79-14 PHASE II
DEVIATION EVALUATION FORM
WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0
Page 1 of 3

Package No.: 1T03-47W427-200 Inspection Drawing:(1) See Package No.

(2) Deviation No.	(3) Phase I Discrepancy No.	(4) Acceptance Criteria	(5) Phase II Discrepancy No.	(6) Comments
1T03-47W427-200 - 1H	N/A	47A050-1M R/5 Note 6	N/A	
- 2H	N/A	N3C-912 Sect. 4.1.1	N/A	
- 3H	N/A	47A050-1B R/6 Note 2	N/A	
- 4H	N/A	N3C-912 Sect. 5.2	N/A	
- 5H	N/A	47A050-1C Note 7	N/A	
- 6H	N/A	G-32 Sect. 4.6.1	N/A	

NOTES:

(1) This is an analysis isometric drawing number.

(2) All deviations are to be listed consecutively.

(3) If this deviation was previously assigned a Phase I discrepancy number, identify the number and do not address columns (4) and (5).

(4) If this deviation is acceptable per existing acceptance criteria, identify the acceptance criteria and page number and do not address column (5).

(5) If this deviation was not assigned a Phase I discrepancy number or is not acceptable per existing acceptance crieria, then this deviation must be assigned a Phase II discrepancy number per EN DES-SEP 82-25, Attachment 4, page 4.

(6) Any related comments of interest should be recorded.

Prepared by Robert C. McKay / Danny Langley — CONST/EN DES — August 29, 1983 — Date

Reviewed by G. D. Waldrop — EN DES — August 29, 1983 — Date

79-14 PHASE II
DEVIATION EVALUATION FORM
WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0
Page 2 of 3

Package No.: 1T03-47W427-200 Inspection Drawing: (1) See Package No.

(2) Deviation No.	(3) Phase I Discrepancy No.	(4) Acceptance Criteria	(5) Phase II Discrepancy No.	(6) Comments
1T03-47W427-2[illegible] - 7H	N/A	47A050-1B R/6 Note 2	N/A	
- 8H	N/A	47A050-1M R/5 Note 16 & G-43 Sect. 2.8.1.3	N/A	
- 9H	N/A	47A050-1M R/5 Note 16	N/A	
-10H	N/A	47AJ50-1C R/6 Note 7	N/A	
[illegible]1H	N/A	N3C-912 Sect. 5.1	N/A	
2H	N/A	47A050-1C R/6 Note 7	N/A	
-13H	N/A	47A05C-1M R/5 Note 16	N/A	
-14H	N/A	47A050-1C R/6 Note 7	N/A	
-15H	N/A	47A050-1M R/5 Note 16	N/A	
-16H	N/A	G-43 Sect. 2.9.3.b & G-43 Sect. 2.8.1.1	N/A	
-17H	Per TVA reinspection and Teledyne reinspection, no deviation exists.			
-18H	N/A	N3C-912 Sect. 5.1	N/A	
-19H	N/A	47A050-1C R/6 Note 7	N/A	
-20H	N/A	47A050-1T R/1 Note 3	N/A	
-21H	N/A	G-43 Sect. 2.8.1.1	N/A	
-22H	N/A	G-43 Sect. 2.8.1.3	N/A	
-23H	N/A	G-43 Sect. 2.8.1.3	N/A	

Prepared by Robert C. McKay / [signature] CONST/EN DES August 29, 1983 Date

Reviewed by J. D. Wallace EN DES August 29, 1983 Date

Note: See first deviation evaluation form for notes.

EN DES-SEP 82-25

79-14 PHASE II
DEVIATION EVALUATION FORM
WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0
Page 3 of 3

Package No.: 1T03-47W427-200 Inspection Drawing: (1) See Package No.

(2) Deviation No.	(3) Phase I Discrepancy No.	(4) Acceptance Criteria	(5) Phase II Discrepancy No.	(6) Comments
1T03-47W427-200 -24H	N/A	G-43 Sect. 2.8.1.2	N/A	
-25H	1R03-47W427-200/04H	N/A	N/A	
-26H	N/A	G-43 Sect. 2.8.1.1	N/A	

Prepared by Robert C. McKay CONST/EN DES August 29, 1983 Date

Reviewed by J. D. Wallace EN DES August 29, 1983 Date

Note: See first deviation evaluation form for notes.

033131.25

EN DES-SEP 82-25

79-14 PHASE II
DISCREPANCY EVALUATION FORM
WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0
Page 1 of 1

Discrepancy No.: 1T03-47W427-200/01P

Support No.: N/A

Description of Discrepancy: Deviation No: 9P The installed pipe length of 7' -9" exceeds the analyzed dimension of 7' - 5". (Reinspection of this line determined dimension to be 7' - 7½"). Reference MEDS memo WBN 83-1025-003.

Significant: No Nonsignificant: Yes

Definite potential for loss of pressure boundary: No

Basis for judgment: The stresses are low in the region and this nonsignificant change in the pipe segment length will have an insignificant affect on the analysis.

Resolution: The as-constructed pipe configuration is acceptable. Isometric drawing No. 47W427-200 will be revised to resolve this discrepancy.

Preparer	11/3/83 Date	Checker	11.3.83 Date
		Supervisor	11-3-83 Date
Concurrer	11-4-83 Date	Reviewer	11-4-83 Date
		Supervisor	11/4/83 Date

033131.25

TVA INFORMAL REPORT TO PIERCE 9-16-83

WBN NRC-OIE BULLETIN 79-14 INSPECTIONS

As a result of the NRC-OIE Bulletin 79-14, TVA develcped the 79-14 phase I and phase II programs. The phase I program was a detailed inspection performed by CONST of all category 1 safety-related piping, 2-1/2 inches in diameter and greater, and all category 1 piping, regardless of size, which was dynamically analyzed by the computer. The inspection drawings were the piping analysis isometrics, the piping mechanical drawings, the support design drawings, and the valve drawings. The phase I program did not measure pipe member lengths, support locations, or support member sizes; however, most other items were inspected as shown on the inspection drawings. The phase II program was a detailed inspection performed by Teledyne Engineering Services (TES) of nine piping analysis isometrics of different systems agreed on with NRC. The phase II program inspected those items inspected under phase I and those items not inspected under phase I (e.g., the measurements of pipe member lengths, support locations, and support member sizes). The phase II program was a sampling program to audit the quality of TVA's phase I program and TVA's QA program in order to satisfy the requirements of the NRC-OIE Bulletin 79-14.

