

SOUTH CAROLINA ELECTRIC AND GAS COMPANY
VIRGIL C. SUMMER NUCLEAR STATION
NUCLEAR OPERATIONS

ADMINISTRATIVE PROCEDURE

AP-014

PRESERVICE INSPECTION

REVISION 5

APRIL 16, 1981

SAFETY RELATED

Reviewed by:

John D. Monroe 4/16/81
ORIGINATOR (of this revision) Date

S. J. Smith 4-20-81
GROUP SUPERVISOR Date

Approved:

Al Brackham 4/21/81
PLANT MANAGER Date

Date Issued: _____

Form AP-101-3, (1/80)

8105050304

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1.0 PURPOSE

- 1.1 The purpose of this procedure is to provide the administrative guidelines, coordination control and the interface with associated organizations for Nuclear Operations personnel in the administration of the preservice inspection program required by the A.S.M.E. code, section XI, for the Virgil C. Summer Nuclear Station.

2.0 REFERENCES AND GLOSSARY

2.1 References.

- 2.1.1 A.S.M.E. code, Section XI, 1974 edition through Summer 1975 addenda.
- 2.1.2 SCE&G Operational Quality Assurance Plan.
- 2.1.3 SCE&G Quality Assurance Plan.
- 2.1.4 SCE&G Production Engineering Procedures.
- 2.1.5 SCE&G Quality Control Procedures.
- 2.1.6 D.C.C. Quality Control Procedures.
- 2.1.7 D.C.C. Work Procedures.
- 2.1.8 SCE&G Nuclear Operations Start-Up Procedures.
- 2.1.9 VCS Administrative Procedure AP-101.
- 2.1.10 Code of Federal Regulations, Title 10, Part 50.55 a(g) (4).
- 2.1.11 AP-002, Qualifications of External Personnel.
- 2.1.12 AP-1200, Inspection of Activities Affecting Quality.

2.2 Glossary

2.2.1 Abbreviations

- | | | |
|------|---|---|
| ANII | - | Authorized Nuclear Inservice Inspector (Section 5.9.2) |
| CWR | - | Construction Work Request; Outlined in Start-Up Manual SUM-B-5 |

NCN - Non-conformance Notice; Outlined in AP-209
Nonconformance Control

SFR - Start-Up Field Report; Outlined in Start-Up
Manual SUM-B-13

2.2.2 Definitions

Code - in this procedure shall refer to ASME Code,
Section XI.

Designee - Any individual, approved by the Manager, V. C. Summer Station or appropriate supervisor, designated to assume the responsibilities and duties of titled plant personnel and function in their stead, to include the authority to make decisions in the same capacity as the titled plant personnel for whom assigned individual is an alternate.

3.0 RESPONSIBILITY

- 3.1 The SCE&G Operations Manager, VC Summer Nuclear Station, is responsible for the overall implementation of the preservice inspection program for Nuclear Operations.
- 3.2 The SCE&G Nuclear Operations Maintenance Supervisor is assigned the responsibility for the coordination of scheduling activities, procedure development and control, problem resolution, and the general day to day work activities associated with the conduct of the preservice inspection program.
- 3.3 SCE&G Nuclear Operations personnel are responsible for assuring that work is performed in accordance with this procedure.

4.0 GENERAL

- 4.1 ASME Boiler and Pressure Vessel Code Section XI, Rules for Inservice Inspection which includes preservice inspection, is addressed to provide rules for the examination, testing, and inspection of Class 1, 2, and 3 components and systems in a nuclear power plant. Application of this Section of the Code begins when the requirements of Section III of the code, Rules for Construction of Nuclear Power Plant Components, have been satisfied.

- 4.2 ASME Code, Section XI, assigns SCE&G the responsibility of developing a program which will demonstrate conformance to the requirements of Section XI of the Code. The responsibilities includes:
- a. The requirements to provide access in the design and arrangement of the plant to conduct the examination and tests.
 - b. Developing plans and schedules including detailed examination and testing procedures for filing with the enforcement and regulatory authorities having jurisdiction at the plant site.
 - c. Conduct of the program of examinations and test, system leakage and hydrostatic pressure tests, as well as performance tests of pumps and valves.
 - d. Recording the results of the examinations and tests, including corrective actions required and the actions taken.
- 4.3 Westinghouse has the responsibility of providing access, in the design and arrangement of the plant to conduct the required examinations and tests for Class 1 and Class 2 and GAI for Class 3.
- 4.4 On site inspections and responsible organizations are listed below:

| <u>TYPES OF INSPECTION</u> | <u>RESPONSIBLE ORGANIZATION</u> |
|---|---------------------------------|
| a) Examination & Inspection IWB-2000, IWC-2000 | Westinghouse (Note 1) |
| b) Examination & Inspection IWD-2000 | SCE&G Nuclear Operations |
| c) System Leakage and Hydrostatic Pressure Tests - IWB-5000, IWC-5000, IWD-5000 | SCE&G Nuclear Operations |
| d) Inservice Testing of Pumps Subsection IWP | SCE&G Nuclear Operations |
| e) Inservice Testing of Valves Subsection IWV | SCE&G Nuclear Operations |
| f) Component Supports | SCE&G Nuclear Operations |

NOTE 1 - Conduct of examinations other than hydrostatic testing required by ASME Code, Section III, for Code Class 1 and 2 systems will be performed by Westinghouse.

4.5 Control and Interface.

In conducting the on-site inspections, testings, problem identification and resolution, documentation, etc., Nuclear Operations and other interfacing organizations will perform work to various procedures. These interfacing procedures are as follows:

4.5.1 Westinghouse Procedures.

- A. ISI-QP-6.1 - "Isometric Sketch, Preparation and Control".
- B. ISI-QP-6.2 - "Control of Onsite Inspection Activities".
- C. ISI-8 - Visual Examination Procedure.
- D. ISI-10 - Preservice and Inservice Examination Manual Ultrasonic Equipment Qualification.
- E. ISI-11 - Liquid Penetrant Examination Procedure.
- F. ISI-15 - Ultrasonic Examination of Studs, Bolts and Nuts.
- G. ISI-17.1 - "Preparation of Inspection Program Reports".
- H. ISI-41 - Manual Ultrasonic Testing of Reactor Coolant Pump Flywheels.
- I. ISI-47 - Manual Ultrasonic Examination of Circumferential and Longitudinal Butt Welds in Ferritic Vessels if 2 1/2" Thick and Greater.
- J. ISI-52 - "Operation Procedure for Reactor Vessel Examination Using the Westinghouse Remote Inspection Tool".
- K. ISI-70, "Magnetic Particle Examination".
- L. ISI-71 - "Wet Magnetic Particle Inspection".
- M. ISI-205 - Manual Ultrasonic Examination of Full Penetration Circumferential and Longitudinal Butt Welds.

N. OPS-NSD-101 - Preservice and Inservice Inspection Documentation.

4.5.2 SCE&G Production Engineering Procedure NE-127, ASME Code Section XI, Engineering Interface Procedure.

4.5.3 SCE&G Nuclear Operations Procedures from the Start-Up Manual:

- A. SUM-B-5 - Construction Work Requests.
- B. SUM-B-13 - Start-Up Field Report (SFR).
- C. SUM-C-1 - Hydrostatic and Pneumatic Tests.
- D. Surveillance Testing Procedures.

4.5.4 SCE&G Quality Control Procedures.

- A. FQCP 2.1.4 - Nonconformance Control and Procedure.

4.5.5 DCC Procedures.

- A. Daniel AP-VI-02, ASME Code Related - Nonconformance and Corrective Action.
- B. DCC QC Procedures - Weld Inspection or Evaluation.

4.6 Functional Organization.

4.6.1 A group will be established under the administration of the SCE&G Nuclear Operations Maintenance Supervisor, to coordinate the day to day on site activities of the preservice inspection program. These activities include scheduling, procedure review, approval, revision and control, coordinating on site inspections, problem resolution and tracking, collecting and reviewing results, interface with NRC and Authorized Inspection Agency and the submittal of required documents.

5.0 PROCEDURE

5.1 Work Coordination.

- 5.1.1 The SCE&G Nuclear Operations Maintenance Supervisor or his designee shall coordinate the day to day activities required to implement and perform the onsite preservice inspection program. He shall call upon Nuclear Operations personnel and other SCE&G Organizations to assist him in performing this work. Periodically, he shall hold meetings to update all interfacing organizations and perform the functions set forth in this procedure.

5.2 Scheduling.

- 5.2.1 The SCE&G Maintenance Supervisor or his designee shall;
- a. Develop a schedule of inspection and work activities. and update the schedule as required.
 - b. Ensure that interfacing organizations review the schedule and perform work under their interfacing procedures, as required, to meet the schedule.
 - c. Coordinate the work of interfacing organization and that of Nuclear Operations from a schedule standpoint.
 - d. Keep the SCE&G Manager, V. C. Summer Nuclear Station informed of the progress of the schedule and of any problems that arise in order that appropriate levels of management may be informed.

5.3 Procedure Review and Approval.

- 5.3.1 Subcontractor procedures used for conduction of spections, correction of deficiencies and documentation of results shall be subjected to an administrative/technical review and approval as described in reference 2.1.9. Work performed by these procedures will be under the guidelines of the SCE&G Operational Quality Assurance Plan. A "Release to Work" will be given by QA prior to the performance of any inspections by contract personnel.

5.4 Performance of Inspection.

- 5.4.1 The required inspections are listed in Section 4.4, components to be inspected are listed in the applicable section of the preservice plan. Performance of these inspections shall be in accordance with the approved procedures listed in Section 4.5 by responsible organizations. Qualifications of personnel performing there inspections will be in accordance with reference 2.1.11 and 2.1.12.

5.5 Technical Problem Resolution and Tracking.

5.5.1 Technical problems discovered during the course of the inspection will be reported to the SCE&G Nuclear Operations Maintenance Supervisor or his designee. He will decide upon the correct course of action to resolve the problem. Approved site procedures such as N.C.N.'s, SFR's, CWR's, etc., will be used to correct these problems. Resolution of problems outside the scope of existing procedures shall be directed to appropriate levels of management or other organizations as appropriate.

5.5.2 The resolution of problems may involve repairs of welds, components, supports, equipment, etc. Where the requirements of ASME Code, Section III, Rules for Construction of Nuclear Power Plant Components, have been satisfied and repair is necessary, repair procedures shall be in accordance with ASME Code, Section XI, article IWA-4000. Where the above requirements have not been satisfied, repair procedures shall be in accordance with ASME Code, Section III. All repairs performed in accordance with ASME Code Section XI will be under the jurisdiction of the SCE&G Manager, Quality Control and/or SCE&G Nuclear Operations Quality Control.

5.5.3 The SCE&G Nuclear Operations Maintenance Supervisor shall establish a system for tracking problems that develop during the preservice inspection program. The system shall consist of appropriate log sheets or tracking forms that will identify the problem, follow its resolution, and follow any required retest or inspection to close out the problem.

5.6 Evaluation of Results.

5.6.1 The SCE&G Nuclear Operations Maintenance Supervisor or his designee will be responsible for ensuring that interfacing organizations or other qualified personnel perform evaluations of examinations in accordance with ASME Code, Section XI. Standards for evaluation of examination results are listed below:

| <u>AREA OF EXAMINATION</u> | <u>STANDARD FOR EVALUATION</u> |
|--------------------------------------|--------------------------------|
| 1. Weld Examination Evaluation | IWA-3000 |
| 2. Pressure Test Evaluations | IWA-5000 |
| 3. Pump Performance Test Evaluations | IWP-3000 |
| 4. Valve Testing Evaluations | IWV-3000 |

5.6.2 Evaluations of indications on Code Class 1 and 2 systems and components to determine acceptability or rejection to the requirements of ASME Code, Section XI shall be performed by Westinghouse through on SNT-TC-1A qualified Level III examiner.

a. Gilbert Associates resident engineer shall review the Westinghouse evaluation for Class 1 and 2 systems and components and provide disposition for any necessary action.

5.6.3 Evaluations of indications on Code Class 3 systems and components shall be evaluated by Gilbert Associates and the resident engineer shall provide disposition.

5.6.4 Evaluations conducted by other organizations shall be coordinated by the Maintenance Supervisor.

5.7 Qualifications of Inspection Personnel.

5.7.1 All personnel performing non-destructive examination of systems or components will be qualified under the requirements of SNT-TC-1A 1975 Ed. A list of qualifications of contractor supplied examiners will be submitted to SCE&G/QC and SCE&G/QA for review in accordance with Section 11.5 of the SCE&G Operational Quality Assurance Plan and reference 2.1.11.

5.8 Reports and Records

5.8.1 The SCE&G Manager, V.C. Summer Nuclear Station, shall be responsible for the compilation of results, records and inspection reports. Requirements of ASME Code, Section XI, Article IWA-6000 will be met. The precise formats for recording of results are shown in the procedures listed in Section 4.5.1 and 4.5.3.

5.8.2 The SCE&G Manager, V.C. Summer Nuclear Station or his designee shall be responsible for ensuring that all records of preservice inspection results, problem evaluation and resolution and changes to the inspection program are prepared and retained in accordance with the guidelines established by articles IWA-6000, IWP-6000 and IWV-6000 of the Code.

5.8.3 A copy of inspection, test and examination records shall be retained for the service lifetime of the component(s) inspected.

5.8.4 The SCE&G Manager, V.C. Summer Nuclear Station, will ensure that a preservice inspection report is prepared and submitted in accordance with the guidelines established by article IWA-6000 of the Code.

5.9 Authorized Inspection Agency Interface.

- 5.9.1 The Authorized Inspection Agency for preservice inspection is the American Motorists Insurance Company, a subsidiary of the Kemper Insurance Company.
- 5.9.2 Duties of the Authorized Nuclear Inservice Inspector (ANII) include witnessing any pressure testing, reviewing nondestructive examination procedures, reviewing repair programs, verifying that the visual examinations and test on pumps and valves have been completed and the results recorded, and requiring requalification of any welder, inspection or procedure when he has reason to believe the requirements of the Code, are not being met.
- 5.9.3 The SCE&G Nuclear Operations Maintenance Supervisor will ensure that the ANII is provided with the following:
 - A. Procedures for examination, testing, evaluation and repair of code class 1, 2, and 3 systems and components, including pumps and valves.
 - B. Results and evaluations of examinations of pumps and valves.
 - C. Schedules pertinent to the pressure testing of systems and components.
 - D. Qualification of personnel performing test inspection or repairs per the Code.
- 5.9.4 The SCE&G Nuclear Operations Maintenance Supervisor shall act as liason between the ANII and other interfacing organizations.

5.10 NRC Interface.

- 5.10.1 The SCE&G Manager, V.C. Summer Nuclear Station or his designee shall be responsible for providing the NRC with any information pertinent to the preservice inspection. He shall ensure that all records and reports are correctly assembled, and reviewed prior to submittal to the NRC for review. The SCE&G Manager, V.C. Summer Nuclear Station or his designee shall act as the station liason for any NRC inspection or audit during the performance of the preservice inspection.

5.11 Revision to the scope of the Preservice Inspection Program

- 5.11.1 Changes to the number or types of components or equipment to be inspected will be the responsibility of the organization performing the inspection. Justification for deletion, alternate means of inspection or additional components to be inspected will be provided in accordance with the Code.

1.0 NON-DESTRUCTIVE TESTING FOR PRESERVICE INSPECTION AND TESTING PROGRAM

1.1 The scope of non-destructive testing for preservice inspection has been concluded at Virgil C. Summer Nuclear Station. All examinations were conducted to the extent required by Section XI of the ASME Boiler and Pressure Vessel Code 1974 Edition with all addenda through Summer 1975. Known relief from ASME Code Section XI requirements are included in request for relief section of this part of the Preservice Inspection Plan. When a specific code requirement cannot be accomplished during actual Preservice Inspection these relief requests will be submitted for approval to the NRC.

1.2 Where possible, all welds are UT examined from both sides of the weld in accordance with ASME Code, Section V (T-535). Where welds can be examined from one side only, essentially 100% of the weld is examined assuring the entire volume of the weld has been examined.

1. Some of the arrangements and details of the piping system and components were designed and fabricated before the access and examination requirements of Section XI of the 1971 Code could be applied; consequently, some examinations are limited or not practical due to geometric configuration or accessibility. Generally, these limitations exist at all fitting to fitting joints, such as elbow to tee, elbow to valve, reducer to valve, etc., where geometry and sometimes surface condition preclude ultrasonic coupling or access for the required scan length.
2. The limitations exist to a lesser degree at pipe to fitting assemblies, particularly where the weld is not ground flush with the pipe O.D. surface. At these joints, examinations can be conducted from the pipe side, however, the fitting, again, limits or precludes examination from the opposite side.

3. When the weld surface is flat, the fitting side examination is replaced by a calibrated straight beam examination on the weld.
 4. In most cases, examinations in these areas were accomplished as a best effort attempt to cover as much of the required area (generally, the weld and base metal for 1 "T" on each side) as possible, however, the extent of examination coverage in the base metal of the fitting or component cannot be specifically qualified.
 5. Areas where complete examination of 100% of the required volume from one direction could not be achieved are indicated by PAR (partial) notation on the examiner's data sheet, and the limiting cause is noted. Code requirements will have been satisfied since 100% of the weld was examined by use of a combination of UT examining directions.
- 1.3 Additional non-destructive testing required subsequent to this revision due to modification, additions, rework, etc. shall be conducted as required. Information regarding additional examinations shall be submitted in revised issues of the pre-service program. If, in additional examinations, an area is found where essentially 100% of the weld cannot be examined as required by ASME Section XI, IWB-2100, relief requests shall be submitted which include the extent of examination performed and the primary reason a complete examination is impractical. Included in these relief requests will be the alternate examination method and/or supplemental examinations performed. A list of these welds will be provided following preservice inspection.
- 1.4 Components will be examined in accordance with ASME Section XI, Subsection IWA, IWB, IWC, and IWD.
1. All piping has been reviewed by SCE&G against the NRC's Quality Groups A, B, and C which corresponds respectively to ASME Section III, Class 1, 2 and 3.
 2. All Class 1 and 2 systems and components have been reviewed by SCE&G against the respective ASME, Section XI, Subsection IWB-1220 and IWC-1220 exemption criteria.

3. Class 3 systems and components, and exempt Class 1 and 2 components require only a visual examination during pressure testing in accordance with IWA-5000. The scoped flow drawing Subsection VI of this section are used during the visual examinations to aid in the location and position of any component which have reportable discrepancies during the test.

1.5 Determination of ASME Section XI, Code categories for Class 1 and 2 components.

1. All Class 1 and 2 components have been categorized in accordance with ASME Section XI Table IWB-2500 and IWC-2520 respectively. These generated tables are included as subsection II of this section of the Preservice Plan. Also, included in this tabulation are certain Class 2 systems or portion of Class 2 systems and component which are exempt from the examination requirements of IWC-2520 by IWC-1220.

Below is a summary of these exemptions as applicable to the V.C. Summer Station:

- a. All CVCS piping equal to or less than 4-inch nominal diameter is exempted by IWC-1220 (d).
- b. The boron injection system piping is equal to or less than 4-inch nominal diameter, and thereby is exempted by IWC-1220 (d).
- c. The class 2 portion of the high head SIS piping is all equal to or less than 4-inch nominal diameter and, thereby is exempted by IWC-1220 (d).
- d. The RWST and associated piping have design pressures and temperatures less than 275 psig and 200 °F and are exempt by IWC-1220 (a).
- e. The containment spray system does not function during normal reactor operation and is exempted by IWC-1220 (b).
- f. The seal water injection filter is manufactured from piping of 4-inch nominal diameter and thereby, exempted by IWC-1220 (d).

2. Also, included in tabulation of Class 2 systems and components are numerous references of examination requirements that are not applicable for specific items. Following are the explanations of these exceptions:
- a. The letdown heat exchanger nozzles are 3-inch diameter and excluded by IWC-1220 (d). There are no integrally welded supports on the Class 2 portion of the vessel and tubesheet flange bolting is 1-inch diameter and is not included in Category IWC-2520 C-D.
 - b. The excess letdown heat exchanger nozzles are 2-inch diameter and thereby, exempted by IWC-1220 (d).
 - c. The regenerative heat exchanger nozzles are 3-inch diameter exempted by IWC-1220 (d). There are no integrally welded supports or pressure retaining bolting.
 - d. The seal water heat exchanger nozzles are 4-inch diameter and thereby, exempted by IWC-1220 (d). The integrally welded nozzles are on the Class 3 portion of the vessel and tube sheet flange bolting is $3/4$ inch diameter.
 - e. The steam generators do not have integrally welded supports on the secondary side.
 - f. The seal water return filter and reactor coolant filter nozzles are 2-inch diameter and cover bolting is $5/8$ inch diameter in which case are exempted by IWC-1220 (d).
 - g. The volume control tank nozzles are 4, 3, and 2-inch diameter and thereby, exempted by IWC-1220 (d).
 - h. The letdown reheat heat exchanger nozzles are 4-inch diameter. There are no integrally welded supports on the Class 2 portion of the vessel and tubesheet.
 - i. The residual heat removal pump casings do not contain any welds.
 - j. There are no Class 2 valves with pressure retaining welds or integrally welded supports.

NOTE #1: THOSE COMPONENTS NORMALLY EXEMPTED FROM EXAMINATION BY SUBSECTION IWC-1220 (c) HAVE BEEN INCLUDED IN THE AUGMENTED EXAMINATION PROGRAM.

NOTE #2: SOME COMPONENTS MAY BE EXEMPTED FROM PRESERVICE EXAMINATION BY UTILIZING SHOP AND FIELD EXAMINATION AND INSTALLATION RECORD TO SATISFY PRESERVICE EXAMINATION REQUIREMENTS. THOSE EXEMPTION WILL BE IDENTIFIED IN APPLICABLE RELIEF REQUESTS.

3. Circumferential butt welds in piping within 3 pipe diameters of the centerline of rigid pipe anchors or anchors at the penetration of the primary reactor containment, or at rigidly anchored components will be inspected per examination categories C-F and C-G of Table IWC-2520.
4. Preservice Inspection boundary classification are included in Subsection VI of this section of the Preservice Inspection Plan as scoped drawings.
5. Component Identification and Location
 - e.1 Isometric drawings of the Class 1 and 2 systems are used as the working drawing during the inspection. These drawings are included in Subsection 7 of this section of the Preservice Plan. The drawings contain the following information.
 - a. Piping line number
 - b. Location and identification of all circumferential and longitudinal welds,
 - c. Location and identification of full penetration welds to the pressure retaining boundary.
 - d. Location and identification of flange connections.
 - e. All identification numbers which are specific to each examined components.

1.6 Preservice Component Inspection

1. The Preservice Inspection serves as a baseline for ~~future~~ inservice inspections.
2. When examination requirements of an ASME Code Class 1, 2, or 3 component is impractical to accomplish in accordance with respective ASME Section XI, IWA-2000, IWB-2000, IWC-2000 or IWD-2000; a specific written relief request from the ASME Code shall be submitted to the NRC (in accordance with A above). Each written relief request will contain, as a minimum, the following information:
 - a. Identification of component (s) for which relief is requested.
 - b. ASME Code Class
 - c. The specific ASME Code requirements that cannot be accomplished.
 - d. Justification (s) for relief request.
 - e. Alternate examination to be performed in lieu of ASME Code requirement (s).

- 1.7 All records and reports are prepared in accordance with ASME, Section XI IWA-6000, except those items being identified in the relief request in which case a modified report is prepared.

1.8 Augmented Examination Program

NOTE: THE AUGMENTED INSERVICE INSPECTION TO ENSURE THAT THE REACTOR VESSEL AND ESSENTIAL EQUIPMENT WITHIN OR OUTSIDE OF THE CONTAINMENT, INCLUDING COMPONENTS OF THE REACTOR COOLANT PRESSURE BOUNDARY, AND OTHER SAFETY-RELATED COMPONENTS HAVE BEEN ADEQUATELY PROTECTED AGAINST POSTULATED PIPING FAILURES HAS BEEN INCLUDED IN THE PRESERVICE INSPECTION PROGRAM AND THEREFORE WILL NOT BE DISCUSSED HERE.

1. Components normally exempted from examination by Subsection IWC-1220 (c) have been included in this Augmented Examination Program. Isometric drawings have been included and identified as part of the Augmented Examination Program.

2. Steam Generator Tube Examinations

- a. Preservice Inspection of steam generator tubes will be performed in accordance with ASME Code Section XI 1977 Edition through 1978 addenda in order to comply with NRC Regulatory Guide 1.83, Revised 1, July 1975.
- b. Preservice Inspection involves an examination of the full length of each tube in each Steam Generator by Eddy Current techniques prior to service to establish a baseline condition of the tubing and verification by the ANII that all requirements have been met.
- c. The examination will be performed after the field hydrostatic test and prior to initial power operation using the equipment, and techniques expected to be used during subsequent inservice inspections.

V. C. SUMMER PRESERVICE INSPECTION PROGRAM - CLASS 1 COMPONENT

| IWB-2600 ITEM NUMBER | IWB-2500 CATEGORY | WELD NAME (DESCRIPTION) | NUMBER OF ITEMS | EXAMINATION METHOD | REFERENCE DRAWING (ISOMETRIC) | REMARKS |
|----------------------------|----------------------|---|--------------------|-----------------------|---|---------|
| B4.5 | B-J | CIRCUMFERENTIAL AND LONGITUDINAL PIPE WELDS | 100% | UT(100% Volume) | CGE-1-4100 thru CGE-1-4506 | |
| B4.6 | B-J | BRANCH PIPE CONNECTING > 6" | 6 (100%) | UT(100% Volume) | CGE-1-4101, CGE-1-4102, CGE-1-4500, CGE-1-4201, CGE-1-4301 & CGE-1-4302 | |
| B4.7 | B-J | BRANCH PIPE CONNECTING 6" DIAMETER AND SMALLER | 1% (100%) | PT(100% Surface) | CGE-1-4103 thru CGE-1-4107, CGE-1-4109, CGE-1-4504, CGE-1-4202 thru CGE-1-4205, CGE-1-4207, CGE-1-4208, CGE-1-4303 thru CGE-1-4305, CGE-1-4307, CGE-1-4308, CGE-1-4508 | |
| B4.8 | B-J | SOCKET WELDS | 100% | PT(100% Surface) | CGE-1-4100 thru CGE-1-4506 | |

V. C. SUMMER PRESERVICE INSPECTION PROGRAM - CLASS 2 COMPONENT

| IWC-2600 ITEM NUMBER | IWC-2520 CATEGORY | WELD NAME (DESCRIPTION) | NUMBER OF ITEMS | EXAMINATION METHOD | REFERENCE DRAWING (ISOMETRIC) | REMARKS |
|----------------------------|----------------------|--|--------------------|-----------------------------|-------------------------------------|--|
| C3.2 | C-D | PRESSURE RETAINING BOLTING | | UT(100% Volume) VT(100%) | | |
| C3.3 | C-E-1 | INTEGRALLY WELDED SUPPORTS | | PT(100% Surface) | | |
| C3.4 | C-E-2 | SUPPORT COMPONENT | | VT(100%) | | |
| | | <u>PIPING</u> | | | | |
| C2.1 | C-F C-G | CIRCUMFERENTIAL BUTT WELDS | | UT(100% Volume) | CGE-2-2100 CGE-2-2803 | |
| C2.2 | C-F C-G | LONGITUDINAL WELDS IN FITTINGS | | UT(100% Volume) | CGE-2-2100 CGE-2-2803 | |
| C2.3 | C-F C-G | BRANCH PIPE TO PIPE WELD JOINTS | | UT(100% Volume) | CGE-2-2101 | |
| C2.4 | C-D | PRESSURE RETAINING BOLTING EXCEEDING >1" DIAMETER | | UT(100% Volume) VT(100%) | CGE-2-2101 | |
| C2.5 | C-E-1 | INTEGRALLY WELDED SUPPORTS | | PT(100% Surface) | | |
| C2.6 | C-E-2 | SUPPORT COMPONENTS | | VT(100%) | | |
| | | <u>VALVES</u> | | | | |
| C4.1 | C-F, C-G | VALVE BODY WELDS | | N/A | | THERE ARE NO ITEMS IN THIS CATEGORY |

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PSI WELD REFERENCE INDEX

| <u>PSI FILE NO.</u> | <u>CODE CLASS</u> | <u>SYSTEM</u> | <u>DESCRIPTION</u> | <u>FLOW DWG NO.</u> |
|---------------------|-------------------|---------------|-----------------------------|---------------------|
| CGE-1-11100 | 1 | RC | Reactor Vessel | N/A |
| CGE-1-1110 | 1 | RC | Reactor Vessel Clad | N/A |
| CGE-1-1120 | 1 | RC | Reactor Vessel Head | N/A |
| CGE-1-1200 | 1 | RC | Reactor Internals | N/A |
| CGE-1-1310 | 1 | RC | CRDM Housing | N/A |
| CGE-1-1400 | 1 | RC | Reactor Vessel Studs | N/A |
| CGE-1-2100 | 1 | RC | Pressurizer | N/A |
| CGE-1-3100 | 1 | RC | Reactor Coolant Pump | N/A |
| CGE-1-4100 | 1 | RC | Reactor Coolant Loop 1 | 114E072 |
| CGE-1-4101 | 1 | RC | Acc. Disch to RC Loop 1 | 114E072 |
| CGE-1-4102 | 1 | RC | RHR Takeoff AC Loop 1 | 114E072 |
| CGE-1-4101 | 1 | RC | Acc. Disch to RC Loop 1 | 114E072 |
| CGE-1-4102 | 1 | RC | RHR Takeoff RC Loop 1 | 114E072 |
| CGE-1-4103 | 1 | RC | SI C.L. To RC Loop 1 | 114E072 |
| CGE-1-4104 | 1 | RC | SI Hi/Lo HD to RC Loop 1 | 114E072 |
| CGE-1-4105 | 1 | RC | RTD Mainfold to RC Loop 1 | 114E072 |
| CGE-1-4106 | 1 | RC | ALT Charging to RC Loop 1 | 114E072 |
| CGE-1-4107 | 1 | RC | Letdown RC Loop 1 | 114E072 |
| CGE-1-4108 | 1 | RC | RC Loop 2 RTD Takeoff | 114E072 |
| CGE-1-4109 | 1 | RC | RC Loop 2 RTD C.L. | 114E072 |
| CGE-1-4110 | 1 | RC | RC Loop 1 Drain Line | 114E072 |
| CGE-1-4111 | 1 | SI | SI High HD to RC Loop 1 | 114E075 |

| <u>PSI FILE NO.</u> | <u>CODE CLASS</u> | <u>SYSTEM</u> | <u>DESCRIPTION</u> | <u>FLOW DWG NO.</u> |
|---------------------|-------------------|---------------|--------------------------------|---------------------|
| CGE-1-4112 | 1 | SI | High Head CL to RC Loop 1 | 114E075 |
| CGE-1-4113 | 1 | SI | High Head to RC Loop 1 | 114E075 |
| CGE-1-4114 | 1 | RC | RC Loop 1 Seal Inject | 114E07 |
| CGE-1-4200 | 1 | RC | Reactor Coolant Loop 2 | 114E072 |
| CGE-1-4201 | 1 | RC | Acc. Disch to RC Loop 2 | 114E072 |
| CGE-1-4202 | 1 | RC | SI Hi/Lo HD C.L. to RC Loop 2 | 114E072 |
| CGE-1-4203 | 1 | RC | SI Hi/Lo to RC Loop 2 | 114E072 |
| CGE-1-4204 | 1 | RC | RTD Return to RC Loop 2 | 114E072 |
| CGE-1-4205 | 1 | RC | Normal Changing to RC Loop 2 | 114E072 |
| CGE-1-4206 | 1 | RC | RTD Takeoff RC Loop 2 | 114E072 |
| CGE-1-4207 | 1 | RC | RTD C.L. RC Loop 2 | 114E072 |
| CGE-1-4208 | 1 | RC | RC Loop Drain Line | 114E072 |
| CGE-1-4209 | 1 | SI | High Head to CL for RC Loop 2 | 114E075 |
| CGE-1-4210 | 1 | SI | High Head to CL for RC Loop 2 | 114E075 |
| CGE-1-4211 | 1 | SI | High Head to CL for RC Loop 2 | 114E075 |
| CGE-1-4212 | 1 | RC | Loop 2 Seal Injection | 114E075 |
| CGE-1-4300 | 1 1 | RC | RC Loop 3 | 114E072 |
| CGE-1-4301 | 1 | RC | Acc. Disch to RC Loop 3 | 114E072 |
| CGE-1-4302 | 1 | RC | RHR Takeoff | 114E072 |
| CGE-1-4303 | 1 | RC | SI High Head C.L. to RC Loop 3 | 114E072 |
| CGE-1-4304 | 1 | RC | SI Hi/Lo HD to RC Loop 3 | 114E072 |
| CGE-1-4305 | 1 | RC | RTD Return to RC Loop 3 | 114E072 |

| <u>PSI FILE NO.</u> | <u>CODE CLASS</u> | <u>SYSTEM</u> | <u>DESCRIPTION</u> | <u>FLOW DWG.NO.</u> |
|---------------------|-------------------|---------------|--------------------------------|---------------------|
| CGE-1-4306 | 1 | RC | RTD Takeoff RC Loop 3 | 114E072 |
| CGE-1-4307 | 1 | RC | RTD C.L. fo RC Loop 3 | 114E072 |
| CGE-1-4308 | 1 | RC | RC Loop 3 Drain Line | 114E072 |
| CGE-1-4309 | 1 | SI | SI High HD to RC Loop 3 | 114E075 |
| CGE-1-4310 | 1 | SI | High Head to RC Loop 3 | 114E075 |
| CGE-1-4311 | 1 | SI | SI Hi/Lo to RC Loop 3 | 114E075 |
| CGE-1-4312 | 1 | RC | Loop 3 Seal Injection | 114E075 |
| CGE-1-4500 | 1 | RC | Pressurizer Surge Line | 114E072 |
| CGE-1-4501 | 1 | RC | Pressurizer Relief Line | 114E072 |
| CGE-1-4502 | 1 | RC | Pressurizer Safety Relief Line | 114E072 |
| CGE-1-4503 | 1 | RC | Pressurizer Spray Line | 114E072 |
| CGE-1-4504 | 1 | RC | Pressurizer CL Spray | 114E072 |
| CGE-1-4505 | 1 | RC | Pressurizer Relief Line | 114E072 |
| CGE-1-4506 | 1 | RC | Aux. Spray Line | 114E072 |
| CGE-1-5100 | 1 | RC | RCP Flywheel | N/A |
| CGE-1-5110 | 1 | RC | RCP Flywheel | N/A |
| CGE-1-5120 | 1 | RC | RCP Bolting | N/A |
| CGE-2-1100 | 2 | MS | Steam Generator | N/A |
| CGE-2-1200 | 2 | CS | Volume Control Tank | 114E073 |
| CGE-2-1300 | 2 | CS | Seal Water Injection Filter | 114E073 |
| CGE-2-1310 | 2 | CS | RC Filter | 114E073 |
| CGE-2-1320 | 2 | CS | Seal Water Return Filter | 114E073 |

| <u>PSI FILE NO.</u> | <u>CODE CLASS</u> | <u>SYSTEM</u> | <u>DESCRIPTION</u> | <u>FLOW DWG NO.</u> |
|---------------------|-------------------|---------------|---------------------------------------|---------------------|
| CGE-2-1330 | 2 | CS | Letdown Heat Exchanger | 114E073 |
| CGE-2-1340 | 2 | CS | Seal Water Heat Exchanger | 114E073 |
| CGE-2-1350 | 2 | CS | Letdown Reheat Exchanger | 114E073 |
| CGE-2-1360 | 2 | CS | Regenerative Heat Exchanger | 114E073 |
| CGE-2-1370 | 2 | CS | Excess Letdown Heat Exchanger | 114E073 |
| CGE-2-1380 | 2 | RH | RHR Heat Exchanger | 114E074 |
| CGE-2-2100 | 2 | MS | Loop A to Penetration 428 | D-302-D11 |
| CGE-2-2001 | 2 | MS | Loop A From Penetration 428 | D-302-D11 |
| CGE-2-2102 | 2 | FW | Loop A from Penetration 306 to SG "A" | D-302-083 |
| CGE-2-2103 | 2 | FW | Loop A from Flow Nozzel to Pen 306 | D-302-083 |
| CGE-2-2104 | 2 | FW | Loop A 18" Piping | D-203-083 |
| CGE-2-2105 | 2 | MS | Loop A Relief Line | D-302-011 |
| CGE-2-2106 | 2 | MS | Loop A Steam Dump | D-302-031 |
| CGE-2-2107 | 2 | FW | Loop A 6" Aux Feed | D-302-085 |
| CGE-2-2200 | 2 | MS | Loop B to Penn 207 | D-302-011 |
| CGE-2-2201 | 2 | MS | Loop B from Pen 207 to XVT-2801B | D-302-011 |
| CGE-2-2202 | 2 | FW | FD Water Loop B | D-302-083 |
| CGE-2-2203 | 2 | FW | Loop B 18" Pipe | D-302-083 |

| <u>PSI FILE NO.</u> | <u>CODE CLASS</u> | <u>SYSTEM</u> | <u>DESCRIPTION</u> | <u>FLOW DWG NO.</u> |
|---------------------|-------------------|---------------|---|---------------------|
| CGE-2-2204 | 2 | FW | Loop B 6" Aux Feed | D-302-083 |
| CGE-2-2300 | 2 | MS | Loop C to Penn 202 | D-302-011 |
| CGE-2-2301 | 2 | MS | Loop C from Penn 202 | D-302-011 |
| CGE-2-2302 | 2 | MS | Loop C 24" Line to XVT-2801 C | D-302-011 |
| CGE-2-2303 | 2 | FW | Loop C from Penn 203 to SG "C" | D-302-083 |
| CGE-2-2304 | 2 | FW | Loop C from Flow Nozzel to Penn 203 | D-302-083 |
| CGE-2-2305 | 2 | FW | Loop C from IFV-3341 to Flow Nozzel | D-302-083 |
| CGE-2-2306 | 2 | MS | Loop C Relief Line | D-302-011 |
| CGE-2-2350 | 2 | MS | Loop C 30" Line | D-302-011 |
| CGE-2-2351 | 2 | FW | CL Header from Feed Heaters | ca. D-302-082 |
| CGE-2-2352 | 2 | FW | 6" Aux Feed Loop C | D-302-083 |
| CGE-2-2500 | 2 | RH | Loop A Pump Suction | 114E074 |
| CGE-2-2501 | 2 | RH | Loop B Pump Suction | 114E074 |
| CGE-2-2700 | 2 | RH | Loop A Pump Disch | 114E074 |
| CGE-2-2701 | 2 | RH | Loop B Pump Disch | 114E074 |
| CGE-2-2702 | 2 | RH | RHR to RHR Heat Ex. A | 114E074 |
| CGE-2-2703 | 2 | RH | Heat Exhanger A to Penn 322 | |
| CGE-2-2704 | 2 | RH | Heat Exhanger B Outlet to Penn 325 | 114E074 |
| CGE-2-2705 | 2 | SI | RHR Heat Ex. "B" Out to Penn 227 | 114E075 |
| CGE-2-2706 | 2 | SI | RHR C.L. Return Hi/Lo Recirc from Penn 322 to RC Loop A - | 114E075 |

| <u>PSI FILE NO.</u> | <u>CODE CLASS</u> | <u>SYSTEM</u> | <u>DESCRIPTION</u> | <u>FLOW DWG NO.</u> |
|---------------------|-------------------|---------------|---|---------------------|
| CGE-2-2707 | 2 | SI | SI to RC Loop B | 114E075 |
| CGE-2-2708 | 2 | SI | SI from Pen 227 to RC Loop C | 114E075 |
| CGE-2-2800 | 2 | CS | Chg. Pump A B & C Suction Line | 114E073 |
| CGE-2-2801 | 2 | CS | Chg. Pump A B & C Suction Line from VCT | 114E073 |
| CGE-2-2802 | 2 | RH | Heat Exchanger A to CVCS | 114E074 |
| CGE-2-2803 | 2 | RH | Heat Exchanger B to CVCS | 114E074 |
| CGE-2-3100 | 2 | RH | RHR Pumps A&B | 114E074 |
| CGE-2-3110 | 2 | CS | Cent Charge Pumps | 114E073 |

(AUGMENTED PROGRAM)

| | | | | |
|------------|---|----|------------------------|-----------|
| CGE-2-0001 | 2 | SP | RB Spray System | D-302-661 |
| CGE-2-0002 | 2 | SP | RB Spray System | D-302-661 |
| CGE-2-0003 | 2 | SP | RB Spray System | D-302-661 |
| CGE-2-0004 | 2 | SI | Safety Injection | 114E075 |
| CGE-2-0004 | 2 | SI | SI Accumulator Disch | 114E075 |
| CGE-2-0006 | 2 | SI | Boron Injection System | 114E073 |
| CGE-2-0007 | 2 | SI | SI Accumulators | 114E075 |
| CGE-2-0008 | 2 | SI | Boron Injection Tank | 114E073 |

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PSI FILE NO. TO WELD NO. INDEX

| <u>PSI FILE NO.</u> | <u>WELD NO.</u> | <u>DESCRIPTION</u> | <u>SYSTEM</u> |
|---------------------|--|-------------------------|---------------|
| CGE-1-1100 | 1 through 11 | Reactor Vessel | RC |
| CGE-1-1110 | CP-1 through CP-8 | Reactor Vessel Clad | RC |
| CGE-1-1120 | CP-1 through CP-6 | Reactor Vessel Head | RC |
| CGE-1-1310 | Housing Welds (24) | CRDM Housing Welds | RC |
| CGE-1-1400 | R.V. Studs, Nuts & Washers (58) | Reactor Vessel Studs | RC |
| CGE-1-2100 | #1 through # 14 | Pressurizer | RC |
| CGE-1-3100 | CP-1 through CP-3 and Bolts 1 through 32 | Reactor Coolant Pump | RC |
| CGE-1-4100 | 3,4,5DM, 6DM, 7 through 13, 18BC, 25BC, 26BC | RC Loop 1 | RC |
| CGE-1-4101 | 1 through 21 | Acc Disch to RC Loop 1 | RC |
| CGE-4102 | 1 through 23 | RHR Takeoff Loop 1 | RH |
| CGE-1-4103 | 1 through 16 | SI C.L. to Loop 1 | SI |
| CGE-1-4104 | 1 through 21 | SI HI/LO HL to Loop 1 | SI |
| CGE-1-4105 | 1 through 28 | RTD Manifold to Loop 1 | RC |
| CGE-1-4106 | 1 through 10 | ALT. Charging to Loop 1 | CS |
| CGE-1-4107 | 1 through 15 | Letdown Loop 1 | CS |
| CGE-1-4108 | 1 through 18 | Loop 2 RTD Takeoff | RC |
| CGE-1-4109 | 1 through 24 | Loop 2 RTD C.L. | RC |
| CGE-1-4110 | 1 through 6 | Loop 1 Drain Line | RC |
| CGE-1-4111 | 1 through 40 | SI High HD to Loop 1 | SI |
| CGE-1-4112 | 1 through 12 | HI HD C.L. to Loop 1 | SI |

| <u>PSI FILE NO.</u> | <u>WELD NO.</u> | <u>DESCRIPTION</u> | <u>SYSTEM</u> |
|---------------------|-----------------------------|----------------------------|---------------|
| CGE-1-4113 | 1 through 12 | HI HD to Loop 1 | SI |
| CGE-1-4114 | 1 through 12 | Seal Injection to RCP 1 | CS |
| CGE-1-4200 | 1 through 23 | RC Loop 2 | RC |
| CGE-1-4201 | WS-1, WS-2, 1 through 13 | Loop 2 Acc Discharge | SI |
| CGE-1-4202 | 1 through 20 | SI HI/LO HD C.L. to Loop 2 | SI |
| CGE-1-4203 | 1 through 20 | SI HI/LO to Loop 2 | SI |
| CGE-1-4204 | 1 through 24 | RTD Return to Loop 2 | RC |
| CGE-1-4205 | 1 through 12 | Normal Charging to Loop 2 | CS |
| CGE-1-4206 | 1 through 17 | RTD Take Off Loop 2 | RC |
| CGE-1-4207 | 1 through 24 | RTD C.L Loop 2 | RC |
| CGE-1-4208 | 1 through 9 | Loop 2 Drain Line | RC |
| CGE-1-4209 | 1 through 24 | HI HD to C.L. for Loop 2 | SI |
| CGE-1-4210 | 1 through 9 & 10 BC | HI HD to C.L. for Loop 2 | SI |
| CGE-1-4211 | 1 through 15 & 16 BC | HI HD to Loop 1 | SI |
| CGE-1-4212 | 1 through 10 | Seal Injection RCP 2 | CS |
| CGE-1-4300 | 1 through 24 | RC Loop 3 | RC |
| CGE-1-4301 | 1 through 13 | Acc. Disch to RC Loop 3 | RC |
| CGE-1-4302 | 1 through 24 | RHR Takeoff | RH |
| CGE-1-4303 | 1 through 18, WE-1, WS-2 | SI HI HD C.L. to Loop 3 | SI |
| CGE-1-4304 | 1 through 8 | SI HI/LO HD to Loop 3 | SI |
| CGE-1-4305 | 1 through 26 | RTD Return to Loop 3 | RC |

| <u>PSI FILE NO.</u> | <u>WELD NO.</u> | <u>DESCRIPTION</u> | <u>SYSTEM</u> |
|---------------------|---------------------------------|-----------------------------|---------------|
| CGE-1-4306 | 1 through 18 | RTD Takeoff Loop 3 | RC |
| CGE-1-4307 | 1 through 28 | RTD C.L. Loop 3 | RC |
| CGE-1-4308 | 1 through 11 | Drain Line Loop 3 | RC |
| CGE-1-4309 | 1 through 26 | HI HD to Loop 3 | SI |
| CGE-1-4310 | 1 through 8 | HI HD to Loop 3 | SI |
| CGE-1-4311 | 1 through 53 | SI HI/LO to Loop 3 | SI |
| CGE-1-4312 | 1 through 10 | Seal Injection RCP 3 | CS |
| CGE-1-4500 | 1 through 13 | PZR Surge Line | RC |
| CGE-1-4501 | 1 through 33 | PZR Relief Line | RC |
| CGE-1-4502 | 1 through 21 | PZR Safety Relief Line | RC |
| CGE-1-4503 | 1 through 43 | PZR Spray Line | RC |
| CGE-1-4504 | 1 through 30 | PZR C.L. Spray Line | RC |
| CGE-1-4505 | 1 through 8 | PZR Relief Line | RC |
| CGE-1-4306 | 1 through 18 | Aux. Spray Line | CS |
| CGE-1-5100 | N/A | RCP Flywheel | RC |
| CGE-1-5110 | N/A | RCP Flywheel | RC |
| CGE-2-1100 | 1 through 11 | SG "A" "B" & "C" | MS |
| CGE-2-1200 | 1,2, WS-1, WS-4 | VCT | CS |
| CGE-2-1300 | N/A | Seal Water Injection Filter | RC |
| CGE-2-1310 | 1,2, WS-1, WS-2, WS-3 & WS-4 | Reactor Coolant Filter | RC |
| CGE-2-1320 | 1,2, WS-1, WS-2, WS-3 & WS-4 | Seal Water Return Filter | CS |
| CGE-2-1330 | 1 & 2 | Letdown Heat Exchanger | CS |
| CGE-2-1340 | 1 & 2 | Seal Water Heat Exchanger | CS |

| <u>PSI FILE NO.</u> | <u>WELD NO.</u> | <u>DESCRIPTION</u> | <u>SYSTEM</u> |
|---------------------|---|--|---------------|
| CGE-2-1350 | 1 & 2 | Letdown Reheat Exchanger | CS |
| CCE-2-1360 | 1 through 10 | Regenerative Heat Exchanger | CS |
| CGE-2-1370 | 1, WS-1 & WS-2 | Excess Letdown Heat Exchanger | CS |
| CGE-2-1380 | 1 through 4 | RHR Heat Exchange A & B | RH |
| CGE-2-2100 | 1-1, 1-2, 1-2A, 1-7 | Loop A to Penn. 428 | MS |
| CGE-2-2101 | 1-56, 1-11, 1-25, 4-1, 4-1A, 4-2, 4-2A 4-3, 5-1, 1-51, 1-26 | Loop A to XVT-2801A | MS |
| CGE-2102 | 1-1 to 1-18, WS-1, WS-2 | Loop A from Pennr. 306 to SG "A" | FW |
| CGE-2-2103 | 121, 123 | Loop A from Flow Nozzel to Penn 306 | FW |
| CGE-2-2104 | 1-29, 1-30, 1-43, 1-52, 1-64, 1-67 | Loop A 18" Piping | FW |
| CGE-2-2105 | 1-39 | Loop A Relief Line | MS |
| CGE-2-2106 | 1-52 | Loop A Steam Dump | MS |
| CGE-2-2107 | 1 | Loop A 6" Aux. Feed | FW |
| CGE-2-2200 | 2-8 | Loop B to Penn 207 | MS |
| CGE-2-2201 | 2-15, 2-17, 2-22, 2-22A 2-28, 2-32, 2-40, 2-45 | Loop B from Penn 207 to XVT-2801B | MS |
| CGE-2-2202 | 2-1 through 2-14, WS-1, WS-2 | Loop B from Penn 206 to SG "B" | FW |
| CGE-2-2203 | 2-18, 2-19, 2-20 2-40, 2-44, 2-60, 2-61 | Loop B 18" Pipe | FW |
| CGE-2-2204 | 2-34 | Loop B Relief Line | MS |
| CGE-2-2205 | 3 | Loop B 6" Aux Feed | FW |

| <u>PSI FILE NO.</u> | <u>WELD NO.</u> | <u>DESCRIPTION</u> | <u>SYSTEM</u> |
|---------------------|--|---|---------------|
| CGE-2-2300 | 3-10 | Loop C to Penn 202 | MS |
| CGE-2-2301 | 3-13, 3-19A, 3-20, 3-21, 3-23, 3-29, 3-30, 3-31, 3-37, 3-40, 3-46, 4-3 through 4-11 | Loop C from Penn 202 | MS |
| CGE-2-2302 | 9-1 through 9-6 | Loop C 24" Line to XVT-2801C | MS |
| CGE-2-2303 | 3-1 through 3-26 | Loop C from Penn 203 to SC "C" | FW |
| CGE-2-2304 | WS-1, FW-1, FW-3 through FW-7 | Loop C from Flow Nozzel to Penn. 203 | FW |
| CGE-2-2305 | 3-39, 3-41, 3-43, 3-44, 3-7, 3-51, 3-55, 3-57 | Loop C from IFV-3341 to Flow Nozzel | FW |
| CGE-2-2306 | 3-40 | Loop C Relief Line | MS |
| GE-2-2350 | 5-1, 5-2A, 6-2, 7-3A, 7-4, 8-5 | Loop C 30" Line | MS |
| CGE-2-2351 | 4-1 through 4-14 | C.L. Header from Feed Heaters | FW |
| CGE-2-2352 | 4 | 6" Aux. Feed Loop C | FW |
| CGE-2-2500 | 3, 4, 6, 6A, 7, 8A, 9, 15, 16, 18 through 25, 28, 29, 31 through 35, 42, 155 through 158 | Loop A Pump Suction | RH |
| CGE-2-2501 | 166 through 171 177 through 180 183 through 195 201A, 307 1 | Loop B Pump Suction | RH |
| CGE-2-2700 | 50, 52 through 55, 57, 58, 58A, 61 through 70, 73, 76, 76A, 77 | Loop A Pump Discharge | RH |

| <u>PSI FILE NO.</u> | <u>WELD NO.</u> | <u>DESCRIPTION</u> | <u>SYSTEM</u> |
|---------------------|--|---|---------------|
| CGE-2-2701 | 204, 209, 211 through 214, 216 through 220, 227 through 230, 233A through 236, 238 | Loop B Pump Discharge | RH |
| CGE-2-2702 | 83 through 86, 88, 91, 92, 92A, 95, 96, 99, 148 through 150 | RHR to RHR HT Ex. "A" | RH |
| CGE-2-2703 | 92, 92A, 95, 96, 99 through 104, 110 through 117, 123 through 125, 128 through 130, 133 134, 141, 141A, 149 150, 364 through 366 376, 377 | Heat Exchange "B" to Penn 325 | SI |
| CGE-2-2704 | 245A through 249A 252, 255, 258, 259, 259A, 263 through 268, 273, 273A, 296 through 301, 364 through 379 | Heat Exchange "B" to Penn 325 | SI |
| CGE-2-2705 | 273 through 280 283 through 288 296 through 298 | RHR HT. EX "B" to Penn 227 | SI |
| CGE-2-2706 | 312 through 315 | RHR C.L. Return HI/LO Recirc from Penn 322 to RC Loop A | SI |
| CGE-2-2707 | 321, 322, 329 through 331, 339 through 341, 347, 350 | SI to RC Loop B | SI |
| CGE-2-2708 | 353, 355, 356, 359, 360 | SI from Penn 227 to RC Loop C | SI |
| CGE-2-2800 | 280, 381, 318A, 385 394, 395, 395A, 417 418, 420, 421, 423, 424, 446, 447, 451A 452, 454, 461S through 463 | Chg. Pump A, B & C Suction | CS |

