TABLE B (Continued)
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BELLEFONTE PRESERVICE INSPECTION PROGRAM - CLASS 2 COMPONENTS

COMPONENT	PROGRAM REFERENCE SECTION	ITEM NO. FROM TABLE IWC-2500-1, SECT. XI	EXAMINATION CATEGORY FROM TABLE IWC-2500-1	METHOD OF INSPECTION	REFERENCE DWG. NO.
C. PIPING (CONT.)					
4. Circumferential Welds ½ Inch or Less N.W.	7.3.4	C5.11	C-F	ST	ISI-0046-C ISI-0056-C
5. Circumferential Welds Over ½ Inch N.W.	7.3.4	C5.21	C-F	UT, ST	ISI-0047-C ISI-0046-C ISI-0056-C
6. Longitudinal Welds ½ Inch or Less N.W.	7.3.5	C5.12	C-F	ST	ISI-0046-C
7. Longitudinal Welds Over ½ Inch N.W.	7.3.5	C5.22	C-F	UT, ST	ISI-0046-C ISI-0047-C
8. Circumferential Pipe Branch Connection Welds	7.3.6	C5.31	C-F	ST	(Later)
9. Longitudinal Pipe Branch Connection Welds	7.3.6	C5.32	C-F	ST	(Later)
D. DECAY HEAT REMOVAL PUMPS	7.4				
1. Support Components	7.4.4	C3.8	C-C, C-E	VT-3	(Later)

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TABLE B (Continued)
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BELLEFONTE PRESERVICE INSPECTION PROGRAM - CLASS 2 COMPONENTS

COMPONENT	PROGRAM REFERENCE SECTION	ITEM NO. FROM TABLE IWC-2500-1,SECT. XI	EXAMINATION CATEGORY FROM TABLE IWC-2500-1	METHOD OF INSPECTION	REFERENCE DWG. NO.
E. VALVES	7.5				
1. Integrally-Welded Supports	7.5.1	C3.100	C-C	ST	(Later)
2. Component Supports	7.5.2	C3.110, C3.120	C-E	VT-3, VT-4	(Later)
3. Pressure-Retaining Bolting	7.5.3	C4.40	C-D	UT	(Later)
4. Valve Body Welds	7.5.4	C6.20	C-G	ST	(Later)
F. REACTOR BUILDING SPRAY PUMPS	7.6				
1. Support Components	7.6.4	C3.8	C-C, C-E	VT-3	(Later)
G. MAKEUP AND PURIFICATION PUMPS	7.7				
1. Casing Weld	7.7.1	C6.10	C-G	ST	(Later)
2. Pressure Retaining Bolting	7.7.2	C4.20	C-D	UT	(Later)
3. Integrally Welded Supports	7.7.3	C3.70	C-C, C-E	ST	(Later)
4. Support Components	7.7.4	C3.8	C-C, C-E	VT-3	(Later)

16.0 RECORDS AND REPORTS (Continued)

16.2 PSI Report for Class 1 and 2 Components (Continued)

(3) Name of the manufacturer of the components or parts for which this is a record, including the manufacturer's component or part numbers and such information regarding the manufacturer's corporate office or manufacturing plant locations as may aid in gaining access to the manufacturer's records regarding the components or parts that the manufacturer is maintaining in accordance with requirements of ASME Section III.

(4) Date of completion of the preservice inspection

(5) Name or names of the Inspector(s) when required

(6) Name and mailing address of the employer(s) of the Inspector(s)

(7) Abstract of examinations performed, conditions observed, corrective measures recommended and taken

(8) Signature of Inspector, when required

The PSI Report shall have an owner's data report for in-service inspection, Form NIS-1 as shown in Appendix II of ASME Section XI.

16.3 Records for Class 1, 2, and 3 Components

The following records shall be available for review:

(1) Examination Plans

(2) Examination Results and Reports

(3) Examination Methods and Procedures

(4) Evaluation of Results

(5) Corrective Actions and Repairs

17.0 NOTIFICATION OF INDICATION

Plant management shall be formally notified of the presence of unacceptable indications detected during the performance of nondestructive examinations. Unacceptable indications are defined by the applicable NDE procedure. Formal notification shall consist of completing and submitting to the Plant Superintendent the "Notification of Indication" form in Appendix D of this program.

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BELLEFONTE PRESERVICE INSPECTION PROGRAM - CLASS 2 COMPONENTS

	COMPONENT	PROGRAM REFERENCE SECTION	ITEM NO. FROM TABLE IWC-2500-1, SECT. XI	EXAMINATION CATEGORY FROM TABLE IWC-2500-1	METHOD OF INSPECTION	REFERENCE DWG. NO.
A.	SYSTEM PRESSURE TESTS	8.1				
	1. System In-service Tests	8.1.1	D.1.1	D-A	VT-2	(Later)
	2. System Functional Tests	8.1.2	D.2.1	D-B	VT-2	(Later)
	3. System Hydrostatic Tests	8.1.2	D.3.1	D-C	VT-2	(Later)
B.	COMPONENT SUPPORTS AND RESTRAINTS	8.2				
	1. System In-service Tests	8.1.1, 8.2	D.1.2	D-A	VT-3	(Later)
	2. System Functional Tests	8.1.2, 8.2	D.2.2	D-B	VT-3	(Later)
	3. System Hydrostatic Tests	8.1.2, 8.2	D.3.1	D-C	VT-3	(Later)
C.	SNUBBERS AND HANGERS	8.3				
	1. System In-service Tests	8.1.1, 8.3	D.1.3	D-A	VT-4	(Later)
	2. System Functional Tests	8.1.2, 8.3	D.2.3	D-B	VT-4	(Later)
	3. System Hydrostatic Tests	8.1.2, 8.3	D.3.1	D-C	VT-4	(Later)

APPENDIX A
TABLE D
LIST OF DRAWINGS - UNIT 1
Page 1 of 3

Reactor Vessel

Drawing No.	Title	Appendix A Page No.
To be completed later.		

Pressurizer

Drawing No.	Title	Appendix A Page No.
To be completed later.		

Steam Generators

Drawing No.	Title	Appendix A Page No.
To be completed later.		

APPENDIX A
TABLE D (Continued)
LIST OF DRAWINGS - UNIT 1
Page 2 of 2

Decay Heat Removal Heat Exchangers

Drawing No.	Title	Appendix A Page No.
To be completed later.		

Piping and Valve Weld Maps

Drawing No.	Title	Appendix A Page No.
ISI-0046-C	Decay Heat Removal System	62
ISI-0047-C	Core Flooding System	78
ISI-0056-C	Makeup and Purification System	80

Piping and Valve Hanger Maps

Drawing No.	Title	Appendix A Page No.
To be completed later.		

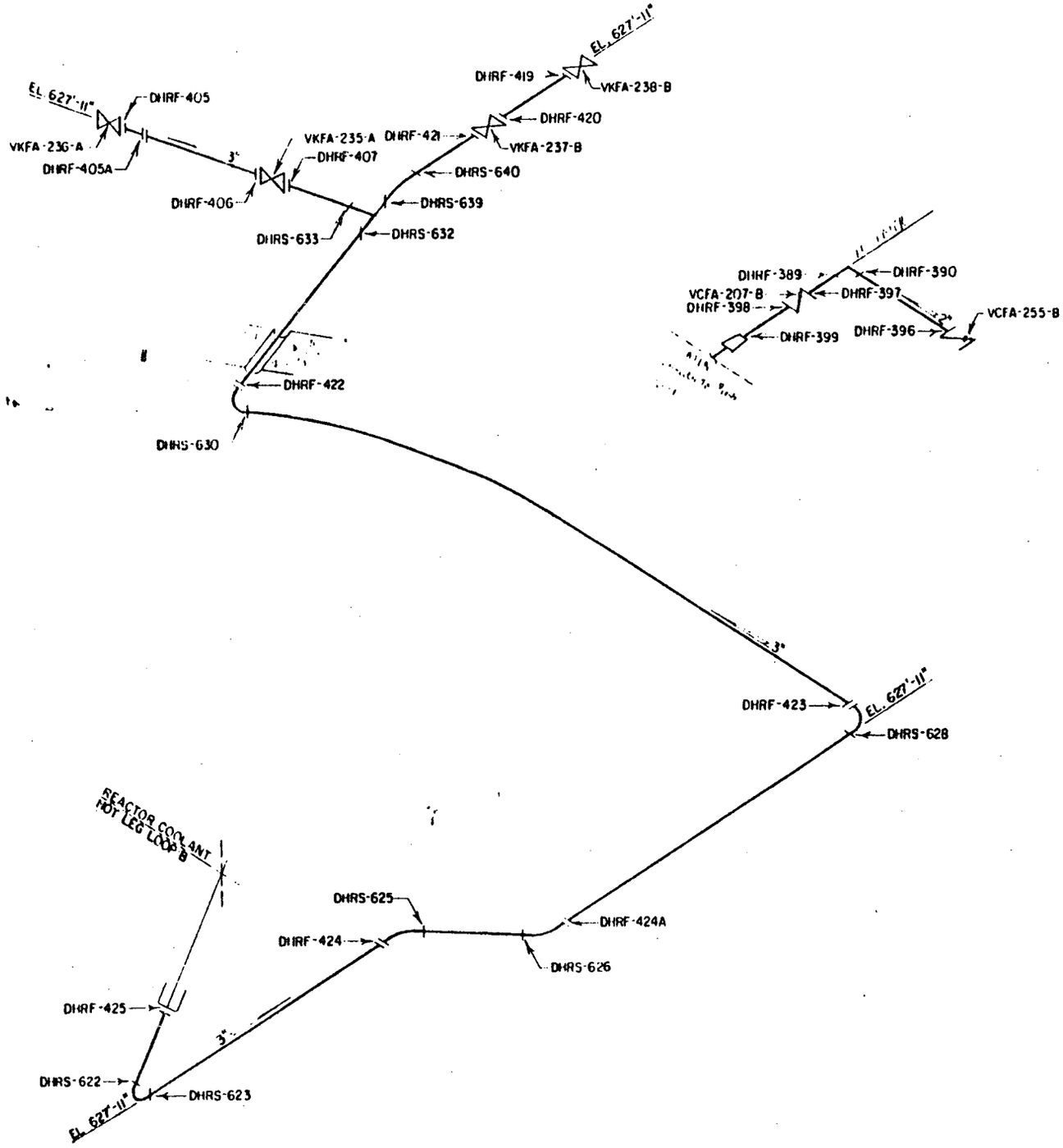
APPENDIX A
TABLE D (Continued)
LIST OF DRAWINGS - UNIT 1
Page 3 of 3

Reactor Coolant Pumps

Drawing No.	Title	Appendix A Page No.
To be completed later.		

REFERENCE DRAWINGS
NAVCO A8630
TVA WMND-10

MATERIAL SPECIFICATIONS
CLASS 1
PIPE
SA 376 GR 304
3" SCH 160
FITTINGS
SA 403 WP 304
3" SCH 160



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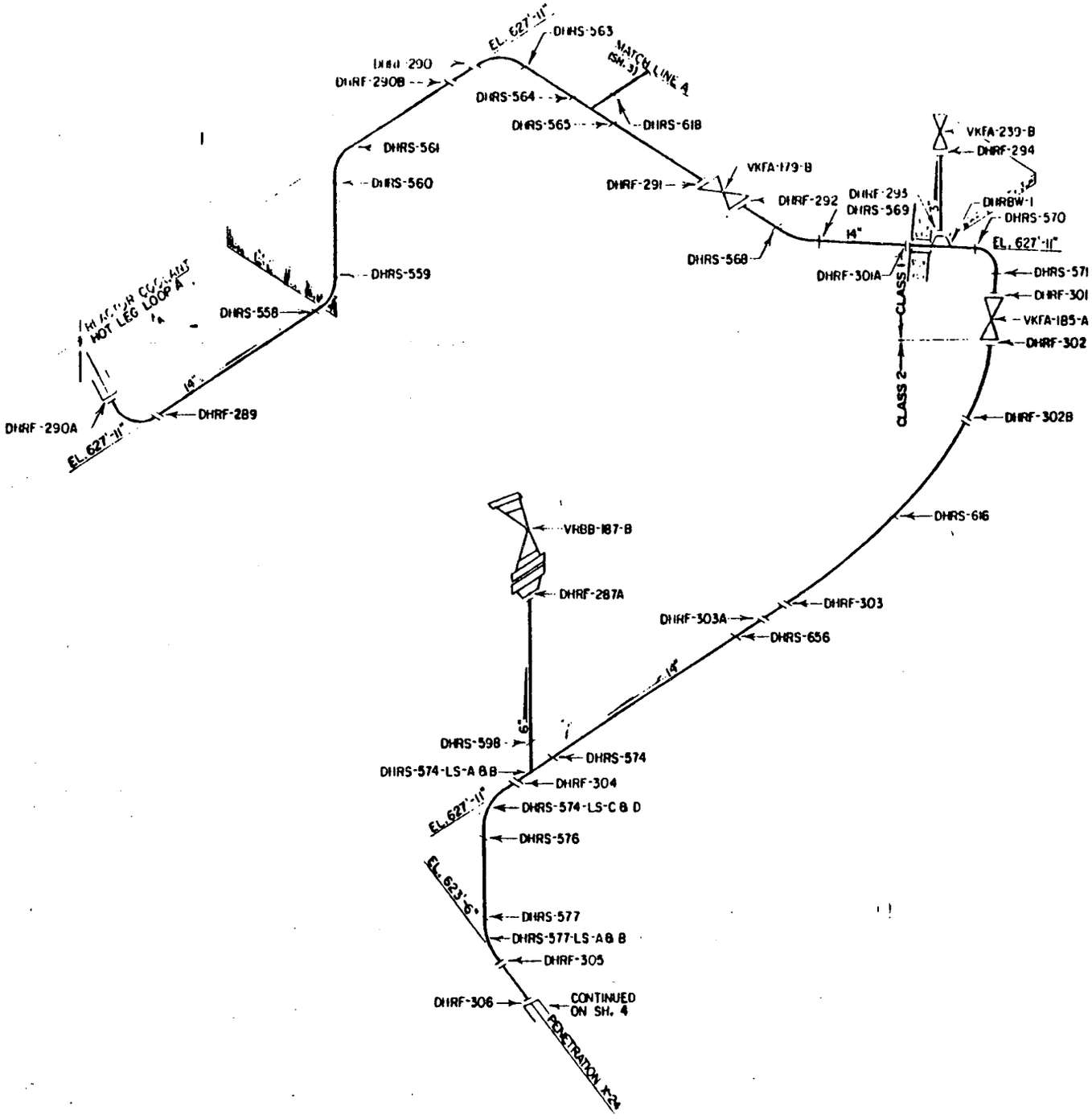
TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
DECAY HEAT REMOVAL SYSTEM
HEAT LOCATIONS

NTS		WJB	27-16
MC			ISI-0046-C R0



REFERENCE DRAWINGS

NAVCO A8493
TVA WMND 9

MATERIAL SPECIFICATIONS

CLASS 1
PIPE
SA 376 TP 304
14" SCH 160
3" SCH 160
FITTINGS
SA 403 WP 304
14" SCH 160
3" SCH 160
FLANGES
SA 182 F 304
3" 1500 #
CLASS 2
PIPE
SA 358 CL 1 TP 304W
14" SCH 40
SA 312 TP 304
6" SCH 40
FITTINGS
SA 403 WP 304W
14" SCH 40
FLANGES
SA 182 F 304
6" 300 #

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TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
DECAY HEAT REMOVAL SYSTEM
WELD LOCATIONS

DESIGNED	NTS		2-5-81
DRAWN			
TRACED			
CHECKED			

ISI-0046-C

REFERENCE DRAWINGS

NAYCO A8433
TVA WMKD-9

MATERIAL SPECIFICATIONS

CLASS 1

PIPE

SA 376 TP 304

14" SCH 160
3" SCH 160

FITTINGS

SA 403 WP 304

14" SCH 160
3" SCH 160

FLANGES

SA 182 F 304

CLASS 2

PIPE

SA 358 CL 1 TP 304W

14" SCH 40

SA 312 TP 304W

10" SCH 40

SA 312 TP 304

6" SCH 40

FITTINGS

SA 403 WP 304W

14" SCH 40
10" SCH 40

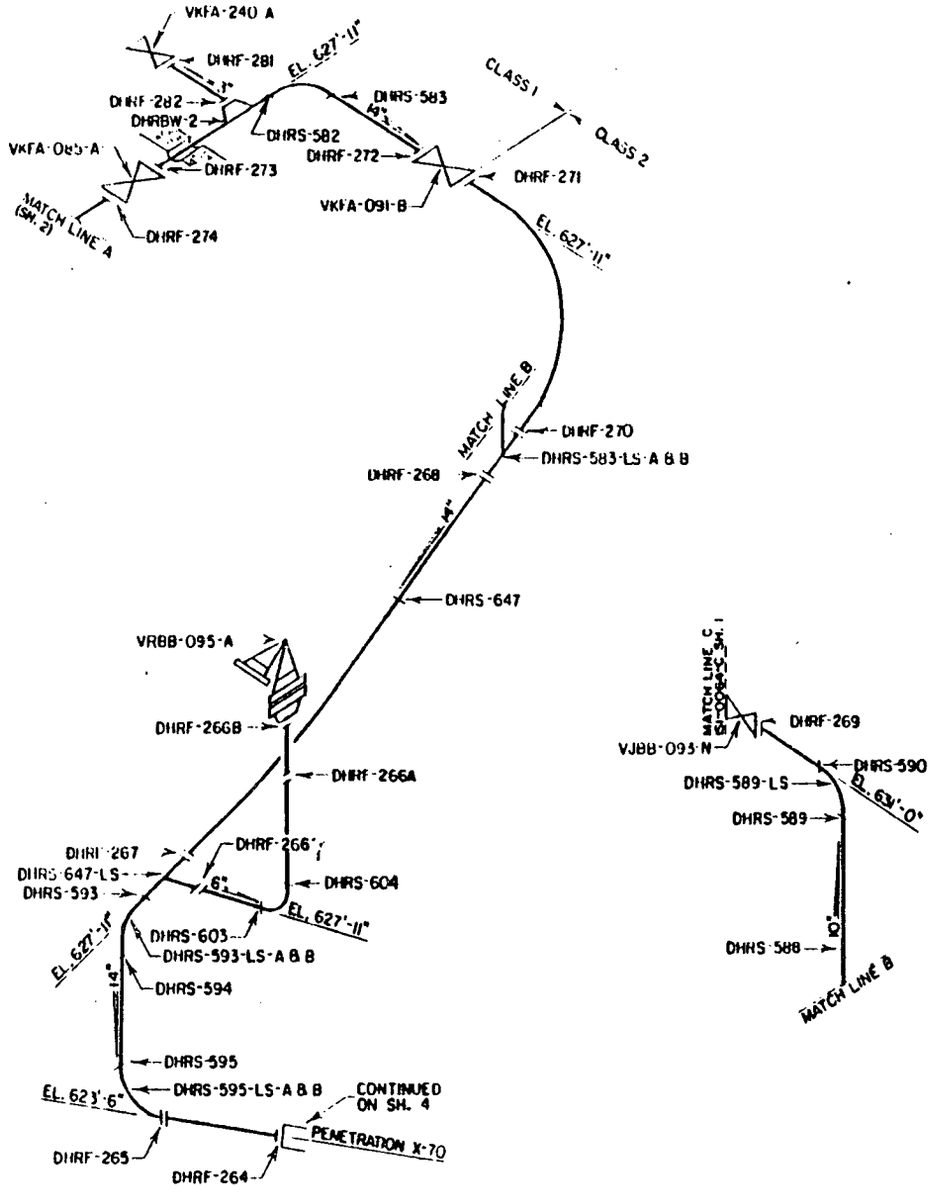
SA 403 WP 304

6" SCH 40

FLANGES

SA 182 F 304

6" 300 #



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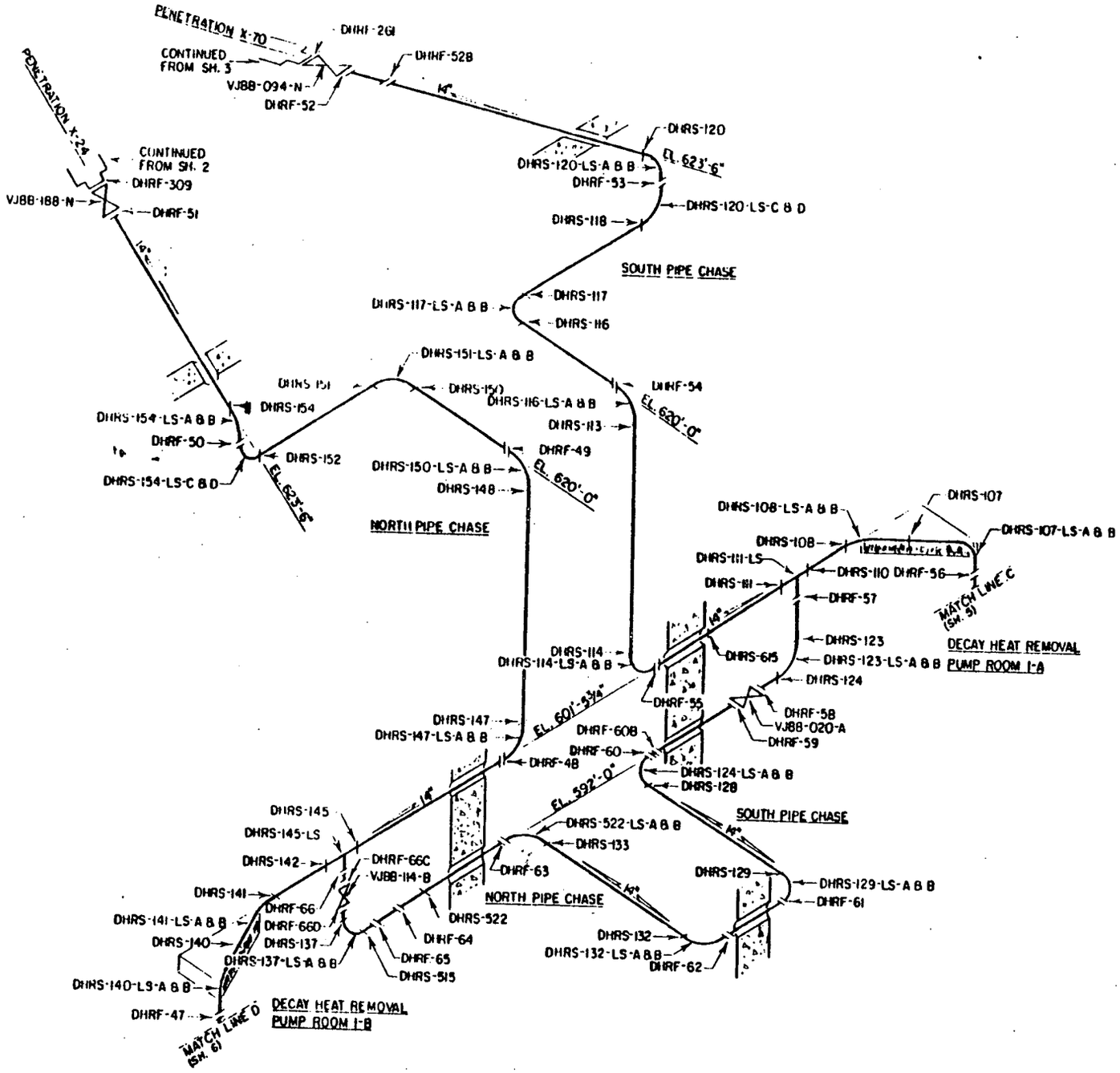
TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
DECAY HEAT REMOVAL SYSTEM
WELD LOCATIONS