The phase I inspections began in January 1983. By August 1983, the inspections were approximately 70-percent complete. The phase II inspections began August 22, 1983, and were completed on September 1, 1983. A NRC phase II inspection exit meeting was held on August 31 at the plant site. A preliminary assessment of the discrepancies, used at the exit meeting, is attached.

During the phase I program, all construction deviations which were outside of TVA tolerances were identified as discrepancies to be tracked, evaluated, and resolved by TVA. During the phase II program, all construction deviations which were outside of TVA tolerances were identified as discrepancies, unless already identified under phase I, to be tracked, evaluated, and resolved by TVA. All discrepancies under phase II are being classified as nonsignificant, significant, or definite potential for loss of pressure boundary. So far, all phase II discrepancies have been classified as nonsignificant. No phase II discrepancies have been identified as having significant impact on the piping analysis. The majority of the phase II discrepancies has been clearance discrepancies, due to conduit, steel, instrument lines, etc., being recently installed too close to the pipe. The phase II clearance discrepancies could result in potential damage to the insulation on the piping, so some field changes will be performed to prevent the interferences from occurring. All other phase II nonclearance discrepancies require no field changes whatsoever, as of now.

Future schedule dates related to the 79-14 inspections are as follows:

Item	Completion Date
TES report of trip	9-23-83
Phase II discrepancy evaluation	10-15-83
Final report to close 79-14 NCR	12-1-83

033258.03

79-14 PHASE II STATUS

I. Phase II Contractor: Teledyne Engineering Services

II. Phase II Start Date: August 22, 1983

III. Total Phase II Packages: 9 Packages (listed below)

IV. Teledyne Inspection Completed: 9 Packages

V. TVA Review Complete: 9 Packages (status shown below)

System	Phase II Package No.	Deviations		Discrepancies		Non-Significant		Significant		DPLPB*	
		Pipe	Hangers	Pipe	Hangers	Pipe	Hangers	Pipe	Hangers	Pipe	Hangers
MS	1T01-600200-06-04	49	53	7	14	7	14	0	0	0	0
FW	1T03-47W401-208	20	15	0	0	0	0	0	0	0	0
AFW	1T03-47W427-200	10	26	1	0	1	0	0	0	0	0
CVCS	1T62-47W406-203	18	22	4	7	4	7	0	0	0	0
SI	1T63-47W435-217	17	21	0	0	0	0	0	0	0	0
ERCW	1T67-47W450-217	8	52	1	4	1	4	0	0	0	0
RC	1T68-47W465-206	54	44	12	5	12	5	0	0	0	0
CC	1T70-47W464-242	3	55	1	2	1	2	0	0	0	0
CS	1T72-47W437-201	42	58	0	3	0	0	0	0	0	0

*Definite Potential For Loss of Pressure Boundary

TVA 64 (08-9-65)

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

CEB '83 0512 008

TO : G. Wadewitz, Project Manager, Watts Bar Nuclear Plant, CONST (3)

FROM : J. C. Standifer, Project Manager, Watts Bar Design Project, 204 GB-K

DATE : MAY 12 1983

SUBJECT: WATTS BAR NUCLEAR PLANT UNIT 1 - PROGRAM FOR NRC-OIE BULLETIN 79-14 PHASE 2 INSPECTIONS

CEB has overall responsibility to implement the subject inspections at WBN. EN DES-SEP 82-25 is being written to control this activity, and onsite inspections will occur between July 5 and 16, 1983.

CEB will provide an independent inspection team of 4 to 6 persons not involved in the NRC-OIE Bulletin 79-14 phase 1 inspections currently in progress. In addition, a small onsite CEB and WBP engineer team will be provided. WBN CONST is requested by CEB to support this effort by providing the following services, facilities, and equipment during the above time period:

1. Field engineers to guide the team in locating the piping in the plant.
2. Measuring devices, flashlights, ladders, lighting, scaffolding, etc., as required to perform the inspections.
3. Onsite office space for approximately 12 people.
4. Onsite space for training (approximately 200 feet square).
5. Inspection package for each of the randomly selected problems.

All inspection packages must contain the following documents:

1. Prints (2) of the math model isometric drawing for rigorously analyzed piping.
2. Prints (2) of the applicable mechanical drawing for alternately supported piping.
3. Prints of the mechanical (physical) drawings which show the actual routing of the piping in the building.
4. Prints of the manufacturers' drawings of all valves inspected and/or special components within the piping system.

DEOI

8302033129.10

G. Wadewitz

WATTS BAR NUCLEAR PLANT UNIT 1 - PROGRAM FOR NRC-OIE BULLETIN 79-14 PHASE 2 INSPECTIONS

5. Copies of the inspection/recording forms.

6. Prints of pipe support design drawings as required to perform inspections.

Original Signed By
J.C. Standifer

J. C. Standifer

EQBm
WJK
4-9-79

ROB:JDH:DCG
cc: R. O. Barnett, W9D224 C-K (2)
C. Bonine, E7B24 C-K
MEDS, W5B63 C-K
R. M. Pierce, 104 ESTA-K
M. N. Sprouse, W11A9 C-K

NOT SWP-GB K PLEASE FORWARD

Principally Prepared By: J. D. Hansen, Extension 3702

DE02;033129.10

TVA 84 (08-3-83)

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO : G. Wadewitz, Project Manager, Watts Bar Nuclear Plant, CONST (3)

FROM : J. C. Standifer, Project Manager, Watts Bar Design Project, 704 GB-K

DATE :

SUBJECT: WATTS BAR NUCLEAR PLANT UNIT 1 - PROGRAM FOR NCR-OIE BULLETIN 79-14 PHASE 2 INSPECTIONS

Reference: Your memorandum from J. C. Standifer dated May 12, 1983 (CEB 830512 008)

The 79-14 phase 2 inspections will occur between August 1 and 13, 1983 instead of between July 5 and 13, 1983 as specified in the referenced memorandum.

CEB has overall responsibility to implement the subject inspections at WBN. EN DES-SEP 82-25 is being written to control this activity, and onsite inspections will occur between July 5 and 16, 1983.

CEB will provide an independent inspection team of 4 to 6 persons not involved in the NCR-OIE Bulletin 79-14 phase 1 inspections currently in progress. In addition, a small onsite CEB and WBP engineer team will be provided. WBN CONST is requested by CEB to support this effort by providing the following services, facilities, and equipment during the above time period:

1. Field engineers to guide the team in locating the piping in the plant.
2. Measuring devices, flashlights, ladders, lighting, scaffolding, etc., as required to perform the inspections.
3. Onsite office space for approximately 12 people.
4. Onsite space for training (approximately 200 feet square).
5. Inspection package for each of the randomly selected problems.