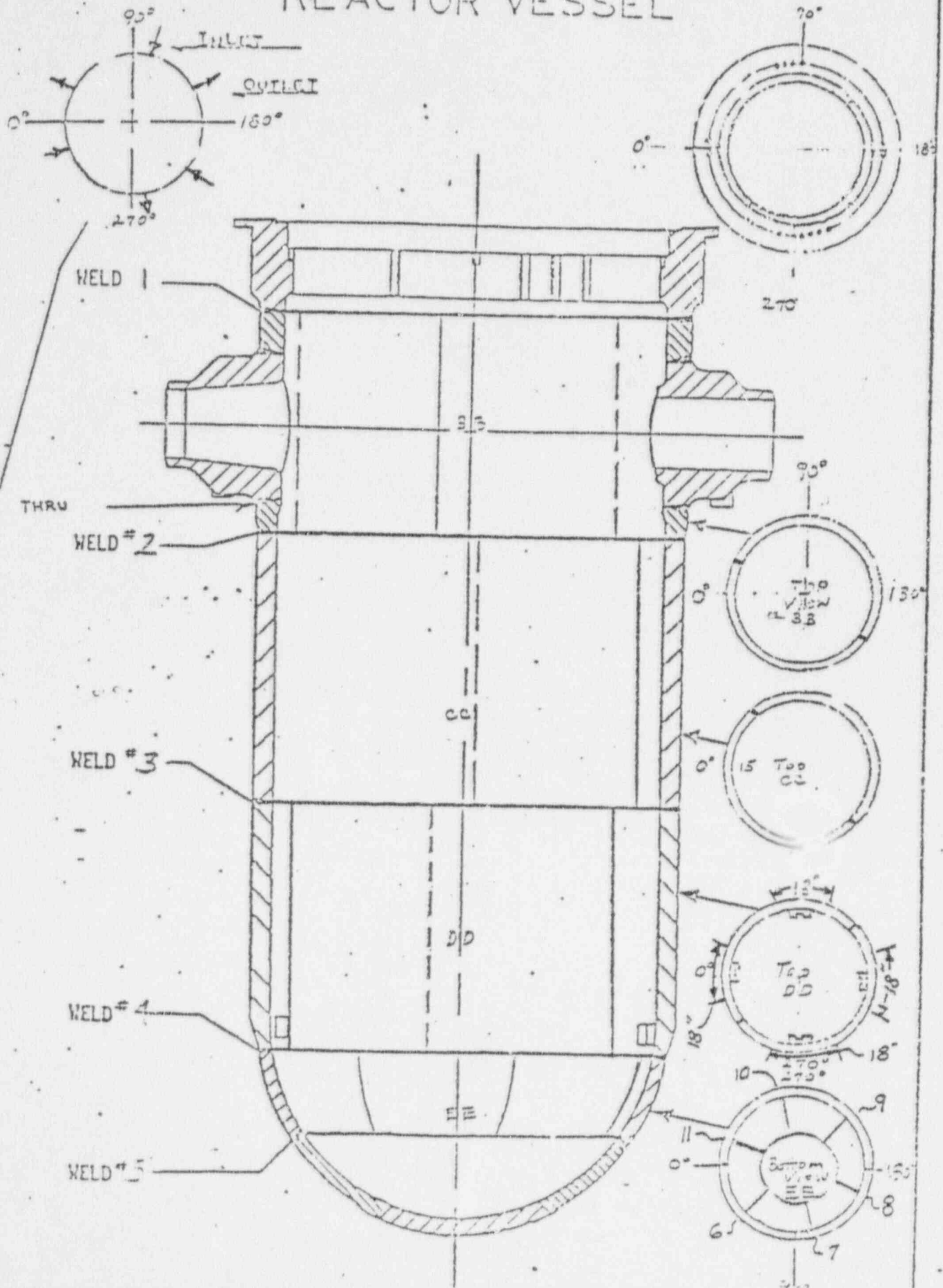
| <u>PSI FILE NO.</u> | <u>WELD NO.</u> | <u>DESCRIPTION</u> | <u>SYSTEM</u> |
|---------------------|---|--------------------------------------|---------------|
| CGE-2-2801 | 399A, 400, 406 through 411, 433 through 435, 438, 439, 442, 443, 445, 445A, 467, 467A, 469 | Chg. Pump A, B&C Suction from VCT | CS |
| CGE-2-2802 | 145, 420 through 474, 479 through 481 | Heat Ex. "A" to CVCS | RH |
| CGE-2-2803 | 306, 486, 489, 489A 490, 491, 491A, 496, through 505 509 | Heat Ex. "B" to CVCS | RH |
| CGE-2-3100 | WS-1 through WS-3 24 Bolts | Residual Heat Removal Pumps | RH |
| CGE-2-3110 | WS-1 and WS-3 16 Bolts B1 through B16 | Centrifugal Charging Pump | CS |

(AUGMENTED PROGRAM)

| | | | |
|------------|--|------------------------|----|
| CGE-1-0001 | Train A 1 through 22 Train B 1 through 22 Train A&B 1 through 24 | Reactor Building Spray | SP |
| CGE-1-0002 | Train A 23 through 68 | Reactor Building Spray | SP |
| CGE-1-0003 | Train B 23 through 66 | Reactor Building Spray | SP |
| CGE-1-0004 | 1 through 26 | Safety Injection | SI |
| CGE-1-0005 | 1 through 5, 8, & 9 18 Valve Bolts | SI Accumulator | SI |
| CGE-1-0006 | 1 through 8 | Boron Injection Tank | SI |
| CGE-1-0007 | 1 through 5 & WS-1 | SI Accumulators | SI |
| CGE-1-0008 | 1 through 3 WS 1 through WS-4 | Boron Injection Tank | SI |

REACTOR VESSEL

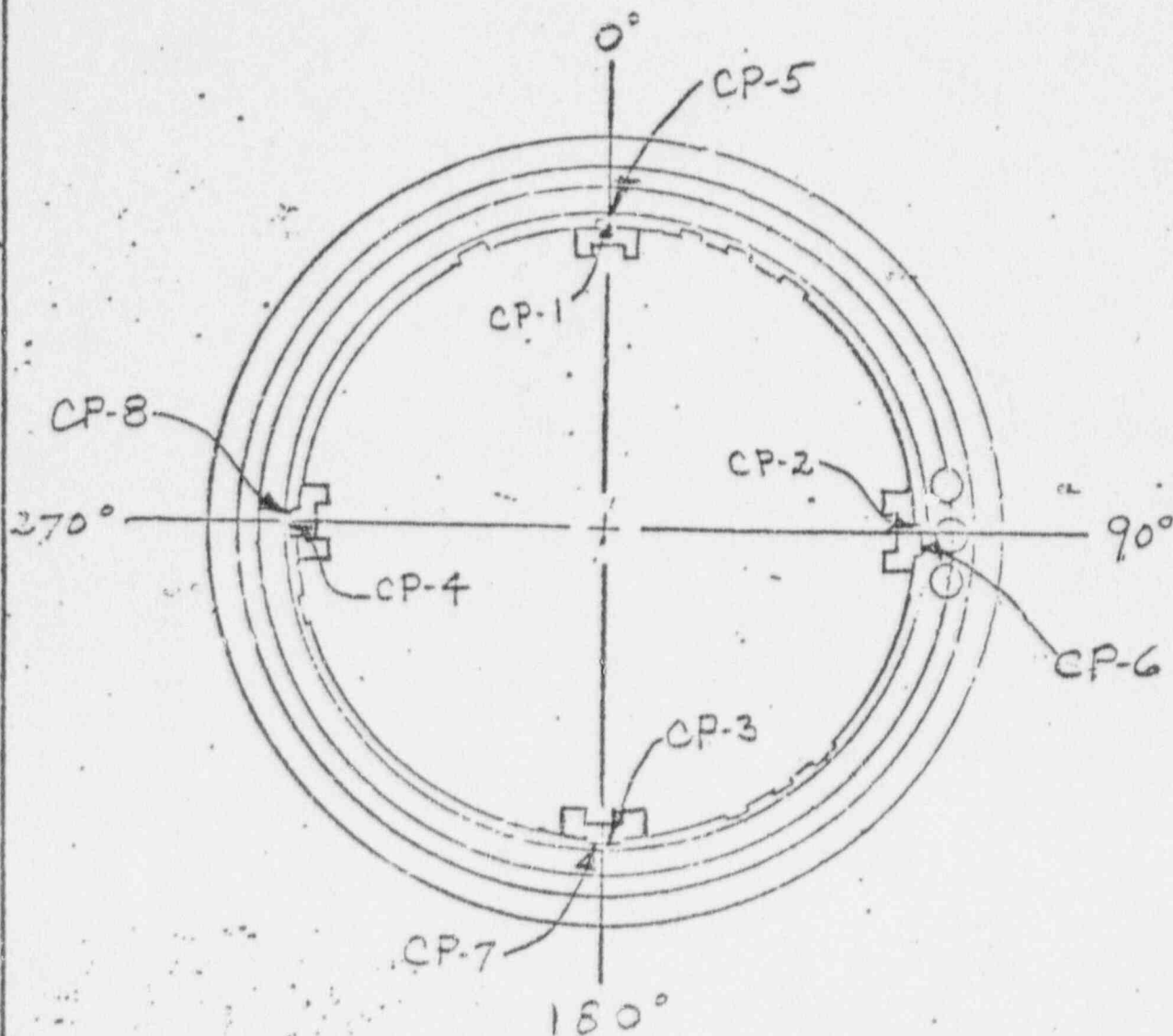
CGE-1-1100



WESTINGHOUSE ELECTRIC CORPORATION

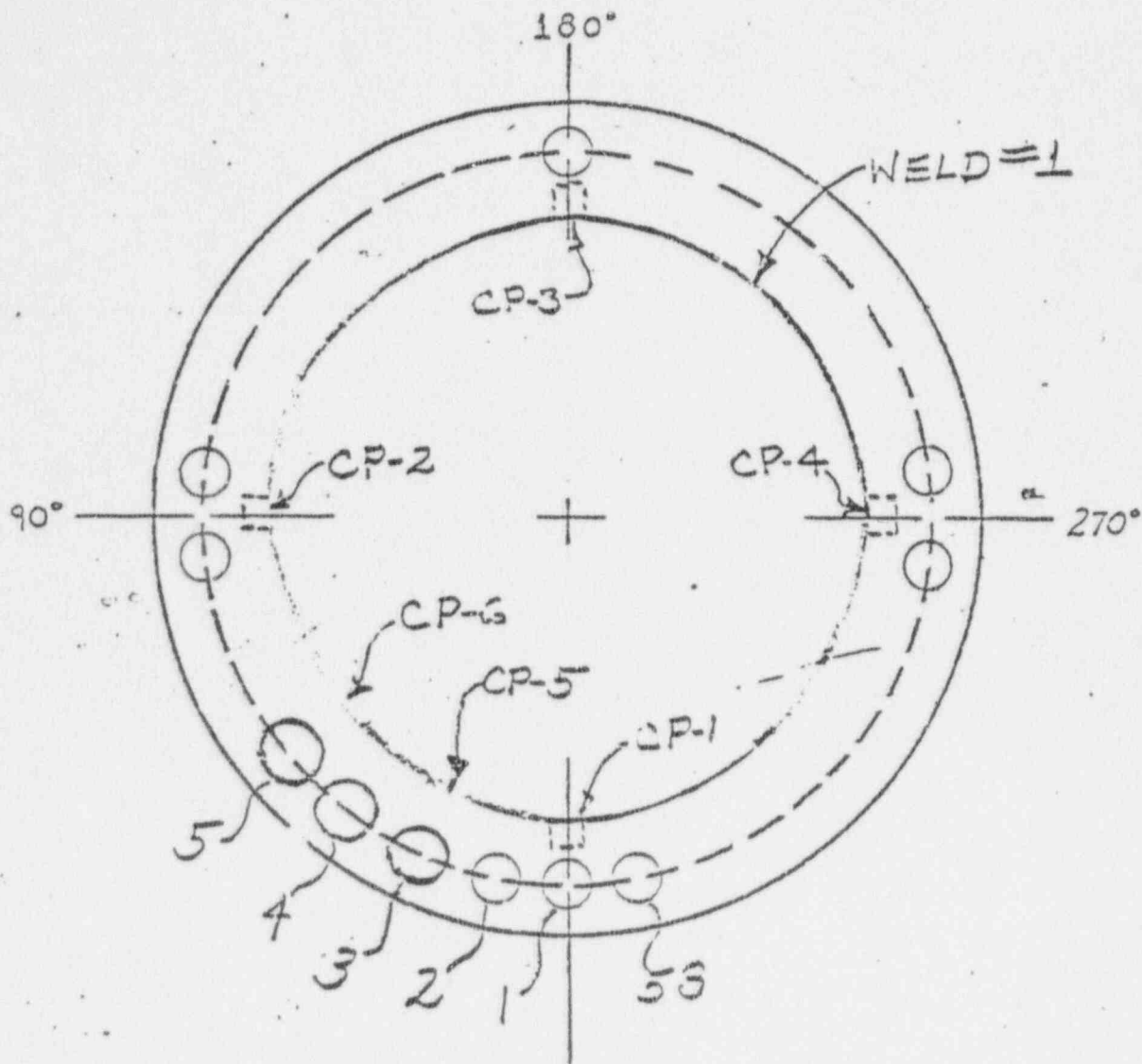
CGE-1-1110

REACTOR VESSEL CLAD PATCH
IDENTIFICATION



CP-1 - Above Core Support at 0°
 CP-2 - " " " " 90°
 CP-3 - " " " " 180°
 CP-4 - " " " " 270°
 CP-5 - Below Keyway at 0°
 CP-6 - " " " " 90°
 CP-7 - " " " " 180°
 CP-8 - " " " " 270°

CGE-1-1120
REACTOR VESSEL CLOSURE HEAD



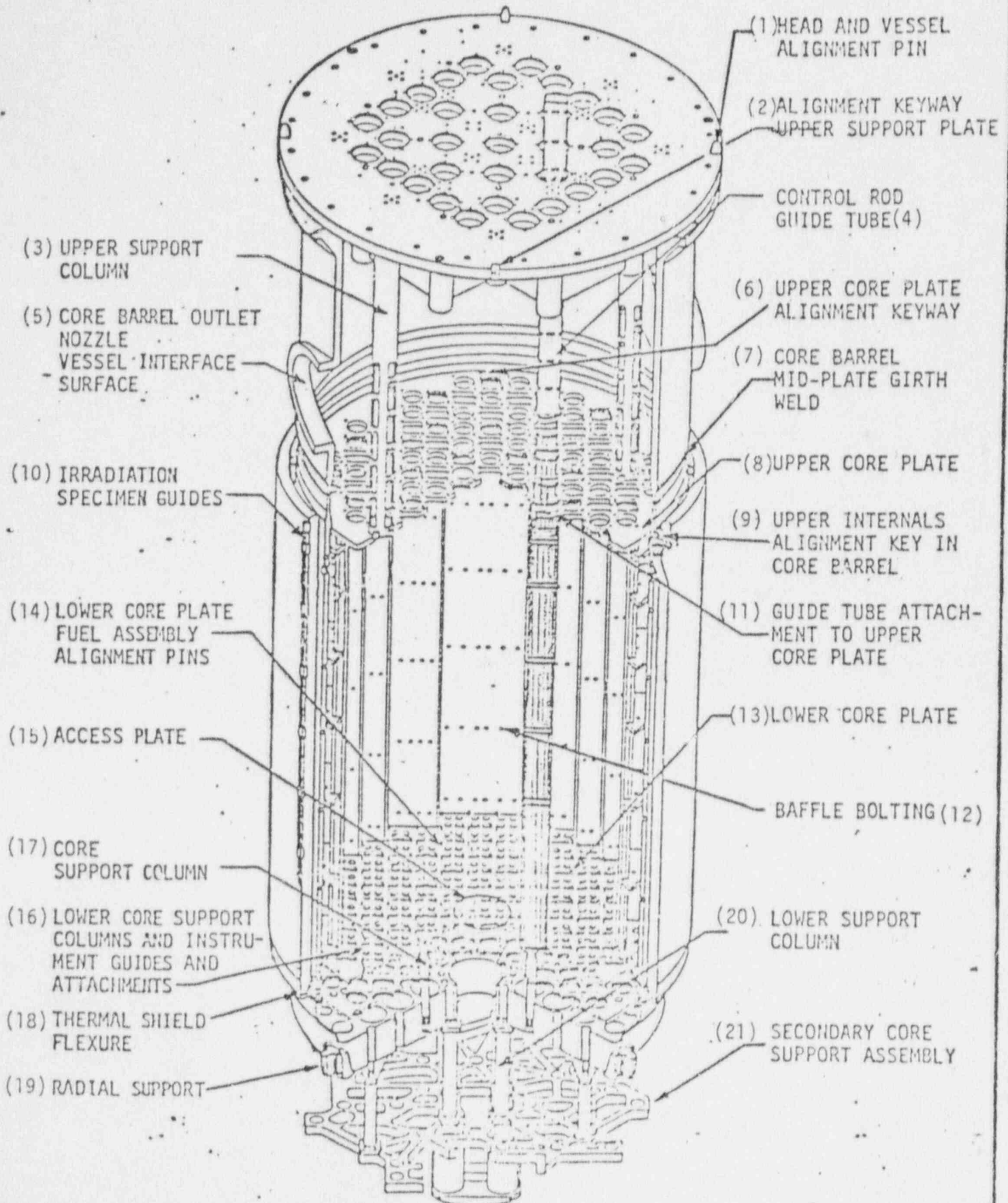
CP-1 Above keyway at 0°
 CP-2 " " " 90°
 CP-3 " " " 180°
 CP-4 " " " 270°
 CP-5 " " " 5
 CP-6 " " " 5

INTERNALS

CGE 1-1200

1. Head and Vessel Alignment Pin
2. Alignment Keyway Upper Support Plate
3. Upper Support Column
4. Control Rod Guide Tube
5. Core Barrel Outlet Nozzle/Vessel Interface Surface
6. Upper Core Plate Alignment Keyway
7. Core Barrel Mid-Plate Girth Weld
8. Upper Core Plate
9. Upper Internals Alignment Key In Core Barrel
10. Irradiation Specimen Guides
11. Guide Tube Attachment to Upper Core Plate
12. Baffle Bolting
13. Lower Core Plate
14. Lower Core Plate Fuel Assembly Alignment Pins
15. Access Plate
16. Lower Core Support Columns and Instrument Guides and Attachments
17. Core Support Column
18. Thermal Shield Flexure
19. Radial Support
20. Lower Support Column
21. Secondary Core Support Assembly

Items 1 thru 21 reference CGE 1-1200A

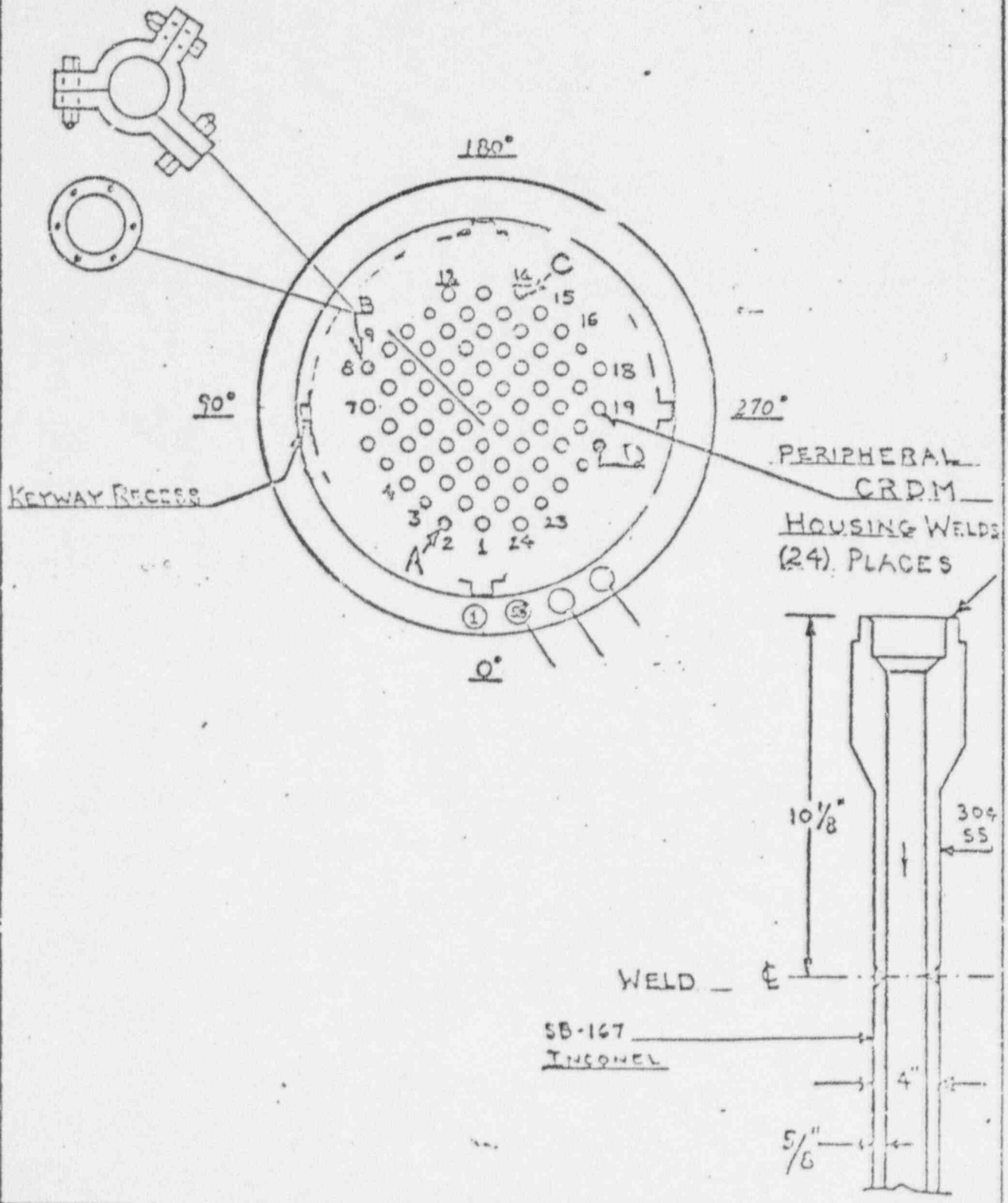
R.V. UPPER AND LOWER INTERNALS

CGE-1-1310

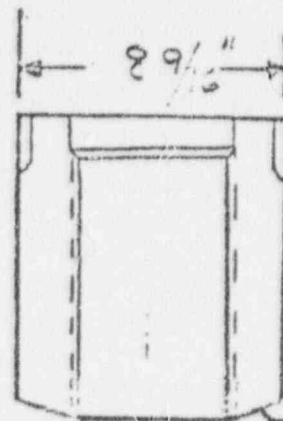
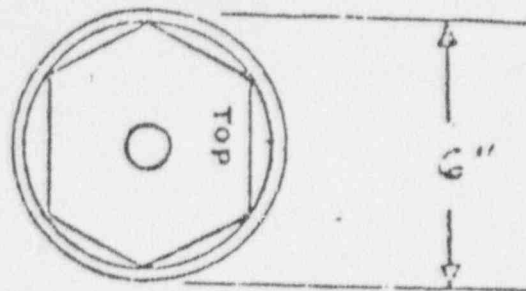
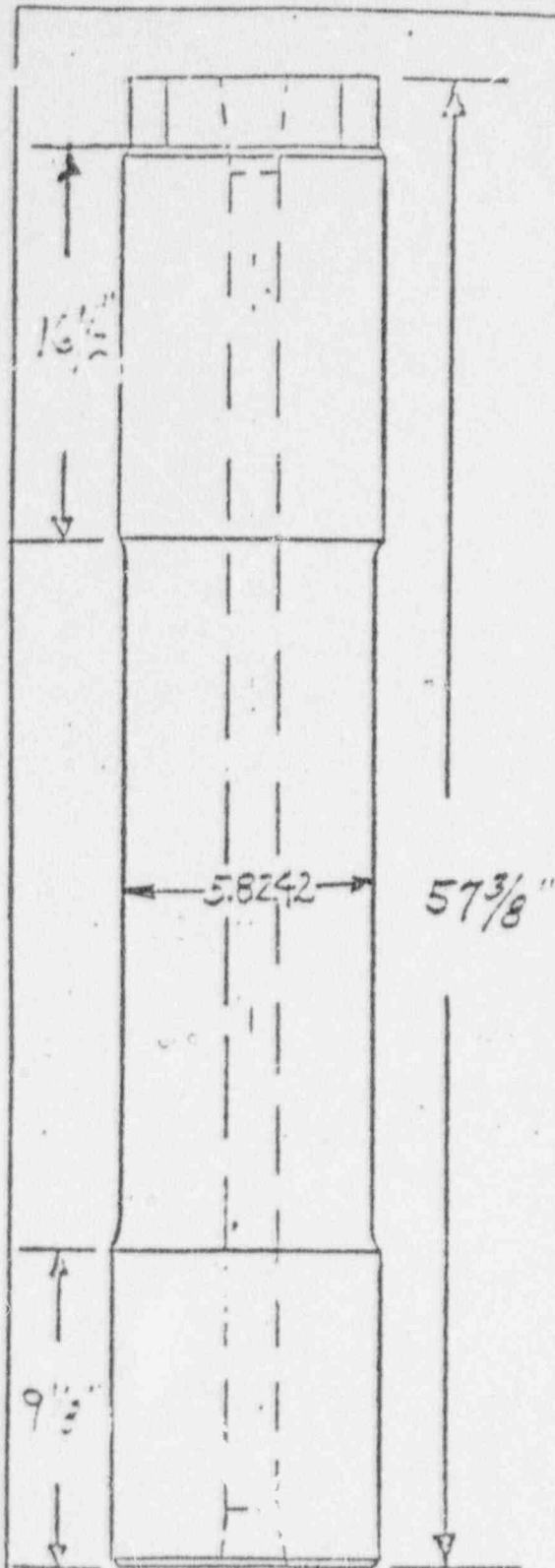
CRDM HOUSING WELDS

CONOSEAL BOLTS C
ASSY'S WITH D

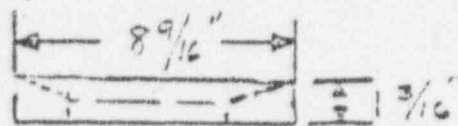
CONOSEAL BOLTING



RM. STUDS, NUTS & WASHERS (58)
CGE -1-1400



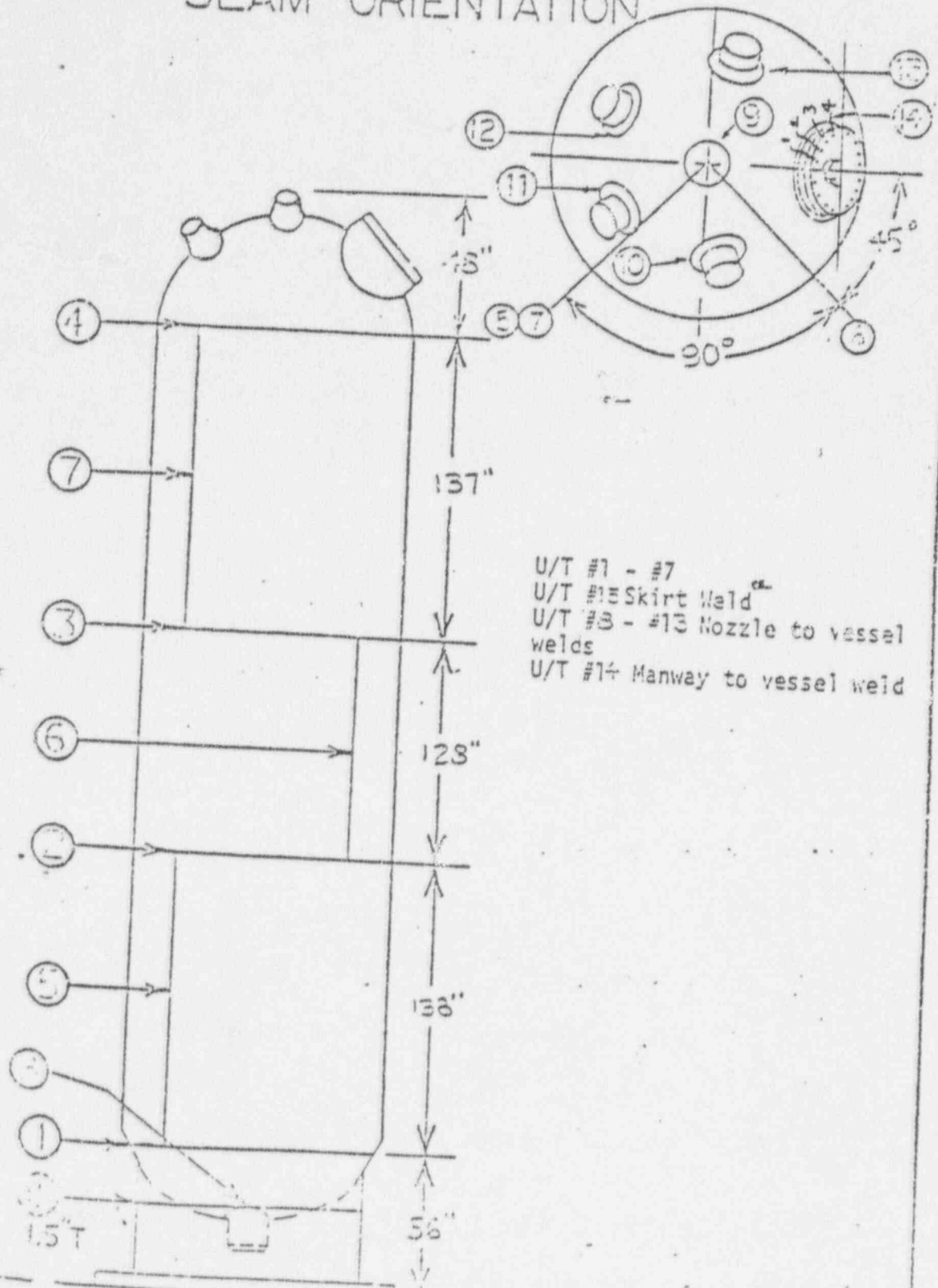
30" Sph. Radius



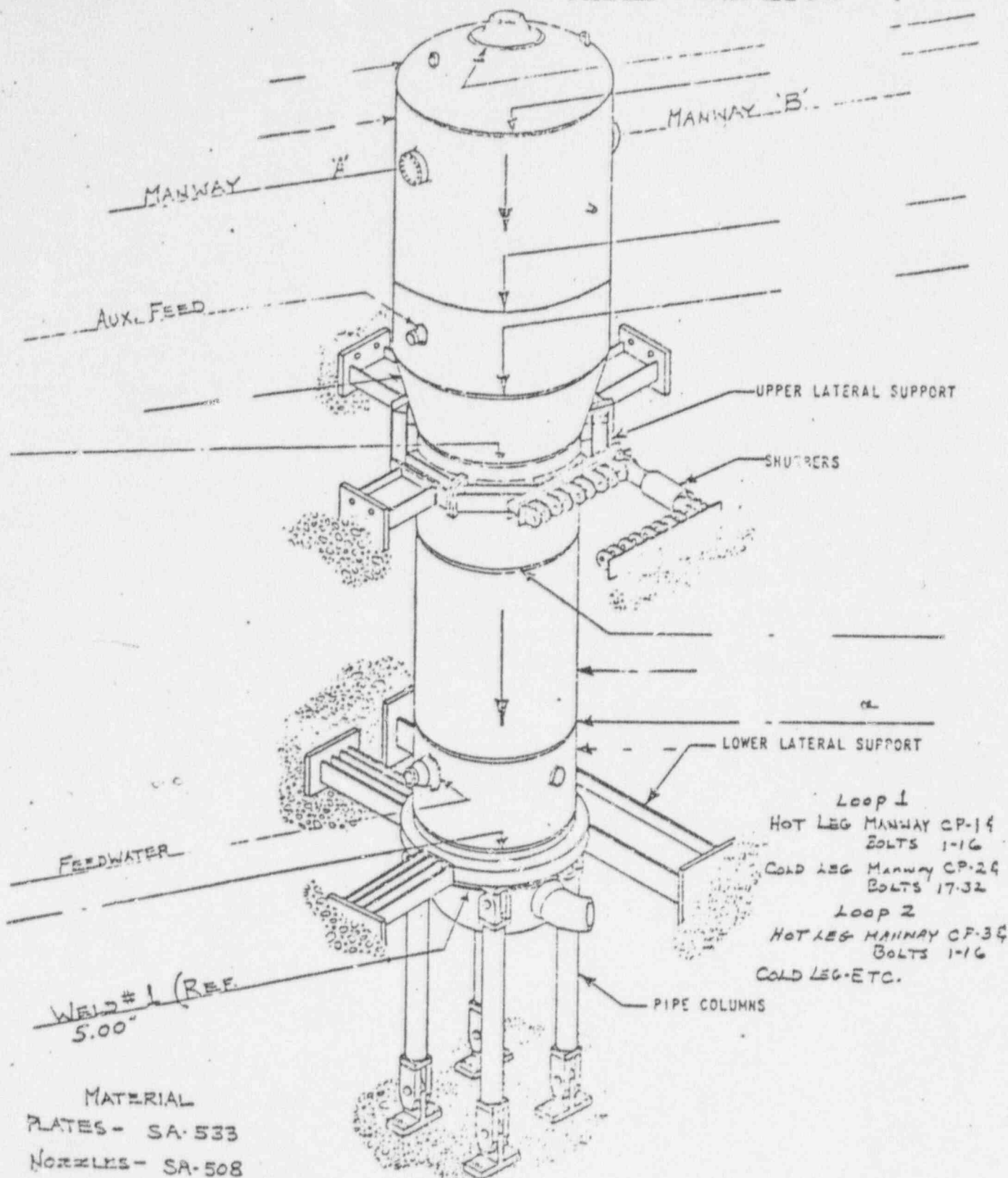
MATL.
SA-540 Class 3, Gr B27

PRESSURIZER CGE-1-2100

GIRTH AND LONGITUDINAL WELD SEAM ORIENTATION



CGE-1-3100

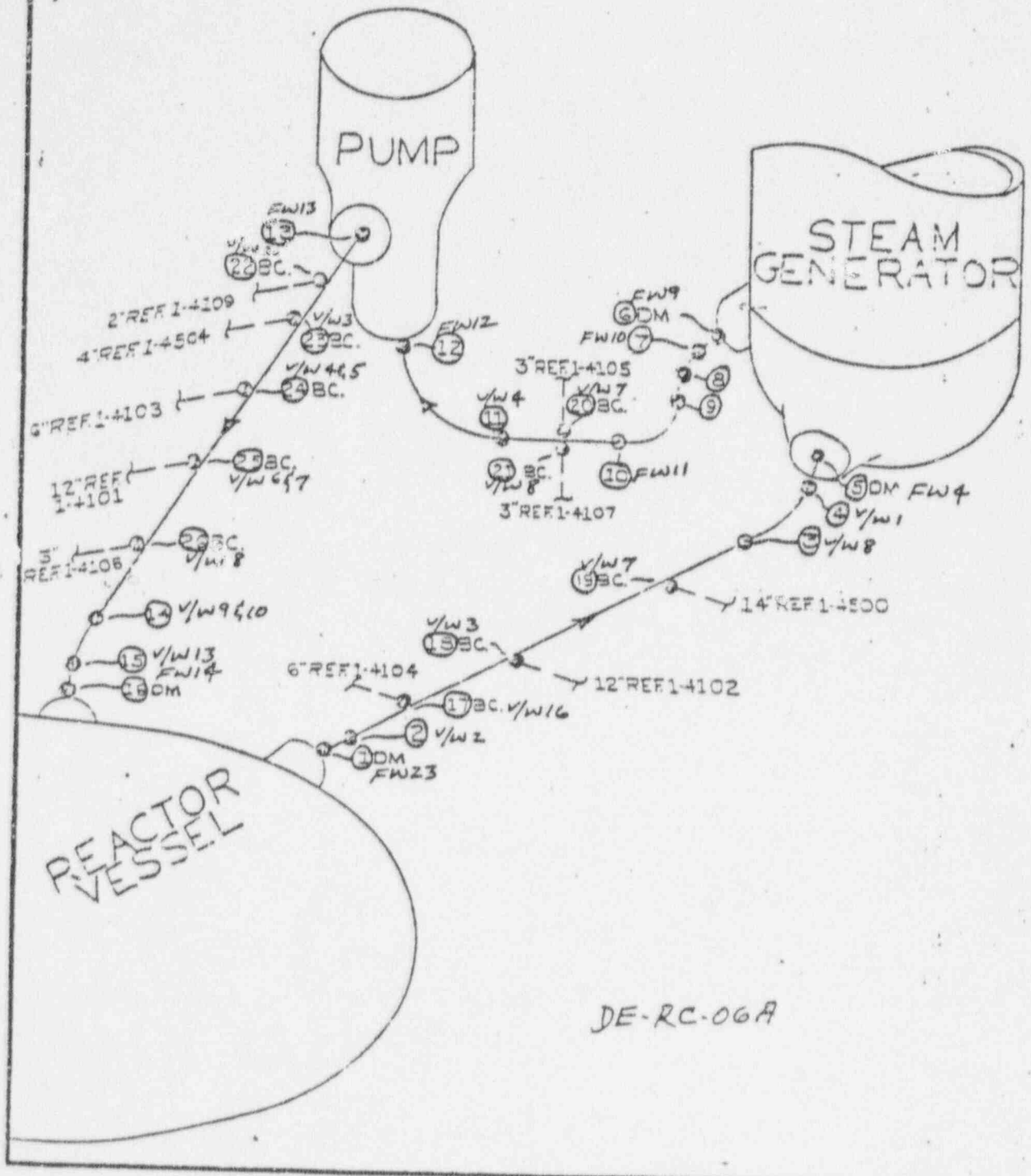


MATERIAL
 PLATES - SA-533
 NOZZLES - SA-508
 TUBESHEET - SA-508
 CHANNEL HEAD - SA-533 or 216
 BOLTING - SA-193, Gr. B7

Loop 1
 HOT LEG MANWAY CP-14
 BOLTS 1-16
 COLD LEG MANWAY CP-24
 BOLTS 17-32
 Loop 2
 HOT LEG MANWAY CP-34
 BOLTS 1-16
 COLD LEG-ETC.