REFERENCE DRAWINGS

NAVCO A8452
TVA W1AIND-1
TVA W1AIND-9

MATERIAL SPECIFICATIONS

CLASS 2
PIPE
SA 358 CL 1 TP 304W
14" SCH 40
FITTINGS
SA 403 WP 304W
14" SCH 40

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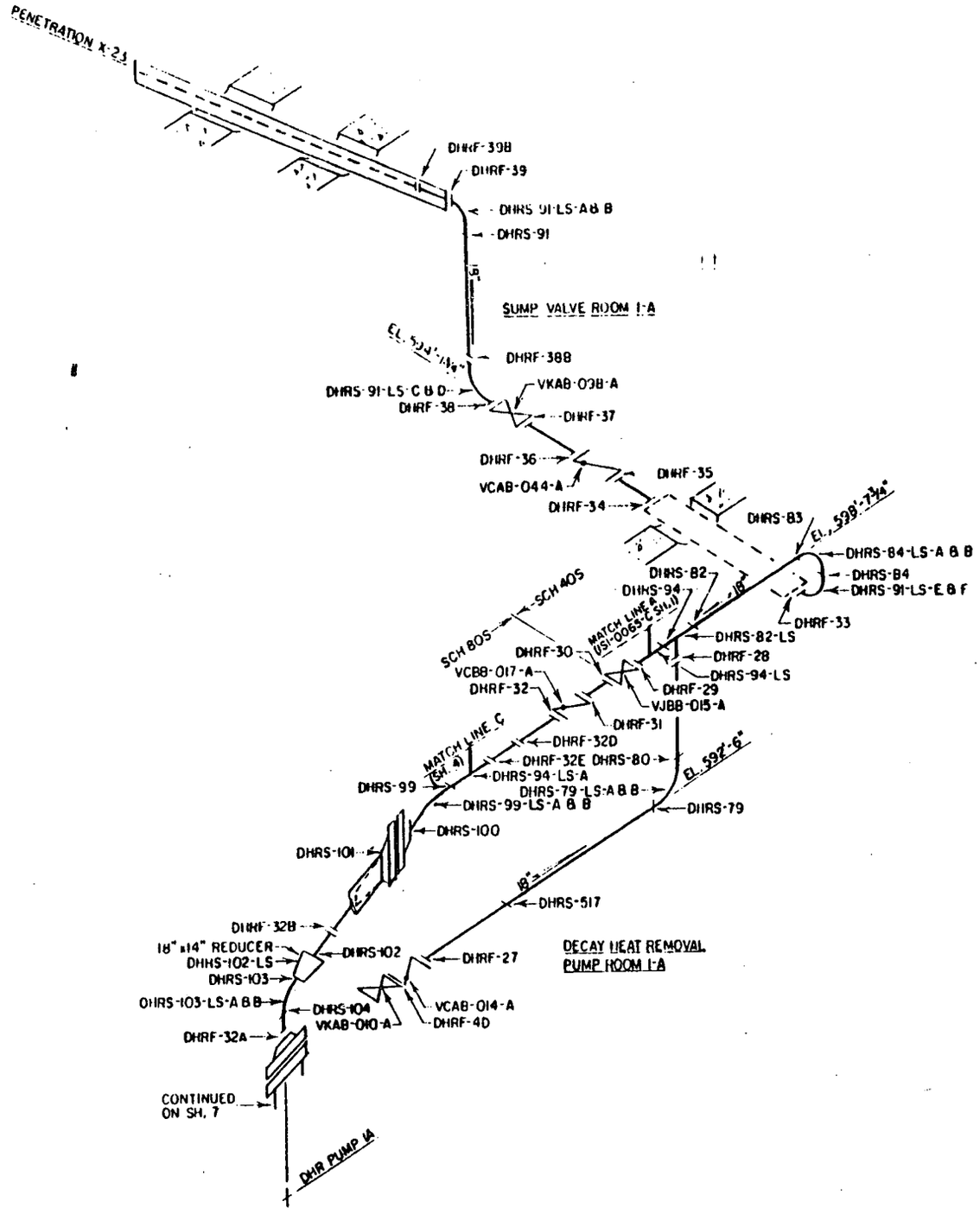
TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
DECAY HEAT REMOVAL SYSTEM
WELD LOCATIONS

DES. MTS			12-1-81
DRN. RDV			SCALE
APPR. RDC			SI-0046-C

REFERENCE DRAWINGS
NAVCO A8452
TVA WMND 1

MATERIAL SPECIFICATIONS
CLASS 2
PIPE
SA 358 CL 1 TP 304W
18" SCH. 80S
18" SCH. 40S
14" SCH 40
FITTINGS
SA 403 WP 304W
18" SCH 80S
18" SCH 40S
14" SCH 40
FLANGES
SA 182 F 304
18" 300 # SCH 80S
14" 600 # SCH 40



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TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
DECAY HEAT REMOVAL SYSTEM
WELD LOCATIONS

N.T.S.			12-3-81
MK			1 of 16
DESIGNED	DRAWN	APPROVED	ISI-0046-C R0

REFERENCE DRAWINGS

NAVCO A8452
TVA WMND-1

MATERIAL SPECIFICATIONS

CLASS 2

PIPE

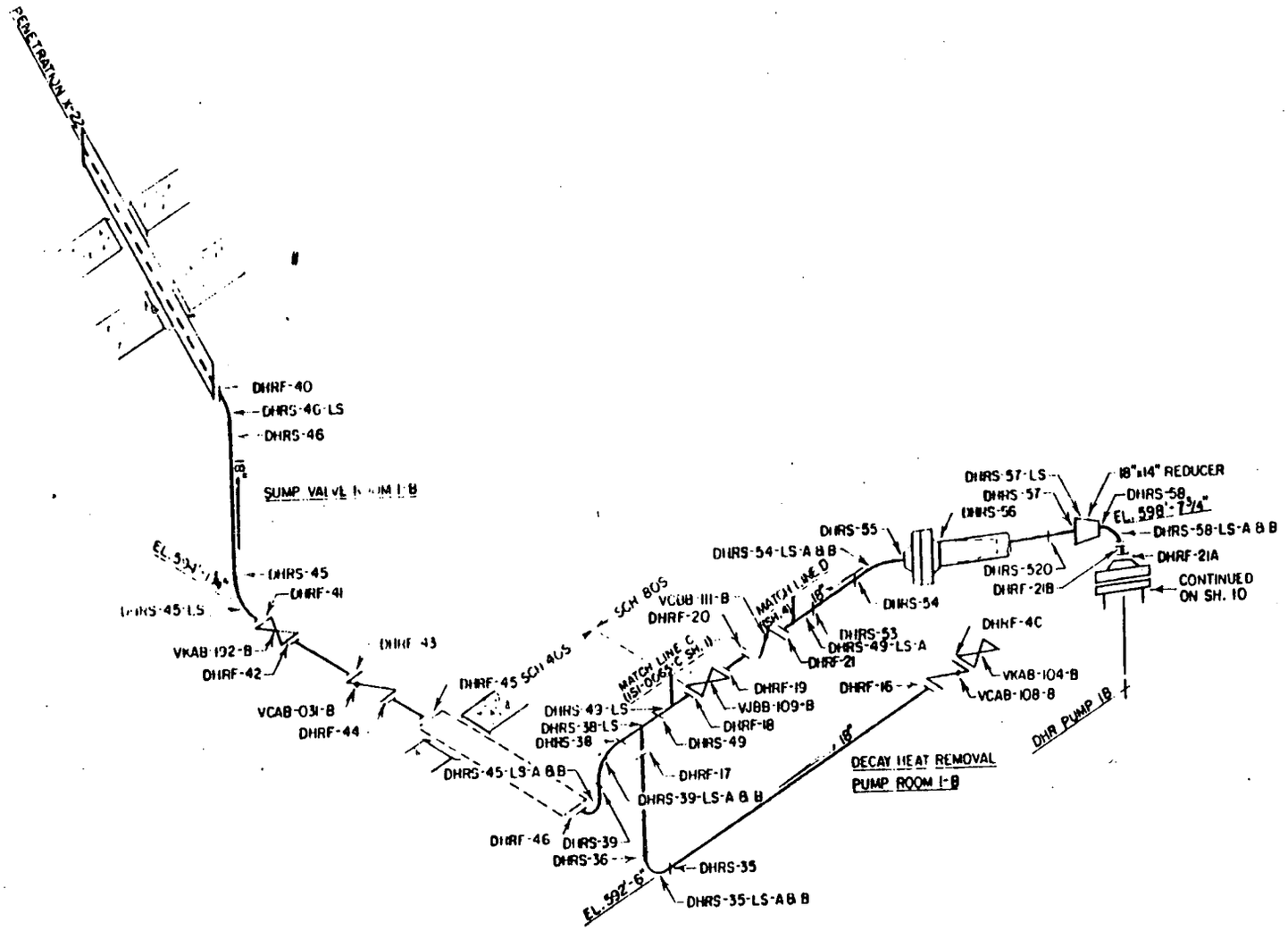
SA 358 CL 1 1P 304W
18" SCH 80S
18" SCH 40S
14" SCH 40

FITTINGS

SA 403 WP 304W
18" SCH 80S
18" SCH 40S
14" SCH 40

FLANGES

SA 182 F 304
18" 300 # SCH 80S
14" 600 # SCH 40



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TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
DECAY HEAT REMOVAL SYSTEM
WELD LOCATIONS

DES.	MTS		12-1-81
DRAWN	MTS		
TRACED			SI-0046-C

REFERENCE DRAWINGS
NAVCO A8453
TVA W-MIND-2

MATERIAL SPECIFICATIONS

CLASS 2

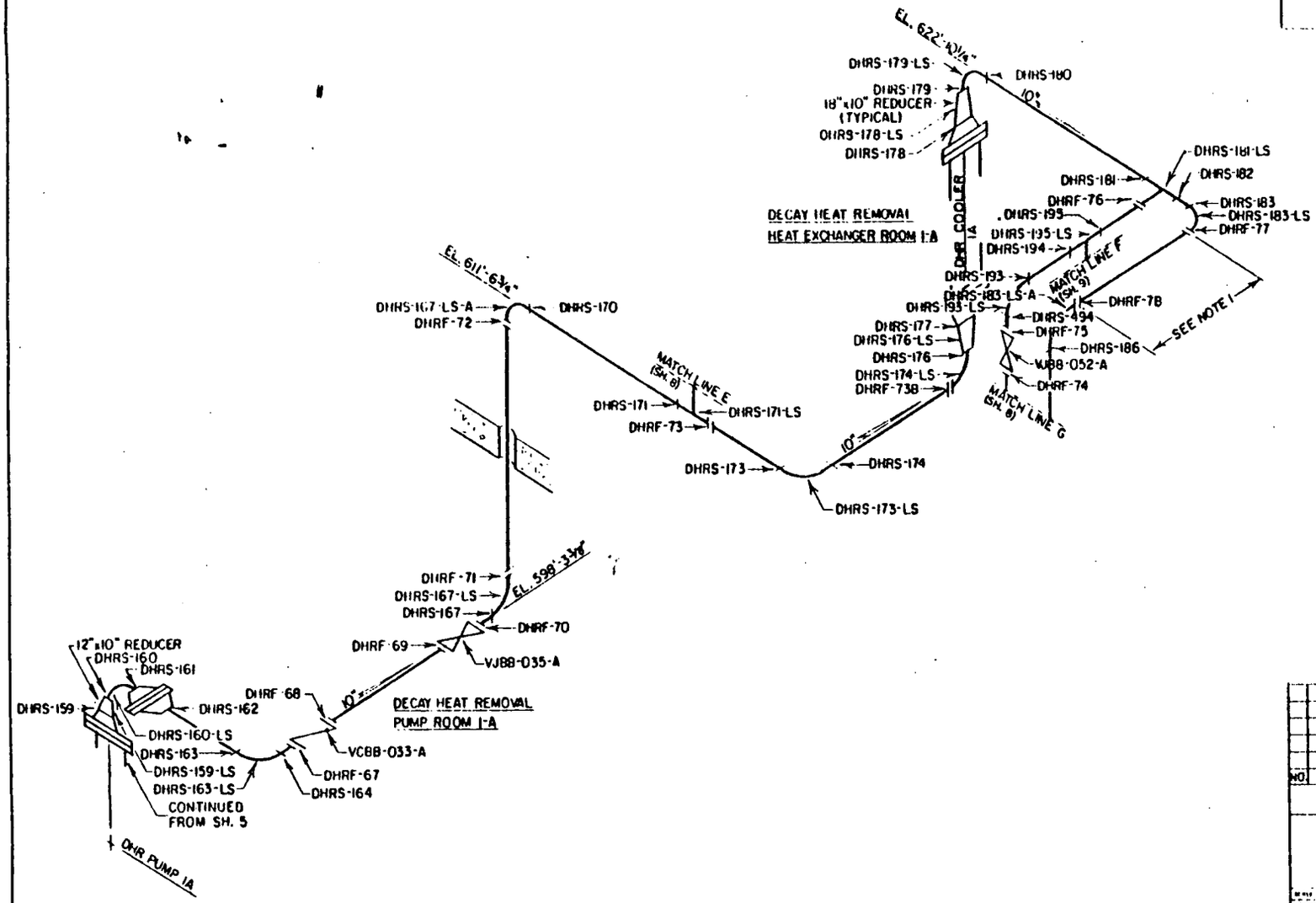
PIPE (SEE NOTE 1)
SA 312 TP 304W
10" SCH 40S

FITTINGS
SA 403 WP 304W
18" SCH 40S
12" SCH 40
10" SCH 40S

FLANGES
SA 182 F 304
18" 300# SCH 40S
12" 600# SCH 40
10" 300# SCH 40S

NOTES

1. THE SECTION OF PIPE BETWEEN WELDS DHRF-77 AND DHRF-76 IS 10" SCH 80S BORED TO 9.310" THRU ENTIRE LENGTH. THEN THE ENDS ARE COUNTERBORED TO SCH 40S.



NO	DATE	REVISIONS	CK'D	APP'D

TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
DECAY HEAT REMOVAL SYSTEM
WELD LOCATIONS

DRAWN NTS			10-10-81
TRACED KEY			BLI-PSI-0046-C
DESIGN KEY			REV A0

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REFERENCE DRAWINGS

NAVCO A8453
TVA WMIND-2

MATERIAL SPECIFICATIONS

CLASS 2

PIPE

SA 312 TP 304W
12" SCH 40
10" SCH 40S

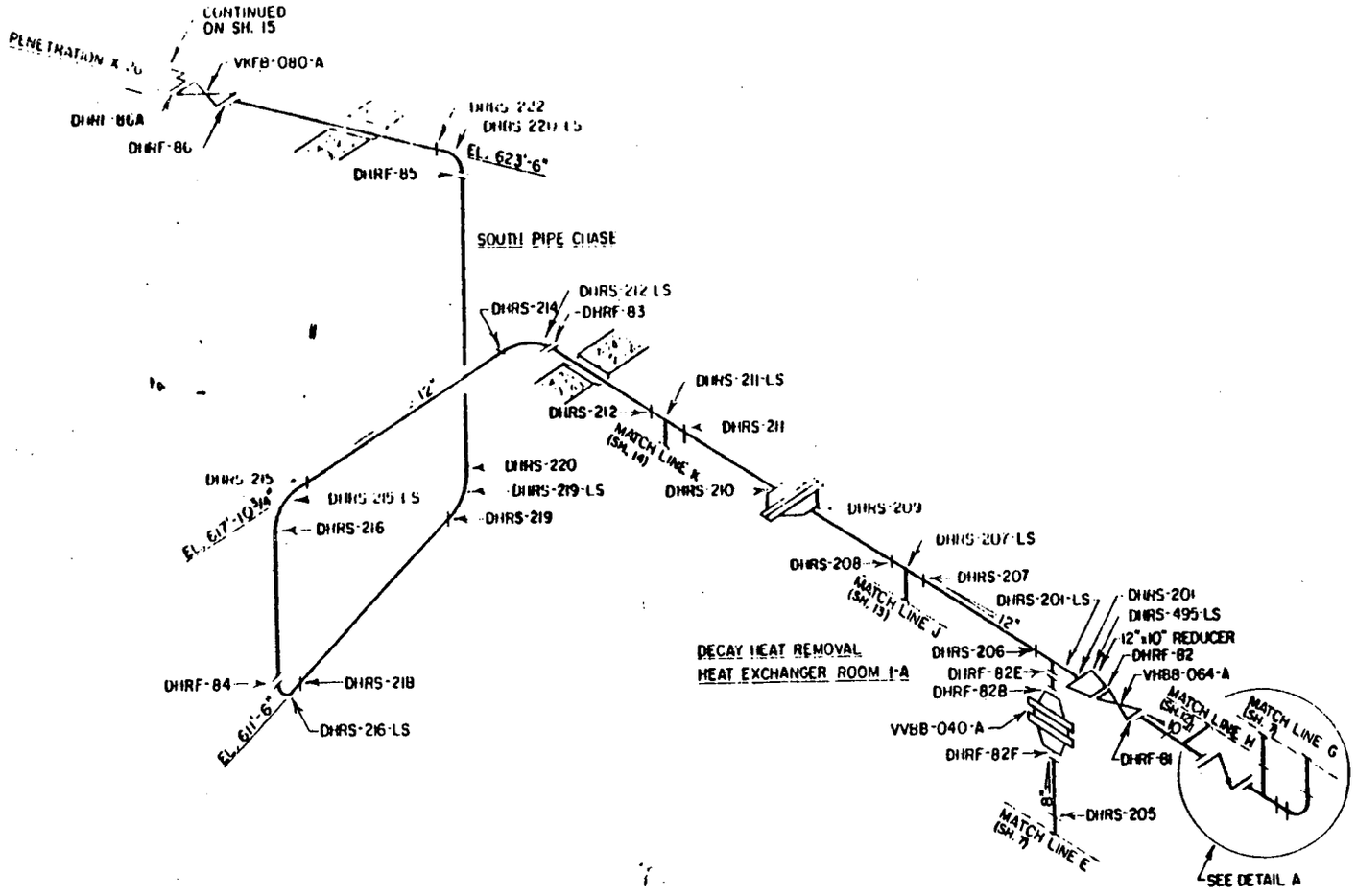
SA 312 TP 304
8" SCH 40S

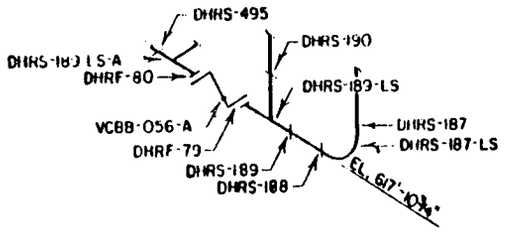
FITTINGS

SA 403 WP 304W
12" SCH 40
10" SCH 40S

FLANGES

SA 182 F 304
12" SCH 40
8" SCH 40S





DETAIL A

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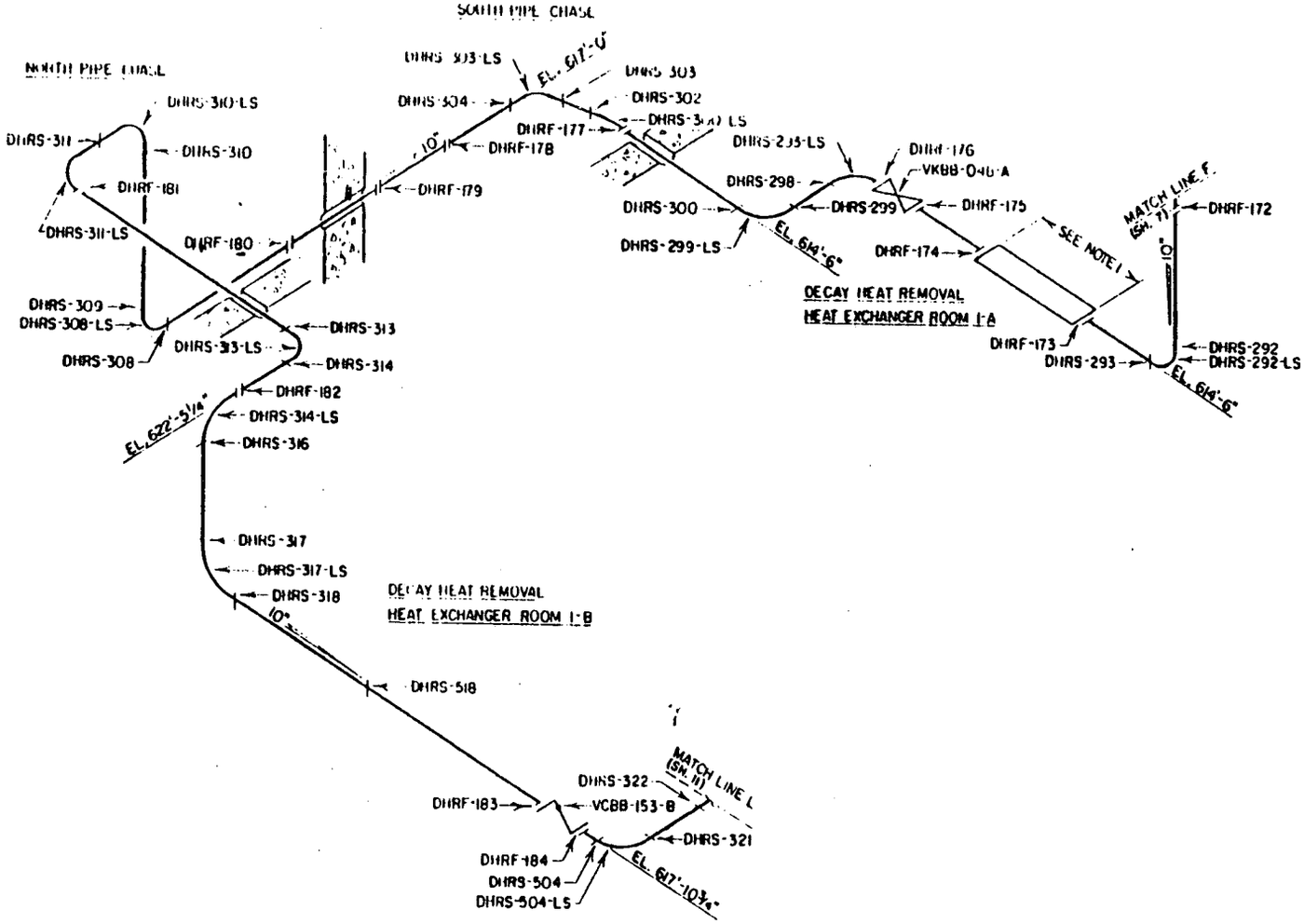
TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
DECAY HEAT REMOVAL SYSTEM
WELD LOCATIONS

REFERENCE DRAWINGS
NAVCO A8454
TVA WMIND-6

MATERIAL SPECIFICATIONS
CLASS 2
PIPE (SEE NOTE 1)
SA 312 TP 304W
10" SCH 40S
FITTINGS
SA 403 WP 304W
10" SCH 40S

NOTES
1. THE SECTION OF PIPE BETWEEN WELDS DHRF-173 AND DHRF-174 IS 10" SCH 80S BORED TO 9.910" THRU THE ENTIRE LENGTH, THEN THE ENDS ARE COUNTER-BORED TO SCH 40S.