All inspection packages must contain the following documents:

1. Prints (2) of the math model isometric drawing for rigorously analyzed piping.
2. Prints (2) of the applicable mechanical drawing for alternately supported piping.
3. Prints of the mechanical (physical) drawings which show the actual routing of the piping in the building.
4. Prints of the manufacturers' drawings of all valves inspected and/or special components within the piping system.

5. Copies of the inspection/recording forms.

6. Prints of pipe support design drawings as required to perform inspections.

J. C. Standiter

ROB:JDH:DCG
cc: R. O. Barnett, W9D224 C-K (2)
C. Bonine, E7B24 C-K
MEDS, W5B63 C-K
R. M. Pierce, 104 ESTA-K
M. N. Sprouse, w11A9 C-K

Principally Prepared By: J. D. Hansen, Extension 3702

TVA 84 (08-9-83)

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

CEB 830802 002

TO : G. Wadewitz, Project Manager, Watts Bar Nuclear Plant, CONST (3)

FROM : J. C. Standifer, Project Manager, Watts Bar Design Project, 204 GB-K

DATE : AUG 2 1983

SUBJECT: WATTS BAR NUCLEAR PLANT UNIT 1 - PROGRAM FOR NCR-OIE BULLETIN 79-14 PHASE II INSPECTIONS

Reference: My memorandum to you dated May 12, 1983 (CEB 830512 008)

The 79-14 Phase II inspections will occur between August 18 and 31, 1983. CONST is responsible for preparing the inspection packages. A package must be prepared for each of the following analysis isometrics: 47W400-216, 47W401-208, 47W406-203, 47W427-200, 47W435-217, 47W437-201, 47W450-217, 47W454-242, and 47W465-206.

Original Signed By
J C. Standifer
J. C. Standifer

cc JDW WGK SKS

ROB:SKS:DCG

ROB

cc: R. O. Barnett, W9D224 C-K (2)
C. Bonine, E7B24 C-K
MEDS, W5B63 C-K
R. M. Pierce, 104 ESTA-K
M. N. Sprouse, W11A9 C-K

Principally Prepared By: S. K. Sherfey, Extension 4318

083180.04

TVA 64 (08-2-83)

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

CEB 830902 004

TO : Those listed

FROM : M. N. Sprouse, Manager of Engineering Design, W11A9 C-K

DATE : SEP 2 1983

SUBJECT: EN DES SPECIAL ENGINEERING PROCEDURE (SEP) DISTRIBUTION - DIVISION LEVEL - TRANSMITTAL MEMO NO. EN DES-SEP 82-25 R0

The following new EN DES-SEP is attached for your information and filing:

Item	Title	Affects
EN DES-SEP 82-25 R0	Program for NRC-OIE Bulletin 79-14 Phase II Inspections at Watts Bar Nuclear Plant Unit 1	CEB WBP

Also attached is a revised page of the EN DES-SEP Index.

Original Signed By
E. R. ARMSTRONG

M. N. Sprouse

R. O. Barnett, W9D224 C-K (2) _____
E. G. Beasley, W12B21 C-K (1) _____
ESB Procedures Control Section, 870 C-K (1) _____
R. M. Pierce, 104 ESTA-K (1) _____
J. C. Standifer, 204 GB-K (7) _____

ROB:SKS:BSH
Attachments
cc: MEDS, W5B63 C-K

--- ----- ----- ----- — FOLD HERE TO RETURN --- ----- ----- ----- ---

NOTE TO THE ABOVE LISTED:

1. For address changes to the above distribution please notify S. K. Sherfey at 4318.

2. To provide evidence of receipt of this transmittal, please initial and date the duplicate copy of this page in the space provided after your name and return the copy as follows:

RETURN TO:

R. R. DeVault, W9A2 C-K

TVA 64 (08-9-83)

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

CEB 830921 019

TO : Those listed

FROM : M. N. Sprouse, Manager of Engineering Design, W11A9 C-K

DATE : SEP 21 1983

SUBJECT: EN DES SPECIAL ENGINEERING PROCEDURE (SEP) DISTRIBUTION - DIVISION LEVEL - TRANSMITTAL MEMO NO. EN DES-SEP 82-25 R1

The following revised EN DES-SEP is attached for your information and filing:

Item	Title	Affects
EN DES-SEP 82-25	Program for NRC-OIE Bulletin 79-14 Phase II Inspections at Watts Bar Nuclear Plant Unit 1	CEB WBP

For a description of the changes to the revised SEP please refer to the revision log. Section supervision should review and discuss applicable changes with their employees.

Also attached is a revised page of the EN DES-SEP Index.

M. N. Sprouse

R. O. Barnett, W9D224 C-K (2) _____
E. C. Beasley, W12A21 C-K (1) _____
ESB Procedures Control Section, S70 C-K (1) _____
R. H. Pierce, 104 ETA-K (1) _____
J. C. Standifer, 204 GB-K (7) _____

CIVIL ENGINEERING BRANCH
OCT 4 1983

IN N	Date	Time		OUT Date	Time
			ROB		
			[illegible]		
			JWG		
			TCC		
			WAE		
			EVM		
			[illegible]		
			[illegible]		
			ROH		
			ROH		
			TWR		

ROB:SSC:CWM
Attachments

MEDS, W5B63 C-K

----- ----- --- FOLD HERE TO RETURN --- ----- ----- ----- ---

NOTE TO THE ABOVE LISTED:

1. For address changes to the above distribution please notify S. K. Sherfey at 4318.

2. To provide evidence of receipt of this transmittal, please initial and date the duplicate copy of this page in the space provided after your name and return the copy as follows:

RETURN TO:
R. K. Devault, W9A2 C-K

TVA 84 (08-9-83)

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

CEB '831101 900

DRAFT

TO : R. O. Barnett, Chief, Civil Engineering Support Branch, W9D224 C-K

FROM : J. C. Standifer, Project Manager, Watts Bar Design Project, 204 GB-K

DATE : 10/25/83

SUBJECT: TRANSMITTAL OF PIPING ANALYSIS ~~OR PIPE RUPTURE~~ INFORMATION FOR PROB No: VARIOUS FILE (WBN 66D) - [ ] QUALITY INFORMATION, [ ] STANDALONE QUALITY INFORMATION, [X] NOT QUALITY RELATED, ECN 5100 OR DCR _____.

Attached is the [X] piping analysis/ [ ] pipe rupture information for the VARIOUS system [X] as requested by your SEP 82 ~~15~~ 25 or [ ] provided without request.

This information is: (check one)
- [ ] A copy of controlled information.
- [ ] Advanced information that will be added to controlled documents.
- [X] Other 79-14 PKG ~~NO~~. FOR PHASE II.