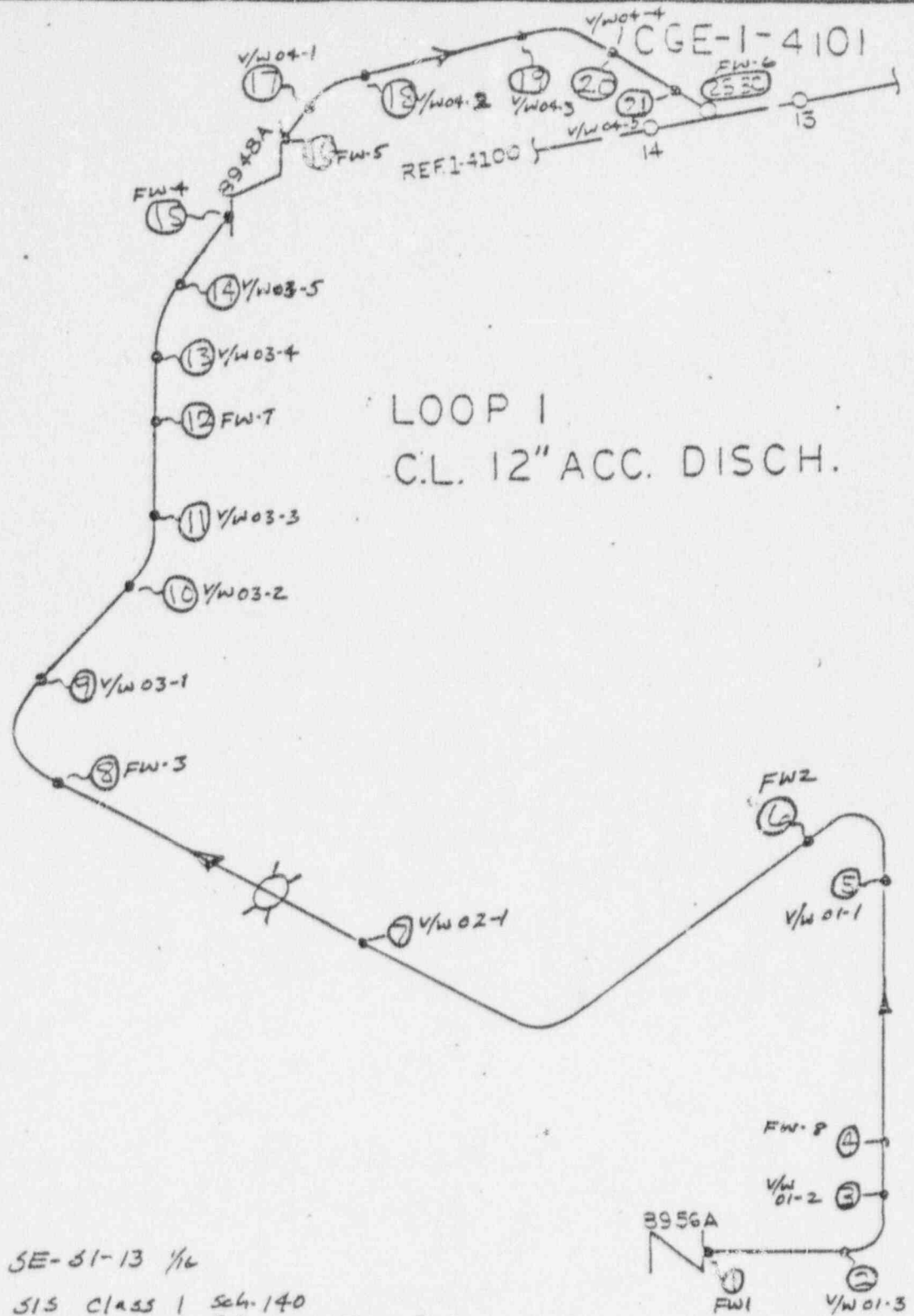
CGE-1-4100

LOOP 1 REACTOR COOLANT PIPE



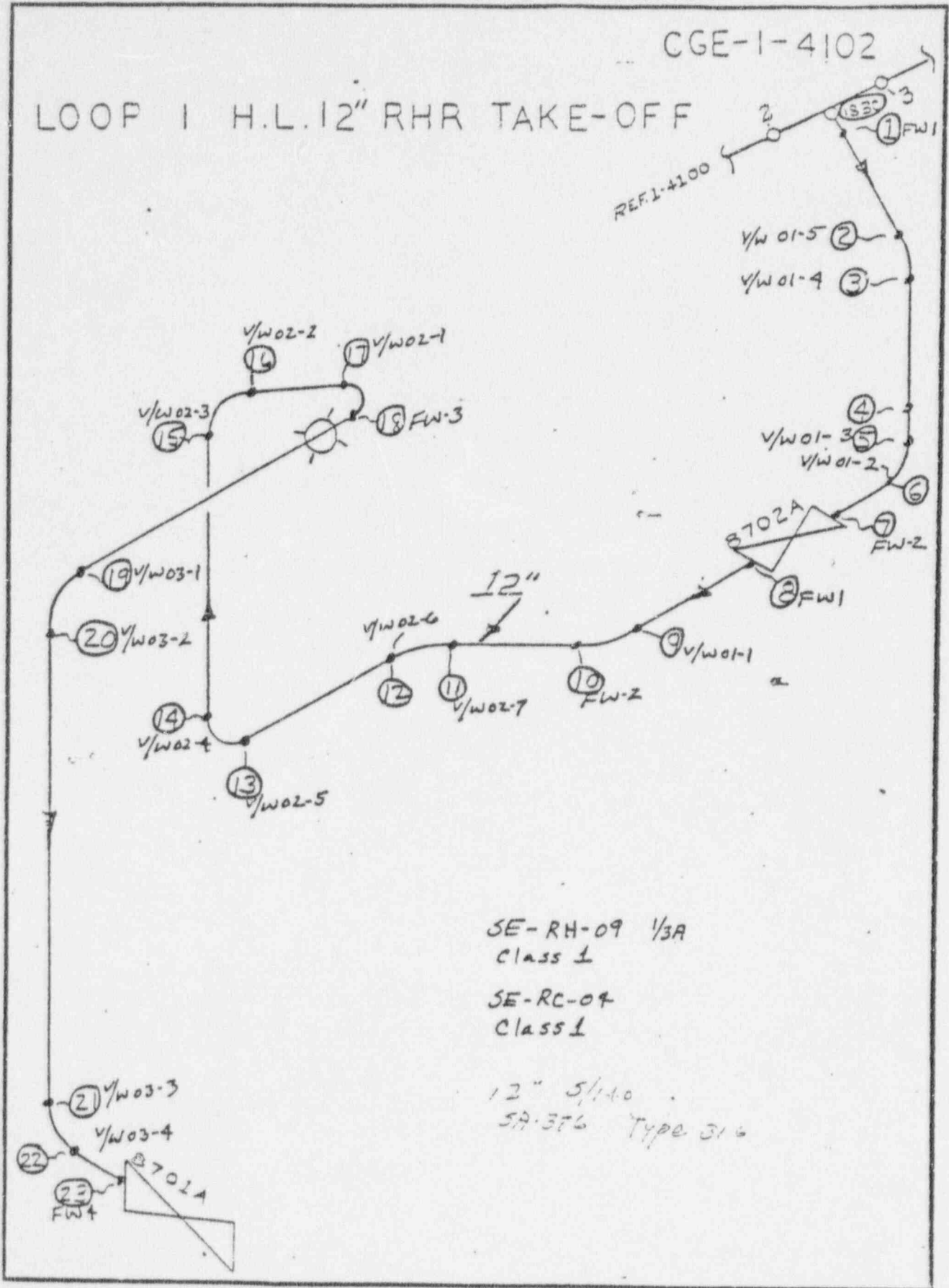
WESTINGHOUSE ELECTRIC CORPORATION

FORM



CGE-1-4102

LOOP 1 H.L. 12" RHR TAKE-OFF



SE-RH-09 1/3A
Class 1

SE-RC-04
Class 1

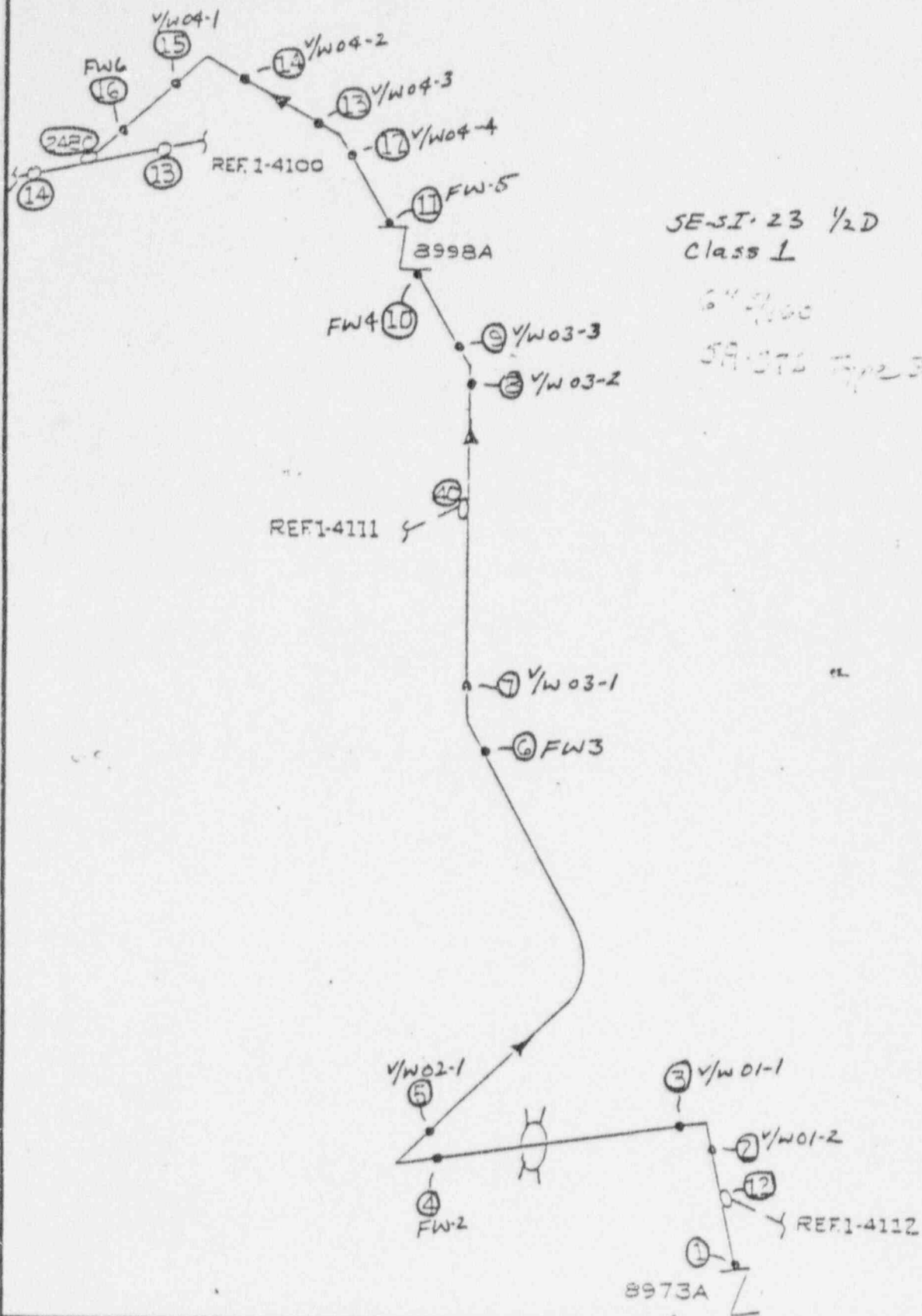
12" 5/14.0
SA-376 Type 316

WESTINGHOUSE ELECTRIC CORPORATION

LOOP 1 C.L. 6" SIS

CGE-1-4103

FORM 41



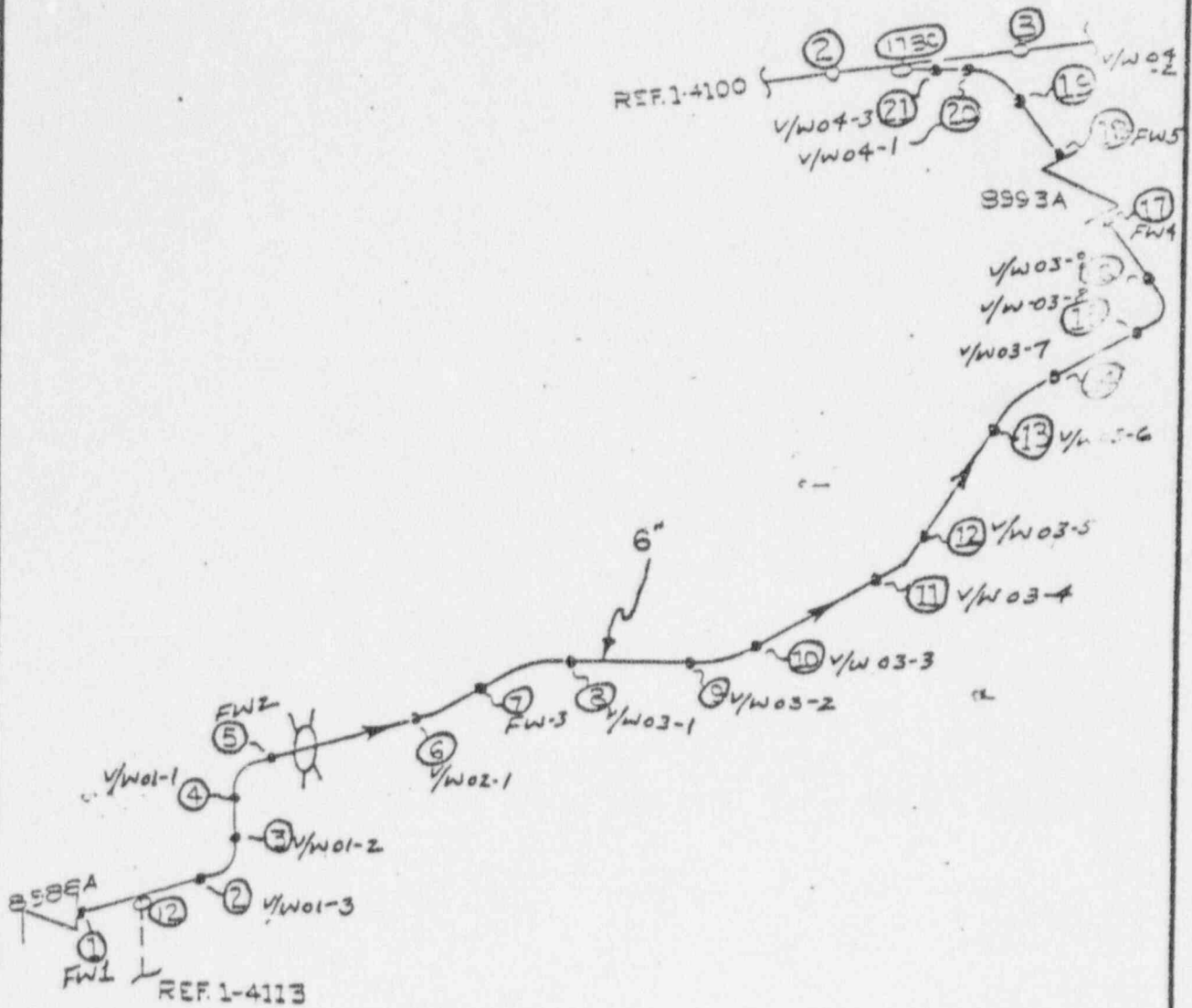
SE-SI-23 1/2D
Class 1

6" SIS

59-575 Type 304

CGE-1-4104

LOOP 1 H.L. 6" SIS

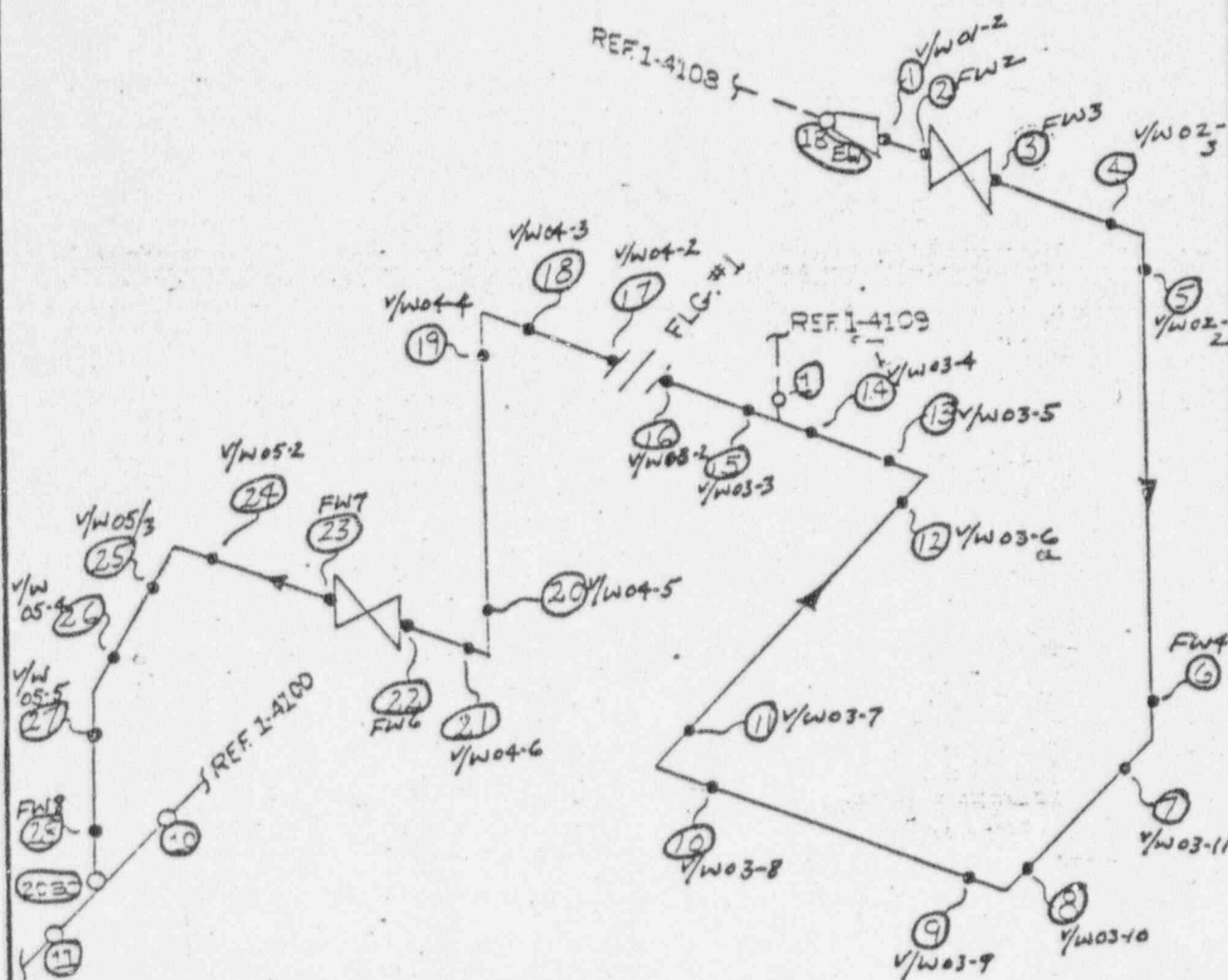


SE-51-19 1/18.
Class 1

6" 5/160

JA 376 Type 30F

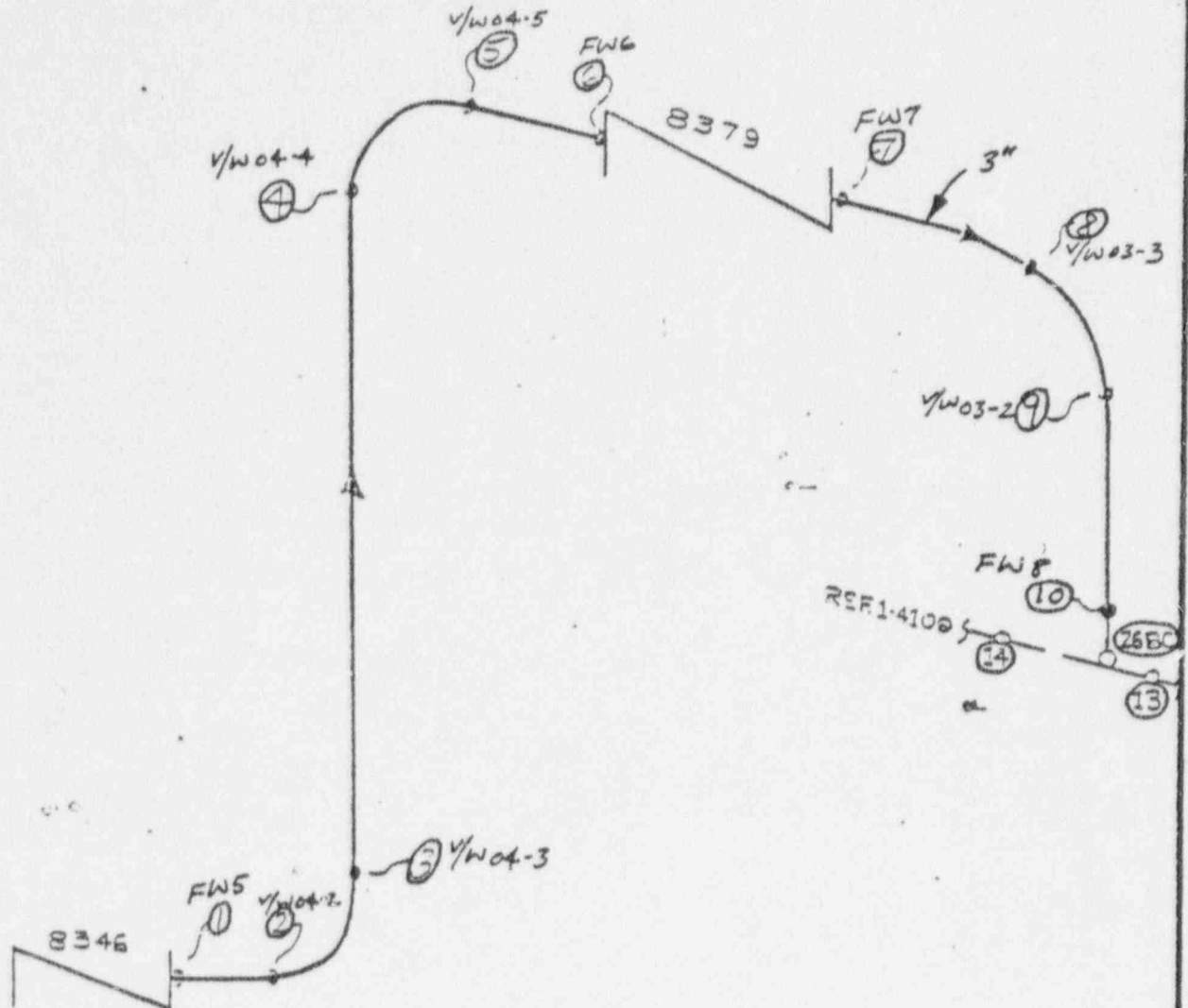
LOOP 1 3" RTD. RETURN



SE-17 1/36
Class 1 5/5

CGE-1-4106

LOOP 1 3" ALT. CHARGING



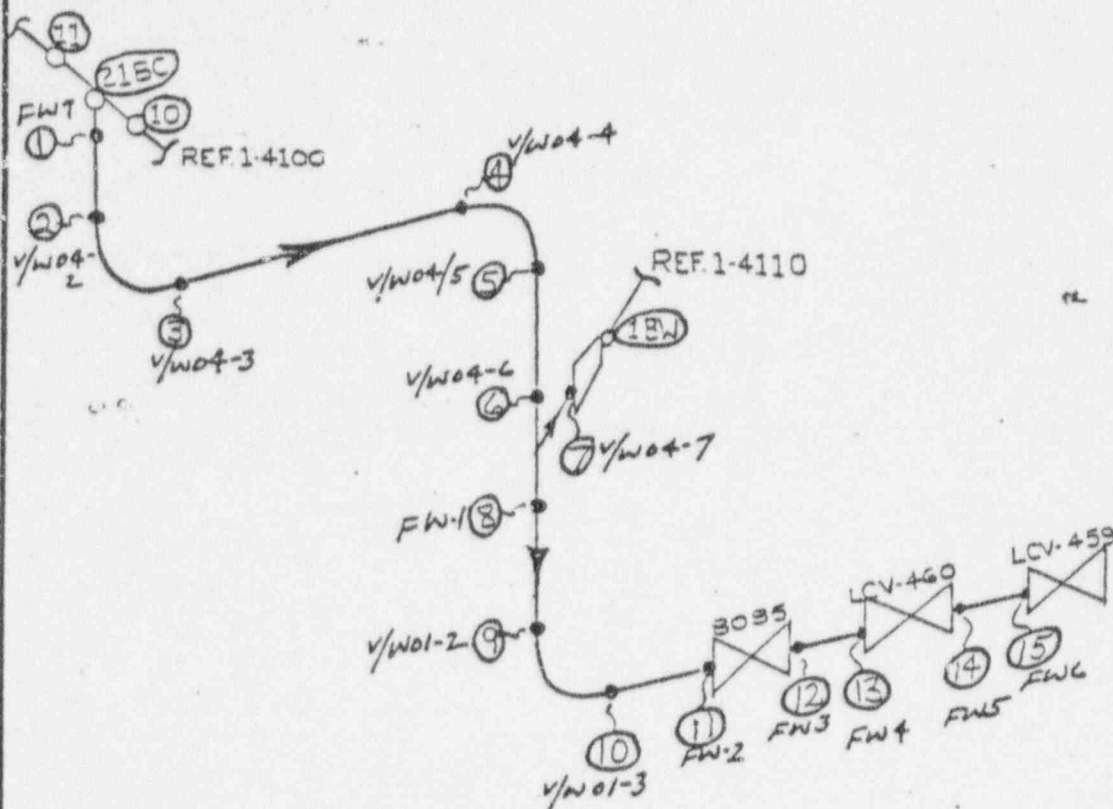
SE-CS-89 7/00

Class 1

3" 304 Type 304

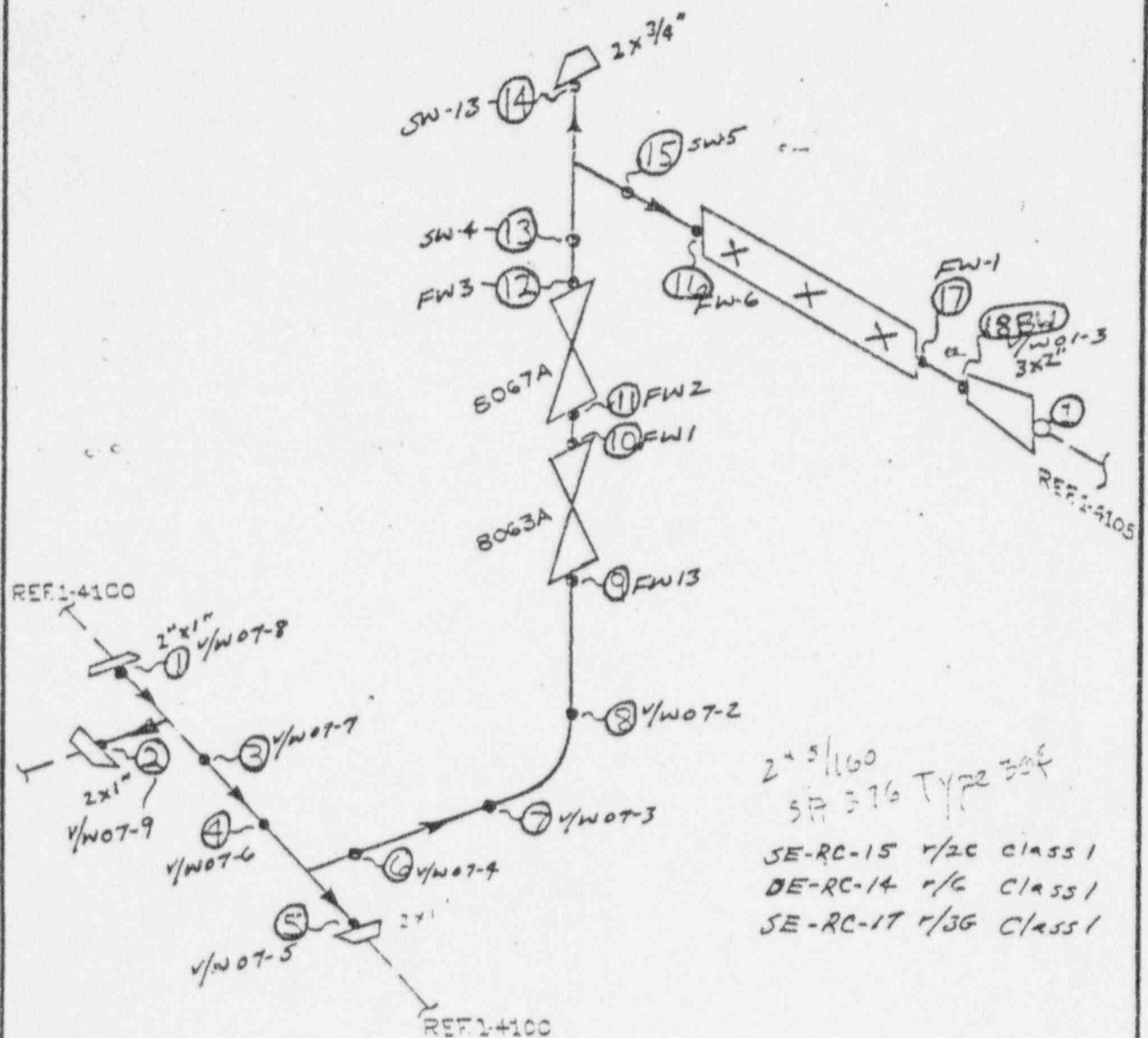
CGE-1-4107

LOOP I 3" LET DOWN



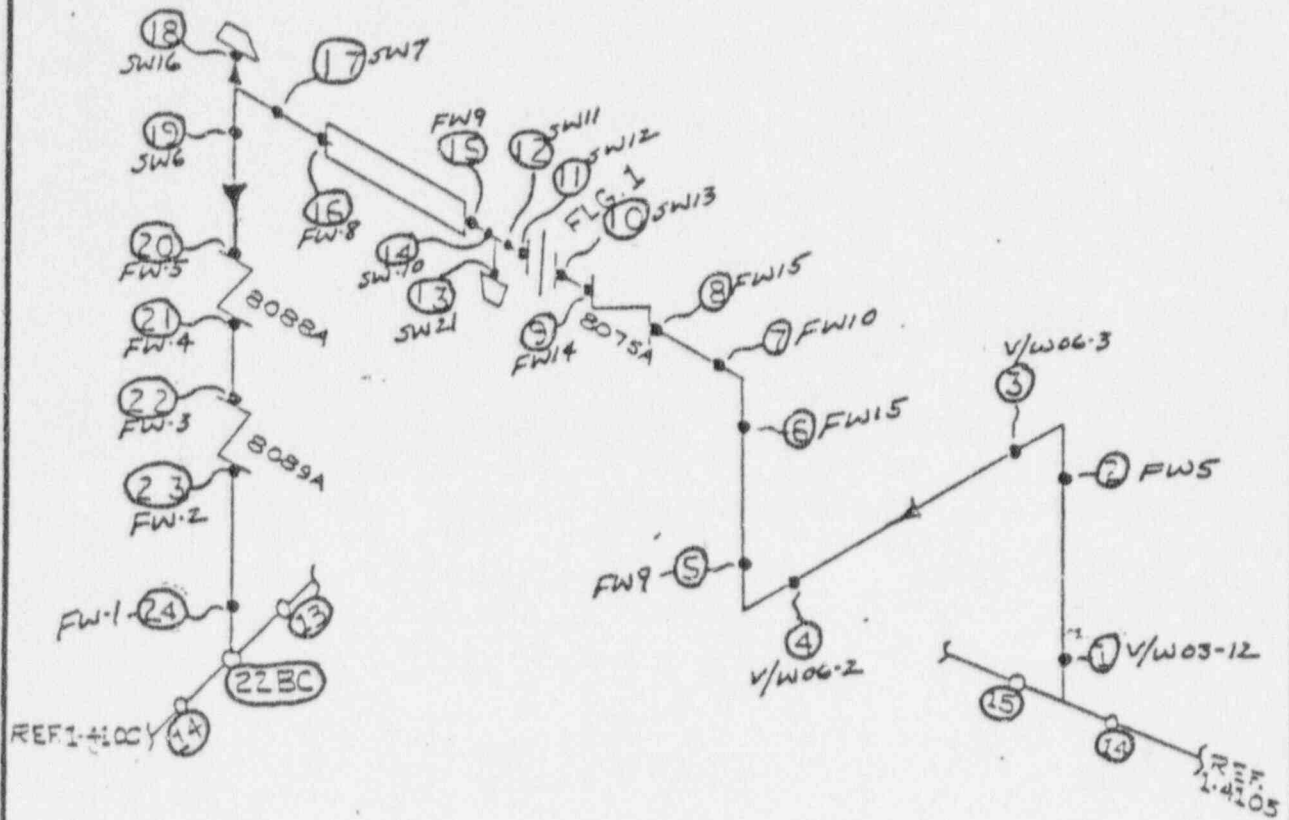
CGE-1-4108

LOOP-1 H.L. 2" RTD. TAKE-OFF



CGE-1-4109

LOOP 1 C.L. 2" TAKE-OFF

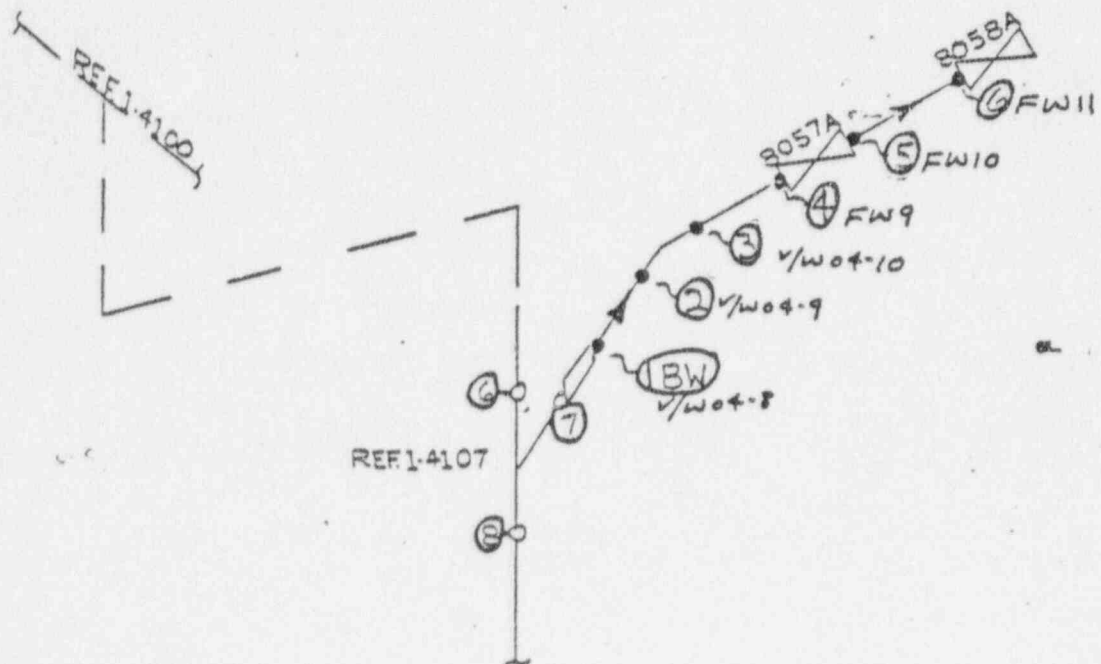


DE-RC-13 r/t
class 1

SE-RC-17 1/3G
class 1

CGE-1-4110

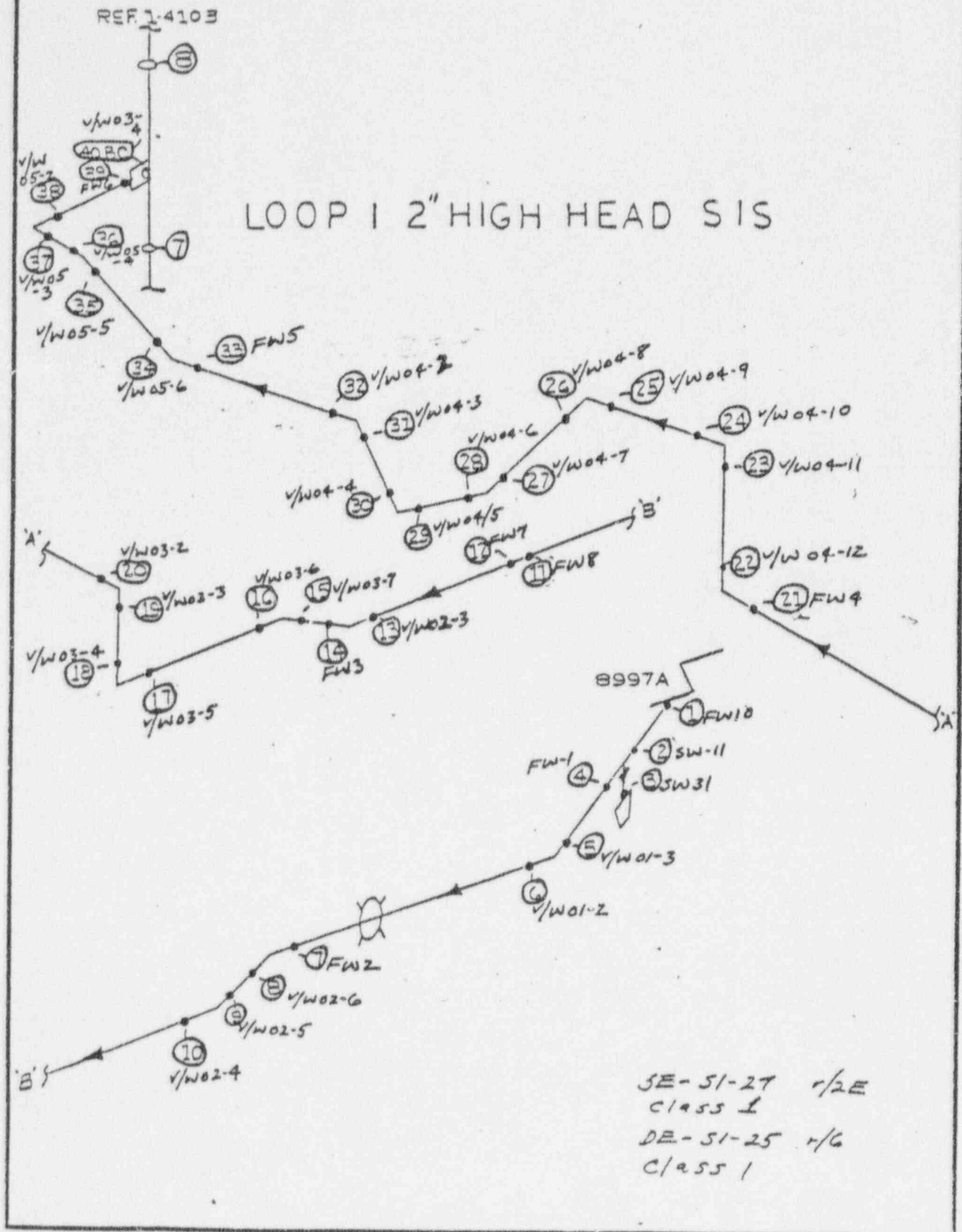
LOOP 1 2" DRAIN LINE



SE-CS-92 r/15
class 1

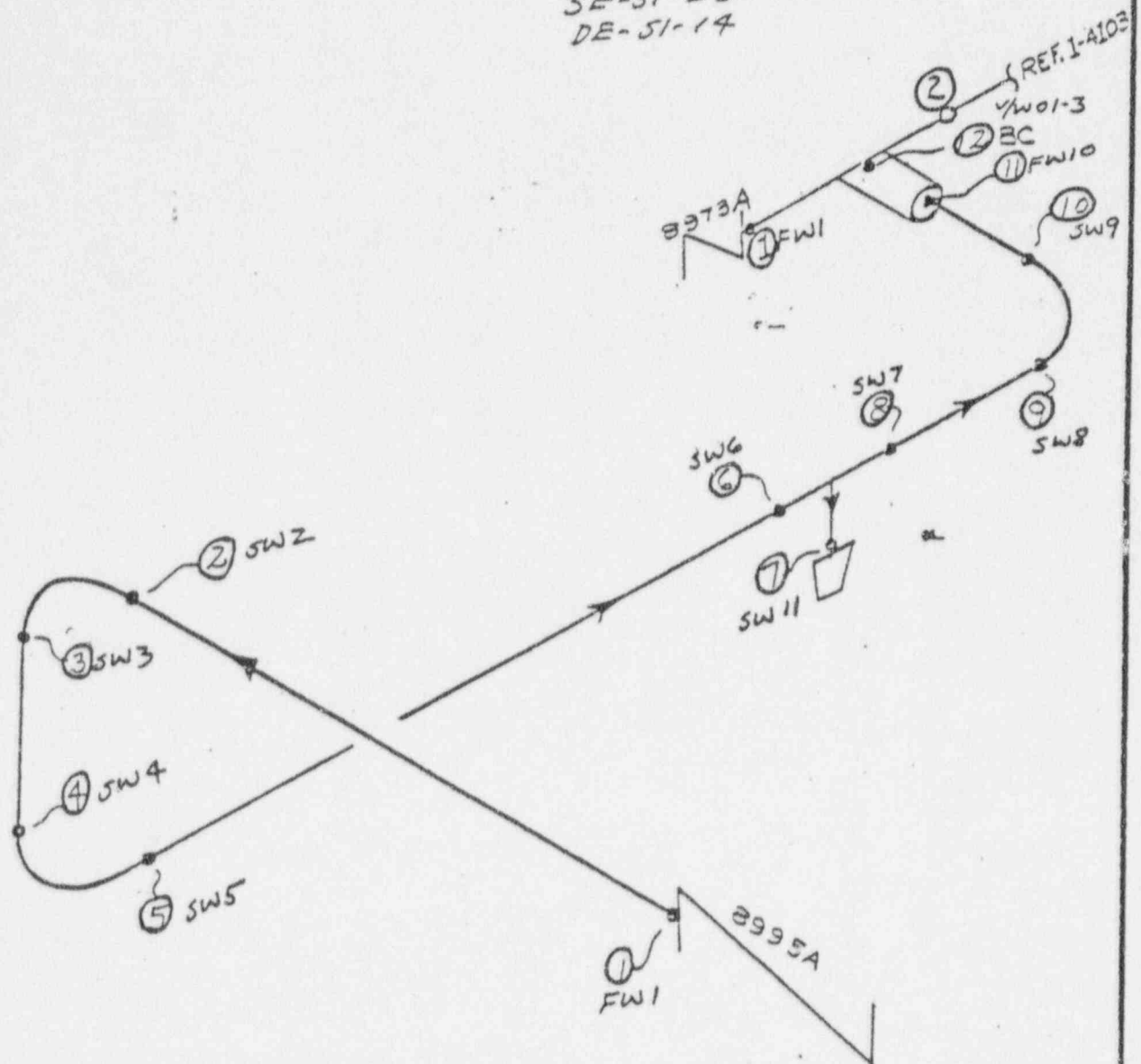
CGE-1-4111

FORM 4E

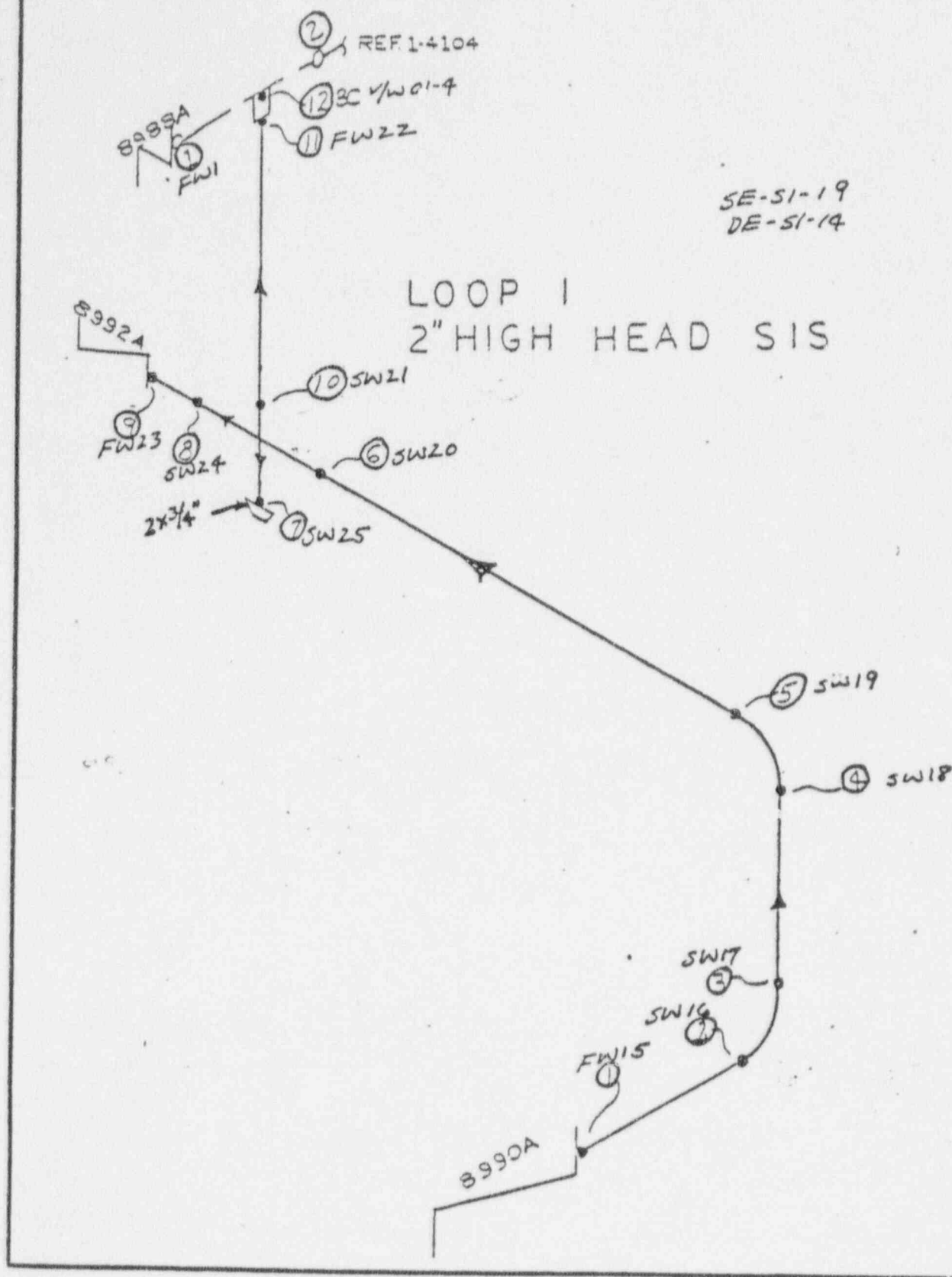


CGE-1-4112

LOOP 1 2" HIGH HEAD SIS

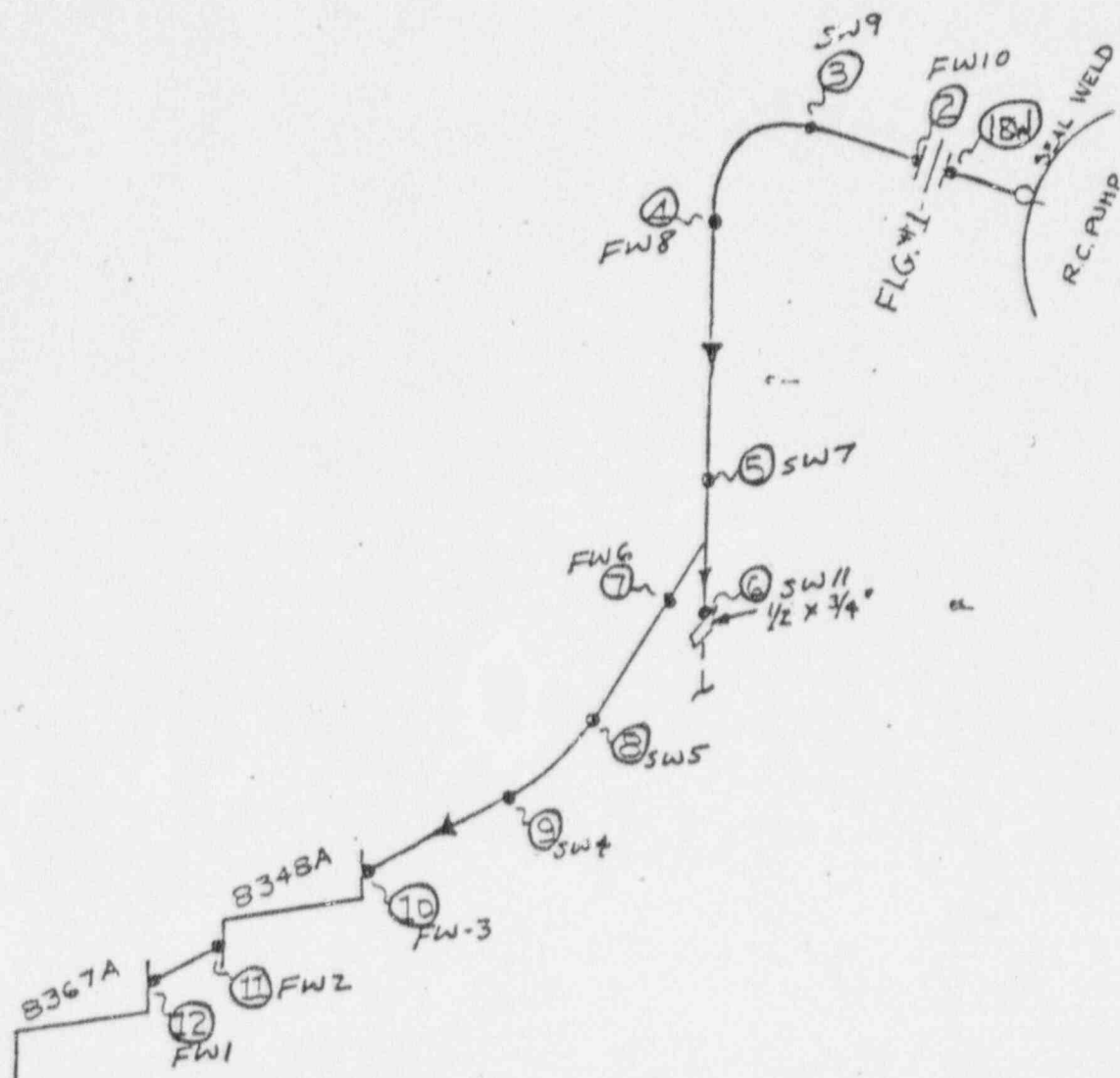
SE-SI-23
DE-SI-14

CGE-1-4113



CGE-1-4114

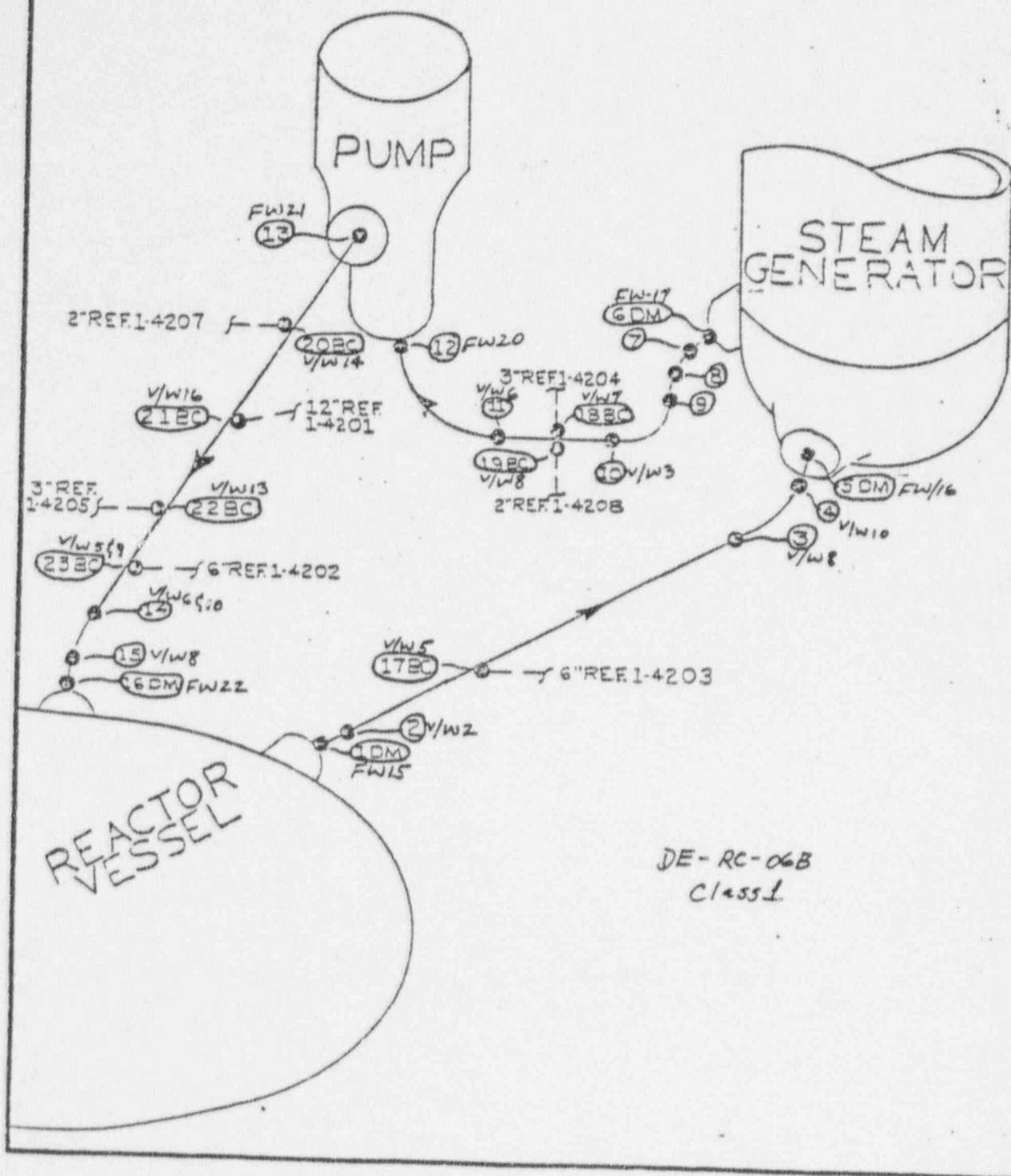
LOOP 1 1 1/2" SEAL INJ.



