VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

May 17, 1979

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
Attn: Mr. A. Schwencer, Chief
Light Water Reactors Branch No. 1
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Serial No. 332B/111776
PO/KEB:scj
Docket No. 50-280
License No. DPR-32

Dear Mr. Denton:

Requested Relief From Inservice
Inspection and Testing Requirements
Surry Power Station Unit No. 1

Pursuant to 10 CFR 50.55a(g), the Virginia Electric and Power Company hereby submits its programs for inservice inspection and testing of pumps and valves during the last forty month period of the first ten year interval for Surry Power Station Unit 1. Per 10 CFR 50.55a(g)(4) the ASME Code and addenda "in effect" for this period have been determined to be the 1974 Edition of Section XI with Addenda thru the Summer of 1975. Surry Unit 1 was not, however, designed to meet the detailed inservice inspection and testing requirements of the ASME Code, Section XI. Therefore, pursuant to 10 CFR 50.55a(g)(6)(i), we request specific relief from ASME Code requirements pertaining to inservice inspection and testing of pumps and valves as outlined in attachments A, B and C.

Very truly yours,

C. M. Stallings

C. M. Stallings
Vice President-Power Supply
and Production Operations

Attachments A Surry Unit 1, Requested Relief from the Inservice Inspection Requirements for Class 1, 2 and 3 components as set forth in Section XI of the ASME Boiler and Pressure Vessel Code, 1974 Edition with Addenda through the Summer of 1975 (last 40 month period of the first 10 year interval).

B Surry Unit 1, Requested Relief from the Inservice Testing Requirements for Pumps as set forth in Subsection IWP to Section XI of the ASME Boiler and Pressure Vessel Code, 1974 Edition with Addenda thru the Summer of 1975 (last 40 month period of the first 10 year interval).

Note: 3 Sets of drawings Recd
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C Surry Unit 1, Requested Relief from the Inservice Testing Requirements for valves as set forth in Subsection IWV to Section XI of the ASME Boiler and Pressure Vessel Code, 1974 Edition with Addenda thru the Summer of 1975 (last 40 month period of the first 10 year interval).

D Surry Unit 1, Marked Up Flow Diagrams Showing ASME Code Class 1, 2 and 3 System Boundaries Relative to Inservice Inspection and Testing.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

MEMORANDUM FOR: TERA Corp.

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ATTACHMENT A

SURRY UNIT 1

REQUESTED RELIEF FROM THE INSERVICE INSPECTION REQUIREMENTS FOR CLASS 1, 2 and 3 COMPONENTS AS SET FORTH IN SECTION XI OF THE ASME BOILER AND PRESSURE VESSEL CODE, 1974 EDITION WITH ADDENDA THROUGH THE SUMMER OF 1975 (LAST 40 MONTH PERIOD OF THE FIRST 10 YEAR INTERVAL)

The enclosed tables provide a listing of the Class 1, 2 and 3 pressure-retaining components (and their supports) which are subject to the inspection requirements of Subsections IWB, IWC and IWD of Section XI of the ASME Boiler and Pressure Vessel Code 1974 Edition with Addenda thru the Summer of 1975.

These tabulations identify the components to be inspected, the components safety class, the applicable code to which the component was built, and the method of examination. Relief from the inspection requirements of each Subsection is requested in cases where these inspection requirements have been determined to be impractical. Where relief is requested, specific information is provided which identifies the applicable code requirement, justification for the relief request, and the inspection method to be used as an alternative.

The following provide further clarification concerning the Class 1, 2 and 3 system inspection programs.

(a) Articles IWC-3000 and IWD-3000 entitled, "Evaluation of Examination Results" are in the course of preparation by the Code Committee and, as yet, are not available for use. Standards for examination evaluations as included in the 1974 Edition of Section XI with Addenda through the Summer, 1975, are incomplete and "Acceptance Standards for Flaw Indications" as given in Article IWB-3000 of the 1977 Edition of Section XI will be utilized.

(b) Articles IWA-4000, IWB-4000, IWC-4000 and IWD-4000 entitled "Repair Procedures" in the 1977 Edition of Section XI with Addenda thru the Summer of 1978 provide additional guidelines for making repairs and will be used in lieu of those contained in the 1974 Edition of Section XI with Addenda thru the Summer of 1975.

(c) Requirements for the visual examination of Class 1 systems and components for evidence of leakage during the performance of a system pressure test following each refueling are identified by IWB-5200. Exception is taken to the implementation of these requirements on those portions of Class 1 systems which are contained between two check valves or two normally closed valves, where pressure applied to the reactor coolant system will be retained at the first valve in the line. The portions of systems affected by this limitation are:

(i) Cold leg injection from accumulators between check valves 1-SI-109, 130 and 147 and 1-SI-107, 129 and 147, test lines to valves HCV-1850B, D and F, RHR return to valves MOV-1720A and B.

During normal operation these portions of the systems are filled and pressurized to the normal accumulator operating pressure of 620 to 665 psig (refer to drawings 11448-FM-87A and 89B).

(ii) Hot leg injection between check valves 1-SI-88, 91 and 94 and check valves 1-SI-238, 239 and 240. These portions of systems are filled and vented but not pressurized during normal operation (refer to drawing 11448-FM-89B).

(iii) Cold leg low head injection line between check valves 1-SI-79, 82 and 85 and check valves 1-SI-241, 242 and 243; and high head and boron injection to check valves 1-SI-235, 236 and 237 (refer to drawing 11448-FM-89B).

(iv) RHR take-off line between normally closed (with pressure interlock) valves MOV-1700 and 1701. This portion of the system will be pressurized whenever the system is put into operation during plant shutdown when the reactor coolant system is cooled to 350°F and depressurized to 450 psig (refer to drawing 11448-FM-87A).

(d) Subsections IWB and IWC contain differing requirements for the hydrostatic testing of Class 1 and Class 2 systems and components. The implementation of these requirements is impractical when the only means of pressurizing the Class 2 system is through the Class 1 system or when the boundary between the two systems is a check valve arranged for flow from Class 2 to the Class 1 system.

Exception is taken to the performance of the hydrostatic test requirements as required by Article IWC-2412(a) on those portions of the Class 2 systems identified below. Visual examination for evidence of leakage will be conducted on these portions of the systems at the system nominal operating pressure in accordance with the requirements of IWB-5221 for the adjoining Class 1 system.

(i) R. C. Pump seal bypass lines from the flow orifice to valve HCV-1307 (refer to drawing 11448-FM-88C).

(ii) Hot leg injection between check valves 1-SI-88, 91 and 94 and check valves 1-SI-238, 239 and 240. These portions of systems are filled and vented but not pressurized during normal operation (refer to drawing 11448-FM-89B).

(iii) R. C. Pump seal injection line from check valve 1-CH-323, 333 and 349 to manually operated valve 1-CH-294, 297 and 300 (refer to drawings 11448-FM-88B and 88C).

(iv) Excess letdown system from valve HCV-1201 to HCV-1137 (refer to drawing 11448-FM-88C).

(v) Letdown line from valve LCV-1460B to orifice outlet valves HCV-1200A, B and C (refer to drawing 11448-FM-88C).

(e) The examination requirements for Class 3 systems and components as given in the enclosed tabulation are in accordance with IWD-2410(c) which specifies that 100 percent of the components be examined as required by IWA-5240 and IWD-2600 either during normal operation or during system inservice testing. An additional requirement of IWD-2410(b) is the examination of Class 3 systems and components for evidence of leakage during the performance of a system pressure test in accordance with IWD-5000. It should be noted, that these system pressure tests when required are impractical in those portions of systems, such as component cooling, service water, spent fuel pit cooling, and boric acid transfer and recirculation, which are in continuous operation during plant operation. The continuous functional operation serves to demonstrate the structural and leak-tight integrity of these systems. Visual examinations of these systems will be performed at normal operation pressures to verify leaktightness.

(f) Ultrasonic examinations will be conducted in accordance with the provisions of Appendix I and Article 5 of Section V as required by Paragraph IWA-2232.

As an alternative to using Article 5 of Section V, Appendix III of Section XI of the 1974 Edition, Winter, 1975 Addenda of the ASME Boiler and Pressure Vessel Code will be used for ultrasonic examination of piping systems.

It is recognized that Appendix III of Section XI was issued in the Winter, 1975, Addenda and, as such, has not been officially recognized by the NRC by reference in 10 CFR 50. However, Appendix III is the first guideline that has been published in the ASME Code for the ultrasonic examination of pipe welds and, as such, its use is essential.

(g) As an alternative for I-3121 of Section XI: "Calibration blocks required for the examination of welds in ferritic vessels 2 1/2 inches thick and over will be fabricated from material of the same specification, product form, and heat treatment as one of the materials being joined as allowed by article T-434.1 in the Winter, 1976 Addenda of Section V of the ASME Boiler and Pressure Vessel Code."

The reason this alternative is requested is that the Code requires that calibration blocks for the examination of welds in ferritic vessels 2 1/2 inches thick and greater be fabricated from material taken from the component nozzle drop out or material from the component prolongation. As a third alternative, when it is not possible to fabricate the block from material taken from the component, the block may be fabricated from a material of a specification included in the applicable examination volumes of the component. It is required that the acoustic velocity and attenuation of such a block be demonstrated to fall within the range of straight beam longitudinal wave velocity and attenuation found in the unclad components.

For the components in Surry Unit 1, particularly the pressurizer and steam generators, it will be impossible to meet the requirements of alternatives 1 or 2. Materials of the specification are readily available, but because all the components involved are clad on the inner surfaces, it would be impossible to obtain a comparison of sound beam velocities and attenuations in the unclad component.

Limitations may occur for the examination of piping system circumferential buttwelds (Category B-J) when the welds occur at geometric discontinuities such as pipe to vessel welds, pipe to fitting welds or fitting to fitting welds. For pipe to fitting or pipe to vessel nozzle welds, examinations can be performed to the extent required by T-532 of Section V from the weld and pipe surfaces. Examination from the fitting side would be dependent upon the geometric configuration. Where elbows or tees are concerned, examination can be performed from the fitting side except where the intrados of the fitting prevents adequate ultrasonic coupling. No examinations can be performed from the fitting side when it is a valve or a flange. In most cases one hundred percent of the weld material can be examined. In instances where welds occur at fitting to fitting, access restrictions as outlined above occur on both sides of the weld. In instances where ultrasonic examinations cannot be performed on one hundred percent of the volume of the weld and heat affected zone, surface examinations may be performed to supplement the limited volumetric examination.

Welds in the Surry Unit 1, Class 1 system which due to limitations, would require surface examinations are:

(i) Loop 1 Cold Leg Injection line; Welds 6 and 7.
(ii) Loop 2 Charging line; weld 11.
(iii) Loop 2 Cold Leg injection line; welds 4 and 5.
(iv) Loop 1 RTD Return line; weld 7.
(v) Loop 2 RTD Return line; weld 7.
(vi) Loop 3 RTD return line; weld 7.
(vii) Loop 3 Cold leg injection line; welds 3 and 4.
(viii) Pressurizer safety valve lines welds 7 and 8.
(ix) Pressurizer Relief line; welds 4 and 8

In instances where the locations of pipe supports or hangers restrict the access available for the examination of pipe welds as required by IWB-2600, examinations will be performed to the extent practical unless removal of the support is permissible without unduly stressing the system.

Certain Class 2 systems or portions of Class 2 systems and components are exempt from the examination requirements of the IWC-2520 by IWC-1220. A summary of these exemptions as applicable to the Surry plant systems are as follows:

(i) All CVCS piping equal to or less than four-inch nominal diameter and is exempted by IWC-1220(d).

(ii) During plant operation, the boric acid solution will be constantly recirculated through the boron injection tank by the transfer pump system. Samples would normally be taken on a regular basis and the component and associated piping would be exempt from examination by IWC-1220(c).

(iii) The boron injection tank discharge piping is all equal to or less than four inch nominal diameter.

(iv) During plant operation, the contents of the SIS accumulators are normally sampled on a regular basis and this component and associated piping would also be exempted by IWC-1220(c).

(v) During plant operation, the low head SIS injection pumps are run on a periodic basis to recirculate flow and from the RWST. Samples taken on a regular basis from the RWST would verify the chemistry of the system fluid and the pump and associated suction piping would be exempt from examination by IWC-1220(c).

(vi) The high head SIS piping equal to or less than four inch nominal diameter is exempted by IWC-1220(d).

(vii) The containment spray system and recirculation spray systems do not function during normal reactor operation and are exempt by IWC-1220(b).

(viii) The RWST, CAT and associated piping have design pressures and temperature less than 275 psig and 200°F and are exempt by IWC-1220(a).

The inservice inspection programs outlined in the attached tabulations have been developed as a result of a design review. Should certain ASME Section XI Code requirements be discovered to be impractical due to unforeseen reasons during the process of performing inspections or tests, relief will be requested from the specific Section XI Code requirement at that time.

Radiation levels in certain areas or of certain components may be found to prohibit the access for operators or inspectors to perform the inspections or tests described in this program. If source strengths cannot be reduced and access is still restricted by considerations of compliance with the requirements of Regulatory Guides 8.8 and 8.10, relief will be requested from the specific Section XI Code requirements and alternative examination or test requirements be proposed.

Codes references as being applicable to construction of components in the attached tables are:

IIIA ASME Boiler and Pressure Vessel Code, Section III, Class A Nuclear Vessels

IIIC ASME Boiler and Pressure Vessel Code, Section III, Class C Nuclear Vessels

VIII	ASME Boiler and Pressure Vessel Code, Section VIII, Pressure Vessels
B 31.1	USA Standard USAS B 31.1 Code for Pressure Piping
B 16.5	USA Standard USAS B 16.5 Steel Pipe Flanges, Flanged Valves and Fittings

SURRY UNIT 1
INSERVICE INSPECTION
ASME CODE CLASS 1 COMPONENTS

TABLE IWB-2600 ITEM NO.	TABLE IWB-2500 EXAMINATION CATETORY	SYSTEM OR COMPONENT	CODE APPLICABLE TO CONSTRUCTION	AREA TO BE EXAMINED	EXAMINATION REQUIREMENT	SECTION XI CODE RELIEF REQUESTED
B1.1	B-A	Reactor Vessel 1-RC-R-1	III-A	Upper to intermediate shell course circumferential weld	Volumetric	No
B1.1	B-A			Intermediate to lower shell course circumferential weld	Volumetric	No
B1.1	B-A			Intermediate shell course longitudinal welds (2)	Volumetric	No
B1.1	B-A			Lower shell course longitudinal welds (2)	Volumetric	No
B1.2	B-A			Lower head to shell circumferential weld	Volumetric	No
B1.2	B-B			Lower head ring to disc circumferential weld	Volumetric	No
B1.3	B-C			Vessel to flange weld	Volumetric	No
B1.3	B-C			Closure head to flange weld	Volmetric	No
B1.4	B-D			Outlet nozzle to vessel welds (3)	Volmetric	No
B1.4	B-D			Inlet Nozzle to vessel welds (3)	Volmetric	No
B1.5	B-E			CRDM, Vent and In-Core Instrumentation penetrations and CRDM seal welds	Visual	No
B1.6	B-F			Outlet nozzle to safe-ends welds (3)	Volmetric & Surface	No

SURRY UNIT 1
INSERVICE INSPECTION
ASME CODE CLASS 1 COMPONENTS

TABLE IWB-2600 ITEM NO.	TABLE IWB-2500 EXAMINATION CATETORY	SYSTEM OR COMPONENT	CODE APPLICABLE TO CONSTRUCTION	AREA TO BE EXAMINED	EXAMINATION REQUIREMENT	SECTION XI CODE RELIEF REQUESTED
B1.6	B-F			Inlet nozzle to safe-end welds (3)	Volumetric & Surface	No
B1.7	B-G-1			Closure Head Studs (In-Place)	Not Applicable	No- Note 1
B1.8	B-G-1			Closure Head Studs & Nuts	Volumetric & Surface	No
B1.9	B-G-1			Vessel flange ligaments	Volumetric	No
B1.10	B-G-1			Closure head Washers	Visual	No
B1.11	B-G-2			Conoseal Bolting	Visual	No
B1.12	B-H			Integrally Welded vessel supports	Not Applicable	No- Note 2
B1.13	B-I-1			Closure Head Cladding	Surface & Visual or Volumetric	No- Note 3
B1.14	B-I-1			Vessel Cladding	Visual	No
B1.15	B-N-1			Vessel Interior Surfaces and Internals	Visual	No
B1.16	B-N-2			Interior Attachments and Core Support Structures	Not Applicable	No - Note 4
B1.17	B-N-3			Core Support Structures	Visual	No

SURRY UNIT 1
INSERVICE INSPECTION
ASME CODE CLASS 1 COMPONENTS

TABLE IWB-2600 ITEM NO.	TABLE IWB-2500 EXAMINATION CATETORY	SYSTEM OR COMPONENT	CODE APPLICABLE TO CONSTRUCTION	AREA TO BE EXAMINED	EXAMINATION REQUIREMENT	SECTION XI CODE RELIEF REQUESTED
B1.18	B-O			Control Rod Drive Housings	Volumetric	No
B1.19	B-P			Exempted Components	Visual	No
B2.1	B-B	Pressurizer 1-RC-E-2	III-A	Longitudinal Shell welds (6)	Volumetric	No
B2.1	B-B			Circumferential shell welds (7)	Volumetric	Yes - Note 17
B2.2	B-D			Nozzle to vessel welds (6)	Not Applicable	No - Note 5
B2.3	B-E			Heater Penetrations	Visual	No
B2.4	B-F			Nozzle to safe-end welds (6)	Volumetric & Surface	No
B2.5	B-G-1			Pressure Retaining Bolting (in place)	Not Applicable	No - Note 6
B2.6	B-G-1			Pressure Retaining Bolting when removed	Not Applicable	No - Note 6
B2.7	B-G-1			Pressure Retaining Bolting	Not Applicable	No - Note 6
B2.8	B-H			Integrally Welded Vessel Supports	Volumetric	No
B2.9	B-I-2			Vessel cladding	Visual	No
B2.10	B-P			Exempted Components	Visual	No
B2.11	B-G-2			Manway Bolting	Visual	No
B3.1	B-B	Steam Generators (3) Primary Side	III-A	Channel Head to tubesheet Weld (3)	Volumetric	No

SURRY UNIT 1
INSERVICE INSPECTION
ASME CODE CLASS 1 COMPONENTS

TABLE IWB-2600 ITEM NO.	TABLE IWB-2500 EXAMINATION CATETORY	SYSTEM OR COMPONENT	CODE APPLICABLE TO CONSTRUCTION	AREA TO BE EXAMINED	EXAMINATION REQUIREMENT	SECTION XI CODE RELIEF REQUESTED
B3.2	B-D	1-RC-E-1A 1-RC-E-1B 1-RC-E-1C		Nozzle to Vessel welds (6)	Not Applicable	No-Note 7
B3.3	B-F			Nozzle to safe-end welds (6)	Volumetric & Surface	Yes - Note 8
B3.4	B-G-1			Pressure Retaining Bolting (in place)	Not Applicable	No - Note 6
B3.5	B-G-1			Pressure Retaining Bolting, when removed	Not Applicable	No - Note 6
B3.6	B-G-1			Pressure Retaining Bolting	Not Applicable	No - Note 6
B3.7	B-H			Integrally welded supports	Not Applicable	No - Note 6
B3.8	B-I-2			Vessel Cladding	Visual	No
B3.9	B-P			Exempted Components	Visual	No
B3.10	B-G-2			Manway Bolting	Visual	No
B4.1	B-F	Piping Pressure Boundary		Safe end to pipe welds	Not Applicable	No - Note 6
B4.2	B-G-1			Pressure Retaining Bolts (in place)	Not Applicable	No - Note 6
B4.3	B-G-1			Pressure Retaining Bolts when removed	Not Applicable	No - Note 6
B4.4	B-G-1			Pressure Retaining Bolting	Not Applicable	No - Note 6
B4.5	B-J			Circumferential and Longitudinal Pipe Welds	Volumetric	Yes - Notes 9 and 10

SURRY UNIT 1
INSERVICE INSPECTION
ASME CODE CLASS 1 COMPONENTS

TABLE IWB-2600 ITEM NO.	TABLE IWB-2500 EXAMINATION CATETORY	SYSTEM OR COMPONENT	CODE APPLICABLE TO CONSTRUCTION	AREA TO BE EXAMINED	EXAMINATION REQUIREMENT	SECTION XI CODE RELIEF REQUESTED
B4.6	B-J			Branch Pipe connection welds exceeding 6" diameter.	Volumetric	Yes - Note 11
B4.7	B-J			Branch Pipe Connections Weld 6" diameter and smaller	Surface	No
B4.8	B-J			Socket Welds	Surface	No
B4.9	B-K-1			Integrally Welded Supports	Volumetric	Yes - Note 12
B4.10	B-K-1			Support Components	Visual	No
B4.11	B-P			Exempted Components	Visual	No
B4.12	B-G-2			Pressure Retaining Bolting	Visual	No
B5.1	B-G-1	Reactor Coolant Pumps (3)	III-A	Main Flange Bolting (in place)	Volumetric	No
B5.1	B-G-1	1-RC-P-1A 1-RC-P-1B 1-RC-P-1C		Seal Housing Bolting (in place)	Volumetric	Yes - Note 13
B5.2	B-G-1			Main Flange Bolting when removed	Volumetric & Surface	No - Note 14
B5.2	B-G-1			Seal Housing Bolting when removed	Volumetric & Surface	No - Note 14
B5.3	B-G-1			Main Flange Bolting	Visual	No
B5.3	B-G-1			Seal Housing Bolting	Visual	No
B5.4	B-K-1			Integrally Welded Supports	Volumetric	Yes - Note 15

SURRY UNIT 1
INSERVICE INSPECTION
ASME CODE CLASS 1 COMPONENTS

TABLE IWB-2600 ITEM NO.	TABLE IWB-2500 EXAMINATION CATETORY	SYSTEM OR COMPONENT	CODE APPLICABLE TO CONSTRUCTION	AREA TO BE EXAMINED	EXAMINATION REQUIREMENT	SECTION XI CODE RELIEF REQUESTED
B5.5	B-K-2			Support Components	Visual	No
B5.6	B-L-1			Pump Casing Weld	Volumetric	No - Note 16
B5.7	B-L-2			Pump Casings	Visual	No
B5.8	B-P			Exempted Components	Visual	No
B5.9	B-G-2			Pressure Retaining Bolting	Not Applicable	No - Note 6
B6.1	B-G-1	Valve Pressure Boundary		Pressure Retaining Bolting (in place)	Volumetric	No
B6.2	B-G-1			Pressure Retaining Bolting when removed	Volumetric & Surface	No
B6.3	B-G-1			Pressure Retaining Bolting	Visual	No
B6.4	B-K-1			Integrally welded supports	Not Applicable	No - Note 6
B6.5	B-K-2			Support Components	Visual	No
B6.6	B-M-1			Valve Body Welds	Not Applicable	No - Note 6
B6.7	B-M-2			Valve Bodies	Visual	No
B6.8	B-P			Exempted Components	Visual	No
B6.9	B-G-2			Pressure Retaining Bolting	Visual	No

SURRY UNIT 1
INSERVICE INSPECTION
ASME CODE CLASS 1 COMPONENTS

NOTES

1. The Reactor Vessel Closure Head Studs are removed during each refueling and there will be no need for examination in place as required by IWB-2600.

2. The reactor vessel is supported on pads integral with the inlet and outlet nozzles and therefore are excluded from examination requirements of IWB-2500 by Category B-H.

3. Radiation levels beneath the closure head may affect the allowable dosage of personnel doing surface and visual examination. The presence of the cladding material is not considered when performing the stress analysis of the vessel such that failure of the cladding would not affect the integrity of the vessel. The closure head cladding will be volumetrically examined concurrent with the examinations performed on the closure head to flange weld.

4. This requirement is applicable only to Boiling Water Type Reactors.

5. The pressurizer nozzles are integrally cast with the vessel head and therefore there are no welds requiring examination in accordance with the requirement IWB-2600.

6. There are no items in this category on this component in the Surry Unit 1 Class 1 Systems.

7. The steam generator nozzles are integrally cast with the channel head and therefore are no welds in this category.

8. Examinations of the steam generator primary nozzle to safe-end and safe-end to pipe weld is limited both by the nozzle geometry and surface condition and the limited surface preparation on the pipe side of the weld. The surface on the pipe side of the weld, which is a cast elbow, is machined for a distance of approximately three inches from the edge of the weld. Ultrasonic examination is limited to this from the edge of the weld. Examinations can be performed on the surface of the weld but are severely limited from the nozzle side by the rough, as cast surface. Surface examination can be performed on one hundred percent of the weld and the base metal on the pipe side. The configuration is shown in Figure 1.

9. Limitations may occur from the examination of piping system circumferential butt welds (Category B-J) when the welds occur at geometric discontinuties such as pipe to vessel welds, pipe to fitting welds or fitting to fitting welds. For pipe to fitting or pipe to vessel nozzle welds, examinations can be performed to the extent required by T-532 of Section V from the weld and pipe surfaces. Examinations from the fitting side would be dependent upon

the geometric configuration. Where elbows or tees are concerned, examination can be performed from the fitting side except where the intrados of the fitting prevents adequate ultrasonic coupling. No examinations can be performed from the fitting side when it is a valve or a flange. In all cases one hundred percent of the weld material can be examined. In instances where welds occur at fitting to fitting, access restrictions as outlined above occur on both sides of the weld. In instances where ultrasonic examinations cannot be performed on one hundred percent of the volume of the weld and head affected zone, surface examinations will be performed to supplement the limited volumetric examination.

10. The ninety degrees elbows on the crossover leg of the reactor coolant system are fabricated in two halves from austenitic stainless steel castings welded together by the electroslag process. The structure and nature of the electroslag weld in the cast austenitic ninety degree elbows is such that the material is opaque to ultrasonic transmissions utilizing currently available techniques. Radiography is the only other available technique for volumetric examination. It is not possible to obtain code acceptable radiographs with double wall "shots" on these components which are approximately thirty-eight inches diameter, 3.5 inches wall thickness, containing a two-inch thick splitter plate and having radiation levels of up to three hundred mr/hr on contact. Surface examination will be performed as a substitute for volumetric.