The information transmitted herein will be incorporated into: (check one)
[X] Piping Analysis [X] Piping Isometric [ ] Pipe Rupture Report
[ ] Calculations

R. G. Pratt
for J. C. Standifer

Attachments: (check one)
- [ ] TVA Drawing No.
- [ ] Vendor Drawing No.
- [ ] Sketch
- * PIPING DISCO. VALVE N
- [ ] Analysis Information Form
- [ ] Pipe Rupture Information
- [X] Other 79-14 PKG. PHASE II SGG ATTACHED

T. V. Bloom
Preparer

N/A
Independent Reviewer

To: J. C. Standifer, Project Manager, Watts Bar Design Projects, 204 GB-K
From: R. O. Barnett, Chief, Civil Engineering Support Branch, W9D224 C-K
Date: NOV 01 1983
Subject: TRANSMITTAL OF PIPING ANALYSIS/PIPE RUPTURE INFORMATION FOR _____

We acknowledge receipt of the above information. This information is: (check one)
- [X] Satisfactory as received
- [ ] Insufficient
- [ ] Other _____

WE ARE SET TO RETURN TO YOU BY NOV 1.

R. O. Barnett
for R. O. Barnett

to OPN & C. KESSNER

cc: MEDS, W5B63 C-K

To: J. Hanson / D. Wilson
FM: RG Pratt

Subject: Phase II 79-14 Inspection Packages.

WBP has review the 79-14 Phase II packages as stated per SEP 82-25 R1.

Packages Reviewed are listed below:

1T01-0600200-06-04
1T03-47W401-208
1T03-47W427-200 *
1T62-47W406-203
1T63-47W435-217
1T67-47W450-217 *
1T68-47W465-206
1T70-47W464-242
1T72-47W437-201

We are returning said packages for CEB's finial review as per SEP 82-25 R1.

WBP Request that CEB makes copies of the finial resolutions of the discrepancies and forward them to R.G. Pratt, for distribution within WBP. A copy of the finiac discrepancy is req'd for Dwg. Rev'.

* There are two discrepancies that req'd reinspection, 1T67-47W450-217/04H & 1T03-47W427-200/01P, A Memo is forth comming from Bob McKay.

TVA 84 (08-9-83)

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO : J. C. Standifer, Project Manager, Watts Bar Design Project , 204 GB-K

FROM : R. O. Barnett, Chief, Civil Engineering Support Branch, W9D224 C-K

DATE : NOV 1 4 1983

SUBJECT: WATTS BAR NUCLEAR PLANT UNIT(S) 1 - TRANSMITTAL OF PIPING ANALYSIS/~~PIPE RUPTURE~~ INFORMATION ASSOCIATED WITH SEP 82-25 - ☐ QUALITY INFORMATION, ☐ STANDALONE QUALITY INFORMATION, ☒ NOT QUALITY RELATED, SYSTEM VARIOUS, ECN/~~DCR~~ 4376

Attached are ☐ preliminary piping analysis results, ☐ final piping analysis results, ☐ pipe rupture information, ☐ request for information, ☒ other 7914 PHASE II INSPECTION & EVALUATION RESULTS, for CEB analysis No. _____, isometric No. _____. This work was associated with ECN 4376, other SEP 82-25. The attached information is to be used for ☒ support design, ☐ protective device design, ☐ information only, ☒ documentation change (your design is not affected). Any questions concerning this information should be addressed to S.K. SHERFEY W9C173 C-K at extension 4318. Additional comments _____

Prepared by S.K. Sherfey JDH

Independent Review Alan D. Edwards

for R. O. Barnett

ROB:

Attachment(s): 9 INSPECTION PACKAGES

TO : R. O. Barnett, Chief, Civil Engineering Support Branch, W9D224 C-K

FROM : J. C. Standifer, Project Manager, Watts Bar Design Project , 204 GB-K

DATE :

SUBJECT: WATTS BAR NUCLEAR PLANT UNIT(S) _____ TRANSMITTAL OF PIPING ANALYSIS/PIPE RUPTURE INFORMATION ASSOCIATED WITH _____

We acknowledge receipt of the above information. This information is: (check one)

☐ Satisfactory as received
☐ Insufficient
☐ Other _____

Prepared by _____

J. C. Standifer

JCS:
Attachment(s)
cc: MEDS, W5B63 C-K w/Attachment(s): _____

GH2.R2

79-14 PHASE II INSPECTION FORMS

DATA PACKAGE COVER SHEET Revision _____

WATTS BAR NUCLEAR PLANT UNIT 1

Package No.: _____

1. The attached package contains _____ data sheet(s) 1
   _____ data sheet(s) 2
   _____ data sheet(s) 3
   _____ data sheet(s) 4
   _____ data sheet(s) 5
   _____ data sheet(s) 6

2. No additional supports exist on piping other than those specified by the analysis isometric.

   Remarks:

_____ _____
Inspector No. 1 Date

_____ _____
Inspector No. 2 Date

3. Reviewed by: _____ _____
   EN DES Site Representative Date

79-14 PHASE II DATA SHEET 1 Revision _____

PIPE SUPPORT* CHECKLIST Page ___ of ___

WATTS BAR NUCLEAR PLANT UNIT 1

Package No.: _____

1. Pipe Support Drawing No. _____

2. Is support installed per support drawing(s)? (Yes or No) _____

   If no, indicate deviations on the support drawing and list them below.

   NOTE: See Attachment 2, section 2.0, for items to be checked and instructions.

3. Is there load carrying attachment(s) welded to pipe? (Yes or No) _____

   If yes, does the weld(s) conform to support drawing(s)? (Yes or No) ____

_____ _____

Inspector No. 1 Date

_____ _____

Inspector No. 2 Date

_____

EN DES Site Representative Comments:

_____ _____

EN DES Site Representative Date

*For springs use Data Sheet 5.

79-14 PHASE II DATA SHEET 2 Revision _____

VALVE CHECKLIST Page ___ of ___

WATTS BAR NUCLEAR PLANT UNIT 1

Package No.: _____

1. Valve Tag No. _____
   TVA Valve Mark No. _____
   Valve Size and Type (e.g., 4" BW Globe) _____
   Valve Drawing No. _____
   Valve Manufacturer and Model No. _____

   Note: See Attachment 2, section 3.0, for instructions.

2. Is valve location correct? (Yes or No) _____
   (If no, show location on drawing)

3. If the valve has an extended operator, is the orientation of the operator correct? (Yes or No) _____
   (If no, indicate orientation on drawing.)