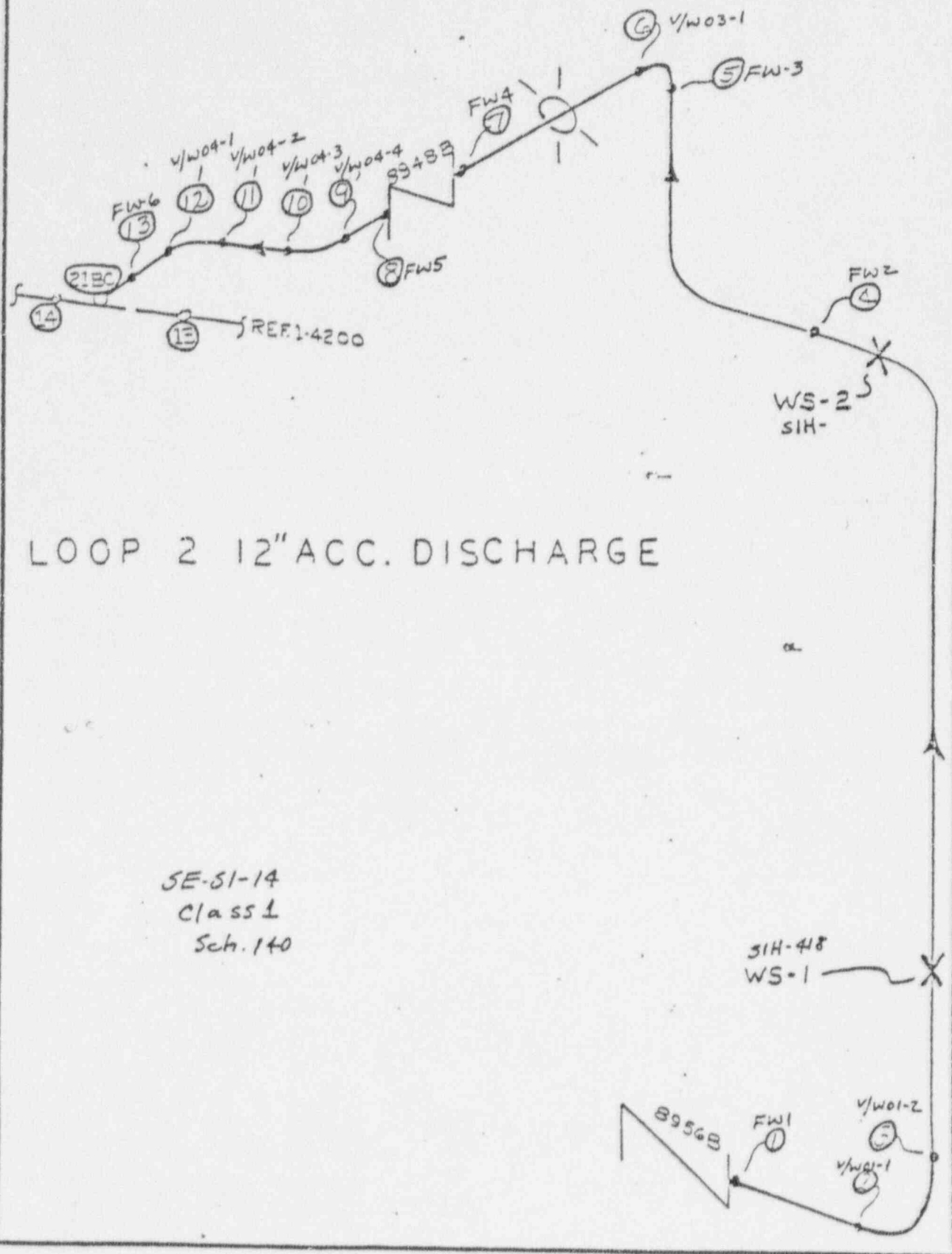
1 1/2" 3/160 SA372 Type 304

DE-CS-83 1/4
Class 1

LOOP 2 REACTOR COOLANT PIPE

DE-RC-06B
Class 1

CGE-1-4201

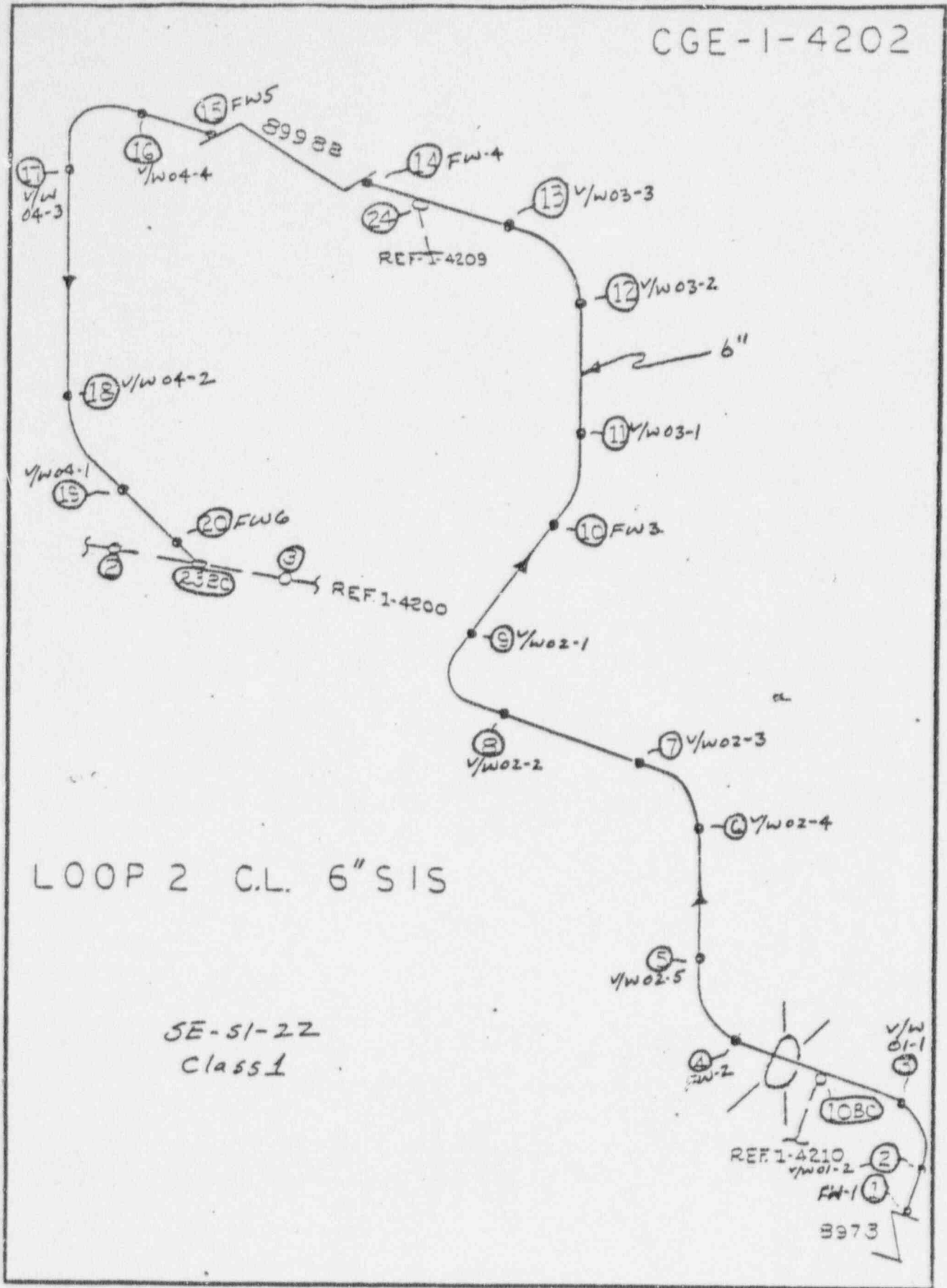


LOOP 2 12" ACC. DISCHARGE

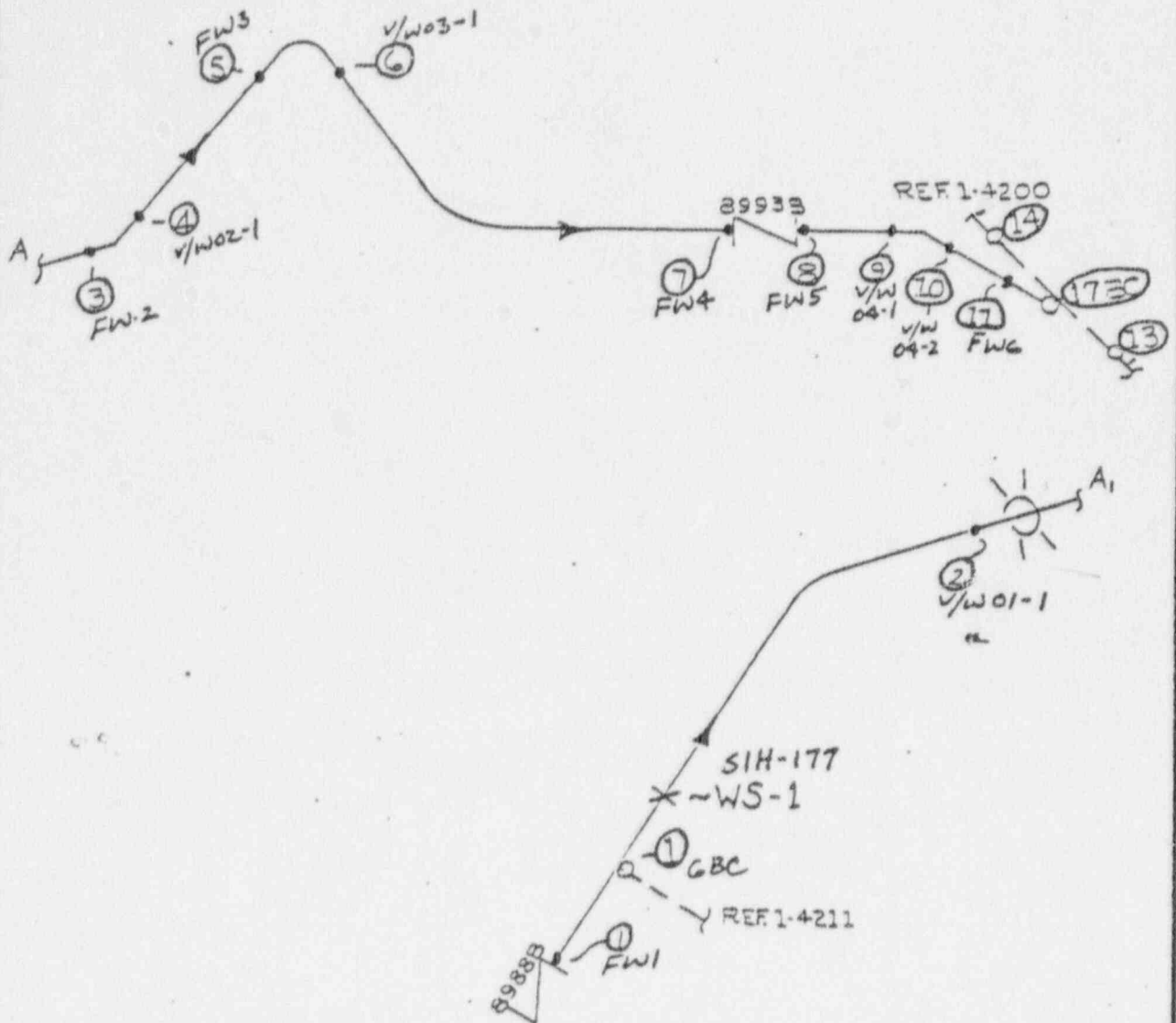
SE-81-14
Class 1
Sch. 140

3IH-418
WS-1

CGE-1-4202



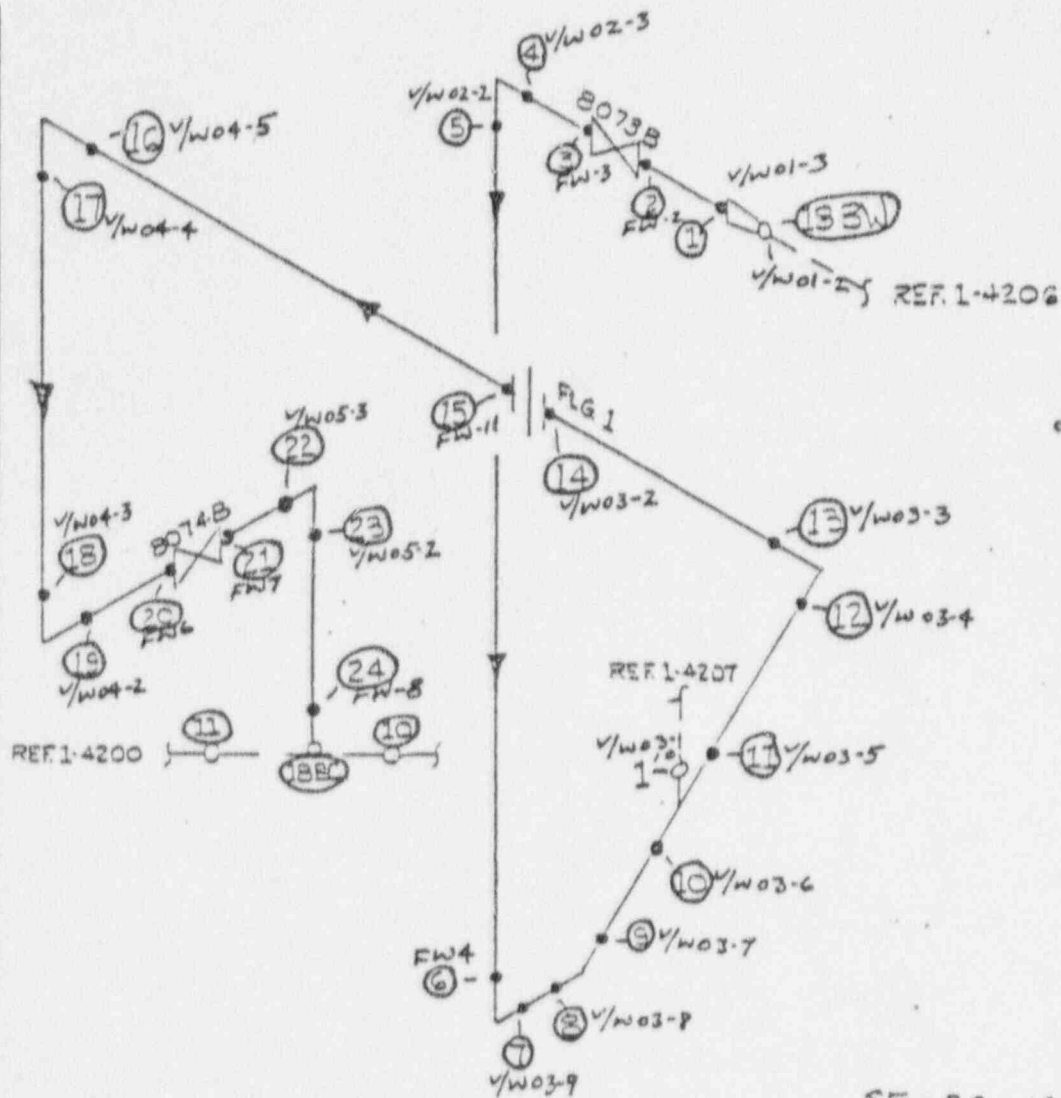
FORM



SE-51-20
Class 1

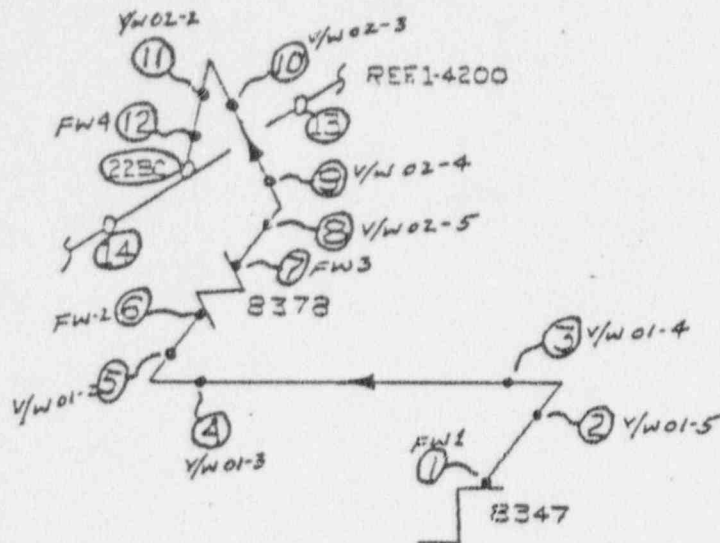
CGE-1-4204

LOOP 2 3" RTD RETURN



CGE-1-4205

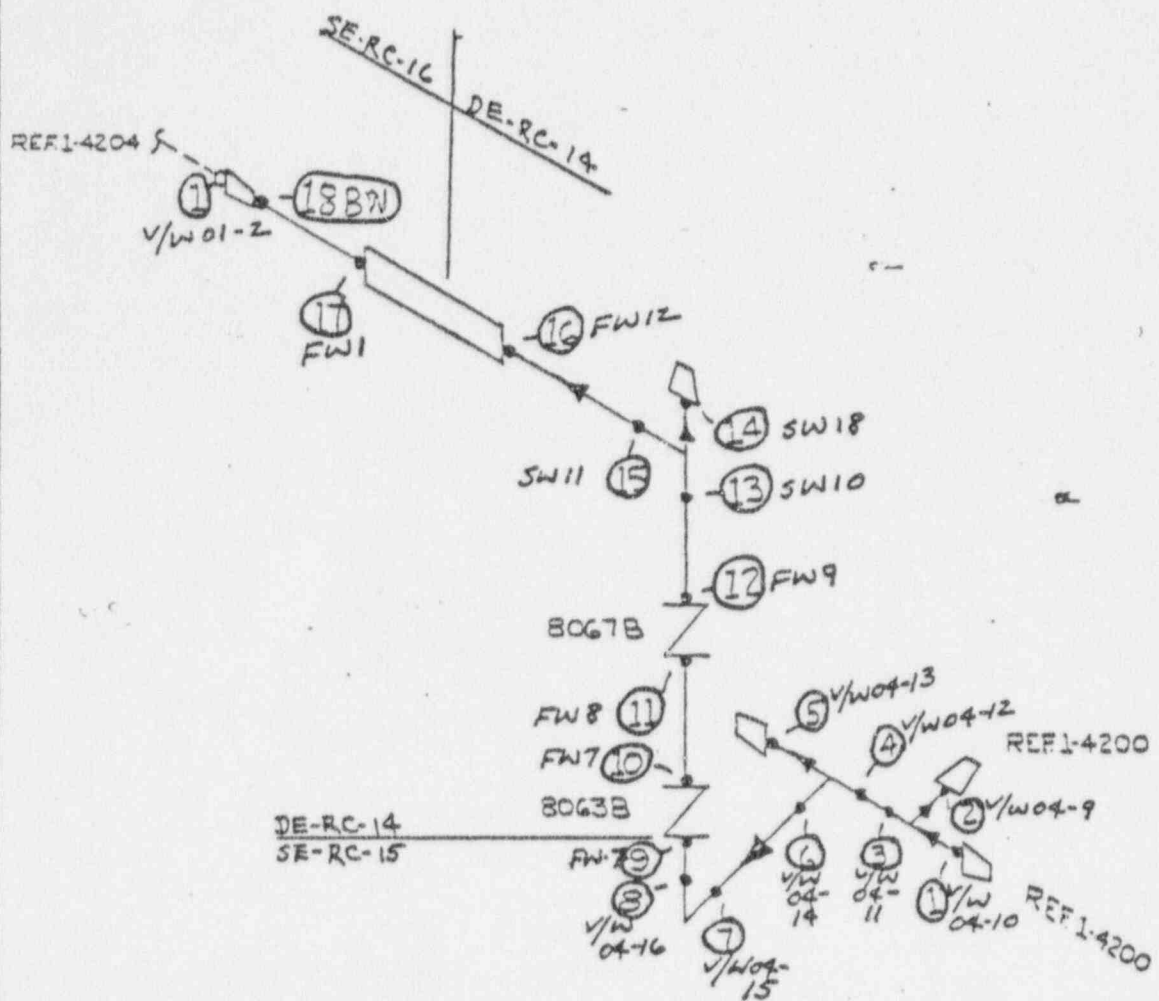
LOOP 2 3" NORM. CHARGING



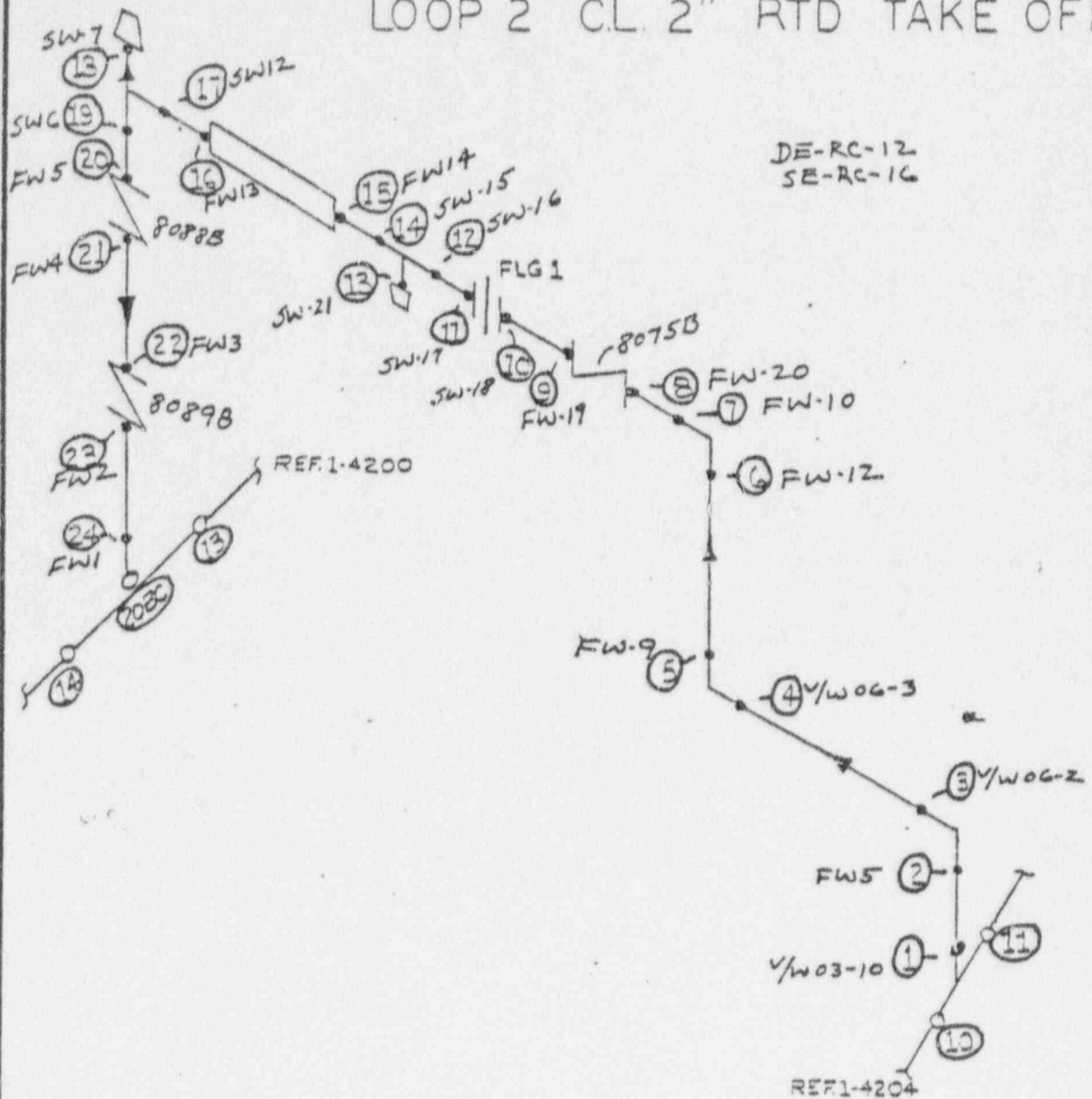
JE-CS-89
class 1

LOOP 2 2" RTD TAKE OFF

SE-RC-15
SE-RC-16
DE-RC-14

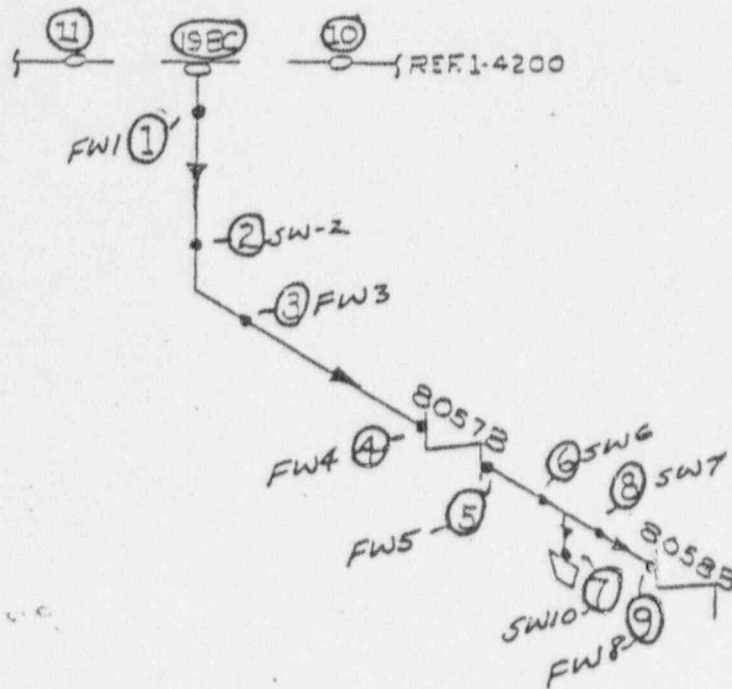


LOOP 2 CL. 2" RTD TAKE OFF



CGE-1-4208

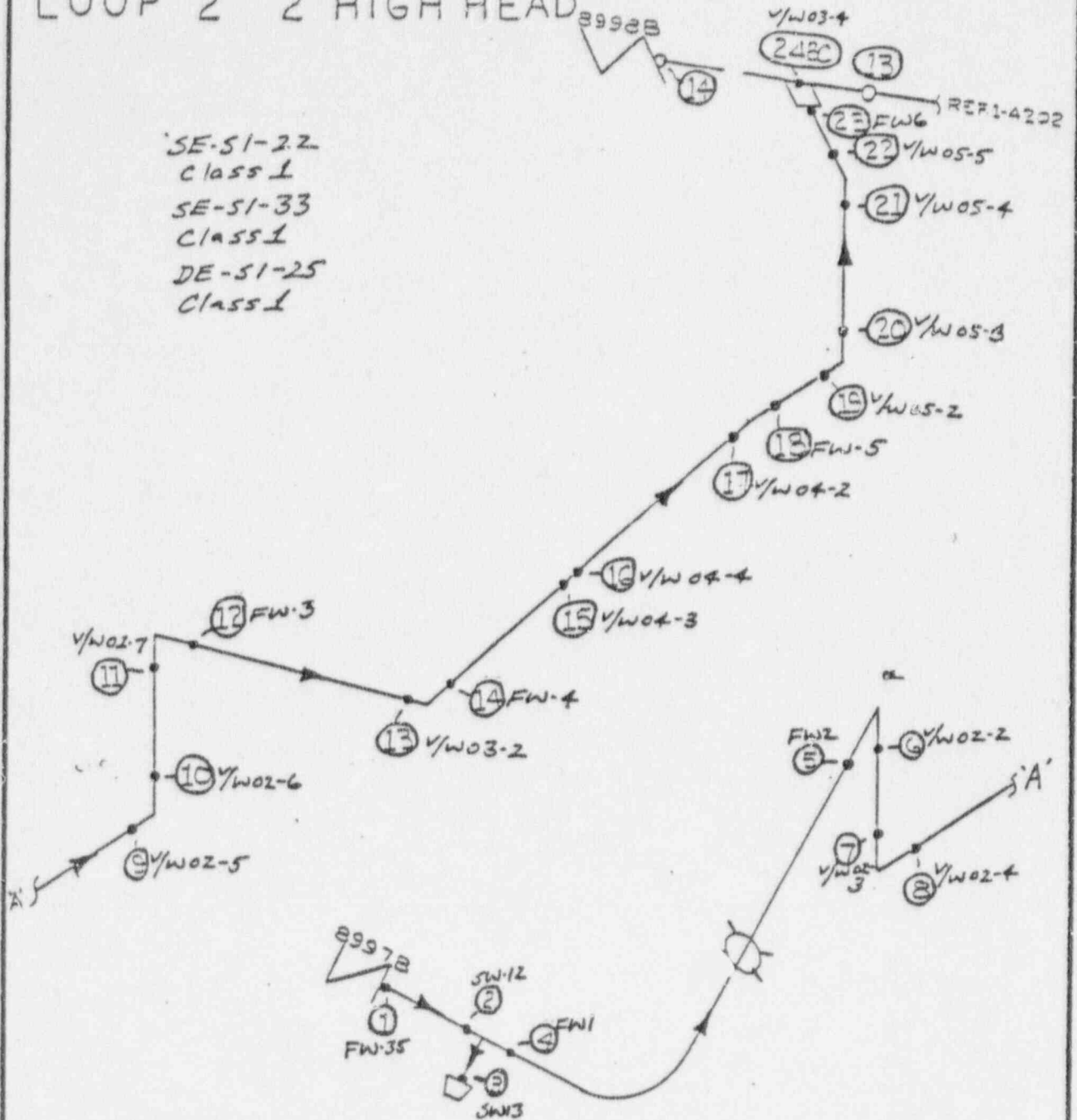
LOOP 2 2" DRAIN LINE

DE-RC-10
Class 1

CGE-1-4209

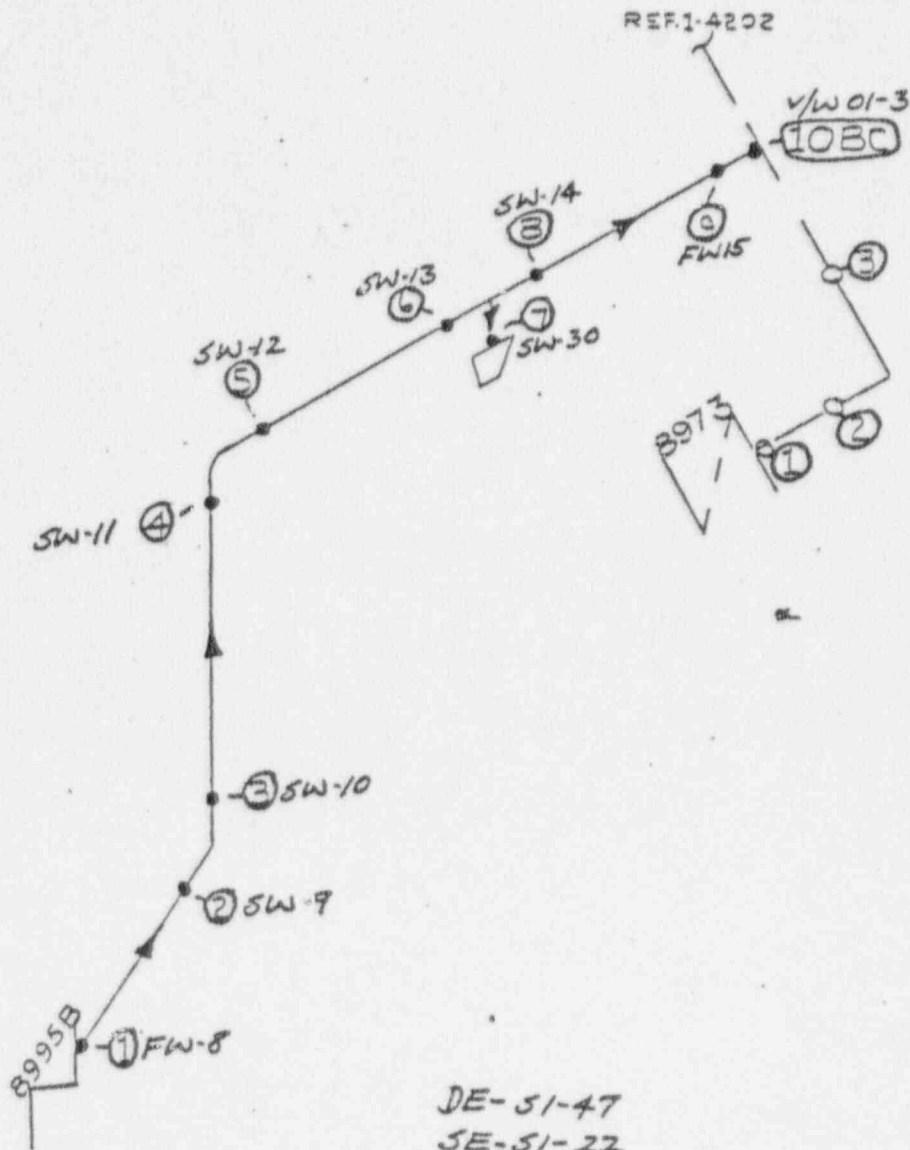
LOOP 2 2" HIGH HEAD

SE-51-22
CLASS 1
SE-51-33
CLASS 1
DE-51-25
CLASS 1



CGE-1-4210

LOOP 2 2" HIGH HEAD

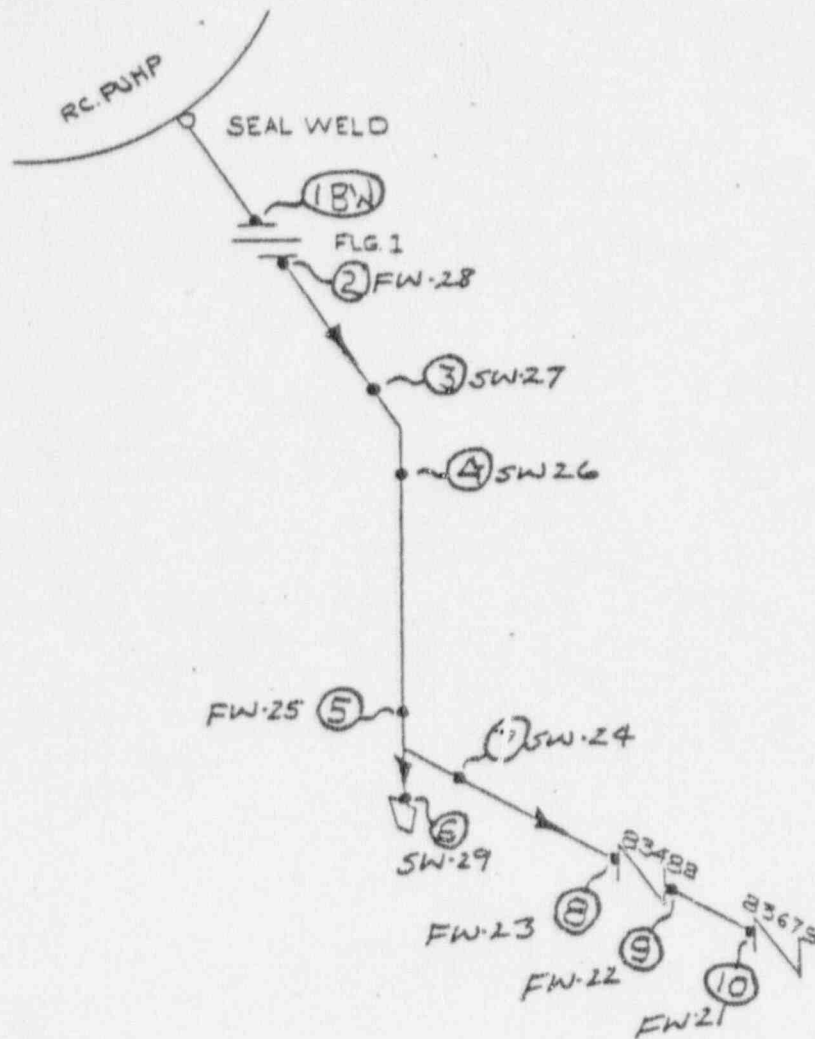


DE-51-47
SE-51-22

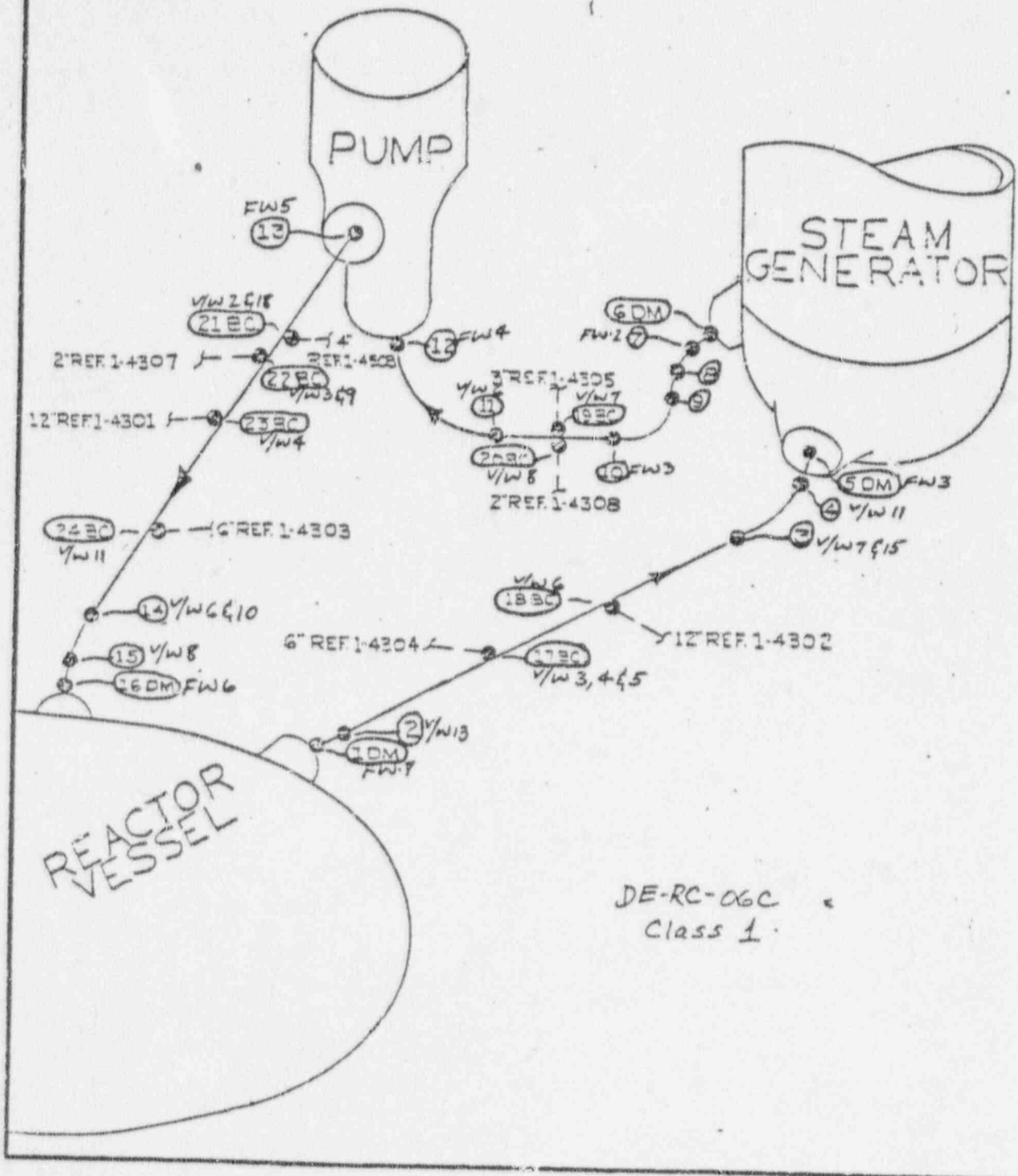
CGE-1-4212

LOOP 2 1½" SEAL INJ.

114E-073



LOOP 3 REACTOR COOLANT PIPE

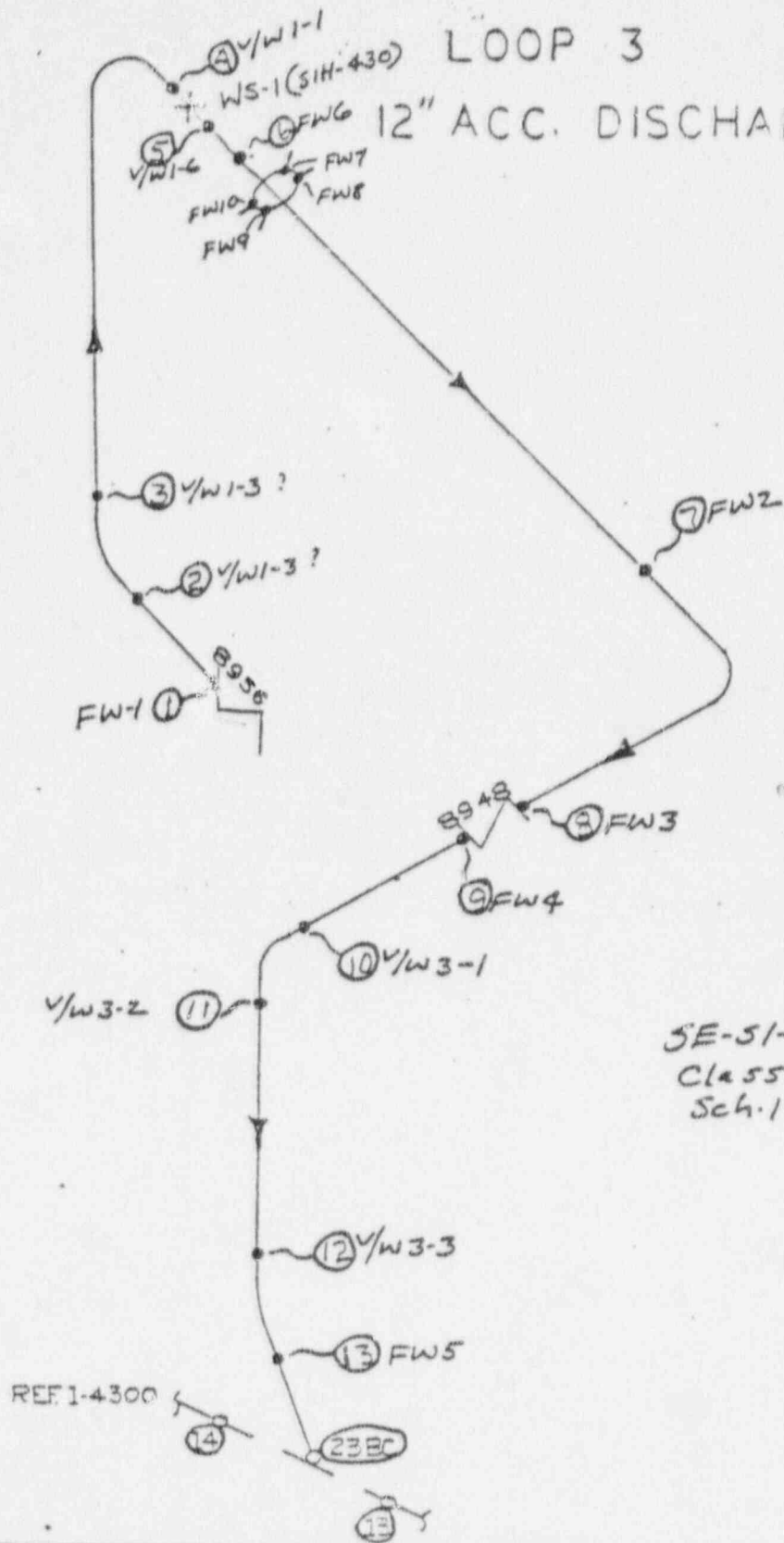


DE-RC-06C
Class 1

CGE-1-4301

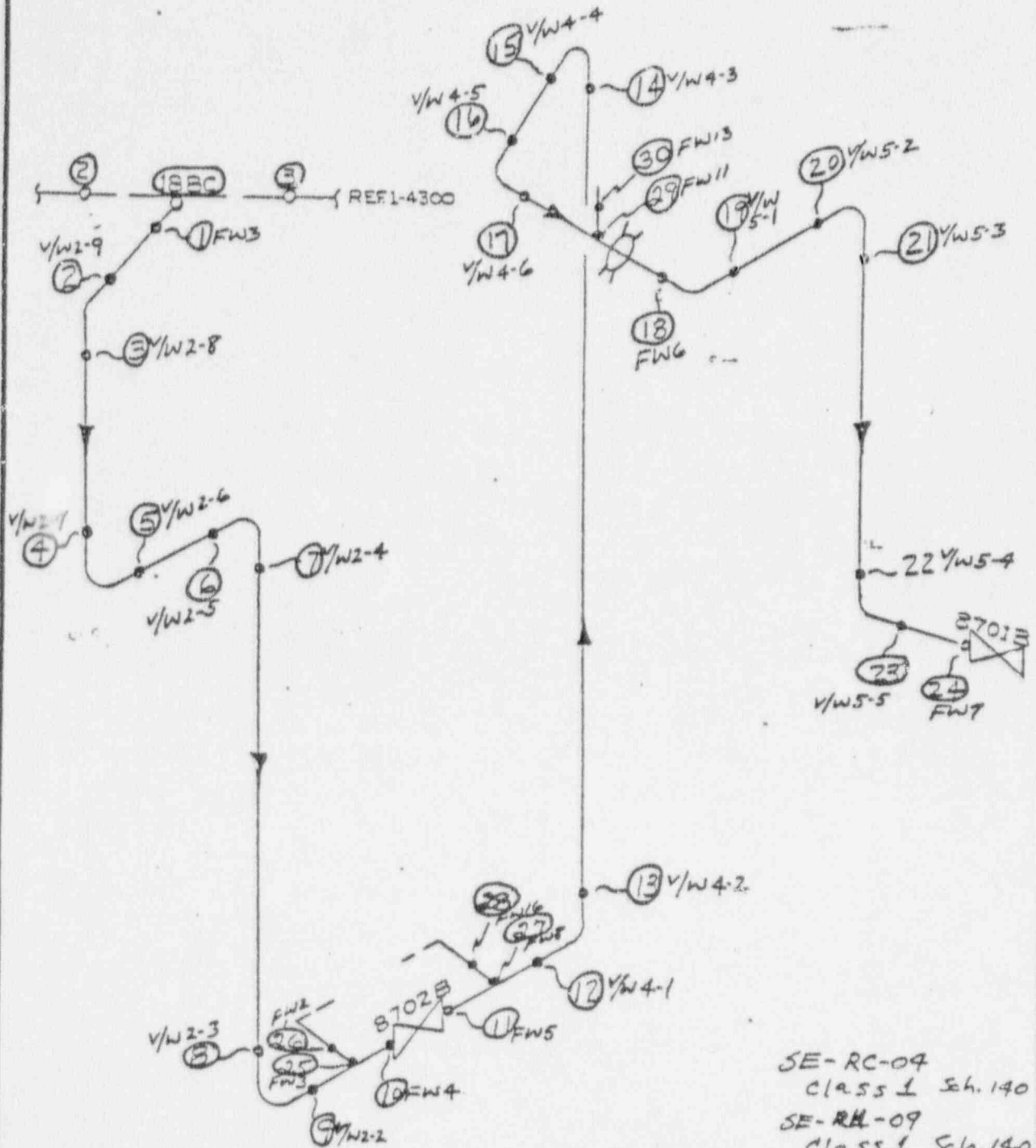
LOOP 3

12" ACC. DISCHARGE



CGE-1-4302

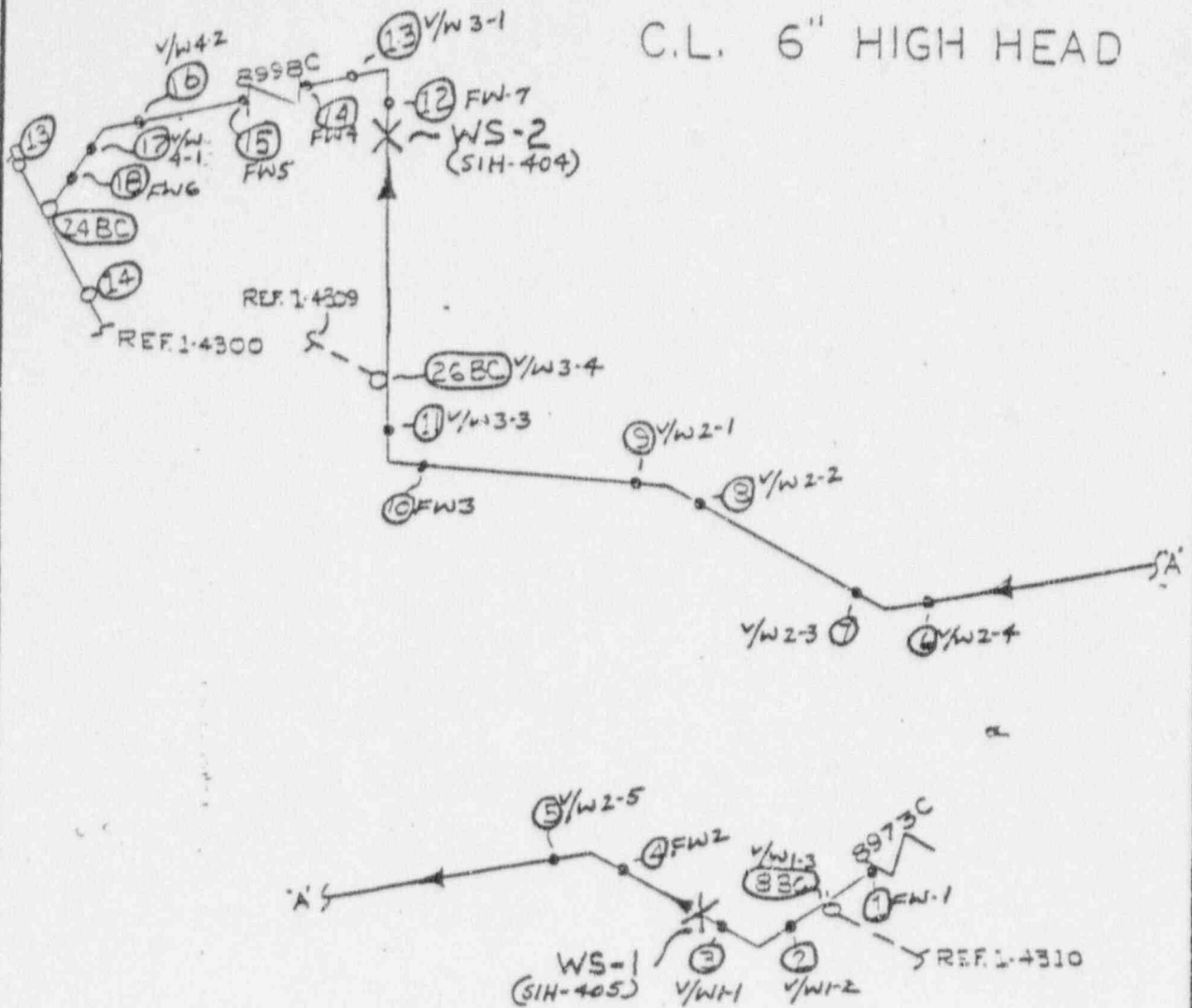
LOOP 3 12" RHR TAKE OFF



CGE-I-4303

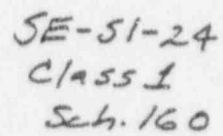
LOOP 3

C.L. 6" HIGH HEAD



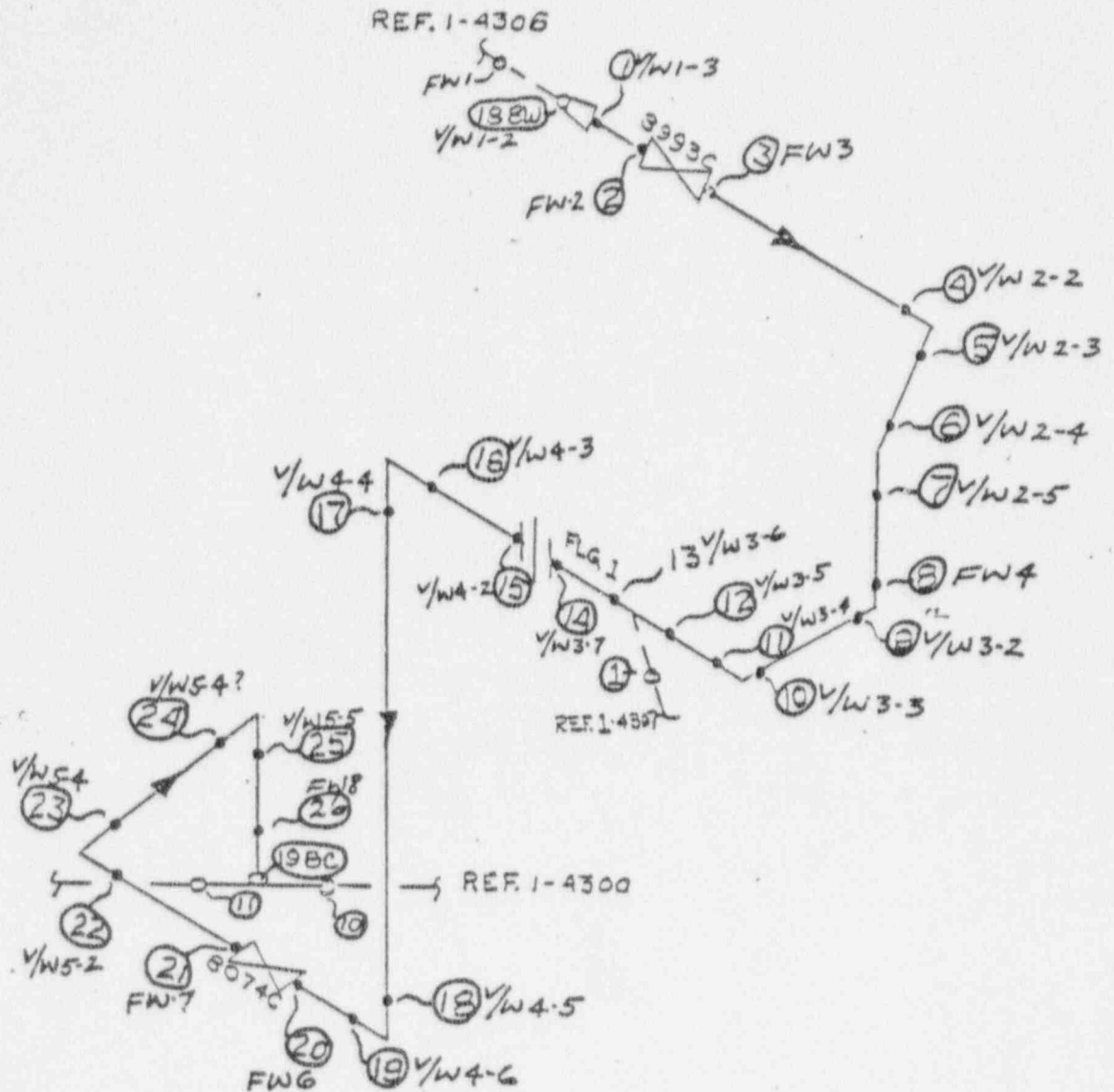
SE-51-21
Class I
Sch. 160

LOOP 3 H.L. 6" HIGH HEAD



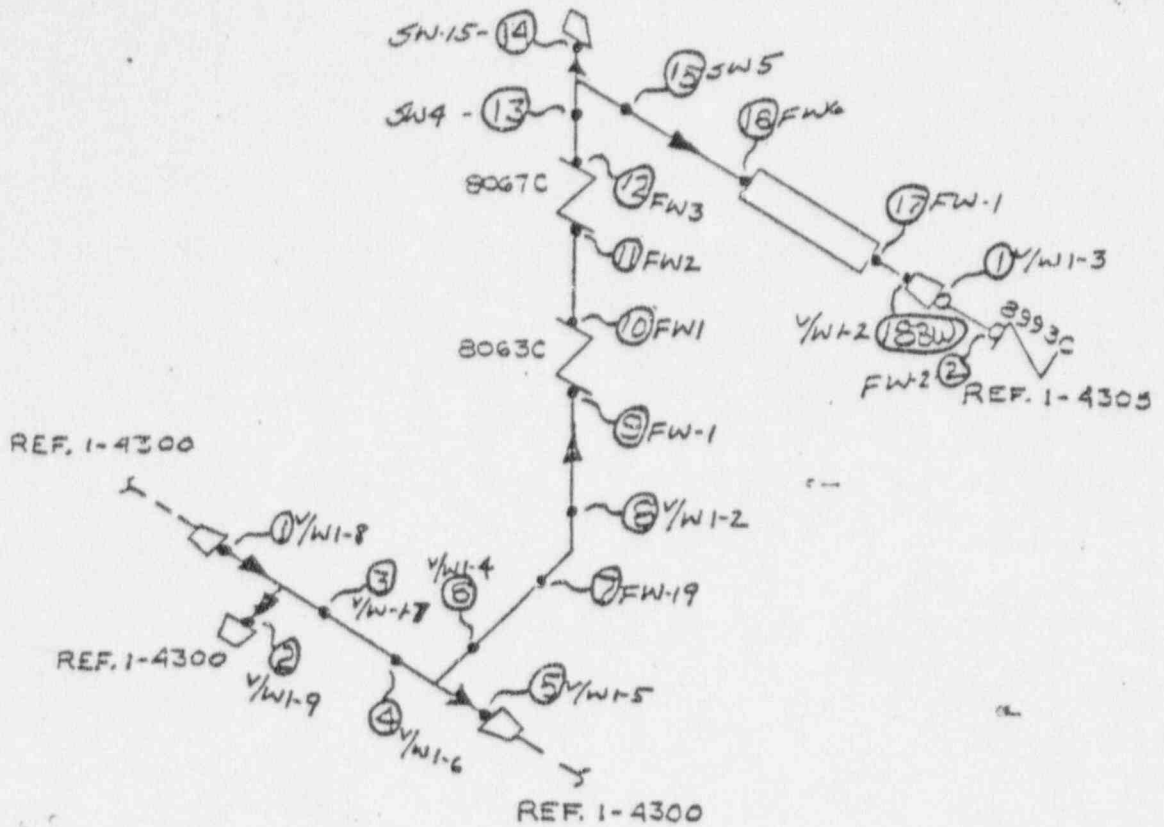
CGE-1-4305

LOOP 3 3" RTD RETURN



CGE-1-4306

LOOP 3 H.L. 2" RTD TAKE OFF



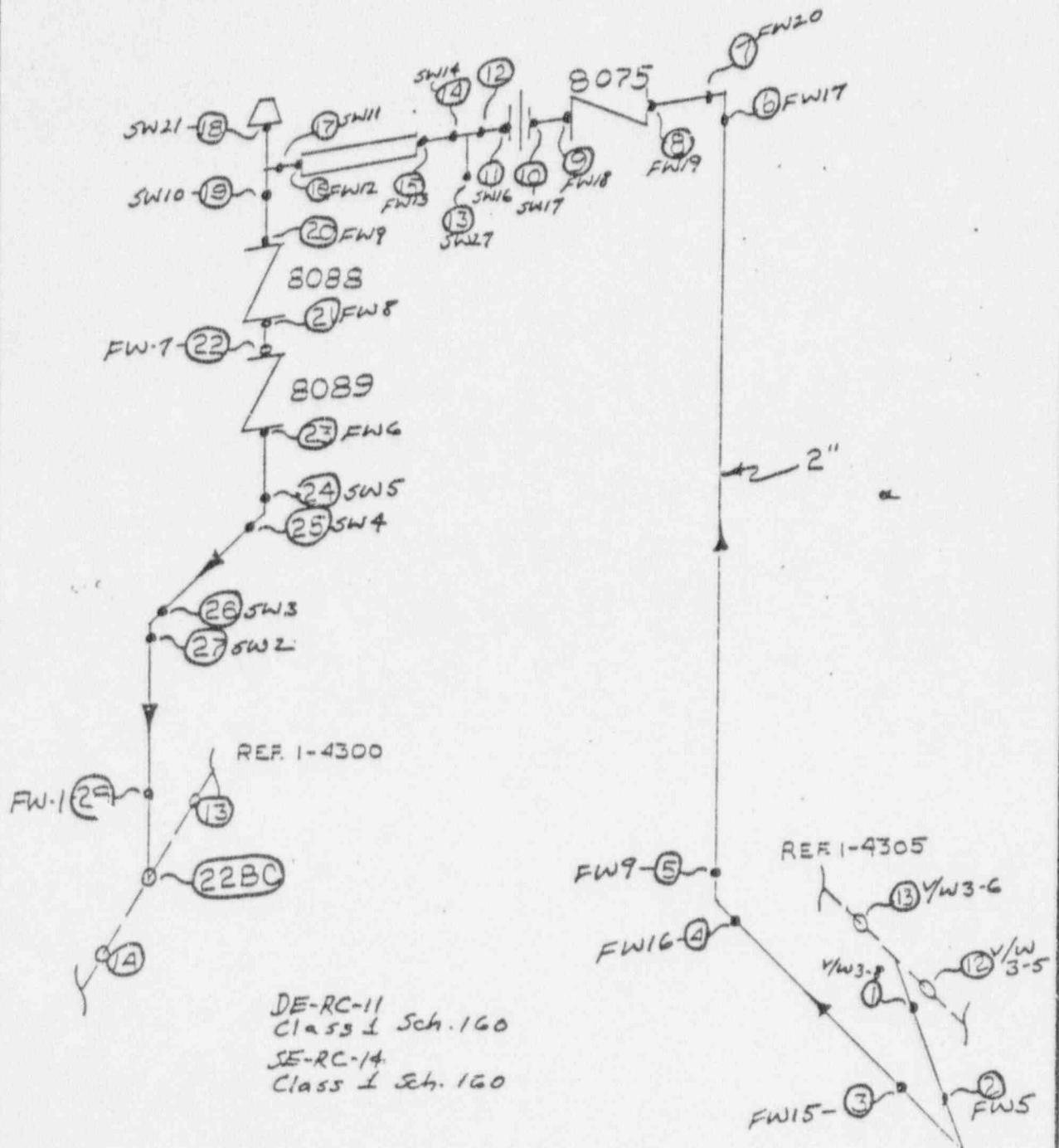
SE-RC-15
class 1 sch 160

DE-RC-15
class 1 sch. 160

SE-RC-14

CGE-1-4307

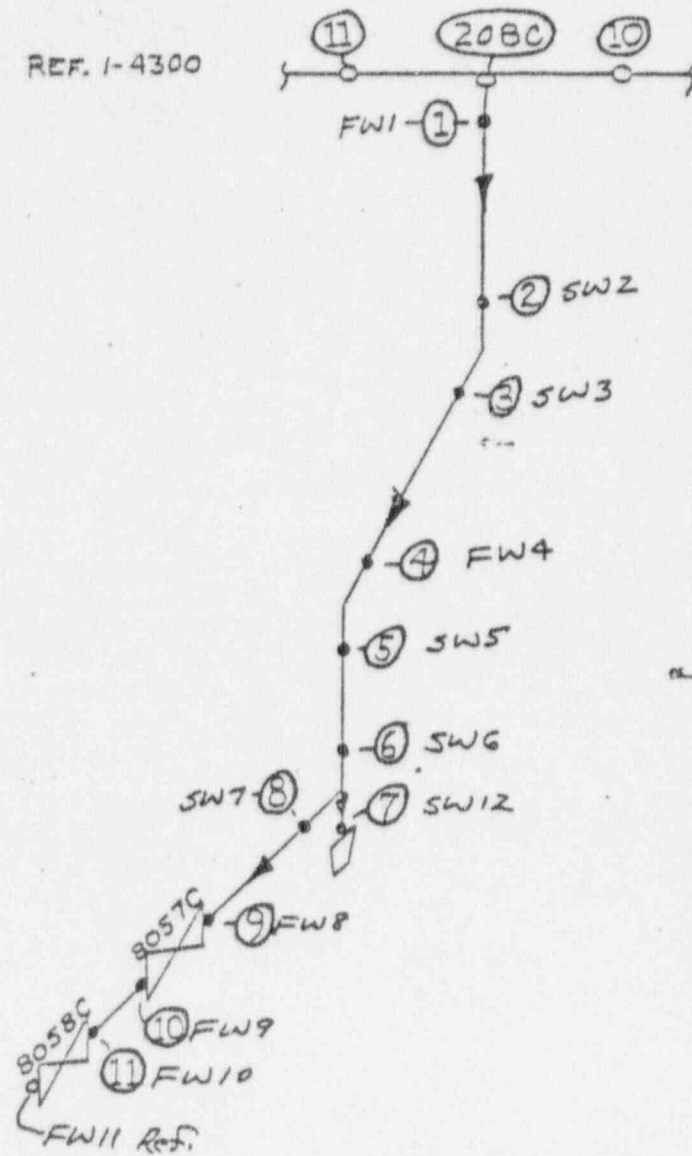
LOOP 3 C.L. 2" TAKE-OFF



CGE-1-4308

LOOP 3 2" DRAIN LINE

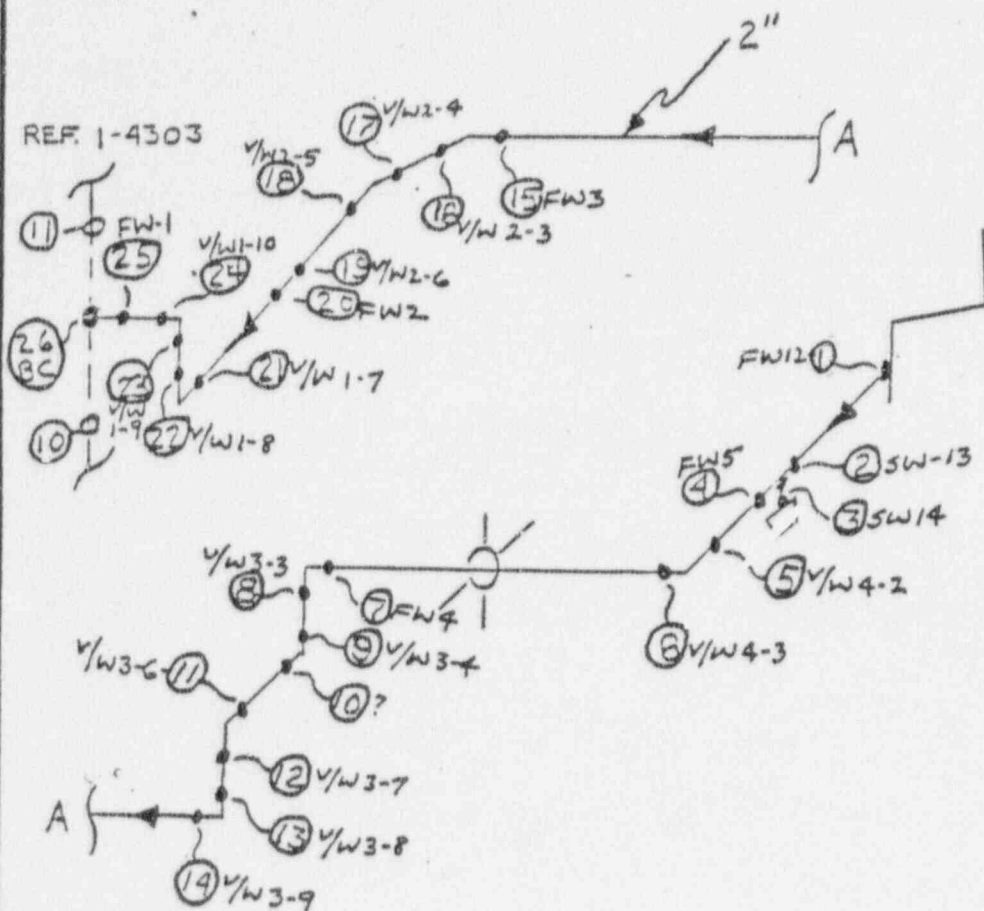
REF. 1-4300



DE-RC-08
CLASS 1 Sch. 160

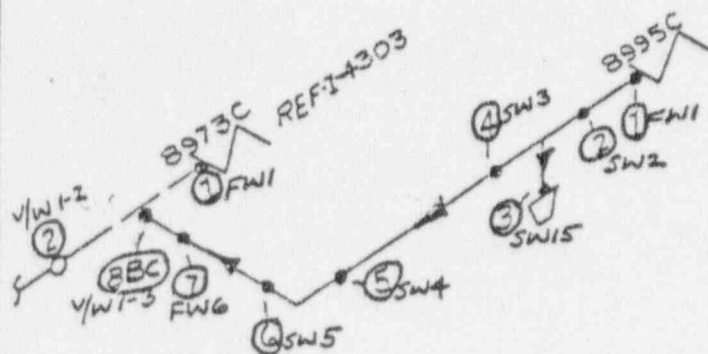
CGE-1-4309

LOOP 3 2" HIGH HEAD



SE-51-30 Class I Sch. 160
 DE-51-27
 Class Sch. 160

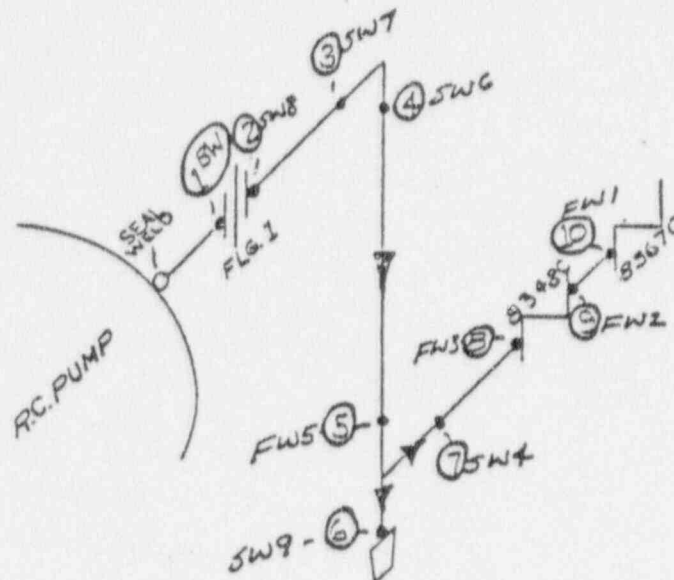
LOOP 3 2" HIGH HEAD



DE-SI-17
Class 1 Sch. 160

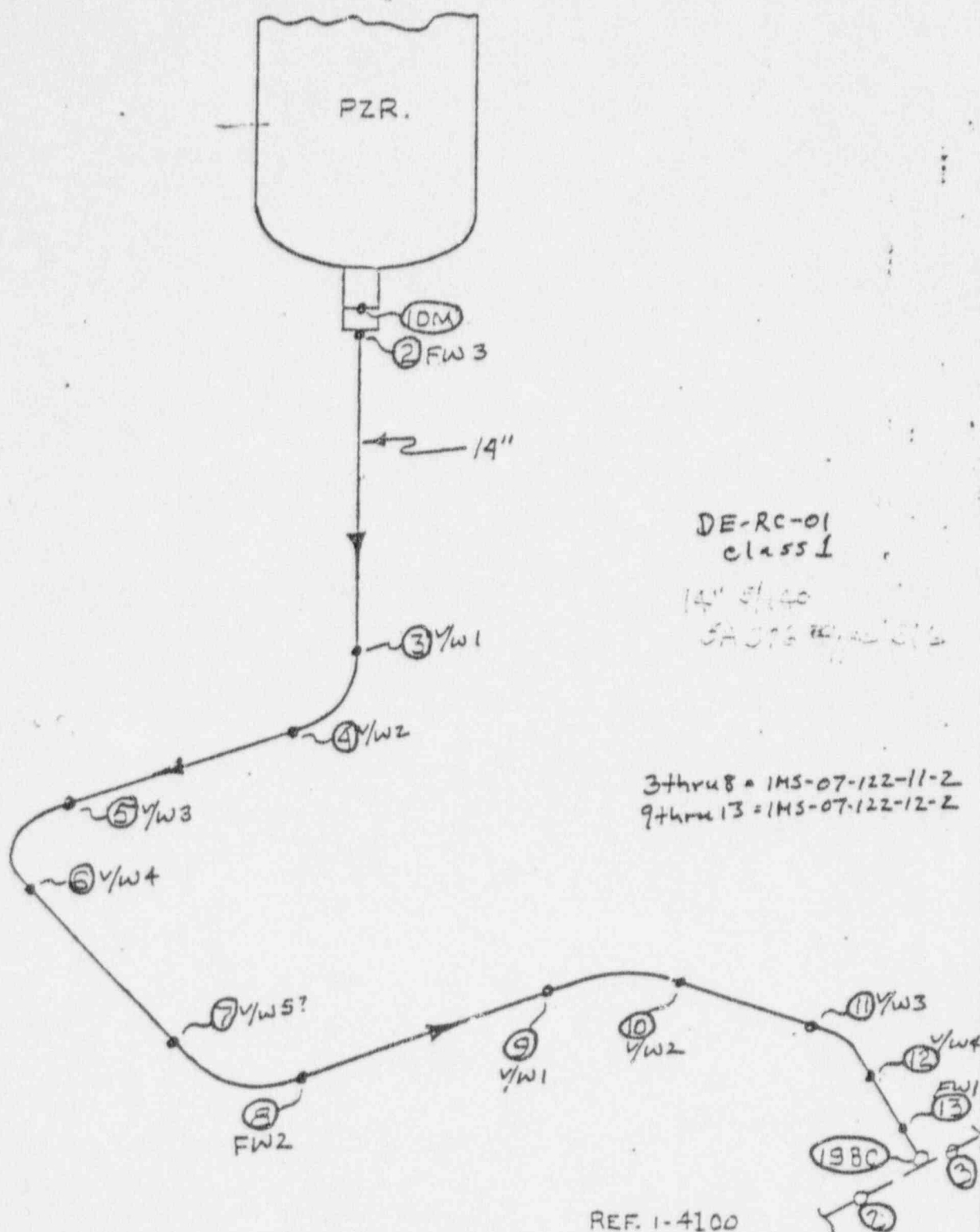
CGE-1-4312

LOOP 3 1½" SEAL INJ.