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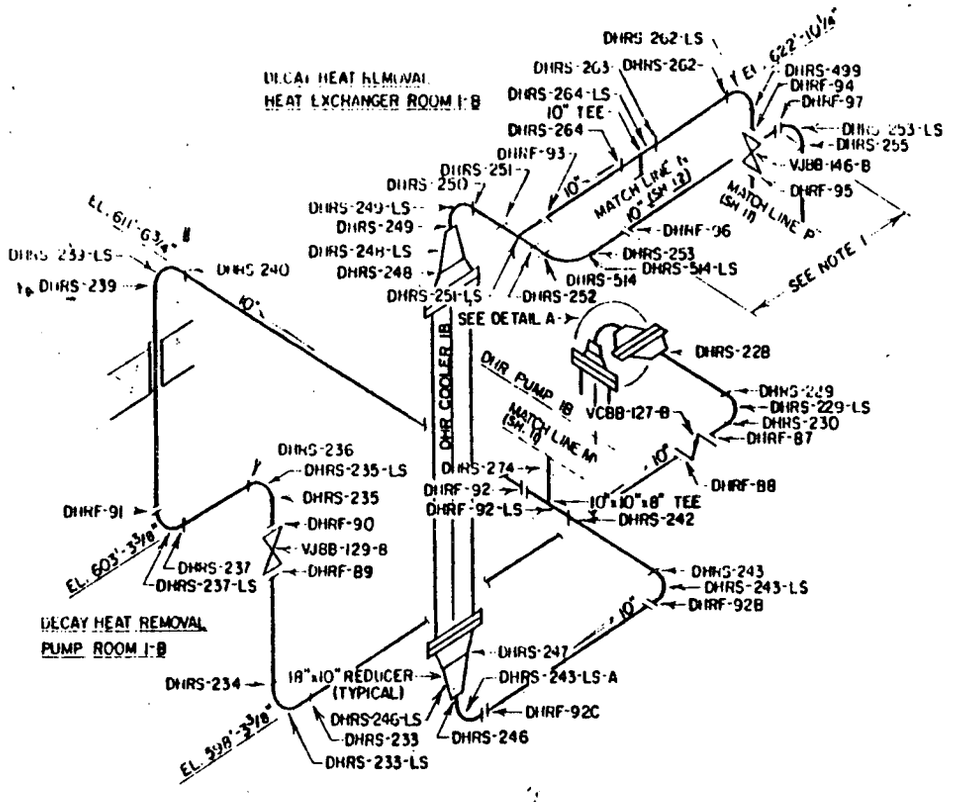
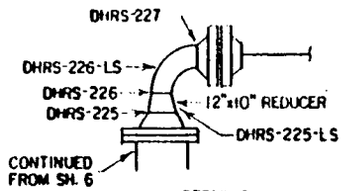
TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
DECAY HEAT REMOVAL SYSTEM
WELD LOCATIONS

NTS		778	12-15-81
NW			ISI-0046-C
SE			R0





DETAIL A

REFERENCE DRAWINGS
NAVCO A8453
TVA WMND-3

MATERIAL SPECIFICATIONS

CLASS 2

PIPE (SEE NOTE 1)
SA 312 TP 304W
10" SCH 40
SA 312 TP 304
8" SCH 40S

FITTINGS
SA 403 WP 304W
18" SCH 40S
12" SCH 40
10" SCH 40

FLANGES
SA 182 F 304
18" 300 # SCH 40S
12" 600 # SCH 40
10" 300 # SCH 40

NOTES

1. THE SECTION OF PIPE BETWEEN WELDS DHRF-96 AND DHRF-97 IS 10" SCH 80S BORED TO 9.910" THRU THE ENTIRE LENGTH. THEN THE ENDS ARE COUNTER-BORED TO SCH 40.

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TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
DECAY HEAT REMOVAL SYSTEM
WELD LOCATIONS

DRAWN BTS			1-3-81
TRACED			
CHECKED			
APPROVED			ISI-0046-C
DRAWING 22C-			10

REFERENCE DRAWINGS

NAVCO AH453
TVA WMND-3
TVA WMND-8

MATERIAL SPECIFICATIONS

CLASS 2

PIPE

SA 312 TP 304W
12" SCH 40
10" SCH 40

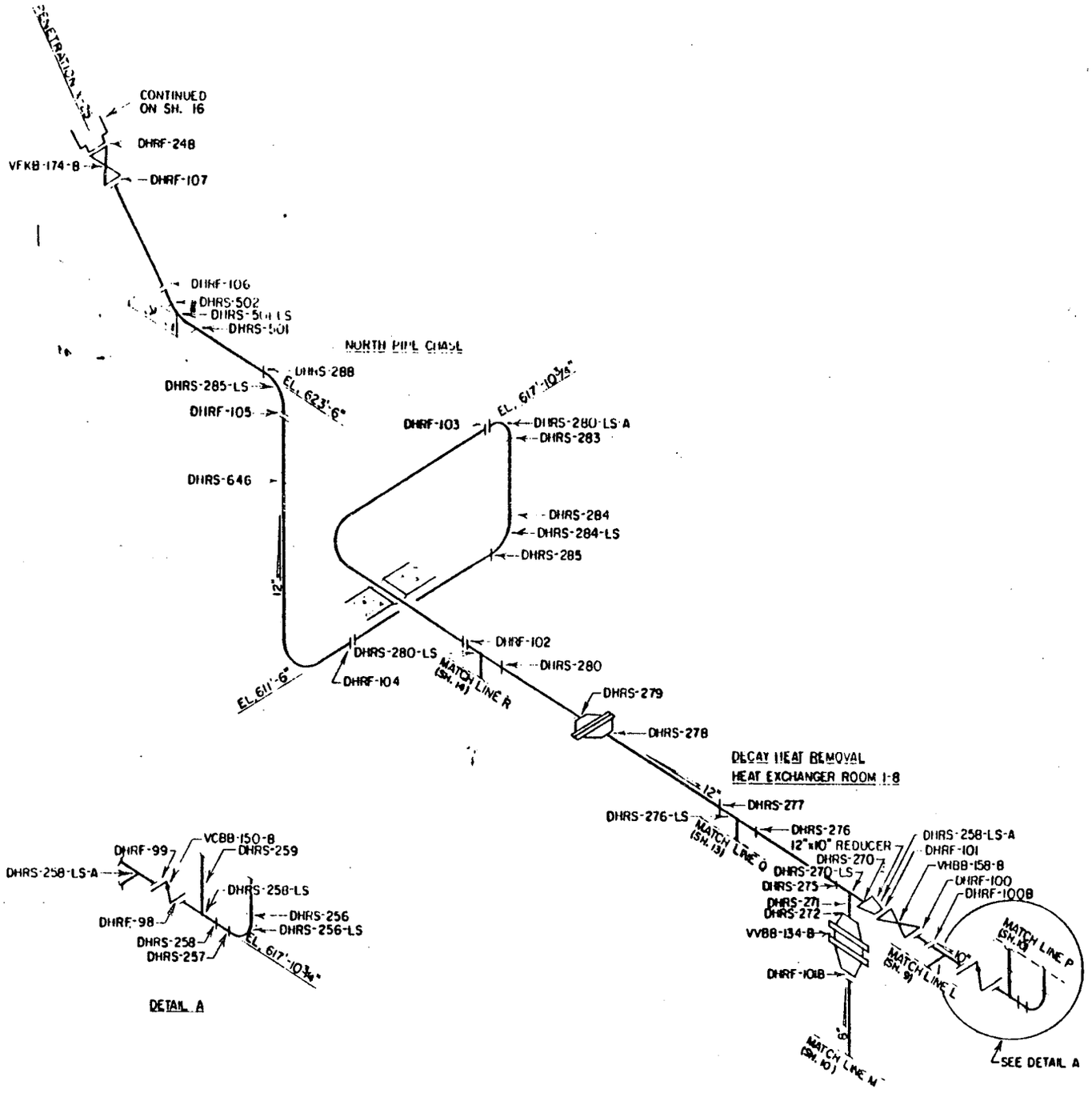
SA 312 TP 304S
8" SCH 40S

FITTINGS

SA 403 WP 304W
12" SCH 40
10" SCH 40

FLANGES

SA 182 F 304
12" 300# SCH 40
8" 300# SCH 40S



NO	DATE	REVISIONS	CK'D	APP'D

TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
DECAY HEAT REMOVAL SYSTEM
WELD LOCATIONS

NTS		1772	2-8-81

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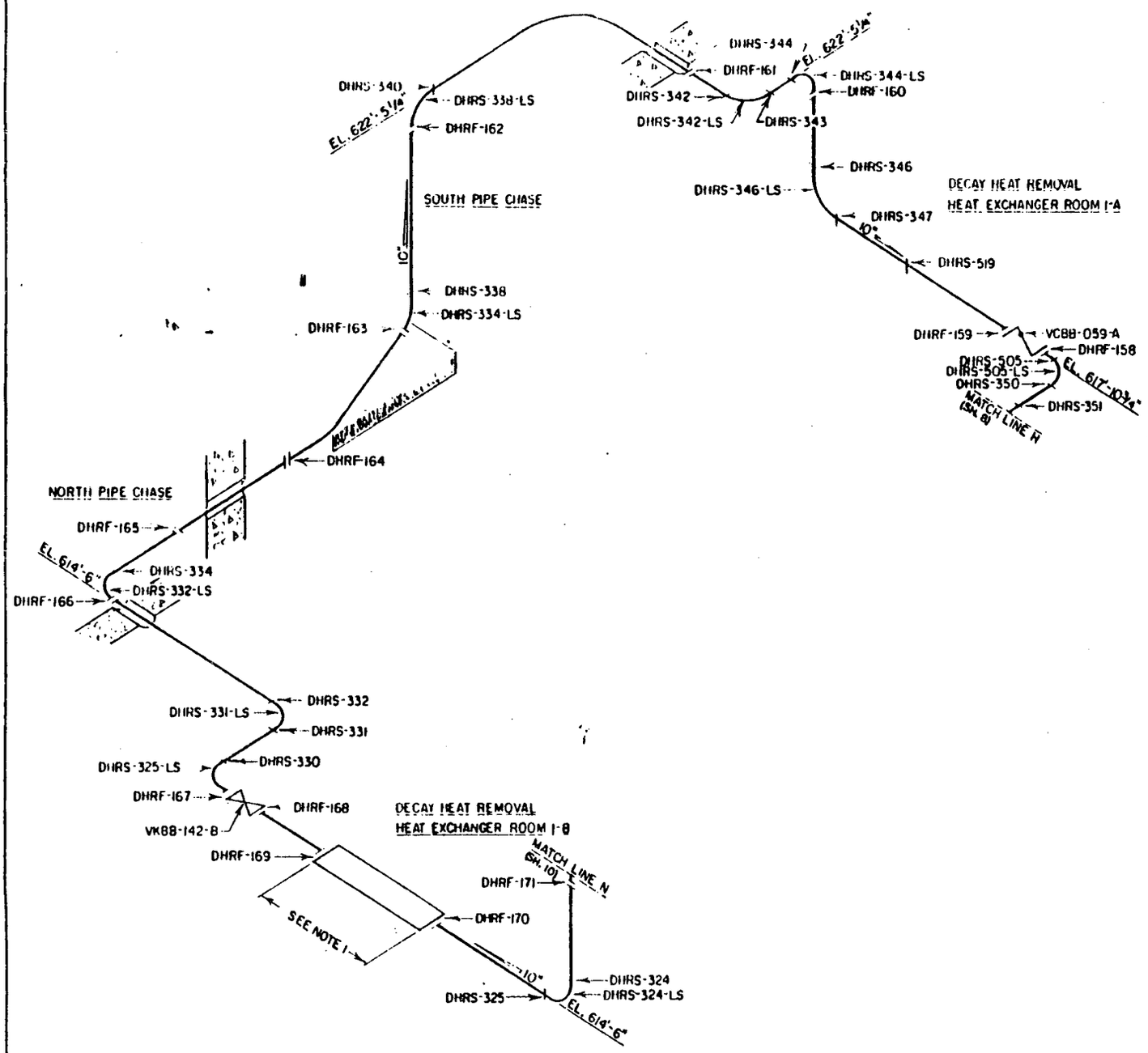

REFERENCE DRAWINGS

NAVCO A8454
TVA WMIND-6

MATERIAL SPECIFICATIONS

CLASS 2

PIPE (SEE NOTE 1)
SA 312 TP 304W
10" SCH 40S

FITTINGS
SA 403 WP 304W
10" SCH 40S

NOTES

1. THE SECTION OF PIPE BETWEEN WELDS DHRF-169 AND DHRF-170 IS 10" SCH 80 BORED TO 9.910" THRU THE ENTIRE LENGTH. THEN THE ENDS ARE COUNTERBORED TO SCH 40S.

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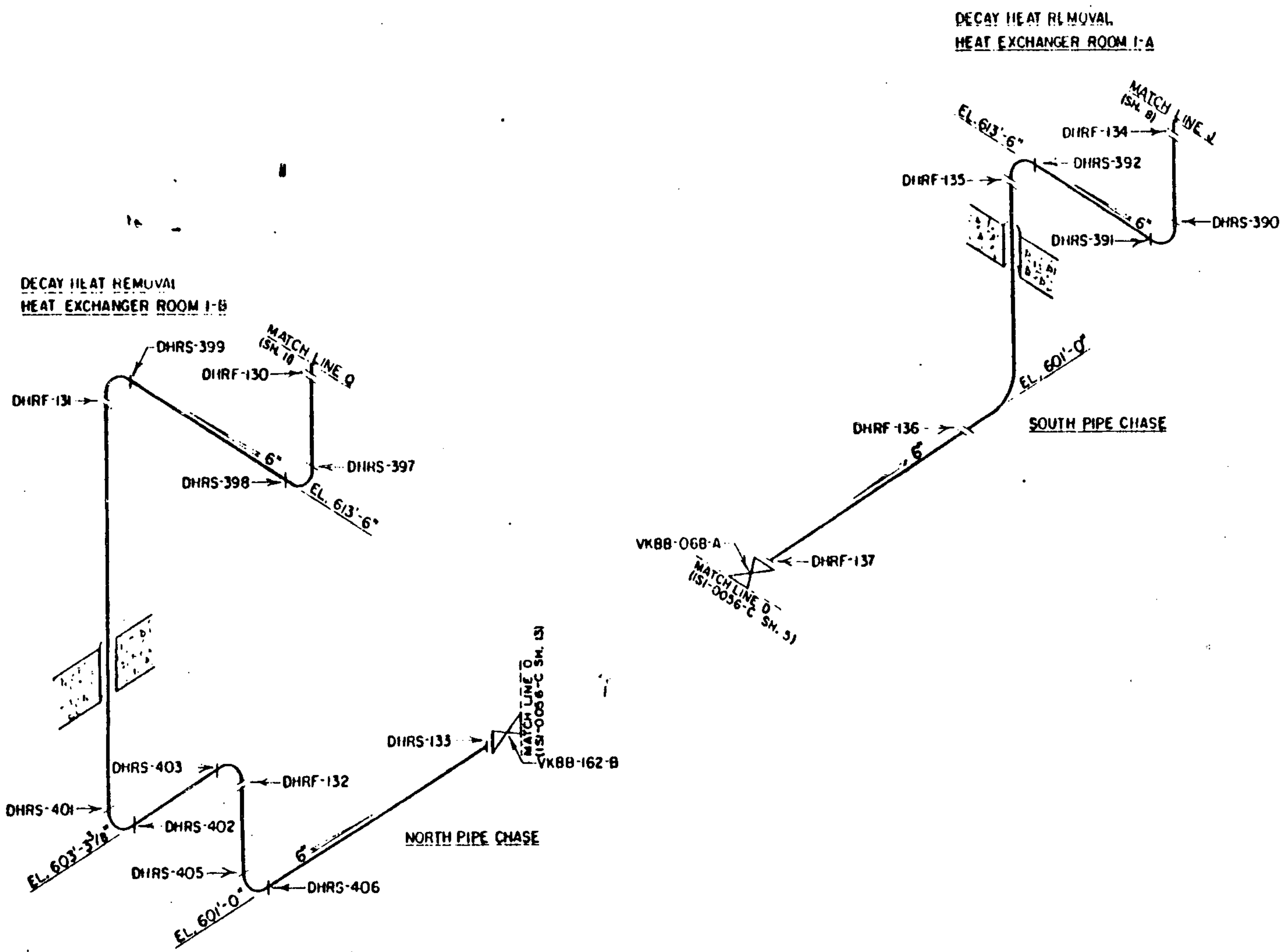
TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
DECAY HEAT REMOVAL SYSTEM
WELD LOCATIONS

DRAWN MCS		TVA	12-13-81
TRACED MCS			
CHECKED [illegible]			ISI-0046-C R0

REFERENCE DRAW[...]
NAVCO AB455
TVA WMIND 4

MATERIAL SPECIFICATIONS
CLASS 2
PIPE
SA 312 TP 304
6" SCH 40S
FITTINGS
SA 403 WP 304
6" SCH 40S



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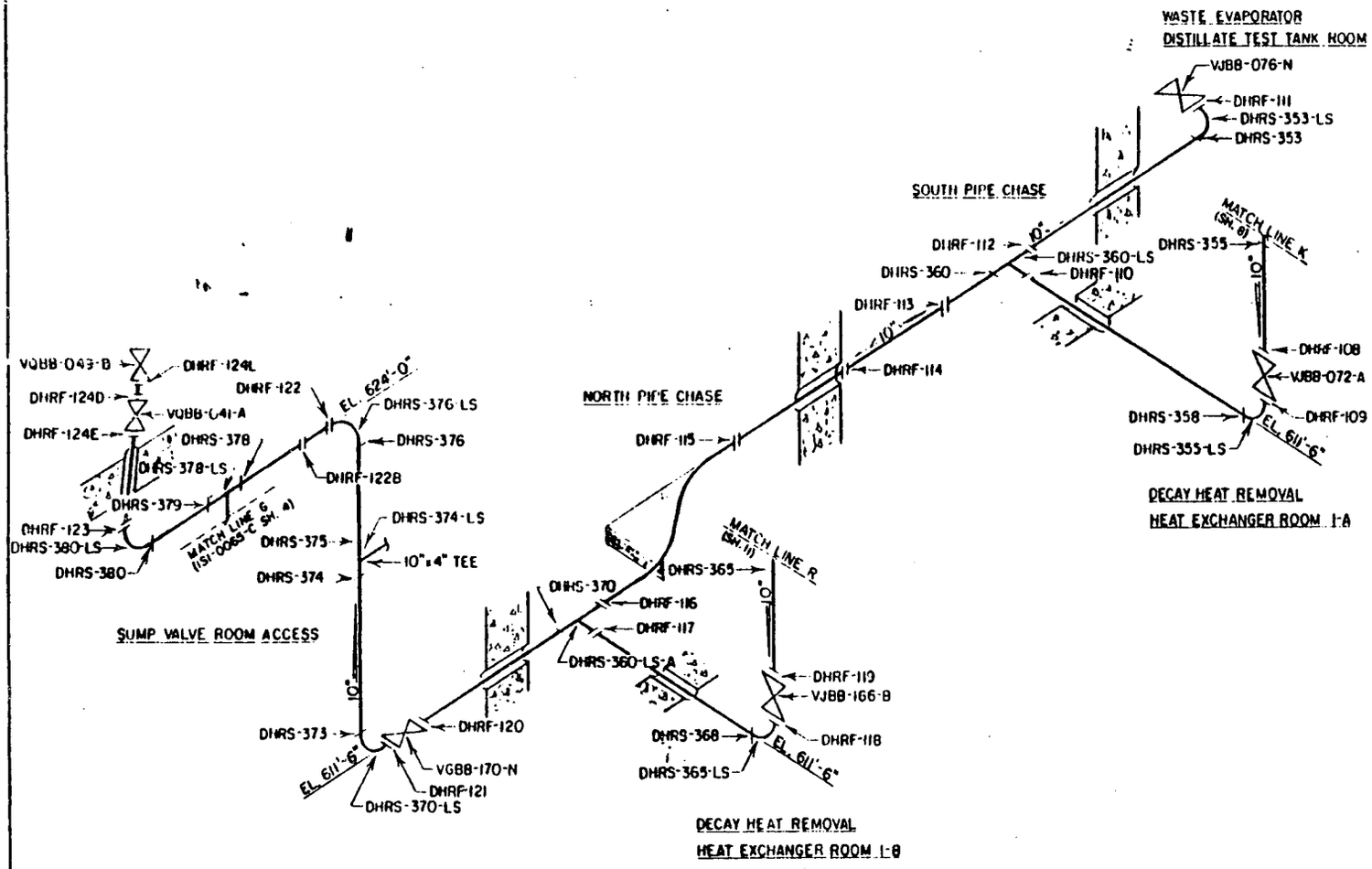
TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER
BELLEFONTE NUCLEAR PLANT
UNIT #1
DECAY HEAT REMOVAL SYSTEM
WELD LOCATIONS