4. Operator Manufacturer and Model No. _____

_____ _____
Inspector No. 1 Date

_____ _____
Inspector No. 2 Date

_____
EN DES Site Representative Comments:

_____ _____
EN DES Site Representative Date

79-14 PHASE II DATA SHEET 3 Revision ____

ISOMETRIC CHECKLIST Page ___ of ___

WATTS BAR NUCLEAR PLANT UNIT 1

Package No.: _____

1. Does the general configuration of the piping system, including support location, match the isometric? (Yes or No) _____

2. List deviations below and submit marked drawings. See Attachment 2, section 4.0, for instructions.

_____ _____
Inspector No. 1 Date

_____ _____
Inspector No. 2 Date

EN DES Site Representative Comments:

_____ _____
EN DES Site Representative Date

79-14 PHASE II DATA SHEET 4 Revision _____

PENETRATION CLEARANCE CHECKLIST Page ___ of ___

WATTS BAR NUCLEAR PLANT UNIT 1

Package No.: _____

1. Does the pipe have proper clearance through all penetrations (see Attachment 2, section 5.0, for instructions)? (Yes or No): _____
   If no, indicate interferences below and mark them on the isometric. Initial and date beside each penetration of the design drawing as it is checked.

_____ _____
Inspector No. 1 Date

_____ _____
Inspector No. 2 Date

_____
EN DES Site Representative Comments:

_____ _____
EN DES Site Representative Date

79-14 PHASE II DATA SHEET 5 Revision ____

SPRING HANGER CHECKLIST Page ___ of ___

WATTS BAR NUCLEAR PLANT UNIT 1

Package No.: _____

Hanger Dwg. No.: _____

Note: See Attachment 2, section 6.0, for instructions.

1. Vendor _____

2. Size and Type of Canister _____

3. Travel Limits (inches) _____

4. Load Setting and Condition (lb) _____
(i.e., hot or cold, full or empty)

5. Dynamic Travel Limit (inches) _____

_____ _____
Inspector No. 1 Date

_____ _____
Inspector No. 2 Date

EN DES Site Representative Comments:

_____ _____
EN DES Site Representative Date

79-14 PHASE II DATA SHEET 6 Revision _____

GENERAL CLEARANCE CHECKLIST Page ___ of ___

WATTS BAR NUCLEAR PLANT UNIT 1

Package No.: _____

Identify interferences below per Attachment 2, section 5.0.

INTERFERENCE IS _____ IN THE _____ DIRECTION FROM PIPE TO _____
_____ , LOCATION: _____

INTERFERENCE IS _____ IN THE _____ DIRECTION FROM PIPE TO _____
_____ , LOCATION: _____

INTERFERENCE IS _____ IN THE _____ DIRECTION FROM PIPE TO _____
_____ , LOCATION: _____

INTERFERENCE IS _____ IN THE _____ DIRECTION FROM PIPE TO _____
_____ , LOCATION: _____

INTERFERENCE IS _____ IN THE _____ DIRECTION FROM PIPE TO _____
_____ , LOCATION: _____

INTERFERENCE IS _____ IN THE _____ DIRECTION FROM PIPE TO _____
_____ , LOCATION: _____

INTERFERENCE IS _____ IN THE _____ DIRECTION FROM PIPE TO _____
_____ , LOCATION: _____

_____ _____
Inspector No. 1 Date

_____ _____
Inspector No. 2 Date

_____ _____
EN DES Site Representative Date

79-14 PHASE II
DEVIATION EVALUATION FORM
WATTS BAR NUCLEAR PLANT UNIT 1

Revision ____
Page ___ of ___

Package No.: _____ Inspection Drawing:(1) See Package No.

(2) Deviation No.	(3) Phase I Discrepancy No.	(4) Acceptance Criteria	(5) Phase II Discrepancy No.	(6) Comments

NOTES:

(1) This is an analysis isometric drawing number.

(2) All deviations are to be listed consecutively.

(3) If this deviation was previously assigned a Phase I discrepancy number, identify the number and do not address columns (4) and (5).

(4) If this deviation is acceptable per existing acceptance criteria, identify the acceptance criteria and page number and do not address column (5).

(5) If this deviation was not assigned a Phase I discrepancy number or is not acceptable per existing acceptance crieria, then this deviation must be assigned a Phase II discrepancy number per EN DES-SEP 82-25, Attachment 4, page 4.

(6) Any related comments of interest should be recorded.

Prepared by _____ _____
CONST/EN DES Date

Reviewed by _____ _____
EN DES Date

79-14 PHASE II
DEVIATION EVALUATION FORM
WATTS BAR NUCLEAR PLANT UNIT 1

Revision ____
Page ___ of ___

Package No.: _____ Inspection Drawing: (1) See Package No.

(2) Deviation No.	(3) Phase I Discrepancy No.	(4) Acceptance Criteria	(5) Phase II Discrepancy No.	(6) Comments

Prepared by _____ _____
CONST/EN DES Date

Reviewed by _____ _____
EN DES Date

Note: See first deviation evaluation form for notes. 033131.25

EN DES-SEP 82-25

79-14 PHASE II
DISCREPANCY EVALUATION FORM
WATTS BAR NUCLEAR PLANT UNIT 1

Revision _____
Page ___ of ___

Discrepancy No.: _____

Support No.: _____

Description of Discrepancy: _____

_____

_____

Significant: _____ Nonsignificant: _____

Definite potential for loss of pressure boundary: _____

Basis for judgment: _____

_____

_____

Resolution: _____

_____

_____

_____

_____	_____	_____	_____
Preparer	Date	Checker	Date
		_____	_____
		Supervisor	Date
_____	_____	_____	_____
Concurrer	Date	Reviewer	Date
		_____	_____
		Supervisor	Date

033131.25

WATTS BAR UNIT 1 1ST PHASE INSPECTION

SHT. 1 of 1

DISCREPANCY No.	DEVIATION No.	DISCREPANCY DESCRIPTION	RESOLUTION
ITO1-0600200-06-04/01C	10C	POTENTIAL INTERFERENCE BETWEEN PIPE SPRT. HARDWARE AND MISC. STL.	CEB
ITO1-0600200-06-04/02C	12C	PIPE IN CONTACT WITH PIPE SPRT. (SPR. CAN ROD).	CEB
ITO1-0600200-06-04/03C	20C	PIPE IN CONTACT WITH STRUCT. STL. MEMBER.	CEB
ITO1-0600200-06-04/01P	41P	PIPE SPRT. LOCATION - OUT OF TOLERANCE	CEB & WBP
ITO1-0600200-06-04/02P	45P	FLOW INDICATOR CONN. LOCATION DOES NOT AGREE WITH ANAL. ISOMETRIC.	CEB
ITO1-0600200-06-04/03P	46P	INSULATION THKNESS. DOES NOT INCREASE W/ PIPE SIZE INCREASE. SAME THKNESS REQ'D.	CEB & WBP
ITO1-0600200-06-04/04P	48P	PIPE SPRT LOCATION - OUT OF TOLERANCE.	CEB & WBP