11. The configuration of the reactor coolant branch nozzle connection welds is as shown in Figure 2. Ultrasonic examinations cannot be performed on the surface of the weld. Examinations will be performed to the extent practical from the pipe and nozzle adjacent to the weld. Surface examination will be performed to supplement this volumetric examination.

12. The piping system integrally welded supports are attached to the pipe by fillet welds. The configuration of such welds is such that examinations cannot be performed to the extent required by IWB-2600 and only the base material of the pipe wall can be examined by ultrasonic techniques. Surface examination will be performed on the integrally welded attachments to supplement the limited volumetric examinations.

13. The reactor coolant pump seal housing bolts are of the socket head type and the configuration is such that ultrasonic examinations as required by IWB-2600 cannot be performed when the bolting is in place. Examinations will be performed to the extent required by IWB-2600 when the seal housing is disassembled for maintenance.

14. The reactor coolant pump main flange bolting is ultrasonically examined, in place in accordance with the requirements of IWB-2600, Item B5.1. Both the main flange and seal housing bolting will be examined as required by IWB-2600, Item B5.2 whenever a pump is disassembled for maintenance at the end of the ten-year interval when a pump will be disassembled for the performance required by Category B-L-1.

15. The structure and nature of the material of integrally welded pump supports are such that it is opaque to ultrasonic transmission. Surface and visual examination will be performed as a substitute for volumetric.

16. The reactor coolant pump casings in Surry Unit 1 are fabricated from two heavy wall austenitic steel castings joined together by a weld formed by the electroslag process. The structure and nature of this material are such that it is opaque to ultrasonic transmission.

    Volumetric examination as required by IWB-2600 will be attempted utilizing radiographic techniques. The success of these examinations will be dependent upon the availability of high energy gamma sources and the level of background radiation. Internal fittings in the pump may also provide restriction to the extent of examination that can be performed.

17. Two of the pressurizer circumferential shell welds are not accessible for examination by volumetric or surface method due floor penetration and support structure interference. They will be subject to visual examination for evidence of leakage during system pressure tests.

FORM 46448

FIGURE 1

STEAM GENERATOR PRIMARY NOZZLE SAFE-END TO PIPE WELD CONFIGURATION

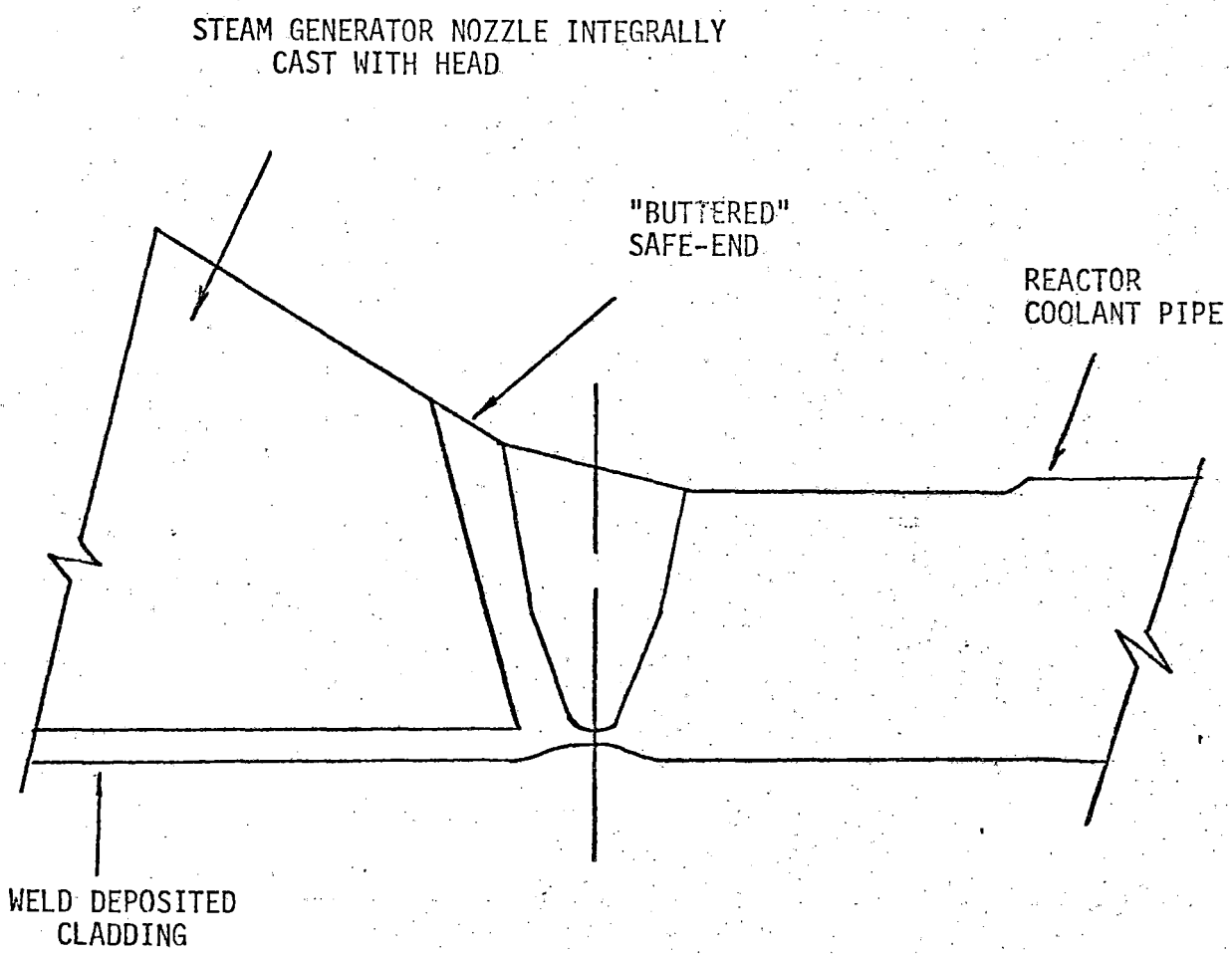
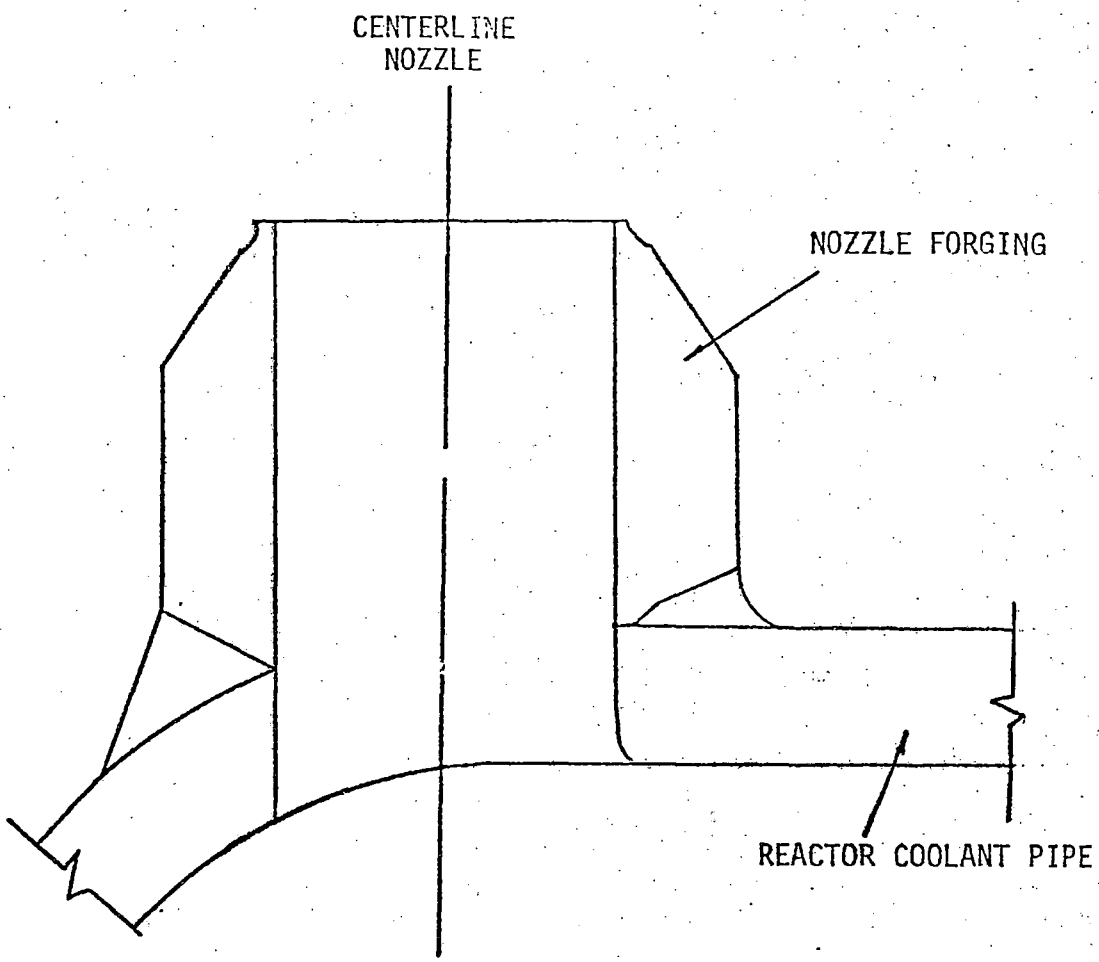


FIGURE 2

FORM 4644P

BRANCH NOZZLE CONNECTION WELD



SURRY UNIT 1
INSERVICE INSPECTION
ASME CODE CLASS 2 COMPONENTS

TABLE IWC-2600 ITEM NO.	TABLE IWC-2520 EXAMINATION CATETORY	SYSTEM OR COMPONENT	CODE APPLICABLE TO CONSTRUCTION	AREA TO BE EXAMINED	EXAMINATION REQUIREMENT	SECTION XI CODE RELIEF REQUESTED
C1.1	C-A-2	Steam Generators (3) (Shell Side)	IIIA	Upper Head to Shell Weld	Volumetric	No
C1.1	C-A	1-RC-E-1A 1-RC-E-1B 1-RC-E-1C		Upper Shell to Transition Weld	Volumetric	No
C1.1	C-A			Transition to lower shell weld	Volumetric	No
C1.1	C-A			Lower Shell to Stub barrel weld	Volumetric	No
C1.1	C-A			Stub barrel to tubesheet weld	Volumetric	No
C1.1	C-B			Steam Outlet Nozzle to shell weld	Volumetric	No
C1.2	C-B			Feedwater Inlet Nozzle to shell weld	Volumetric	No
C1.3	C-C			Integrally Welded Supports	Not Applicable	No - Note 1
C1.4	C-D			Manway Bolting	Visual and Volumetric	No
C1.1	C-A	Residual Heat Exchangers (2) (Tube Side)	IIIC	Head to Shell Welds	Volumetric	No
C1.1	C-A	1-RH-E-1A 1-RH-E-1B		Shell to flange welds	Volumetric	No
C1.2	C-B			Nozzle to vessel welds	Volumetric	Yes - Note 2
C1.3	C-C			Integrally Welded Supports	Surface	No
C1.4	C-D			Tubesheet Flange Bolting	Visual and Volumetric	No
C1.1	C-A	Regenerative	III-C	Head to shell welds (6)	Volumetric	Yes -

SURRY UNIT 1
INSERVICE INSPECTION
ASME CODE CLASS 2 COMPONENTS

TABLE IWC-2600 ITEM NO.	TABLE IWC-2520 EXAMINATION CATETORY	SYSTEM OR COMPONENT	CODE APPLICABLE TO CONSTRUCTION	AREA TO BE EXAMINED	EXAMINATION REQUIREMENT	SECTION XI CODE-RELIEF REQUESTED
C1.1	C-A	1-CH-E-3		Shell to tubesheet welds (6)	Volumetric	Yes - Note 3
C1.2	C-B			Nozzle to vessel welds (12)	Not Applicable	No - Note 4
C1.3	C-C			Integrally welded supports	Not Applicable	No - Note 4
C1.4	C-D			Pressure Retaning Bolting	Not Applicable	No - Note 4
C1.1	C-A	Excess Letdown Heat Exchanger (Tube side)	III-C	Head to shell weld	Volumetric	No
C1.1	C-A	1-CH-E-4		Shell to flange weld	Volumetric	No
C1.2	C-B			Nozzle to vessel welds	Not Applicable	No - Note 5
C1.3	C-C			Integrally welded supports	Not Applicable	No - Note 5
C1.4	C-D			Pressure Retaining Bolting	Visual and Volumetric	No
C1.1	C-A	Non Regenera-tive Letdown Heat Exchanger (Tube Side)	III-C	Head to shell weld	Volumetric	No
C1.1	C-A	1-CH-E-2		Shell to flange weld	Volumetric	No
C1.2	C-B			Nozzle to vessel welds	Not Applicable	No - Note 6
C1.3	C-C			Integrally welded supports	Surface	No
C1.4	C-D			Pressure Retaining Bolting	Visual and Volumetric	No

SURRY UNIT 1
INSERVICE INSPECTION
ASME CODE CLASS 2 COMPONENTS

TABLE IWC-2600 ITEM NO.	TABLE IWC-2520 EXAMINATION CATETORY	SYSTEM OR COMPONENT	CODE APPLICABLE TO CONSTRUCTION	AREA TO BE EXAMINED	EXAMINATION REQUIREMENT	SECTION XI CODE RELIEF REQUESTED
C1.1	C-A	Seal Water Heat Exchanger (Tube Side)	III-C	Head to shell welds	Volumetric	No
C1.1	C-A	1-CH-E-1		Shell to flange welds	Volumetric	No
C1.2	C-B			Nozzle to vessel welds	Not Applicable	No - Note 7
C1.3	C-C			Integrally welded supports	Surface	No
C1.4	C-D			Pressure Retaining Bolting	Not Applicable	No - Note 7
C1.1	C-A	Volume Control Tank	III-C	Upper Head to shell weld	Volumetric	No
C1.1	C-A	1-CH-TK-2		Lower head to shell weld	Volumetric	No
C1.2	C-B			Nozzle to vessel welds	Not Applicable	No - Note 8
C1.3	C-C			Integrally Welded Supports	Surface	No
C1.4	C-D			Pressure Retaining Bolting	Visual and Volumetric	No
C1.1	C-A	Seal Water Injection Filters (2)	III-C	Shell to flange weld	Volumetric	No
C1.1	C-A	1-CH-FL-4A 1-CH-FL-4B		Head to shell weld	Volumetric	No
C1.2	C-B			Nozzle to vessel welds	Not Applicable	No - Note 9
C1.3	C-C			Integrally Welded Supports	Surface	No
C1.4	C-D			Pressure Retaining Bolting	Visual and Volumetric	No

SURRY UNIT 1
INSERVICE INSPECTION
ASME CODE CLASS 2 COMPONENTS

TABLE IWC-2600 ITEM NO.	TABLE IWC-2520 EXAMINATION CATETORY	SYSTEM OR COMPONENT	CODE APPLICABLE TO CONSTRUCTION	AREA TO BE EXAMINED	EXAMINATION REQUIREMENT	SECTION XI CODE RELIEF REQUESTED
C1.1	C-A	Reactor Coolant Filter	III-C	Cover Weldment to shell weld	Volmetric	Yes - Note 10
C1.1	C-A	1-CH-FL-2		Head to shell weld	Volumetric	Yes - Note 10
C1.2	C-B			Nozzle to vessel welds	Not Applicable	No - Note 10
C1.3	C-C			Integrally Welded Supports	Surface	No
C1.4	C-D			Pressure Retaining Bolting	Not Applicable	No - Note 10
C1.1	C-A	Seal Water Return Filter	III-C	Cover Weldment to shell weld	Volumetric	Yes - Note 10
C1.1	C-A	1-CH-FL-3		Head to shell weld	Volumetric	Yes - Note 10
C1.2	C-B			Nozzle to vessel welds	Not Applicable	No - Note 10
C1.3	C-C			Integrally welded supports	Surface	No
C1.4	C-D			Pressure Retaining Bolting	Not Applicable	No - Note 10
C2.1	C-F;C-G	Piping Systems		Circumferential Butt Welds	Volumetric	Yes - Note 11
C2.2	C-F;C-G			Longitudinal weld joints in fittings	Volumetric	No
C2.3	C-F;C-G			Branch Pipe to Pipe Welds	Volumetric	Yes - Note 12
C2.4	C-D			Pressure Retaining Bolting	Visual and Volumetric	No

TABLE IWC-2600 ITEM NO.	TABLE IWC-2520 EXAMINATION CATETORY	SYSTEM OR COMPONENT	CODE APPLICABLE TO CONSTRUCTION	AREA TO BE EXAMINED	EXAMINATION REQUIREMENT	SECTION XI CODE RELIEF REQUESTED
C2.5	C-E-1			Integrally Welded Supports	Surface	No
C2.6	C-E-2			Support Components	Visual	No
C3.1	C-F	Residual Heat Removal Pumps (2)		Pump Casing Welds	Not Applicable	No - Note 13
C3.2	C-D	1-RH-P-1A 1-RH-P-1B		Pressure Retaining Bolting	Visual and Volumetric	No
C3.3	C-E-1			Integrally Welded Supports	Not Applicable	No - Note 13
C3.4	C-E-2			Support Components	Visual	No
C3.1	C-D	Charging Pumps (3)		Pump Casing Welds	Not Applicable	No - Note 13
C3.2	C-D	1-CH-P-1A 1-CH-P-1B 1-CH-P-1C		Pressure Retaining Bolting	Visual and Volumetric	No
C3.3	C-E-1			Integrally Welded Supports	Not Applicable	No - Note 13
C3.4	C-E-2			Support Components	Visual	No
C4.1	C-F;C-G	Valves		Valve Body Welds	Not Applicable	No - Note 14
C4.2	C-D			Pressure Retaining Bolting	Visual and Volumetric	No
C4.3	C-E-1			Integrally Welded Supports	Not Applicable	No - Note 14
C4.4	C-E-2			Support Components	Visual	No

SURRY UNIT 1
INSERVICE INSPECTION
ASME CODE CLASS 2 COMPONENTS

NOTES

1. There are no items in this category on this component in the Surry Unit 1 Class 2 systems.

2. The nozzle to vessel welds of the residual heat exchangers are covered by 1" thick by 3" wide reinforcement pad as shown in Figure 3. These welds are not accessible for examination by volumetric or surface methods. The area will be subject to visual examination for evidence of leakage during system pressure tests.

3. The regenerative heat exchanger is a three pass vessel, having a total of six head to shell welds and six shell to tubesheet welds. Radiation levels adjacent to this heat exchanger are between six and seven R/hr. The total time required for erection of scaffolding, removal of all insulation covering welds, cleaning, performing examinations and restoration of insulation could take a total of three to four hours. For the examination of a 1/2" long portion of each of twelve welds in this category, personnel involved could be subjected to a total accumulated dose of up to fifty-six man rem. It is felt that potential personnel exposure to complete these examinations is excessive particularly when the examination is to establish the continued integrity of a vessel in a system in which all the piping welds are exempt from examination by IWC-1220(d). Efforts will be made to examine 10% of one weld volumetrically when practical however, examination of this vessel for evidence of leakage during the performance of pressure tests will provide the same assurance of continued integrity as for the piping system with which it is associated.

4. Regenerative heat exchanger nozzles are 3" and 2" diameter, there are no integrally welded supports and pressure retaining bolting on this vessel therefore no examination is required under these categories.

5. Excess Letdown Heat Exchanger nozzles are 2" diameter. There are not any integrally welded supports on this vessel. Therefore no examination is required under these categories.

6. Non Regenerative Letdown Heat Exchanger nozzle to vessel welds are 2" diameter and therefore requires no examination under this category.

7. Seal Water Heat Exchanger nozzle to vessel welds are 4" diameter and the pressure retaining bolting is .75" diameter therefore they require no examination under this category.

8. Volume Control Tank nozzle to vessel welds are 4" and 3" diameter therefore require no examination under this category.

9. Seal Water Injection Filters nozzle to vessel welds are 2" diameter, therefore require no examination under this category.

10. Reactor Coolant Filter and Seal Water Return Filter nozzle to vessel welds are 3" diameter and the bolting is .75" diameter therefore no examination is required under these categories. The thickness of the materials (0.188" thick) used for the construction of these filters is such that meaningful results could not be expected with ultrasonic examination as required by IWC-2600. Surface and visual examination of these welds (Cover weldment to shell and head to shell) will be performed as an alternative method.

11. Examination of Class 2 piping systems is limited to those occurring at geometric discontinuities such that some limitations may be expected at all locations. For pipe to fitting or pipe to vessel nozzle welds, examinations can be performed to the extent required by T-532 of Section V from the weld and pipe surfaces. Examination from the fitting side would be dependent upon the geometric configuration. Where elbows or tees are concerned, examination can be performed from the fitting side except where the intrados of the fitting prevents adequate ultrasonic coupling. No examination can be performed from the fitting side when it is a valve or a flange. In all cases one hundred percent of the weld material can be examined. In instances where welds occur at fitting to fitting access restrictions as outlined above occur on both sides of the weld. In instances where ultrasonic examinations cannot be performed on one hundred percent of the volume of the weld and heat effected zone, surface examinations may be performed to supplement the limited volumetric examination.

12. The configuration of typical branch pipe welds is shown in Figure 4. Ultrasonic examinations cannot be performed on the surface of the weld. Examinations will be performed to the extent practical from the pipe and nozzle surfaces adjacent to the weld. Surface examination of the weld will be performed to supplement the volumetric examination.

13. The residual heat removal pumps and charging pumps do not have any pump casing welds or integrally welded supports.

14. There are no valve body welds or integrally welded supports on the valves in Surry Unit 1.

FIGURE 3

RESIDUAL HEAT REMOVAL HEAT EXCHANGER NOZZLE TO VESSEL CONFIGURATION

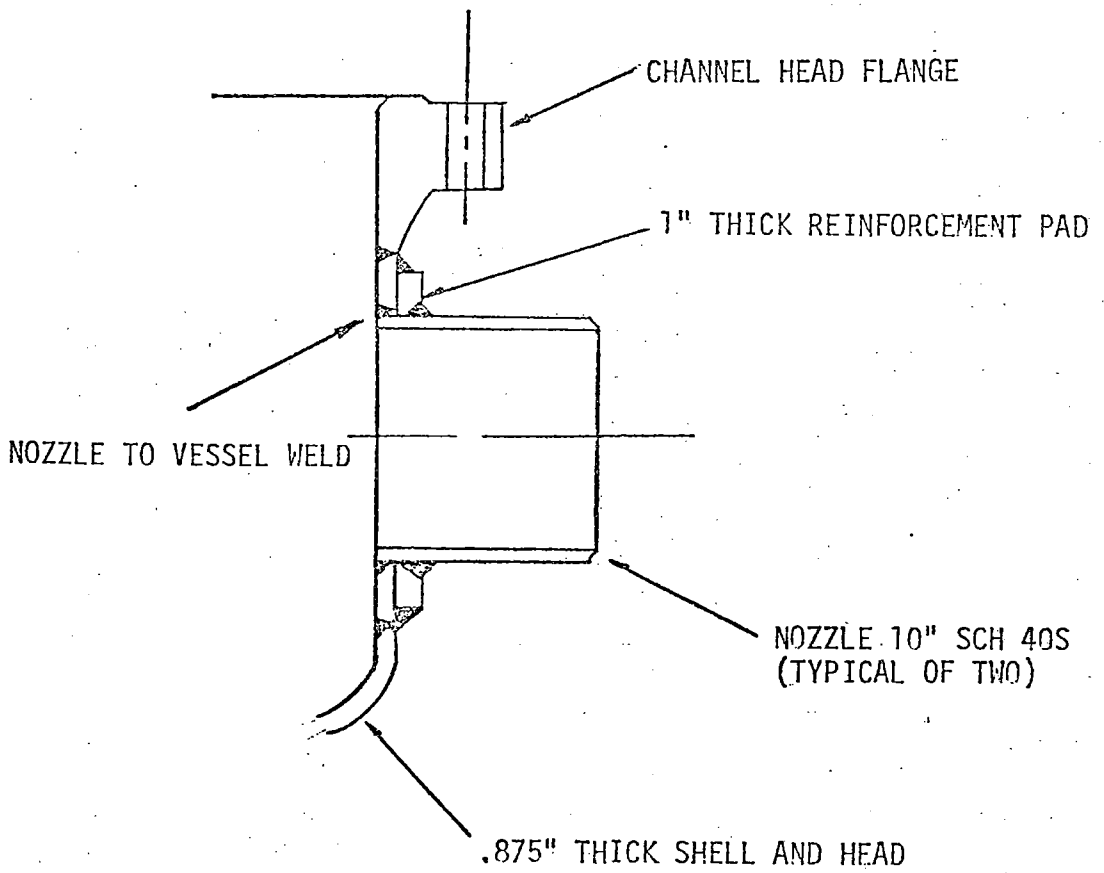
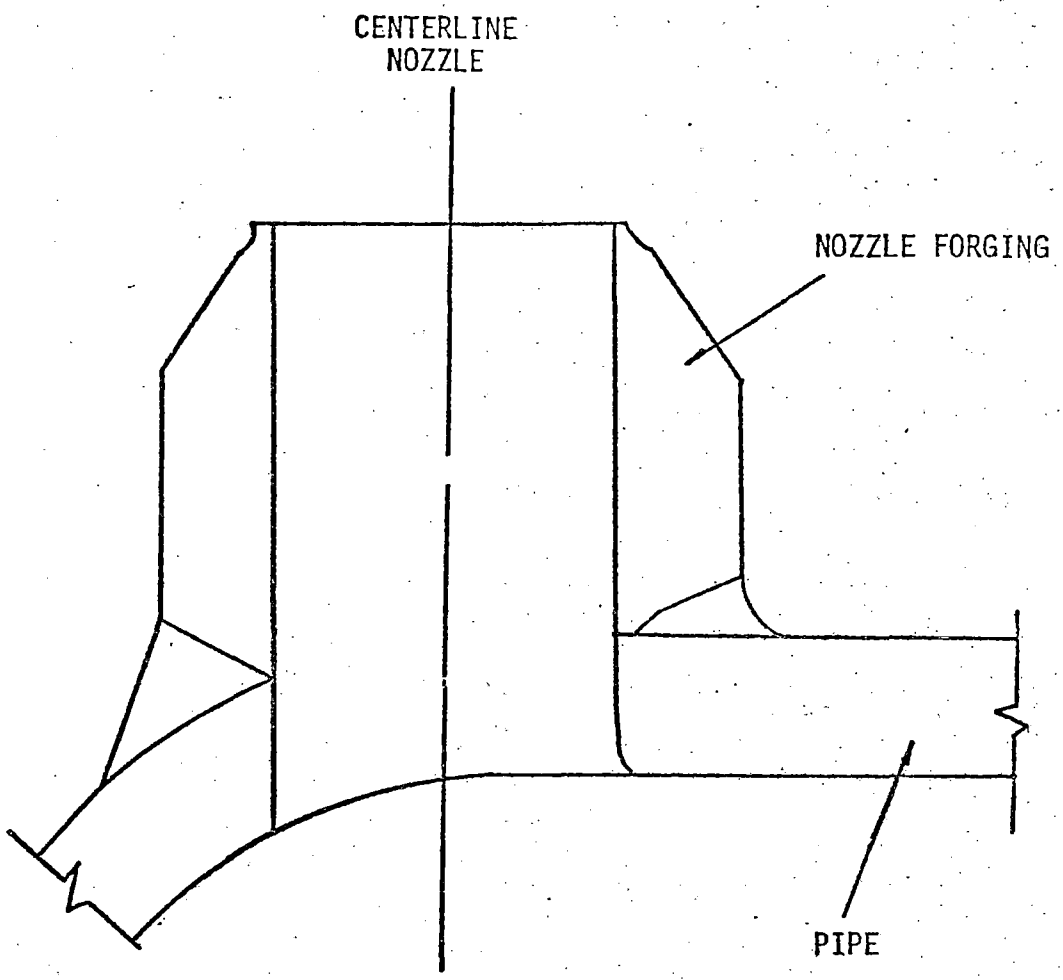