DE-CS-66
Class 1 Sch. 160

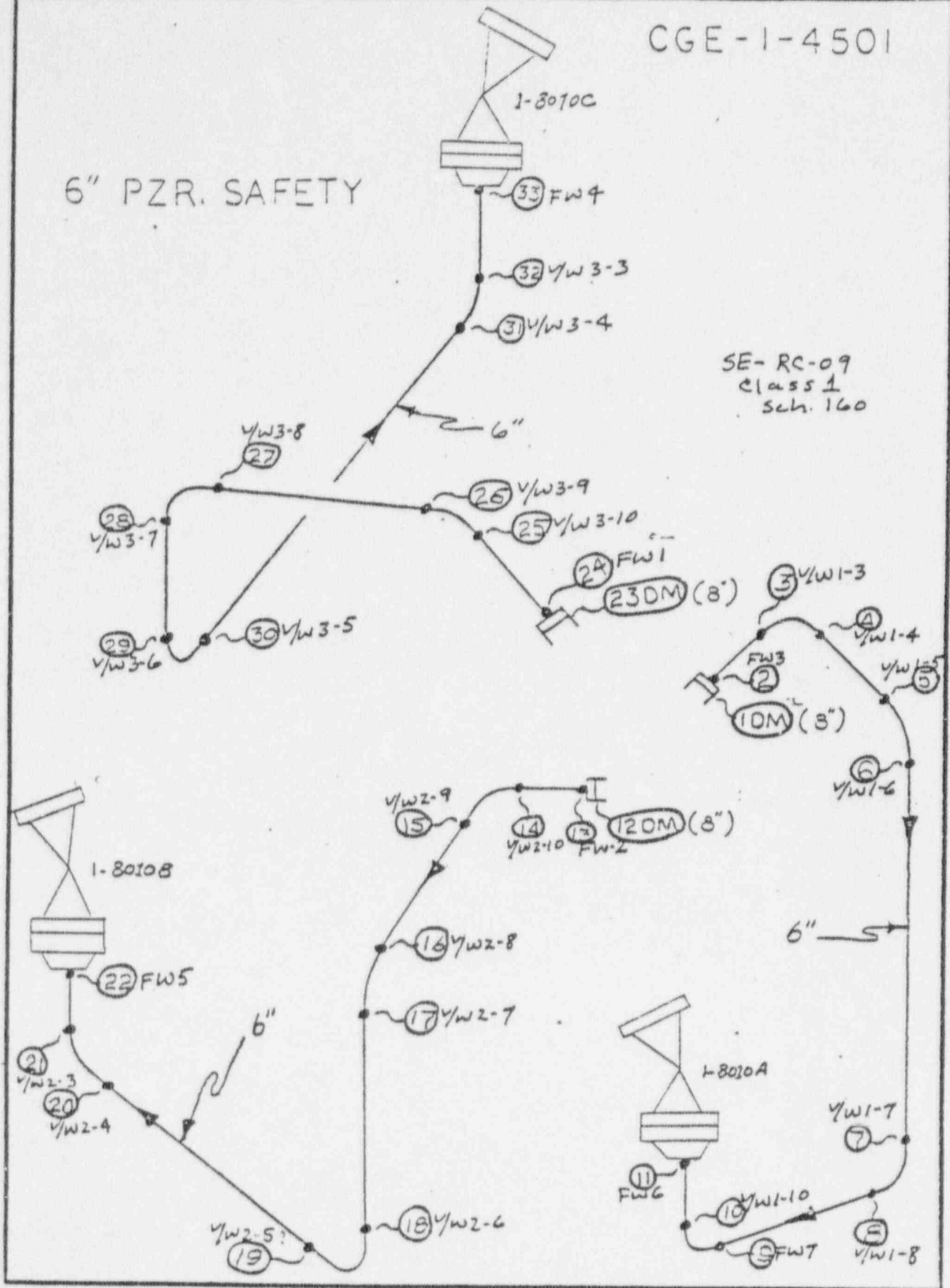
CGE-1-4500

14" PZR. SURGE



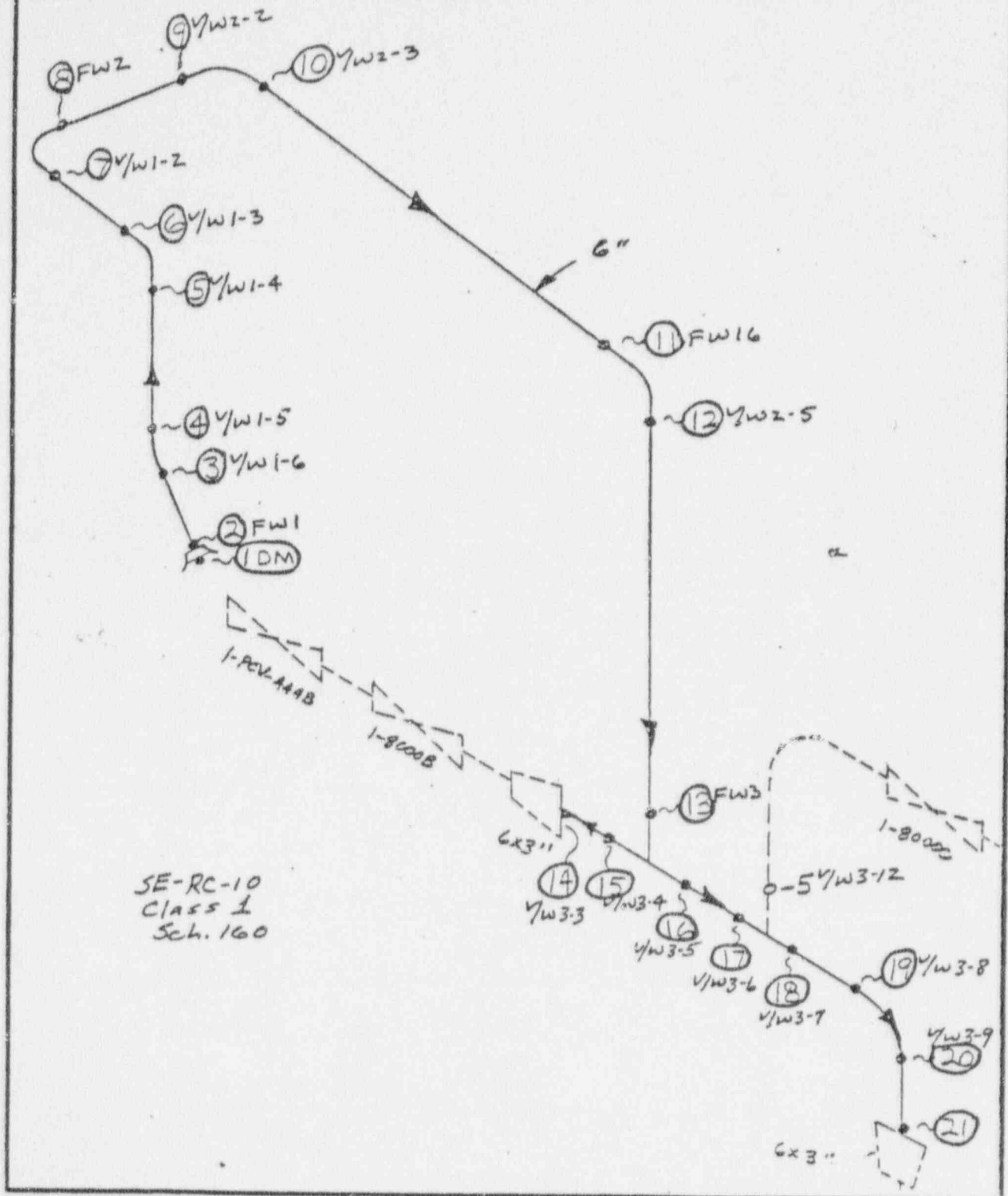
CGE-1-4501

6" PZR. SAFETY

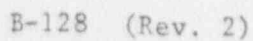
SE-RC-09
Class 1
Sch. 160

CGE-1-4502

6" PRESS. RELIEF

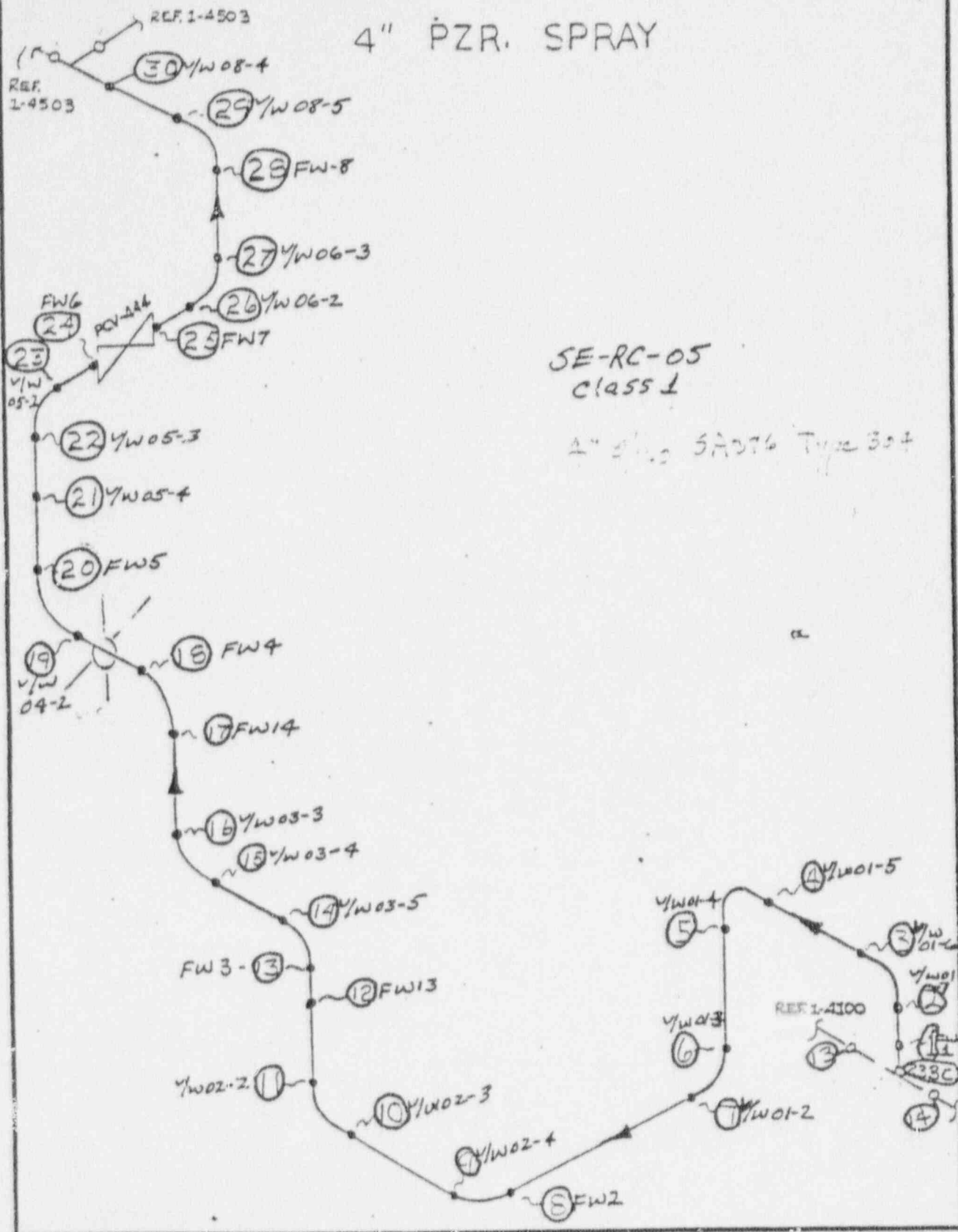


FORM 4



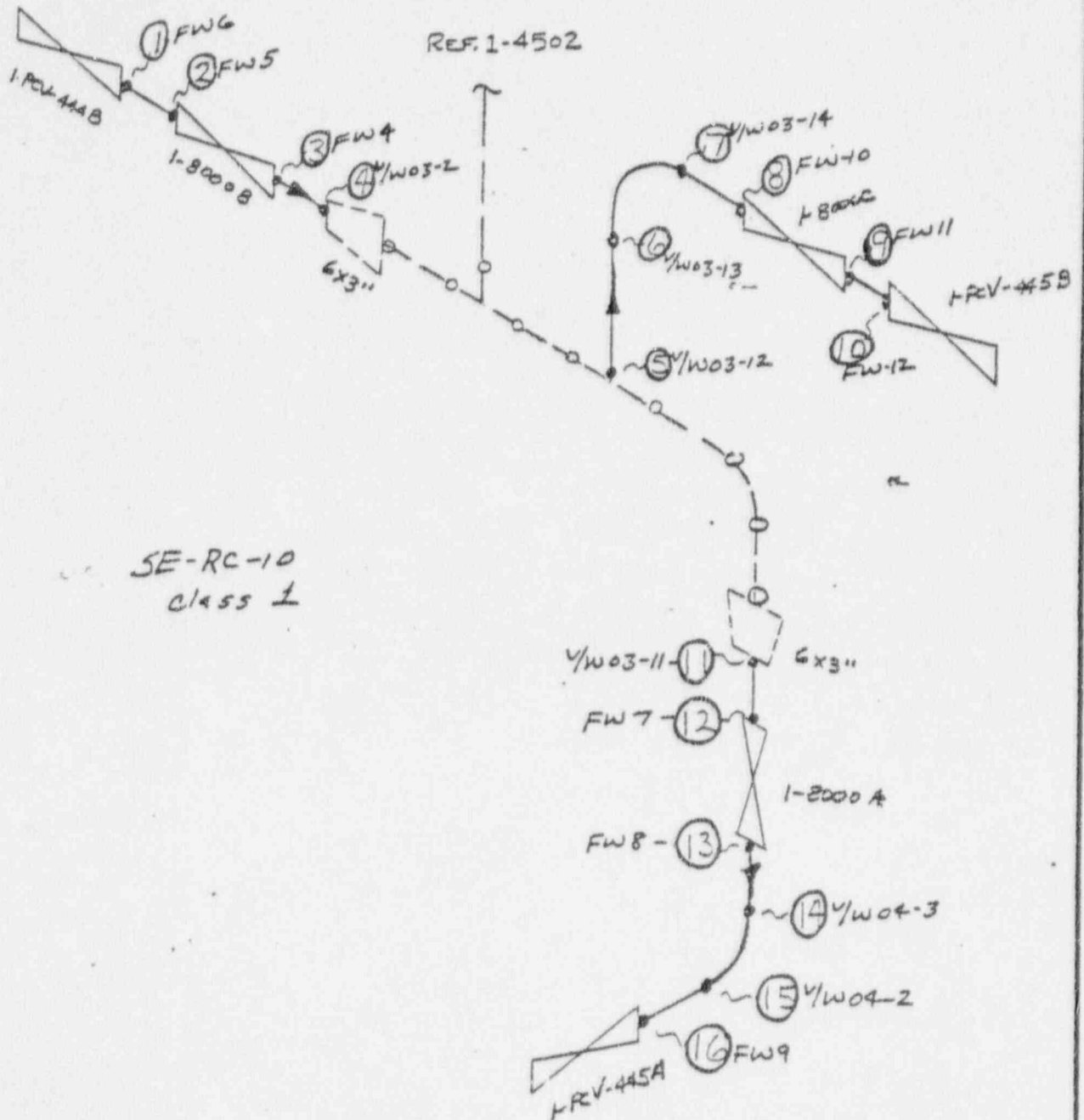
CGE-1-4504

4" PZR. SPRAY

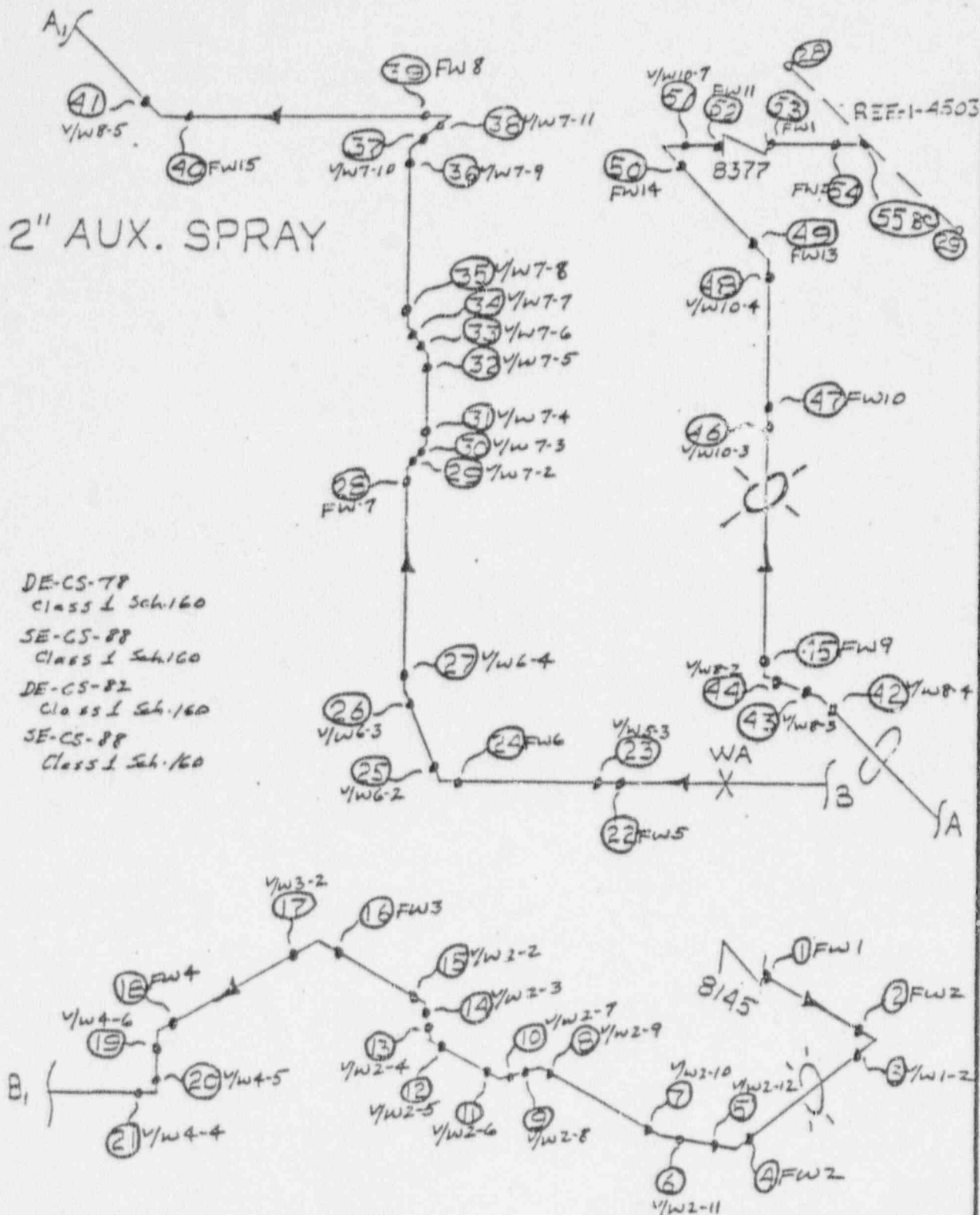


CGE-1-4505

3" PRESS. RELIEF



CGE-1-4506



CGE-1-5100

(FLYWHEEL)

REF.

(SEAL HOUSE)

(FLANGE)

REF.

REF.

(SUPPORT)
REF.

COLD LEG

TIE RODS

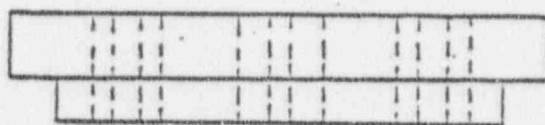
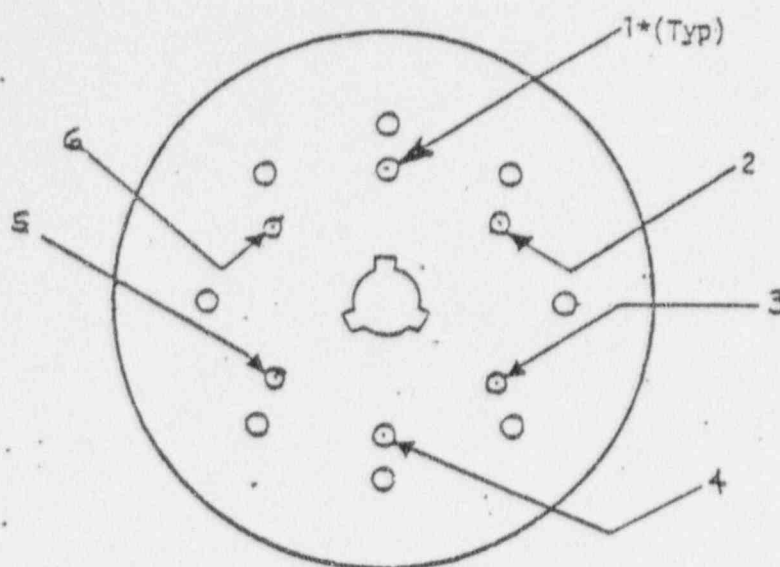
PIPE COLUMNS

CROSS-OVER LEG

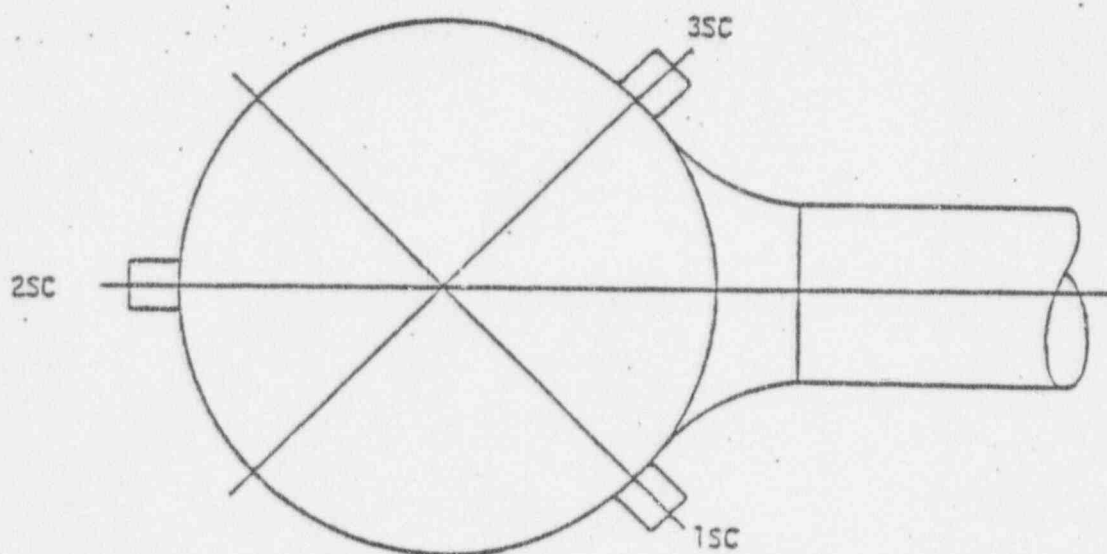
ILLUSTRATIVE ONLY

CGE -1-5110

FLYWHEEL



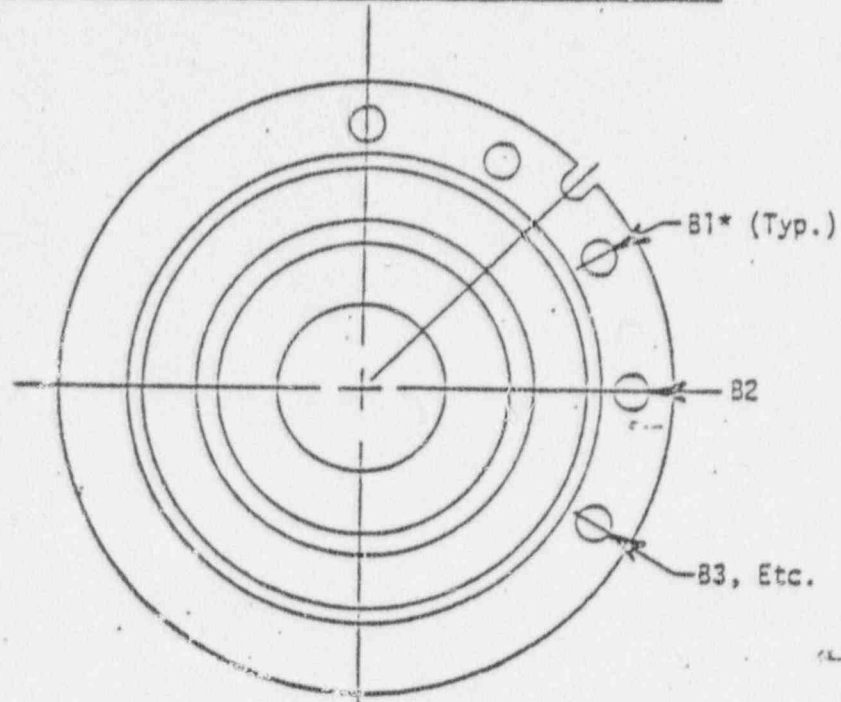
R.C. PUMP SUPPORTS



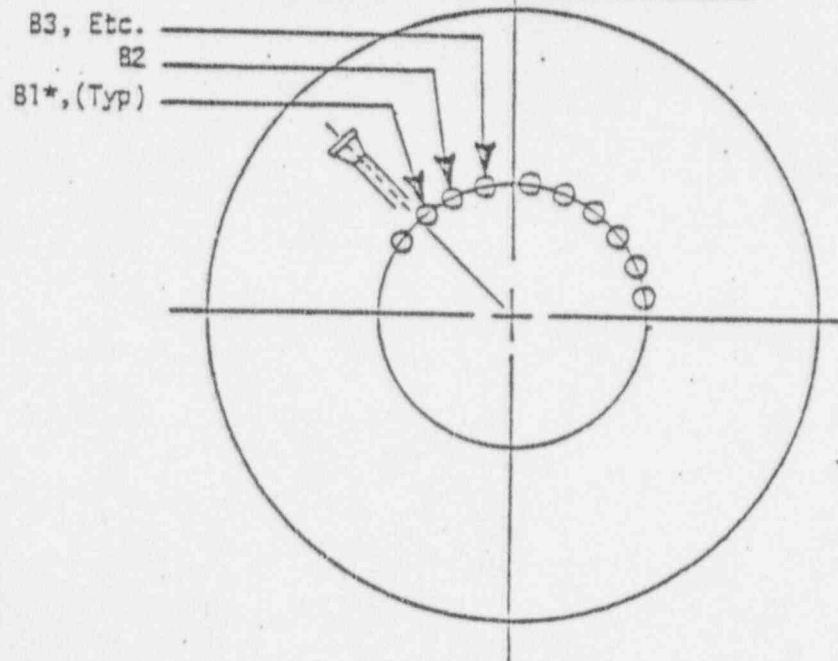
* Number is preceded by (1-), (2-) Or (3-) as applicable.

CGE -1-5120

R.C. PUMP BOLTING SEAL HOUSING BOLTING

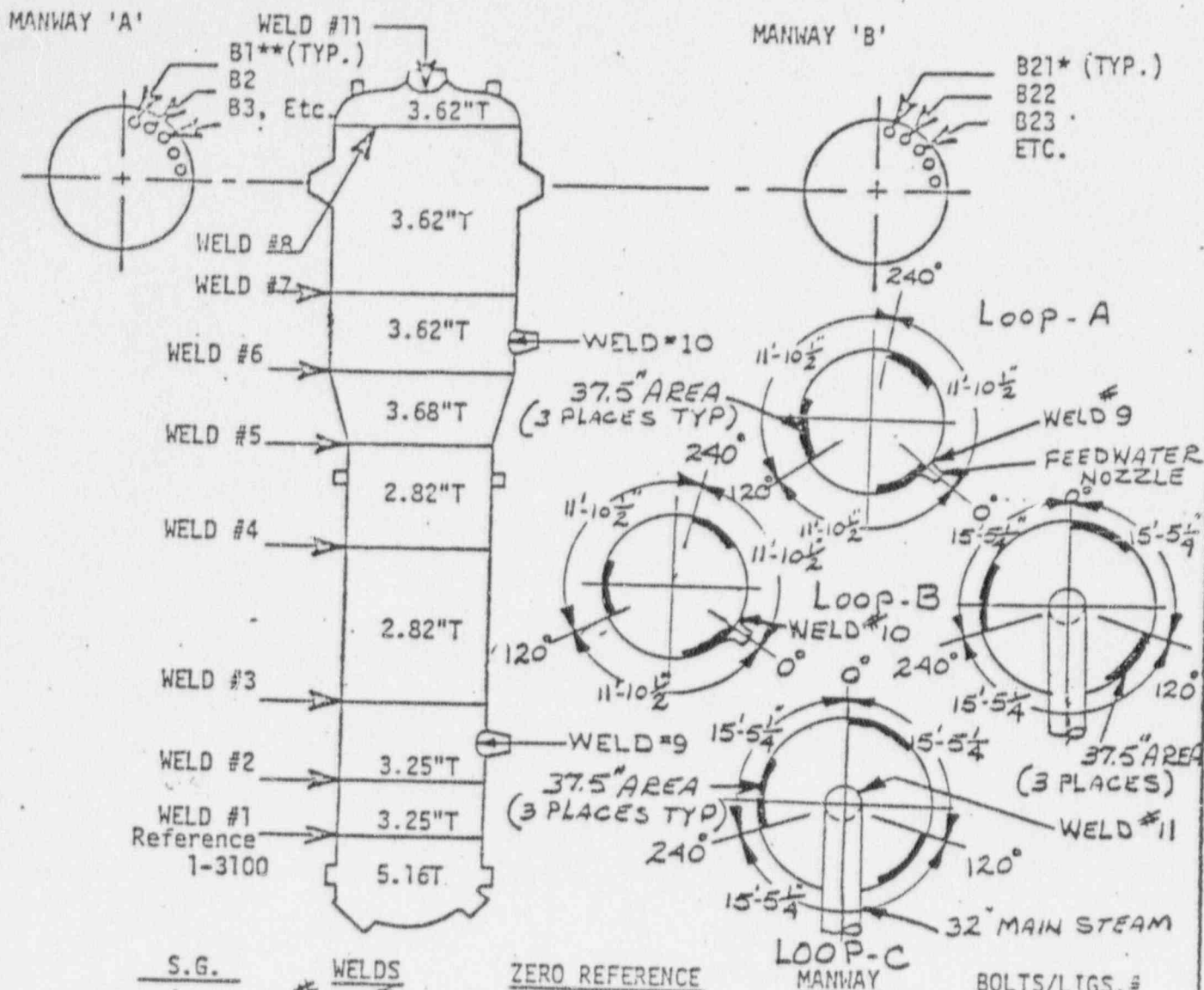


FLANGE BOLTING



* Number is preceded by (1-), (2-) or (3-) as applicable.

STEAM GENERATOR



| S.G. | WELDS | ZERO REFERENCE | BOLTS/LIGS. # |
|------|---------|---|---------------|
| A | #2 & #3 | 2 18" FEEDWATER NOZZLE | |
| | #9 | 3 PLACES (0°, 120° & 240°) @ 37.5" EACH | |
| | | 100% - (18" FEEDWATER NOZZLE) | |
| B | #5 & #6 | 2 6" AUX FEEDWATER NOZZLE | |
| | #10 | 3 PLACES (0°, 120° & 240°) @ 37.5" EACH | |
| | | 100% - (6" AUX FEEDWATER NOZZLE) | |
| C | #8 | 2 32" MAINSTEAM LINE | |
| | #11 | 3 PLACES (0°, 120° & 240°) @ 37.5" EACH | |
| | | 100% - (32" MAINSTEAM LINE) | |

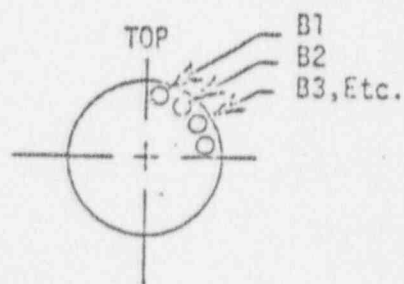
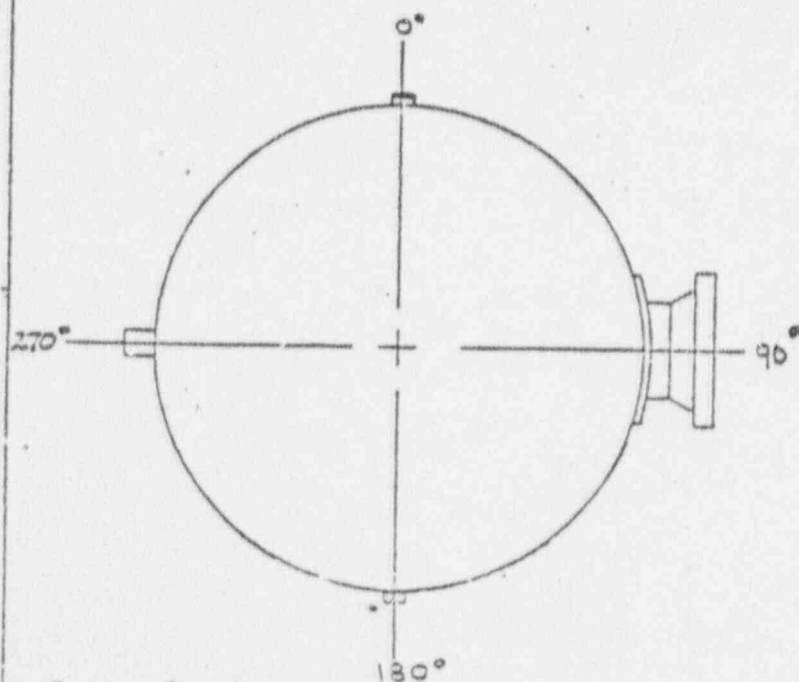
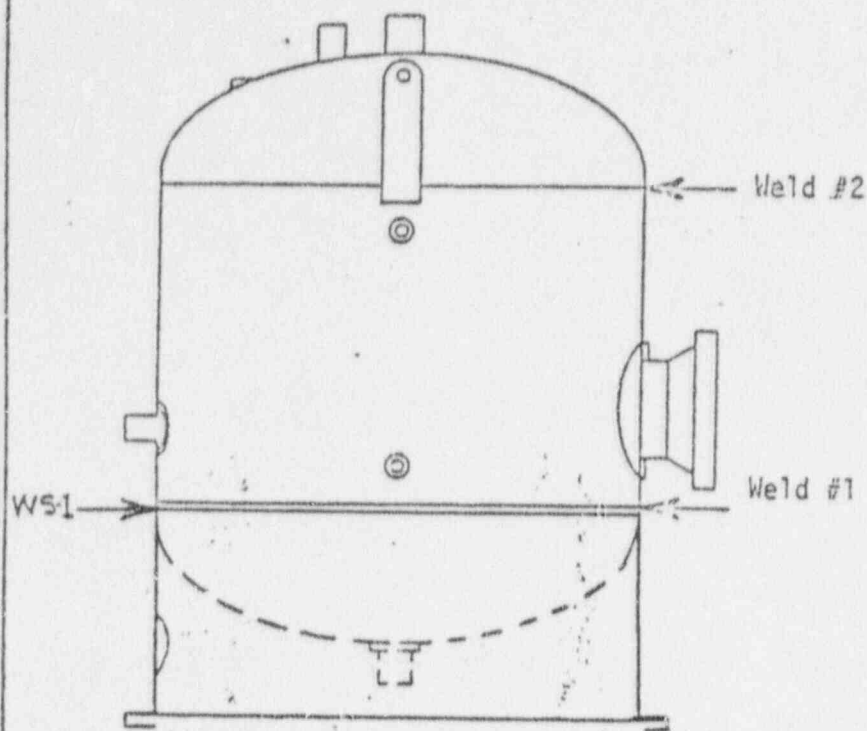
* Number is preceded by 'B' (Bolts) or 'Lig' (Ligaments) as applicable.
 Welds 4 & 7 not a structural discontinuity.
 MATERIAL: SA 533UR, A CLASS 1

ILLUSTRATIVE ONLY

CGE2-1200

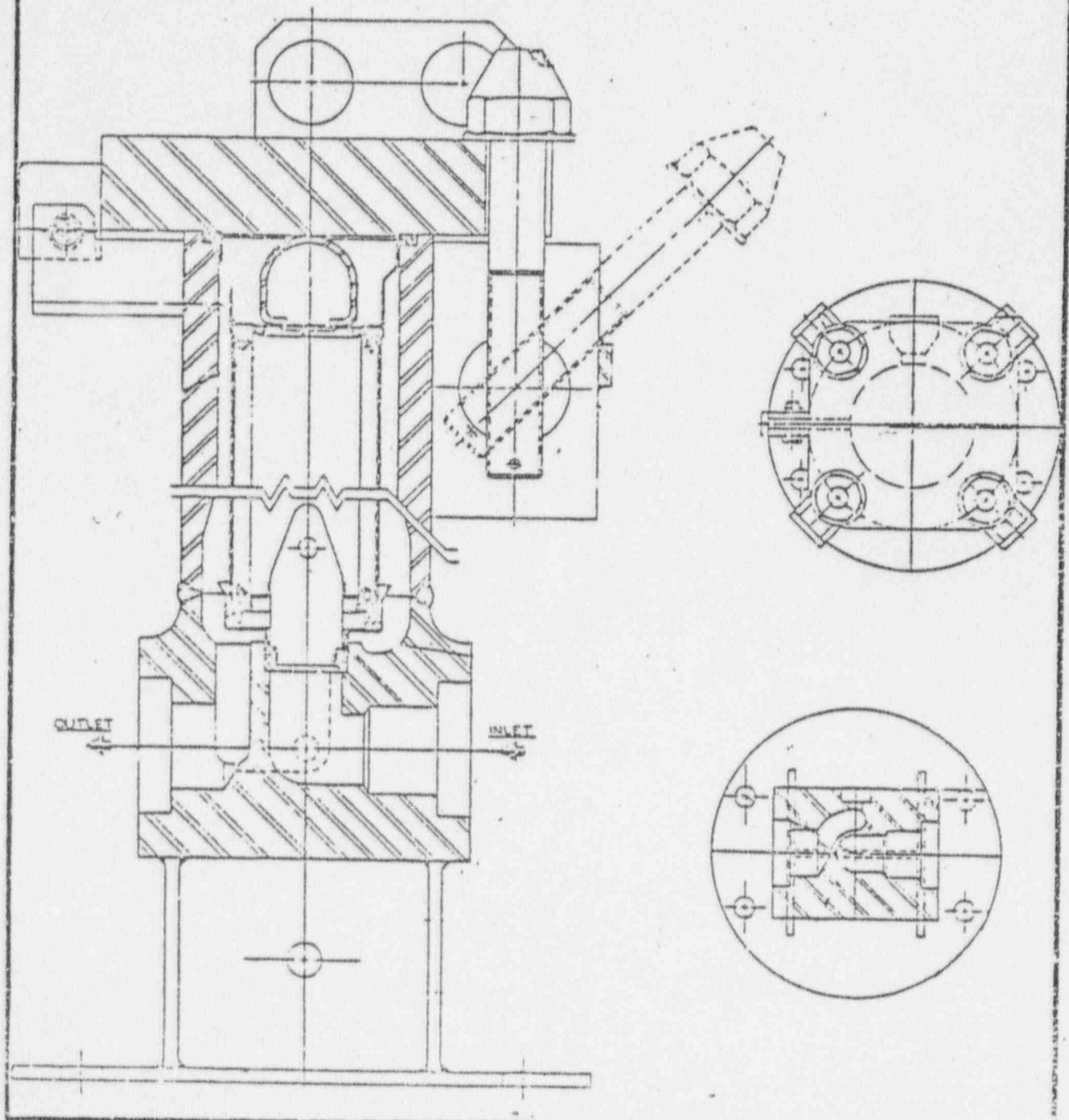
VOLUME CONTROL TANK

MATERIAL : .312" T SA240 TP304
DIA. : 90.624" O.O.
CIRC. : 284.7"
BOLTING : 16-1" DIA.



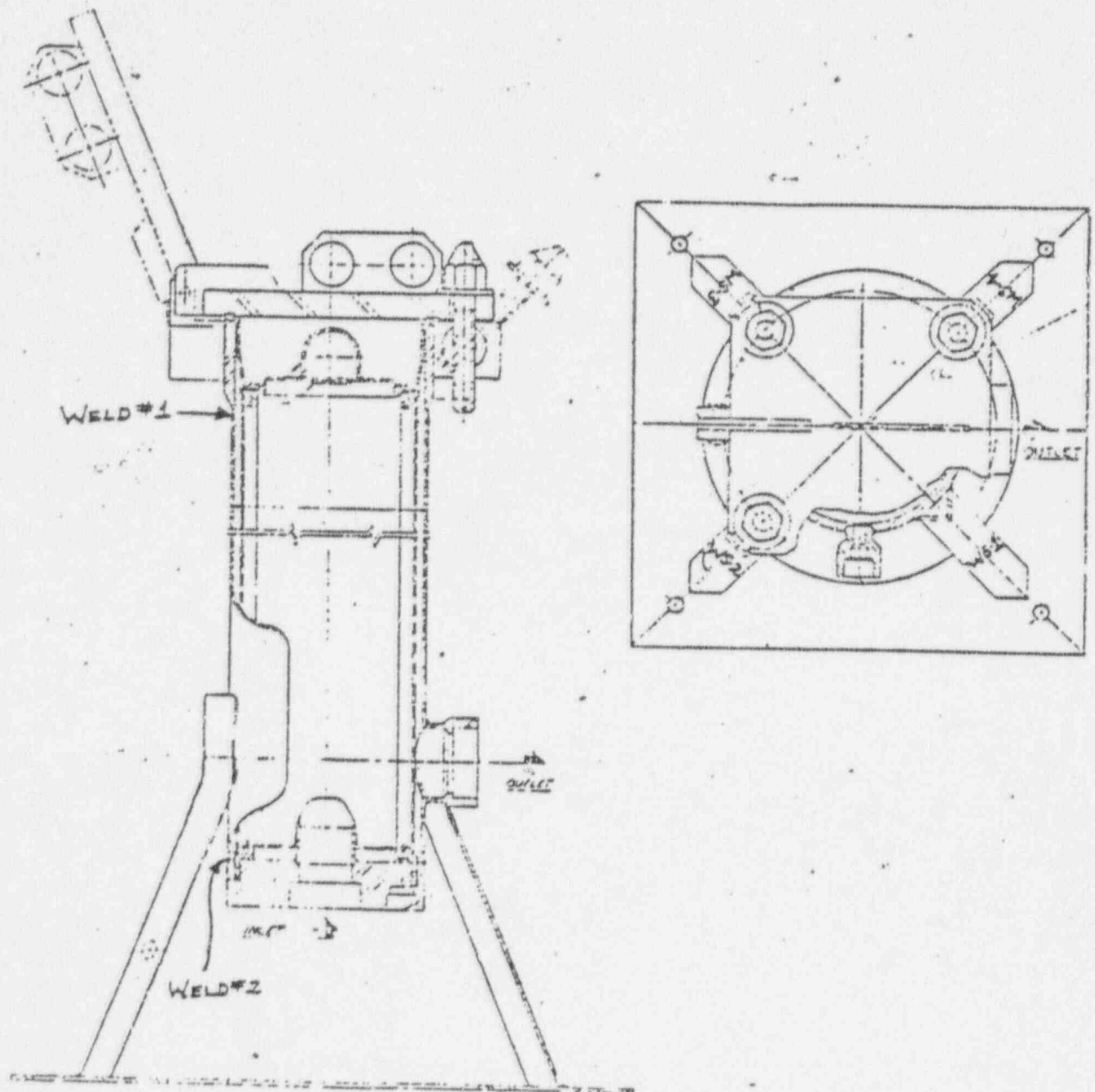
SEAL WATER INJECTION FILTERS

FORM 4E



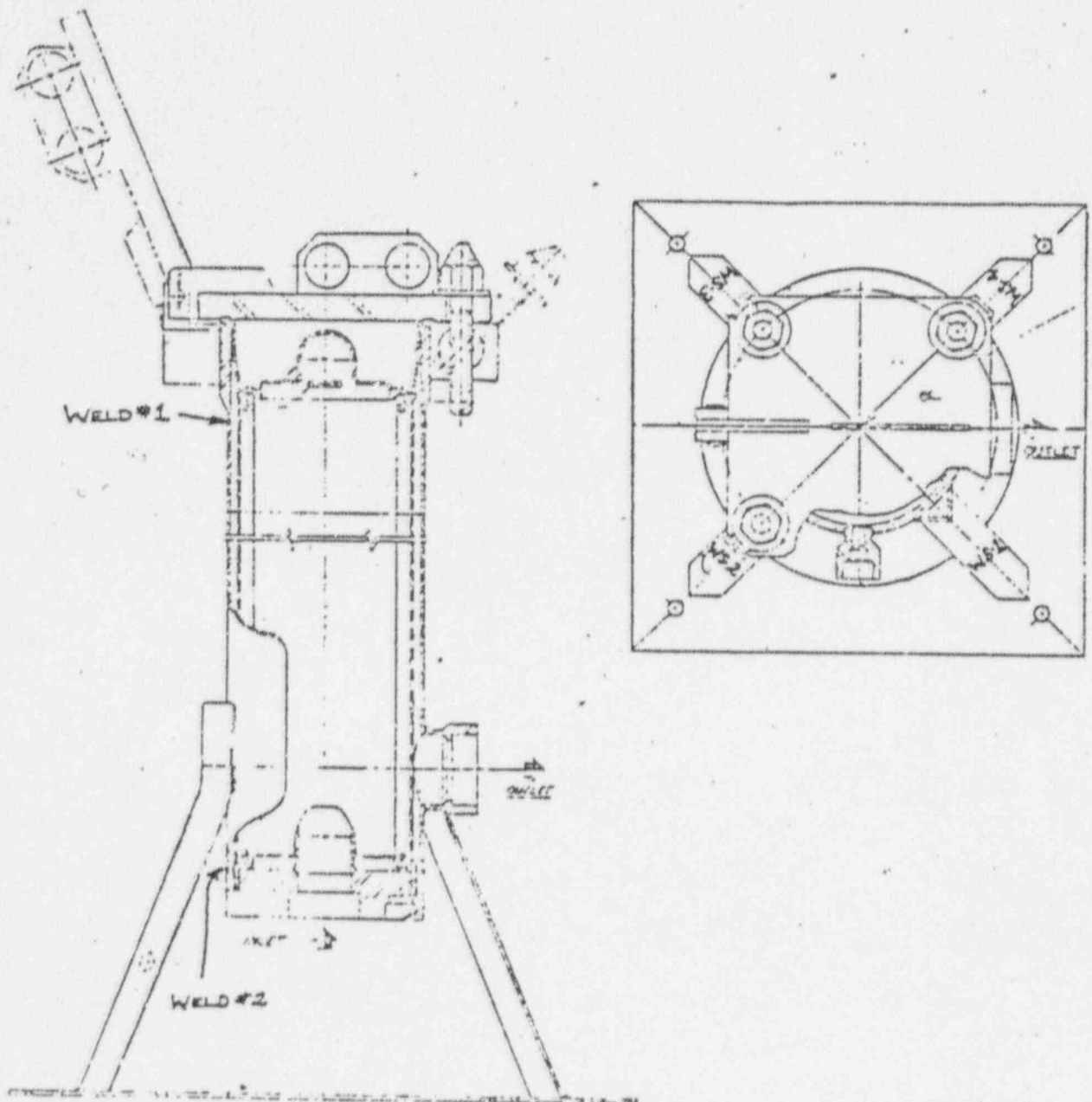
CGE-2-1310

REACTOR COOLANT FILTER



CGE-2-1320

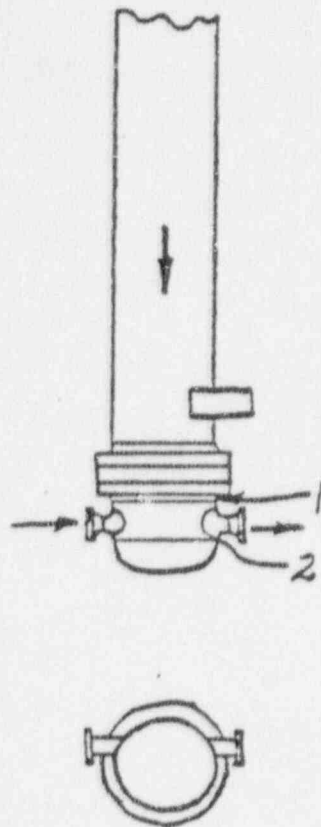
SEAL WATER RETURN FILTER



CGE-2-1330

LETDOWN HEAT EXCHANGER

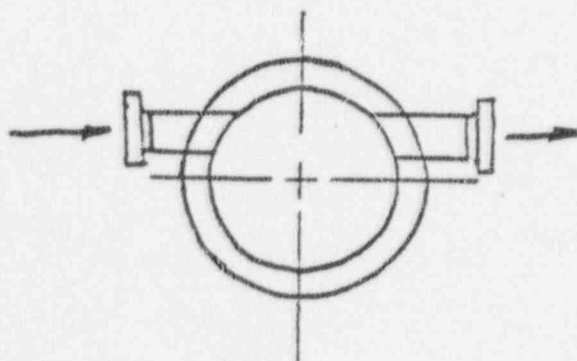
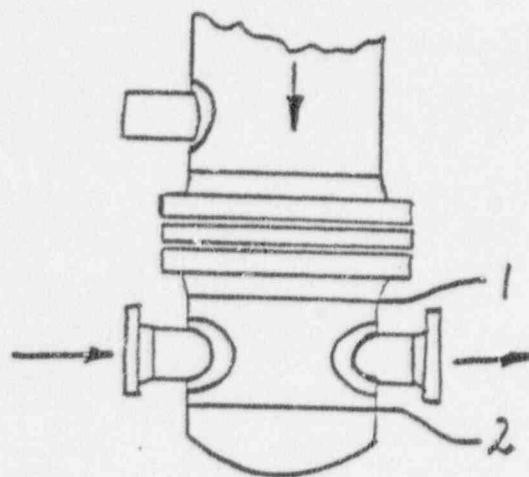
Dia.: 22" O.D.
Material: 304 SS
T = .500"



CGE-2-1340

SEAL WATER HEAT EXCHANGER

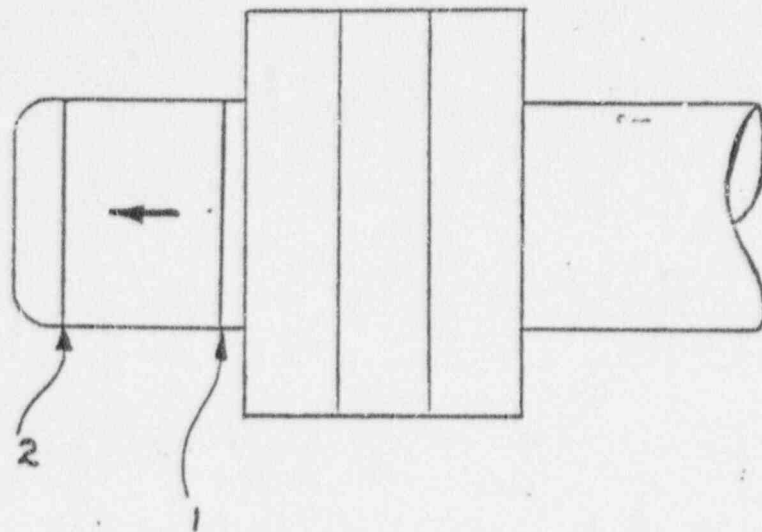
Material: .1875" SA-240 TP304
Dia.: 20" O.D.