SCALE NTS
TRACED KV
12-14-81
ISI-0046-C
R0

REFERENCE DRAWINGS
NAVCO A8455
TVA WMND-4

MATERIAL SPECIFICATIONS
CLASS 2
PIPE
SA 312 TP 304W
10" SCH 40S
FITTINGS
SA 403 WP 304W
10" SCH 40S



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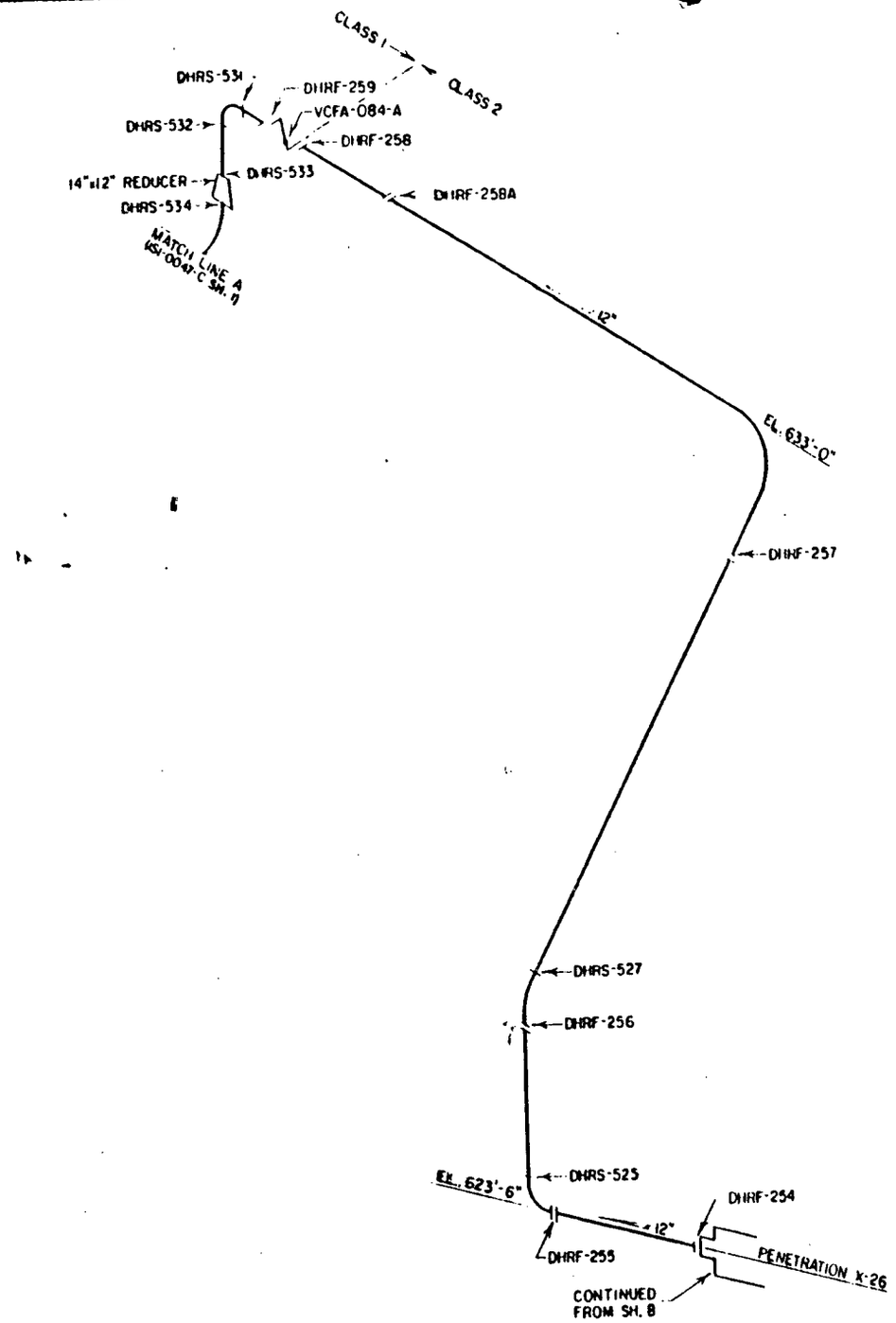
TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
DECAY HEAT REMOVAL SYSTEM
WELD LOCATIONS

DESIGNED NTS		APPROVED	12-14-81
DRAWN BTC			ISI-0046-C R0



REFERENCE DRAWINGS
NAVCO A8403
TVA WMND-8

MATERIAL SPECIFICATIONS

CLASS 1
PIPE
SA 376 TP 304
12" SCH 160
FITTINGS
SA 403 WP 304
14" SCH 160
12" SCH 160

CLASS 2
PIPE
SA 376 TP 304
12" SCH 160
FITTINGS
SA 403 WP 304
12" SCH 160

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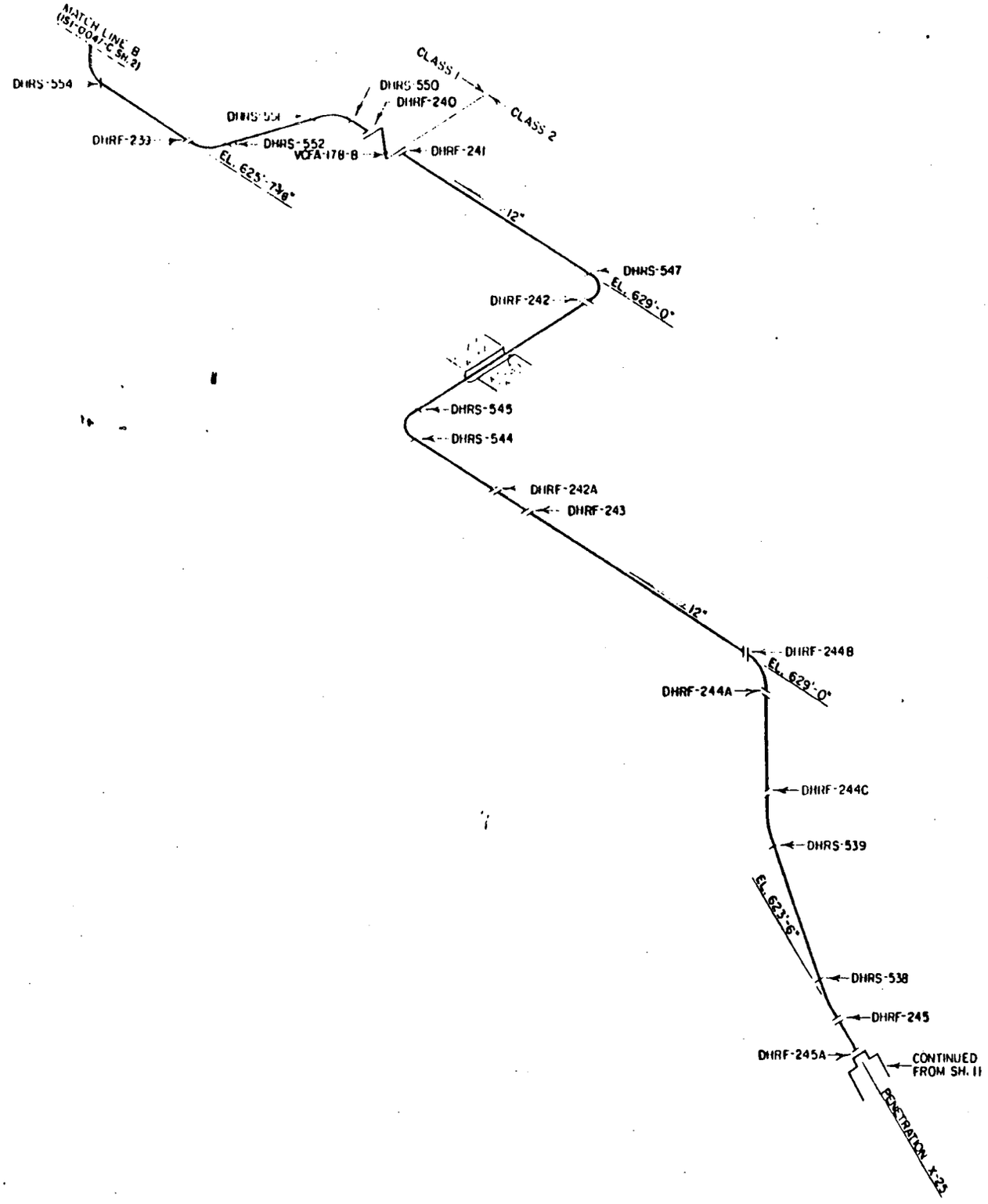
TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
DECAY HEAT REMOVAL SYSTEM
WELD LOCATIONS

SCALE NTS	SUBMITTED	APPROVED	2-11-81
DRAWN BTK		JJB	5-16-82
			ISI-0046-C R0



REFERENCE DRAWINGS
- NAVCO A8492
- TVA WMIND-8

MATERIAL SPECIFICATIONS
- CLASS 1
  - PIPE
    - SA 376 TP 304
    - 12" SCH 160
  - FITTINGS
    - SA 403 WP 304
    - 12" SCH 160
- CLASS 2
  - PIPE
    - SA 376 TP 304
    - 12" SCH 160
  - FITTINGS
    - SA 403 WP 304
    - 12" SCH 160

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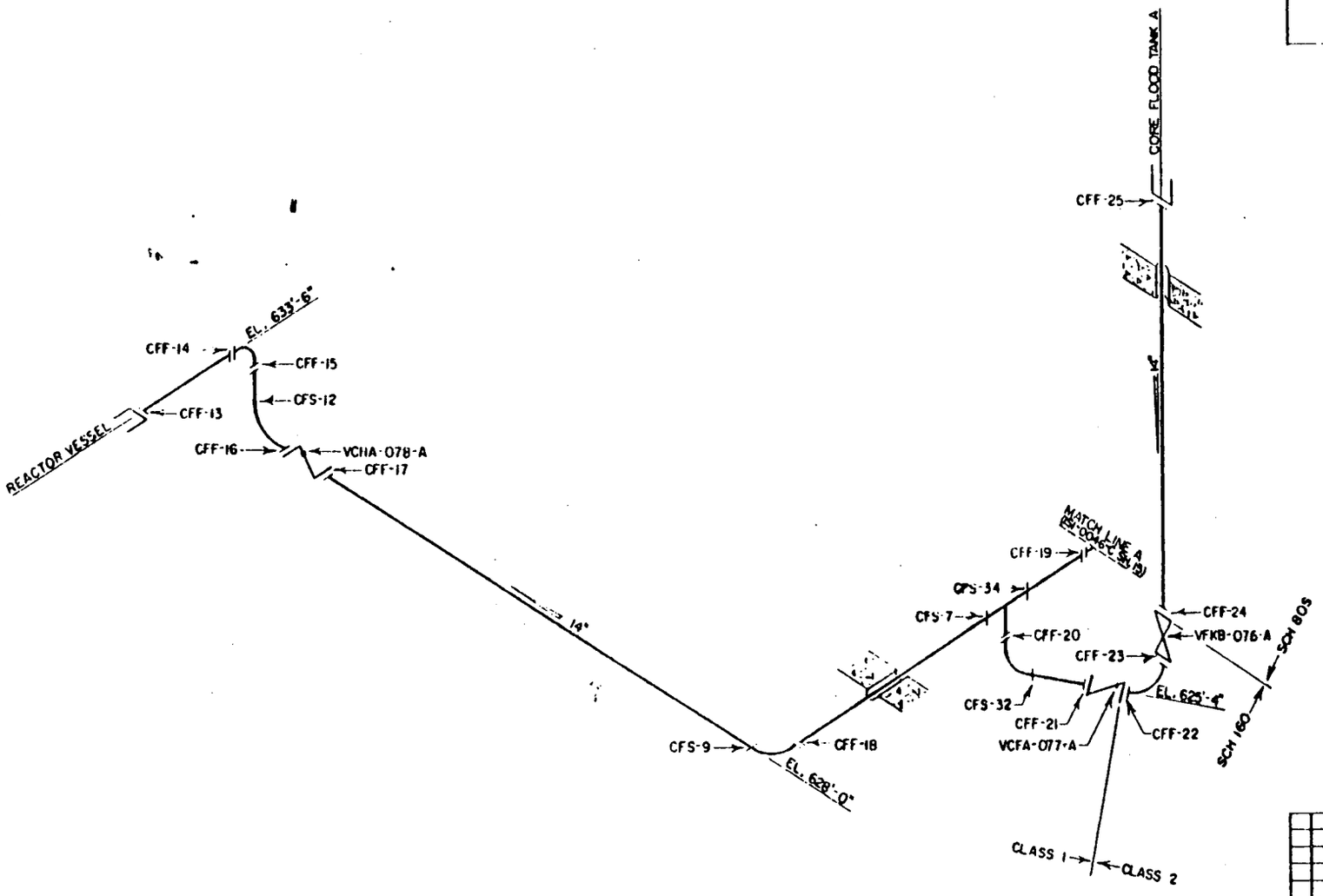
TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
DECAY HEAT REMOVAL SYSTEM
WELD LOCATIONS

REFERENCE DRAWINGS
NAVCO A848I R6
TVA WMNL-1 R6

MATERIAL SPECIFICATIONS
CLASS 1
PIPE
SA 376 TP 304
14" SCH 160
FITTINGS
SA 403 WP 304
14" SCH 160
CLASS 2
PIPE
SA 358 CL-1 TP 304W
14" SCH 80S
FITTINGS
SA 403 WP 304
14" SCH 160



NO.	DATE	REVISIONS	CK'D/APP

TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
CORE FLOODING SYSTEM
WELD LOCATIONS

NTS

12-16-81
SI-0047-C
R0

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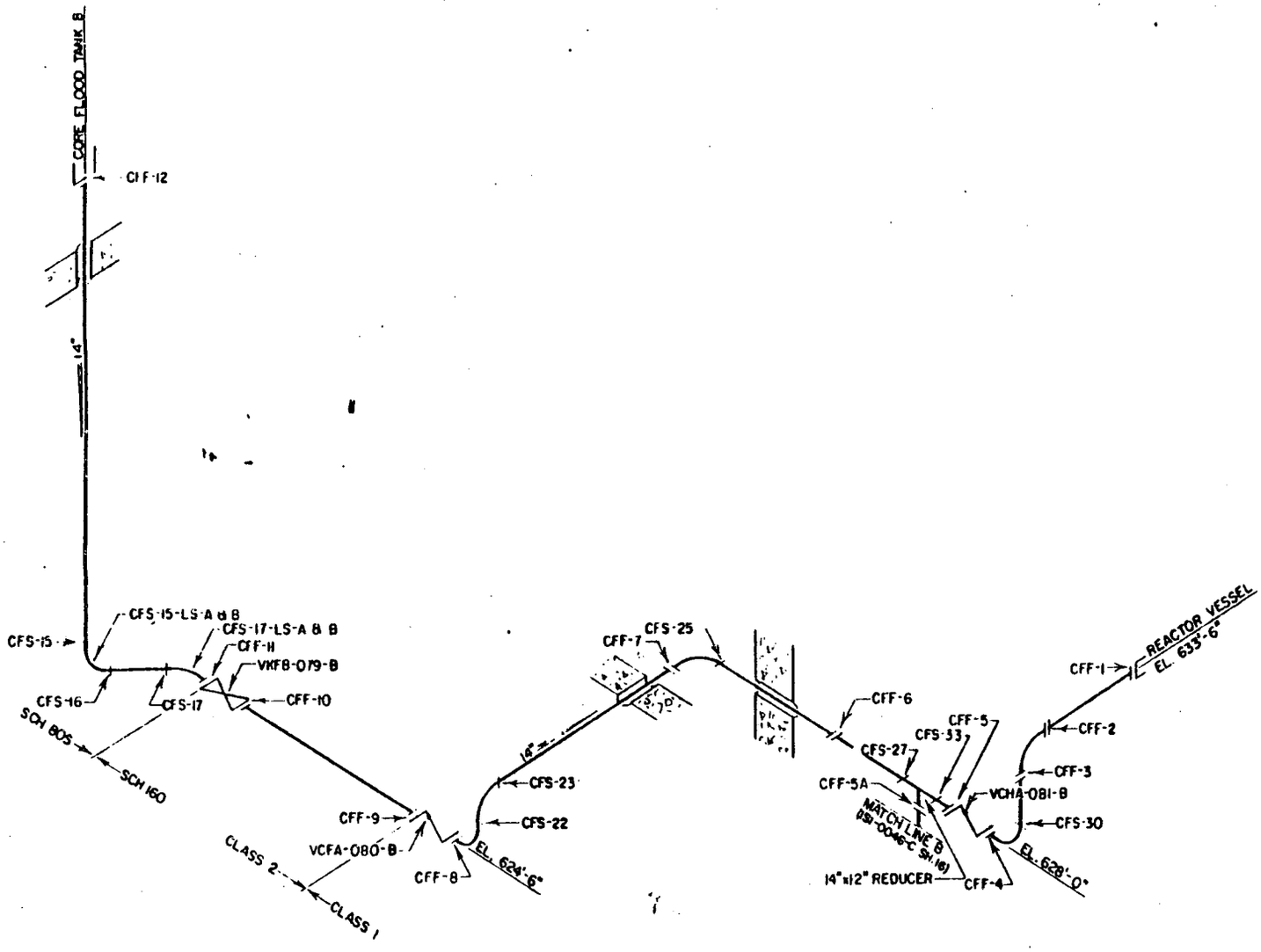
REFERENCE DRAWINGS
NAVCO A8481 R2
TVA WMINL-2 R3

MATERIAL SPECIFICATIONS
CLASS 1
PIPE
SA 376 TP 304
14" SCH 160
FITTINGS
SA 403 WP 304
14" SCH 160
CLASS 2
PIPE
SA 376 TP 304
14" SCH 160
SA 358 CL. 1 TP 304W
14" SCH 80S
FITTINGS
SA 403 WP 304W
14" SCH 80S



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TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
CORE FLOODING SYSTEM
WELD LOCATIONS

DRAWN NLS		APPROVED	DATE 12-16-81
TRACED KEF			SHEET 2 OF 2 SHEETS
DESIGN ENGR.			ISI-0047-C R0

REFERENCE DRAWING

NAVCO A-8629
WMINV-12

MATERIAL SPECIFICATIONS

CLASS 1

PIPE

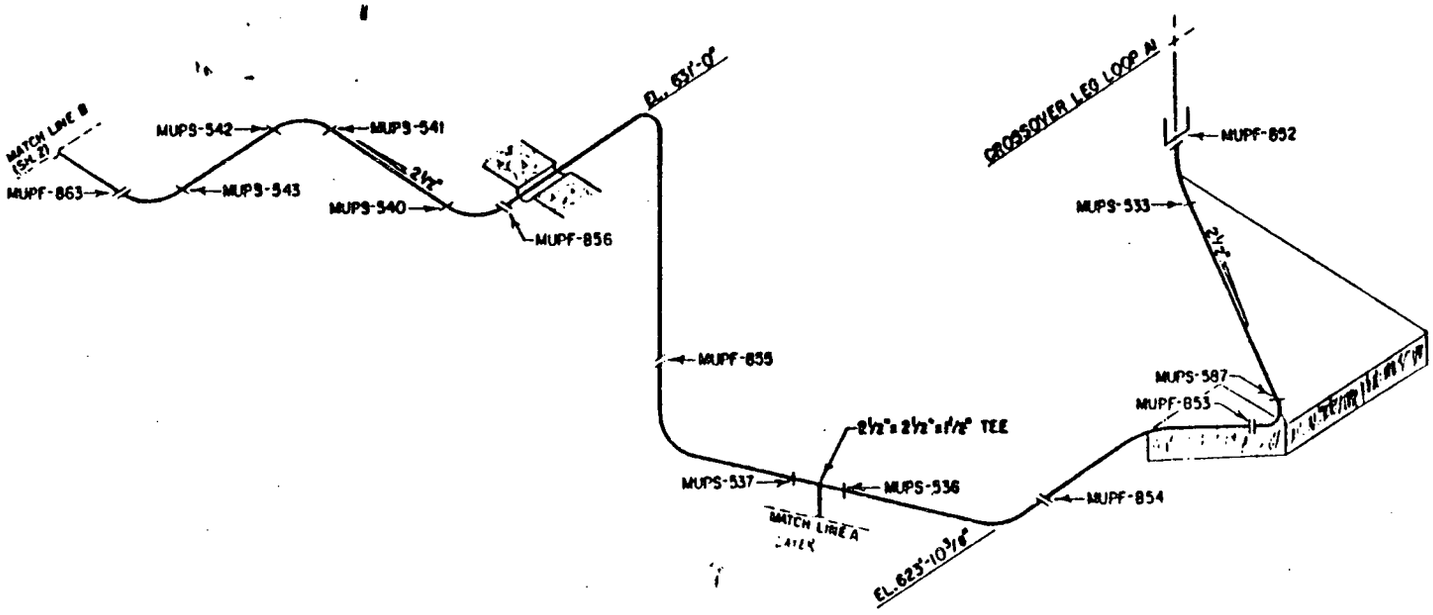
SA 312 TP 304

2½" SCH 80S

FITTINGS

SA 403 WP 304

2½" SCH 80S



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TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
MAKEUP AND PURIFICATION SYSTEM
WELD LOCATIONS

SCALE NTS			DATE 5-6-82
DRAWN JRP			ISI-0056-C

RO

REFERENCE DRAWIN.