Figure 4

BRANCH NOZZLE CONNECTION WELD



SURRY UNIT 1
INSERVICE INSPECTION
ASME CODE CLASS 3 COMPONENTS

SYSTEM	COMPONENT DESCRIPTION/IDENTIFICATION	CODE APPLICABLE TO CONSTRUCTION	METHOD OF EXAMINATION	SECTION XI CODE RELIEF REQUESTED
Chemical and Volume Control	Boric Acid Tank 1-CH-TK-1A	VIII	Visual/Operating Pressure	
	Boric Acid Tank 1-CH-TK-1B	VIII	Visual/Operating Pressure	
	Boric Acid Transfer Pump 1-CH-P-2A		Visual/Operating Pressure	
	Boric Acid Transfer Pump 1-CH-P-2B		Visual/Operating Pressure	
	Boric Acid Filter 1-CH-FL-1	IIIC	Visual/Operating Pressure	
	Boric Acid Blender 1-CH-BL-1		Visual/Operating Pressure	
	Piping		Visual/Operating Pressure	
	Supports and Hangers		Visual	
Main Steam to Turbine Driven Auxiliary Feedwater Pump	Piping		Visual/Operating Pressure	
	Supports & Hangers		Visual	
Auxiliary Feedwater	Auxiliary Feed Pump 1-FW-P-2 (Turbine Driven)		Visual/Operating Pressure	
	Auxiliary Feed Pump 1-FW-P-3A (Motor Driven)		Visual/Operating Pressure	
	Auxiliary Feed Pump 1-FW-P-3B (Motor Driven)		Visual/Operating Pressure	
	Auxiliary Feed Pump 1-FW-P-2 Oil Cooler		Visual/Operating Pressure	

SURRY UNIT 1
INSERVICE INSPECTION
ASME CODE CLASS 3 COMPONENTS

SYSTEM	COMPONENT DESCRIPTION/IDENTIFICATION	CODE APPLICABLE TO CONSTRUCTION	METHOD OF EXAMINATION	SECTION XI CODE RELIEF REQUESTED
Auxiliary Feedwater	Auxiliary Feed Pump 1-FW-P-3A Oil Cooler		Visual/Operating Pressure	
	Auxiliary Feed Pump 1-FW-P-3B Oil Cooler		Visual/Operating Pressure	
	Condensate Storage Tank 1-CN-TK-1A		Visual/Operating Pressure	
	Piping		Visual/Operating Pressure	
	Supports and Hangers		Visual	
Circulating and Service Water	Recirculation Spray Heat Exchanger 1-RS-E-1A (tube side)		Visual/Operating Pressure	
	Recirculation Spray Heat Exchanger 1-RS-E-1B (tube side)		Visual/Operating Pressure	
	Recirculation Spray Heat Exchanger 1-RS-E-1C (tube side)		Visual/Operating Pressure	
	Recirculation Spray Heat Exchanger 1-RS-E-1D (tube side)		Visual/Operating Pressure	
	Component Cooling Water Heat Exchanger 1-CC-E-1A (tube side)		Visual/Operating Pressure	
	Component Cooling Water Heat Exchanger 1-CC-E-1B (tube side)		Visual/Operating Pressure	
	Emergency Service Water Pump 1-SW-P-1A		Visual/Operating Pressure	

SURRY UNIT 1
INSERVICE INSPECTION
ASME CODE CLASS 3 COMPONENTS

SYSTEM	COMPONENT DESCRIPTION/IDENTIFICATION	CODE APPLICABLE TO CONSTRUCTION	METHOD OF EXAMINATION	SECTION XI CODE RELIEF REQUESTED
Circulating and Service Water	Emergency Service Water Pump 1-SW-P-1B		Visual/Operating Pressure	
	Emergency Service Water Pump 1-SW-P-1C		Visual/Operating	
	Charging Pump 1-CH-E-5A Lubricating Oil Cooler		Visual/Operating Pressure	
	Charging Pump 1-CH-E-5B Lubricating Oil Cooler		Visual/Operating Pressure	
	Charging Pump 1-CH-E-5C Lubricating Oil Cooler		Visual/Operating Pressure	
	Charging Pump 1-CH-E-7A Seal Cooler		Visual/Operating Pressure	
	Charging Pump 1-CH-E-7B Seal Cooler		Visual/Operating	
	Charging Pump 1-CH-E-7C Seal Cooler		Visual/Operating Pressure	
	Charging Pump 1-CH-E-7D Seal Cooler		Visual/Operating Pressure	
	Charging Pump 1-CH-E-7E Seal Cooler		Visual/Operating Pressure	
	Charging Pump 1-CH-E-7F Seal Cooler		Visual/Operating Pressure	
	Charging Pump Seal Cooling Surge Tank 1-CC-TK-3		Visual/Operating Pressure	
	Charging Pump Cooling Water Pump 1-CC-P-2A		Visual/Operating Pressure	
	Charging Pump Cooling Water Pump 1-CC-P-2B		Visual/Operating Pressure	

SURRY UNIT 1
INSERVICE INSPECTION
ASME CODE CLASS 3 COMPONENTS

SYSTEM	COMPONENT DESCRIPTION/IDENTIFICATION	CODE APPLICABLE TO CONSTRUCTION	METHOD OF EXAMINATION	SECTION XI CODE RELIEF REQUESTED
Circulating and Service Water	Charging Pump Intermediate Seal Cooler 1-SW-E-1A		Visual/Operating Pressure	
	Charging Pump Intermediate Seal Cooler 1-SW-E-1B		Visual/Operating Pressure	
	Charging Pump Service Water Pump 1-SW-P-10A		Visual/Operating Pressure	
	Charging Pump Service Water Pump 1-SW-P-10B		Visual/Operating Pressure	
	Recirculation Spray Hx Radiation Monitoring Sample Pump 1-SW-P-5A		Visual/Operating Pressure	
	Recirculation Spray Hx Radiation Monitroing Sample Pump 1-SW-P-5B		Visual/Operating Pressure	
	Recirculation Srpay Hx Radiation Monitoring Sample Pump 1-SW-P-5C		Visual/Operating Pressure	
	Recirculation Spray Hx Radiation Monitoring Sample Pump 1-SW-P-5D		Visual/Operating Pressure	
	Piping		Visual/Operating Pressure	
	Supports and Hangers		Visual	
Component Cooling Water	Reactor Coolant Pump 1-RC-P-1A Oil Cooler		Visual/Operating Pressure	
	Reactor Coolant Pump 1-RC-P-1B Oil Cooler		Visual/Operating Pressure	
	Reactor Coolant Pump 1-RC-P-1C Oil Cooler		Visual/Operating Pressure	

SURRY UNIT 1
INSERVICE INSPECTION
ASME CODE CLASS 3 COMPONENTS

SYSTEM	COMPONENT DESCRIPTION/IDENTIFICATION	CODE APPLICABLE TO CONSTRUCTION	METHOD OF EXAMINATION	SECTION XI CODE RELIEF REQUESTED
Component Cooling Water	Reactor Coolant Pump 1-RC-P-1A Shroud Cooling Coil 1-VS-E-6A		Visual/Operating Pressure	
	Reactor Coolant Pump 1-RC-P-1B Shroud Cooling Coil 1-VS-E-6B		Visual/Operating Pressure	
	Reactor Coolant Pump 1-RC-P-1C Cooling Coil 1-VS-E-6C		Visual/Operating Pressure	
	Excess Letdown Heat Exchanger 1-CH-E-4 (shell side)	VIII	Visual/Operating Pressure	
	Residual Heat Removal Pump Seal Cooler 1-RH-E-2A		Visual/Operating Pressure	
	Residual Heat Removal Pump Seal Cooler 1-RH-E-2B		Visual/Operating Pressure	
	Residual Heat Removal Heat Exchanger 1-RH-E-1A (shell side)	VIII	Visual/Operating Pressure	
	Residual Heat Removal Heat Exchanger 1-RH-E-1B (shell side)	VIII	Visual/Operating Pressure	
	Reactor Containment Air Recirculation Cooler 1-VS-E-2-A		Visual/Operating Pressure	
	Reactor Containment Air Recirculation Cooler 1-VS-E-2-B		Visual/Operating Pressure	
	Reactor Containment Air Recirculation Cooler 1-VS-E-2-C		Visual/Operating Pressure	
	Fuel Pit Cooler 1-FC-E-1A (shell side)		Visual/Operating Pressure	
	Fuel Pit Cooler 1-FC-E-1B (shell side)		Visual/Operating Pressure	

SURRY UNIT 1
INSERVICE INSPECTION
ASME CODE CLASS 3 COMPONENTS

SYSTEM	COMPONENT DESCRIPTION/IDENTIFICATION	CODE APPLICABLE TO CONSTRUCTION	METHOD OF EXAMINATION	SECTION XI CODE RELIEF REQUESTED
Component Cooling Water	Non Regenerative Heat Exchanger 1-CH-E-2 (shell side)	VIII	Visual/Operating Pressure	
	Seal Water Heat Exchanger 1-CH-E-1 (shell side)	VIII	Visual/Operating Pressure	
	Component Cooling Surge Tank 1-CH-TK-1		Visual/Operating Pressure	
	Component Cooling Pump 1-CC-P-1A		Visual/Operating Pressure	
	Component Cooling Pump 1-CC-P-1B		Visual/Operating Pressure	
	Component Cooling Water Heat Exchanger 1-CC-E-1A (shell side)		Visual/Operating Pressure	
	Component Cooling Water Heat Exchanger 1-CC-E-1B (shell side)		Visual/Operating Pressure	
	Piping		Visual/Operating Pressure	
	Support and Hangers		Visual	
Fuel Pit Cooling	Spent Fuel Pit Pump 1-FC-P-1A		Visual/Operating Pressure	
	Spent Fuel Pit Pump 1-FC-P-1B		Visual/Operating Pressure	
	Spent Fuel Pit Cooler 1-FC-E-1A (tube side)		Visual/Operating Pressure	

SURRY UNIT 1
INSERVICE INSPECTION
ASME CODE CLASS 3 COMPONENTS

SYSTEM	COMPONENT DESCRIPTION/IDENTIFICATION	CODE APPLICABLE TO CONSTRUCTION	METHOD OF EXAMINATION	SECTION XI CODE RELIEF REQUESTED
Fuel Pit Cooling	Spent Fuel Pit Cooler 1-FC-E-1B (tube side)		Visual/Operating Pressure	
	Piping		Visual/Operating Pressure	
	Support and Hangers		Visual	

ATTACHMENT B

SURRY UNIT 1
REQUESTED RELIEF FROM THE INSERVICE TESTING REQUIREMENTS FOR PUMPS AS SET FORTH IN SUBSECTION IWP TO SECTION XI OF THE ASME BOILER AND PRESSURE VESSEL CODE, 1974 EDITION WITH ADDENDA THROUGH THE SUMMER OF 1975
(LAST 40 MONTH PERIOD OF THE FIRST 10 YEAR INTERVAL)

The enclosed tabulations provide a listing of the Class 1, 2 and 3 pumps which are subject to the testing requirements of Subsections IWP of Section XI of the ASME Boiler and Pressure Vessel Code, 1974 Edition, with Addenda thru the Summer of 1975.

This tabulation identifies the pumps to be tested, code class, test flow path system resistance, and required test quantities and frequencies. Relief from test requirements is requested in cases where their test requirements have been determined to be impractical. Where relief is requested, technical justification is provided along with alternative test methods when applicable.

PUMP MARK NUMBER	PUMP DESCRIPTION	CODE CLASS	SYSTEM RESISTANCE	TEST QUANTITIES	TEST FREQUENCY	RELIEF REQUESTED	REMARKS
1-CH-P-1A 1-CH-P-1B 1-CH-P-1C	High Head Safety Injection (Charging) (Dwg. No. 11448-FM-88B)	2	FIXED or VARIABLE (NOTE 2)	Speed (if variable) Inlet Pressure (Pi) Differential Pressure (ΔP) Flow Rate (Q) Vibration Amplitude (V) Bearing Temperature (Tb) Lubricant Level or Pressure	NA Monthly Monthly Monthly Monthly Yearly Monthly	YES-NOTE 1	CONSTANT NOTE 2
1-SI-P-1A 1-SI-P-1B	Low Head Safety Injection (Dwg. No. 11448-FM-89A)	2	FIXED	Speed (if variable) Inlet Pressure (Pi) Differential Pressure (ΔP) Flow Rate (Q) Vibration Amplitude (V) Bearing Temperature (Tb) Lubricant Level or Pressure	NA Monthly NA Monthly Monthly NA NA	YES-NOTE 3	CONSTANT NOTE 4 NOTE 4
1-CS-P-1A 1-CS-P-1B	Containment Spray (Dwg. No. 11448-FM-84A)	2	FIXED	Speed (if variable) Inlet Pressure (Pi) Differential Pressure (ΔP) Flow Rate (Q) Vibration Amplitude (V) Bearing Temperature (Tb) Lubricant Level or Pressure	NA Monthly NA Monthly Monthly Yearly Monthly		CONSTANT
1-RS-P-2A 1-RS-P-2B	Outside Recirculation Spray (Dwg. No. 11448-FM-84A)	2	FIXED	Speed (if variable) Inlet Pressure (Pi) Differential Pressure (ΔP) Flow Rate (Q) Vibration Amplitude (V) Bearing Temperature (Tb) Lubricant Level or Pressure	NA NA Monthly NA Monthly NA NA	Yes-Note 5	CONSTANT Note 4 Note 4

PUMP MARK NUMBER	PUMP DESCRIPTION	CODE CLASS	SYSTEM RESISTANCE	TEST QUANTITIES	TEST FREQUENCY	RELIEF REQUESTED	REMARKS
1-RS-P-1A 1-RS-P-1B	Inside Recirculation Spray (Dwg. No. 11448-FM-84A)	2	FIXED	Speed (if variable)	NA		CONSTANT
				Inlet Pressure (Pi)	NA	Yes-Note 6	
				Differential Pressure (ΔP)	NA		
				Flow Rate (Q)	NA	Yes-Note 6	
				Vibration Amplitude (V)	NA	Yes-Note 6	
				Bearing Temperature (Tb)	NA		Note 4
				Lubricant Level or Pressure	NA		Note 4
1-FW-P-3A 1-FW-P-3B 1-FW-P-2	Auxiliary Feedwater (Dwg. No. 11448-FM-68A)	3	FIXED	Speed (if variable)	NA		CONSTANT
				Inlet Pressure (Pi)	Monthly		
				Differential Pressure (ΔP)	Monthly		
				Flow Rate (Q)	NA		
				Vibration Amplitude (V)	Monthly		
				Bearing Temperature (Tb)	Yearly		
				Lubricant Level or Pressure	Monthly		
1-RH-P-1A 1-RH-P-1B	Residual Heat Removal (Dwg. 11448-FM-87A)	2	FIXED or VARIABLE (Note 8)	Speed (if variable)	NA		CONSTANT
				Inlet Pressure (Pi)	Refueling	Yes-Note 7	
				Differential Pressure (ΔP)	Refueling	Yes-Note 7	
				Flow Rate (Q)	Refueling	Yes-Note 7	Note 8
				Vibration Amplitude (V)	Refueling	Yes-Note 7	
				Bearing Temperature (Tb)	NA		Note 4
				Lubricant Level or Pressure	NA		Note 4
1-CC-P-1A 1-CC-P-1B	Component Cooling (Dwg. No. 11448-FM-72D)	3	VARIABLE	Speed (if variable)	NA		CONSTANT
				Inlet Pressure (Pi)	Monthly	Yes-Note 9	
				Differential Pressure (ΔP)	Monthly	Yes-Note 9	
				Flow Rate (Q)	Monthly	Yes-Note 9	
				Vibration Amplitude (V)	Monthly		
				Bearing Temperature (Tb)	Yearly		
				Lubricant Level or Pressure	Monthly		

PUMP MARK NUMBER	PUMP DESCRIPTION	CODE CLASS	SYSTEM RESISTANCE	TEST QUANTITIES	TEST FREQUENCY	RELIEF REQUESTED	REMARKS
1-CH-P-2A 1-CH-P-2B	Boric Acid Transfer (Dwg. No. 11448-FM-88A)	3	FIXED	Speed (if variable)	NA		CONSTANT
				Inlet Pressure (Pi)	Monthly	Yes-Note 10	
				Differential Pressure (ΔP)	Monthly		
				Flow Rate (Q)	NA		
				Vibration Amplitude (V)	NA	Yes-Note 10	
				Bearing Temperature (Tb)	NA	Yes-Note 10	
				Lubricant Level or Pressure	NA		Note 10
1-CC-P-2A 1-CC-P-2B	Charging Pump Cooling Water (Dwg. No. 11488-FM-71B)	3	FIXED	Speed (if variable)	NA		CONSTANT
				Inlet Pressure (Pi)	NA	Yes-Note 11	
				Differential Pressure (ΔP)	NA		
				Flow Rate (Q)	Monthly		
				Vibration Amplitude (V)	Monthly		
				Bearing Temperature (Tb)	NA		Note 12
				Lubricant Level or Pressure	NA		Note 12
1-SW-P-10A 1-SW-P-10B	Charging Pump Service Water (Dwg. No. 11448-FM-71B)	3	VARIABLE	Speed (if variable)	NA		CONSTANT
				Inlet Pressure (Pi)	NA	Yes-Note 13	
				Differential Pressure (ΔP)	NA	Yes-Note 13	
				Flow Rate (Q)	Monthly		
				Vibration Amplitude (V)	Monthly		
				Bearing Temperature (Tb)	NA		Note 12
				Lubricant Level or Pressure	NA		Note 12
1-SW-P-1A 1-SW-P-1B 1-SW-P-1C	Emergency Service Water (Dwg. No. 11448-FM-71A)	3	FIXED	Speed (if variable)	Monthly		Variable
				Inlet Pressure (Pi)	Monthly	Yes-Note 14	
				Differential Pressure (ΔP)	Monthly		
				Flow Rate (Q)	NA		
				Vibration Amplitude (V)	Monthly		
				Bearing Temperature (Tb)	NA		Note 15
				Lubricant Level or Pressure	Monthly	Yes-Note 15	

PUMP MARK NUMBER	PUMP DESCRIPTION	CODE CLASS	SYSTEM RESISTANCE	TEST QUANTITIES	TEST FREQUENCY	RELIEF REQUESTED	REMARKS
1-SW-P-5A 1-SW-P-5B 1-SW-P-5C 1-SW-P-5D	Recirculation Spray Hx Radiation Monitoring Sample	3	FIXED	Speed (if variable)	NA		CONSTANT
				Inlet Pressure (Pi)	NA	Yes-Note 16	
				Differential Pressure (ΔP)	NA	Yes-Note 16	
				Flow Rate (Q)	NA		
				Vibration Amplitude (V)	NA	Yes-Note 16	
				Bearing Temperature (Tb)	NA	Yes-Note 16	
				Lubricant Level or Pressure	NA	Yes-Note 16	
				Speed (if variable)			
				Inlet Pressure (Pi)			
				Differential Pressure (ΔP)			
				Flow Rate (Q)			
				Vibration Amplitude (V)			
				Bearing Temperature (Tb)			
				Lubricant Level or Pressure			
				Speed (if variable)			
				Inlet Pressure (Pi)			
				Differential Pressure (ΔP)			
				Flow Rate (Q)			
				Vibration Amplitude (V)			
				Bearing Temperature (Tb)			
				Lubricant Level or Pressure			
				Speed (if variable)			
				Inlet Pressure (Pi)			
				Differential Pressure (ΔP)			
				Flow Rate (Q)			
				Vibration Amplitude (V)			
				Bearing Temperature (Tb)			
				Lubricant Level or Pressure			

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 and 3 PUMPS

NOTE

1. Suction pressure instrumentation is not installed nor required. There pumps are capable of producing greater than 2400 psig discharge pressure, while the suction pressure is nominally 15 to 20 psig. Therefore, the ΔP developed by the pump is more than 100 times the suction pressure and a gage for suction pressure would not provide significant data. We propose to observe VCT pressure using control room indication to assure repeated initial conditions for testing the pumps. This indication is approximately 4% accurate.

2. When the nonoperating pump is tested on recirculation flow, the flow path is a fixed resistance system and it is required to measure ΔP or Q, not both (Table IWP-3100-1). When the operating pump is tested, the flow path is a variable resistance system and it is required to measure both ΔP and Q.

3. No inlet pressure instrumentation is installed for these pumps. These pumps take suction from the RWST for performance testing. This tank has a minimum level required by the Technical Specifications which is observed from the Control Room. Tank level will be used to establish initial conditions for testing.

4. Proper lubricant level or pressure cannot be observed since bearings are in main flow path. Reference is made to IWP-4310 which establishes exception to Tb for bearings within the main flow path.

5. These pumps are flow tested at shut of head as required by T.S. 4.5.A.3 by filling pump casings with water and running on recirculation flow path. Suction pressure is the same for each test (head of water with casing filled) and thus will not be measured.

6. These pumps shall be dry tested quarterly as required by proposed T.S. 4.5.A.2 (Change No. 66). Since these pumps take suction from the containment sump and discharge thru the spray headers, it is not practical to perform periodic flow testing.

7. It is considered impracticle to make a containment entry on a monthly basis in order to test these pumps. These pumps are <u>not</u> Engineered Safety Feature pumps. Operability during use can be determined by monitoring reactor coolant system temperature. Testing as required by subsection IWP will be performed during each refueling outage.

8. When the pump is tested on recirculation flow, the path is a fixed resistance system and it is required to measure ΔP or Q, not both (Table IWP-3100-1). When the pump is tested while pumping through the Reactor Coolant System, the flow path is a variable resistance system and it is required to measure both ΔP and Q.

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 and 3 PUMPS

NOTES cont'd.

9. Flow rates from these pumps vary to meet the unit heat load requirements. Instead of varying the system resistance (as required by IWP-3100) to establish a reference flow, sets of reference values will be established to cover the range of system flow rates.

10. No inlet pressure instrumentation is installed for these pumps. These pumps take suction from the Boric Acid Storage Tanks. Tanks level will be observed from the control room to establish initial conditions for testing. The pumps are totally encased in insulation making vibration and bearing temperature impractical to measure. Lubricant is provided by pump flow.

11. No inlet pressure instrumentation is installed for these pumps. The charging pump seal cooling surge tank maintians a constant suction head for these pumps therefore it is not considered necessary to measure inlet pressure.

12. Pump bearings are carried in the driver motor and are grease lubricated.

13. No inlet or outlet pressure instrumentation is installed for these pumps. Flow rate and vibration amplitude will be measured to assure adequate pump performance. Also a system low pressure alarm is provided to alert the operator of inadequate system flow.

14. No inlet pressure instrumentation is installed for these pumps. These pumps take suction from the James River. The river water level will be used to establish initial conditions for testing.

15. The service water pumps are open line shaft pumps that depend primarily of the liquid being pumped for the lubrication of the pump and lineshaft bearings. The bearing lubricating water flow can be verified by sight glass and pressure can be monitored. All pump bearings are submerged and lubricant is allowed to leak off into the sump and is not piped back, such that bearing or lubricant outlet temperature cannot be monitored.

16. The flow path of these pumps is normally dry due to a commitment of not introducing service water to the recirculation spray heat exchangers. Also no pressure measuring instrumentation is provided. During each refueling the pumps will be started to verify shaft rotation.

ATTACHMENT C

SURRY UNIT 1

REQUESTED RELIEF FROM THE INSERVICE TESTING REQUIREMENTS FOR VALVES AS SET FORTH IN SUBSECTION IWV TO SECTION XI OF THE ASME BOILER AND PRESSURE VESSEL CODE, 1974 EDITION WITH ADDENDA THRU THE SUMMER OF 1975 (LAST 40 MONTH PERIOD OF THE FIRST 10 YEAR INTERVAL)

The enclosed tabulation provides a listing of the Class 1, 2 and 3 valves which are subject to the testing requirements of Subsection IWV of Section XI of the ASME Boiler and Pressure Vessel Code, 1974 Edition, with Addenda thru the Summer of 1975.

This tabulation identifies the valve to be tested, drawing location, function, code class, category, size, valve type, actuator type, normal position and test requirements. Relief from test requirements is requested in cases where these test requirements have been determined to be impractical. Where relief is requested, technical justification is provided along with alternative test methods when applicable.

Leak testing of containment isolation valves shall be performed in accordance with Appendix J of 10CFR50 in lieu of ASME Section XI subsub-article IWV-3420.

There are no testable Category D valves in Surry Unit 1 Systems.

Any inspection requirements identified as impractical during the course of the inspection period will be noted and included in the inspection program at the time of the next revision.