CGE-2-1350

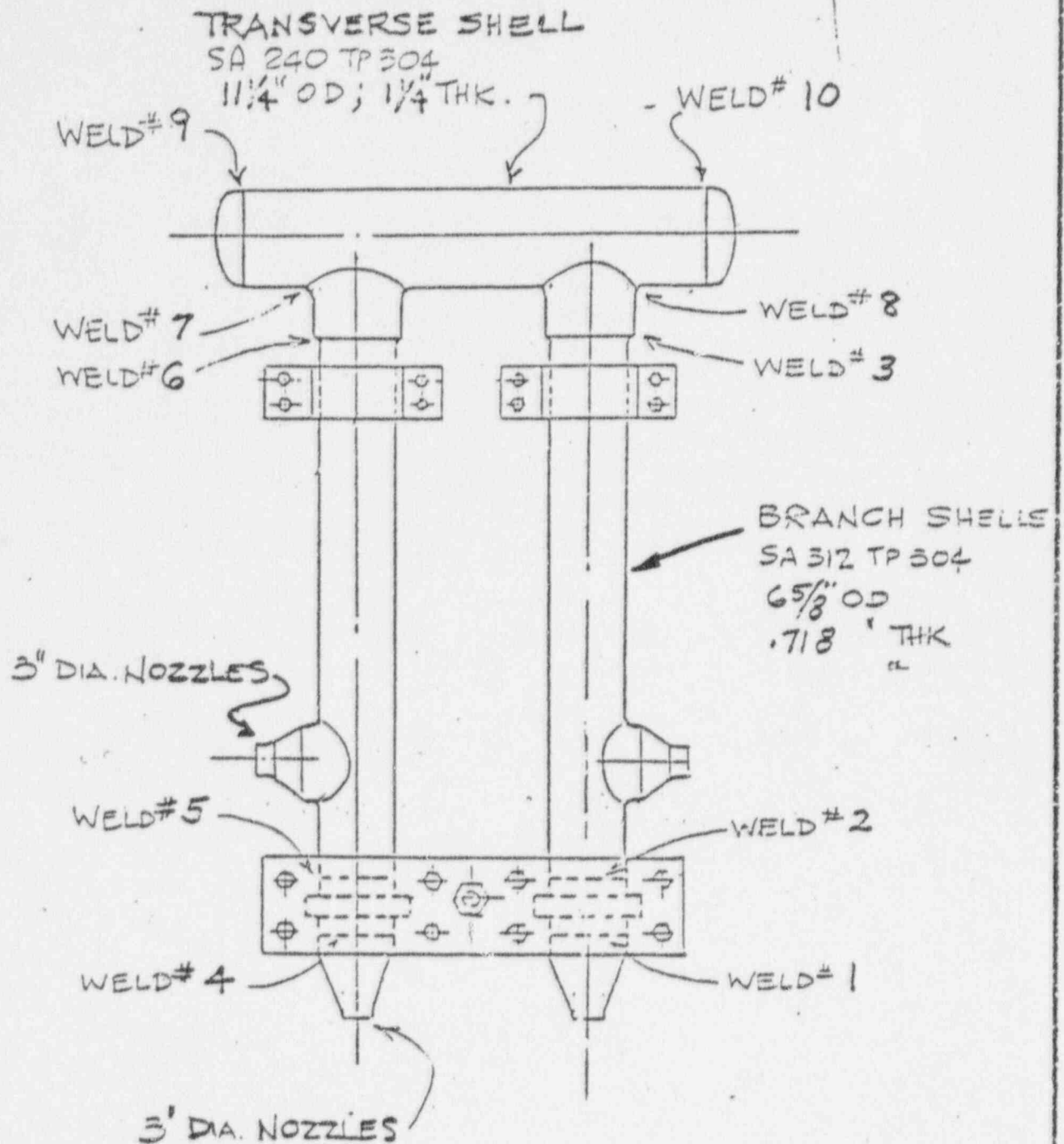
LETDOWN REHEAT H.X.

Matl. .192" T



REGENERATIVE HEAT XCHR.

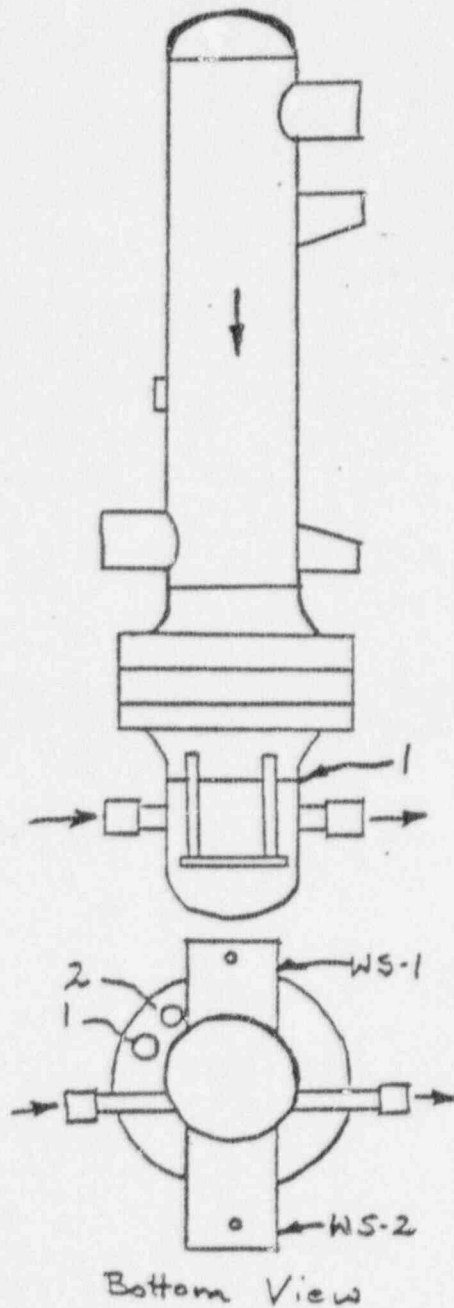
CGE-2-1360



CGE-2-1370

EXCESS LETDOWN HEAT EXCHANGER

Material: .750" T SA-240 TP316
Dia. : 9.5" O.D.
Circ. : 29.85"
Bolting: 12 - 1.625" Dia.



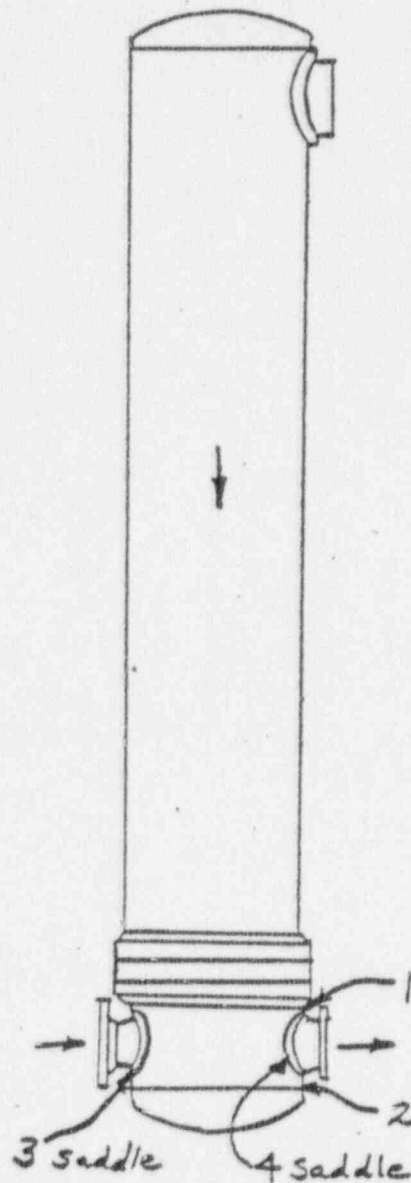
RHR HEAT EXCHANGER

CGE-2-1380

Material: SA-240 TP304

Dim: 39 3/4"

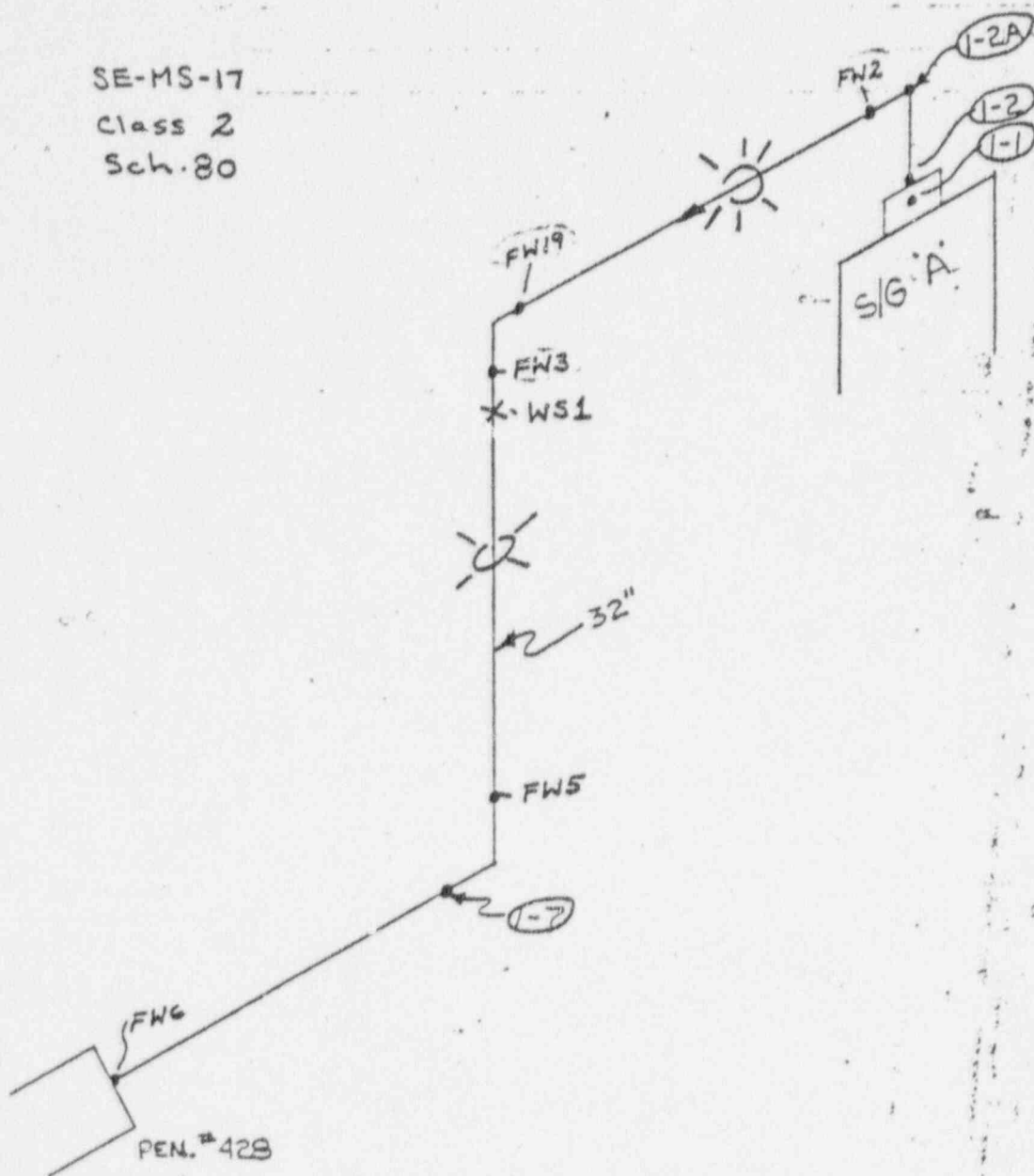
T: .696 min.



MAIN STEAM LOOP A
C-314-011 SHEET 1

SA-155, GR. KC-70
32" O.D. 1.15" T

SE-MS-17
Class 2
Sch. 80

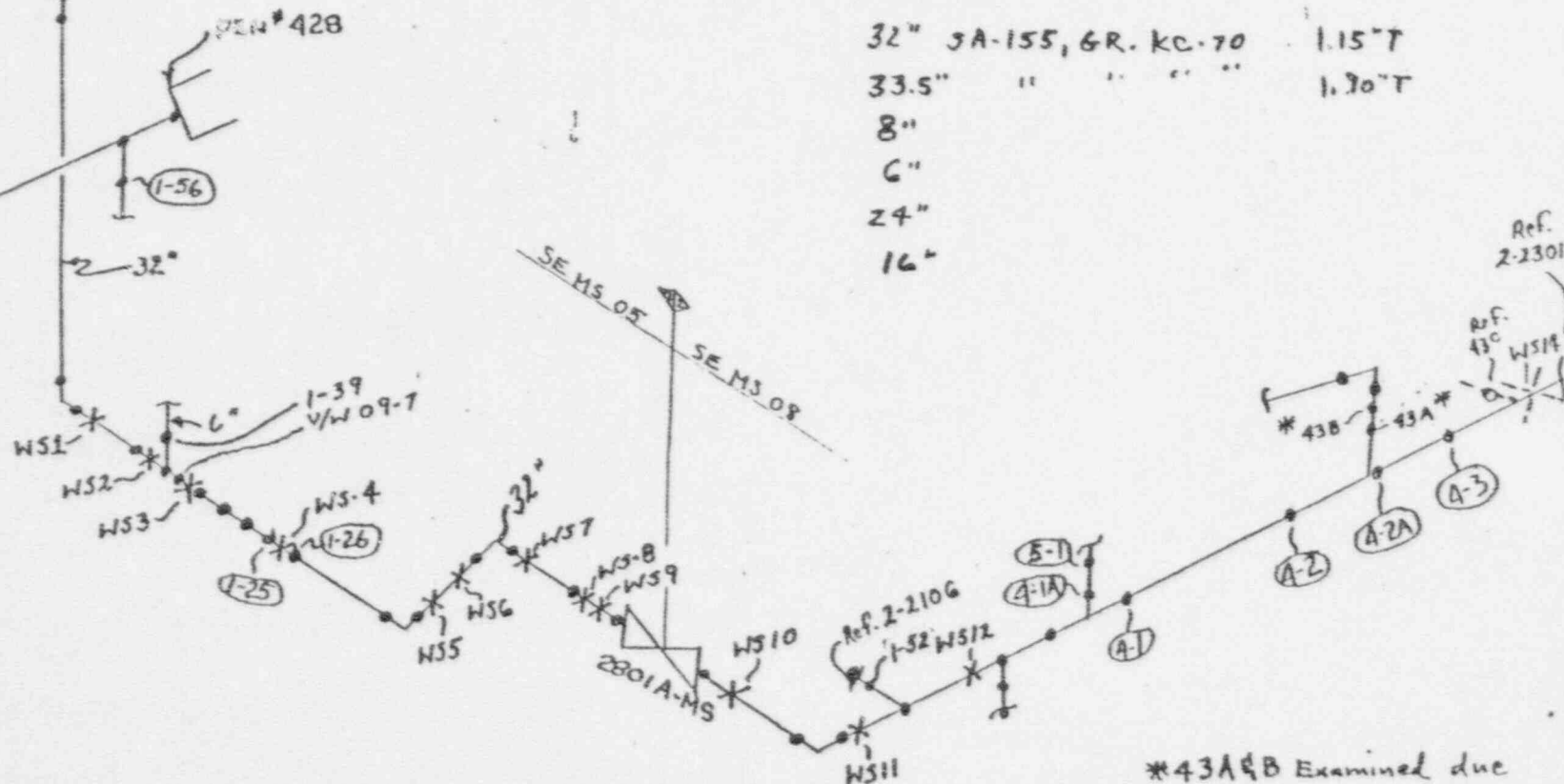


CGE-2-2101

MAIN STEAM FROM PEN.#428 TO INTERMEDIATE BLDG.

C-314-011 SHEET 4

| | | |
|-------|-------------------|---------|
| 32" | JA-155, GR. KC-70 | 1.15" T |
| 33.5" | " " " " | 1.70" T |
| 8" | | |
| 6" | | |
| 24" | | |
| 16" | | |

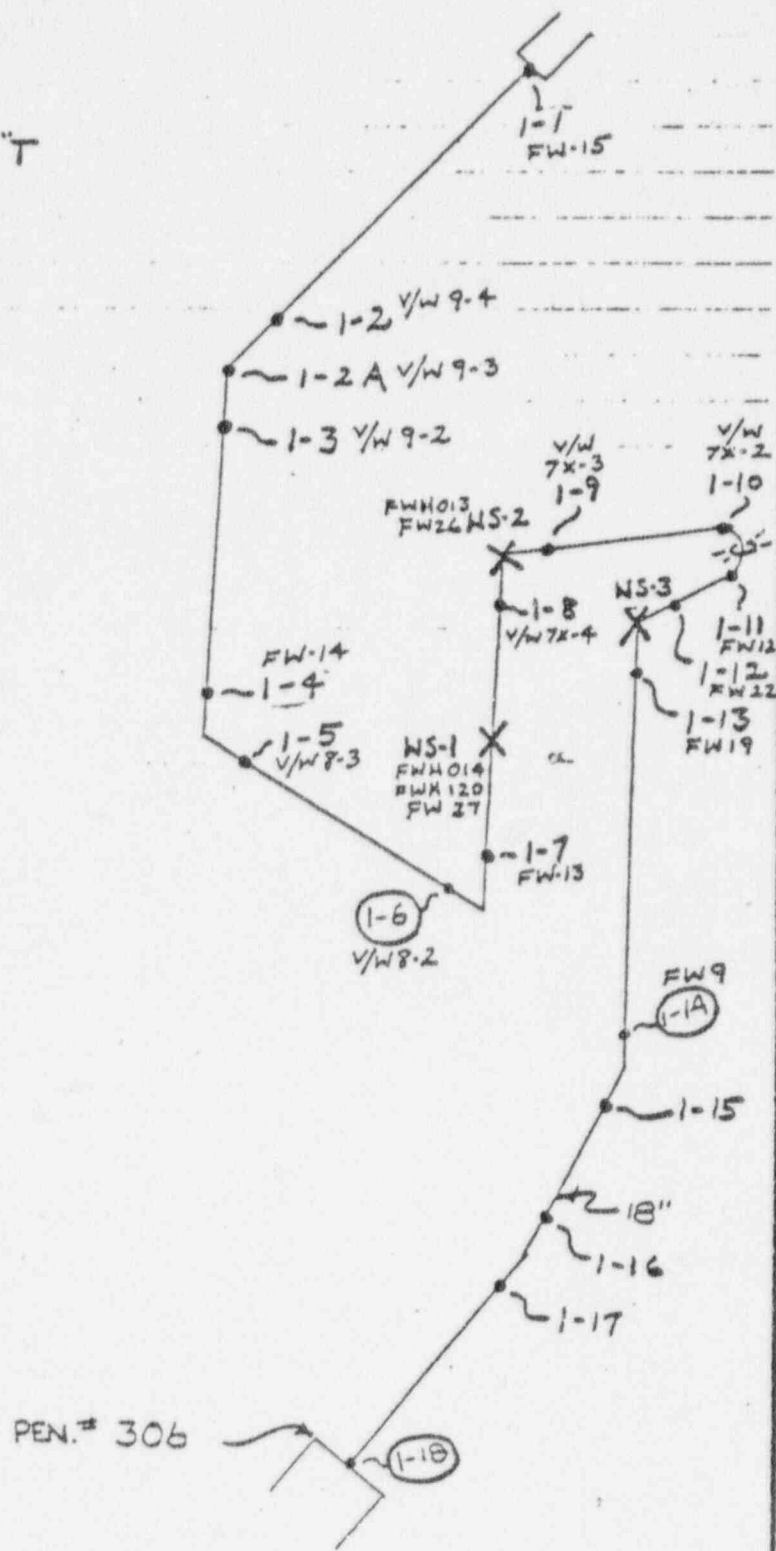


CGE-2-2102

FEEDWATER LOOP 'A'
C-314-081 SHEET 1

18" SA-106, Gr. B. .937" T

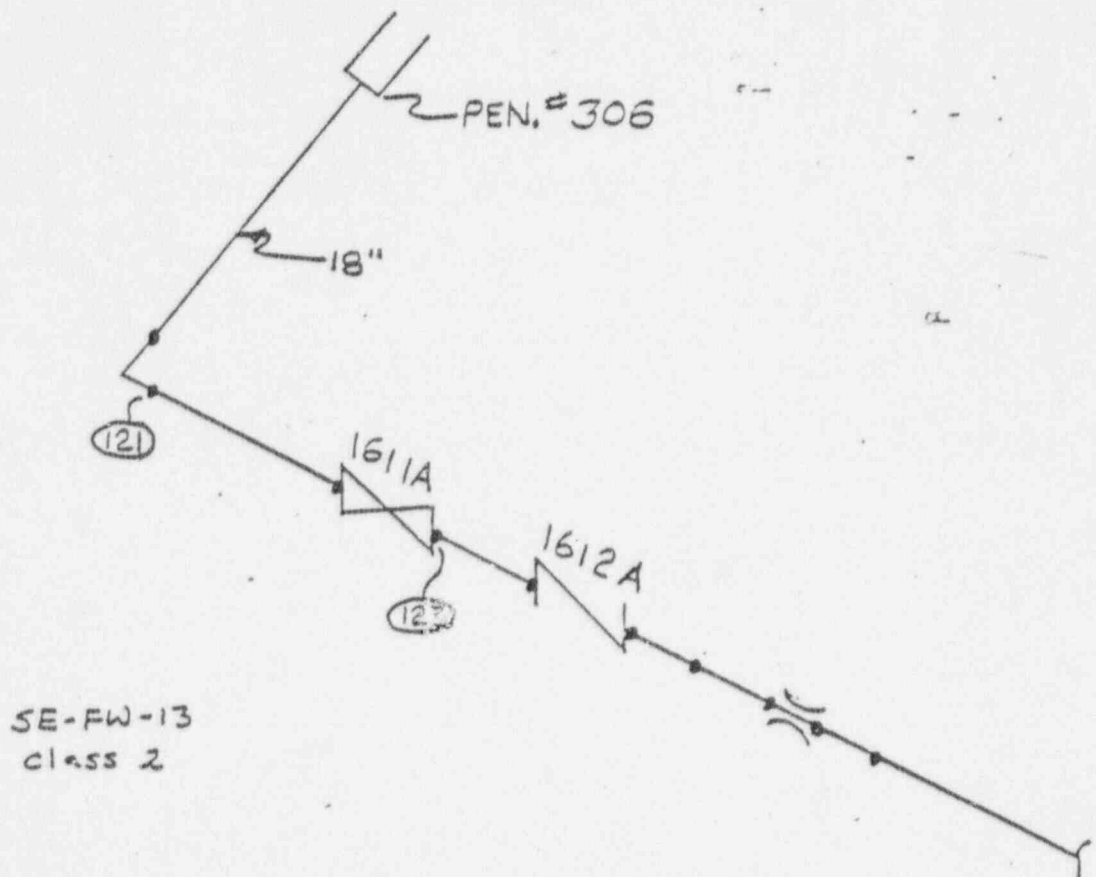
SE-FW-13
Class 2
Sch. 80



FEEDWATER.

C-314-081 SHEET 19

18" SA-106 Gr. B. .937T
18" " " " 1.156T



FORM 4

SE-FW-11 C/ass 2
SE-FW-13 C/ass 2

WS-2 *

~~* W53~~

WS1

5.4

1610A
478

2221

1676

18

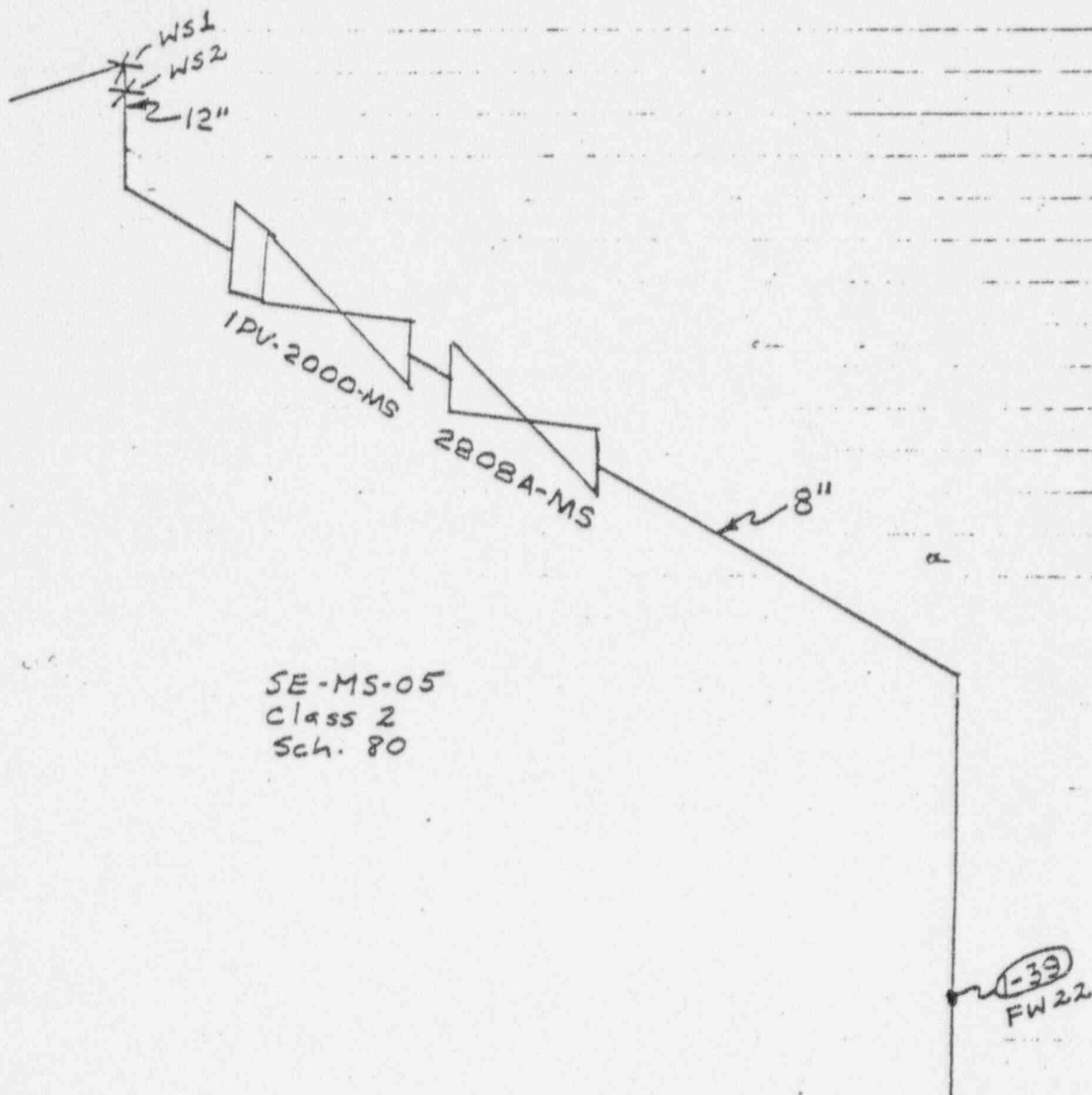
(1-43)*W55

1-52

B-150 (Rev. 2)

MAIN STEAM RELIEF LOOP 'A'
C-314-011 SHEET 1A

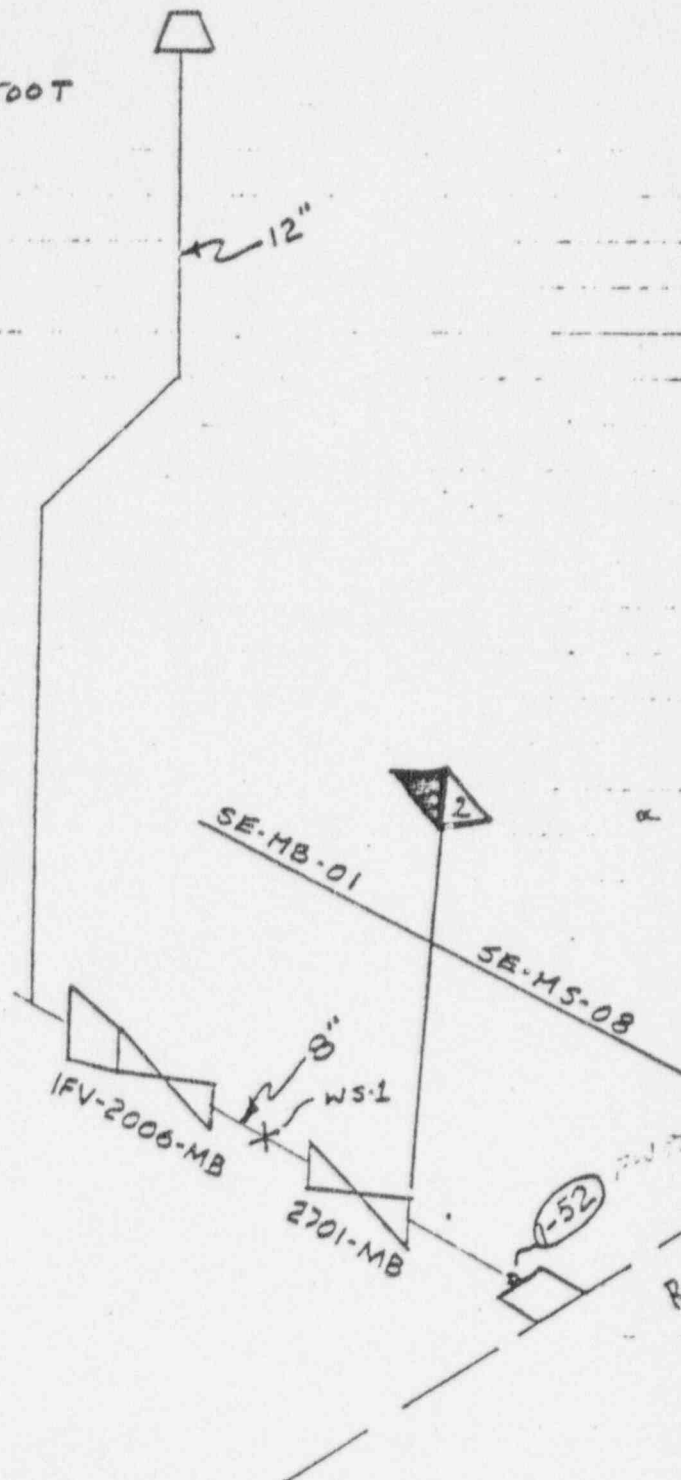
8" A-106, Gr. B. .500 T
12" " " .687 T



CGE-2-2106

MAIN STEAM DUMP LOOP 'A'
C-314-011 SHEET 17

8" A-106 Gr. B. 500T

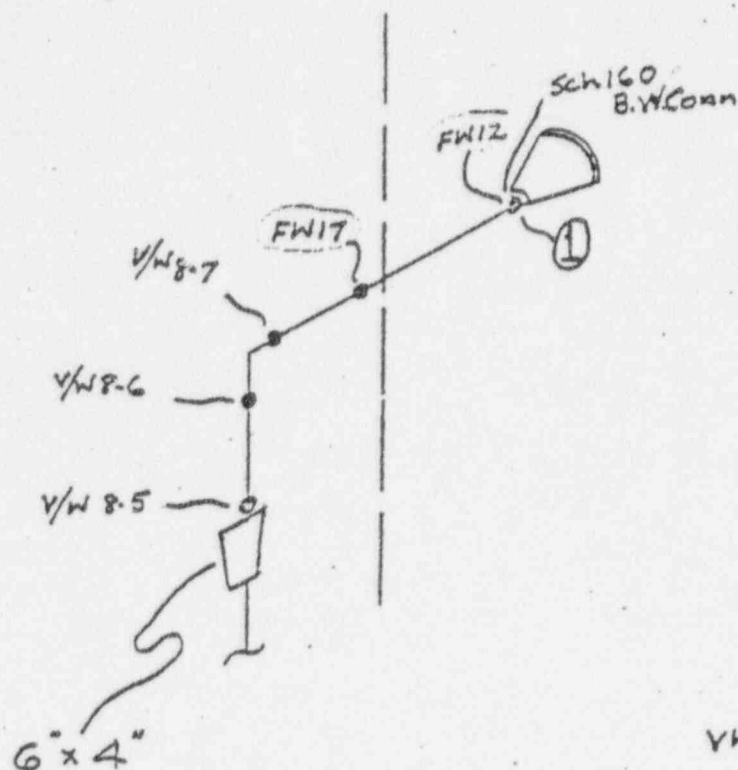


Ref. 2-2101

CGE 2-2107

LOOP-A 6" AUX. FEEDWATER .500 T

SE-EF-10
Cl. 2, Sch. 80

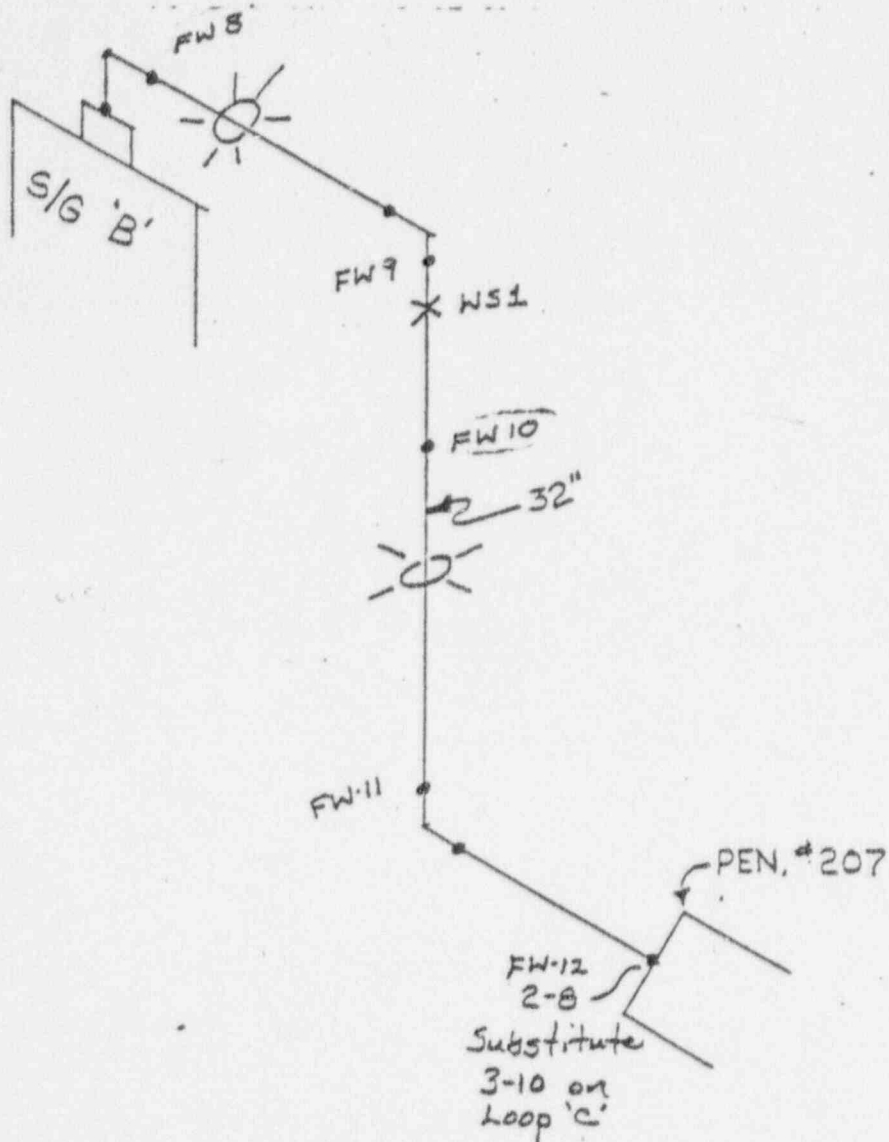


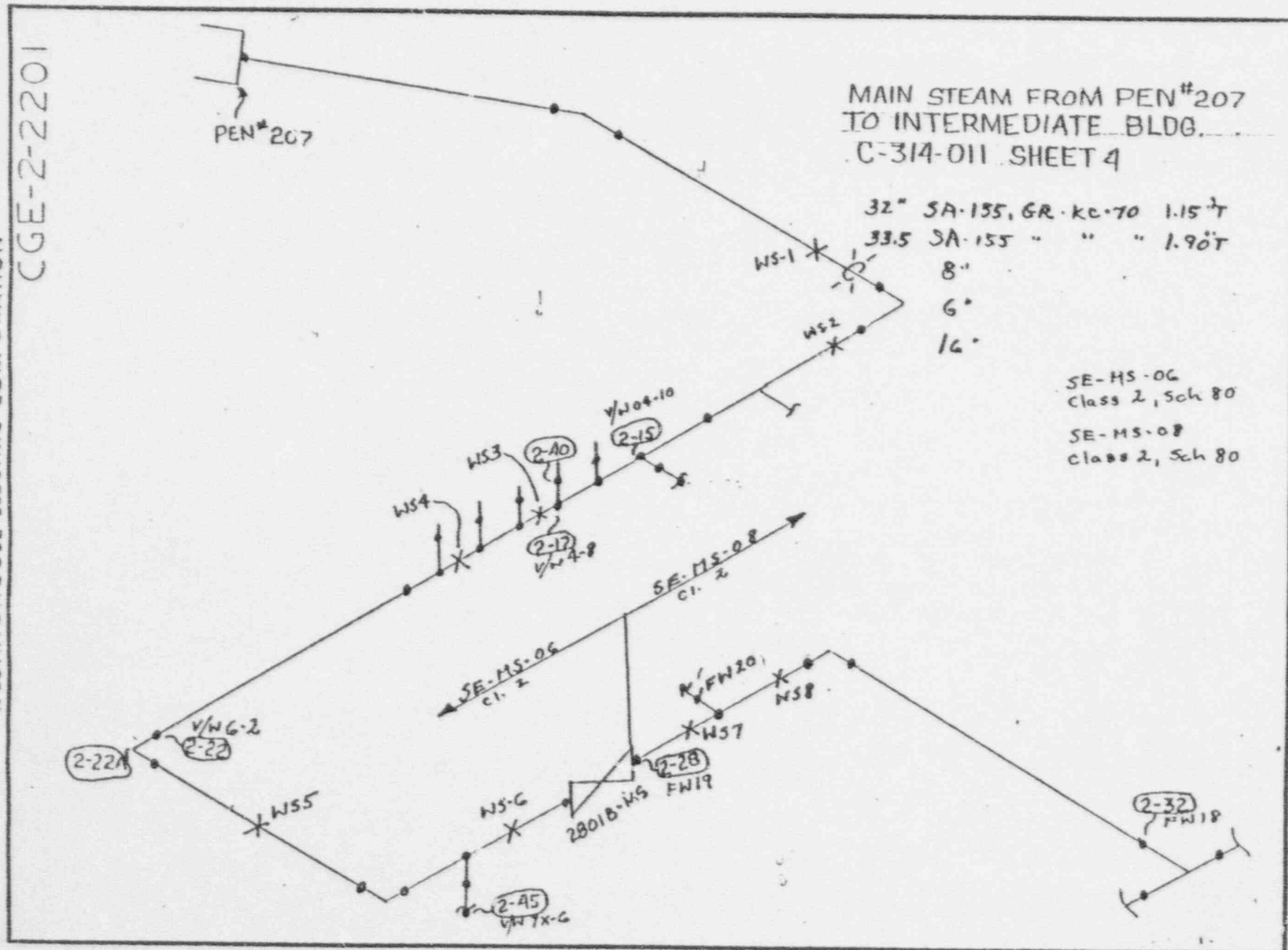
VW X-Y

VW = VENDOR WELD

X = Spool #

Y = Weld #

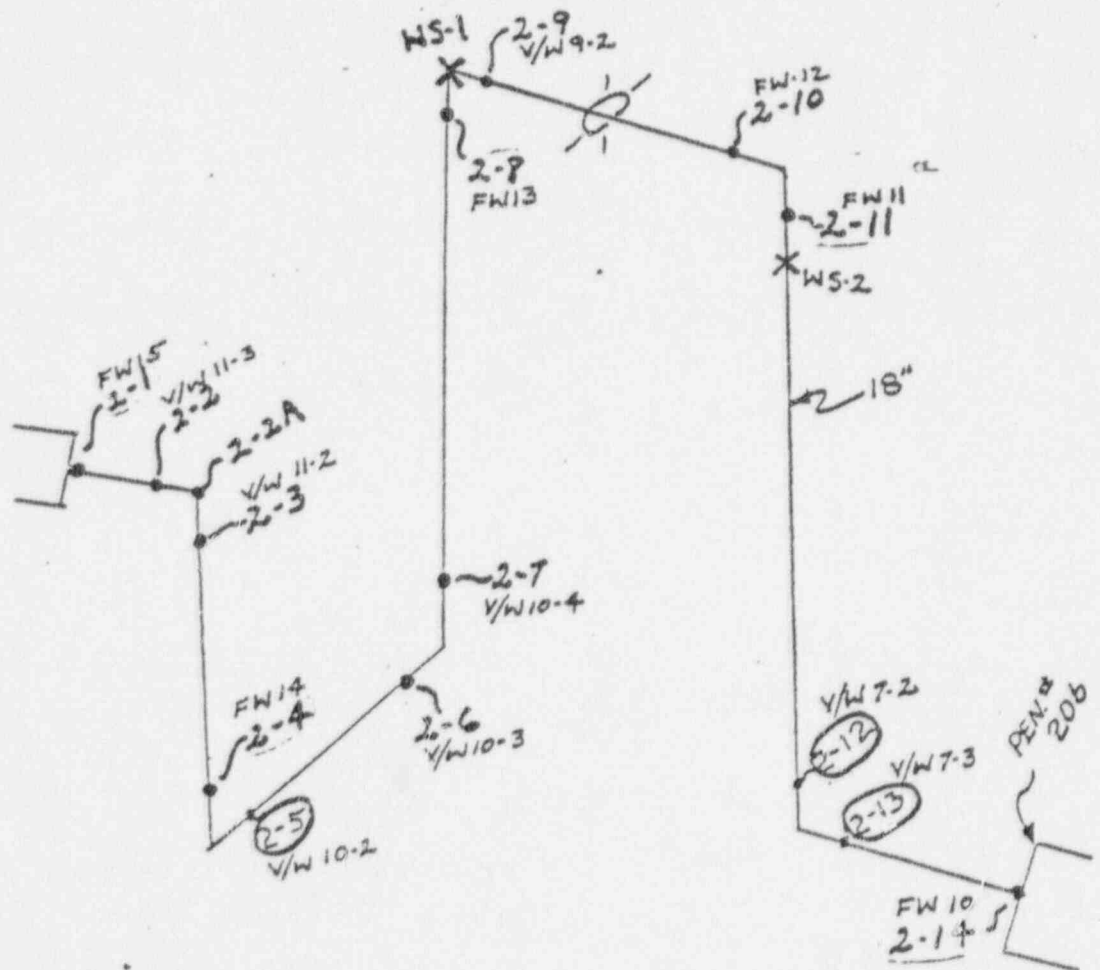
MAIN STEAM LOOP 'B'
C-314-011 SHEET 2SA-155, GR. KC-70
32" O.D. 1.15" TSE-MS-17
Class 2 Sch 80



FEEDWATER LOOP 'B'
C-314-081 SHEET 2

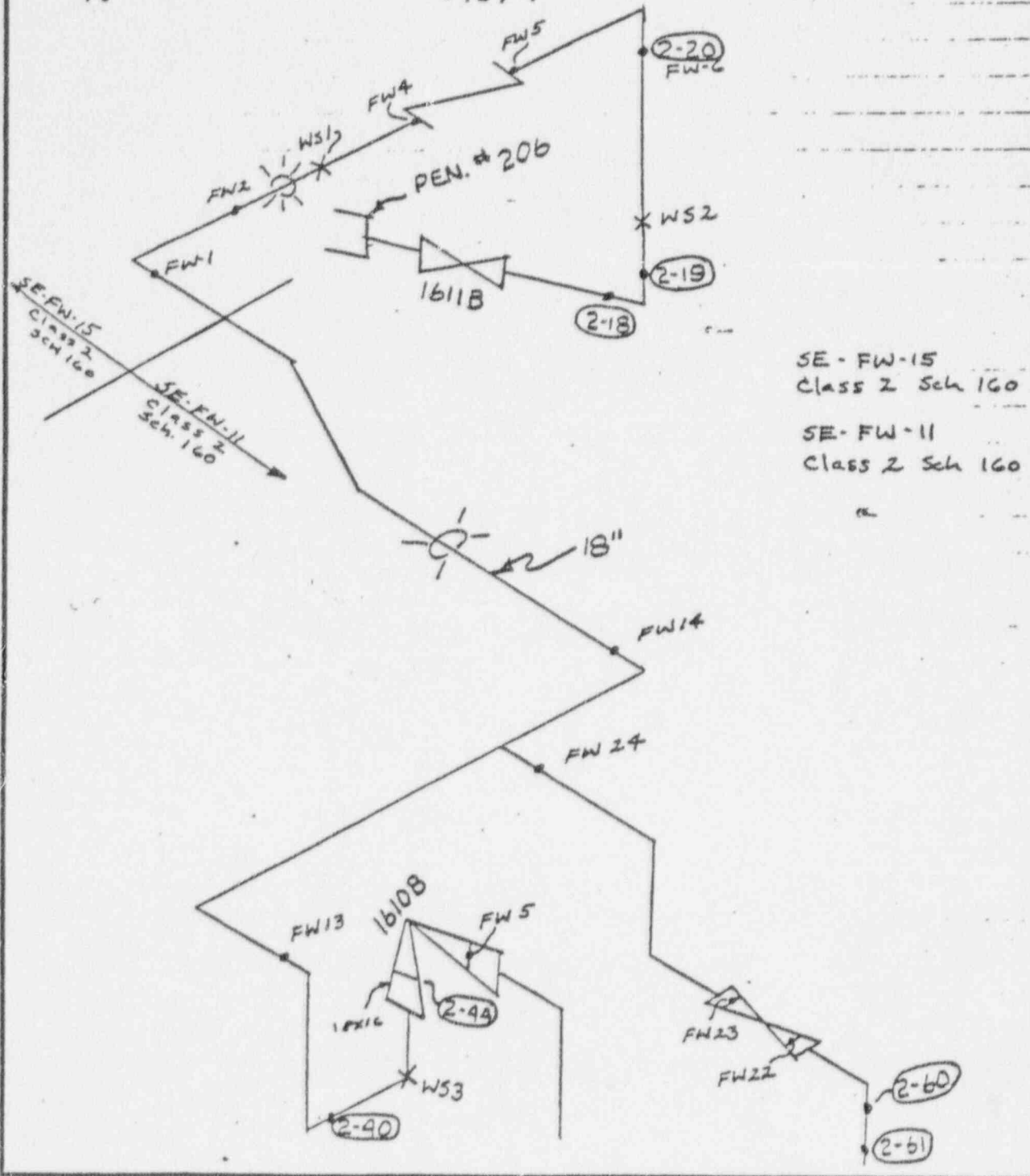
18" 5A-106, Gr. B. .937T

SE-FW-15
CLASS 2 Sch. 80



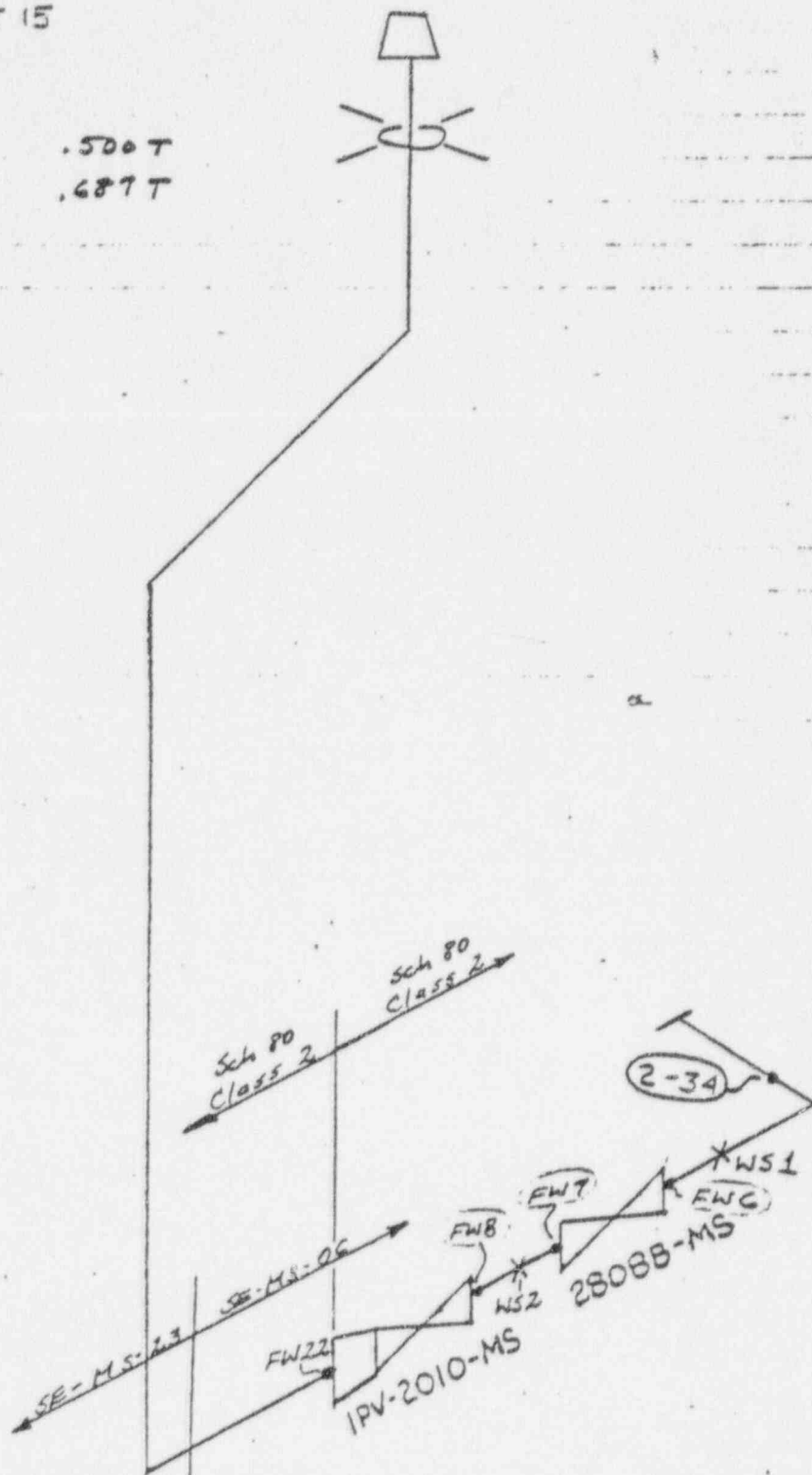
FEEDWATER
C-314-081 SHEET 4

18" SA-106 Gr. B. 1.156" T
18" " " " " .937" T

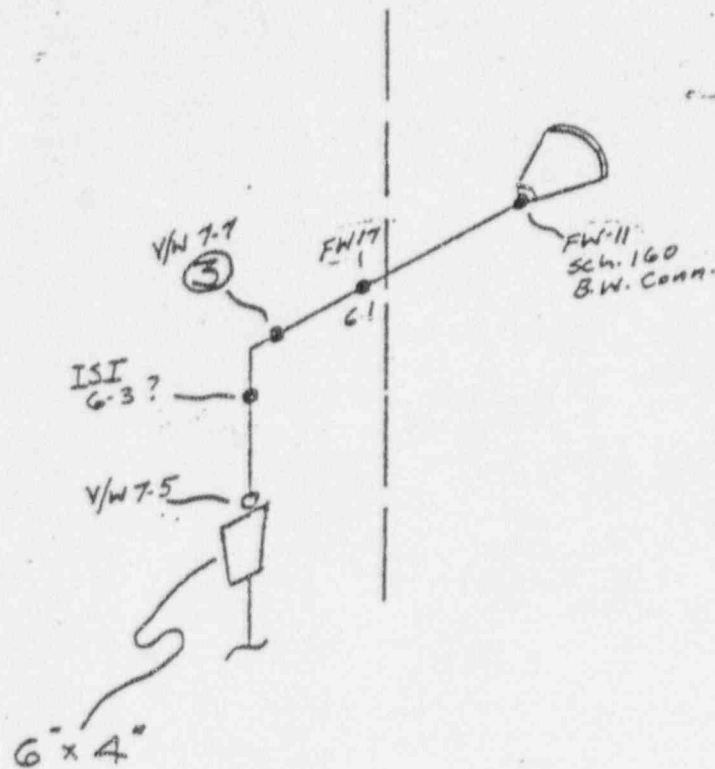


MAIN STEAM RELIEF LOOP 'B'
C-314-011 SHEET 15

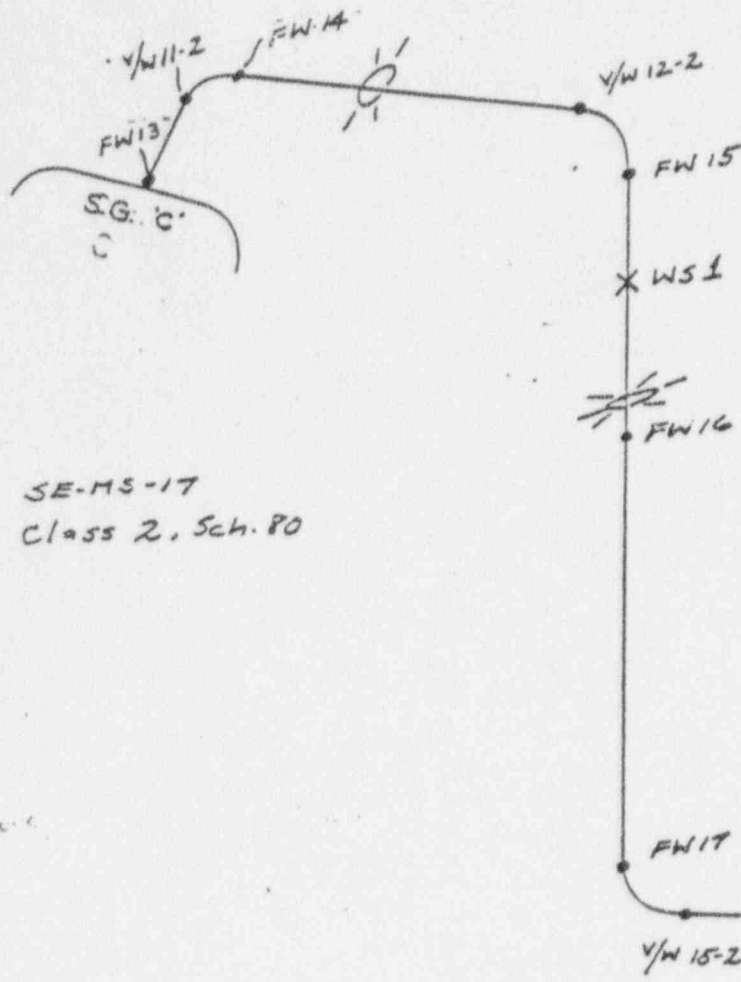
8" A-106 Gr. B. .500 T
12" A-106 Gr. B. .687 T



CGE 2-2205

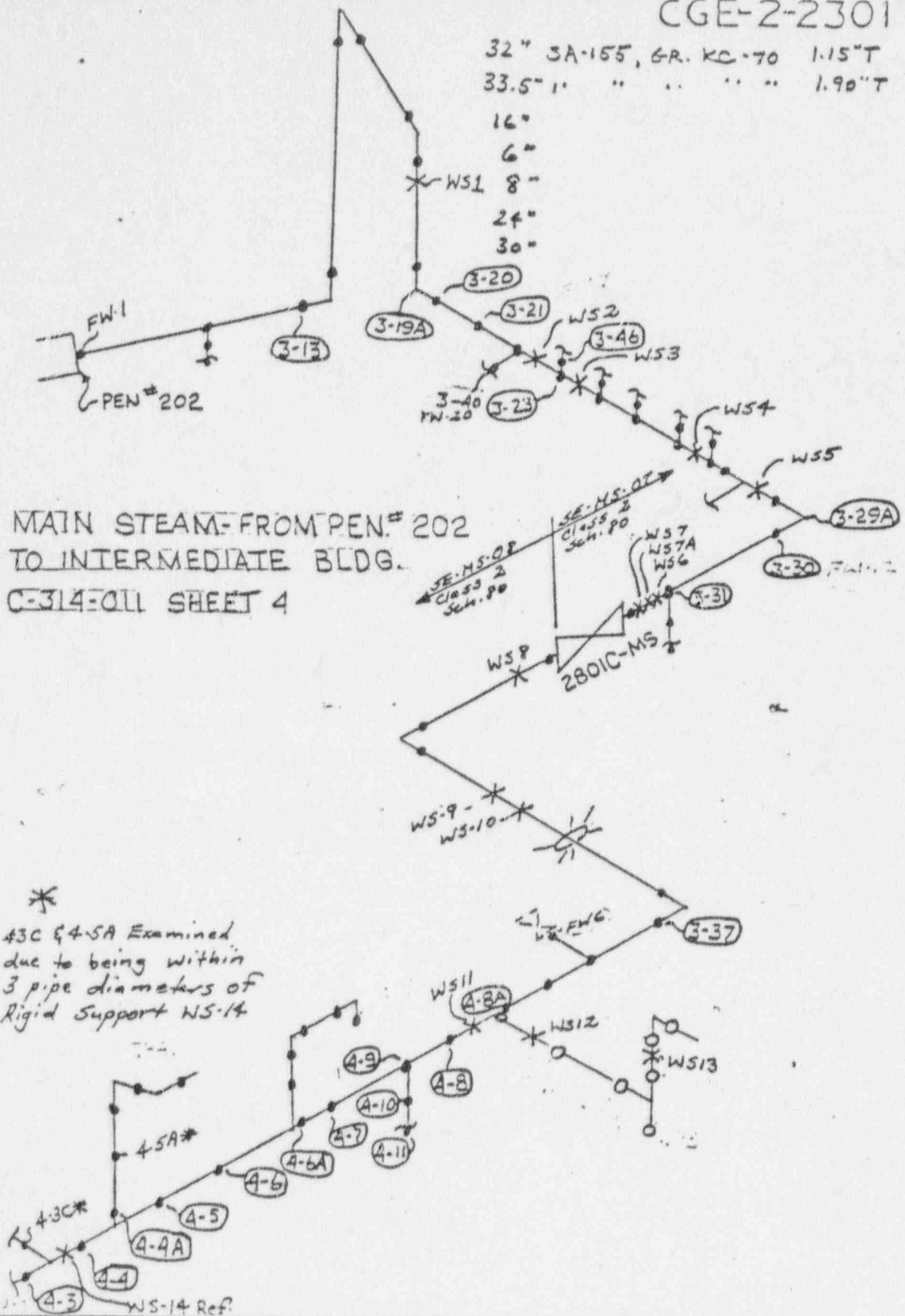
LOOP-B' 6" AUX. FEEDWATER
.500 TSE-EF-11
Class 2, Sch. 80

FORM 48



CGE-2-2301

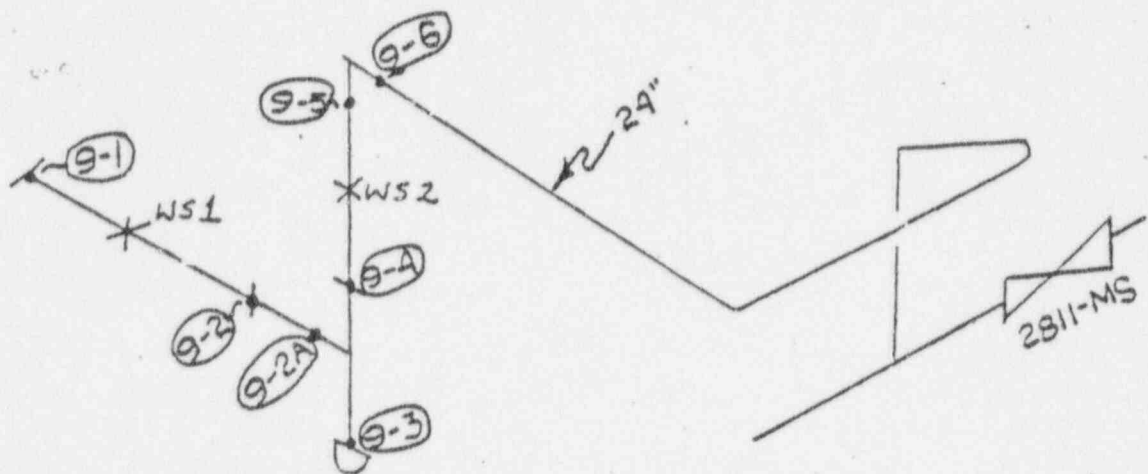
32" 3A-155, 6R. KC-70 1.15" T
 33.5" " " " " 1.90" T



FORM.