NAVCO A-8629

WMNV-12

MATERIAL SPECIFICATIONS

CLASS I

PIPE

SA 312 TP 304

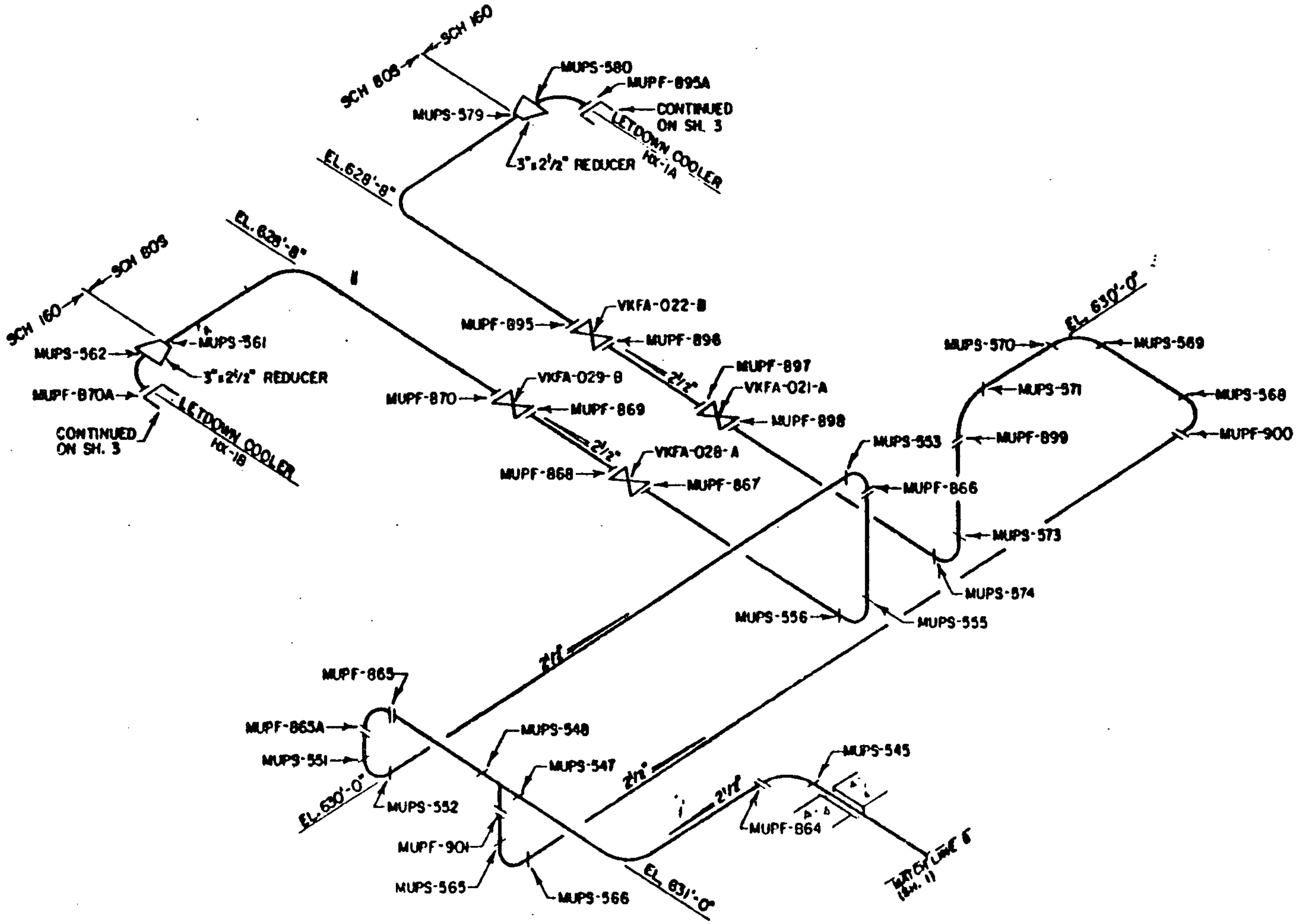
2½" SCH 80S

FITTINGS

SA 403 WP 304

3" SCH 160

2½" SCH 80S



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TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
MAKEUP AND PURIFICATION SYSTEM
WELD LOCATIONS

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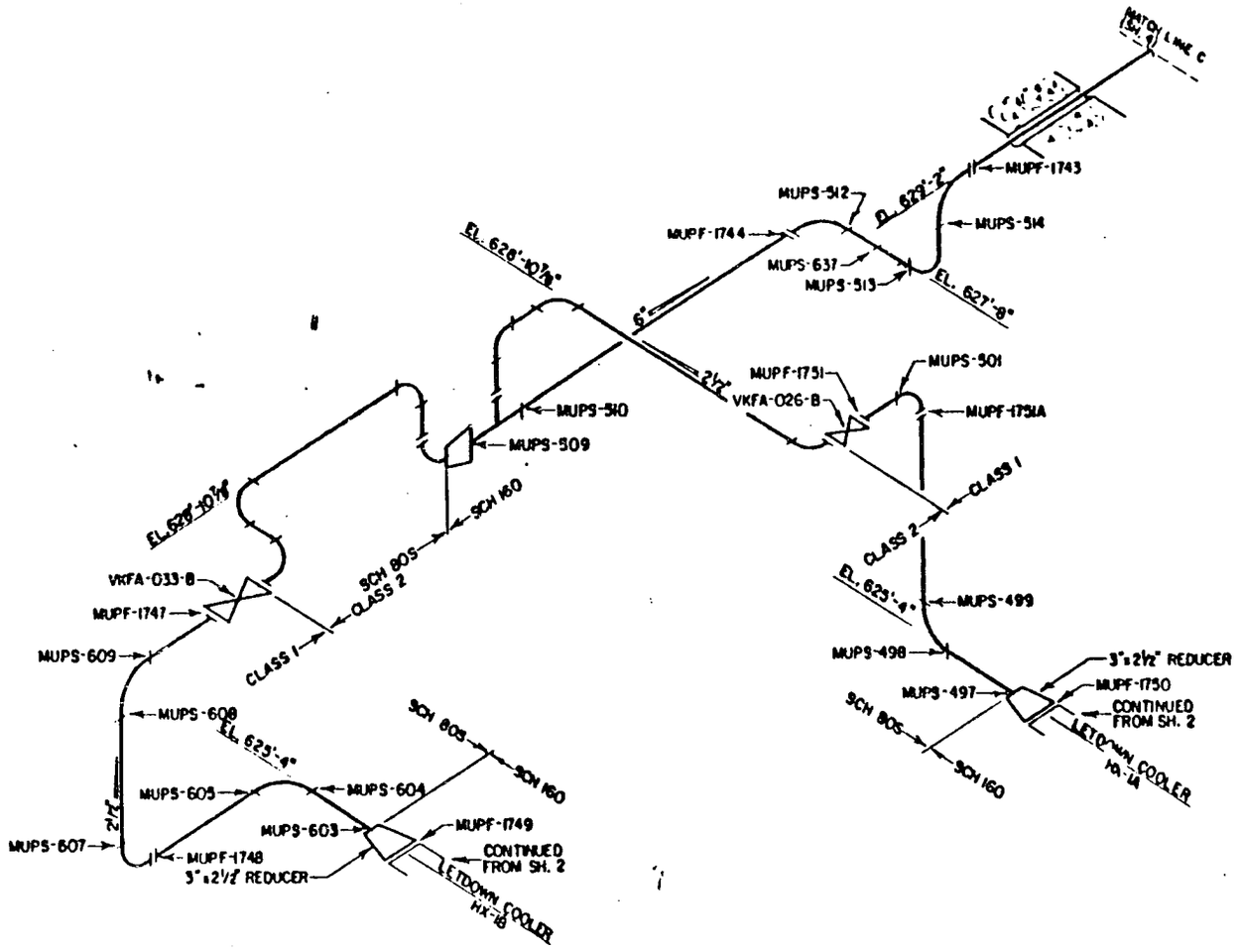
REFERENCE DRAWING

NAVCO A-8628
WMNV-23

MATERIAL SPECIFICATIONS

CLASS 1
PIPE
SA 312 TP 304
2½" SCH 80S
FITTINGS
SA 403 WP 304
3" SCH 160
2½" SCH 80S

CLASS 2
PIPE
SA 312 TP 304
6" SCH 160
FITTINGS
SA 403 WP 304
6" SCH 160



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TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

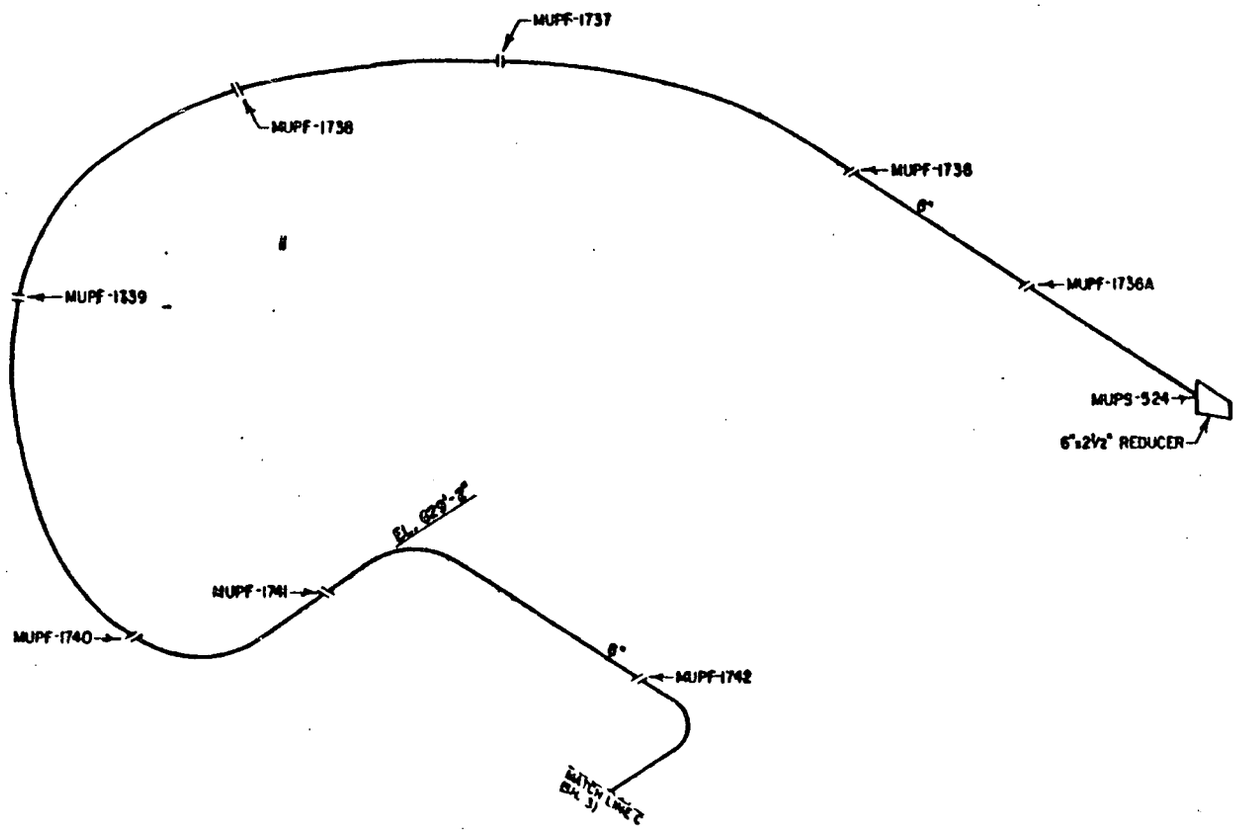
BELLEFONTE NUCLEAR PLANT
UNIT #1
MAKEUP AND PURIFICATION SYSTEM
WELD LOCATIONS

DESIGNED	DRAWN	TRACED	DATE	SCALE
N.S.	YV	HJB	5-10-82	ISI-0056-C

A0

REFERENCE DRAWING
NAVCO A-8628
WMNY-23

MATERIAL SPECIFICATIONS
CLASS 2
PIPE
SA 312 TP 304
6" SCH 160
FITTINGS
SA 403 WP 304
6" SCH 160



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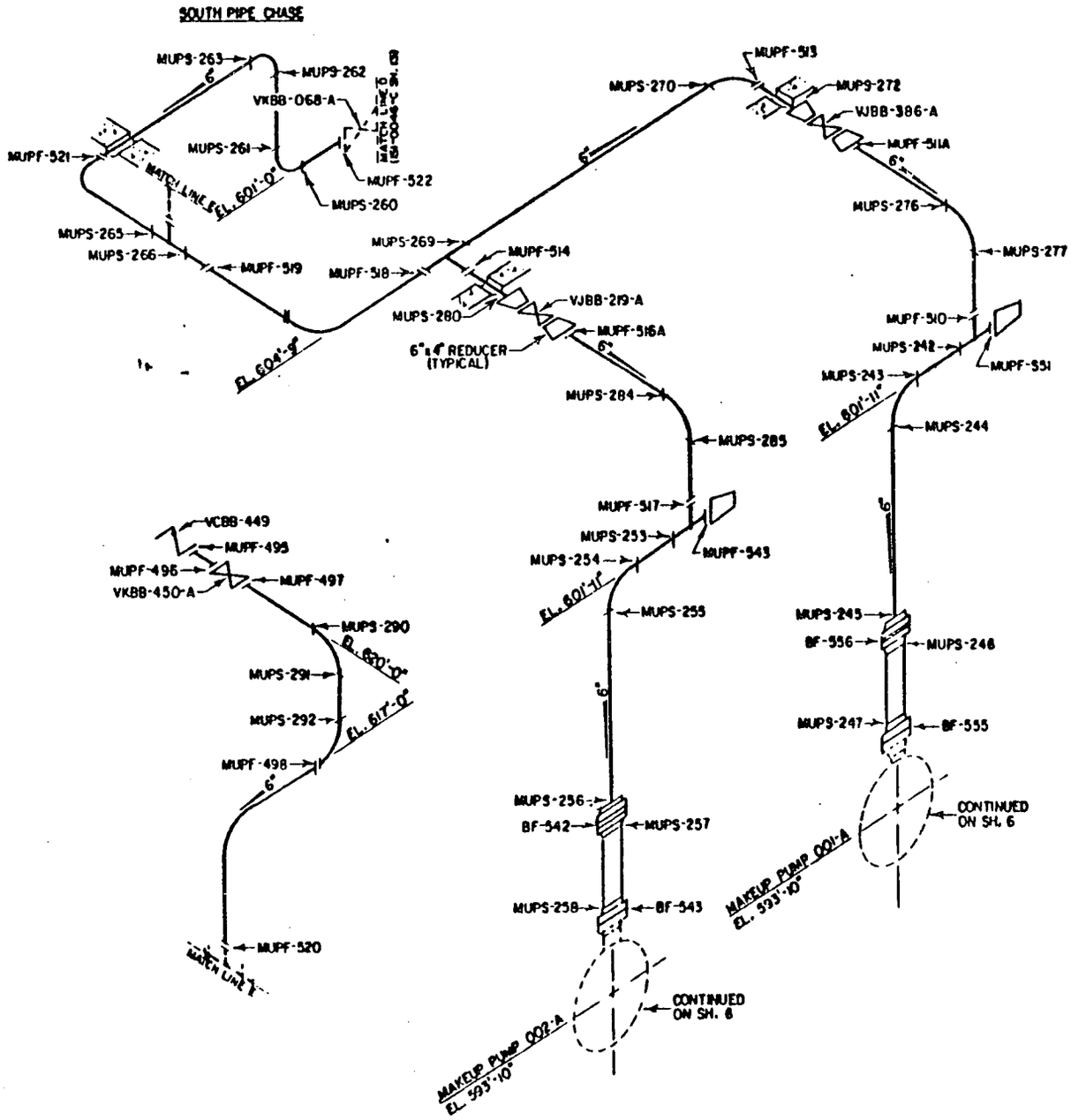
BELLEFONTE NUCLEAR PLANT
UNIT #1
MAKEUP AND PURIFICATION SYSTEM
WELD LOCATIONS

SCALE NTS		7-11-82	
DESIGN NFC			ISI-0056-C RO

REFERENCE DRAWING
NAVCO A-2524
WMNV-6

MATERIAL SPECIFICATIONS
CLASS 2
PIPE
SA 312 TP 304
6" SCH 40S
FITTINGS
SA 403 WP 304
6" SCH 40S
FLANGES
SA 182 F 304
6" SCH 40S



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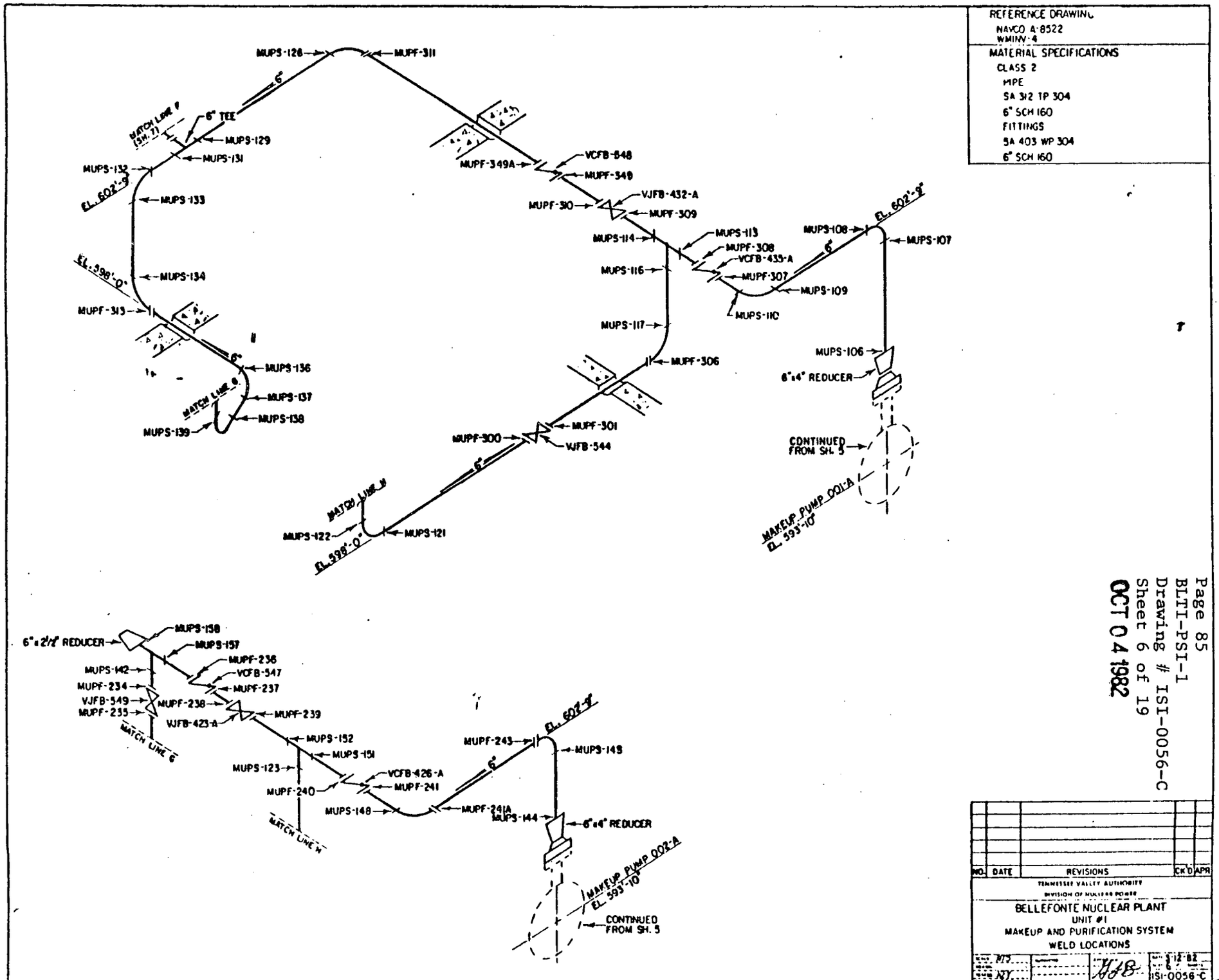
TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
MAKEUP AND PURIFICATION SYSTEM
WELD LOCATIONS

DESIGNED NTS	SUBMITTED	APPROVED BJB	SCALE NONE
DRAWN KKV			ISI-0056-C
CHECKED			

R0



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TENNESSEE VALLEY AUTHORITY
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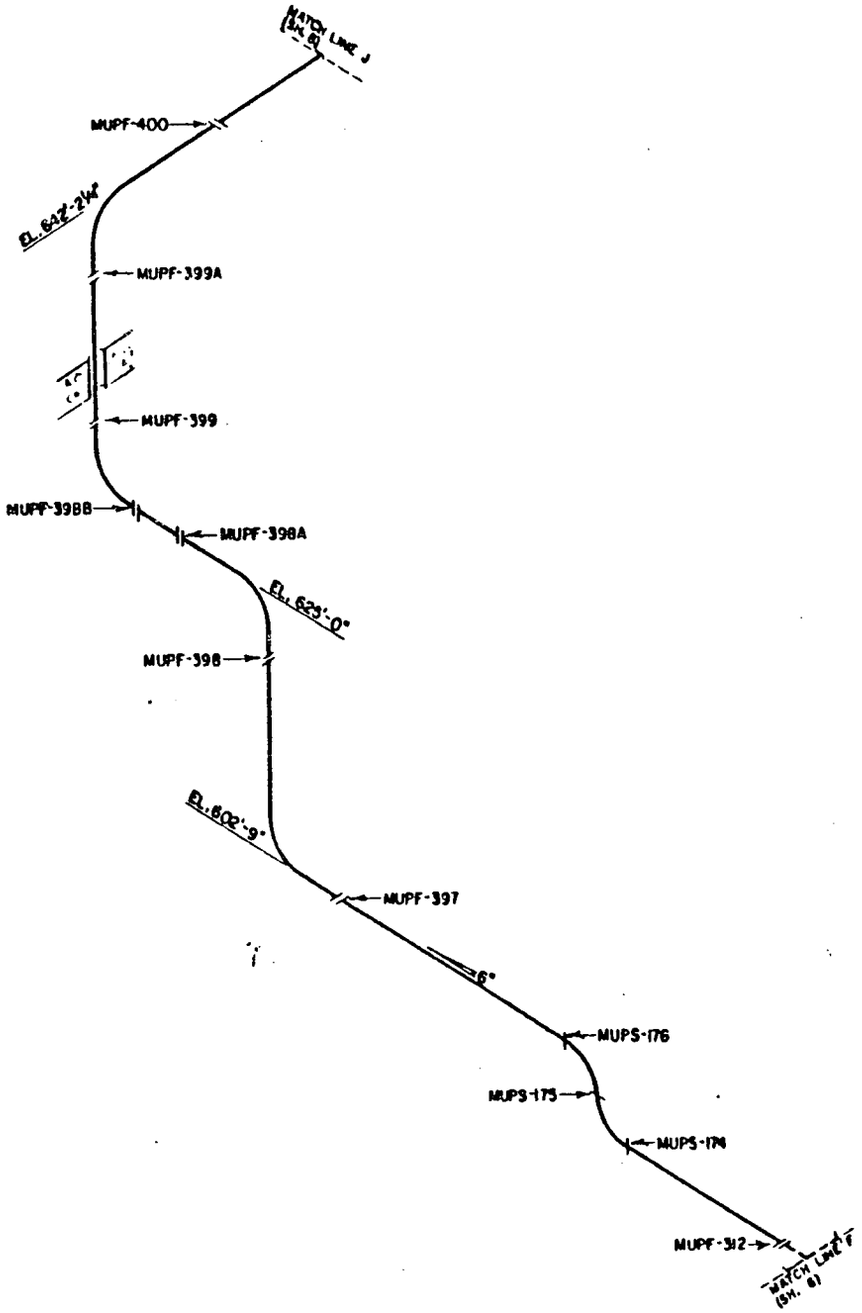
BELLEFONTE NUCLEAR PLANT
UNIT #1
MAKEUP AND PURIFICATION SYSTEM
WELD LOCATIONS