When one valve in a redundant safety related system is found inoperable during testing, nonredundant valves in the remaining train will not be cycled as procedures require but will be cycled after the first inoperable valve in the system is returned to service.

This valve testing program addresses those valves for which demonstration of operability is necessary to assure safe shutdown of the unit or mitigation of the consequences of an accident. The program has been reviewed to assure that testing the valves at the intervals specified will not place the plant in an unsafe condition. Where practical, valves will be cycled at 3 month test intervals.

When a commitment is made to test valves during hot or cold shutdown it is not intent to shutdown the unit solely for the purpose of valve testing nor to perform the testing more often than once per 92 days due to more frequent shutdowns.

The following clarification shall apply to those valves which are scheduled to be exercised during cold shutdown:

> "Valve testing shall commence not later than 48 hours after reaching cold shutdown and continue until complete or unit is ready to return to power. Completion of all valve testing is not a prerequisite to return to power."

SURRY UNIT 1

INSERVICE TESTING

ASME CODE CLASS 1, 2 AND 3 VALVES

LEGEND

TEST REQUIREMENTS

SP - SETPOINTS of safety and relief valves shall be tested per Section XI subsubarticle IWV-3510 or as modified by specific relief request.

VP - VALVE POSITION shall be verified per Section XI subarticle IWV-3700 or as modified by specific relief request.

CV - CHECK VALVES shall be exercised at least once every (3) months per Section XI subsubarticle IWV-3520 or as modified by specific relief request.

LT - LEAK TESTS shall be performed per Section XI subsubarticle IWV-3420 or as modified by specific relief request.

EV - EXERCISE VALVE for operability at least once every (3) months per Section XI subsubarticle IWV-3410 or as modified by specific relief request.

ST - STROKE TIMES shall be measured per Section XI subsubarticle IWV-3410 or as modified by specific relief request.

VALVE POSITIONS	VALVE TYPES	ACTUATOR TYPES
O-Open	CK-Check	SA-Self Actuating
C-Closed	RE-Relief	MO-Motor
OC-Open or Closed	SF-Safety	PN-Pneumatic
T-Throttled	BA-Ball	HW-Handwheel
	GL-Globe	
	GA-Gate	
	BU-Butterfly	
	SCK-Stop Check	
	PL-Plug	

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME MAIN STEAM DRAW. NO. 11448-FM-64A

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
SV-MS101A,B,C	B-3,B-4,B-6	Main Steam Safety Valves	2	C	4	SF	SA	C	SP	NO
SV-MS102A,B,C SV-MS103A,B,C SV-MS104A,B,C SV-MS105A,B,C	C-3,C-4,C-6 B-3,B-4,B-6 B-3.B-4.B-6 C-3,C-4,C-6	Main Steam Safety Valves	2	C	6	SF	SA	C	SP	NO
TV-MS101A,B,C	D-3,D-5,D-7	Main Steam Line Trip Valves	2	B	30	CK	PN	O	EV ST	YES (1)
PCV-MS102	F-8	Main Steam to Turbine Driven Auxiliary Feedwater Pump	3	B	3	GL	PN	C	EV ST	NO
MOV-MS102	G-8	Main Steam to Turbine Driven Auxiliary Feedwater Pump	3	B	3	GA	MO	C	EV ST	NO
1-MS-176,178, 182	F-8,F-8,F-8	Main Steam to Turbine Driven Auxiliary Feedwater Pump Check Valves	3	C	3	CK	SA	C	CV	NO
NRV-MS102A,B,C	D-3,D-5,D-6	Main Steam Non-Return Valves	2	C	30	SCK	MO	O	CV	YES (1)
TV-MS109	F-7	Main Steam Drain to Condenser	-	B	3	GA	PN	O	CV ST	NO
TV-MS110	E-7	Main Steam Drain to Blowdown	-	B	2	GA	PN	O	CV ST	NO

SURRY U[illegible] 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME AUX. STEAM & AIR REMOVAL DRAW. NO. 11448-FM-66A PAGE 2

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
TV-SV102	L-2	Air Removal Divert to Reactor Containment	-	A	6	GA	PN	C	LT EV ST	NO
1-VP-12	L-1	Air Removal Divert to Reactor Continment	-	AC	6	CK	SA	C	LT CV	NO

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME FEEDWATER DRAW. NO. 11448-FM_68A

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
1-FW-27,58,89	C-2,B-4,B-5	Auxiliary Feedwater Header Check Valves at Main Feedwater Header	2	C	3	CK	SA	C	CV	YES (2)
1-FW-10,12, 41,43, 72,74	C-2,C-2 C-4,C-4, C-5,C-5	Main Feedwater Check Valves at Containment Penetrations	2	C	14	CK	SA	O	CV	YES (3)
MOV-FW151A,B,C, D,E,F	B-6,B-6, B-6,B-6, C-6,C-6	Auxiliary Feedwater to Steam Generators	3	B	3	GL	MO	O	EV ST	NO
1-FW-131,133, 136,138	C-6,C-6, C-6,C-6	Auxiliary Feedwater Header Check Valves at Containment Penetration	3	C	6	CK	SA	C	CV	YES (2)
1-FW-142,157, 172	D-7,E-7 F-7	Auxiliary Feedwater Pump Discharge Check Valves	3	C	6	CK	SA	C	CV	YES (2)

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME CROSS-CONNECTS FOR AUXILIARY FEED DRAW. NO. 11448-FM-68B PAGE 4

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
MOV-FW160A,B	J-5,J-6	Cross-Connects for Unit No. 1 Aux. Feed from Unit No. 2	3	B	6	GL	MO	C	EV ST	NO
1-FW-272,273	I-7,I-7	Cross-Connect for Unit No. 1 Aux. Feed from Unit No. 2 Check Valves at Cont. Penet.	3	C	6	CK	SA	C	CV	YES (2)
1-FW-309,310	H-7,H-7	Cross-Connect for Unit No. 1 Aux. Feed from Unit No. 2 Check Valves	3	C	6	CK	SA	C	CV	YES (2)

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME SERVICE WATER DRAW. NO. 11448-FM-71A

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
MOV-CW106A,B, C,D	E-4,E-4, F-4,F-4	Condenser Inlet Isolation Valves	3	B	96	BU	MO	O	EV ST	NO
MOV-SW102A,B	E-6,F-6	Service Water to Component Cooling Water Heat Exchangers	3	B	42	BU	MO	O	EV ST	NO
MOV-SW103A,B, C,D	B-6,B-6 D-6,E-6	Service Water to Recircula-tion Spray Heat Exchangers	3	B	30	BU	MO	C	EV ST	YES (4)
MOV-SW104A,B, C,D MOV-SW105A,B, C,D	A-2,B-2,C-2, C-2,A-2,A-2, B-2,C-2	Recirculation Spray Heat Exchangers Isolation Valves	3	B	24	BU	MO	O	EV ST	NO
MOV-SW106A,B	D-4,D-4	Recirculation Spray Heat Exchangers Cross Connect Valves	3	B	36	BU	MO	O	EV ST	NO
MOV-SW101A,B	B-4C-4	Bearing Cooling Water Heat Exchanger Isolation Valves	3	B	36	BU	MO	O	EV ST	NO

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME CIRCULATING & SERVICE WATER DRAW. NO. 11448-FM-71B

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
1-CC-764,752	D-6,G-6	Charging Pump Cooling Water Pump Discharge Check Valve	3	C	2	CK	SA	OC	CV	NO
1-SW-113,108	D-8,G-8	Charging Pump Service Water Pump Check VAlve	3	C	2	CK	SA	OC	CV	NO

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME COMPONENT COOLING WATER DRAW. NO. 11448-FM-72A PAGE 7

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
RV-CC119A,B	L-2,L-3	Component Cooling from RHR Heat Exchanger Relief Valve	3	C	1½	RE	SA	C	SP	NO
1-CC-176,177	B-1,B-1	Component Cooling to RHR Heat Exchanger Check Valves	3	C	18	CK	SA	OC	CV	YES (5)
1-CC-1,58,59	A-2,A-2,A-2	Component Cooling to REactor Coolant Pumps	3	C	6	CK	SA	O	CV	YES (6)
TV-CC105A,B,C	D-8,D-8,E-8	Component Cooling from Reactor Coolant Pumps	3	B	6	BA	PN	O	EV ST	YES (6)
TV-CC107	D-8	Component Cooling from Reactor Coolant Pumps	3	B	2½	GL	PN	O	EV ST	YES (6)
TV-CC109A,B	F-8,F-9	Component Cooling from RHR Heat Exchangers	3	B	18	BU	PN	O	EV ST	NO

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME COMPONENT COOLING DRAW. NO. 11448-FM-72B

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
1-CC-242,233, 224	C-4,E-4,I-4	Component Cooling to Reactor Containment Air Recirculation Coolers	3	C	6	CK	SA	O	CV	YES (7)
TV-CC110A,B,C	D-3,F-3,H-3	Component Cooling from Reactor Containment Air Recirculation Coolers	3	B	6	BU	PN	O	EV ST	NO
RV-CC112A,B,C	E-5,F-5,G-5	Component Cooling from Reactor Containment Air Recirc. Coolers Relief	3	C	3/4	RE	SA	C	SP	NO

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME COMPONENT COOLING DRAW. NO. 11448-FM-72C PAGE 9

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
RV-CC111A,B	I-3,I-4	Component Cooling to Fuel Pit Coolers RElief Valves	3	C	3/4	RE	SA	C	SP	NO

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME COMPONENT COOLING DRAW. NO. 11448-FM-72D PAGE 10

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
1-CC-557,563	C-2,C-2	Component Cooling Pump Discharge Check	3	C	18	CK	SA	OC	CV	NO

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME SPENT FUEL PIT COOLING DRAW. NO. 11448-FM-81A PAGE 11

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
1-FC-9,11	D-7,E-7	Spent Fuel Pit Cooling Pump Discharge Check	3	C	12	CK	SA	OC	CV	NO

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME SAMPLING DRAW. NO. 11448-FM-82B

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
TV-SS103	E-1	Residual Heat Removal System Sample	2	A	3/8	GA	PN	OC	LT EV ST	NO
TV-SS100A,B	D-1,E-1	Pressurizer Liquid Space Sample	1	A	3/8	GA	PN	OC	LT EV ST	NO
TV-SS101A,B	D-1,E-1	Pressurizer Vapor Space Sample	1	A	3/8	GA	PN	OC	LT EV ST	NO
TV-SS106A,B	D-2,E-2	Primary Coolant Hot Leg Samples	1	A	3/8	GA	PN	OC	LT EV ST	NO
TV-SS102A,B	D-2,E-2	Primary Coolant Cold Leg Samples	1	A	3/8	GA	PN	OC	LT EV ST	NO
TV-SS104A,B	D-2,E-2	Pressurizer Relief Tank Gas Space Sample	-	A	3/8	GA	PN	OC	LT EV	NO

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME VENTS & DRAINS DRAW. NO. 11448-FM-83A PAGE 13

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
TV-DA100B	A-8	R. C. Sump Pump Discharge Isolation	-	A	2	GA	PN	OC	LT EV ST	NO
TV-DG108B	A-3	Pr. Dr. Transfer Pump Disch. Isolation	-	A	2	GA	PN	OC	LT EV ST	NO
TV-VG109B	A-1	Gas Vent Hdr. Isolation	-	A	2	GA	PN	O	LT	NO

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME VENTS & DRAINS DRAW. NO. 11448-FM-83B

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
TV-DA100A	I-8	R. C. Sump Pump Discharge Isolation	-	A	2	GA	PN	OC	LT EV ST	NO
TV-DG108A	L-5	Pr. Dr. Transfer Pump Disch. Isolation	-	A	2	GA	PN	OC	LT EV ST	NO
TV-VG109A	L-2	Gas Vent Hdr. Isolation	-	A	2	GA	PN	O	LT EV ST	NO

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME CONTAINMENT & RECIRCULATION SPRAY DRAW. NO. 11448-FM-84A

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
MOV-RS155A,B	F-8,F-8	Recirculation Spray Pump Suction from Containment Sump	2	A	12	PL	MO	O	LT EV ST	NO
MOV-RS156A,B	F-6,F-6	Recirculation Spray Pump Discharge	2	A	10	GA	MO	O	LT EV ST	NO
1-RS-11,17	F-6,F-6	Recirculation Spray Pump Discharge Check Valves	2	AC	10	CK	SA	C	CV LT	YES (8)
MOV-CS101A,B, C,D	F-2,F-2, F-1,F-1	Containment Spray Pump Discharge	2	A	8	GA	MO	C	LT EV ST	NO
1-CS-13,24	E-2,E-1	Containment Spray PUmp Discharge Check Valves	2	AC	8	CK	SA	C	CV LT	YES (8)
MOV-CS102A,B	J-3,K-3	Chemical Addition Tank to RWST Isolation Valve	2	B	6	GA	MO	C	EV ST	NO

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME CONT. VACUUM & LEAKAGE MONITORING DRAW. NO. 11448-FM-85A

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
TV-LM100A,B C,D,E,F,G,H	E-3,E-3,E-3, E-3,E-3,E-3, D-3,E-3	Open Pressure System Isolation	-	A	3/8	GA	PN	C	LT EV ST	NO
TV-LM101A,B	H-4,I-4	Closed Pressure System Isolation	-	A	3/8	GA	PN	C	LT EV ST	NO
HCV-CV100	J-5	Cont. Vacuum Air Ejector Isolation	-	A	8	GA	PN	C	LT EV ST	NO
TV-CV-150A,B, C,D	H-7,H-7, H-8,H-8	Cont. Vacuum Pump Suction Isolation	-	A	2	GA	PN	O	LT EV ST	NO

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME REACTOR COOLANT DRAW. NO. 11448-FM-86B

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
SV-1551A,B,C	F-4,G-4,H-4	Pressurizer Safety Valves	1	C	6	SF	SA	C	SP	NO
TV-1519A	A-6	Primary Grade Water to PRZ Relief Tank	-	A	3	GA	PN	C	LT EV ST	NO
1-RC-160	D-6	Primary Grade Water to PRZ Relief Tank	-	AC	3	CK	SA	C	LT CV	NO

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME RESIDUAL HEAT REMOVAL DRAW. NO. 11448-FM-87A

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
MOV-1700,1701	H-7,H-7	RHR Suction from Reactor Coolant System	1	B	14	GA	MO	C	EV ST	YES (9)
MOV-1720A,B	K-5,K-5	RHR Discharge to Reactor Coolant System	1	B	10	GA	MO	C	EV ST	YES (9)
RV-1721	I-4	RHR System Relief Valve	2	C	3	RE	SA	C	SP	YES (10)
1-RH-5,11	D-6,B-6	RHR Pump Discharge Check Valve	2	C	10	CK	SA	C	CV	YES (11)

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME CHEMICAL AND VOLUME CONTROL DRAW. NO. 11448-FM-88A

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
1-CH-76,92	C-7,D-7	Boric Acid Transfer Pump Discharge Check Valves	3	C	2	CK	SA	O	CV	NO

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME CHEMICAL AND VOLUME CONTROL DRAW. NO. 11448-FM-88B

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
1-CH-258,267, 276	D-6,F-6 G-6	Charging Pump Discharge Check Valve	2	C	3	CK	SA	OC	CV	NO
LCV-1115B,D	C-9,C-9	Charging Pump Suction from Refueling Water Storage Tank	2	B	8	GA	MO	C	EV ST	NO
LCV-1115C,E	H-3,H-3	Charging Pump Suction from Volume Control Tank	2	B	4	GA	MO	O	EV ST	YES (12)
MOV-1275A,B,C	D-6,F-6,H-6	Charging Pump Recirculation Flow Path Isolation	2	B	2	GA	MO	O	EV ST	NO
MOV-1373	F-5	Charging Pump Recirculation Header Stop Valve	2	B	3	GA	MO	O	EV ST	YES (13)
MOV-1381	A-3	Reactor Coolant Pump Seal Water Return	2	A	3	GA	MO	O	LT EV ST	YES (14)

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME CHEMICAL AND VOLUME CONTROL DRAW. NO. 11448-FM-88B

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
TV-1204	A-3	Reactor Coolant System Letdown Isolation Trip Valve	2	A	2	GA	PN	O	LT EV ST	YES (15)
RV-1209	F-1	Reactor Coolant System Letdown Relief Valve	2	C	2	RE	SA	C	SP	NO
RV-1257	H-1	Volume Control Tank Relief Valve	2	C	3	RE	SA	C	SP	NO
MOV-1289A	B-5	Normal Charging Header Isolation	2	A	4	GA	MO	O	LT EV ST	YES (16)
MOV-1289B	B-5	Normal Charging Header Isolation	2	B	4	GA	MO	O	EV ST	YES (16)
FCV-1160	A-3	RCS Loop Fill Header Isolation	1	A	2	GL	PN	C	LT EV	YES (17)

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME CHEMICAL AND VOLUME CONTROL DRAW. NO. 11448-FM-88C

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
RV-1203	H-1	Letdown Header Relief	2	C	2	CK	SA	C	SP	NO
HCV-1200A,B,C	H-2, H-2, H-2	Letdown Orifice Isolation	2	A	2	GA	PN	OC	LT EV ST	NO
1-CH-309	J-3	Normal Charging Header Isolation	2	AC	3	CK	SA	O	LT CV	YES (16)

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME SAFETY INJECTION DRAW. NO. 11448-FM-89A

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
MOV-1860A,B	B-8, E-8	Low Head Safety Injection Pump Suction from Contain-ment Sump	2	A	12	GA	MO	C	LT EV ST	NO
1-SI-56,47	C-8, F-8	Low Head Safety Injection Pump Suction from Contain-ment Sump Check	2	C	12	CK	SA	C	CV	YES (18)
MOV-1862A, B	G-9, G-8	Low Head Safety Injection Pump Suction from Refueling Water Storage Tank	2	B	12	GA	MO	O	EV ST	NO
1-SI-46A, B	G-9, G-8	Low Head Safety Injection Pump Suction from Refueling Water Storage Tank Check	2	C	12	CK	SA	C	CV	NO
1-SI-58, 50	D-7, G-7	Low Head Safety Injection Pump Discharge Check	2	C	10	CK	SA	C	CV	NO
MOV-1863A, B	E-6, G-6	Low Head Safety Injection Pump Dischrge to High Head Safety Injection Pump Suction	2	B	8	GA	MO	C	EV ST	NO
MOV-1885A, B, C, D	C-7, G-6, G-6, C-7	Low Head Safety Injection Pump Recirculation to Refueling Water Storage Tank	2	B	2	GA	MO	O	EV ST	NO
1-SI-61, 53	C-6, G-6	Low Head Safety Injection Pump Recirculation to Refueling Water Storage	2	C	2	CK	SA	C	CV	NO

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME SAFETY INJECTION DRAW. NO. 11448-FM-89A

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
MOV-1864A, B	D-6, G-5	Low Head Safety Injection Pump Dischrge to Reactor Coolant System Cold Legs	2	B	10	GA	MO	O	EV ST	NO
RV-1845A, B, C	C-6, D-5 C-5	Low Head Safety Injection Flow Path Relief	2	C	1	RE	SA	C	SP	NO
MOV-1890A, B	B-6, B-5	Low Head Safety Injection to Reactor Coolant System Hot Legs	2	AE	10	GA	MO	C	LT EV ST VP	NO
MOV-1890C	B-6	Low Head Safety Injection to Reactor Coolant System Cold Legs	2	AE	10	GA	MO	O	LT EV ST VP	YES (19)
MOV-1869A, B, 1842	A-3, I-3, A-1	High Head Safety Injection to Reactor Coolant Sys.	2	AE	3	GA	MO	C	LT EV ST VP	YES (20)
MOV-1867C, D	B-1, B-2	Boron Injection Tank Outlet Isolation	2	A	3	GA	MO	C	LT EV ST	YES (21)
MOV-1867A, B	I-2, I-2	Boron Injection Tank Inlet Isolation	2	B	3	GA	MO	C	EV ST	YES (21)

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME SAFETY INJECTION DRAW. NO. 11448-FM-89A

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
TV-1884A	H-1	Boron Injection Tank Recirculation	2	B	1	GA	PN	O	EV ST	NO
TV-1884B, C	H-1, G-2	Boron Injection Tank Recirculation	3	B	1	GA	PN	O	EV ST	NO
RV-1857	D-1	Boron Injection Tank Relief	2	C	3/4	RE	SA	C	SP	NO
TV-SI100	B-4	Nitrogen Accumulators	-	A	1	GA	PN	O	LT EV ST	NO

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME SAFETY INJECTION DRAW. NO. 11448-FM-89B

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
RV-1858A, B, C	C-4,G-5,C-7	Accumulator Tank Relief	2	C	1	RE	SA	C	SP	NO
1-SI-107, 109 128, 130, 145, 147	C-5, A-5, G-7, A-7, C-8, A-9	Accumulator Discharge Check	1	C	12	CK	SA	C	CV	YES (22)
MOV-1865A, B, C	C-5,G-6,C-8	Accumulator Discharge	2	BE	12	GA	MO	O	EV ST VP	NO
1-SI-88, 91, 94, 238, 239, 240	A-2, A-2, A-3, B-2 B-2, A-3	Safety Injection to RCS Hot Legs	1	C	6	CK	SA	C	CV	YES (23)
1-SI-235, 236, 237	B-1, B-1 B-2	High Head Safety Injection to RCS Cold Legs	1	C	2	CK	SA	C	CV	YES (23)
1-SI-241, 242, 243	B-1, B-1, B-2	Low Head Safety Injection to RCS Cold Legs	1	C	6	CK	SA	C	CV	YES (27)
1-SI-224, 225, 226, 227	J-1, J-1, J-2, J-3	High Head Safety Injection Check Valves at Containment Penetrations	2	C	3	CK	SA	C	CV	YES (23)
1-SI-228, 229	J-3, J-3	Low Head Safety Injection Check Valves at Containment Penetrations	2	C	6	CK	SA	C	CV	YES (24)

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME SAFETY INJECTION DRAW. NO. 11448-FM-89B

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
MOV-1866A, B, C, D, E, F	E-3, E-2, E-2, E-2 E-1, E-1	Cold & Hot Leg Safety Injection Line Throttle Valve	2	E	2	GL	HW	T	VP	NO
1-SI-79, 82, 85	A-1, A-1, A-2	Safety Injection to RCS Cold Legs	2	C	6	CK	SA	C	CV	YES (26)
TV-SI101A, B	J-5, J-5	Accumulator Nitrogen Relief Line Isolation	-	A	1	GA	PN	O	LT EV ST	NO
1-SI-234	J-4	Nitrogen Accumulators	-	AC	1	CK	SA	O	CV LT	NO

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME R.W.S.T. CROSS TIE DRAW. NO. 11448-FM-106C

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
TV-SI102A, B	D-3, D-3	Unit No. 1 RWST to Unit No. 2 RWST Cross Tie	2	B	8	GA	PN	C	EV ST	NO
1-SI-25	C-3	Charging Pump Suction from RWST Check Valve	2	C	8	CK	SA	C	CV	YES (12)
1-SI-410	B-3	Charging Pump Suction from RWST Check Valve	2	C	10	CK	SA	C	CV	YES (12)

SURRY UNIT 1
INSERVICE TESTING
ASME CODE CLASS 1, 2 AND 3 VALVES

SYSTEM NAME STEAM GENERATOR BLOWDOWN DRAW. NO. 11448-FM-124A

VALVE NUMBER	DRAW. LOCN.	FUNCTION	CODE CLASS	CATE-GORY	SIZE (IN.)	VALVE TYPE	ACTUA-TOR TYPE	NORMAL POSI-TION	TEST REQ.	RELIEF REQUEST
TV-BD100A,B,C D,E,F	C-2,C-2,C-4, C-4,C-5,C-5	Steam Generator Blowdown Trip Valves	2	B	3	GA	PN	O	EV ST	YES (25)

sj:SP/1I9

SURRY UNIT 1

INSERVICE TESTING

ASME CODE CLASS 1, 2 AND 3 VALVES

RELIEF REQUESTS

(1) Closure of these valves during power operation will result in a turbine and reactor trip. As an alternative, they will be cycled during reactor shutdown.

(2) Opening these valves during power operation would introduce cold and out of chemistry specifications auxiliary feedwater to the steam generators resulting in thermal stress and possible degradation. As an alternative, they will be tested during cold shutdown.

(3) Closure of these valves during power operation would require securing feedwater (resulting in a reactor trip) and initiation of auxiliary feedwater flow to back seat the disc. These valves will be tested during cold shutdown.

(4) A commitment has been made prohibiting the introduction of service water into the Recirculation Spray Heat Exchangers. As an alternative, these valves will be tested during each refueling outage.

(5) These check valves are located in the containment and may be normally open or closed depending on system lineup. A containment entry and manipulation of other system valves is necessary to test these valves. This is considered impractical during power operation and therefore they will be tested during cold shutdown.

(6) Component cooling water flow to the reactor coolant pumps is required at all times the pumps are in operation. Failure of one of these valves in a closed position during cycling would result in a loss of the cooling flow to the pump. These valves will be tested during cold shutdown when the reactor coolant pumps are secured.

(7) These valves remain open during normal plant operations. It is not practical to test for closure unless the containment air coolers are taken out of service. As an alternative, these valves will be tested during each refueling outage.

(8) It is not possible to verify that this normally closed check valve opens without initiation of flow through the containment spray header or by visual observation inside the containment. As an alternative the valve shall be exercised during each refueling outage.

(9) Cycling of these RHR system valves during power operations would subject the RHR system to full RCS pressure. These valves will be exercised when the RHR system is placed into operation during cooldown of the reactor coolant system.

(10) This relief valve cannot be tested unless the entire RHR system is removed from service and drained. The RHR system must be available during operation and refueling outages for core cooling capability. The valve will be tested whenever the RHR system is removed from service and drained for maintenance.

(11) This valve can only be cycled when the RHR pumps are started. As an alternative to testing once per (3) months, they will be tested when the RHR pumps are tested in the pump testing program.

(12) Exercising this valve during power operation would require the charging pump suctions to be aligned with the refueling water storage tank. This would cause a sudden increase in RCS boron inventory. It will be exercised during cold shutdown when the RCS is borated to shutdown conditions.

(13) This valve cannot be exercised without possible damage to the charging pumps. As an alternative, it will be exercised when the charging pumps are secured during each refueling outage.