MAIN STEAM
C-314-011 SHEET 6

24" 5A-106, 6R.B 1.218T
16" " " " " .843T



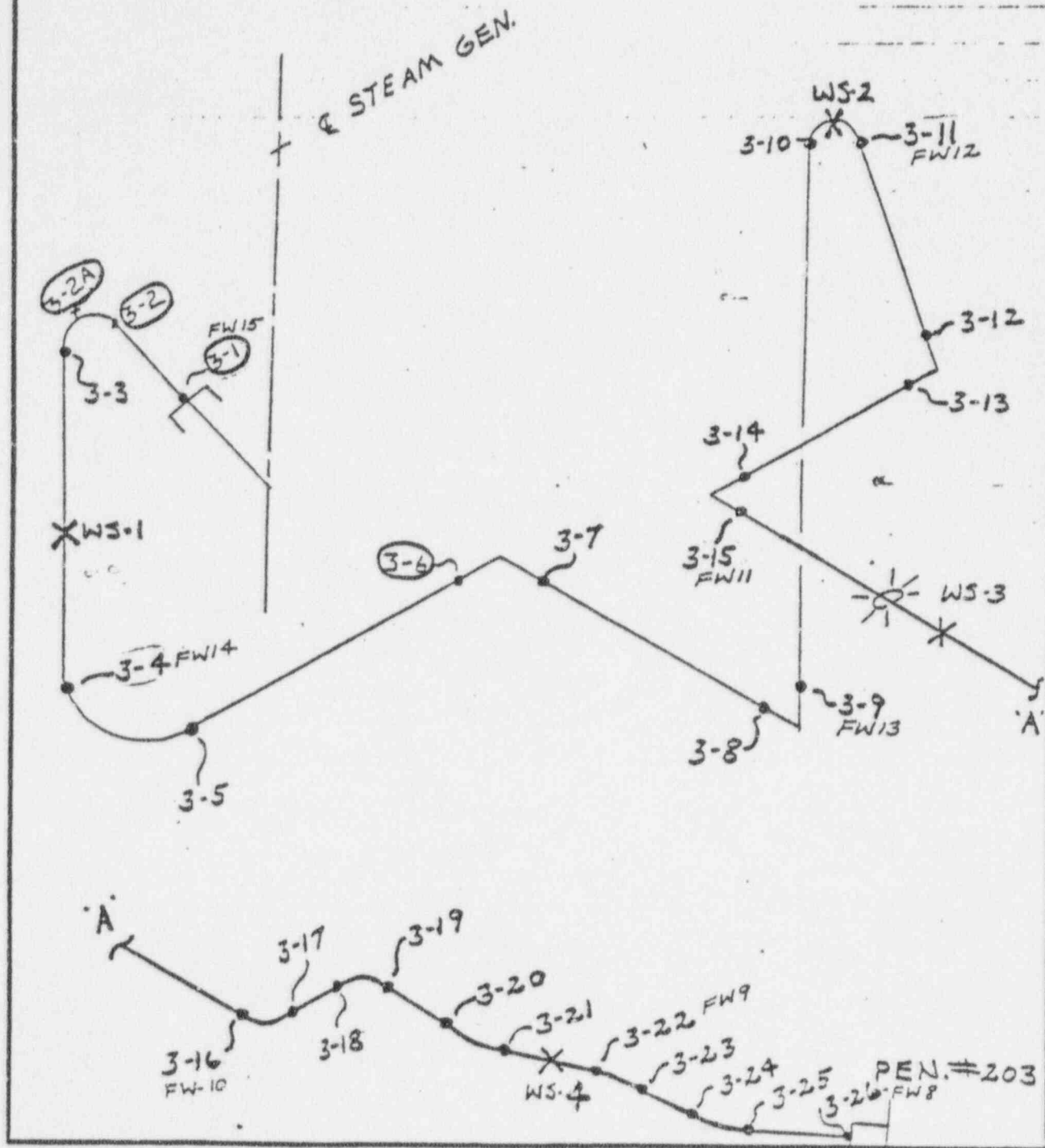
CGE-2-2303

FEEDWATER LOOP C
C-314-081 SHEET 3

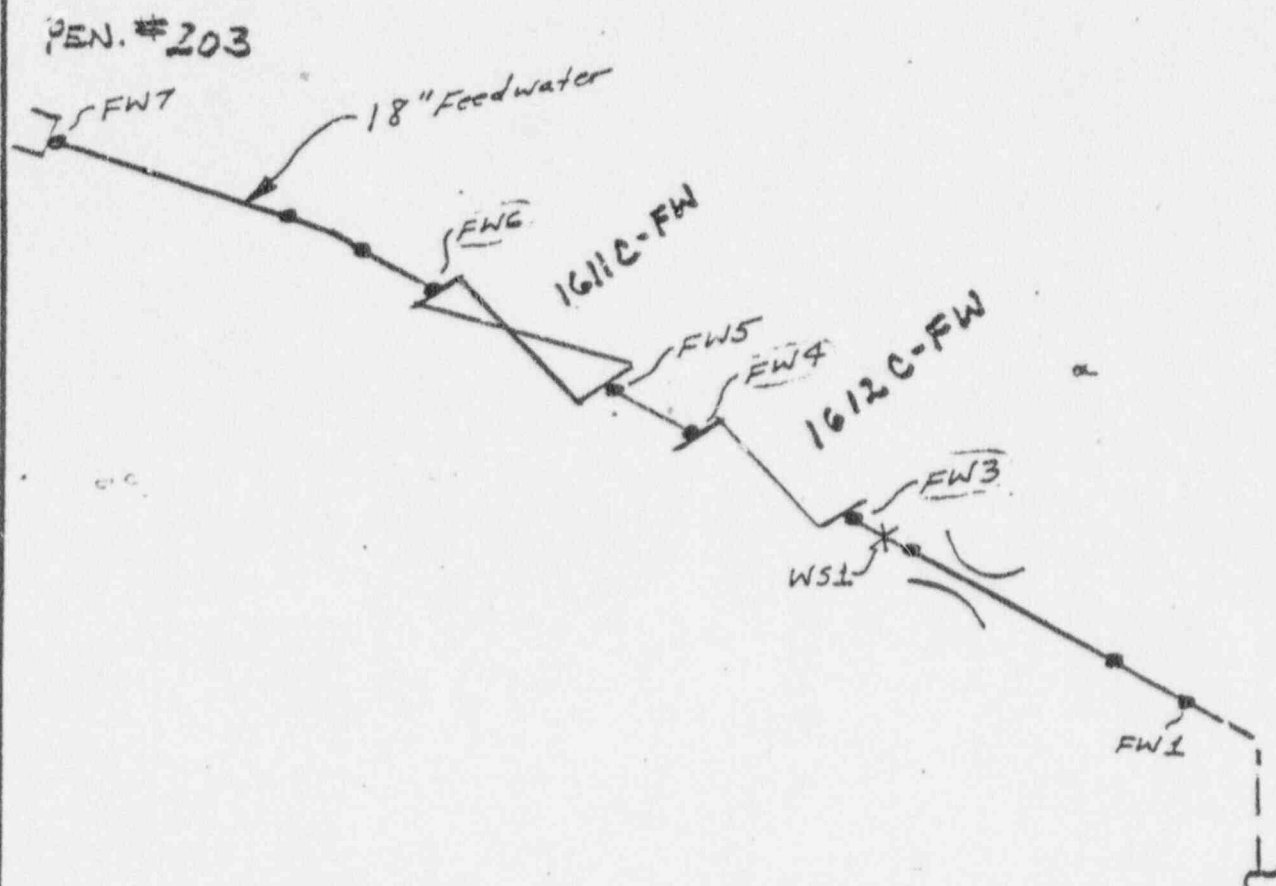
18" 3A-106, Gr B .937" T

SE- FW-14

Class 2, Sch.



CGE-2-2304

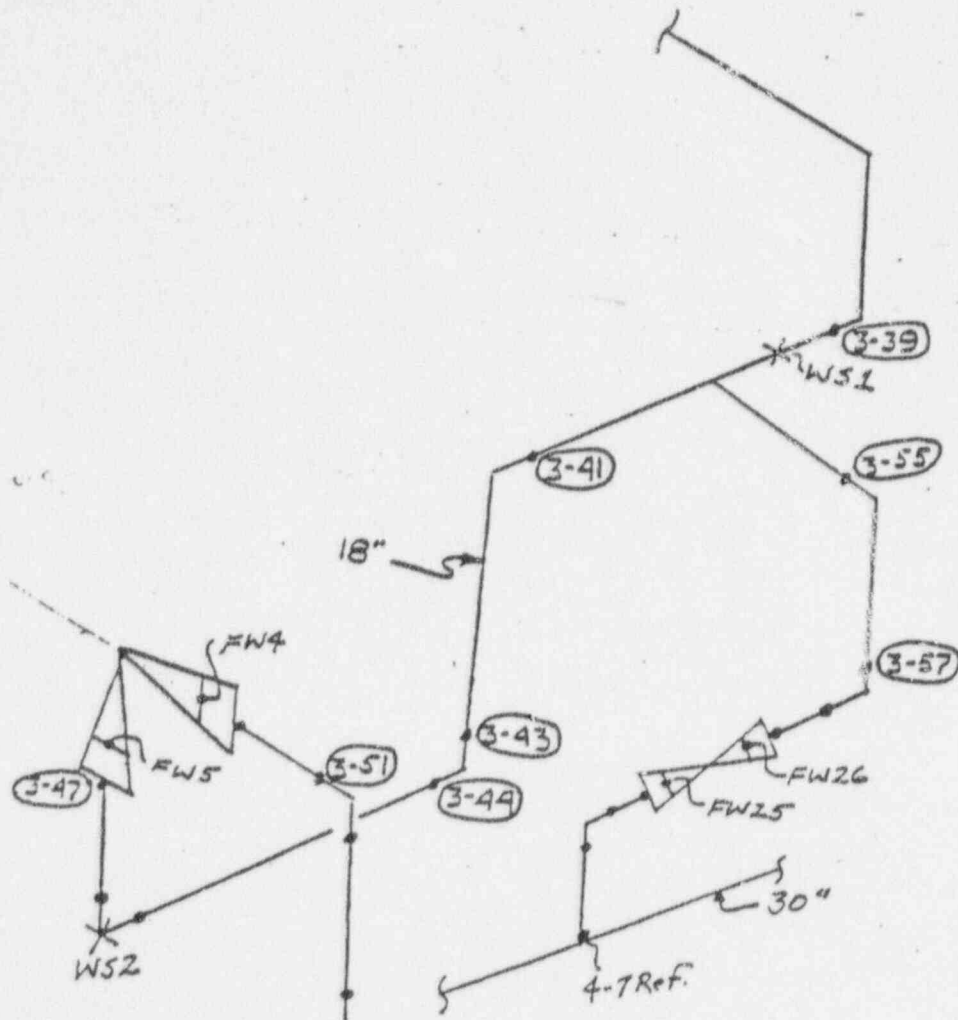
SE-FW-14
Class 2, Sch.

CGE-2-2305

FEEDWATER
C-314-081 SHEET 4

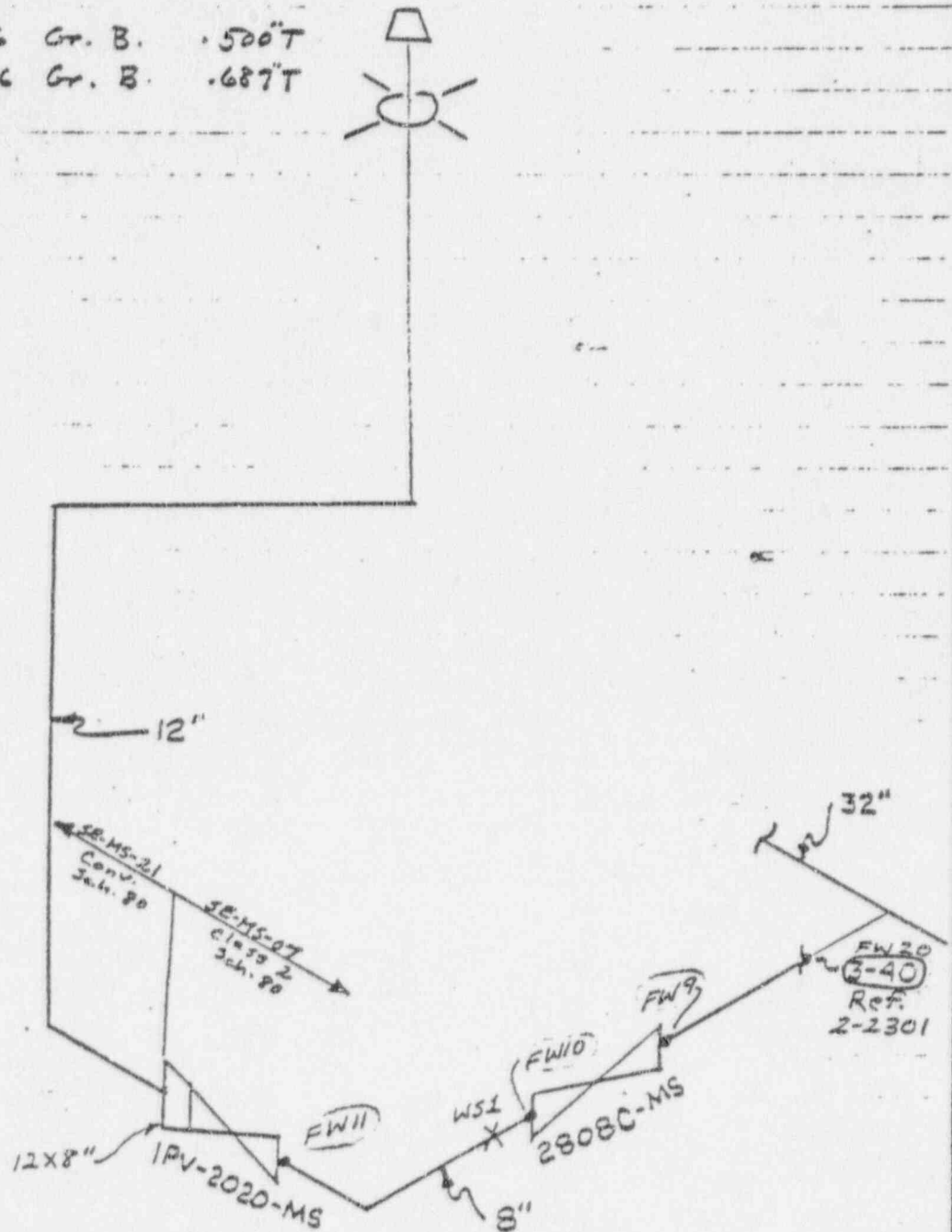
SE-FW-11
Class 2

18" SA-106, Gr. B. .937" T
18" " " " 1.156" T



MAIN STEAM RELIEF LOOP 'C'
C-314-011 SHEET 16

8" A-106 Gr. B. .500" T
12" A-106 Gr. B. .687" T



MAIN STEAM

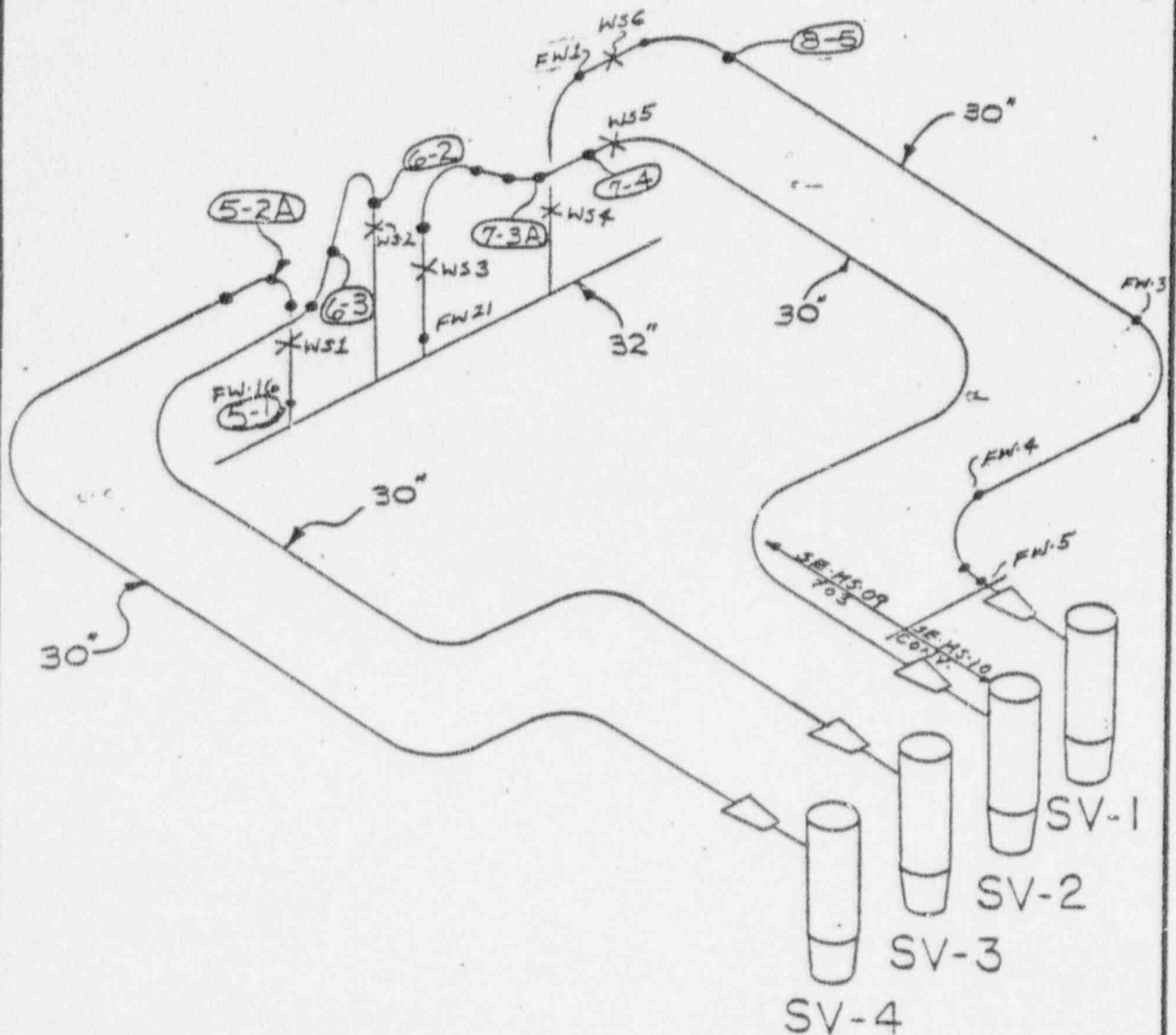
C-314-011 SHEET-5

CGE-2-2350

32" SA-155. GR. KC-70 1.15" T
30" SA-155. GR. KC-70 1.125" T

SE-MS-09
Class 2, Sch. 80

SE-MS-08
Class 2, Sch. 80

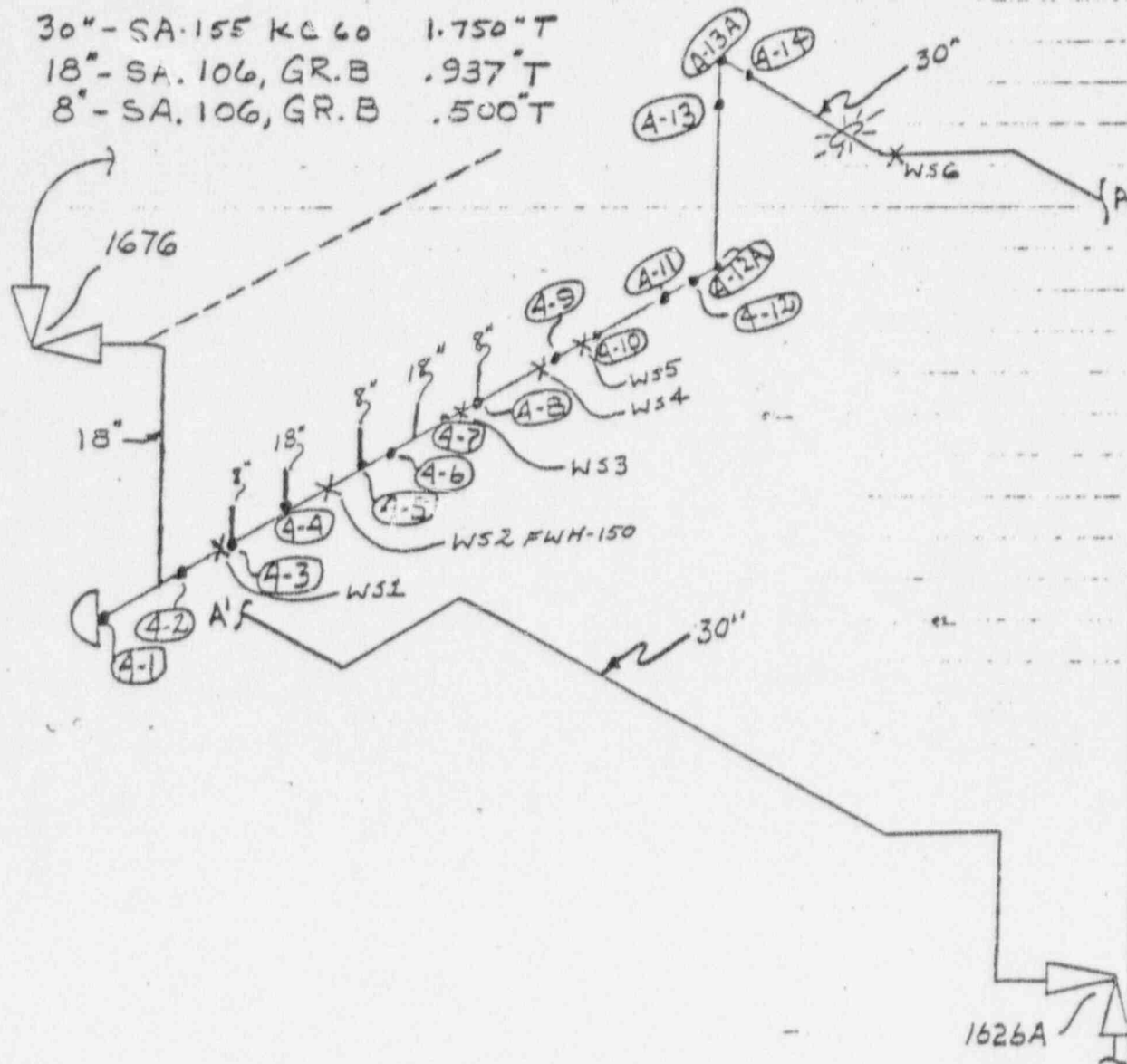


CGE-2-2351

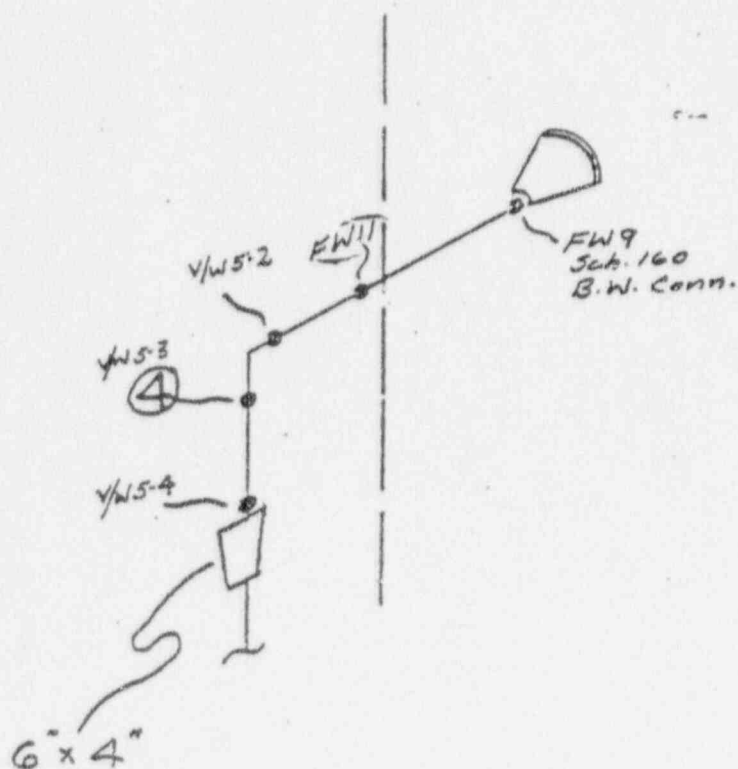
FEEDWATER
C-314-081 SHEET 18

SE-FW-11
CLASS 2

30" - SA. 155 KC 60 1.750" T
18" - SA. 106, GR. B .937" T
8" - SA. 106, GR. B .500" T



CGE 2-2352

LOOP-C' 6" AUX. FEEDWATER
.500 TSE-EF-12
C14552 Sch. 80

CGE-2-2500

RESIDUAL HEAT REMOVAL LOOP 'A'

C-314-641 SHEET 1 of 4

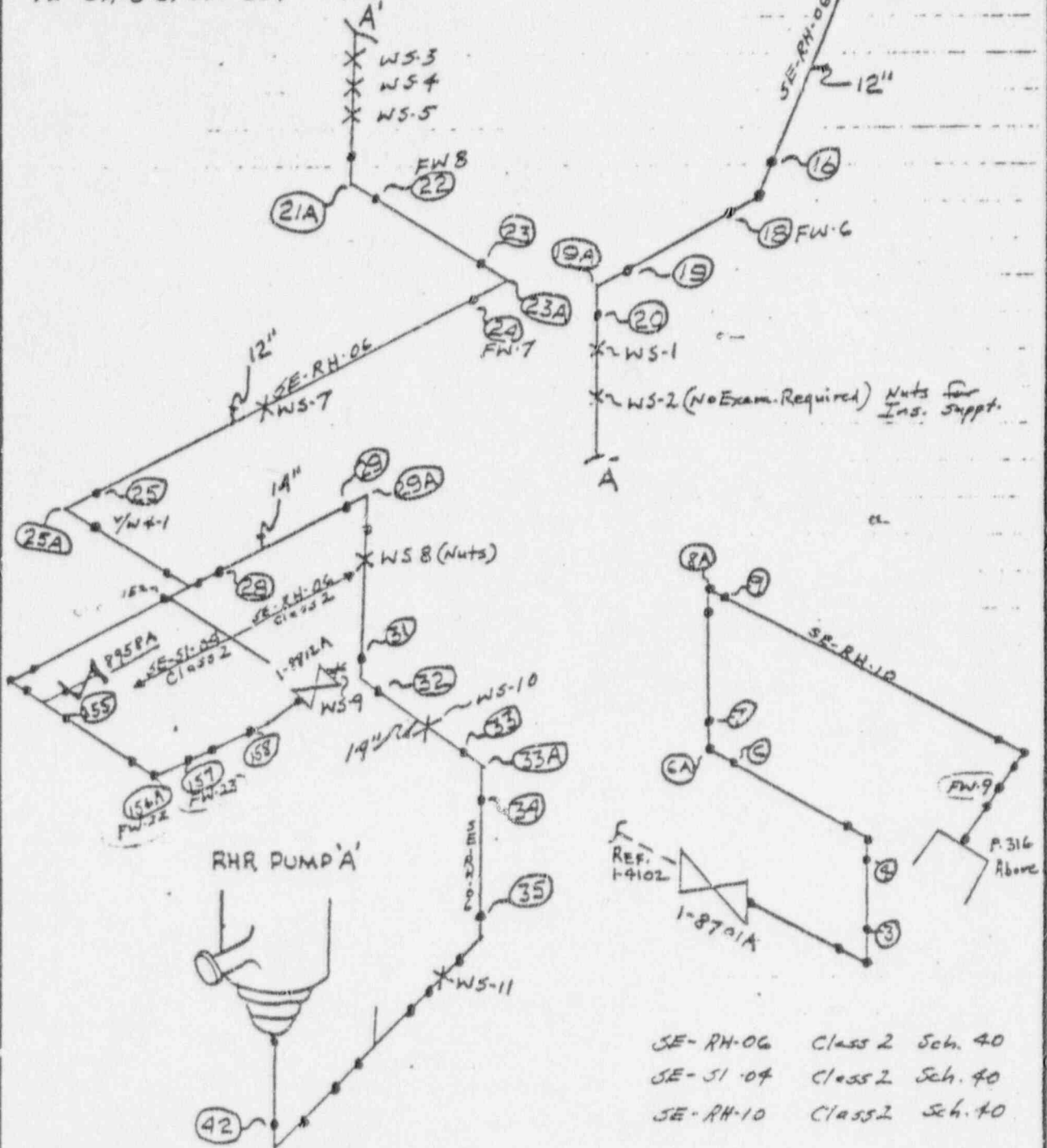
C-314-641 Sheet 1

14" JA-358, Gr. 304 .438" T

12" JA-376, Gr. 316 1.125" T

12" JA-312, Gr. 304 .375" T

12" JA-312, Gr. 304 .406" T



SE-RH-06 Class 2 Sch. 40
SE-SI-06 Class 2 Sch. 40
SE-RH-10 Class 2 Sch. 40

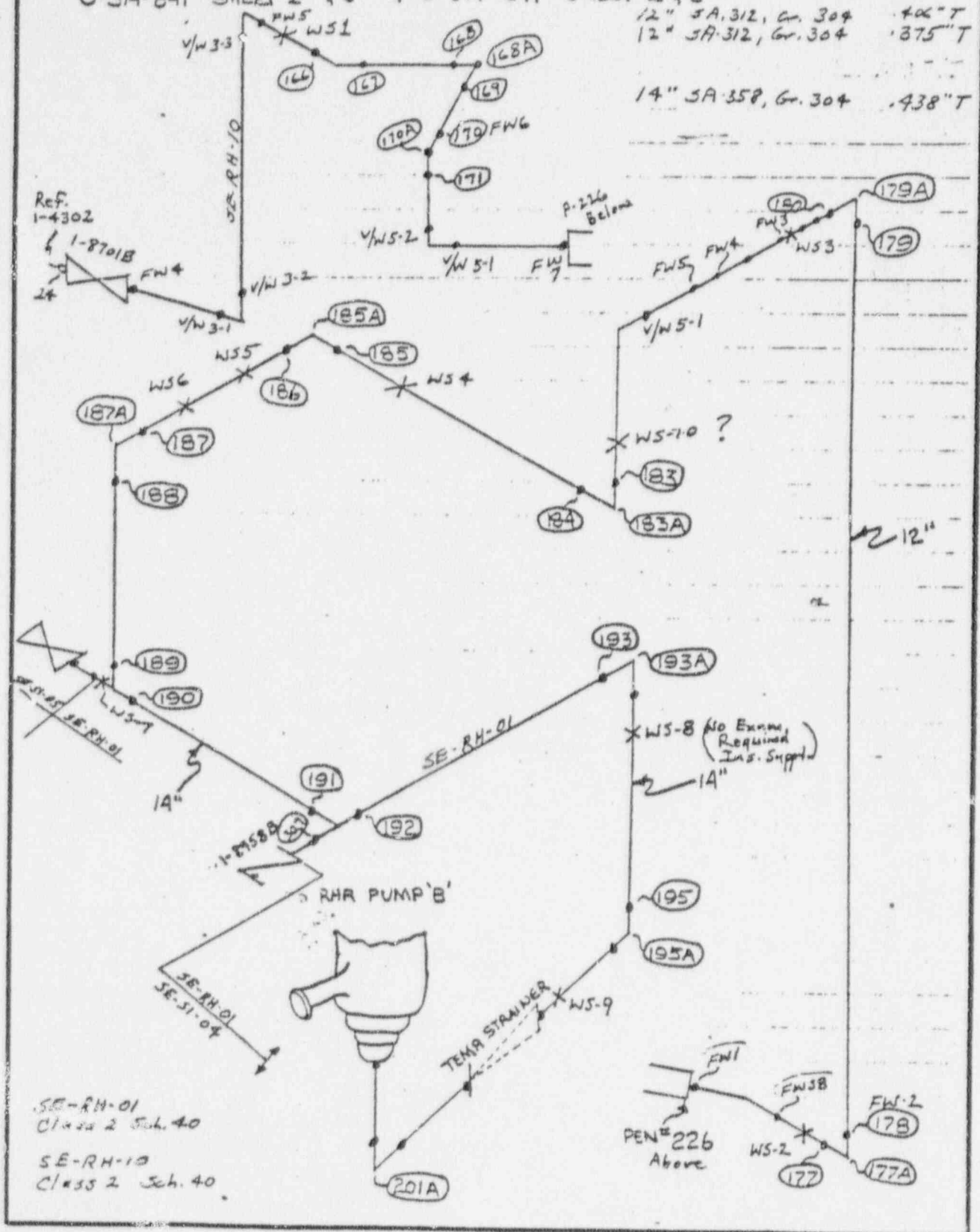
CGE-2-2501

RESIDUAL HEAT REMOVAL LOOP 'C'

C-314-641 SHEET 2 of 3 & C-314-691 Sheet 2 of 3

12" SA-312, Gr. 304 .406" T
12" SA-312, Gr. 304 .375" T

14" SA-358, Gr. 304 .438" T



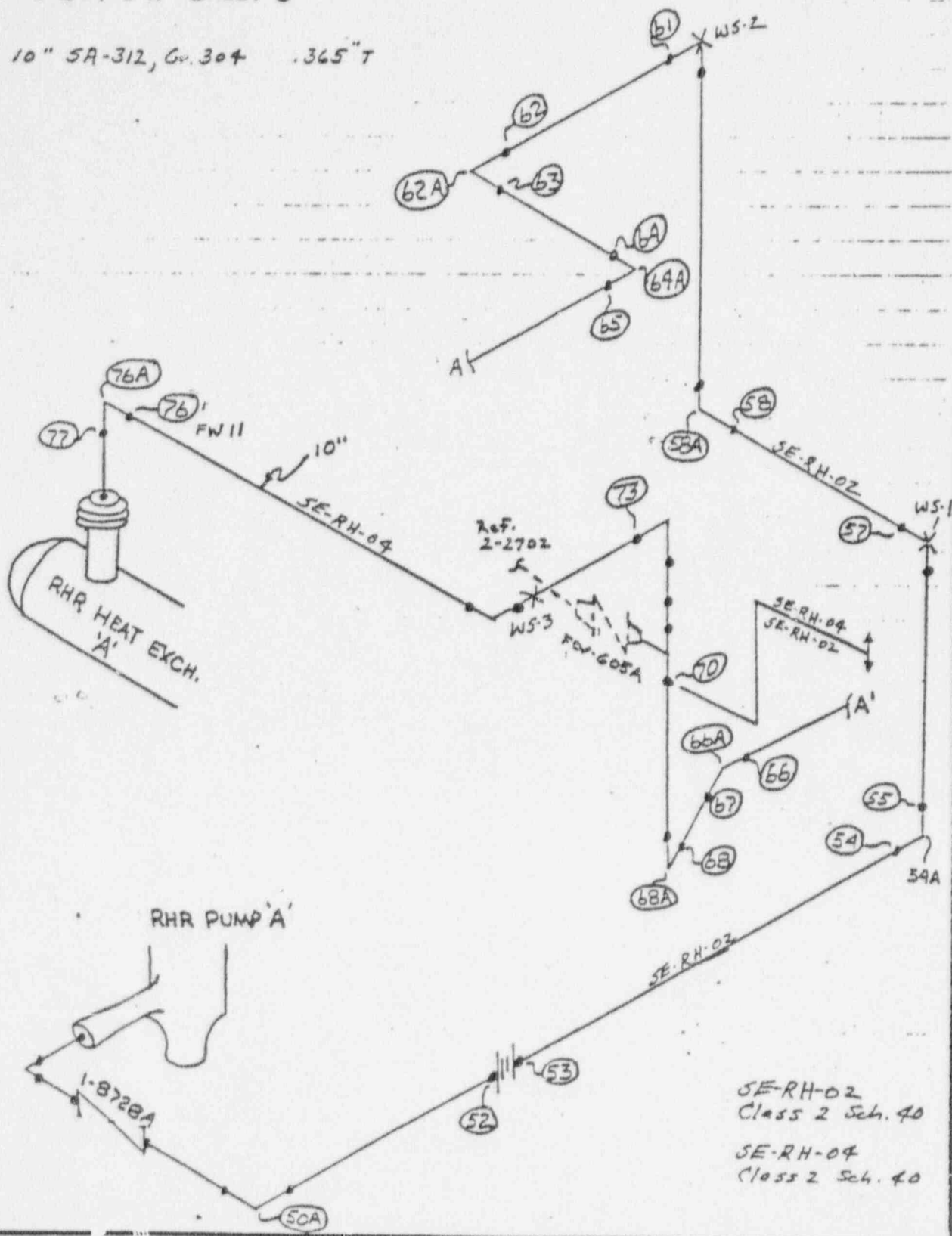
SE-RH-01
Class 2 Sch. 40

SE-RH-10
Class 2 Sch. 40

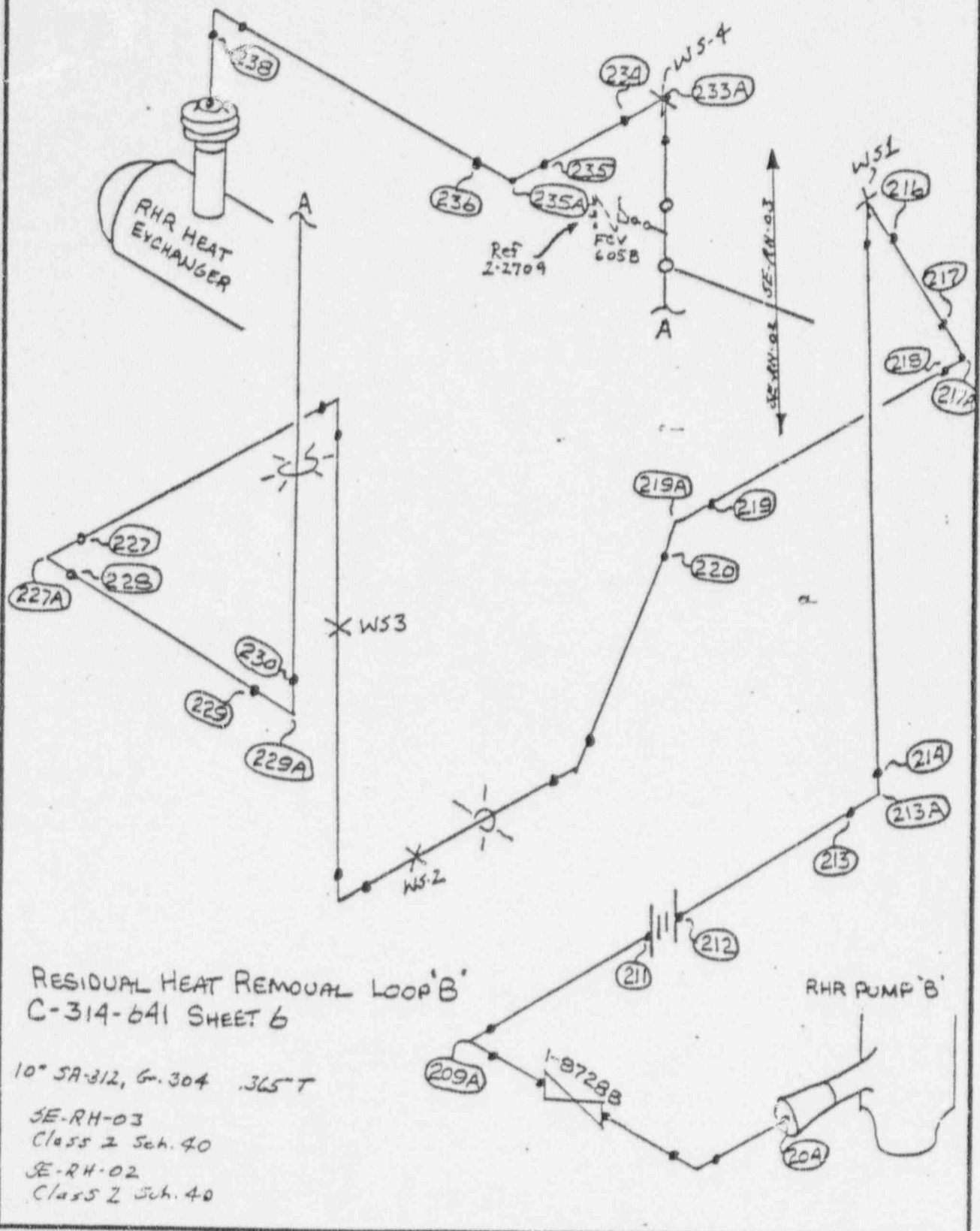
CGE-2-2700

RESIDUAL HEAT REMOVAL 'A'
C-314-641 SHEET 5

10" SA-312, Gr. 304 .365" T



FORM 4



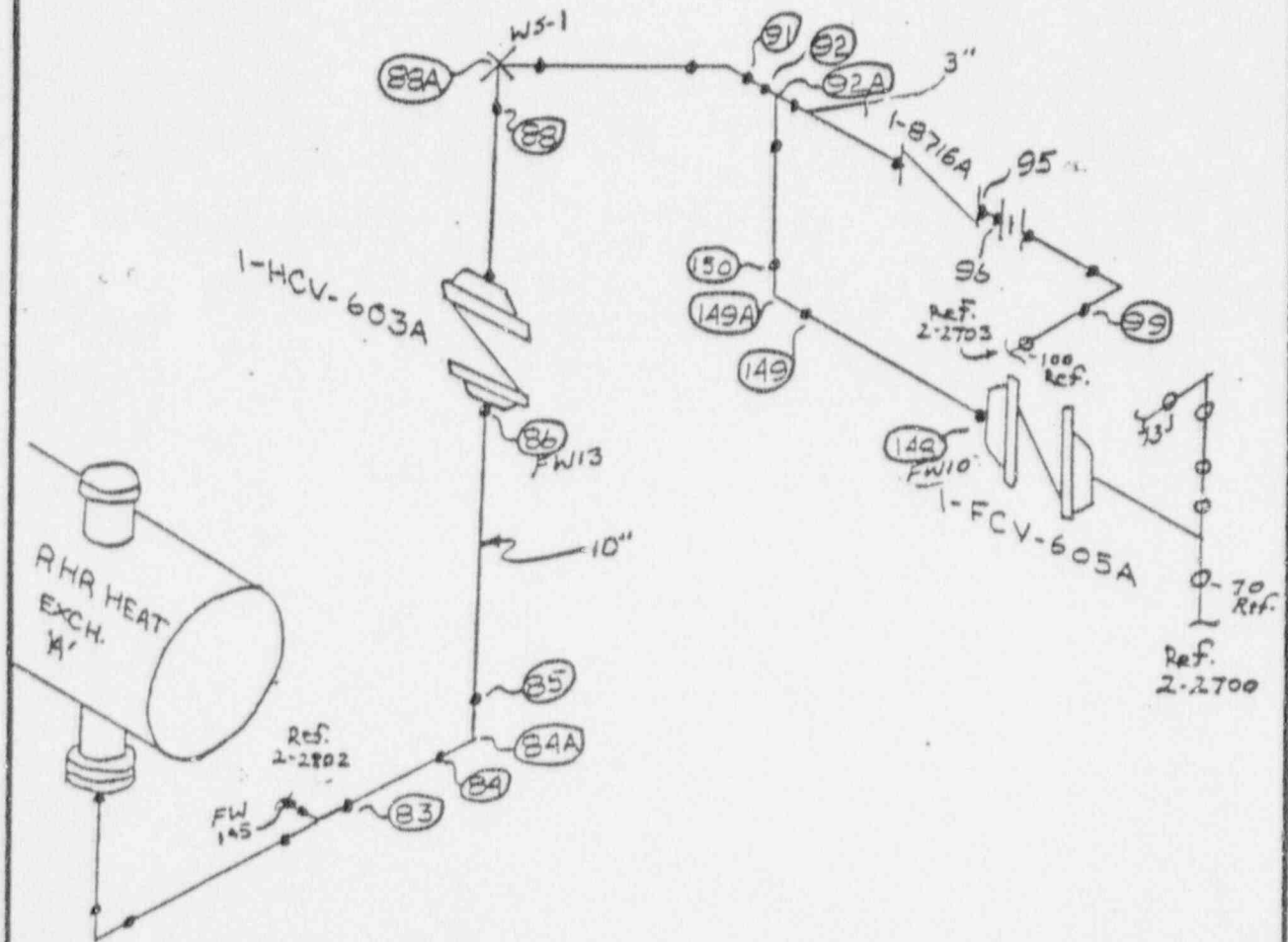
FORM

RHR FROM RHR HEAT EXCH. 'A'

C-314-641 SHEET 11

| | | | |
|-----|--------|---------|-------|
| 10" | SA-376 | Gr. 316 | 1.000 |
| 10" | SA-312 | Gr. 304 | .345 |
| 8" | SA-312 | Gr. 304 | .322 |