WATTS BAR UNIT 1 -1ST PHASE INSPECTION

SHT. 2 of 11

DISCREPANCY No.	DEVIATION No.	DISCREPANCY DESCRIPTION	RESOLUTION
ITOI-0600200-06-04/01H	09H	SPRING CAN SETTING (COLD LOAD) INCORRECT.	WBP
ITOI-0600200-06-04/02H	10H	PIPE SPRT. ATTACHM'TS DEVIATE FROM DESIGN DWG.	WBP
ITOI-0600200-06-04/03H	12H	PIPE SPRT. ATTACHM'TS DEVIATE FROM DESIGN DWG.	WBP
ITOI 0600200-06-04/04H	15H	PIPE SPRT. ATTACHM'TS DEVIATE FROM DESIGN DWG.	WBP
ITOI-0600200-06-04/05H	19H	PIPE SPRT. ATTACHM'T DEVIATES FROM DESIGN DWG.	WBP
ITOI-0600200-06-04/06H	23H	SPRING CAN SETTING (COLD LOAD) INCORRECT.	WBP
ITOI-0600200-06-04/07H	24H	EXIST. STR. STL. MEMB. AND ELEV. REFERENCE INCORRECT ON DES'N. DWG.	WBP

WATTS BAR UNIT 1 - 9TH PHASE II INSPECTION

DISCREPANCY No.	DEVIATION No.	DISCREPANCY DESCRIPTION	RESOLUTION
1T01-0600200-06-04/08H	25H	PIPE SPRT. DWG. DEVIATES FROM AS-INSTALLED CONFIGURATION.	WBP
1T01-0600200-06-04/09H	27H	PIPE SPRT. STIFFENER POSITION DEVIATES FROM DES'N. DWG.	WBP
1T01-0600200-06-04/10H	36H	PIPE SPRT. DWG. DET. DOES NOT AGREE W/ AS-INSTALLED CONFIGURATION.	WBP
1T01-0600200-06-04/11H	38H	PIPE SPRT. SNUBBER ID TAG MISSING.	WBP
1T01-0600200-06-04/12H	40H	PIPE SPRT. ATTACHMENT DIMS. DEVIATE FROM DES'N. DWG.	WBP
1T01-0600200-06-04/13H	52H	PIPE SPRT. CLAMP GAPS DEVIATE FROM DES'N DWG.	WBP
1T01-0600200-06-04/14H	53H	PIPE SPRT. DIMS. DEVIATE FROM AS-INSTALLED CONFIGURATION.	WBP

WATTS BAR UNIT 1 PHASE II INSPECTION

DISCREPANCY No.	DEVIATION No.	DISCREPANCY DESCRIPTION	RESOLUTION
IT62-47W406-203/01P	P5	INSTALLED PIPE LENGTH DOES NOT AGREE W/ ANALYSIS ISOMETRIC.	CEB & WBP
IT62-47W406-203/02V	V7	VALVE ORIENTATION DOES NOT AGREE W/ ANALYSIS ISOMETRIC.	CEB & WBP
IT62-47W406-203/03V	V8	VALVE ORIENTATION DOES NOT AGREE W/ ANALYSIS ISOMETRIC.	CEB & WBP
IT62-47W406-203/04C	C10	POTENTIAL INTERFERENCE BETWEEN PIPE AND DUCT SUPPORT.	CEB
IT62-47W406-203/01H	01H	PIPE SPRT. INSTALLED CONFIGURATION DIMS. DO NOT AGREE W/ DESIGN DRAWINGS.	WBP
IT62-47W406-203/02H	02H	PIPE SPRT. INSTALLED CONFIGURATION DOES NOT AGREE W/ DESIGN DRAWINGS.	WBP
IT62-47W406-203/03H	09H	PIPE SPRT. LOCATION - OUT OF TOLERANCE.	CEB & WBP

WATER BAR UNIT 2 1994 PHASE II INSPECTION

SHT. 5 of 11

DISCREPANCY Nº.	DEVIATION Nº.	DISCREPANCY DESCRIPTION	RESOLUTION
IT62-47W406-203/04H	15H	PIPE SPRT. LOCATION - OUT OF TOLERANCE.	CEB & WBP
IT62-47W406-203/05H	18H	PIPE SPRT. LOCATION - OUT OF TOLERANCE.	CEB & WBP
IT62 47W406-203/06H	19H	PIPE SPRT LOCATION - OUT OF TOLERANCE	CEB & WBP
IT62 47W406-203/07H	20H	PIPE SPRT LOCATION - OUT OF TOLERANCE	CEB & WBP
IT03-47W427-200/01P	9P	PIPE LENGTH (INSTALLED) DOES NOT AGREE W/ ANALYSIS ISOMETRIC.	CEB & WBP

WATTS BAR UNIT 1 9-11 PHASE I INSPECTION

DISCREPANCY No.	DEVIATION No.	DISCREPANCY DESCRIPTION	RESOLUTION
1TT2-47W437-201/01V	1V	VALVE OPERATOR (INSTALLED) IS NOT SHOWN ON ANALYSIS ISOMETRIC.	CEB
1TT2-47W437-201/02V	2V	VALVE OPERATOR (INSTALLED) IS NOT SHOWN ON ANALYSIS ISOMETRIC.	CEB
1TT2-47W437-201/03V	3V	VALVE OPERATOR (INSTALLED) IS NOT SHOWN ON ANALYSIS ISOMETRIC.	CEB
1TT2-47W437-201/04V	4V	VALVE LOCATION NOT TIED DOWN.	CEB & WBP
1TT2-47W437-201/05V	5V	VALVE OPERATOR (INSTALLED) IS NOT SHOWN ON ANALYSIS ISOMETRIC.	CEB
1TT2-47W437-201/01H	2H	PIPE SPRT BOLT TO BOLT SPACING (INSTALLED) DOES NOT AGREE W/ DESIGN DWG.	WBP
1TT2-47W437 201/02H	11H	PIPE SPRT INSTALLED CONFIGURATION DOES NOT AGREE W/ DESIGN DWG.	WBP