NPS		448	12-82
NPT			ISI-0056-C
SCH 160			

RO

REFERENCE DRAWING
NAVCO A-8523
WMNV-5

MATERIAL SPECIFICATIONS
CLASS 2
PIPE
SA 312 TP 304
6" SCH 160
FITTINGS
SA 403 WP 304
6" SCH 160



NO.	DATE	REVISIONS	CK'D	APP'D

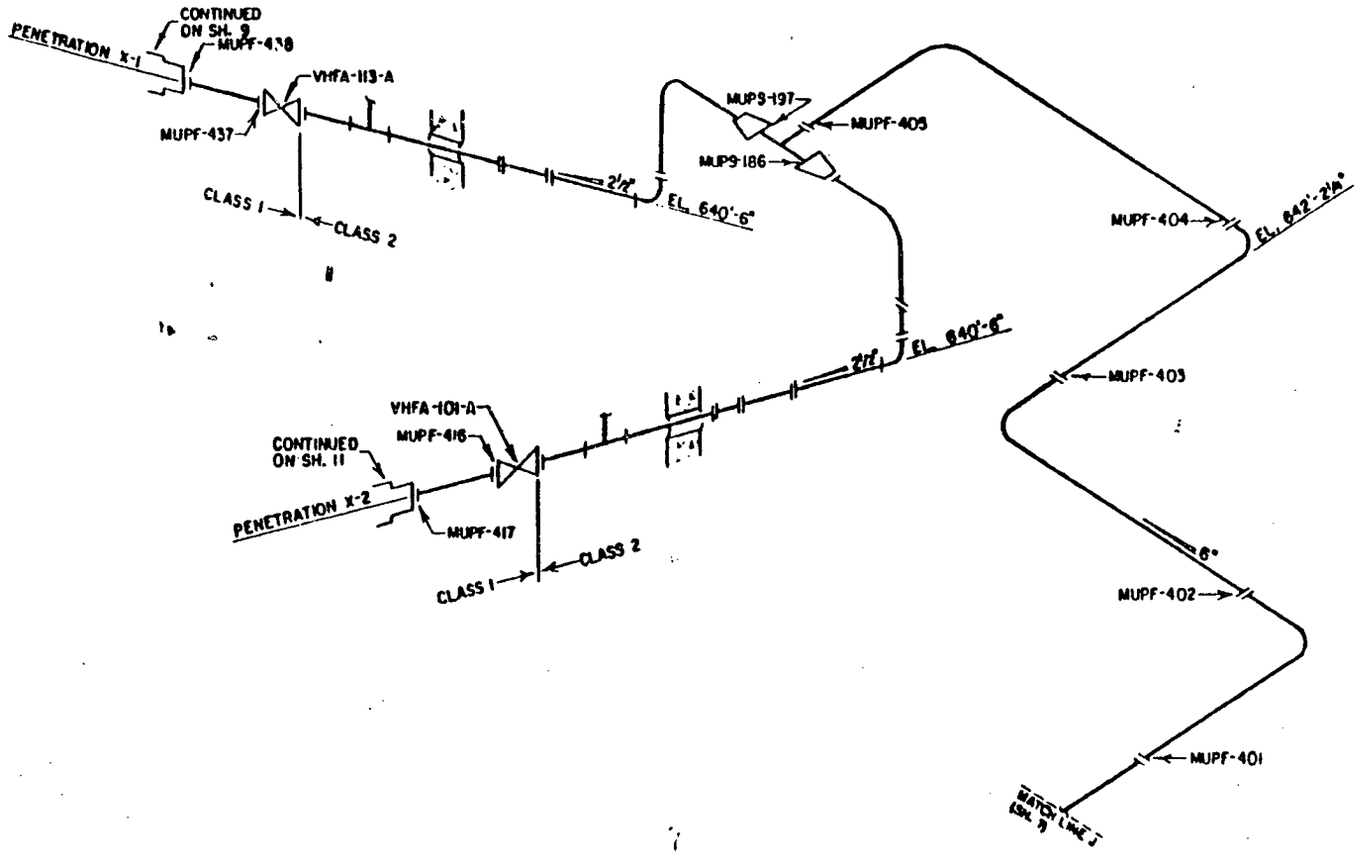
TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
MAKEUP AND PURIFICATION SYSTEM
WELD LOCATIONS

DES.	DRAWN	APP'D	DATE
NTS	KJC	WJB	1-15-82

ISI-0056-C

10



REFERENCE DRAWINGS

NAVCO A-8523
WMNY-9

MATERIAL SPECIFICATIONS

CLASS 1
PIPE
SA 312 TP 304
2½" SCH 80S
CLASS 2
PIPE
SA 312 TP 304
6" SCH 160
FITTINGS
SA 403 WP 304
6" SCH 160

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TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
MAKEUP AND PURIFICATION SYSTEM
WELD LOCATIONS

DRAWN NLS			9-15-82
TRACED			SCALE: NONE
DESIGNED REV			ISI-0056-C

R0

REFERENCE DRAWIN

NAVCO A-8520
NAVCO A-8027
WMINV-2
WMINV-11

MATERIAL SPECIFICATIONS

CLASS I

PIPE

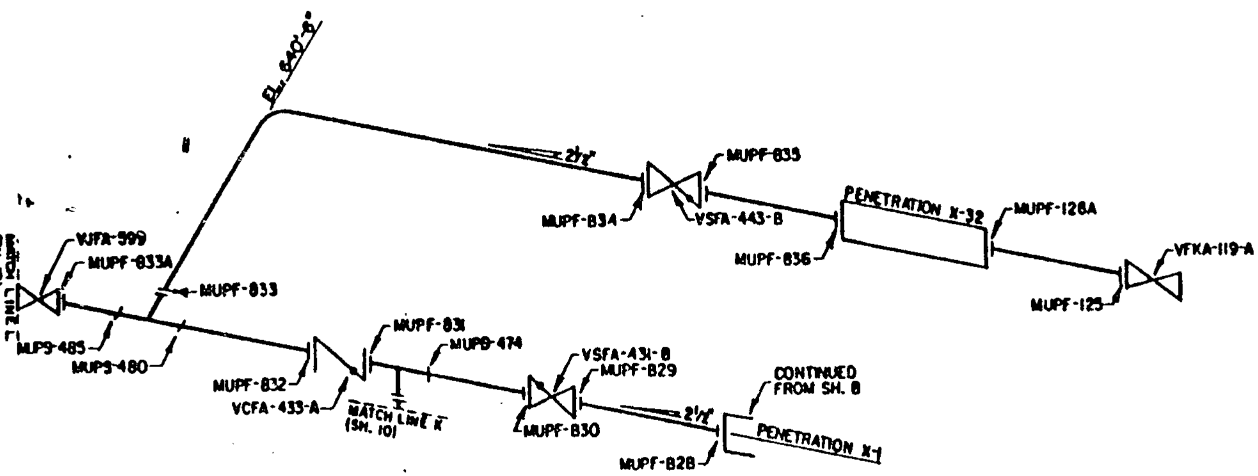
SA 312 TP 304

2½" SCH 80S

FITTINGS

SA 403 WP 304

2½" SCH 80S



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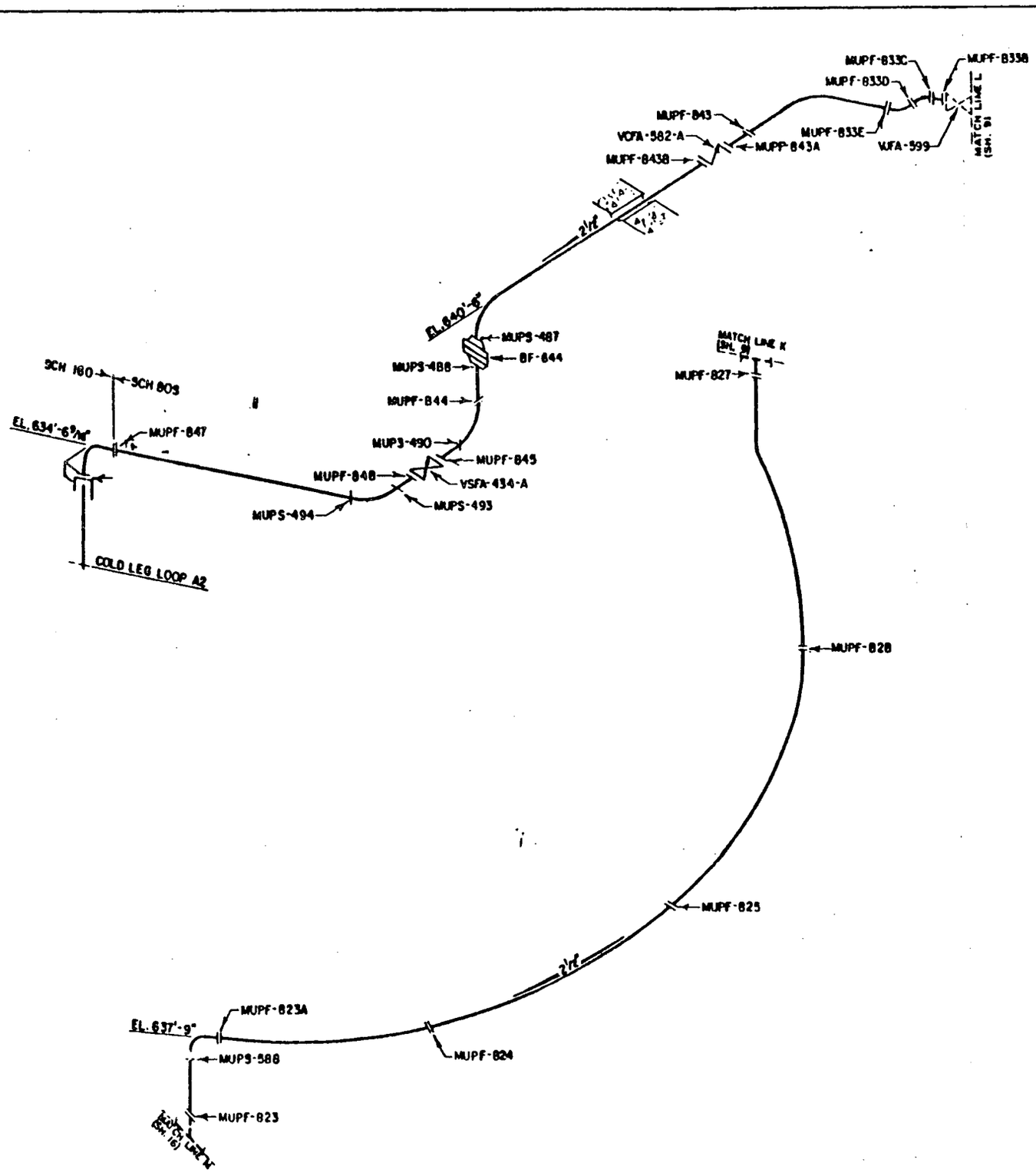
TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
MAKEUP AND PURIFICATION SYSTEM
WELD LOCATIONS

NTS | KY | JCG | HJB | 5-17-82 | ISI-0056-C | R0



REFERENCE DRAWI
NAVCO A-8627
WMINV-II

MATERIAL SPECIFICATIONS
CLASS I
PIPE
SA 312 TP 304
2½" SCH 80S
FITTINGS
SA 403 WP 304
2½" SCH 80S
FLANGES
SA 182 F 304
2½" SCH 80S

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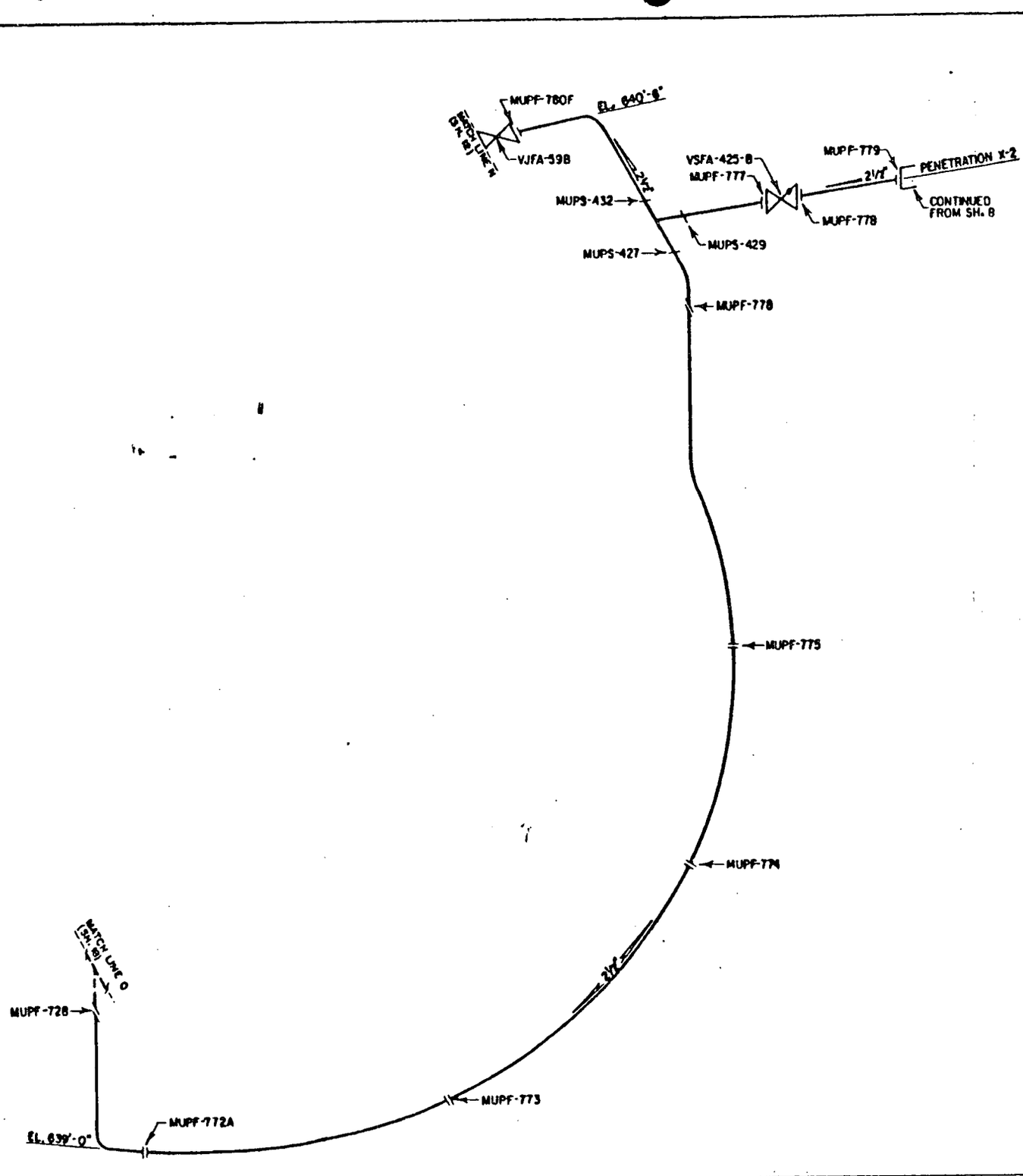
TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
MAKEUP AND PURIFICATION SYSTEM
WELD LOCATIONS

SCALE NTS			ISI-0056-C
DRAWN JLV			
TRACED JCG			



REFERENCE DRAWING
NAVCO A-8625
WMNV-9

MATERIAL SPECIFICATIONS
CLASS 1
PIPE
SA 312 TP 304
2½" SCH 80S
FITTINGS
SA 403 WP 304
2½" SCH 80S

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TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
MAKEUP AND PURIFICATION SYSTEM
WELD LOCATIONS

DRAWN RCS
CHECKED KEV
SUBMITTED
APPROVED
DATE 3-16-82
DRAWING ISI-0056-C

RO

REFERENCE DRAWN

NAVCO A-8625
WMNV-9

MATERIAL SPECIFICATIONS

CLASS 1

PIPE

SA 312 TP 304

2½" SCH 80S

FITTINGS

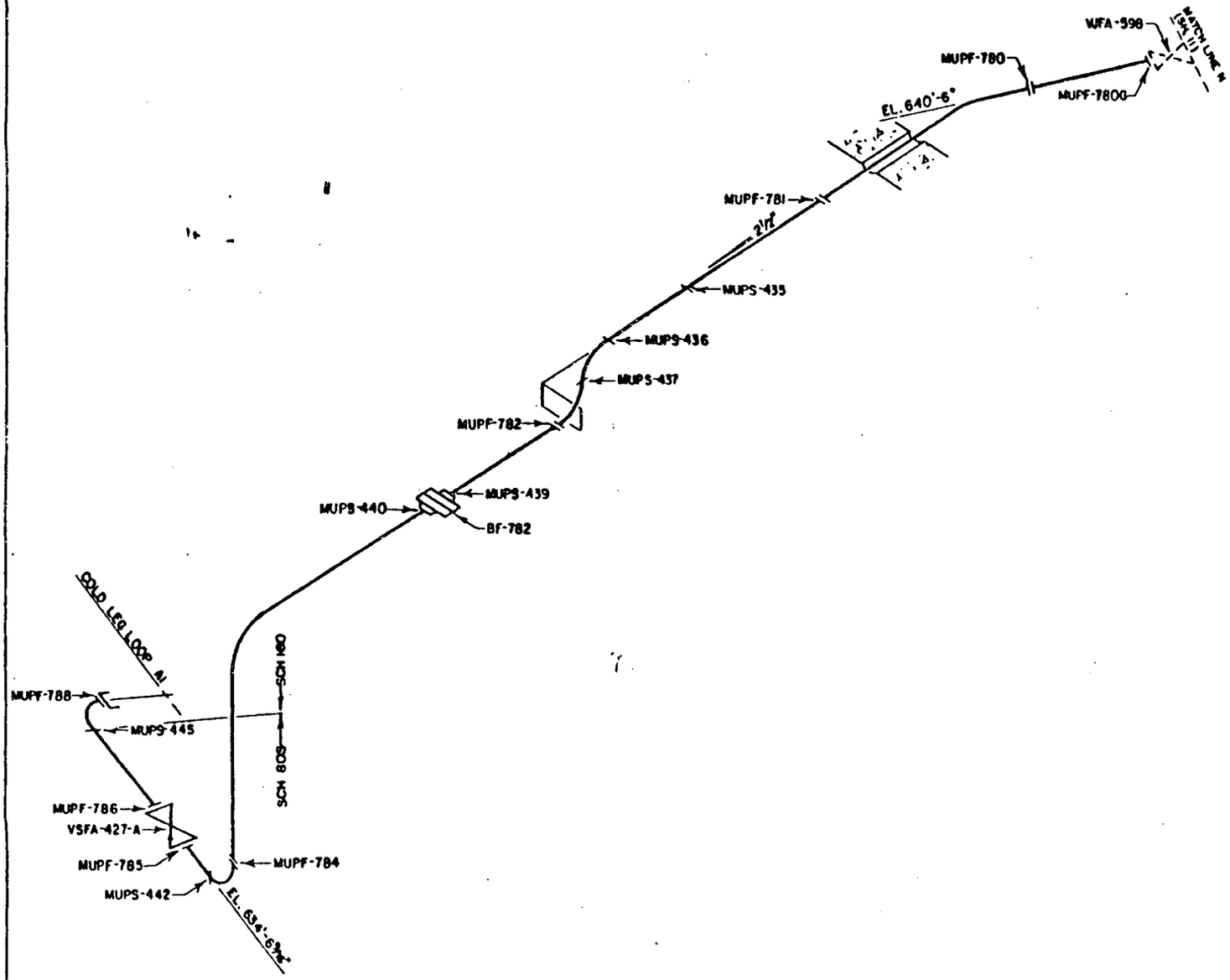
SA 403 WP 304

2½" SCH 160
2½" SCH 80S

FLANGES

SA 182 F 304

2½" SCH 80S



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DIVISION OF NUCLEAR POWER

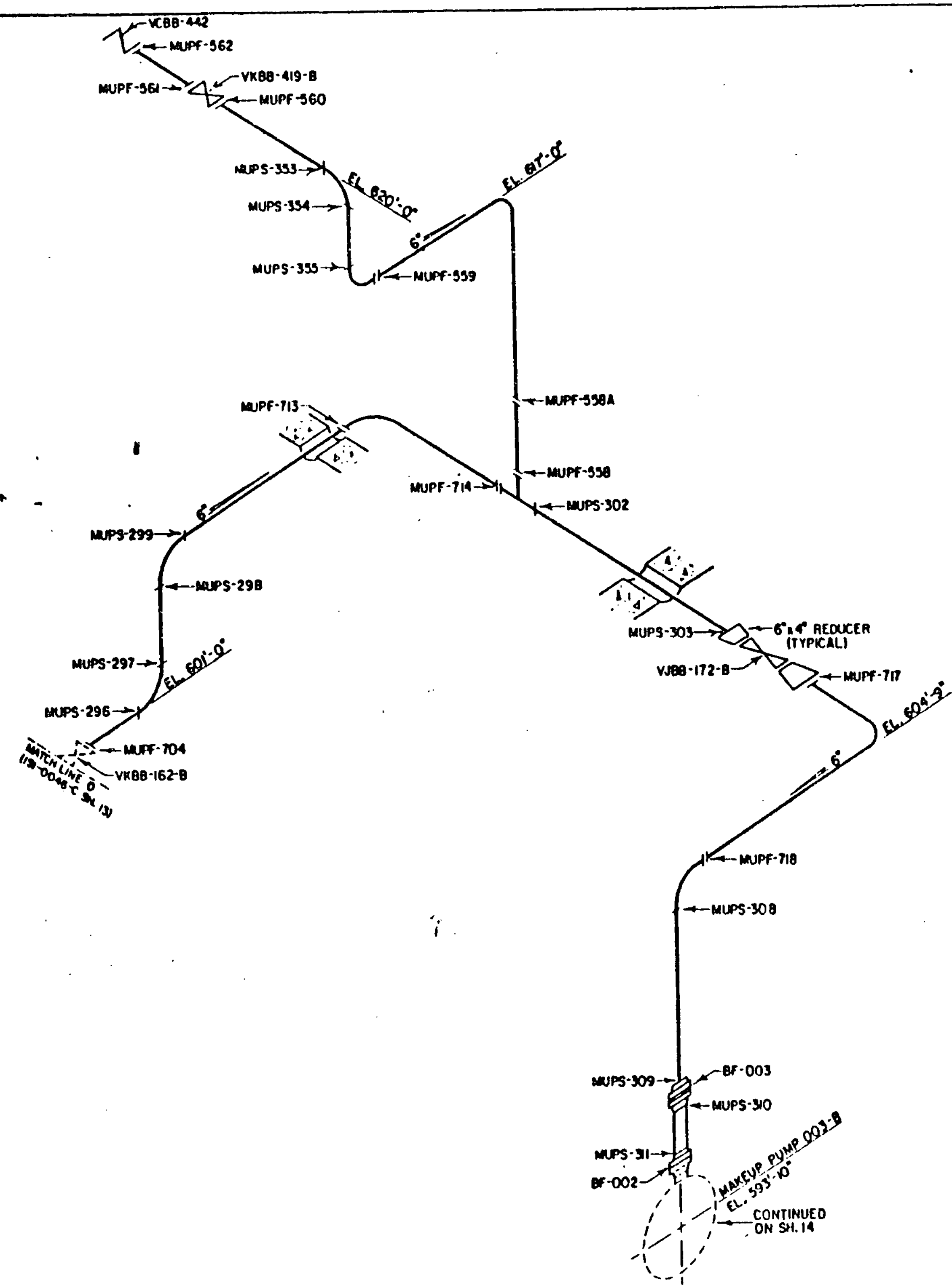
BELLEFONTE NUCLEAR PLANT
UNIT #1
MAKEUP AND PURIFICATION SYSTEM
WELD LOCATIONS

N/S		5-16-82	
E/W		12	
ICE	HWB	ISI-0056-C	

10

REFERENCE DRAWING
NAVCO A-8525
WMINV-7

MATERIAL SPECIFICATION
CLASS 2
PIPE
SA 312 TP 304
6" SCH 40S
FITTINGS
SA 403 WP 304
6" SCH 40S
FLANGES
SA 182 F 304
6" SCH 40S