SE-RH-04
Class 2 Sch. 40



CGE-2-2703

RHR FROM RHR HEAT EXCH. 'A'
TO PEN.# 322

CE-314-641 SHEET 11

10" SA-376 Gr. 316 1.000" T

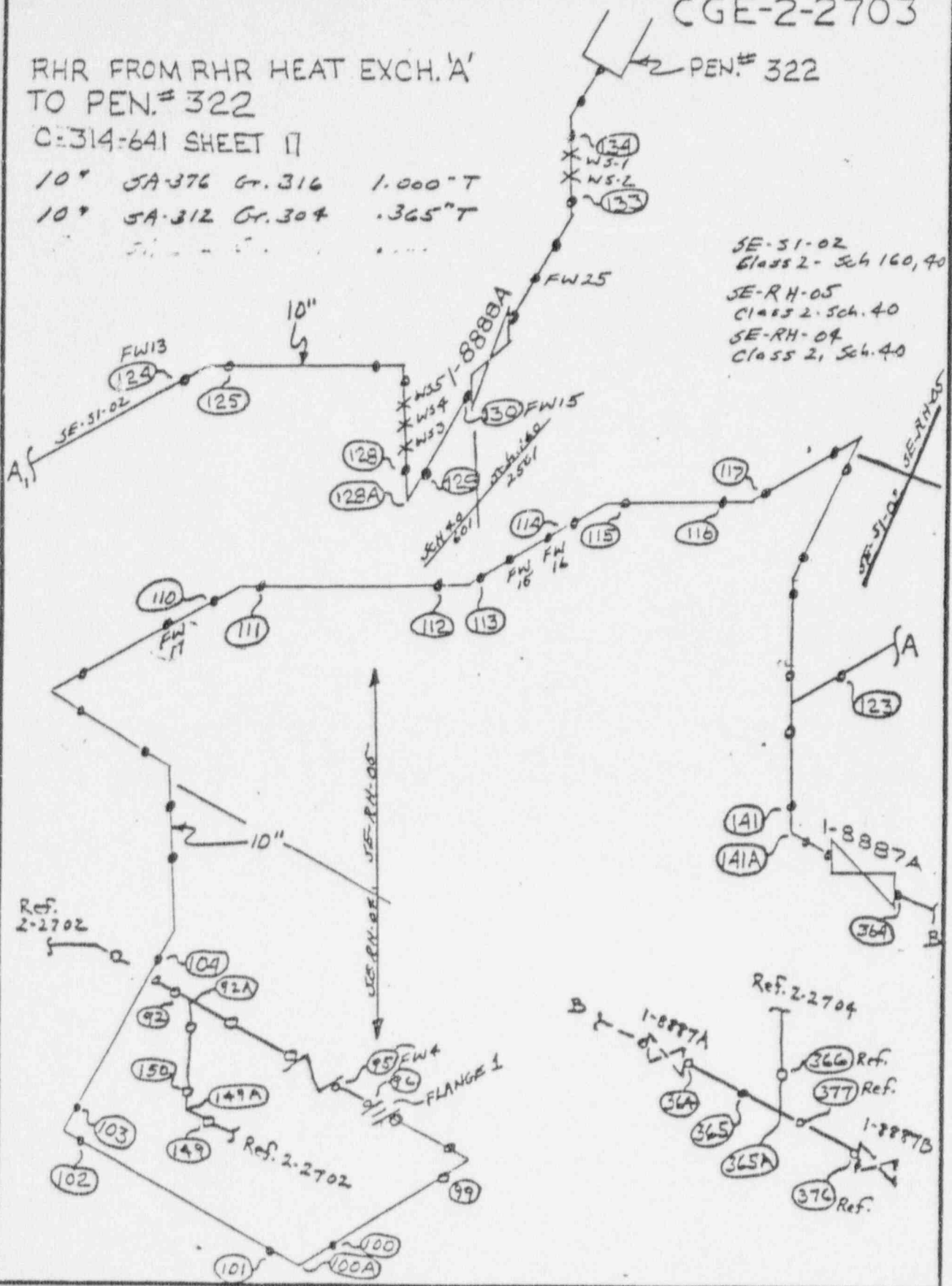
10" SA-312 Gr. 304 .365" T

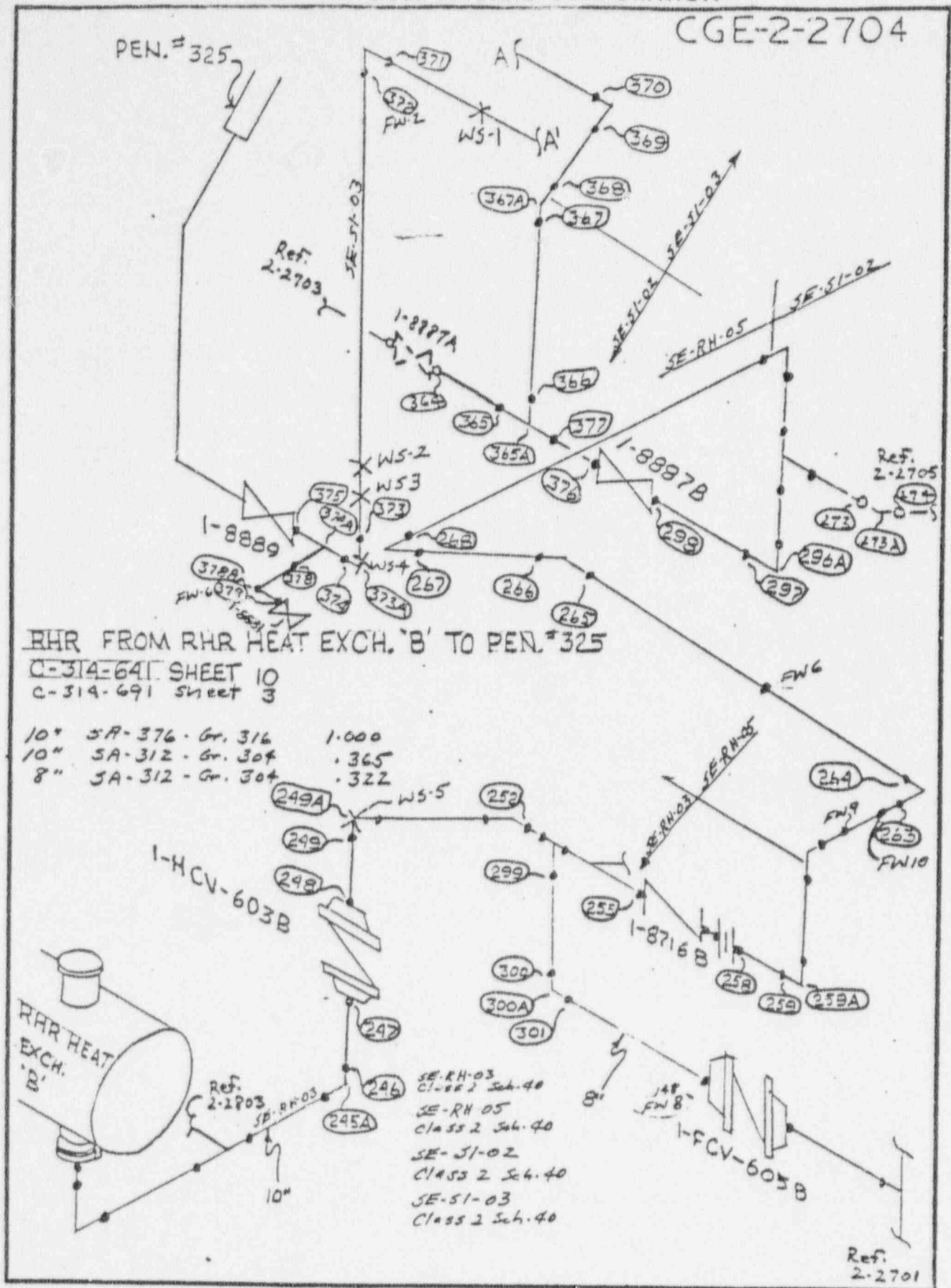
PEN.# 322

SE-51-02
Class 2 - Sch 160, 40

SE-RH-05
Class 2 - Sch. 40

SE-RH-04
Class 2, Sch. 40





TRHR FROM RHA HEAT EXCH. 'B' TO PEN. # 227

10" SA-376 Cr. 316 1,000° T

10" SA-312 Cr. 309 .365" T

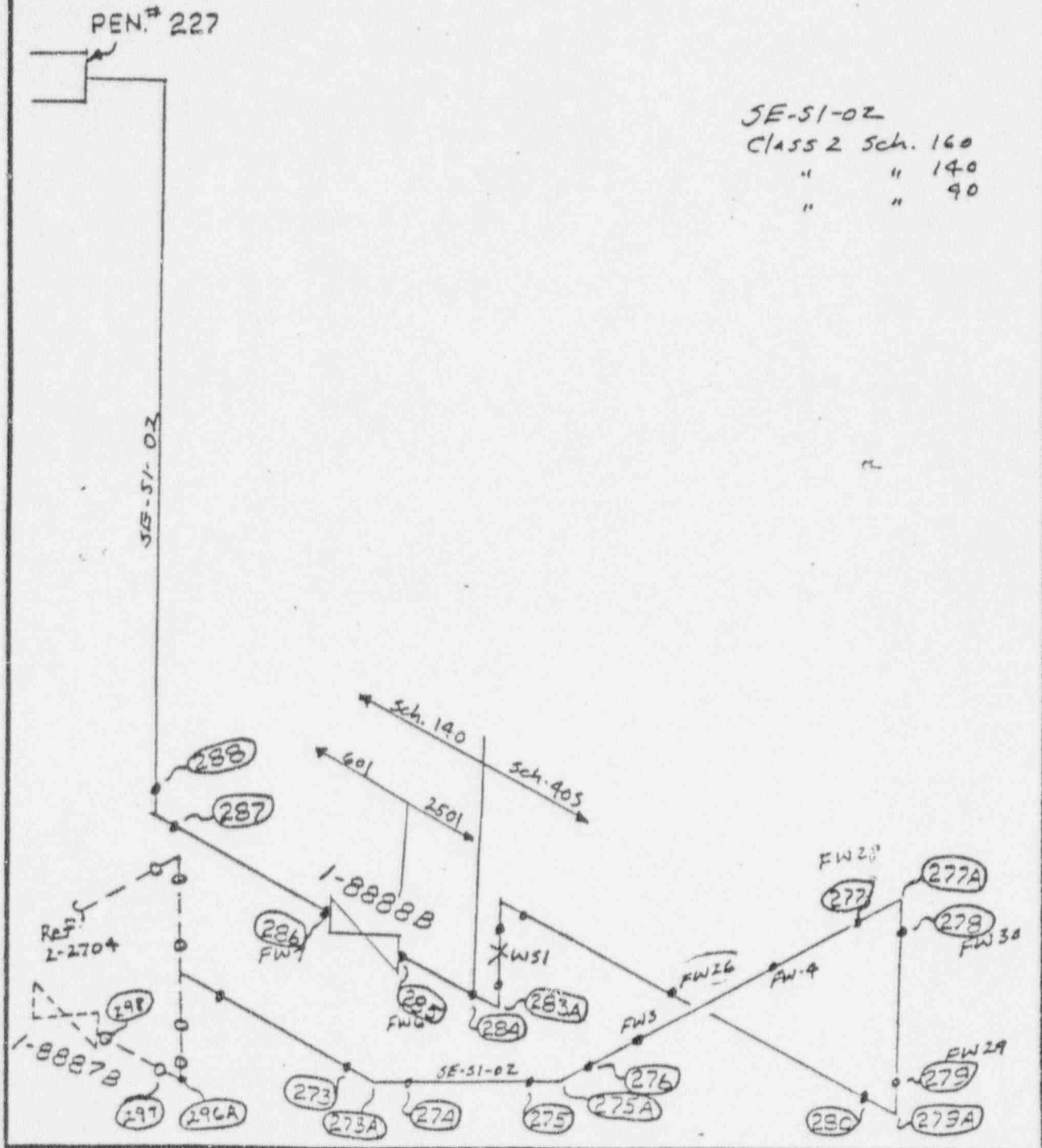
PEN. # 227

SE-51-02

CLASS 2 Sch. 160

" " 140

" " 90

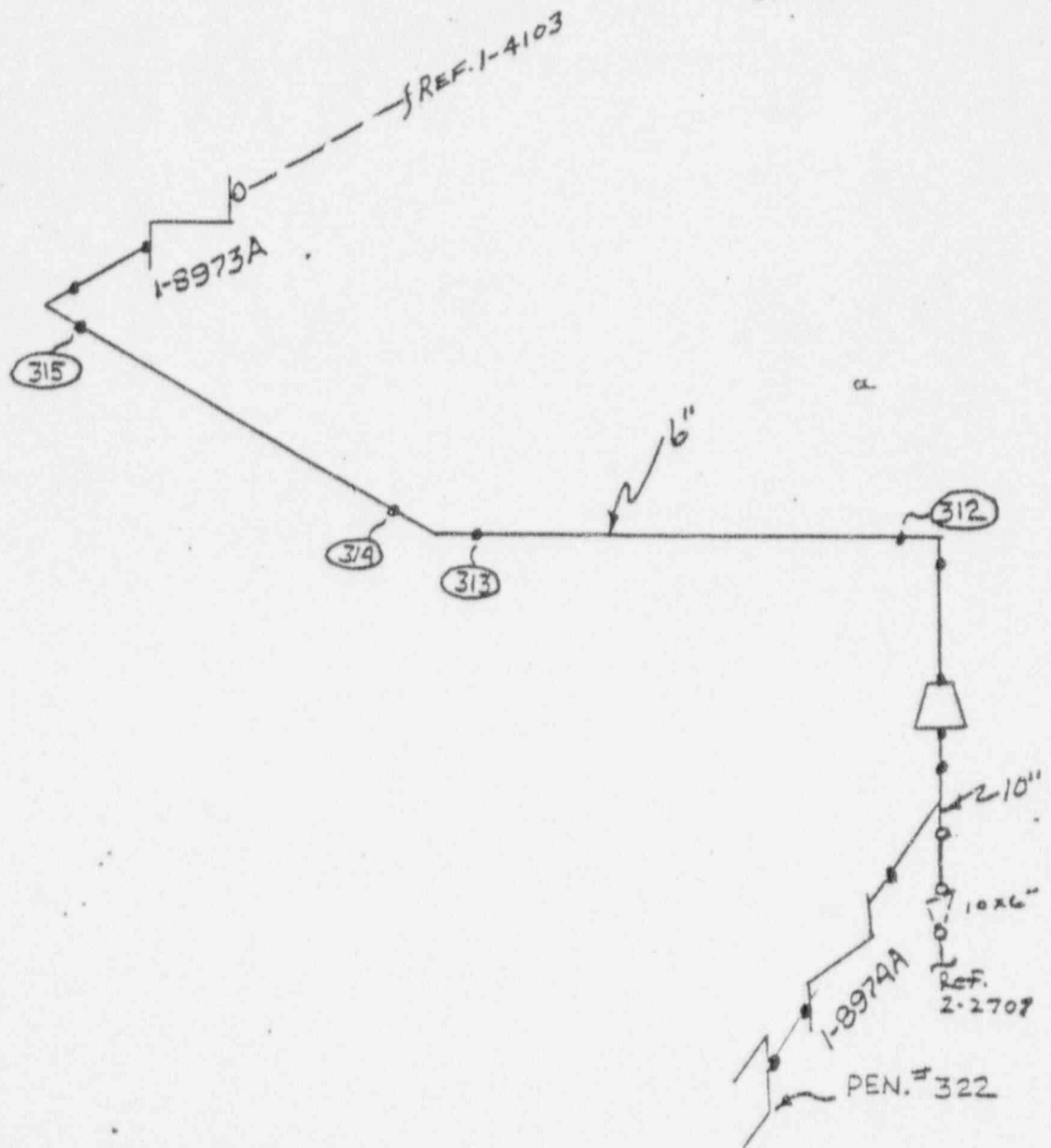


CGE-2-2706

SIS FROM PEN. #322 TO RC LOOP 'A'
C-314-691 SHEET 11

10" SA-376, Gr. 316 1.000" T
6" SA-376, Gr. 304 .718" T

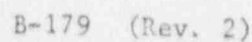
SE-SI-17
CLASS 2 Sch. 160



FORM 1

| | |
|---------------------|----------|
| 10" SA-376, Gr. 316 | 1.000" T |
| 6" SA-376, Gr. 304 | .718" T |

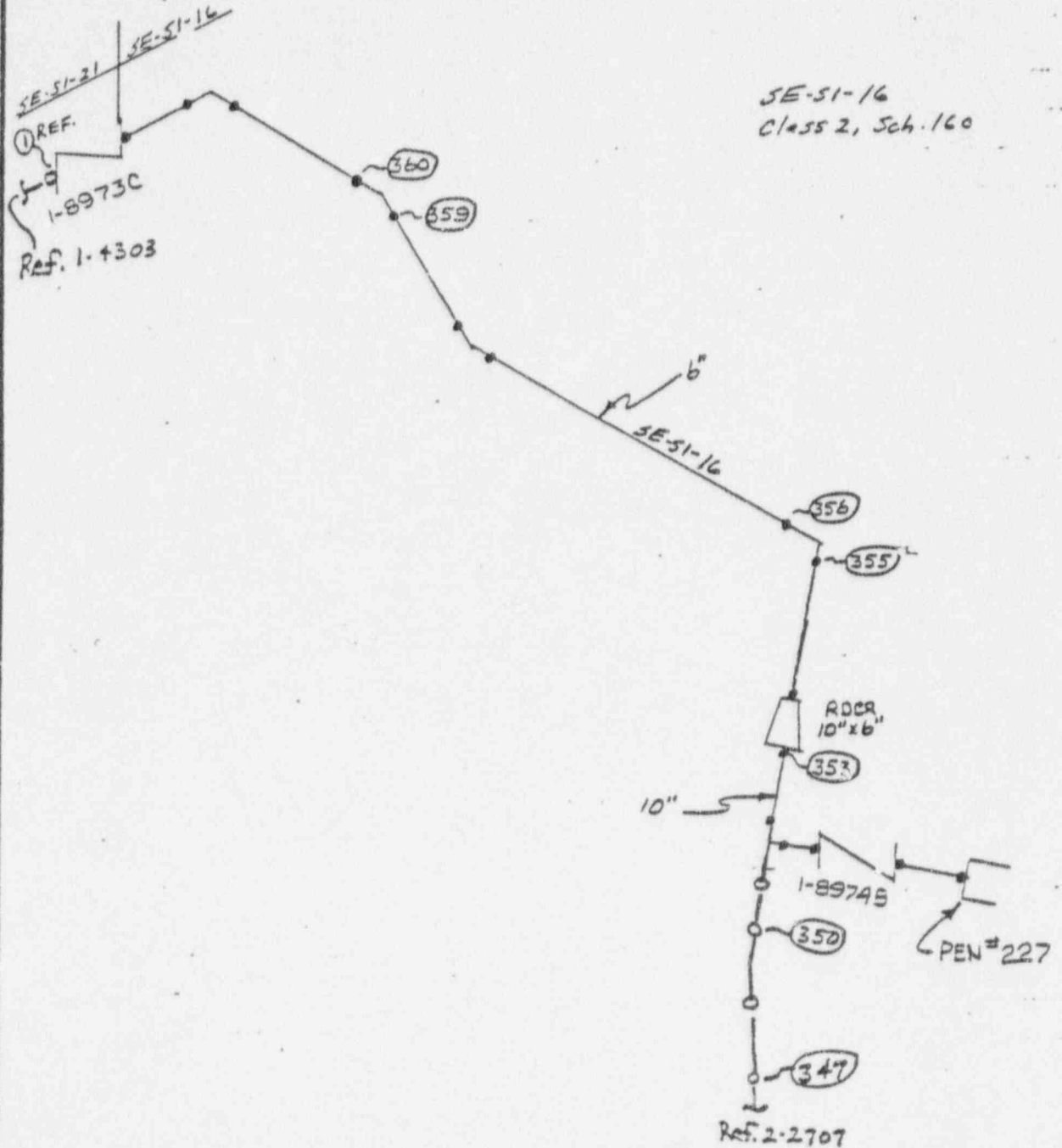
SE-51-17
Class 2, 54.160



CGE-2-2708

SIS FROM PEN. #227 to LOOP C
C-314-691 SHEET 13

10" JA-376 Gr. 316 1.000" T
6" JA-376 Gr. 304 .718" T



CGE-2-2800

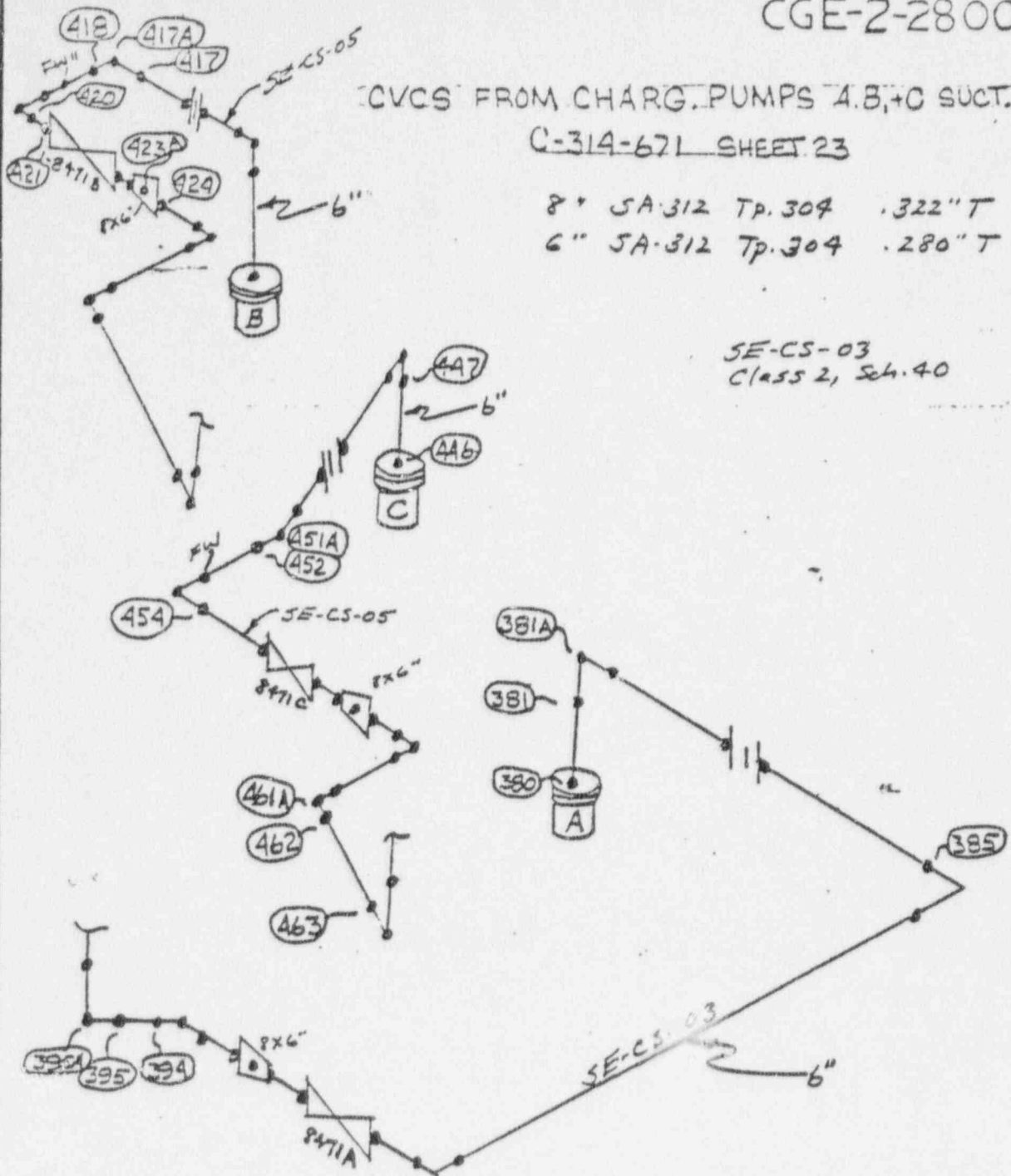
CVCS FROM CHARG. PUMPS A, B, + C SUCT.

C-314-671 SHEET 23

8" SA-312 Tp. 304 .322" T

6" SA-312 Tp. 304 .280" T

SE-CS-03
Class 2, Sch. 40

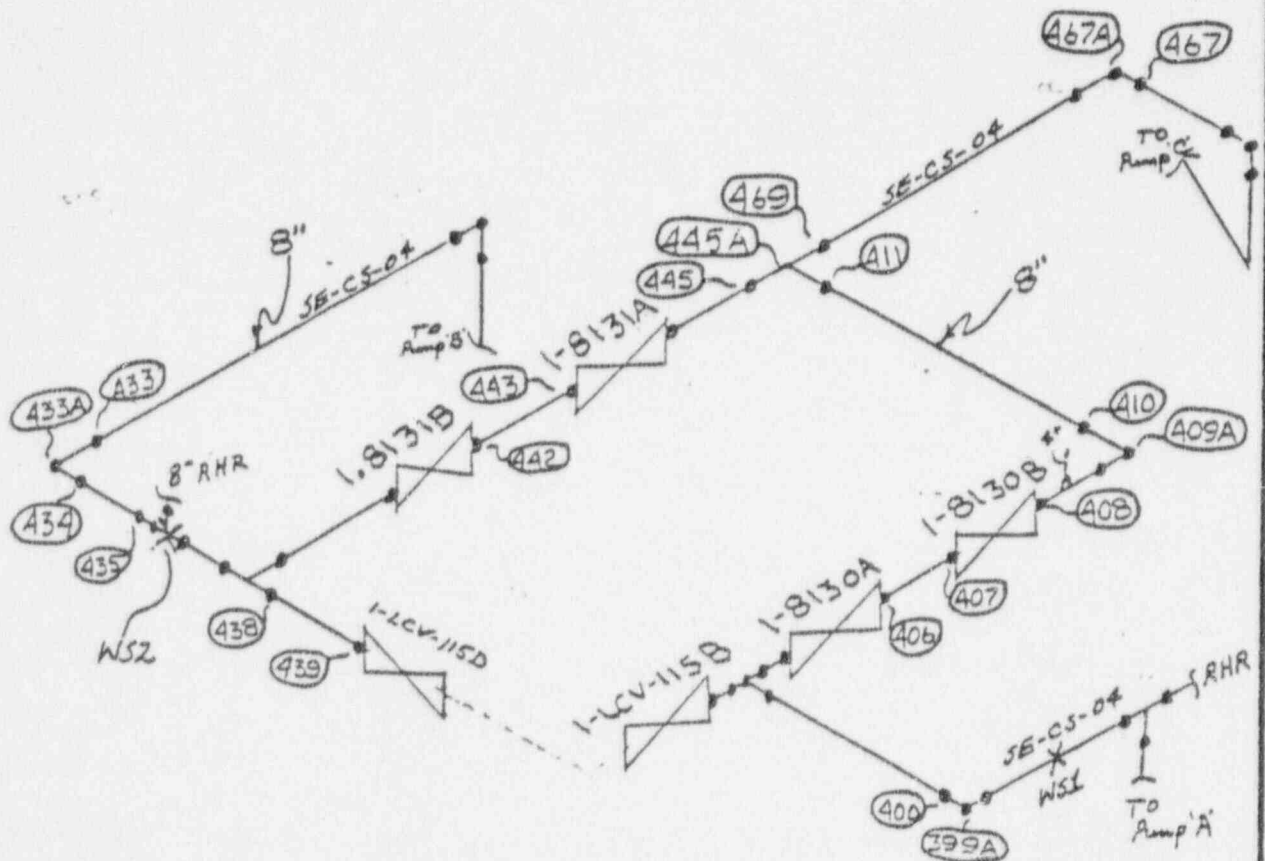


CVCS FROM CHARG. PUMPS A,B+C SUCT

C-314-671 SHEET 23

8" 3A-312, Tp.304 .322" T
 6" 3A-312, Tp.304 .280" T

SE-CS-04
 Class 2, Sch 40



CGE-2-2802

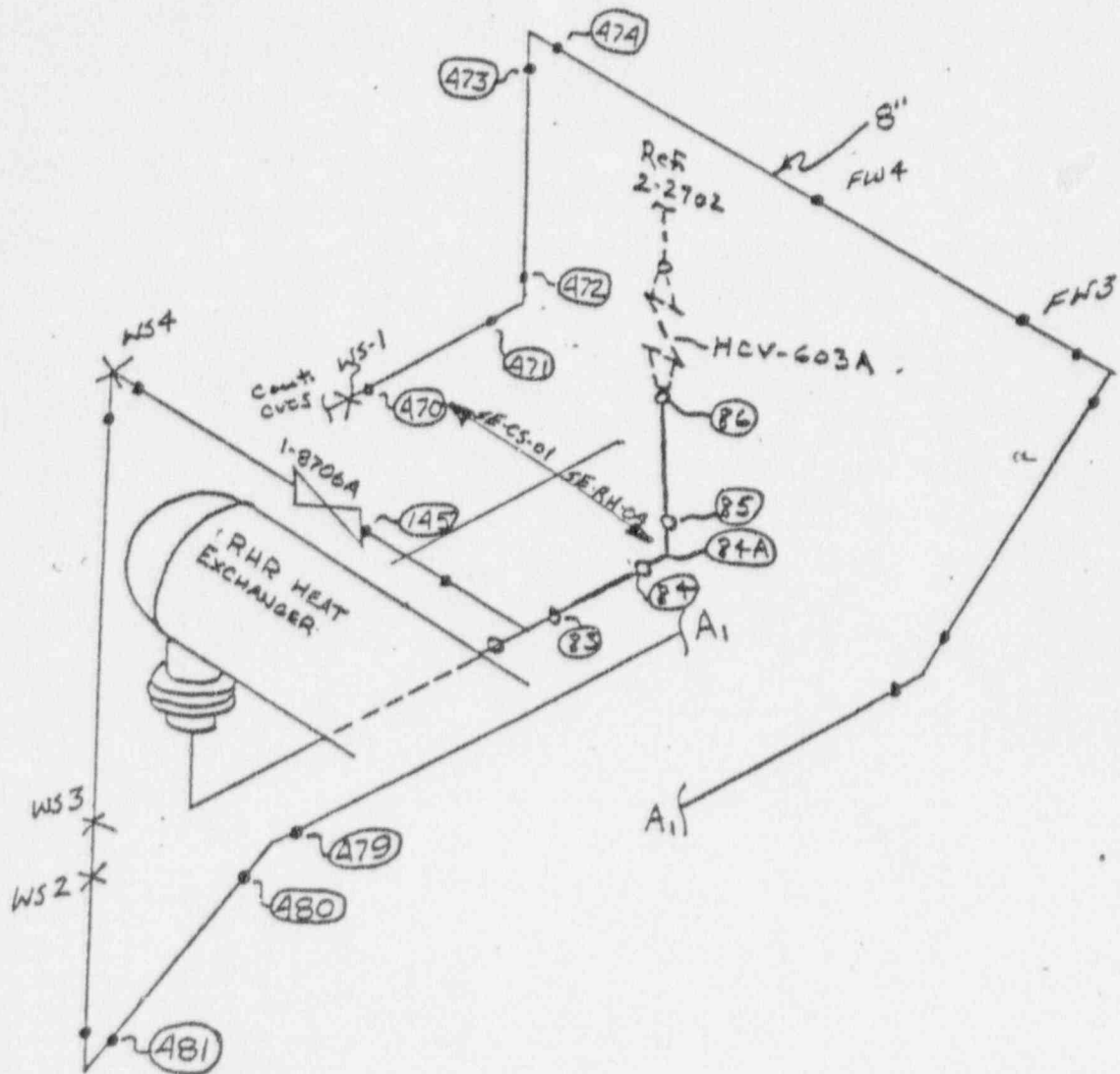
RESIDUAL HEAT REMOVAL LOOP 'A'

C-31A-641 SHEET 7

8" 5A-312, Gr. 304 .322" T
 10" 5A-312, Gr. 304 .365" T

SE-RH-04
 Class 2, Sch. 40

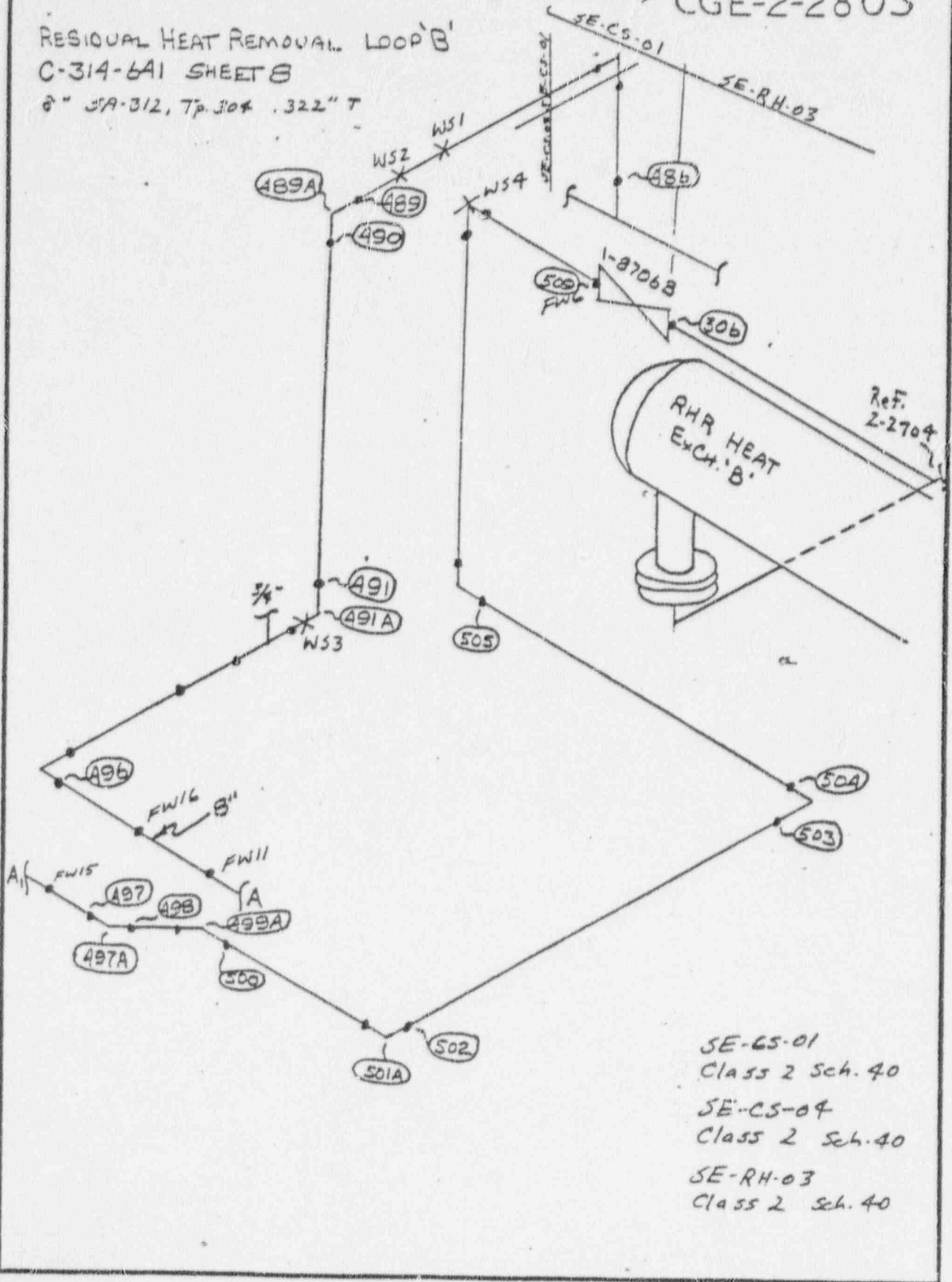
SE-CS-01
 Class 2, Sch. 40



CGE-2-2803

RESIDUAL HEAT REMOVAL LOOP 'B'
C-314-6A1 SHEET 8

8" SA-312, TP 304 .322" T



SE-CS-01
Class 2 Sch. 40
SE-CS-04
Class 2 Sch. 40
SE-RH-03
Class 2 Sch. 40

ILLUSTRATIVE ONLY

CGE-2-3100

RESIDUAL HEAT REMOVAL PUMPS 'A' & 'B'

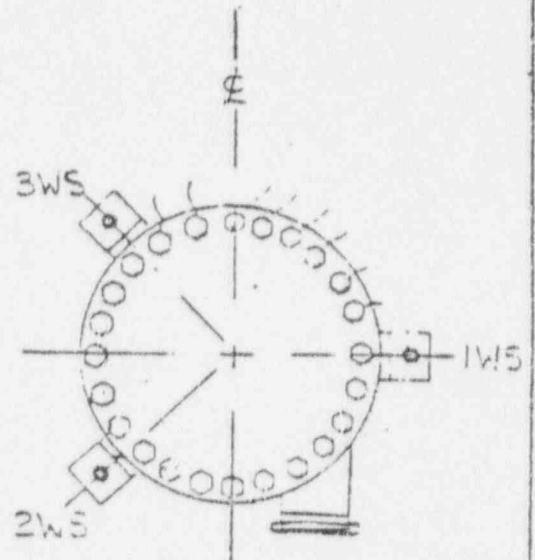
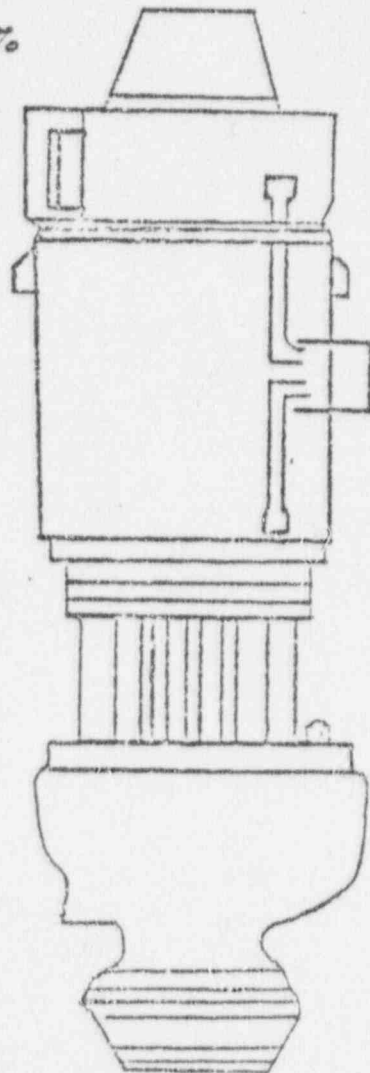
Pressure Retaining Bolting; 24 - " Dia.
Y/T 24 Bolts
U/T 3 Bolts per pump

Pump Designation precedes bolt number. Example:

Pump A
Pump B

Bolts: A-1, A-2 & A-3
Bolts: B-1, B-2 & B-3

Supports: Y/T 100%
PT 100%



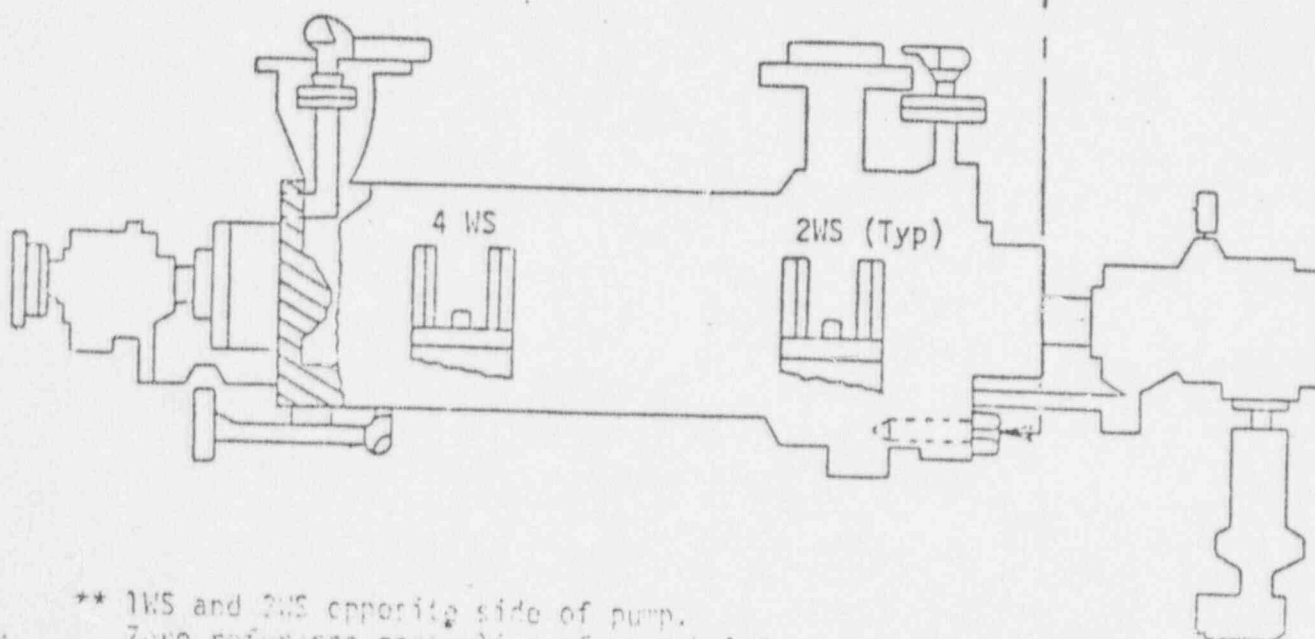
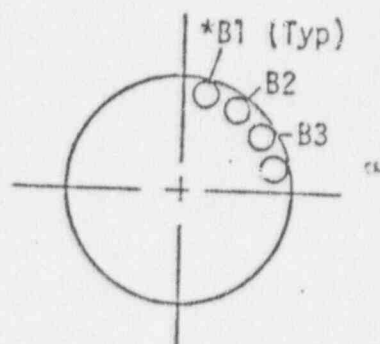
Pump Flange Bolting

ILLUSTRATIVE ONLY

CENTRIFUGAL CHARGING PUMPS

CGE-2-3110

Material: SA-276
Bolting : 16 - 1.125" Dia.
Supports: 4 - Integrally Welded



** 1WS and 2WS opposite side of pump.
Zero reference centerline of pump bolting

C. HYDROSTATIC TESTING

The Planned Preservice (Baseline Data) Inspections of ASME Code Class 1, 2, & 3 and systems components will be performed in accordance with the requirements of Section XI of ASME Code and applicable addenda per the requirements of 10 CFR 50 Section 55a (g).

Preservice (Baseline Data) Hydrostatic Testing will be conducted during the construction and start-up (Phase I Testing) of V.C. Summer Station Utilizing the Phase I test procedures.

NOTE: The PSI File Numbers in the following section are also the Phase I Hydrostatic Test Procedure number.

The following section identifies those hydros whose scheduled test and inspection boundaries constitutes code hydros. This list is subject to revisions periodically due to changes caused through the start up phase. A final list of preservice code hydros will be generated and submitted as part of a revised preservice program.

PSI HYDRO REFERENCE INDEX

| <u>PSI FILE #</u> | <u>CODE CLASS</u> | <u>SYSTEM</u> | <u>DESCRIPTION</u> | <u>FLOW DWG</u> |
|-------------------|-------------------|---------------|--------------------------------------|-----------------|
| AH-02-H1 | 2 | AH | RB Purge Supply Pneumatic Test | D-912-103 |
| AH-03-H1 | 2 | AH | RB Purge Exhaust Pneumatic Test | D-912-103 |
| CC-01-H1 | 3 | CC | Component Cool Low Pressure Hydro | D-302-611 |
| CC-02-H1 | 3 | CC | Component Cool Surge Tnk Hydro | D-302-611 |
| CC-04-H1 | 2/3 | CC | Component Cool to Thermal Barr | D-302-612 |
| CC-04-H2 | 2/3 | CC | CC Boost Pmp Inlet to Bar Hydro | D-302-612 |
| CC-04-H3 | 3 | CC | CC to RCP Therm Barrier | D-302-612 |
| CC-04-H4 | 2 | CC | CC Boost Pumps | D 302-612 |
| CC-05-H1 | 3 | CC | Component Cool System Hydro Test | D-302-613 |
| CS-01-H1 | 2 | CS | Charging Pump Suction Pipe Hydro | 114E073 |
| CS-02-H1 | 2 | CS | Volume Control Tank and Piping Hydro | 114E073 |
| CS-02-H3 | 3 | CS | Makeup Piping Hydro | 114E073 |
| CS-03-H1 | 2 | CS | Charging Pump Discharge Pipe Hydro | 114E073 |
| CS-04-H1 | 2 | CS | Charging Header Hydro | 114E073 |
| CS-05-H1 | 2 | CS | Seal Injection Piping Hydro | 114E073 |
| CS-07-H1 | 2 | CS | RC Pump Seal Return Lines Valve | 114E073 |
| CS-07-H2 | 2 | CS | RC Pump Seal Return Lines Valve | 114E073 |
| CS-07-H3 | 2 | CS | RC Pump Seal Return Valve S100 | 114E073 |
| CS-08-H1 | 1 | CS | Excess Letdown Hydro | 114E073 |
| CS-09-H1 | 1 | CS | High Pressure Letdown Hydro | 114E073 |
| CS-11-H1 | 2 | CS | Letdown Line IP Hydro | 114E073 |
| CS-12-H1 | 2/3 | CS | Letdown LP Demin Hydro | 114E073 |
| CS-13-H1 | 2 | CS | BCMS Hydro | 114E073 |
| CS-17-H1 | 3 | CS | Boric Acid Transfer Pump Suction | 114E073 |

PSI HYDRO REFERENCE INDEX

| <u>PSI FILE #</u> | <u>CODE CLASS</u> | <u>SYSTEM</u> | <u>DESCRIPTION</u> | <u>FLOW DWG</u> |
|-------------------|-----------------------|---------------|--|-----------------|
| CS-17-H2 | 3 | CS | Boric Acid Transfer Pump Discharge | 114E073 |
| CS-17-H3 | 2 | CS | Boric Acid Stroe Tanks Hydro | 114E073 |
| CS-20-H1 | 3 | BR | BRTS Demineralizer Hydro | 114E076 |
| CS-21-H1 | 3 | BR | Holdup Tank Header Hydro | 114E076 |
| CS-22-H1 | 3 | BR | Holdup Tank Eductor Hydro | 114E076 |
| CS-23-H1 | 3 | BR | Recycle Evap Feed Demin Hvdro | 114E076 |
| CS-24-H1 | 3 | BR | Recycle Evap Hydro | 114E076 |
| CS-26-H1 | 3 | BR | CVCS Holdup Tanks Hydro | 114E076 |
| CS-26-H2 | 3 | BR | CVCS Holdup Tank | 114E076 |
| CS-26-H3 | 3 | BR | CVCS Holdup Tank | 114E076 |
| CS-27-H1 | 3 | BR | CVCS Safety Valve Discharge Header | 114E076 |
| DG-02-H1 | 3 | DG | D/G Fuel Oil Storage Tnk A Pipe Hydro | D-302-351 |
| DG-03-H1 | 3 | DG | D/G Fuel Oil Storage Tnk B Pipe Hydro | D-302-351 |
| DG-04-H1 | 3 | DG | D/G "B" Day Tnk & Pipe Hydro | D-302-351 |
| DG-05-H1 | 3 | DG | D/G "A" Day Tnk & Pipe Hydro | D-302-351 |
| DC-08-H1 | 3 | DG | D/G "A" Starting Air | D-302-353 |
| DG-09-H1 | 3 | DG | Diesel Gen "B" Starting Air | D-302-353 |
| DG-10-H1 | 3 | DG | Diesel Gen "A" Crankcase Vac Lk | D-302 353 |
| DG-11-H1 | 3 | DG | Diesel Gen "B" Crankcase Vac Lk | D-302-353 |
| DG-12-H1 | 3 | DG | Diesel Gen "A" Jacket Cool Water | D-302-353 |
| DG-13-H1 | 3 | DG | Diesel Gen "B" Jacket Cool Water | D-302-353 |
| DN-03-H2 | 2 | DN | Demin Water RB Penetration #231 | D-302-715 |

PSI HYDRO REFERENCE INDEX

| <u>PSI FILE #</u> | <u>CODE CLASS</u> | <u>SYSTEM</u> | <u>DESCRIPTION</u> | <u>FLOW DWG</u> |
|----------------------|-------------------|---------------|--|-----------------|
| EF-01-H1 | 3 | EF | Emer FW Pumps & Suction Headers | D-302-085 |
| EF-02-H1 | 3 | EF | Emer FW Pumps Discharge Header | D-302-085 |
| FH-02-H3 | 2 | FH | Spent Fuel Trans. Tube Lkdet Pneum | D-302-421 |
| FS-01-H1 | 2 | FS | Fire Protection Sys RB Pen #404 | D-302-231 |
| FS-19-H2 | 2 | FS | Fire Protection Sys RB Pen #427 | D-302-231 |
| FW-01-H1 | 2 | FW | Hydrotest of FW Nuclear Lines | D-302-083 |
| GH-02-H1 | 3 | WG | Wastegas Comp Suct Hd & Recirc | 114EQ77 |
| GH-03-H1 | 3 | WG | Wastegas Delay Tank & Pipe Leak | 114EQ77 |
| GH-04-H1 | 3 | WG | Wastegas Shutdown Tanks Leak | 114EQ77 |
| HR-02-H1 | 2 | HR | Postaccident Hydrogen Vent Hydro | D-302-861 |
| HR-03-H1 | 2/3 | HR | Postaccident Gas Sampling Hydro | D-302-861 |
| HR-03-H2 | 2/3 | HR | Post Acc H2 Gas Sample System | D-302-273 |
| IA-08-H2 | 2 | IA | Hydrotest RB Penetration #319 | D-302 273 |
| IA-11-H2 | 2 | IA | Hydrotest Rebu Instr Air Pen 311 | D-302-273 |
| LR-01,02,03 04-H1 | 2 | LR | Leak Rate Test Sys Pneumatic Test | D-302-273 |
| MP-01-H1 | 1 | MP | Pent. Seal Ring Test | D-302-241 |
| MP-01-H2 | 2 | MP | Mechanical Penetration Pneumatic Test | D-302-241 |
| MS-01-H1 | 2/3 | MS | Main Stm & Stm Generator Hydro | D-302-011 |
| MU-02-H1 | 2 | MU | Reactor Mkup F/Degassifier Hydro | D-302-791 |
| MU-03-H1 | 2 | MU | Reactor Mkup Water Stor Tank Hydro | D-302-791 |
| MU-04-H1 | 2 | MU | Reactor Mkup Water Distcode Pipe | D-302-791 |
| MU-04-H2 | 2 | MU | Reactor Mkup Water Supply to WD Hydro | D-302-791 |

PSI HYDRO REFERENCE INDEX

| <u>PSI FILE #</u> | <u>CODE CLASS</u> | <u>SYSTEM</u> | <u>DESCRIPTION</u> | <u>FLOW DWG.</u> |
|-------------------|-----------------------|---------------|---|------------------|
| ND-35-H1 | 2 | ND | Incore Instr Sump & Piping Hydro | D-302-821 |
| NG-01-H2 | 2 | NG | Hydro Test Nitro Blanket Pen #313 | D-302-311 |
| RC-01-H1 | 1 | RC | Reactor Coolant System Cold Hydro | 114E072 |
| RC-01-H2 | 2 | RC | Reactor Vessel Leakoff Hydro | 114E072 |
| RC-02-H1 | 2 | RC | Pressurizer Dead Weight Tester Hydro | 114E072 |
| RC-03-H1 | 1 | RC | RTD Bypass Loops Hydr | 114E072 |
| RC-05-H1 | 2 | RC | RC Pump Stand Pipe Makeup Hydro | 114E072 |
| RC-08-H1 | 1 | RC | Reactor Vessel Head Vent Hydro | 114E072 |
| RC-06-H3 | 3 | RC | Pressure Relief Tank Hydro | 114E072 |
| RH-01-H1 | 2 | RH | Res Ht Removal Suction Piping | 114E074 |
| SA-03-H2 | 2 | SA | Hydrotest RB Penetration #310 | D-302-241 |
| SA-08-H2 | 2 | SA | Inner Door Seal Pneumatic Test | D-302 242 |
| SA-09-H2 | 2 | SA | Emergency Personnel Hatch Inner | D-302-242 |
| SA-08-H3 | 2 | SA | Personnel Hatch Air Conn. Pneum | D-302 242 |
| SA-07-H2 | 2 | SA | Service Air to Equipment Hatch | D-302-242 |
| SA-09-H3 | 2 | SA | Emergency Personnel Hatch Pneumatic | D-302-242 |
| SF-01-H1 | 2 | SF | RWST Hydro Test | D-302-651 |
| SF-01-H1 | 2 | SF | SF Cool Hydro Test | D-302-651 |
| SF-04-H1 | 2 | SF | Refueling Cavity Hydro Test | D-302-651 |
| SI-01-H1 | 1 | SI | Safety Inject Highhead Piping | 114E075 |

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| <u>PSI FILE #</u> | <u>CODE CLASS</u> | <u>SYSTEM</u> | <u>DESCRIPTION</u> | <u>FLOW DWG.</u> |
|-------------------|-------------------|---------------|---|------------------|
| SI-02-H1 | 3 | SI | Boron Inject Recir Hydro | 114E075 |
| SI-02-H2 | 3 | SI | Boron Inject Surge Tank Hydro | 114E075 |
| SI-03-H1 | 2 | SI | Safety Inject Pmp Suction Head | 114E075 |
| SI-04-H1 | 2 | SI | RHR Pmp Suction F/Smps Hdrc | 114E075 |
| SI-04-H2 | 2 | SI | Penetration #329 Guard Pipe Hydro | 114E075 |
| SI-04-H3 | 2 | SI | Penetration #425 Guard Pipe Hydro | |
| SI-05-H1 | 2 | SI | SI Accumulators Hydro | 114E075 |
| SI-05-H2 | 2 | SI | N2 Line to Accumulator Hydro | 114E075 |
| SI-05-H3 | 2 | NN | PWR Operated Relief Vlv Bkup N2 | D-302-717 |
| SI-05-H4 | 2 | NN | Nitrogen Supply to SI Accumulator Hydro | 114E075 |
| SI-11-H1 | 1 | SI | Contmt Pressure Instrumentation | D-302-241 |
| SI-11-H2 | 1 | SI | Contmt Pressure Instrumentation | D-302-242 |
| SI-11-H3 | 1 | SI | Contmt Pressure Instrumentation | D-302-241 |
| SI-11-H4 | 1 | SI | Contmt Pressure Instrumentation | D-302-241 |
| SP-01-H1 | 2 | SP | RB Spray Pump Suction Hydro | D-302-661 |
| SP-02-H1 | 2 | SP | RB Spray Rings Hydro | D-302-661 |
| SP-03-H1 | 2 | SP | RB Spray Discharge Hydro | D-302-661 |
| SP-04-H1 | 2 | SP | Penetration #327 Guard Pipe Hydro | D-302-661 |
| SP-04-H2 | 2 | SP | Penetration #328 Guard Pipe Hydro | D-302-661 |
| SP-05-H1 | 3 | SP | Caustic Addition Tank Hydro | D-302-661 |

PSI HYDRO REFERENCE INDEX

| <u>PSI FILE #</u> | <u>CODE CLASS</u> | <u>SYSTEM</u> | <u>DESCRIPTION</u> | <u>FLOW DWG.</u> |
|-------------------|-----------------------|---------------|--|------------------|
| SS-01-H1 | 3 | SS | Primary Station Sample Hydro | D-302-771 |
| SS-01-H2 | 3 | SS | Primary Sampling F/RCDT Hydro | D-302-771 |
| SS-02-H1 | 2 | SS | Primary Sampling F/RHR Hydro | D-302-771 |
| SS-04-H1 | 2 | SS | Primary Sampling F/Reactor Cool | D-302-771 |
| SS-05-H1 | 2 | SS | Primary Sampling F/Accumulators | D-302-771 |
| SS-06-H1 | 2 | SS | Primary Sampling F/Vol Cont Tank | D-302-771 |
| SS-07-H1 | 2 | SS | Primary Sampling F/Stm Con Blowdown | D-302-771 |
| SW-01-H1 | 3 | SS | WSW A Train Discharge | D-302-222 |
| SW-01-H2 | 3 | SS | WSW B Train Discharge | D-302-222 |
| SW-01-H3 | 3 | SW | SW Pump A Discharge Hydro Test | D-302-221 |
| SW-01-H4 | 3 | SW | SW Pump B Discharge Hydro Test | D-302-221 |
| SW-01-H5 | 3 | SW | SW Pump C Discharge Hydro Test | D-302-221 |
| SW-01-H6 | 3 | SW | "A" Train FS Supply Hdro | D-302-221 |
| SW-01-H7 | 3 | SW | "B" Train FS Supply Hdro | D-302-221 |
| SW-01-H8 | 3 | SW | FW 47 & 48 & Valve 3148-SW Hydro | D-302-222 |
| SW-04-H1 | 2 | SW | SW A Train Hydro Test | D-302-222 |
| SW-04-H2 | 2 | SW | SW B Train Hydro Test | D-302-222 |
| VU-05-H1 | 3 | VU | Hydrotest Chilled Water Loop B | D-302-841 |
| VU-06-H1 | 3 | VU | Hydrotest Chilled Water Loop A | D-302-841 |
| WD-01-H1 | 3 | WD | Spent Resin Store Tank Supply | 114E077 |
| WD-02-H1 | 2 | WD | RC Drain Tank N2 Supply Hydro | 114E072 |
| WD-04-H1 | 2/3 | WD | RC Drain Tank Pump Piping Hydro | 114E077 |

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| <u>PSI FILE #</u> | <u>CODE CLASS</u> | <u>SYSTEM</u> | <u>DESCRIPTION</u> | <u>FLOW DWG.</u> |
|-------------------|-----------------------|---------------|-------------------------------------|------------------|
| WD-06-H1 | 3 | WD | Waste Holdup Tank Hydro | 114E077... |
| WD-06-H2 | 3 | WD | Evaporate Feed Pump Piping | 114E077 |
| WD-10-H1 | 3 | WD | Waste Evap Hydro | 114E077 |
| WD-12-H1 | 3 | WD | Spent Resin Storage Trans Piping | 114E077 |
| WD-13-H1 | 3 | WD | Spent Resin Storage Tank & Pump | 114E077 |

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

PSI/ISI RESULTS DATA

ROUTING SHEET

DATE ISSUED FOR REVIEW 2-2-81 DUE DATE 2-16-81

ORIGINATOR J. TURKETT RETURN TO J. TURKETT

DESCRIPTION: (PROCEDURE NUMBER, TITLE, REVISION, REVISION DATE, ISSUED DATE)

DG-10-H1, CRANKCASE VACUUM LEAK TEST, REV 0, 9-12-79
11-24-80

REVIEWED

| CATEGORY | INIT/DATE | |
|------------------------------|-------------------------|---------------------------------|
| MAINTENANCE SUPERVISOR | <u>SR</u> | <u>2-2-81</u> |
| SCE&G INSPECTION COORDINATOR | <u>ADT</u> <u>BW</u> | <u>2-2-81</u> <u>2/10/81</u> |
| SCE&G TECHNICAL SUPPORT | <u>JLJ</u> | <u>2/3/81</u> |
| PLANT MANAGER | <u>RLB</u> | <u>2/4/81</u> |
| ANI | <u>LBC</u> | <u>2-5-81</u> |

PLEASE REVIEW THE ATTACHED HYDROSTATIC TEST RESULTS.

IF YOU CONCUR WITH THE RESULTS, PLEASE SIGN THE ATTACHED SIGNATURE SHEET AND INITIAL AND DATE THE ROUTING SHEET ABOVE.

VIRGIL C. SUMMER NUCLEAR STATION
PRESERVICE INSPECTION PROGRAM
HYDROSTATIC TEST

SYSTEM/SUBSYSTEM

DIESEL GENERATOR / DG-10

DATE:

1-30-81

In accordance with subsection IWA-5210(b), of ASME Section XI, 1974 Edition, SCE&G Company Nuclear Operations has witnessed/ reviewed the tests performed by DG-10-141
(Procedure No.)

and accepts the results as fulfilling Hydrostatic Test Requirements for the above mentioned system/subsystem.

APPROVAL/ACCEPTANCE:

P. Hunt
SCE&G INSPECTION COORDINATOR

2/2/81
DATE

J. C. Z. [unclear]
SCE&G TECH SUPPORT GROUP

2/3/81
DATE

APPROVED:

W. B. [unclear]
MANAGER, V. C. SUMMER

2/11/81
DATE

ACCEPTED:

L. B. [unclear]
AUTHORIZED NUCLEAR INSPECTOR

2-5-81
DATE