(14) To protect the reactor coolant pumps seals, flow is required at all times during power operation and cold shutdown. This valve will be exercised during each refueling shutdown.

(15) This valve cannot be exercised when the charging and letdown systems are in operation due to increased risk of overpressurization of the letdown system. It will be exercised during cold shutdown.

(16) Failure of this valve in a closed position during exercising would cause a loss of charging flow and could result in an inability to maintain reactory coolant inventory. This valve will be exercised during cold shutdown.

(17) This flow control valve is modulated open and closed by a ten turn pontentiometer located on the control board. Since the valve stroke time (ST) is dependent on operator response time in manipulating the controller and the time constant of the control system, it will not provide useful information and therefore will not be measured.

(18) This normally closed check valve cannot be exercised without isolating suction to the LHSI pump and draining a portion of the system. This valve will be part-stroke exercised during each refueling outage using the leakage monitoring test connections.

(19) This valve is required to be maintained in the indicated position with power to the operator removed during power operation. It will be cycled during cold shutdown.

(20) This valve is directly attached to the charging pump discharge header. If this valve were exercised during power operation, hot or cold shutdown, uncontrolled flow to the RCS might cause overpressurization. Additionally MOV-1869A and B are required to be maintained closed with power to the operator removed during power operation. As an alternative, this valve will be exercised during each refueling outage.

(21) These valves were designed to be closed with no differential pressure accross the seats. Cycling during power operation causes the seats to leak when the valve is closed resulting in subsequent dilution of the boron injection tank. As an alternative, these valves will be tested during cold shutdown.

(22) To exercise this normally closed check valve would require the simulation of a loss of coolant accident, i.e. loss RCS pressure. This valve will be part-stroke exercised by initiating accumulator injection to the RCS while cooling down for a refueling outage.

(23) The only way to verify that these normally closed check valves open is by initiating flow, using the charging pumps, into the reactor coolant system hot and cold legs. If charging flow was directed to the reactor coolant system in this manner it could cause over-pressurization during cold shutdown or result in a loss in charging flow control during operation. As an alternate, these check valves will be exercised open during each refueling outage.

(24) The only way to verify that these normally closed check valves can open is by initiating flow, using the low head safety injection pumps, into the reactor coolant system hot and cold legs. During operation or cold shutdown reactor coolant system pressure will be higher than the low head pump discharge pressure precluding flow into the vessel. As an alternate, these valves will be exercised open during each refueling outage.

(25) Closing these valves during power operation causes the downstream piping to become empty due to drainage and water flashing to steam. When the valves are reopened a flow surge occurs which automatically isolates the inner valves due to high flow. Then a containment entry is necessary to reset these valves and upon reopening the process may occur again. As an alternative these valves will be exercised during cold shutdown.

ATTACHMENT D

SURRY UNIT 1

Marked Up Flow Diagrams Showing
ASME Code Class 1,2 and 3 System
Boundaries Relative to Inservice Inspection
and Testing

The enclosed drawings are marked up to show the ASME Code Class 1, 2 and 3 system boundaries relative to inservice inspection and testing. Drawings showing containment isolation valves that are not part of the boundaries are also included. The system boundaries are also described below:

Drawing No.	Description
11448-FM-64A	Class 2 as marked except for steam generator primary side (class 1) and steam lines from valves 1-MS-87, 379, 120, 378, 158 & 377 to the turbine drive for the auxiliary steam generator feed pump (class 3).
11448-FM-66A	Containment isolation valves
11448-FM-68A	The auxiliary feedwater system is class 3 as marked. The main feedwater system is class 2 as marked. The primary side of the steam generator is class 1.
11448-FM-68B	Class 3 as marked
11448-FM-71A	Class 3 as marked except for shell side of the recirculation spray heat exchanges (class 2).
11448-FM-71B	Class 3 as marked
11448-FM-72A	Class 3 as marked except for the tube side of the excess letdown heat exchanger (class 2) and the tube side of the residual heat removal exchangers (class 2).

11448-FM-72B	Class 3 as marked
11448-FM-72C	Class 3 as marked except for the tube side of the non-regenerative heat exchanger (class 2) and the tube side of the seal water heat exchanger (class 2).
11448-FM-72D	Class 3 as marked
11448-FM-81A	Class 3 as marked
11448-FM-82B	Class 1 as marked except for lines 3/4"-RH-21,22 to valve TV-SS-103 (Class 2).
11448-FM-83A	Containment isolation valves
11448-FM-83B	Containment isolation valves
11448-FM-84A	Class 2 as marked except for tube side of recirculation spray cooler (class 3).
11448-FM-85A	Containment isolation valves
11448-FM-86A	Class 1 as marked except for secondary side of steam generators (class 2) and portions of lines 2"-SI-74, 85 & 75 (class 2).
11448-FM-86B	Class 1 as marked
11448-FM-87A	Class 2 as marked except for RHR inlet from RCS to valve MOV-1701 (class 1), RHR discharge to RCS from valves MOV-1720A&B (class 1), component cooling (CC) to RHR pumps (class 3) and shell side of the RHR heat exchanger (class 3).
11448-FM-88A	Class 3 as marked except for CVCS letdown line 3"-CH-25 as marked (class 2).
11448-FM-88B	Class 2 as marked except for boric acid transfer system piping to valves FCV-1114B, 1-CH-206, 1-CH-209, 1-CH-227

	and 1-CH-229 (class 3), shell side of nonregenerative heat exchanger (class 3) and shell side of seal water heat exchanger (class 3).
11448-FM-88C	Class 2 as marked except for loop fill header (class 1), loop drain header from RCS to valve HCV-1201 (class 1), letdown line from RCS to valve LCV-1460B (class 1), charging line from RCS to valve 1-CH-312 (class 1), auxiliary spray line from RCS to valve 1-CH-313 (class 1), RCP seal leakoff lines to RO 10-RSB-1,2 & 3 (class 1), RCP seal leakoff lines 1-CH-261 thru 266 (class 1), RCP seal injection lines from valves 1-CH-323, 333 & 349 to RCP's (class 1) and shell side of excess letdown heat exchanger (class 3).
11448-FM-89A	Class 2 as marked except for lines 1"-SI-187 to valve TV-1884A (class 3) and line 1"-CH-229 to valve 1-SI-3 (class 3).
11448-FM-89B	Class 2 as marked except for cold leg SI lines from RC loops to valves 1-SI-235, 241, 236, 242, 237 & 243 (class 1), hot leg SI lines from RC loops to valves 1-SI-238, 239 & 240 (class 1), and accumulator discharge lines from RC loops to valves HCV-1850B, D & F, 1-SI-207, 129 & 145 (class 1).
11448-FM-106C	Class 2 as marked
11448-FM-123A	Class 2 as marked
11448-FM-124A	Class 2 as marked
11448-FM-130A	Class 3 as marked
11448-FB-41A	Class 3 as marked

11448-FB-41A

AIR CONDITIONING UNITS

AIR CONDITIONING UNITS

CONTROL & RELAY ROOM CHILLED WATER SYSTEM

CENTRAL CHILLED WATER SYSTEM

CONTROL & RELAY ROOM CONDENSER WATER SYSTEM

DIAGRAM - TYPICAL REFRIGERANT PIPING (3)

DIAGRAM - TYP REFRIGERANT PIPING

NOTES
ALL CHILLED WATER PIPES - CLASS 151
ALL CONDENSER WATER PIPES - CLASS 136
REFERENCE DRAWINGS
PLUMBING-SERVICE BUILDING SH.1 - FB-27A
SH.2 - FB-27B
SH.7 - FB-27G
SH.8 - FB-27H

(1) SUPPLIED WITH EQUIPMENT NUS-236
(2) SUPPLIED BY FIELD NUS-315
(3) SUPPLIED BY VENTILATION CONTRACTOR NUS-276
(4) SUPPLIED WITH EQUIPMENT NUS-208

APPROVED ... CERTIFIED PROFESSIONAL ENGINEER, No. 4329, COMMONWEALTH OF VIRGINIA

ISSUE	DESCRIPTION	CHKD	CORR	APPR	DATE
6	PIPING RELOCATED VALVES & STRAINERS ADDED				
5	VALVE & PIPING SIZES CHANGED				
4	FILL CONNECTIONS REVISED RELIEF VALVES ADDED.				
3	BLOCK VALVES RELOCATED AIR VENTS NOS ADDED.				
2	ORIGINAL ISSUE				

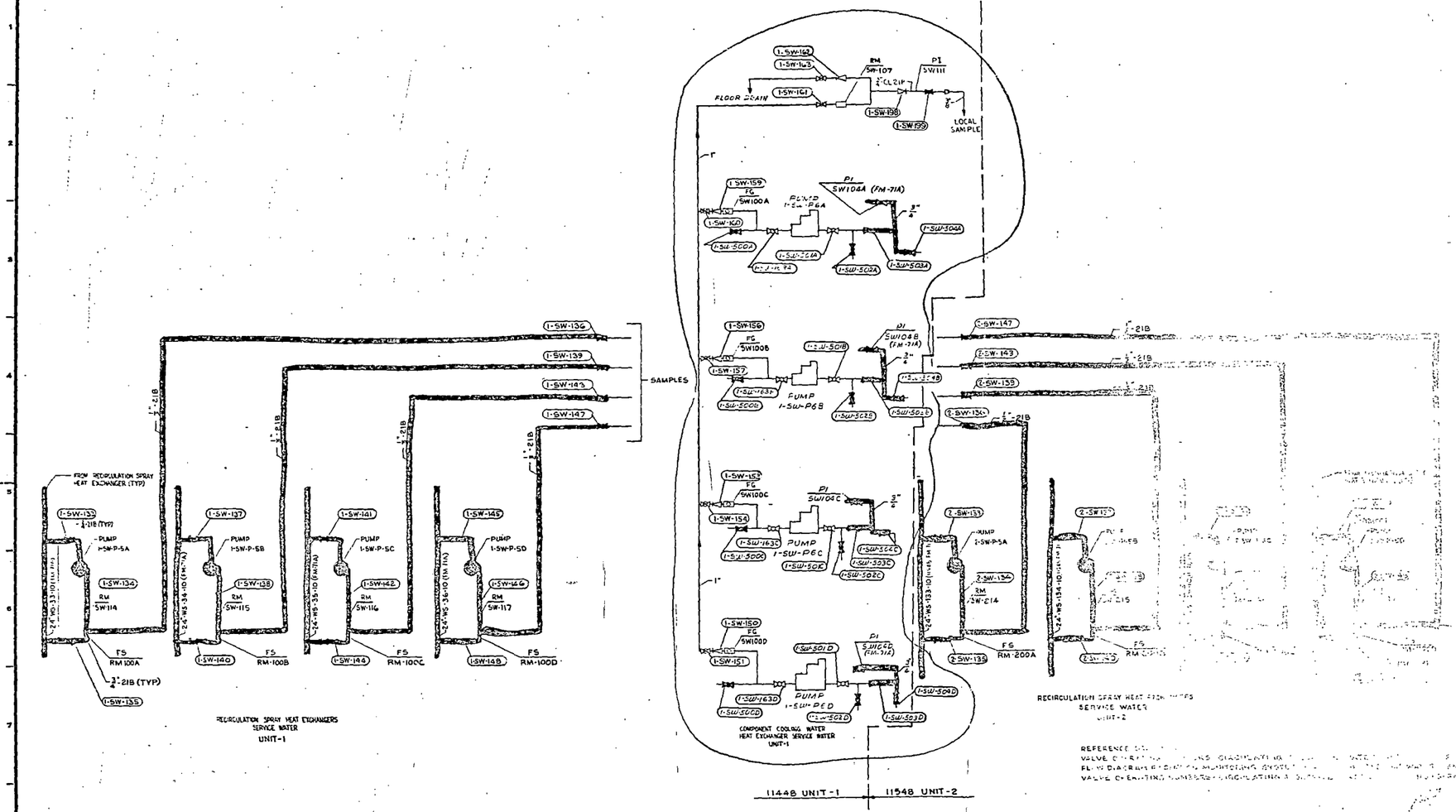
FLOW DIAGRAM CHILLED & CONDENSER WATER SYSTEMS

SURRY POWER STATION
VIRGINIA ELECTRIC AND POWER COMPANY
STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.

DRAWING NUMBER 11448-FB-41 A

Designed by
Des. Chk'd by
Drawn by A. D. FAZIO
Chk'd by R. C. COMBES

11448-FM-130A



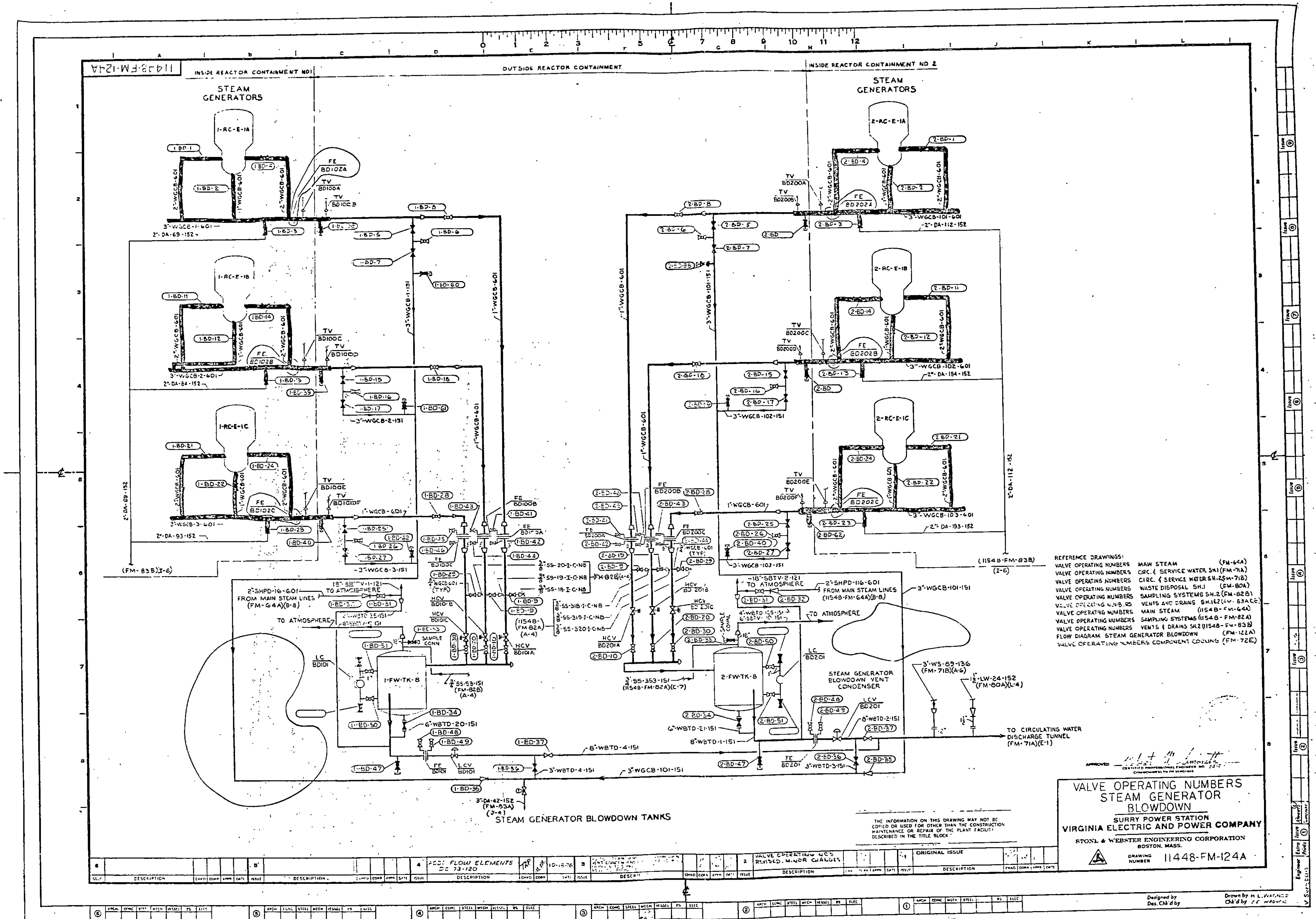
ISSUE	DESCRIPTION	CHKD	COMP	APPD	DATE
6					
5					
4	ADD PD3:1-SW-PCA,B,C&D (51-57) PCR DC 75-7				4-12-76
3					
2	VALVE OPERATING NOS REVISED, MINOR CHANGES				
1	ORIGINAL ISSUE				

THE INFORMATION ON THIS DRAWING IS NOT TO BE COPIED OR USED FOR OTHER THAN THE SPECIFIC MAINTENANCE OR REPAIR OF EQUIPMENT AUTHORIZED AND DESCRIBED IN THE TITLE BLOCK.

VALVE OPERATING NUMBERS
RECIRCULATION SPRAY HEAT EXCHANGER
SERVICE WATER
UNIT-1 & UNIT-2

RETURN TO REACTOR DOCKET
FILES

50-280
LR 5-17-79
7905220142



RETURN TO REACTOR DOCKET FILES

50-280
Ltr 5-17-79
7905220142

11448-FM-123A

INSIDE REACTOR CONTAINMENT | OUTSIDE REACTOR CONTAINMENT

STEAM GENERATORS

14"WFPD-17 (FM-G8A)

14"WFPD-13 (FM-G8A)

12"WFPD-9 (FM-G8A)

TURBINE BLDG

3/4" CFPD-I-C-N8

3/4" CFPD-3-601

3/4" CFPD-2-601

3/4" CFPD-1-601

1" CL 301

1" CFPD - 301

1" CFPD - ICN8

1" CFCS-301

1" CFMD - I-C N8

1" CFMS - I-C-N8

1" CL-301

2" CL-I-C-N8

1-WT-P-13A&B CYCLOHEXYLAMINE PUMPS

1-WT-P-5A&B HYDRAZINE PUMPS

1-WT-P-6A,B,C&D PHOSPHATE PUMPS

1-WT-TK-1 HEAD TANK

1-WT-TK-3 HYDRAZINE TANK

1-WT-TK-4 CYCLOHEXYLAMINE TANK

1-WT-TK-5 PHOSPHATE TANK

18" OVERFLOW TO WASTE

1½" CFS-301

1½"-WCPD-301

24" WCPD-14 (FM-G7A)

4" WCPD-39 (FM-G7A)

1" CFS-301

COUNTERS

TIMERS

SPARE

PCV WT104 100 PSI INST AIR SUPPLY

TO FLOOR DRAIN TYP ALL PUMPS

REFERENCE DRAWINGS

VALVE OPERATING NUMBERS CONDENSATE	FM-G7A
VALVE OPERATING NUMBERS FEEDWATER	FM-G8A
FLOW DIAGRAM CHEMICAL FEED SYSTEM	FM-121A

R.M. SIMONETTI NO. 011123

APPROVED R. M. Simonetti CERTIFIED PROFESSIONAL ENGINEER NO. 11123 COMMONWEALTH OF VIRGINIA

THE INFORMATION ON THIS DRAWING MAY NOT BE COPIED OR USED FOR OTHER THAN THE CONSTRUCTION, MAINTENANCE OR REPAIR OF THE PLANT FACILITY DESCRIBED IN THE TITLE BLOCK.

ISSUE	DESCRIPTION	CHKD	CONS	APPR	DATE
6					
5					
4					
3					
2	VENT & DRAIN VALVES, LINE NO. ADDED				
1	ORIGINAL ISSUE				

VALVE OPERATING NUMBERS CHEMICAL FEED

SURRY POWER STATION
VIRGINIA ELECTRIC AND POWER COMPANY
STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.

DRAWING NUMBER 11448-FM-123A

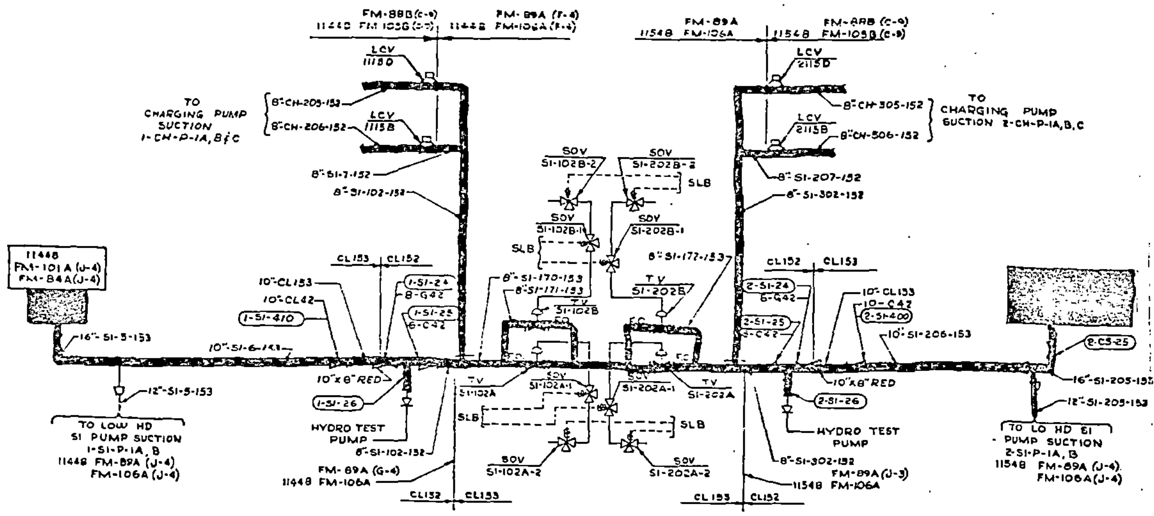
Designed by
Des Ch'd by

Drawn by M.L.W.
Ch'd by

RETURN TO REACTOR DOCKET FILES

50-280
Ltr 5-17-79
7905220142

11448-FM-106C



FLOW & VALVE NUMBERS
R.W.S.T. CROSSTIE

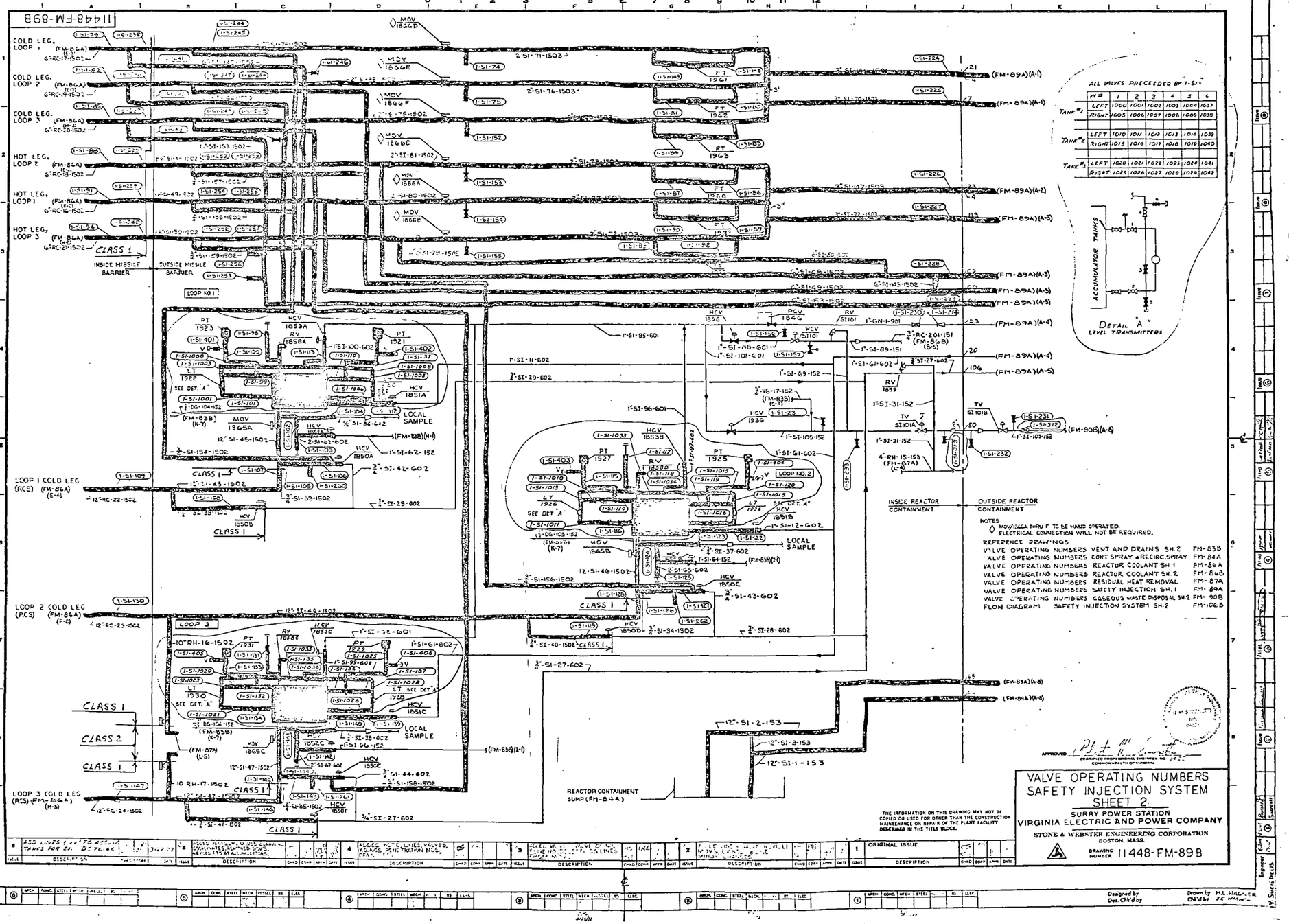
SURRY POWER STATION
V. E. P. C. O.