WATTS BAR UNIT 1 - 1ST PHASE INSPECTION

SHT. 7 of 11

DISCREPANCY No.	DEVIATION No.	DISCREPANCY DESCRIPTION	RESOLUTION
IT72-47W437-201/03H	12H	PIPE SPRT. INSTALLED CONFIGURATION DOES NOT AGREE W/ DESIGN DWG.	WBP
IT67-47W450-217/01V	8V	VALVE OPERATOR ORIENTATION (INSTALLED) DOES NOT AGREE W/ ANALYSIS ISOMETRIC.	CEB & WBP
IT67-47W450-217/02V	9V	VALVE OPERATOR ORIENTATION (INSTALLED) DOES NOT AGREE W/ ANALYSIS ISOMETRIC.	CEB & WBP
IT67-47W450-217/01H	19H	PIPE SPRT. ATTACHMENT IS NOT IN ACCORDANCE W/ DESIGN DRAWING.	WBP
IT67-47W450-217/02H	33H	PIPE SPRT. GAPS ARE NOT IN ACCORDANCE W/ DESIGN DWG.	CEB & WBP
IT67-47W450-217/03H	37H	PIPE SPRT. GAPS ARE NOT IN ACCORDANCE W/ DESIGN DWG.	CEB & WBP

WATTS BAR UNIT 1 1944 PHASE I INSPECTION

SHT. 3 of 11

DISCREPANCY No.	DEVIATION No.	DISCREPANCY DESCRIPTION	RESOLUTION
IT67-47W450-217/04H	42H	PIPE SPRT. INSTALLED CONFIGURATION DOES NOT AGREE W/ DESIGN DRAWING.	VBP
IT70-47W464-242/01P	P1	PIPE LENGTH (INSTALLED) DOES NOT AGREE W/ ANALYSIS ISOMETRIC.	CEB & WBP
IT70-47W464-242/01H	08H	PIPE SUPPORT DESIGN DRAWING ERROR.	WBP
IT70-47W464-242/02H	49H	PIPE SPRT. (INSTALLED) DIMENSION DOES NOT AGREE W/ DESIGN DRAWING.	WBP
IT68-47W465-206/01C	1C	PIPE IN CONTACT W/ PIPE SPRT.	CEB

WATTS BAR UNIT 1 944 PHASE II INSPECTION

SHT. 9 of

DISCREPANCY No.	DEVIATION No.	DISCREPANCY DESCRIPTION	RESOLUTION
IT68-47W465-206/02C	2C	POTENTIAL INTERFERENCE W/ REACTOR COOLANT PUMP HOUSING.	CEB
IT68-47W465-206/03C	14C	POTENTIAL INTERFERENCE W/ VALVE FLEX-HOSE	CEB
IT68-47W465-206/04P	52P	INSTALLED PIPE ELEVATION DOES NOT AGREE W/ ANALYSIS ISOMETRIC.	CEB & WBP
IT68-47W465-206/05C	17C	POTENTIAL INTERFERENCE W/ PIPE.	CEB
IT68-47W465-206/06C	24C	PIPE IN CONTACT W/ CONDUIT	CEB
IT68-47W465-206/07C	26C	POTENTIAL INTERFERENCE W/ CONDUIT.	CEB
IT68-47W465-206/08C	37C	CONTACT W/ PIPE SUPPORT COMPONENT.	CEB

WATTS BAR UNIT 1 1ST PHASE INSPECTION

SHT. 109

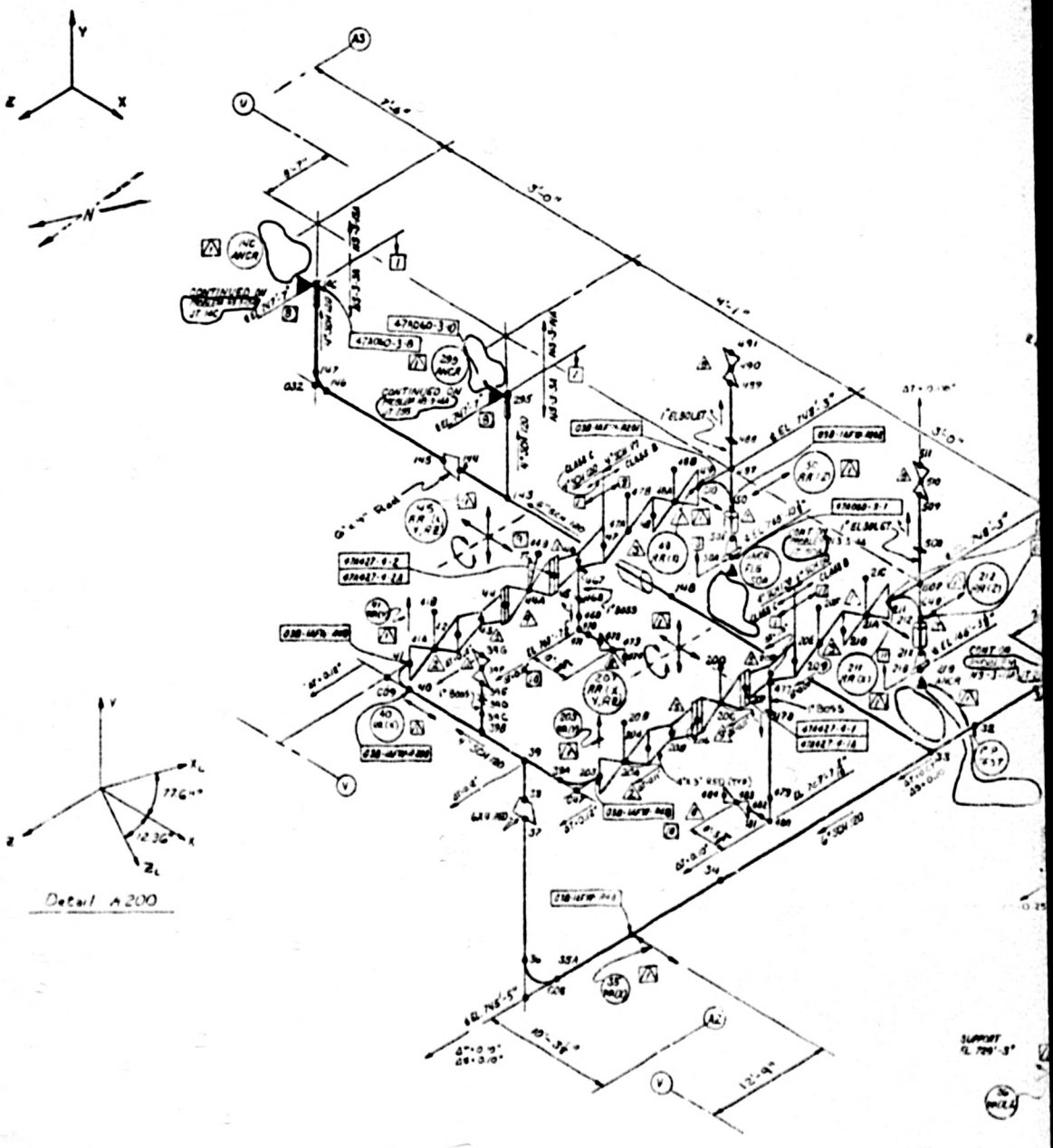
DISCREPANCY Nº.	DEVIATION Nº.	DISCREPANCY DESCRIPTION	RESOLUTION
IT68-47W465-206/09C	38C	POTENTIAL INTERFERENCE W/ CONDUIT.	CEB
IT68-47W465-206/10C	40C	POTENTIAL INTERFERENCE W/ CONCRETE WALL.	CEB
IT68-47W465-206/11C	41C	VALVE OPERATOR IS IN CONTACT W/ CONDUIT.	CEB
IT68-47W465-206/12C	42C	VALVE OPERATOR HAS A POTENTIAL INTERFERENCE W/ PIPE.	CEB
IT68-47W465-206/01H	2H	PIPE SPRT LOCATION IS NOT IN ACCORDANCE W/ AHALYSIS ISO.	CEB & WBP
IT68-47W465-206/02H	7H	INSTALLED PIPE SPRT MEMB. DOES NOT AGREE W/ DESIGN DWG.	WBP
IT68-47W465-206/03H	22H	PIPE SPRT. ATTACHM'T DIMENSIONS DO NOT AGREE W/ DESIGN DWG.	WBP