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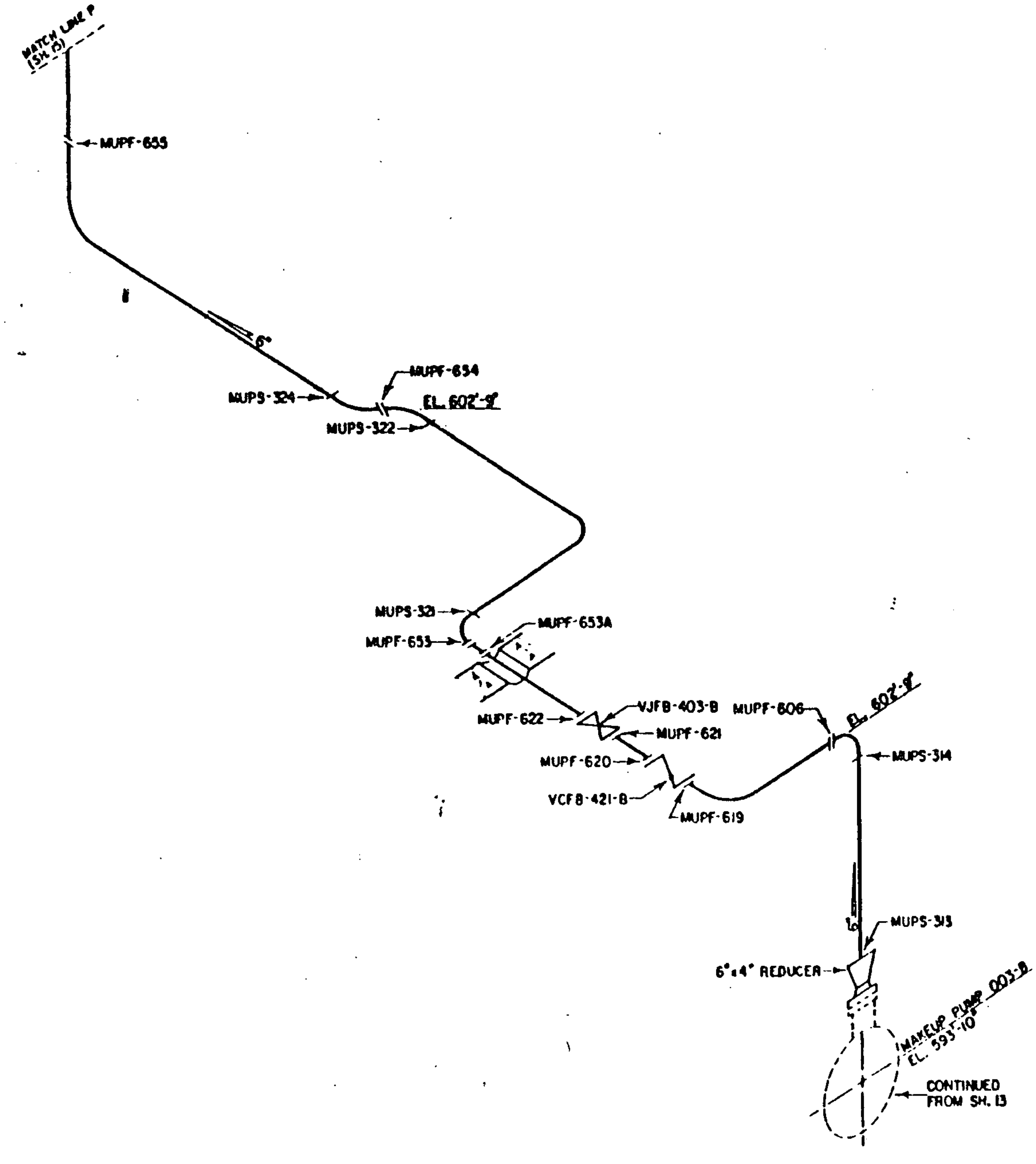
TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER
BELLEFONTE NUCLEAR PLANT
UNIT #1
MAKEUP AND PURIFICATION SYSTEM
WELD LOCATIONS

5-11-82
ISI-0056-C

REFERENCE DRAWING
NAVCO A-8525
WMNV-7

MATERIAL SPECIFICATIONS
CLASS 2
PIPE
SA 312 TP 304
6" SCH 160
FITTING
SA 403 WP 304
6" SCH 160



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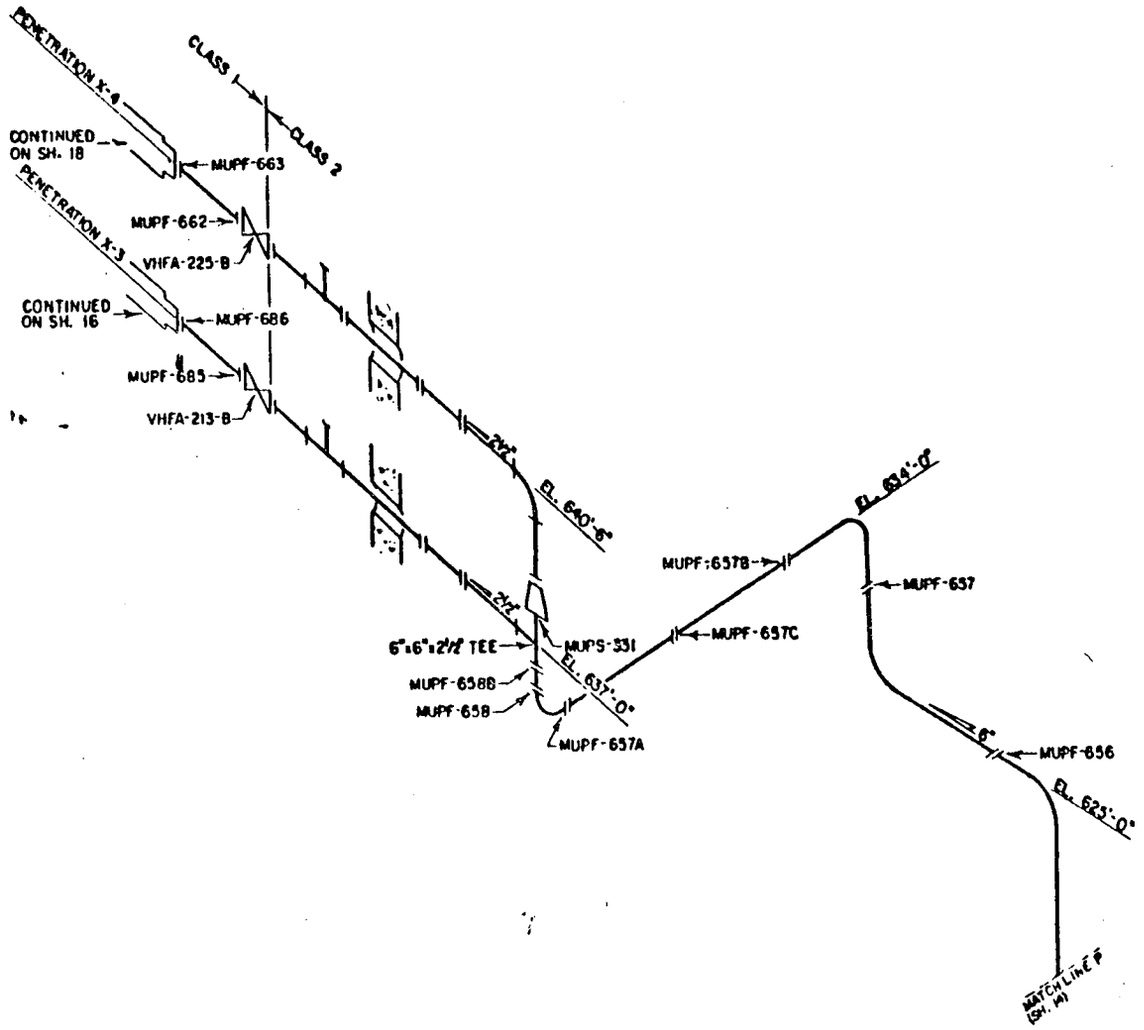
TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
MAKEUP AND PURIFICATION SYSTEM
WELD LOCATIONS

DTS
KIV
3-12-82
ISI-0056-C
RO

REFERENCE DRAWING
NAVCO A-8525
WMINV-7

MATERIAL SPECIFICATIONS
CLASS 1
PIPE
SA 312 TP 304
2½" SCH 80S
CLASS 2
PIPE
SA 312 TP 304
6" SCH 160
FITTINGS
SA 403 WP 304
6" SCH 160



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TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

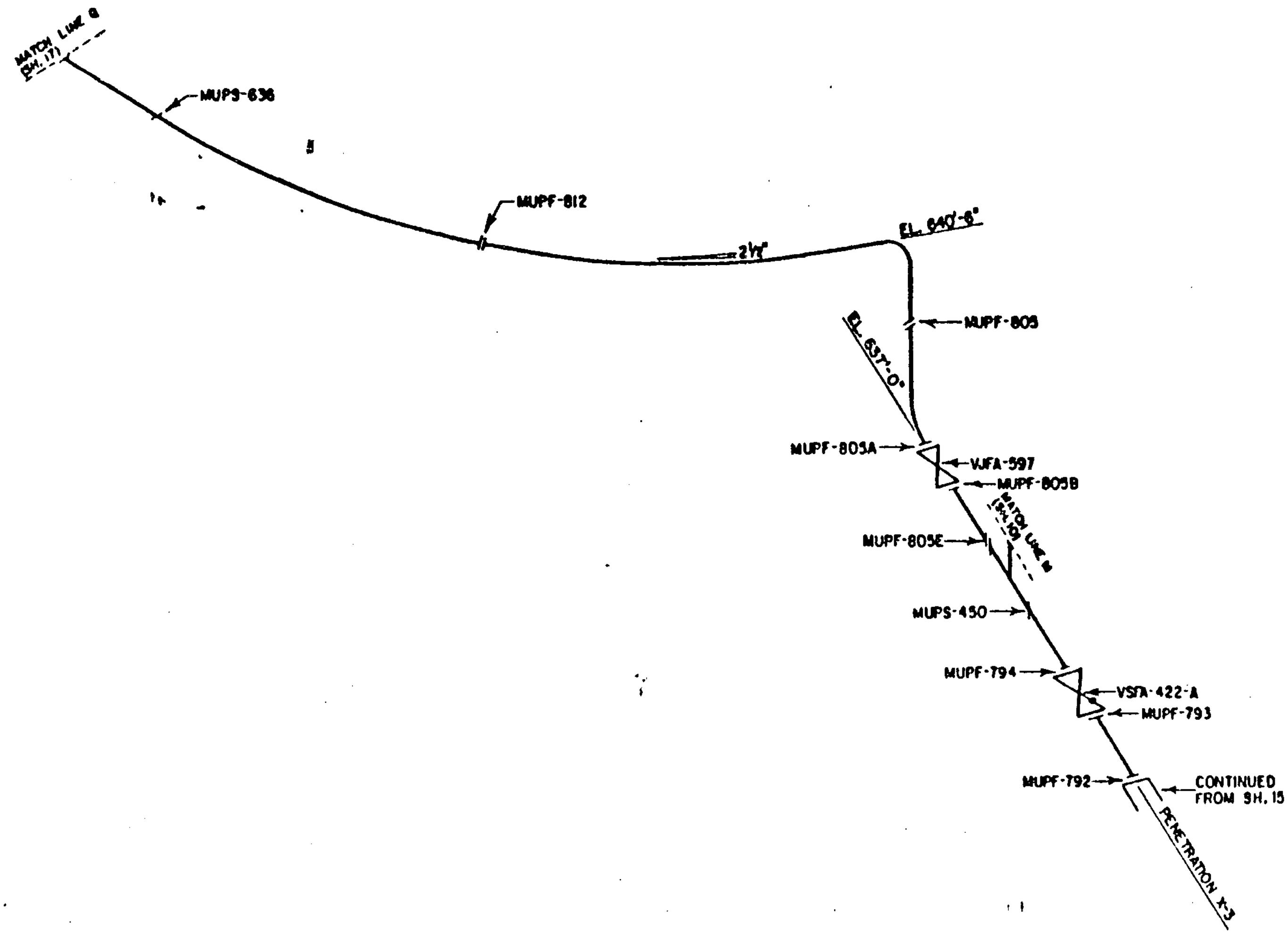
BELLEFONTE NUCLEAR PLANT
UNIT #1
MAKEUP AND PURIFICATION SYSTEM
WELD LOCATIONS

DES.		APPROVED	12-82
DRN. XEY			ISI-0056-C

RO

REFERENCE DRAWIN
NAVCO A-8626
WMNV-10

MATERIAL SPECIFICATIONS
CLASS I
PIPE
SA 312 TP 304
2½" SCH 80S
FITTINGS
SA 403 WP 304
2½" SCH 80S



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TENNESSEE VALLEY AUTHORITY
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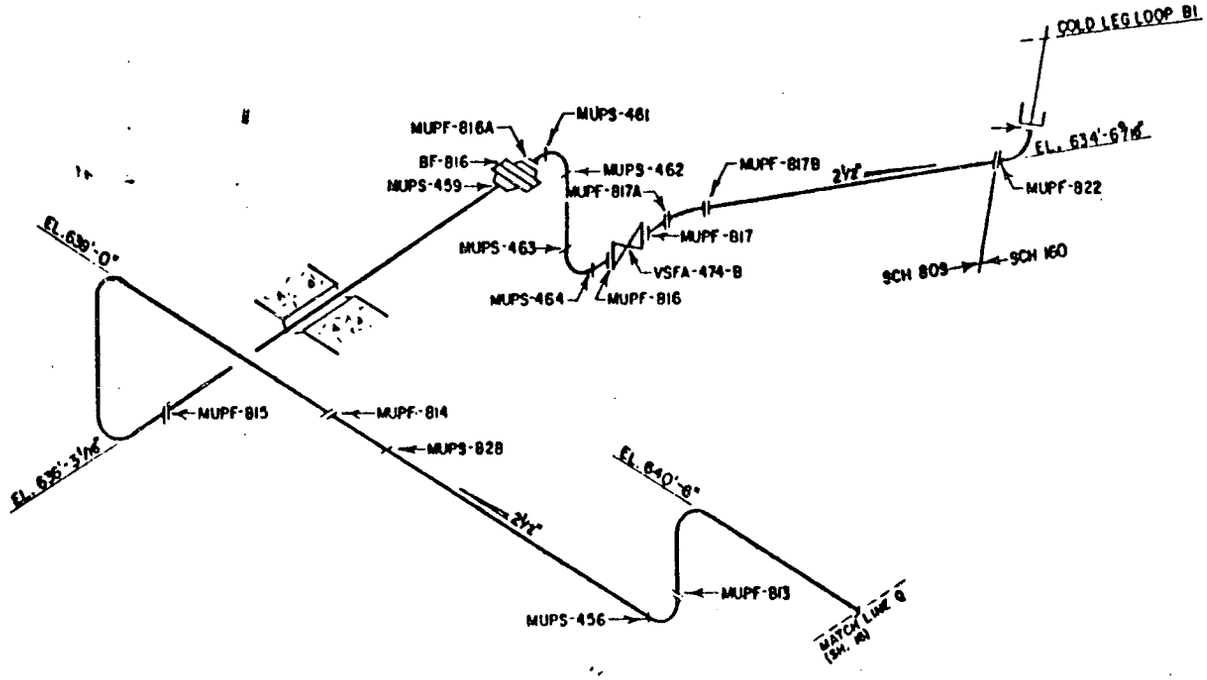
BELLEFONTE NUCLEAR PLANT
UNIT #1
MAKEUP AND PURIFICATION SYSTEM
WELD LOCATIONS

NJS
RLL
JLL
GJB
3-18-82
16
ISI-0056-C
RO

REFERENCE DRAWIN
NAVCO A-8626
WMNV-10

MATERIAL SPECIFICATIONS
CLASS 1
PIPE
SA 312 TP 304
2½" SCH 80S
FITTINGS
SA 403 WP 304
2½" SCH 160
2½" SCH 80S
FLANGES
SA 182 F 304
2½" SCH 80S



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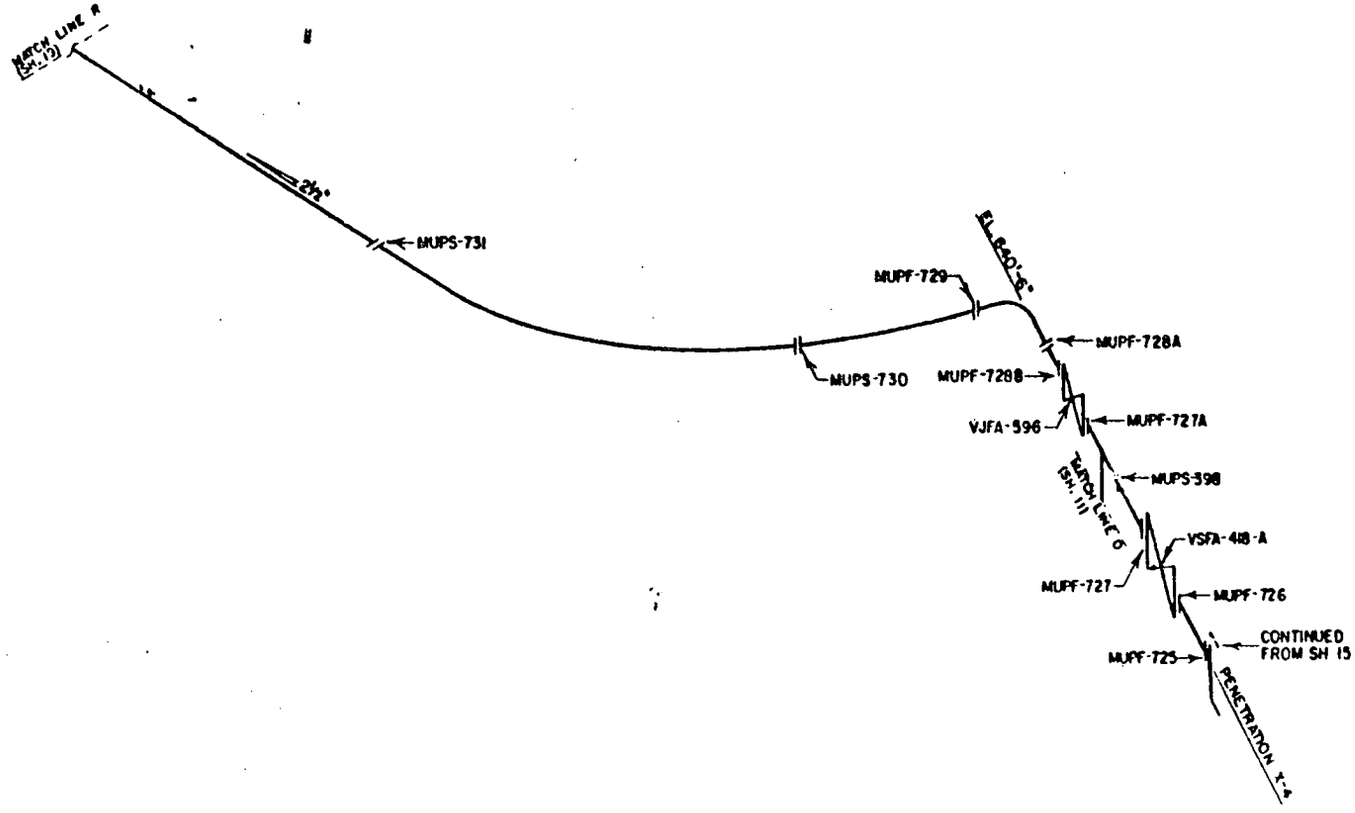
NO.	DATE	REVISIONS	CK'D	APP'D

TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
MAKEUP AND PURIFICATION SYSTEM
WELD LOCATIONS

DRAWN	DESIGNED	TRACED	SUBMITTED	APPROVED	DATE	SCALE	DRAWING NO.
MTS					7/23/82	NONE	ISI-0056-C

REFERENCE DRAWING
NAVCO A-8624
WMINV-8
MATERIAL SPECIFICATION
CLASS 1
PIPE
SA 312 TP 304
2½" SCH 80S
FITTINGS
SA 403 WP 304
2½" SCH 80S



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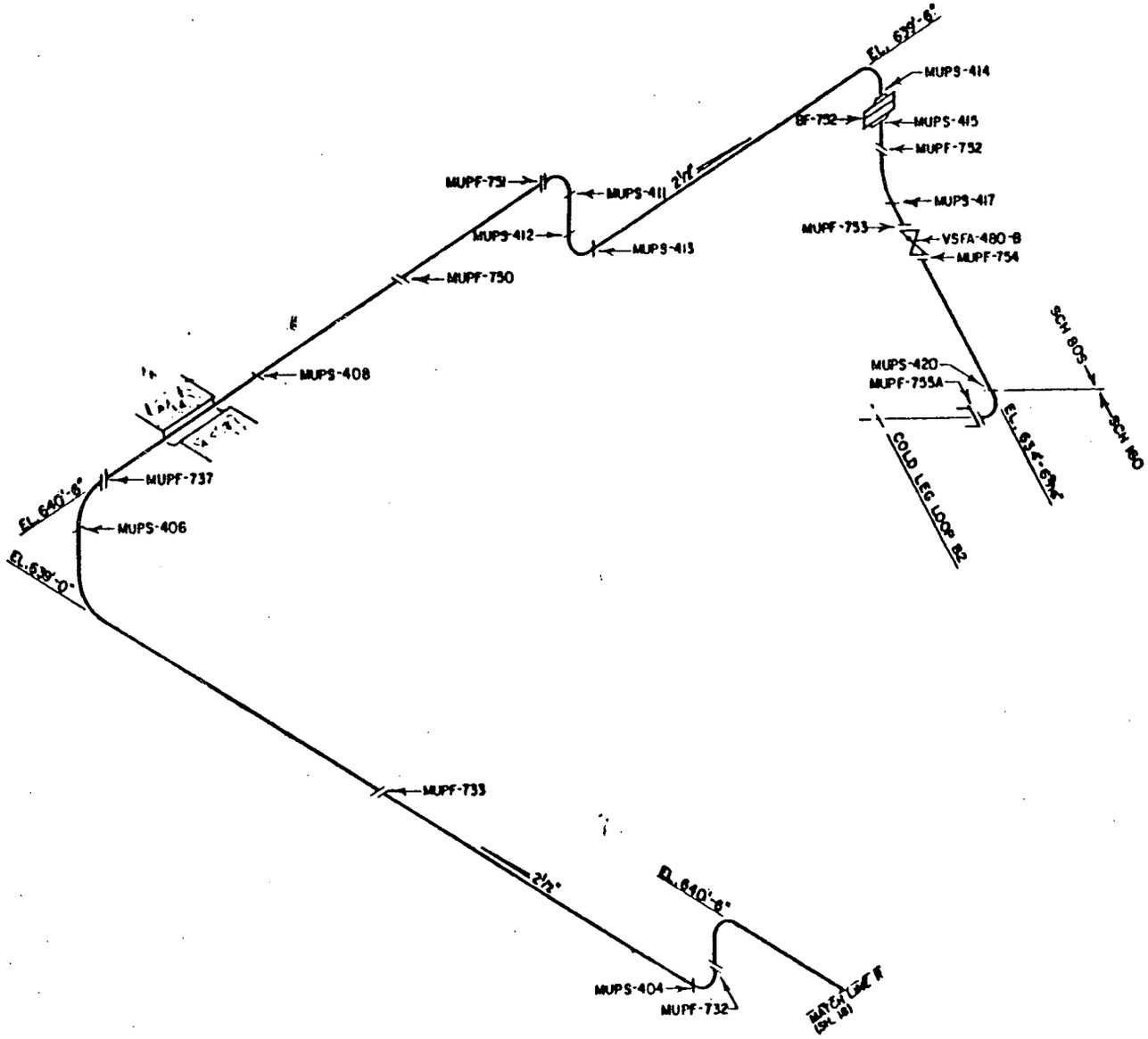
TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

BELLEFONTE NUCLEAR PLANT
UNIT #1
MAKEUP AND PURIFICATION SYSTEM
WELD LOCATIONS

DES.			9-24-82
DRN.			
TRACED			ISI-0056-C

R0



REFERENCE DRAWINGS

NAVCO A-8624
WMINV-8

MATERIAL SPECIFICATIONS

CLASS 1

PIPE

SA 312 TP 304

2½" SCH 80S

FITTINGS

SA 403 WP 304

2½" SCH 160
2½" SCH 80S

FLANGES

SA 182 F 304

2½" SCH 80S

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BELLEFONTE NUCLEAR PLANT
UNIT #1
MAKEUP AND PURIFICATION SYSTEM
WELD LOCATIONS

ISI-0056-C

APPENDIX A
TABLE E
Page 1 of 1

TVA SAFETY CLASS 2 COMPONENTS EXEMPT FROM EXAMINATION

System	Reference Drawing	Boundary of Exempted Components	*Basis for Exemption
Core Flooding (ND)	3BW0614-NL-1	Core Flooding Tanks	1

TO BE COMPLETED LATER

NOTES: (1) Components of systems or portions of systems that during normal operating conditions are not required to operate or perform a system function but remain flooded under static conditions at a pressure of a least 80 percent of the pressure that the component or system will be subjected to when required to operate.