ORIGINAL ISSUE
RWST CROSSTIE (A-F, 1-4) TAP M.M. 11-9-76

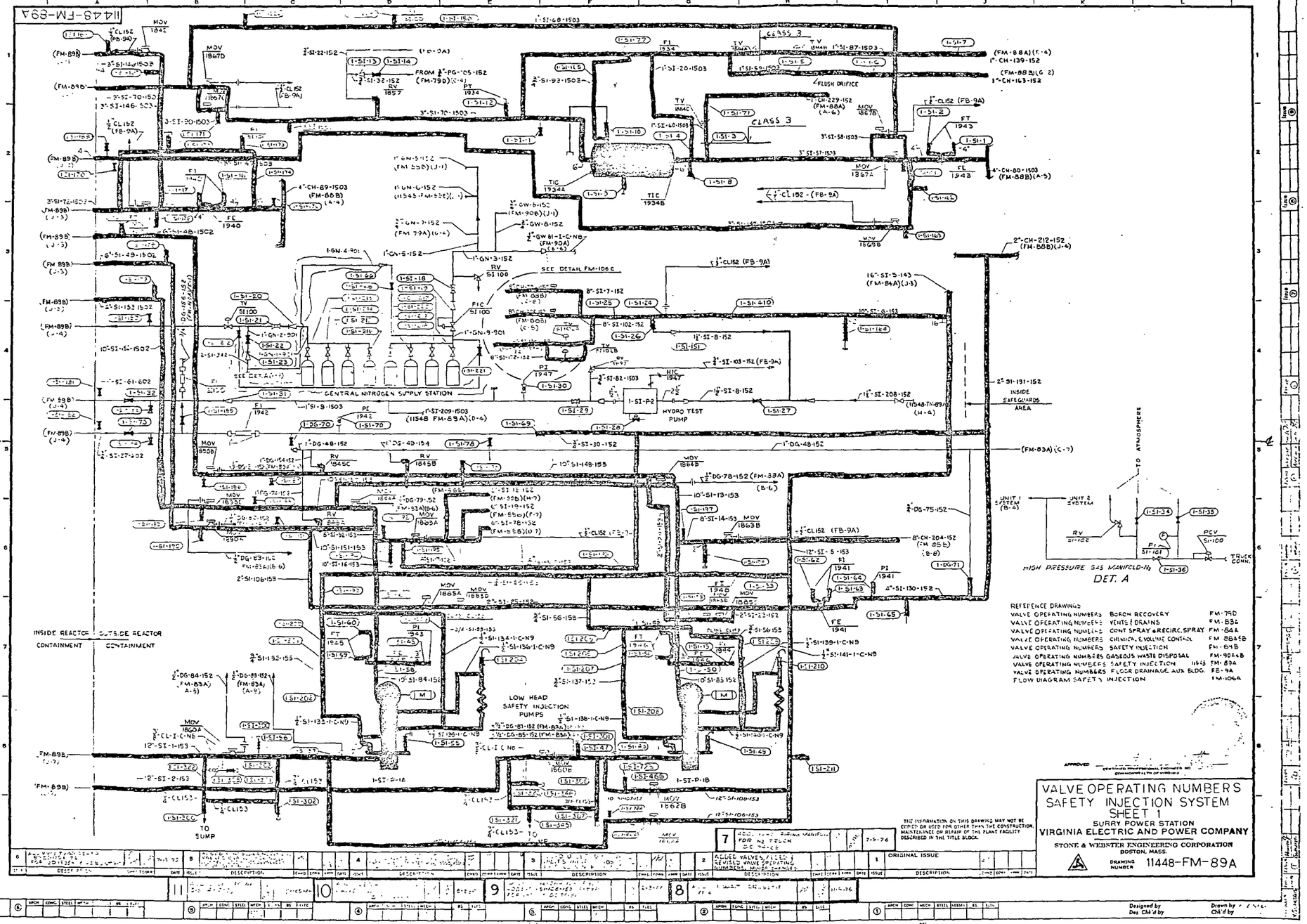
11448-FM-106C

50-280
Ltr 5-17-79
7905220142

11448-FM-89B



11448-FM-89A



REFERENCE DRAWINGS

VALVE OPERATING NUMBERS	BORON RECOVERY	FM-79D
VALVE OPERATING NUMBERS	VENTS & DRAINS	FM-83A
VALVE OPERATING NUMBERS	CONT SPRAY & RECIRC. SPRAY	FM-84A
VALVE OPERATING NUMBERS	CHEMICAL & VOLUME CONTROL	FM-88A&B
VALVE OPERATING NUMBERS	SAFETY INJECTION	FM-89B
VALVE OPERATING NUMBERS	GASEOUS WASTE DISPOSAL	FM-90A&B
VALVE OPERATING NUMBERS	SAFETY INJECTION	11453 FM-89A
VALVE OPERATING NUMBERS	FLOOR DRAINAGE AUX BLDG.	FE-9A
FLOW DIAGRAM SAFETY INJECTION		FM-106A

APPROVED

VALVE OPERATING NUMBERS SAFETY INJECTION SYSTEM SHEET 1

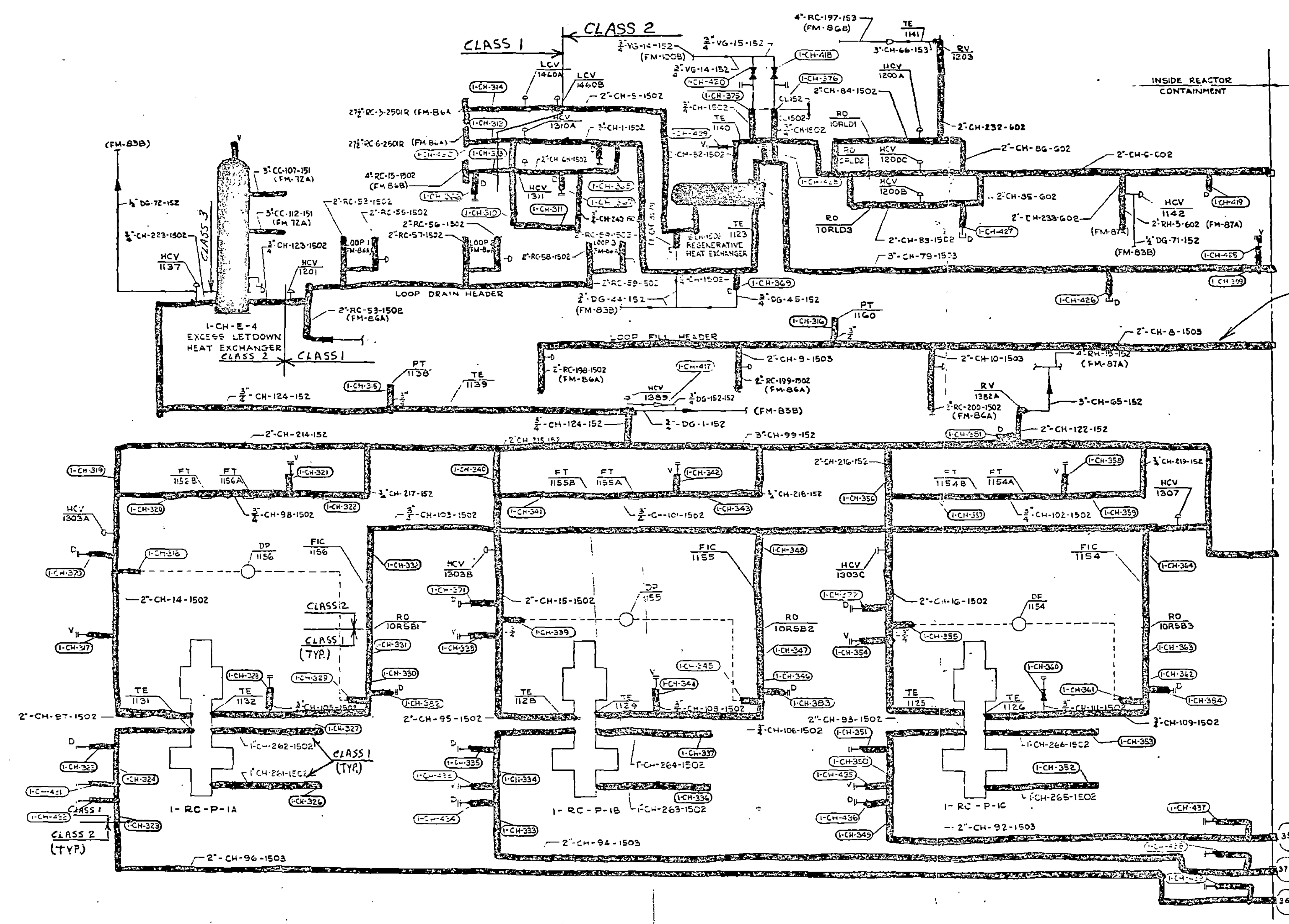
SURRY POWER STATION
VIRGINIA ELECTRIC AND POWER COMPANY
STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.

DRAWING NUMBER 11448-FM-89A

11		10		9		8		7	7-5-76	ADDED VALVES / LINES & REVISED VALVE OPERATING NUMBERS AS SHOWN		6		5		4		3		2		1	ORIGINAL ISSUE
DESIGN ENGR	DATE	ISSUE	DESCRIPTION	CHKD	DRAWN	DATE	ISSUE	DESCRIPTION	CHKD	DRAWN	DATE	ISSUE	DESCRIPTION	CHKD	DRAWN	DATE	ISSUE	DESCRIPTION	CHKD	DRAWN	DATE	ISSUE	DESCRIPTION

Designed by
Des Chk'd by

Drawn by
Chk'd by



REFERENCE DRAWINGS

VALVE OPERATING NUMBERS COMPONENT COOLING WATER SH.1	FM-72A
VALVE OPERATING NUMBERS VENTS & DRAINS SH 2	FM-83B
VALVE OPERATING NUMBERS REACTOR COOLANT SHTS 1&2	FM-86A&B
VALVE OPERATING NUMBERS RESIDUAL HEAT REMOVAL	FM-87A
VALVE OPERATING NUMBERS CHEMICAL & VOLUME CONT. SH 2	FM-88B
FLOW DIAGRAM CHEMICAL & VOLUME CONTROL SH 3	FM-105C

APPROVED Robert M. [illegible]
CERTIFIED PROFESSIONAL ENGINEER NO. 6422
COMMONWEALTH OF VIRGINIA

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VALVE OPERATING NUMBERS CHEMICAL & VOLUME CONTROL SHEET-3

SURRY POWER STATION
VIRGINIA ELECTRIC AND POWER COMPANY
STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS
DRAWING NUMBER 11448-FM-88C

ISSUE	DESCRIPTION	DATE
6		
5	ADD PENETRATION NOS FOR SEAL INJECTION	12-2-77
4	REMOVED PT-1131 1128 1125 (C) [illegible] DC 74-43	[illegible]-2-77
3	ADDED VALVES & VALVE OPER NOS UPDATED DIAGRAM	
2	ADDED VALVES, VALVE OP NOS, & PIPING, MINOR CHGS.	
1	ORIGINAL ISSUE	

Designed by
Dr. Chk'd by
Chk'd by SCHAEFER

RETURN TO REACTOR DOCKET FILES

50-280
LH 5-17-79
7905220142

11448-FM-88B

CLASS 3

NONREGENERATIVE HEAT EXCHANGER

1-CH-E-1 SEAL WATER HEAT EXCHANGER

REACTOR COOLANT FILTER 1-CH-FL-2

CHEMICAL MIXING TANK 1-CH-TK-3

OUTSIDE REACTOR CONTAINMENT

SEAL WATER INJECTION FILTERS

CHARGING PUMPS

INSIDE REACTOR CONTAINMENT (FM-89C)

REFERENCE DRAWINGS

VALVE OPERATING NUMBERS	COMPONENT COOLING WATER SH.3	FM-72C
VALVE OPERATING NUMBERS	BORON RECOVERY SHTS. 1 & 4	FM-79A & D
VALVE OPERATING NUMBERS	SAMPLING SYSTEMS SH. 1	FM-82A
VALVE OPERATING NUMBERS	VENTS & DRAINS SH. 1	FM-85A
VALVE OPERATING NUMBERS	CONT. SPRAY & RECIRC. SPRAY	FM-84A
VALVE OPERATING NUMBERS	CHEMICAL & VOLUME CONTROL SH.1&3	FM-88A&C
VALVE OPERATING NUMBERS	SAFETY INJECTION SH. 1	FM-89A
VALVE OPERATING NUMBERS	REACTOR CAVITY PURIFICATION	FM-118A
VALVE OPERATING NUMBERS	CHEMICAL & VOLUME CONT SH 2 11448	FM-88B
FLOOR DRAINAGE	AUXILIARY BUILDING SH1	FB-9A
FLOW DIAGRAM	CHEMICAL & VOLUME CONTROL SYSTEM SH 2	FM-105B

APPROVED _____ CERTIFIED PROFESSIONAL ENGINEER NO. 7141 COMMONWEALTH OF VIRGINIA

VALVE OPERATING NUMBERS CHEM & VOLUME CONTROL SYS. SHEET-2

SURRY POWER STATION
VIRGINIA ELECTRIC AND POWER COMPANY
STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.

DRAWING NUMBER 11448-FM-88B

NO.	DESCRIPTION	DATE
6	CORRECTED SYMBOL NOS. IN SEAL INJECTION FILTER	12-2-77
5	ADDED 1-CH-FT-1122 PIPING (16"-D.F.W.) FOR CC 78-43	6-10-76
4	ADDED VALVE NOS. & TEST. CONN. NOS. ADDED VALVES & VALVE ORIFICE NOS.	
3	REVISED PIPING & VALVE ARRANGEMENT	
2	ADDED 1-CH-FT-1122 PIPING	
1	ORIGINAL ISSUE	

Designed by Des. Ch'd by

Drawn by H.L. WAGNER Ch'd by SC WAGNER

11448-FM-88A

CLASS 2

DEBORATING DEMINERALIZERS

CATION BED DEMINERALIZER

MIXED BED DEMINERALIZERS

BORIC ACID TRANSFER PUMPS

BORIC ACID TRANSFER PUMPS

BORIC ACID BATCH TANK EADITATOR (1-CH-BL-2)

REFERENCE DRAWINGS

VALVE OPERATING NUMBERS AUXILIARY STEAM & AIR REMOVAL	FM-66B
VALVE OPERATING NUMBERS BORON RECOVERY	FM-79B,C,D
VALVE OPERATING NUMBERS WASTE DISPOSAL	FM-80A,B,C
VALVE OPERATING NUMBERS SAMPLING SYSTEM	FM-82A
VALVE OPERATING NUMBERS VENT AND DRAIN	FM-83A
VALVE OPERATING NUMBERS CHEMICAL & VOLUME CONTROL	FM-86B
VALVE OPERATING NUMBERS SAFETY INJECTION	FM-89A
VALVE OPERATING NUMBERS REACTOR CAVITY PURIFICATION	FM-118A
VALVE OPERATING NUMBERS CHEMICAL & VOLUME CONTROL	11548-FM-83B
VALVE OPERATING NUMBERS SAFETY INJECTION	11548-FM-89A
FLOW DIAGRAM CHEMICAL & VOLUME CONTROL	FM-105A

APPROVED _____ CERTIFIED PROFESSIONAL ENGINEER NO. 04123 COMMONWEALTH OF VIRGINIA

VALVE OPERATING NUMBERS CHEMICAL & VOLUME CONTROL SH 1

SURRY POWER STATION
VIRGINIA ELECTRIC AND POWER COMPANY
STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.

DRAWING NUMBER 11448-FM-88A

ISSUE	DESCRIPTION	CHKD	ENGR	APPR	DATE
6					
5	UPDATED DIAG.				
4	REVISED NOTES & LINE NOS. ADDED LINES VALVES & MISC. EQUIP.				
3	TANKS, HEATERS, EJECTOR & SUB BY PASS				
2	REVISED LINE SIZES, VALVES AND MISC. ITEMS MINOR CHANGES				
1	ORIGINAL ISSUE				

Designed by
Des Ch'd by
Drawn by
Ch'd by

11448-FM-87A

RESIDUAL HEAT REMOVAL EXCHANGERS

RESIDUAL HEAT REMOVAL PUMPS

REFERENCE DRAWINGS

VALVE OPERATING NUMBERS	COMPONENT COOLING WATER	FM-72A
VALVE OPERATING NUMBERS	SAMPLING SYSTEM SH-2	FM-82B
VALVE OPERATING NUMBERS	VENTS & DRAINS SH-2	FM-83B
VALVE OPERATING NUMBERS	CONTAINMENT & RECIRC. SPRAY	FM-84A&B
VALVE OPERATING NUMBERS	REACTOR COOLANT	FM-86A&B
VALVE OPERATING NUMBERS	CHEMICAL & VOLUME CONT. SH-3	FM-88C
VALVE OPERATING NUMBERS	SAFETY INJECTION SH-2	FM-89B
FLOW DIAGRAM	RESIDUAL HEAT REMOVAL SYSTEM	FM-104A

APPROVED Robert M. Innamorati
CERTIFIED PROFESSIONAL ENGINEER, NO. 06823
COMMONWEALTH OF VIRGINIA

VALVE OPERATING NUMBERS
RESIDUAL HEAT REMOVAL

SURRY POWER STATION
VIRGINIA ELECTRIC AND POWER COMPANY
STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.

DRAWING NUMBER 11448-FM-87A

ISSUE	DESCRIPTION
6	
5	
4	REVISED PIPING TO AGREE WITH MS B-1135
3	ADDED VALVES & VALVE OP. NOS. & REVISED DIAG.
2	ADDED VALVES & REVISED PIPING & INSTR. NOS. PER CASE
1	ORIGINAL ISSUE

Designed by Des Ck'd by
Drawn by R.T. Ck'd by

1448-FM-86B

DET A

DET B

DET C

PRESSURIZER RELIEF TANK 1-RC-TK-2

PRESSURIZER

HEATER CONTROL

OUTSIDE REACTOR CONTAINMENT | INSIDE REACTOR CONTAINMENT

REFERENCE DRAWINGS:

VALVE OPERATING NUMBERS	COMPONENT COOLING WATER SH.1	FM-72A
VALVE OPERATING NUMBERS	BORON RECOVERY SH.4	FM-79D
VALVE OPERATING NUMBERS	SAMPLING SYSTEM SH.2	FM-82B
VALVE OPERATING NUMBERS	VENTS & DRAINS SH.2	FM-83B
VALVE OPERATING NUMBERS	REACTOR COOLANT SH.1	FM-86A
VALVE OPERATING NUMBERS	RESIDUAL HEAT REMOVAL	FM-67A
VALVE OPERATING NUMBERS	CHEMICAL & VOLUME CONTROL SH.3	FM-88C
VALVE OPERATING NUMBERS	SAFETY INJECTION SH.2	FM-89B
FLOW DIAGRAM REACTOR COOLANT SYSTEM	SH.2	FM-103B

APPROVED Robert W. Simonetti
CERTIFIED PROFESSIONAL ENGINEER NO. 04123
COMMONWEALTH OF VIRGINIA

VALVE OPERATING NUMBERS REACTOR COOLANT SHEET 2

SURRY POWER STATION
VIRGINIA ELECTRIC AND POWER COMPANY
STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.

DRAWING NUMBER 1448-FM-86B

NO.	DESCRIPTION	ISSUED	CHKD	CORR	APPR	DATE
6						
5						
4	ADDED RCV'D. 1-RC-155, 1-RC-157, 1-RC-158, 1-RC-159, 1-RC-160 TO CL 1502 W/ [illegible]	2/8				
3	ADDED VALVES & VALVE OP. NO. MINOR CHANGE	2/8				
2	MINOR CHANGES	2/8				
1	ORIGINAL ISSUE	2/8				

Designed by
Des. Ch'd by

Drawn by A. ZELTKALNS
Ch'd by J.C. WAGNER

11448-FM-86A

DET. A (FM-86B)

1-RC-P-1A REACTOR COOLANT PUMP

CLASS 2

LOOP 1

DET B (FM-86B)

1-RC-P-1B REACTOR COOLANT PUMP

LOOP 2

REACTOR VESSEL

CLASS 1

1-RC-P-1C REACTOR COOLANT PUMP

LOOP 3

REFERENCE DRAWINGS

VALVE OPERATING NUMBERS SAMPLING SYSTEMS SH.2	FM-82B
VALVE OPERATING NUMBERS VENTS & DRAINS SH.2	FM-83B
VALVE OPERATING NUMBERS REACTOR COOLANT SH.2	FM-86B
VALVE OPERATING NUMBERS RESIDUAL HEAT REMOVAL	FM-87A
VALVE OPERATING NUMBERS CHEMICAL & VOLUME CONTROL SH.3	FM-88C
VALVE OPERATING NUMBERS SAFETY INJECTION SH.2	FM-89B
FLOW DIAGRAM REACTOR COOLANT SYSTEM SH.1	FM-103A

APPROVED Robert M. Innamorati
CERTIFIED PROFESSIONAL ENGINEER NO. 04113
COMMONWEALTH OF VIRGINIA

VALVE OPERATING NUMBERS REACTOR COOLANT SHEET-1

SURRY POWER STATION
VIRGINIA ELECTRIC AND POWER COMPANY
STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.

DRAWING NUMBER 11448-FM-86A

ISSUE	DESCRIPTION	CHKD	CORR	APPD	DATE
3	ADDED 3"-SI-148-45-1502 & 3"-SI-149-45-1502 & 3"-RC-107-I-C-N9				
2	DELETE 3"-SS-102-I-C-N9 (FM-82B) & 3"-SS-102-2-C-N9 (FM-82B) ADD TO 3"-SS-102-3-C-N9 (FM-82B)				
1	ORIGINAL ISSUE				

Designed by Des. Chk'd by

Drawn by A. ZELTKALNS Chk'd by J.C. WAGNER

11448-FM-65A

OUTSIDE REACTOR CONTAINMENT

INSIDE REACTOR CONTAINMENT

PDI LM102

SERVO MANOMETER

TEST AIR

1-LM-16

1-LM-17

3/8"-LM-1-N6

1-LM-15

2"-LM-4-N6

MANOMETER (ATMOSPHERIC)

PDI LM100

PDI LM101

MANOMETER (DIFFERENTIAL)

PT CV101A — 1-LM-35 — 1-LM-40 — 1-LM-41 — 1-LM-42 — 1-LM-43 — 1-LM-44 — 1-LM-45

PT CV101B — 1-LM-21 — 1-LM-22

PT LM100C — 1-LM-23

PT LM100A — 1-LM-24

PT LM100D — 1-LM-25

PT LM100B — 1-LM-26 — 1-LM-27

TV LM100E — TV LM100F — 1-LM-37 — 3/8"-LM-3-N6 — 3/8"-LM-1-N6 — 3/8"-LM-2-N6 — 3/8"-LM-17-N6 — 1-LM-20 — 1-LM-19 — 1-LM-18 — 1-LM-28 — 1-LM-29 — 1-LM-30 — 1-LM-31

TV LM100G — 1-LM-3

TV LM100H — TV LM100A — 1-LM-2 — TV LM100B — TV LM100C — TV LM100D — 1-LM-36

3/8"-LM-5-N6 — 3/8"-LM-6-N6 — 3/8"-LM-7-N6 — 3/8"-LM-8-N6

1-LM-13 — 1-LM-14 — 1-LM-12 — 1-LM-11 — 1-LM-10

TV LM101A — TV LM101B — 1-LM-32 — 1-LM-4 — 1-LM-33 — 1-LM-34

PT LM103 — 1-LM-8 — 1-LM-9 — 3/8"-LM-9-N6

LEAKAGE MONITORING SEALED SYSTEM VACUUM PUMP 1-LM-P-1

1-LM-7 — 3/8"-LM-18-N6

SV LM100 — PCV LM100

TO ATMOSPHERE — 8"-CV-9-151

CONTAINMENT VACUUM EJECTOR 1-CV-EJ-1 — 8"-CV-8-151 — 1-CV-34 — 1-CV-15 — 1-CV-1 — 1-CV-2 — 1-CV-3 — 1-CV-4

4"-SA-29-301 (FM-66B)(D-6)

2"-CV-3-154 (FM-90B)(B-8) — FIT CV150 — 1-CV-10 — 1-CV-9 — 1-CV-8 — 2"-CV-3-154 — 1-CV-7 — 1-CV-6 — 2"-CV-4-154

1-CV-P-1A CONTAINMENT VACUUM PUMPS — 1-CV-P-1B

TV CV150B — TV CV150A — 1-CV-20 — 1-CV-17 — 1-CV-12 — 2"-GW-210-154 (FM-90B)(I-8) — 2"-GW-205-154 (FM-90A)(B-2)

TV CV150D — TV CV150C — 1-CV-26 — 1-CV-27 — 1-CV-11 — 2"-GW-207-154 (FM-90B)(I-8) — 2"-CV-2-154 — 1-GW-206-154 (FM-90A)(A-2)

UNIT NO1 REACTOR CONTAINMENT

1-SA-FL-2 LEAKAGE TEST METER FILTER

2"-LM-21-21B (FM-75G)(F-7) — 1-LM-1 — PI LM104 — 1-LM-5 — FI LM101 — 1-LM-38 — PCV LM101 — 1-LM-6 — 2"-LM-19-21B (FM-75G)(F-7) — TI LM101 — 2"-LM-20-21B — 1-LM-39

DRY AIR CYLINDER

VALVE OPERATING NUMBERS CONT. VACUUM & LEAKAGE MONITORING

SURRY POWER STATION

VIRGINIA ELECTRIC AND POWER COMPANY

APPROVED

ISSUE | DESCRIPTION | CHKD | CORR | APPR | DATE

1 — ADDED LM'S VALVES & VALVE OPERATORS DELETED FIT-LM101, BYPASS & VALVES

2 — REVISED PER FIELD CHANGES

3 — REVISED PER FIELD CHANGES

4 — REVISED PER FIELD CHANGES

5 — REVISED PER FIELD CHANGES

6 — REVISED PER FIELD CHANGES

ARCH | CONC | STEEL | MECH | VESSEL | BS | ELEC

RETURN TO REACTOR DOCKET FILES

50-280
LRS-17-79
7905220142

11448-FM-34A

INSIDE REACTOR CONTAINMENT | OUTSIDE REACTOR CONTAINMENT

CONTAINMENT SPRAY PUMPS

CONTAINMENT SPRAY PUMP SUCTION FILTERS

REFUELING WATER RECIRCULATING PUMPS

REFUELING WATER REFRIGERATION UNITS

REFUELING WATER STORAGE TANK COOLERS

RECIRCULATION SPRAY COOLERS

CONTAINMENT SUMP

INSIDE RECIRCULATION SPRAY PUMPS

OUTSIDE CONTAINMENT RECIRCULATION SPRAY PUMPS

PRESSURE CHAMBER (TYP.)

VALVE PIT

REFERENCE DRAWINGS

VALVE OPERATING NUMBERS- MAIN STEAM	FM-64A
VALVE OPERATING NUMBERS CIRC. & SERV. WATER - SH.1	FM-71A
VALVE OPERATING NUMBERS COMPONENT COOLING WATER - SH.4	FM-72D
VALVE OPERATING NUMBERS VENTS & DRAINS - SH.1	FM-83A
VALVE OPERATING NUMBERS RESIDUAL HEAT REMOVAL	FM-87A
VALVE OPERATING NUMBERS CHEMICAL & VOLUME CONTROL - SH.2	FM-88B
VALVE OPERATING NUMBERS SAFETY INJECTION - SH.1	FM-89A
FLOOR DRAINAGE - REACTOR CONTAINMENT - SH.2	FB-40B
FLOW DIAGRAM CONTAINMENT & RECIRCULATION SPRAY SYSTEM	FM-101A

APPROVED _____ CERTIFIED PROFESSIONAL ENGINEER NO. [illegible] COMMONWEALTH OF VIRGINIA

VALVE OPERATING NUMBERS CONTAINMENT & RECIRCULATION SPRAY SYSTEM

SURRY POWER STATION
VIRGINIA ELECTRIC AND POWER COMPANY
STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.

DRAWING NUMBER 11448-FM-84A

NO.	DESCRIPTION	DATE
1	ORIGINAL ISSUE	
2	VALVES & VCTs ADDED	
3	A. EDIT, ADDED VALVES & LINES TO NO. 1 REVISED FINISH	
4	ADDED CLEARING LOOPS INTO CONTAINMENT SPRAY SYSTEM PER FINAL CONFIGURATIONS, ETC.	
5	ADDED PLATE 304-1308-12A & 31B	11-25-75
6	REVISED NUMBERS (FOR), ADDED STEAMERS (FOR) AS SHOWN	JAN 11-25-75
7	ADDED [illegible] FEB 26 '77	2-7-77
8	ADD ORIFICE PIPING IN ROOM 1 1018 & REVISED [illegible] (7-6-77)	11-18-78

Designed by Dan Chi'd by
Drawn by A. COSTANZO Ch'd by T.W. AHEARNE

11448-FM-83B

REFERENCE DRAWINGS

VALVE OPERATING NUMBERS COMPONENT COOLING WATER SH.1	FM-72A
VALVE OPERATING NUMBERS COMPONENT COOLING WATER SH.2&5	FM-72B,E
VALVE OPERATING NUMBERS VENTS & DRAINS SH.1	FM-83A
VALVE OPERATING NUMBERS REACTOR COOLANT SH.1	FM-86A
VALVE OPERATING NUMBERS REACTOR COOLANT SH.2	FM-86B
VALVE OPERATING NUMBERS RESIDUAL HEAT REMOVAL	FM-87A
VALVE OPERATING NUMBERS CHEMICAL & VOLUME CONTROL SH.3	FM-88C
VALVE OPERATING NUMBERS SAFETY INJECTION SH.2	FM-89B
VALVE OPERATING NUMBERS REACTOR CAVITY PURIFICATION	FM-118A
VALVE OPERATING NUMBERS STEAM GENERATOR BLOWDOWN	FM-124A
FLOW DIAGRAM VENTS & DRAINS	FM-100B
VALVE OPERATING NUMBERS CONTAINMENT & RECIRCULATION SPRAY SYSTEM	FM-84A

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VALVE OPERATING NUMBERS VENTS AND DRAINS SH. 2

SURRY POWER STATION
VIRGINIA ELECTRIC AND POWER COMPANY
STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.

DRAWING NUMBER 11448-FM-83B

ISSUE	DESCRIPTION	CHKD	CONS	APPR	DATE
6					
5	REVISED DRAWING TO AGREE WITH AS BUILT				
4	ADDED BIS NUMBERS, REVISED VENTS & DRAINS, REVISED 1-DA-P-5A				
3	VALVES & VALVE OPERATING NOS ADDED, PIPING REVISED				
2	VALVE OPERATING NOS ADDED & REVISED, VALVE ADDED, MINOR CHANGES				
1	ORIGINAL ISSUE				

	ARCH.	CONC.	STEEL	MECH.	VESSEL	BS	ELEC.
⑥							
⑤							
④							
③							
②							
①							

Designed by
Des. Ch'd by

Drawn by R ZUCKER
Ch'd by

11448-FM-83A

UNIT NO.1 INSIDE CONTAINMENT | UNIT NO.1 | COMMON

REACTOR COOLANT FILTER

PRIMARY DRAIN TANK 1-BE-TK-1 (FM-79A) (A-6)

VOLUME CONTROL TANK 1-CH-TK-2

SEAWATER FILTER (FM-88B)(E-3)

BORIC ACID FILTERS 1-CH-FL-1

FUEL PIT FILTER 1-FC-FL2

FUEL PIT ION EXCH 1-FC-I

SPENT FILTER STORAGE & SHIELDING CONTAINER

HIGH LEVEL WASTE DRAIN FILTER

LOW LEVEL WASTE DRAIN FILTER

1-DA-P-1A&B SAFEGUARDS AREA SUMP PUMPS

1-DA-P-6 COMPONENT COOLING HT. EXCH. PIT SUMP PUMP

1-DA-P-2A & 2B FUEL BUILDING SUMP PUMPS

1-DA-P-3A & 3B AUXILIARY BUILDING SUMP PUMPS

1-DA-P-4A&B SUMP PUMPS

VALVE PIT LEAKOFF POT 1-DG-TK-2

UNIT NO.1 OUTSIDE CONTAINMENT | COMMON UNIT 1&2

FLOOR & TRENCH DRAINS

FLOOR & PIT DRAINS

REFERENCE DRAWINGS:

VALVE OPERATING NUMBERS	REACTOR CAVITY PURIFICATION SYS	FM-118A
VALVE OPERATING NUMBERS	COMPONENT COOLING WATER	FM-72A&C&D
FLOOR DRAINAGE AUX BUILDING	SHI	FB-9A
VALVE OPERATING NUMBERS	BORON RECOVERY	FM-79A&B&C
VALVE OPERATING NUMBERS	WASTE DISPOSAL	FM-80A,B&C
VALVE OPERATING NUMBERS	FUEL PIT SYSTEM	FM-81A
VALVE OPERATING NUMBERS	SAMPLING SYSTEM	FM-82A,C
VALVE OPERATING NUMBERS	VENT & DRAINS	FM-83-B
VALVE OPERATING NUMBERS	CONT.& RECIRCULATING SPRAY	FM-84A
VALVE OPERATING NUMBERS	CHEMICAL& VOLUME CONTROL	FM-88-A,B&C
VALVE OPERATING NUMBERS	SAFETY INJECTION	FM-89A&B
VALVE OPERATING NUMBERS	GASEOUS WASTE DISPOSAL	FM-90B
VALVE OPERATING NUMBERS	STEAM GENERATOR BLOWDOWN	FM-124A
FLOW DIAGRAM	VENT & DRAIN SYSTEM	FM-100A&B
VALVE OPERATING NUMBERS	VENTS & DRAINS	11548-FM-83A&B
VALVE OPERATING NUMBERS	CHEMICAL& VOLUME CONT.	11548-FM-88A&B

R.H. SIMONETTI No. 04123 COMMONWEALTH OF VIRGINIA

APPROVED Robert M. Sumerlin CERTIFIED PROFESSIONAL ENGINEER NO. 04123 COMMONWEALTH OF VIRGINIA

VALVE OPERATING NUMBERS VENTS AND DRAINS SH.1

SURRY POWER STATION
VIRGINIA ELECTRIC AND POWER COMPANY
STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.

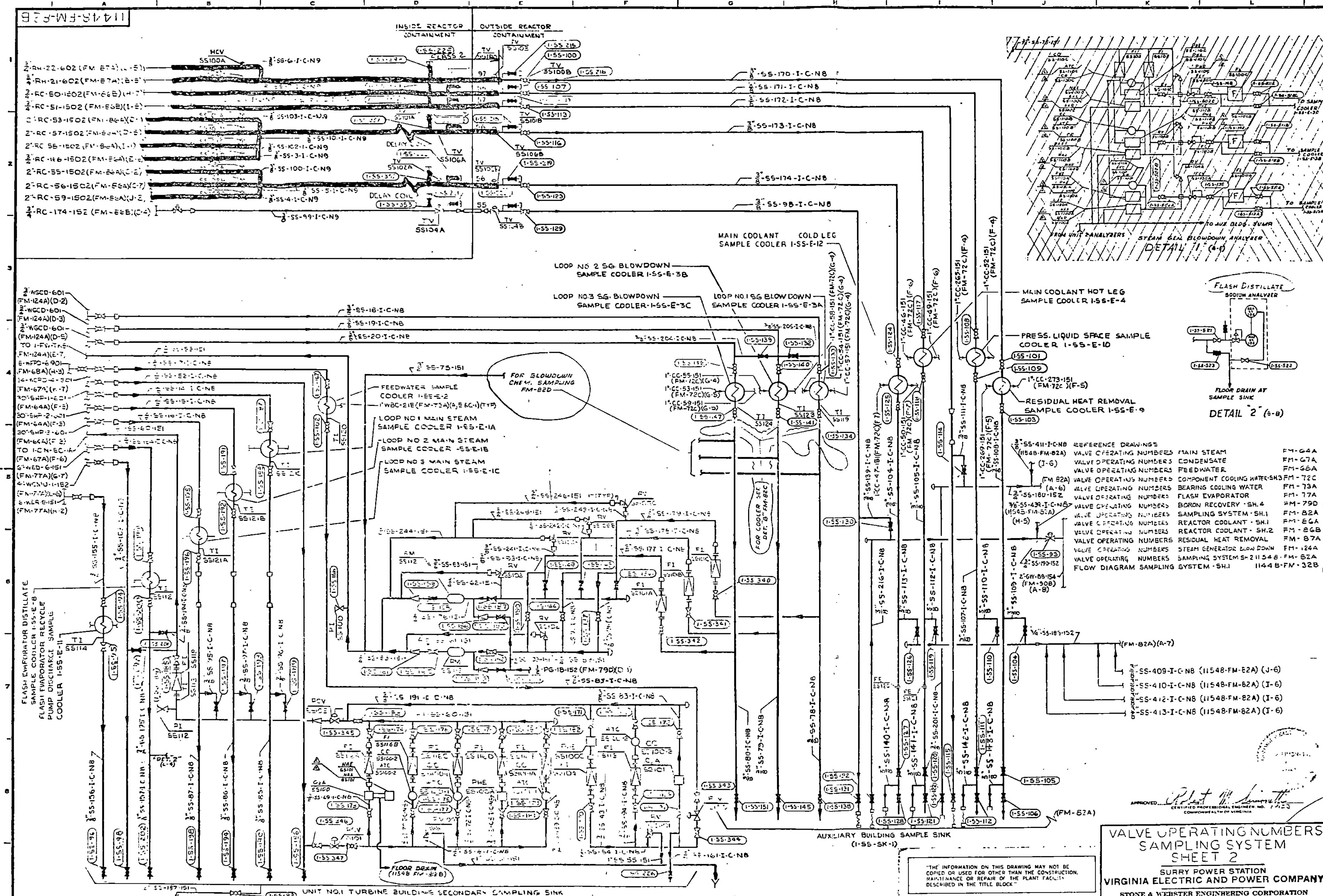
DRAWING NUMBER 11448-FM-83A

ISSUE	DESCRIPTION	CHKD	CORR	APPR	DATE
B	CAPPED 1/4"-DG-86, 87, 90 (B-6, C-6, C-5) PER DC 25-69 +				
A	ADDED LINES, 2"-SI-243-153 SUMP DISCH. + VI, DI, LC, FT, HI-13-4 E 2"-SI-95, SUMP TO 1A&B, C1				7-7-77
5	ADDED VALVE NO'S, ENLISTED DA-P-6A&B SUMP PUMPS, DELETED 1-DA-P-6 SUMP PUMP, CORRECTED DRAWING DESIGNATION				7-25-75
2	VALVE OPERATING NUMBERS ADDED, DELETED & REVISED MINOR CHANGES				
1	ORIGINAL ISSUE				

Designed by Des. Ch'd by

Drawn by R. ZUCKER Ch'd by SC-MOMER

V. SURIDELIS



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APPROVED Robert W. Simmitt
CERTIFIED PROFESSIONAL ENGINEER NO.
COMMONWEALTH OF VIRGINIA

VALVE OPERATING NUMBERS SAMPLING SYSTEM SHEET 2

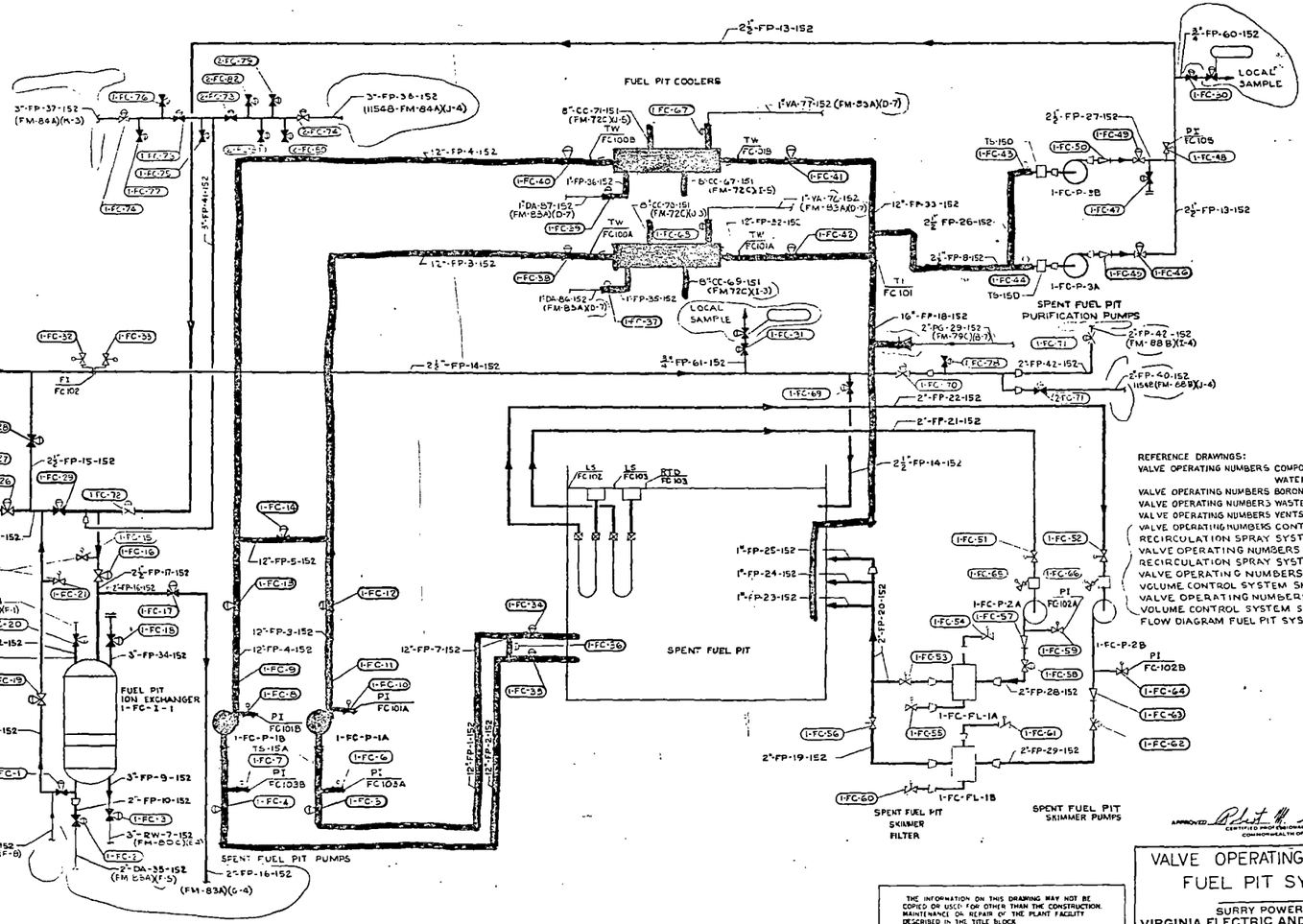
SURRY POWER STATION
VIRGINIA ELECTRIC AND POWER COMPANY
STONE & WEBSTER ENGINEERING CORPORATION
BOSTON MASS.
DRAWING NUMBER 11448-FM-82B

Issue	Description	Date
1	ORIGINAL ISSUE	
2	VALVES VALVE OPERATING NUMBERS LINES & INSTRUMENTS ADDED & REVISED, MINOR CHANGES	
6	ADDED ANALYZERS ... FLASH EVAP. ... CONDENSATE SAMPLE	9-10-76
7		12-3-76

Designed by
Des Chk'd by
Drawn by
Chk'd by

50-280
Ltr 5-17-79
7905220142

11448-FM-81A



APPROVED Robert W. Sinnett
CERTIFIED PROFESSIONAL ENGINEER, NO. 04122
COMMONWEALTH OF VIRGINIA

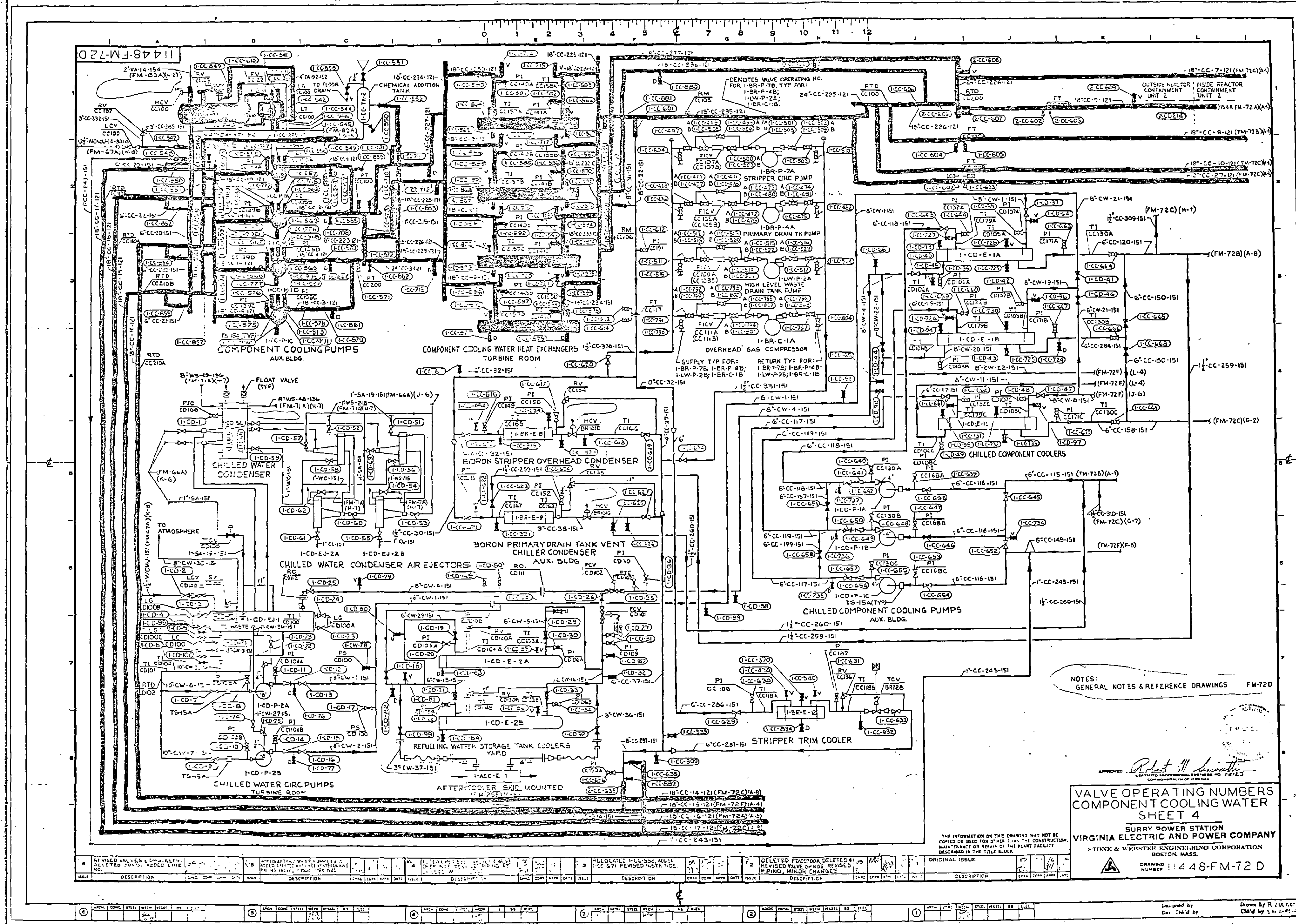
VALVE OPERATING NUMBERS FUEL PIT SYSTEMS

SURRY POWER STATION
VIRGINIA ELECTRIC AND POWER COMPANY
STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.

DRAWING NUMBER 11448-FM-81A

ISSUE	DESCRIPTION
6	
5	
4	
3	AS-BUILT NOTE ADDED, VALVES AS-BUILT, VALVE OPER. NOS. REFERENCE DWGS.
2	VALVE & VALVE OPER. NOS. ADDED, PIPING REVISED
1	ORIGINAL ISSUE

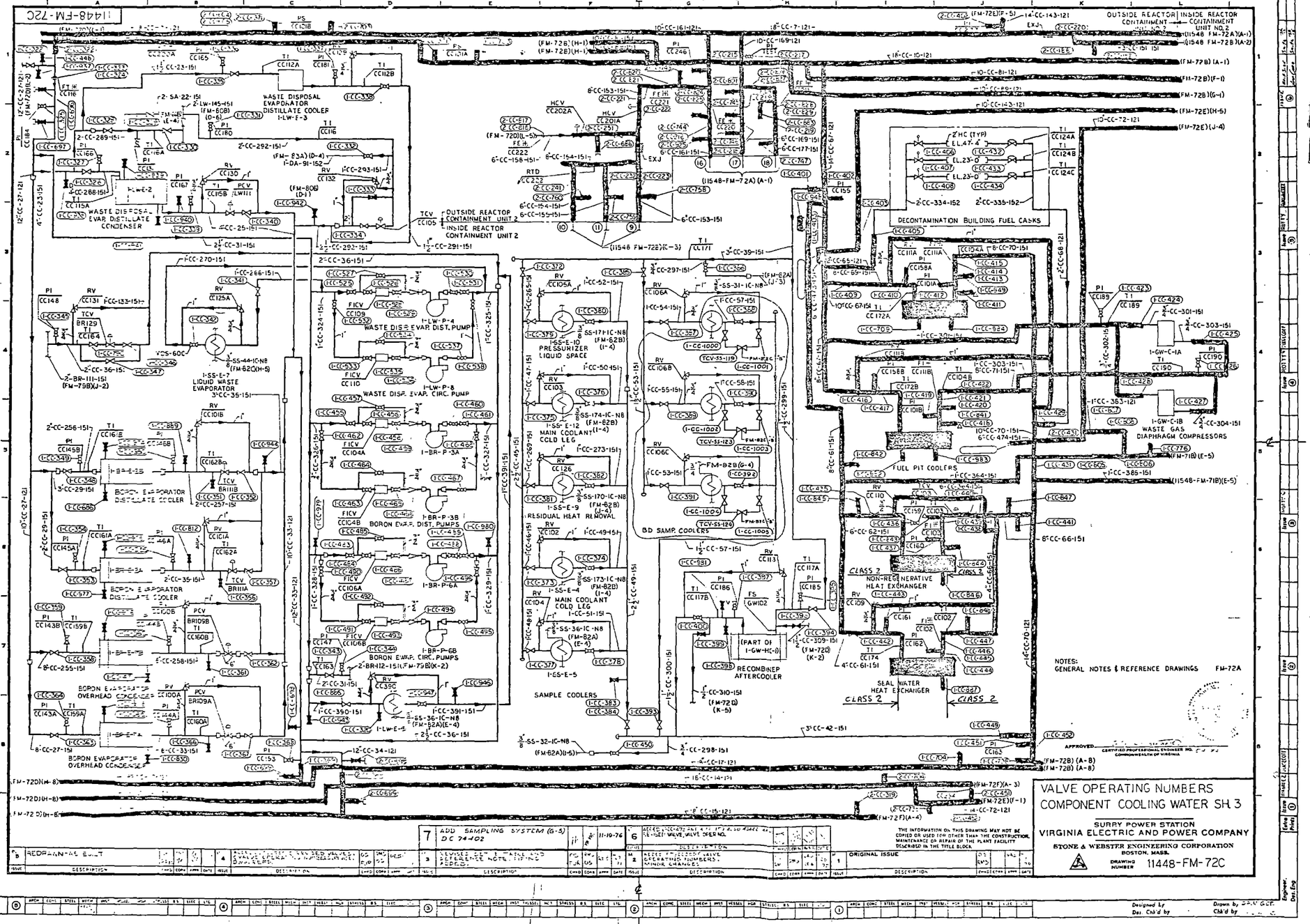
Designed by
Des. Ch'd by
Drawn by H. KISNER
Ch'd by V.C. LINDBERG



RETURN TO REACTOR DOCKET FILES

50-280
Ltr 5-17-79
7905220142

11448-FM-72C



11448-FM-72B

OUTSIDE REACTOR CONTAINMENT — INSIDE REACTOR CONTAINMENT

(PORTABLE MTD)

CUBICLE 1 | CUBICLE 2 | CUBICLE 3

REACTOR CONTAINMENT AIR RECIRCULATION COOLERS

TO REACTOR CONTAINMENT SUMP (TYP)

NEUTRON SHIELD TANK COOLERS

TO LOCAL FLOOR DRAIN

PRIMARY SHIELD WATER WALL COOLER PANEL SECTIONS

1-CC-E-2 PIPE PENETRATIONS COOLING COILS (OUTER)

INCORE INST ROOM SUMP (FM-72B) (G-5)

NOTES:
GENERAL NOTES & REFERENCE DRAWINGS FM-72A

APPROVED _____
CERTIFIED PROFESSIONAL ENGINEER NO. _____
COMMONWEALTH OF VIRGINIA

VALVE OPERATING NUMBERS
COMPONENT COOLING WATER
SHEET 2

SURRY POWER STATION
VIRGINIA ELECTRIC AND POWER COMPANY
STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.
DRAWING NUMBER 11448-FM-72B

ORIGINAL ISSUE

11448-FM-72A

OUTSIDE REACTOR CONTAINMENT | INSIDE REACTOR CONTAINMENT

REACTOR COOLANT PUMPS

REACTOR GROUND COOLING COILS (TYP)

EXCESS LETDOWN HEAT EXCHANGER

PRIMARY DRAIN COOLER

SEAL COOLER 1-RH-E-2A

SEAL COOLER 1-RH-E-2B

RESIDUAL HEAT REMOVAL PUMPS

1-CC-E-2 PIPE PENETRATION COOLING COILS (INNER)

CLASS 2 (TYP)

TO REACTOR CONTAINMENT SUMP (TYP)

RESIDUAL HEAT REMOVAL EXCHANGERS

DETAIL A
TYP ORIFICE FLANGES

NOTES

1. PROVIDE ROOT VALVES AT ALL FLOW CONNECTIONS SEE DETAIL A.

REFERENCE DRAWINGS

VALVE OPERATING NUMBERS-COMPONENT COOLING WATER SH. 2-6	FM-72B-F
VALVE OPERATING NUMBERS-AUXILIARY STEAM & AIR REMOVAL SH.1 & 2	FM-66A&B
VALVE OPERATING NUMBERS-CONDENSATE	FM-67A
VALVE OPERATING NUMBERS-CIRCULATING & SERVICE WATER SHEETS 1 & 2	FM-71A&B
VALVE OPERATING NUMBERS-BORON RECOVERY SYS. SH.2	FM-79B
VALVE OPERATING NUMBERS-WASTE DISPOSAL SYS. SH.2	FM-80B
VALVE OPERATING NUMBERS-SAMPLING SYS. SH. 1, 2 & 3	FM-82A,B&C
VALVE OPERATING NUMBERS-VENTS & DRAINS SH 1 & 2	FM-83A&B
VALVE OPERATING NUMBERS-STEAM GEN. BLOWDOWN	FM-124A
FLOW DIAGRAM-COMPRESSED AIR SYSTEM SH. 5	FM-25E
REACTOR CONTAINMENT PENETRATIONS	FV-1A
VALVE OPERATING NUMBERS-COMPONENT COOLING WATER SH. 1 & 2	11548-FM-72A&B
VALVE OPERATING NUMBERS-AUX. STM. & AIR REM.	11548-FM-66A
VALVE OPERATING NUMBERS-CONDENSATE	11548-FM-67A
VALVE OPERATING NUMBERS-CIRCULATING & SERVICE WATER SHEETS 1 & 2	11548-FM-71A&B
VALVE OPERATING NUMBERS-SAMPLING SYSTEM	11548-FM-82A
VALVE OPERATING NUMBERS-CHEMICAL & VOLUME CONTROL SYSTEM SHEET 2	11548-FM-88B
FLOW DIAGRAM-COMPONENT COOLING WATER	FM-22A-F

COMMONWEALTH OF VIRGINIA — No. 5443 — CERTIFIED PROFESSIONAL ENGINEER

APPROVED Robert M. Limouth

VALVE OPERATING NUMBERS COMPONENT COOLING WTR SH1

SURRY POWER STATION
VIRGINIA ELECTRIC AND POWER COMPANY
STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.