(2) Components of systems or portions of systems other than residual heat removal systems and emergency core cooling systems, that are not required to operate above a pressure of 275 psig or above a temperature of 200°F.

(3) Piping in systems where both the design pressure and temperature are equal to or less than 275 psig and 200°F respectively.

(4) Piping in systems or portions of systems, other than emergency core cooling systems, which do not function during normal reactor operation.

APPENDIX A
TABLE F
Page 1 of 1

CLASS 1 VALVE DATA

VALVE NO.	CODE CLASS	VALVE CAT.	PIPING SYSTEM	VALVE SIZE	VALVE TYPE	VALVE ACT.	GROUP NO.	TVA Dwg. No. (WELD MAP)	VENDOR Dwg. No.	VENDOR	MATERIAL SPEC.	VALVE FUNCTION	FORGING/ CASTING
VKFA-179-B	1		ND	14"	Gate	MO	1	ISI-0046-C-2	80600	BORG/WARNER	A182-F316		Forging
VKFA-085-A	1		ND	14"	Gate	MO	1	ISI-0046-C-3	80600	BORG/WARNER	A182-F316		Forging
VKFA-091-B	1		ND	14"	Gate	MO	2	ISI-0046-C-3	80610	BORG/WARNER	A182-F316		Forging
VKFA-185-A	1		ND	14"	Gate	MO	2	ISI-0046-C-2	80610	BORG/WARNER	A182-F316		Forging
VCFA-084-A	1		ND	12"	Check	SA	3	ISI-0046-C-15	1389435H	ATW&MOR	A351 CF8		Casting
VCFA-178-B	I		ND	12"	Check	SA	3	ISI-0046-C-16	1389435-H	ATW&MOR	A351 CF8		Casting
VCHA-078-A	1		NL	14"	Check	SA	4	ISI-0047-C-1	13894-26	ATW&MOR	A351 CF8		Casting
VCHA-081-B	1		NL	14"	Check	SA	4	ISI-0047-C-2	13894-26	ATW&MOR	A351 CF8		Casting
VCFA-077-A	1		NL	14"	Check	SA	5	ISI-0047-C-1	I3894-27H	ATW&MOR	A351 CF8		Casting
VCFA-808-B	1		NL	14"	Check	SA	5	ISI-0047-C-2	13894-27H	ATW&MOR	A351 CF8		Casting

(TO BE COMPLETED LATER)

APPENDIX A
TABLE G
Page 1 of 5

CLASS I - VALVE EXAMINATION CATEGORIES

VALVE NO.	REFERENCE DWG. NO.	PRESSURE RETAINING BOLTING >2"	PRESSURE RETAINING BOLTING <2"	INTEGRALLY WELDED ATTACHMENT	COMPONENT SUPPORT	VALVE BODY WELDS	VALVE BODY EXCEEDING 4"
VKFA-236-A	ISI-0046-C-1	No	Yes	No	No	No	No
VKFA-235-A	ISI-0046-C-1	No	Yes	No	No	No	No
VKFA-237-B	ISI-0046-C-1	No	Yes	No	No	No	No
VKFA-238-B	ISI-0046-C-1	No	Yes	No	No	No	No
VCFA-207-B	ISI-0046-C-I	No				No	No
VCFA-255-B	ISI-0046-C-1	No				No	No
VKFA-179-B	ISI-0046-C-2					Yes	Yes
VKFA-239-B	ISI-0046-C-2	No	Yes	No	No	No	No
VKFA-185-A	ISI-0046-C-2	No	Yes	No	No	Yes	Yes
VKFA-085-A	ISI-0046-C-3					Yes	Yes

APPENDIX A
TABLE G (Continued)
Page 2 of 5

CLASS 1 - VALVE EXAMINATION CATEGORIES

VALVE NO.	REFERENCE DWG. NO.	PRESSURE RETAINING BOLTING >2"	PRESSURE RETAINING BOLTING <2"	INTEGRALLY WELDED ATTACHMENT	COMPONENT SUPPORT	VALVE BODY WELDS	VALVE BODY EXCEEDING 4"
VKFA-240-A	ISI-0046-C-3	No	Yes	No	No	No	No
VKFA-091-B	ISI-0046-C-3	No	Yes	No	No	Yes	Yes
VCFA-084-A	ISI-0046-C-15	No	Yes	No	No	No	Yes
VCFA-178-B	ISI-0046-C-16	No	Yes	No	No	No	Yes
VCHA-078-A	ISI-0047-C-1	No	Yes	No	No	No	Yes
VCFA-077-A	ISI-0047-C-1	No	Yes	No	No	No	Yes
VCFA-080-B	ISI-0047-C-2	No	Yes	No	No	No	Yes
VCHA-081-B	ISI-0047-C-2	No	Yes	No	No	No	Yes
VKFA-029-B	ISI-0056-C-2	No	No	No	No	No	No
VKFA-028-A	ISI-0056-C-2	No	No	No	No	No	No
VKFA-021-A	ISI-0056-C-2	No	No	No	No	No	No

APPENDIX A
TABLE G (Continued)
Page 3 of 5
CLASS 1 - VALVE EXAMINATION CATEGORIES

VALVE NO.	REFERENCE DWG. NO.	PRESSURE RETAINING BOLTING >2"	PRESSURE RETAINING BOLTING <2"	INTEGRALLY WELDED ATTACHMENT	COMPONENT SUPPORT	VALVE BODY WELDS	VALVE BODY EXCEEDING 4"
VKFA-022-B	ISI-0056-C-2	No	No	No	No	No	No
VKFA-033-B	ISI-0056-C-3	No	No	No	No	No	No
VKFA-026-B	ISI-0056-C-3	No	No	No	No	No	No
VHFA-113-A	ISI-0056-C-8	No	Yes	No	No	No	No
VHFA-101-A	ISI-0056-C-8	No	Yes	No	No	No	No
VJFA-599	ISI-0056-C-9						No
VSFA-443-B	ISI-0056-C-9	No	Yes	No	No	No	No
VFKA-119-A	ISI-0056-C-9	No	No	No	No	No	No
VCFA-433-A	ISI-0056-C-9	No	Yes	No	No	No	No
VSFA-431-B	ISI-0056-C-9	No	Yes	No	No	No	No
VSFA-434-A	ISI-0056-C-10	No	Yes	No	No	No	No

APPENDIX A
TABLE G (Continued)
Page 4 of 5

CLASS 1 - VALVE EXAMINATION CATEGORIES

VALVE NO.	REFERENCE DWG. NO.	PRESSURE RETAINING BOLTING >2"	PRESSURE RETAINING BOLTING <2"	INTEGRALLY WELDED ATTACHMENT	COMPONENT SUPPORT	VALVE BODY WELDS	VALVE BODY EXCEEDING 4"
VCFA-582-A	ISI-0056-C-10	No	Yes	No	No	No	No
VJFA-598							
VSFA-425-B	ISI-0056-C-11	No	Yes	No	No	No	No
VSFA-427-A	ISI-0056-C-12	No	Yes	No	No	No	No
VHFA-225-B	ISI-0056-C-15	No	Yes	No	No	No	No
VHFA-213-B	ISI-0056-C-15	No	Yes	No	No	No	No
VJFA-597	ISI-0056-C-16	No	Yes	No	No	No	No
VSFA-422-A	ISI-0056-C-16	No	Yes	No	No	No	No
VSFA-474-B	ISI-0056-C-17	No	Yes	No	No	No	No
VSFA-596	ISI-0056-C-18						
VSFA-418-A	ISI-0056-C-18	No	Yes	No	No	No	No

APPENDIX A
TABLE G (Continued)
Page 5 of 5

CLASS 1 - VALVE EXAMINATION CATEGORIES

VALVE NO.	REFERENCE DWG. NO.	PRESSURE RETAINING BOLTING >2"	PRESSURE RETAINING BOLTING <2"	INTEGRALLY WELDED ATTACHMENT	COMPONENT SUPPORT	VALVE BODY WELDS	VALVE BODY EXCEEDING 4"
VSFA-480-B	ISI-0056-C-19	No	Yes	No	No	No	No

TO BE COMPLETED LATER.

APPENDIX A
TABLE H
Page 1 of 8

CLASS 2 - VALVE EXAMINATION CATEGORIES

VALVE NO.	REFERENCE DWG. NO.	PRESSURE RETAINING BOLTING >2"	INTEGRALLY WELDED ATTACHMENT	COMPONENT SUPPORT	VALVE BODY WELDS
VRBB-187-B	ISI-0046-C-2	No	No	No	No
VRBB-095-A	ISI-0046-C-3	No	No	No	No
VJBB-093-N	ISI-0046-C-3	No	No	No	No
VJBB-188-N	ISI-0046-C-4	No	No	No	No
VJBB-114-B	ISI-0046-C-4	No	No	No	No
VJBB-020-A	ISI-0046-C-4	No	No	No	No
VJBB-094-N	ISI-0046-C-4	No	No	No	No
VKAB-098-A	ISI-0046-C-5				
VCAB-044-A	ISI-0046-C-5				No
VJBB-015-A	ISI-0046-C-5	No	No	No	No
VCBB-017-A	ISI-0046-C-5	No	No	No	No
VKAB-010-A	ISI-0046-C-5	No	No	No	No
VCAB-014-A	ISI-0046-C-5	No			No

APPENDIX A
TABLE H (Continued)
Page 2 of 8

CLASS 2 - VALVE EXAMINATION CATEGORIES

VALVE NO.	REFERENCE DWG. NO.	PRESSURE RETAINING BOLTING >2"	INTEGRALLY WELDED ATTACHMENT	COMPONENT SUPPORT	VALVE BODY WELDS
VKAB-192-B	ISI-0046-C-6				
VCAB-031-B	ISI-0046-C-6				No
VJBB-109-B	ISI-0046-C-6	No	No	No	No
VCBB-111-B	ISI-0046-C-6	No	No	No	No
VCAB-108-B	ISI-0046-C-6	No	No	No	No
VKAB-104-B	ISI-0046-C-6	No	No	No	No
VCBB-033-A	ISI-0046-C-7	No	No	No	No
VJBB-035-A	ISI-0046-C-7	No	No	No	No
VJBB-052-A	ISI-0046-C-7	No	No	No	No
VKFB-080-A	ISI-0046-C-8				Yes
VHBB-064-A	ISI-0046-C-8	No	No	No	No

APPENDIX A
TABLE H (Continued)
Page 3 of 8

CLASS 2 - VALVE EXAMINATION CATEGORIES

VALVE NO.	REFERENCE DWG. NO.	PRESSURE RETAINING BOLTING >2"	INTEGRALLY WELDED ATTACHMENT	COMPONENT SUPPORT	VALVE BODY WELDS
VCBB-056-A	ISI-0046-C-8	No	No	No	No
VVBB-040-A	ISI-0046-C-8	No	No	No	No
VKBB-048-A	ISI-0046-C-9	No	No	No	No
VCBB-153-B	ISI-0046-C-9	No	No	No	No
VCBB-127-B	ISI-0046-C-10	No	No	No	No
VJBB-129-B	ISI-0046-C-10	No	No	No	No
VJBB-146-B	ISI-0046-C-10	No	No	No	No
VFKB-174-B	ISI-0046-C-11				Yes
VHBB-158-B	ISI-0046-C-11	No	No	No	No
VCBB-150-B	ISI-0046-C-11	No	No	No	No
VVBB-134-B	ISI-0046-C-11	No	No	No	No
VCBB-059-A	ISI-0046-C-12	No	No	No	No

APPENDIX A
TABLE H (Continued)
Page 4 of 8

CLASS 2 - VALVE EXAMINATION CATEGORIES

VALVE NO.	REFERENCE DWG. NO.	PRESSURE RETAINING BOLTING >2"	INTEGRALLY WELDED ATTACHMENT	COMPONENT SUPPORT	VALVE BODY WELDS
VKBB-142-B	ISI-0046-C-12	No	No	No	No
VKBB-162-B	ISI-0046-C-13	No	No	No	Yes
VKBB-068-B	ISI-0046-C-13	No	No	No	Yes
VJBB-076-N	ISI-0046-C-14	No	No	No	No
VJBB-072-A	ISI-0046-C-14	No	No	No	No
VJBB-166-B	ISI-0046-C-14	No	No	No	No
VGBB-170-N	ISI-0046-C-14	No	No	No	No
VQBB-041-A	ISI-0046-C-14	No	No	No	No
VQBB-049-B	ISI-0046-C-14	No	No	No	No
VFKB-076-A	ISI-0047-C-1	No	No	No	No

APPENDIX A
TABLE H (Continued)
Page 5 of 8

CLASS 2 - VALVE EXAMINATION CATEGORIES

VALVE NO.	REFERENCE DWG. NO.	PRESSURE RETAINING BOLTING >2"	INTEGRALLY WELDED ATTACHMENT	COMPONENT SUPPORT	VALVE BODY WELDS
VKFB-079-B	ISI-0047-C-2	No	No	No	Yes
VCBB-449	ISI-0056-C-5	No	No	No	No
VKBB-450-A	ISI-0056-C-5	No	No	No	No
VCFB-548	ISI-0056-C-6	No	No	No	No
VJFB-432-A	ISI-0056-C-6	No	No	No	Yes
VCFB-435-A	ISI-0056-C-6	No	No	No	No
VJFB-544	ISI-0056-C-6	No	No	No	Yes
VJFB-549	ISI-0056-C-6	No	No	No	Yes
VCFB-547	ISI-0056-C-6	No	No	No	No
VJFB-423-A	ISI-0056-C-6	No	No	No	Yes

APPENDIX A
TABLE H (Continued)
Page 6 of 8

CLASS 2 - VALVE EXAMINATION CATEGORIES

VALVE NO.	REFERENCE DWG. NO.	PRESSURE RETAINING BOLTING >2"	INTEGRALLY WELDED ATTACHMENT	COMPONENT SUPPORT	VALVE BODY WELDS
VCFB-426-A	ISI-0056-C-6	No	No	No	No
VCBB-442	ISI-0056-C-13	No	No	No	No
VKBB-419-B	ISI-0056-C-13	No	No	No	No
VJFB-403-B	ISI-0056-C-14	No	No	No	Yes
VCFB-421-B	ISI-0056-C-14	No	No	No	No
VTAB-207	ISI-0064-C-1	No	No	No	No
VTAB-204	ISI-0064-C-1	No	No	No	No
VTAB-419	ISI-0064-C-1	No	No	No	No
VTAB-203	ISI-0064-C-1	No	No	No	No
VTAB-013-A	ISI-0065-C-1	No	No	No	No
VCAB-039-A	ISI-0065-C-1	No	No	No	No

APPENDIX A
TABLE II (Continued)
Page 7 of 8

CLASS 2 - VALVE EXAMINATION CATEGORIES

VALVE NO.	REFERENCE DWG. NO.	PRESSURE RETAINING BOLTING >2"	INTEGRALLY WELDED ATTACHMENT	COMPONENT SUPPORT	VALVE BODY WELDS
VJAB-038-A	ISI-0065-C-1	No	No	No	No
VJAB-042-B	ISI-0065-C-1	No	No	No	No
VCAB-044-B	ISI-0065-C-1	No	No	No	No
VJAB-046-B	ISI-0065-C-1	No	No	No	No
VHBB-031-A	ISI-0065-C-2	No	No	No	No
VJBB-019-A	ISI-0065-C-2	No	No	No	Yes
VCBB-017-A	ISI-0065-C-2	No	No	No	No
VHBB-064-B	ISI-0065-C-3	No	No	No	No
VJBB-053-B	ISI-0065-C-3	No	No	No	Yes
VCBB-052-B	ISI-0065-C-3	No	No	No	No
VGBB-028	ISI-0065-C-4	No	No	No	No

APPENDIX A
TABLE H (Continued)
Page 8 of 8

CLASS 2 - VALVE EXAMINATION CATEGORIES

VALVE NO.	REFERENCE DWG. NO.	PRESSURE RETAINING BOLTING >2"	INTEGRALLY WELDED ATTACHMENT	COMPONENT SUPPORT	VALVE BODY WELDS
VJBB-060-B	ISI-0065-C-4	No	No	No	No
VJBB-025-A	ISI-0065-C-4	No	No	No	No

TO BE COMPLETED LATER.

APPENDIX B

LIST OF CALIBRATION BLOCK DRAWINGS

APPENDIX B
TABLE A
LIST OF CALIBRATION BLOCK DRAWINGS
Page 1 of 1

Block No.	Drawing No.	Appendix B Page No.

To be completed later.

APPENDIX C

PRESERVICE INSPECTION FINAL REPORT

APPENDIX C
DATA PACKAGE COVER SHEET
Page 1 of 1

PRESERVICE BASELINE INSPECTION FOR TENNESSEE VALLEY AUTHORITY BELLEFONTE NUCLEAR PLANT

Unit _____

All preservice inspection requirements have been conducted in accordance with this program and all acceptance criteria has been satisfied.

_____ _____
NCO QA and Compliance Branch, Chief Date

_____ _____
Plant Superintendent Date

APPENDIX C
DATA SHEET 1
Page 1 of 6

The Nuclear Power QA and Compliance Branch Inspection Section representative shall sign-off the applicable portions of this data sheet when the examination requirements of Sections 6.0, 7.0, and 8.0 of this program have been completed.

EXAMINATION SECTION	QA STAFF REPRESENTATIVE	DATE
Class 1 Components		
Reactor Vessel		
6.1.1.1		
6.1.1.2		
6.1.1.3		
6.1.1.4		
6.1.1.5		
6.1.1.6		
6.1.1.7		
6.1.2		
6.1.3		
6.1.4		
6.1.5		
6.1.6		
6.1.8		
6.1.9		
6.1.10		
Pressurizer		
6.2.1		
6.2.2		
6.2.3		
6.2.4		
6.2.5		
6.2.7		
6.2.8		
Steam Generators		
6.3.1		
6.3.2		
6.3.4		
6.3.5		
6.3.6		

DATA SHEET 1 (Cont'd)
Page 2 of 6

EXAMINATION SECTION	QA STAFF REPRESENTATIVE	DATE
Class 1 Components (Cont'd)		
Piping		
6.4.1		
6.4.2		
6.4.3		
6.4.4		
6.4.5		
6.4.6		
6.4.7		
6.4.8		
RCP		
6.5.1		
6.5.3		
6.5.4		
6.5.5		
6.5.6		
6.5.7		
Valves		
6.6.1		
6.6.2		
6.6.3		
6.6.4		
6.6.5		
6.6.6		
Makeup and Purification Letdown Cooler		
6.7.1		
6.7.2		
6.7.3		
6.7.5		
Pressure Retaining Components		
6.8		
Class 2 Components Steam Generators		
7.1.1		
7.1.3		
7.1.4		

DATA SHEET 1 (Cont'd)
Page 3 of 6

EXAMINATION SECTION | QA STAFF REPRESENTATIVE | DATE

Class 2 Components (Cont'd)

Piping

DHRC

7.2.1
7.2.2
7.3.1
7.3.2
7.3.3
7.3.4
7.3.5
7.3.6

DHRP

7.4

Valves

7.5.1
7.5.2
7.5.4.3

RBSP

7.6.4

MPP

7.7.1
7.7.2
7.7.3
7.7.4

Pressure Retaining Components

7.8

Class 3 Components

8.0

DATA SHEET 1 (Cont'd)
Page 4 of 6

EXAMINATION SECTION | QA STAFF REPRESENTATIVE | DATE

All examinations required by the referenced sections of this data sheet have been performed and acceptance criteria has been satisfied.

_____ _____
Inspection Section Representative Date

Reviewed By: _____ _____
Supervisor, Inspection Section Date

Reviewed By: _____ _____
Supervisor, Programs and Procedures Section Date

Reviewed By: _____ _____
Supervisor, Baseline and In-service Inspection Group Date

APPENDIX C
DATA SHEET 2
Page 1 of 2

In the event system or component alterations or repairs are made which require reexamination or components are reexamined for other reasons following sign-off of all or portions of Data Sheet 2, this Data Sheet shall be used to reflect these additional examinations. Each area requiring reexamination shall be documented on a continuation sheet of this Data Sheet.

Additional examinations were required to be performed as noted above (check appropriate space):

_____ Yes _____ No

All additional examinations requiring use of this data sheet, if any, have been performed and all acceptance criteria has been satisfied. If additional examinations were performed, all continuation sheets have been completed, signed, and attached to this data sheet.

_____ _____
Inspection Section Representative Date

Reviewed By: _____ _____
Supervisor, Inspection Section Date

Reviewed By: _____ _____
Supervisor, Programs and Procedures Section Date

Reviewed By: _____ _____
Supervisor, Baseline and In-service Inspection Group Date

DATA SHEET 2 CONTINUATION SHEET
Page 2 of 2

Component:

Component Identification:

Reference Drawing:

Program Section:

Examination Method:

Reason for Reexamination:

Reexamination complete and acceptance criteria has been satisfied.

_____ _____
Inspection Section Representative Date

APPENDIX D

NOTIFICATION OF INDICATION

NOTIFICATION OF INDICATION
Part I - Findings

Examination Report No. _____ Plant/Unit _____

Weld Map Number _____ Examination Performed _____

Description of Indication: (Attach Sketch/Photograph)

_____

_____

_____

_____

_____

Signature of Examiner/Certif. Level _____
Date

Signature of Field Supervisor (Contractor) _____
Date

Baseline and ISI Representative _____
Date

PART II - Disposition

_____

_____

_____

_____

_____

_____

_____

Disposition Approved by TVA Level III Examiner _____
Date

Verification of Completed Corrective Action By
Baseline and ISI Representative

_____

_____

Signature _____ Date _____

APPENDIX E

REQUEST FOR RELIEF

Request For Relief

This section to be completed Later.

APPENDIX F

AUGMENTED INSPECTIONS

Augmented Inspections

This section to be completed Later.

APPENDIX G

SCAN PLAN DATA

Scan Plan Data

This section to be completed Later.