DRAWING NUMBER 11448-FM-72A

MARK	DESCRIPTION	CHKD	CORR	APPR	DATE	ISSUE
7B	ADDED ORIFICE WHERE 3" VALVES DELETED, DELETED NOTE 3 RELOCATED, REVISED SMALL TO ADHERE WITH NO.					
6	ADDED ORIFICE WHERE 3" VALVES DELETED, DELETED NOTE 3 RELOCATED, REVISED SMALL TO ADHERE WITH NO.					
5	ADDED VALVES, VALVE SYMBOLS, NOTE 2 & 7 & 8 CHANGES, REVISED VALVE SYMBOLS					
4	ADDED VALVES, VALVE SYMBOLS, NOTE 2 & 7 & 8 CHANGES, REVISED VALVE SYMBOLS					
3	ADDED VALVES, VALVE SYMBOLS, NOTE 2 & 7 & 8 CHANGES, REVISED VALVE SYMBOLS					
2	EMCS & VALVES ADDED, R.C. PUMP LINES REVISED					
1	ORIGINAL ISSUE					

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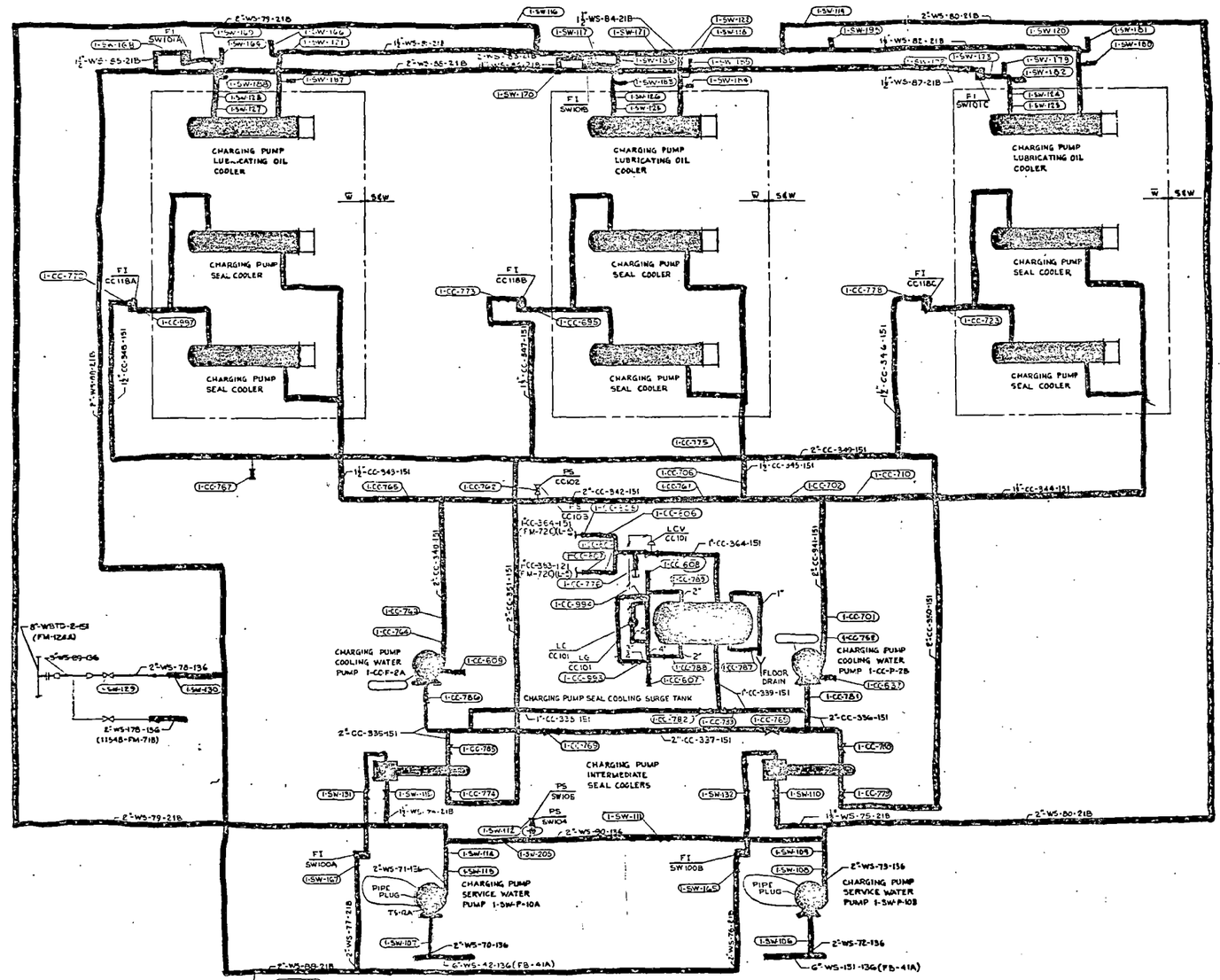
Designed by
Des. Ck'd by
Drawn by
Ck'd by

RETURN TO REACTOR DOCKET FILES

50-280
LTR 5-17-79
7905220142

11448-FM-71B



REFERENCE DRAWINGS:
VALVE OPERATING NUMBERS STEAM GENERATOR BLOW DOWN FM-12AA
VALVE OPERATING NUMBERS CIRC. & SERVICE WATER SH. 2 11548-FM-71B
VALVE OPERATING NUMBERS COMPONENT COOLING WATER SH. 3 FM-72C
FLOW DIAGRAM CIRCULATING & SERVICE WATER SH. 2 FM-21B
FLOW DIAGRAM CHILLED & CONDENSER WATER SYSTEMS FB-41A

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COMMONWEALTH OF VIRGINIA — ROBERT M. SIMONETTI — NO. 04123 — CERTIFIED PROFESSIONAL ENGINEER

APPROVED Robert M. Simonetti — CERTIFIED PROFESSIONAL ENGINEER — COMMONWEALTH OF VIRGINIA — NO. 04123

VALVE OPERATING NUMBERS CIRCULATING & SERVICE WATER SHEET NO. 2

SURRY POWER STATION
VIRGINIA ELECTRIC AND POWER COMPANY
STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.
DRAWING NUMBER 11448-FM-71B

ISSUE	DESCRIPTION	CHK'D	COMP	APPR	DATE
7	REVISED 1-SW-193E 192 TO 1-CC-794				
6	DELETED VALVE 'M' OUTLET OF 1-CH-E-1A THRU 'P' REVISED PIPING AT 1-SW-E-1A(B)				
5	ADDED, DELETED & REVISED VALVES & VALVE OPER NOS. ADDED P2-SW-105, MINOR CHANGES				
4	ADDED WELDMENTS (DRAINS AND DELETED VALVES.				
3	REVISED 2"-WS-78-136, 1-CC-743 PIPING, ADDED VALVES, STRAINERS, VALVE OPER NOS & LINE NOS				
2	ORIGINAL ISSUE				
1	ORIGINAL ISSUE				

Designed by Dwn Ch'd by
Drawn by J.J.B. Ch'd by G.P.S.

RETURN TO REACTOR DOCKET FILES

50-280
LTR 5-17-79
7905220142

11448-FM-71A

RECIRCULATION SPRAY HEAT EXCHANGERS
1-RS-E-1A 1-RS-E-1B 1-RS-E-1C 1-RS-E-1D

WITHIN CONTAINMENT

DISCHARGE TUNNEL

CLASS 2 (TYP)

UNIT 1 BEARING COOLING H2O HEAT EXCHANGERS

UNIT 1 & 2 COMPONENT COOLERS H2O HEAT EXCHANGERS

CONDENSER 1-CN-SC-1A

CONDENSER 1-CN-SC-1B

4-6" CONN FOR CONDENSER TUBE CLEANING (FM-113A)(B,E,H & K-7)

CHILLED WATER UNIT CONDENSER 1-CD-SC-1

SERVICE WATER PUMPS 1-SW-P-4A&4B

SCREEN WASH PUMPS

INTAKE CANAL

LOW LEVEL VACUUM PRIMING HOUSE

CIRCULATING WATER PUMPS

EMERGENCY SERVICE WATER PUMPS

TO INTAKE CANAL

AIR INTAKE FILTER 1-IA-C-3A

AFTERCOOLER

RECEIVER

DRYER

CROSS CONN TO 1-IA-C-3B

FROM 1-IA-C-3B

FROM 2PAINS 1-IA-C-3B

REFERENCE DRAWINGS:

FLOW DIAGRAM-HEATING STEAM & CONDENSATE	FE-21A
FLOW DIAGRAM-CHILLED & CONDENSER WATER SYSTEMS	FE-41A
VALVE OPERATING NUMBERS CONDENSATE	FM-67A
VALVE OPERATING NUMBERS COMPONENT COOLING WATER SYS.	FM-72D
VALVE OPERATING NUMBERS VACUUM PRIMING	FM-74A
VALVE OPERATING NUMBERS FLASH EVAPORATOR	FM-77A
VALVE OPERATING NUMBERS STEAM GENERATOR BLOWDOWN	FM-126A
VALVE OPERATING NUMBERS RADIATION MONITORING-CIRCULATING & SERVICE WATER	FM-150A
MISCELLANEOUS PIPING-INTAKE STRUCTURE	FE-71A
VALVE OPERATING NOS. CIRC. & SERVICE WATER SYS. 1548	FM-71A
VALVE OPERATING NOS. BEARING COOLING WATER	FM-73A
VALVE OPERATING NOS. CONDENSER TUBE CLEANING	FM-113A

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APPROVED ... DATE ...

VALVE OPERATING NUMBERS CIRCULATING & SERVICE WATER SHEET NO. 1

SURRY POWER STATION
VIRGINIA ELECTRIC AND POWER COMPANY
STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.

DRAWING NUMBER 11448-FM-71A

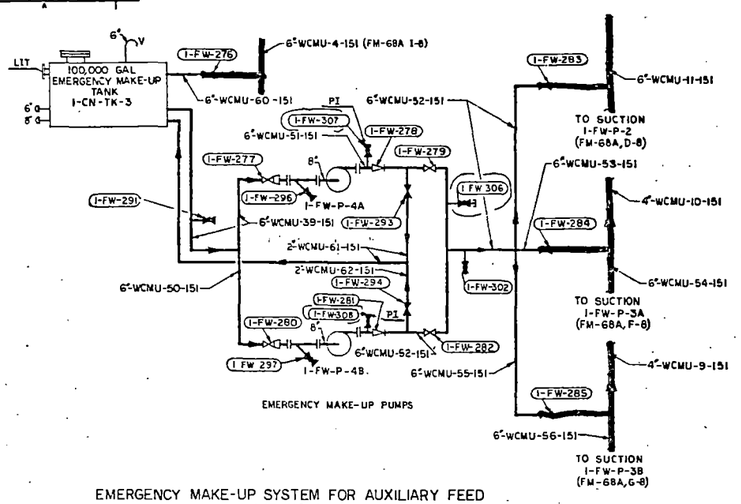
ISSUE	DESCRIPTION	CHKD	CORR	APPR	DATE
6	DELETE SLUICE PP FCV'S 2-22 AS BUILT				2-9-78
5	ADDED NEW MATERIAL FOR 1-21B				3-75
4	DELETED ADD'L VALVES				
3					
2					
1	ORIGINAL ISSUE				

Designed by
Des. Ck'd by
Drawn by C. NIETER
Ck'd by E. ...

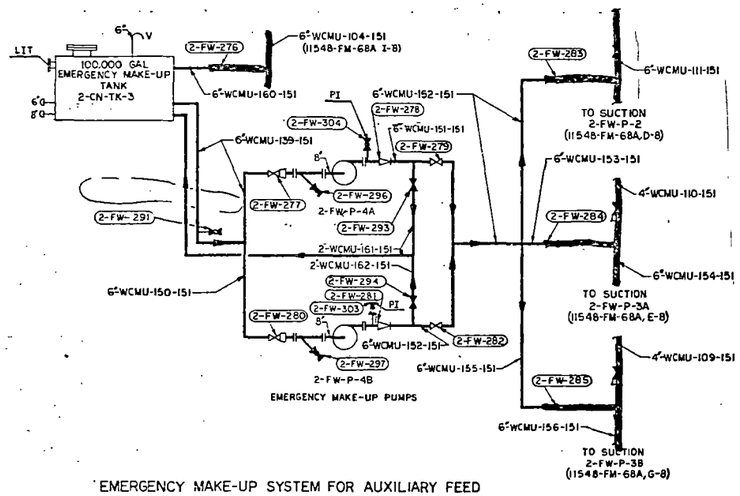
RETURN TO REACTOR DOCKET FILES

50-280
LTR 5-17-79
7905220142

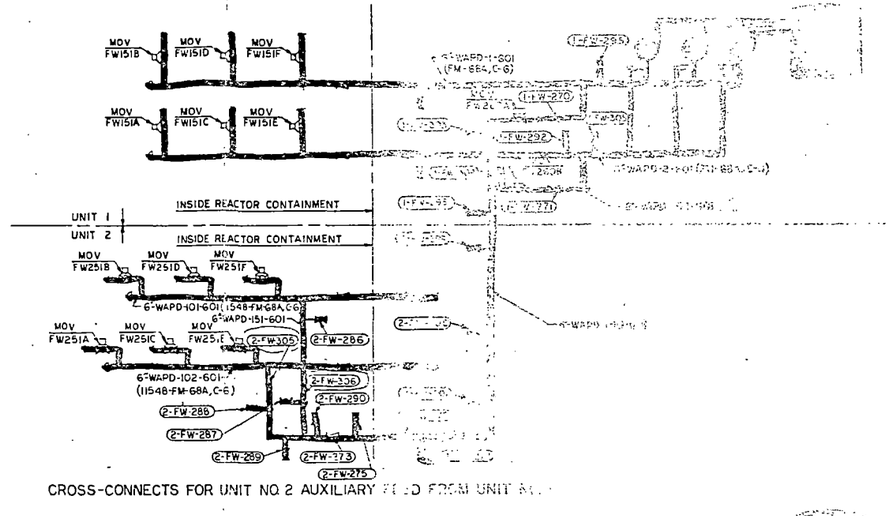
11448-FM-68B



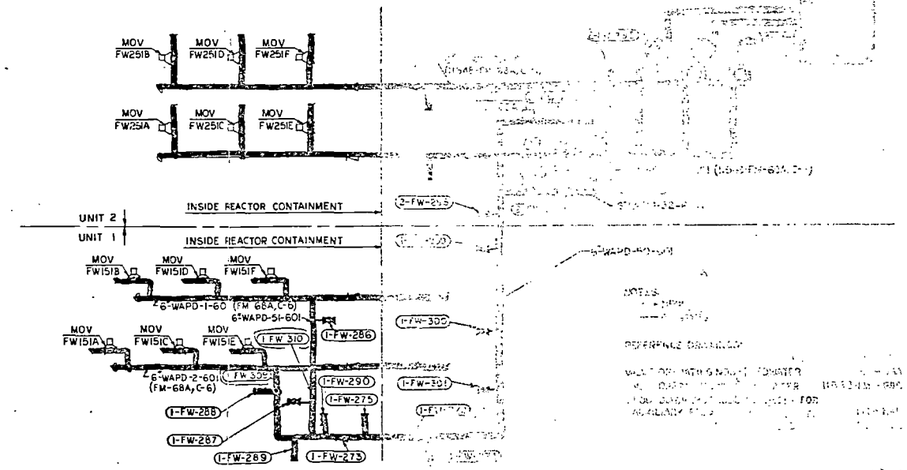
EMERGENCY MAKE-UP SYSTEM FOR AUXILIARY FEED UNIT NO. 1



EMERGENCY MAKE-UP SYSTEM FOR AUXILIARY FEED UNIT NO. 2



CROSS-CONNECTS FOR UNIT NO 2 AUXILIARY FEED FROM UNIT N...



CROSS-CONNECTS FOR UNIT NO 1 AUXILIARY FEED FROM UNIT NO 2

ADDED: VALVE & VALVE OPERATING NUMBERS DELETED VALVE No. 302

ADDED CHECK VALVES

ORIGINAL ISSUE

RETURN TO REACTOR DOCKET FILES

50-280
LTR 5-17-79
7905220142

11448-FM-68A

STEAM GENERATORS

CHEMICAL FEED SYSTEM (FM-123A)

CLASS 1 (TYP.)

CLASS 2

CLASS 3

14"-WFPD-17-601

14"-WFPD-13-601

14"-WFPD-9-601

4"-WFPD-19-601

4"-WFPD-15-601

4"-WFPD-11-601

FEED WATER HEATERS

1-FW-E-1A

1-FW-E-1B

18"-WFPD-4-901

18"-WFPD-5-901

14"-WFPD-27-901

SAMPLE CONN TO SAMPLE SINK FM-82B

CONDENSER 1-CN-SC-1A

18"-WFPD-3-901

18"-WFPD-1-901

18"-WFPD-2-901

6"-WFPR-4-151

6"-WFPR-3-151

6"-WFPR-5-151

6"-WFPR-2-901

8"-WFPR-1-901

1"-WFPD-40-901

1"-WFPD-41-901

FROM CONDENSATE SYS (FM-67A)

STEAM GENERATOR FEED PUMPS

1-FW-P-1A

3'-OVERFLOW

6"-WCMU-60-151 (FM-68B B-1)

6"-WCMU-4-151 (FM-67A) (A-8)

MISSILE PROTECTION

WALL OF REACTOR CONTAINMENT

AUX ST GEN FEED PUMPS

FIRE MAIN (FB-3B)

TO WASTE (TYP)

REFERENCE DRAWINGS

YARD WATER & FIRE PROTECTION LINES SH.2	FB-3B
VALVE OPERATING NUMBERS CHEMICAL FEED	FM-123A
VALVE OPERATING NUMBERS CONDENSATE	FM-67A
VALVE OPERATING NUMBERS SAMPLING SYSTEM SH 2	FM-82B
FLOW DIAGRAM FEEDWATER	FM-18A

R. M. SIMONETTI No. 6423

APPROVED Robert M. Simonetti

VALVE OPERATING NUMBERS FEEDWATER

SURRY POWER STATION
VIRGINIA ELECTRIC AND POWER COMPANY
STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.

DRAWING NUMBER 11448-FM-68A

NO.	DESCRIPTION	CHKD	COMM	APPR	DATE	ISSUE
6	ADD: 6"-WMPD-30-51,150 152; 6"-WCMU-22,33,54,55,56 (60 TOW DC 73-183				7-2-75	4
5	ADDED BY-PASSES 1-FW-235, 236,237, 238, 239, 240.				1-2-75	3
4	ADDED 6"-WFPD-401 & 41 (FM-68B K-8) 6"-WFPD-50-601 & 51-601 & VALVES AT MOV FW150A&B. ADDED SAMPLE VALVES 1 & 2 PUNT					2
3	VALVE ADDED VALVE OPERATING NUMBERS REVISED, DELETED, MINOR CHANGES					1
2	ORIGINAL ISSUE					

Designed by Des. Ch'd by

Drawn by SE-MEGHECE Ch'd by EM AMEND

11448-FM-66A

REFERENCE DRAWINGS

VALVE OPERATING NUMBERS	M.S.G. DRAINS SECONDARY PLANT	FM-78A
VALVE OPERATING NUMBERS	MAIN STEAM	FM-64A
VALVE OPERATING NUMBERS	CHEMICAL CLEANING	FM-116A
VALVE OPERATING NUMBERS	EXTRACTION STEAM	FM-65A
VALVE OPERATING NUMBERS	CONDENSATE	FM-67A
VALVE OPERATING NUMBERS	AUX STM. & AIR REMOVAL SH 2	FM-66B
VALVE OPERATING NUMBERS	COMPONENT COOLING WATER SH 4	FM-72D
VALVE OPERATING NUMBERS	AUX STM & AIR REMOVAL SH 1 1548	FM-66A
VALVE OPERATING NUMBERS	HEATING COOLING WATER	FM-73A
FLOW DIAGRAM	AUX STM & AIR REMOVAL SH 1	FM-16A

VALVE OPERATING NUMBERS
AUX STM & AIR REMOVAL
SHEET - 1

SURRY POWER STATION
VIRGINIA ELECTRIC AND POWER COMPANY
STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.

DRAWING NUMBER 11448-FM-66A

NO.	DESCRIPTION	DATE
6	ADDED BYPASS LINE AROUND 1-MS-87A/B-2033-10	12-2-77
5	CAPPED 28-16-301 (B-1) DC 73-162	9-22-76
4	ADDED VENT VALVES IN B SA-6-301 SECTION 1 20 VALVES AT 4" CHEM. FEEDERS; 1 VALVES AT 4" CHEM. FEEDERS	
3	CHGD I/D 1-MS-1-81-19) TO 1-MS-70-86	
2	ADDED VENT VALVES	
1	ORIGINAL ISSUE	
8	ADDED REFERENCE DWG NO. (H-7) FOR CLARITY	3-5-79
7	ADDED LINES 12"-WCPS-2-151 TO 1-CD-P-3A AND 1-CD-P-3B AND 12"-SA-1-301	2-9-78

Designed by
Dwg. Ckd'd by

11448-FM-64A

STEAM GENERATORS

CLASS 2 (TYP.)
CLASS 1

WALL OF REACTOR CONTAINMENT

TURBINE DRIVES FOR CONTAINMENT SPRAY PUMPS 1-CS-P-1A&1B

TURBINE DRIVE FOR AUXILIARY STEAM GENERATOR FEED PUMP (1-FW-P-2)

OUTSIDE INSIDE TURB BLDG WALL

SHIELD WALL (TYP.)

MOISTURE SEPARATOR & REHEATER (TYP)

L.P. TURBINE NO. 1

NO. 2 L.P. TURBINE

H.P. TURBINE

CONDENSER 1-CN-SC-1A

CONDENSER 1-CN-SC-1B

TO ATMOS (TYP)

TO CYLINDER HEATING

REFERENCE DRAWINGS

VALVE OPERATING NUMBERS	EXTRACTION STEAM	FM-65A
VALVE OPERATING NUMBERS	AUX STEAM & AIR REMOVAL SH 1	FM-66A
VALVE OPERATING NUMBERS	MISC. DRAINS SECONDARY PLANT	FM-75A
VALVE OPERATING NUMBERS	SAMPLE SYSTEMS SH 2	FM-82A
VALVE OPERATING NUMBERS	TURBINE GLAND STEAM	FM-117A
FLOW DIAGRAM	STEAM GENERATOR BLOWDOWN	FM-124A
	MAIN STEAM	FM-140A

APPROVED

CERTIFIED PROFESSIONAL ENGINEER NO. 6463
COMMONWEALTH OF VIRGINIA

VALVE OPERATING NUMBERS MAIN STEAM

SURRY POWER STATION
VIRGINIA ELECTRIC AND POWER COMPANY
STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.

DRAWING NUMBER 11448-FM-64A

NO.	DESCRIPTION	DATE
6	CAPPED TUBE FOR CONT SPRAY 1-CS-P DC 73-102	5-10-76
5	CHANGED A & B MIN-IN CHANGES.	
4	REVISED VALVE OPERATING NO.	
3	REVISED VALVE NO.	
2	REVISED AND DELETED VALVE OPERATING NUMBERS, MINOR CHANGES.	
1	ORIGINAL ISSUE	

50-280
Ltr 5-17-79
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