WATTS BAR UNIT 1 1ST PHASE INSPECTION

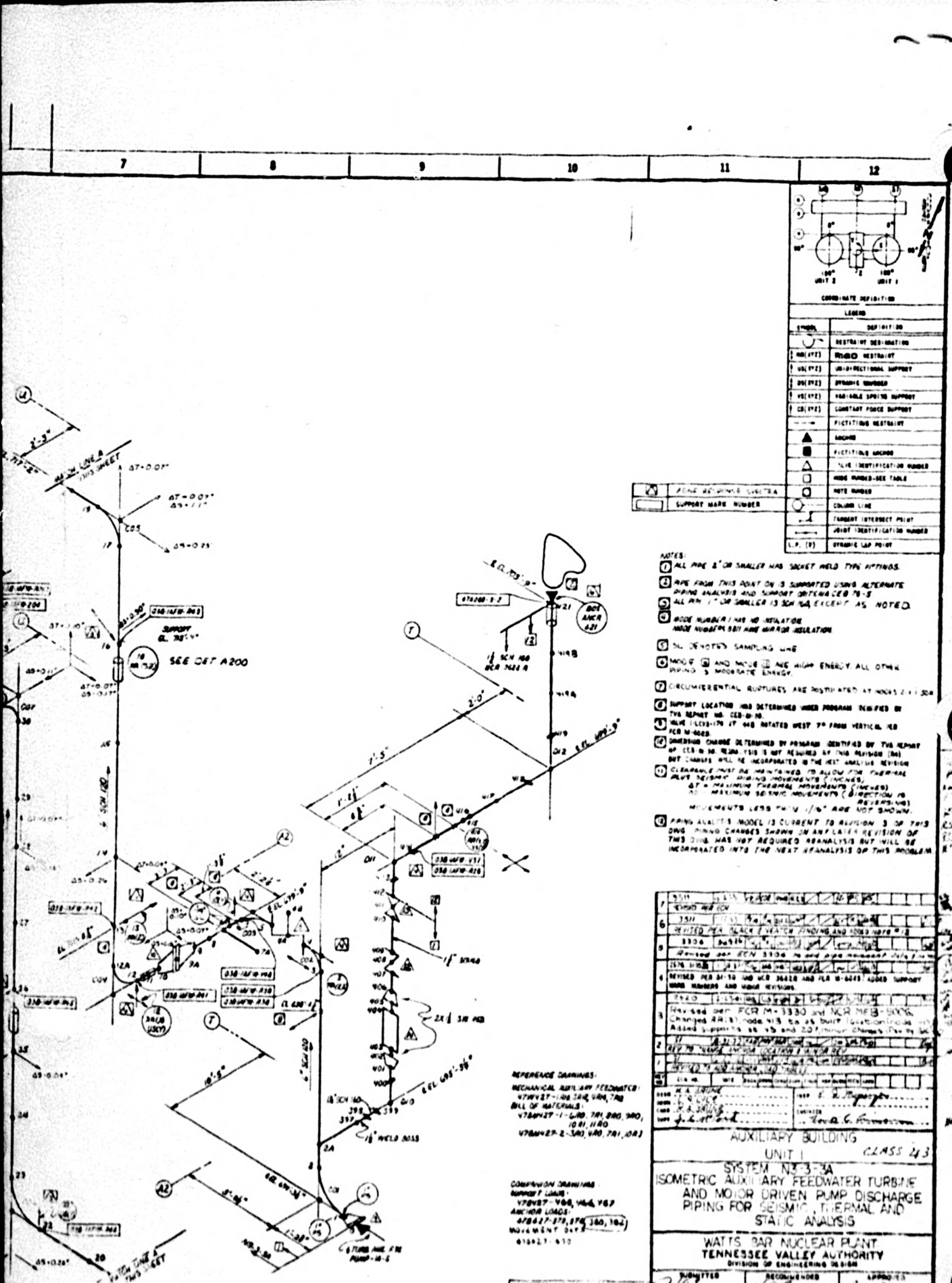
SHT. 11 of

DISCREPANCY No.	DEVIATION No.	DISCREPANCY DESCRIPTION	RESOLUTION
IT68-47W465-206/04H	40H	PIPE SPRT. CONFIGURATION (INSTALLED) DOES NOT AGREE W/ DESIGN DRAWING.	WBP
IT68-47W465-206/05H	41H	PIPE SPRT. INSTALLED LOCATION DOES NOT AGREE W/ AHALYSIS ISOMETRIC.	CEB & WBP

47W427-200



DESIGN MODES								OPERATING CONDITIONS				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

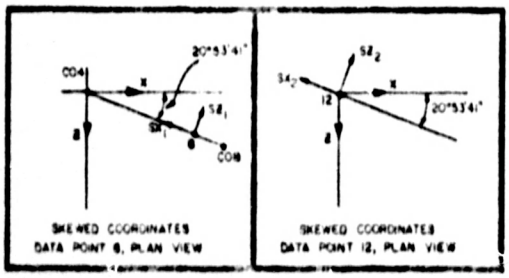


8501160408-01

19121 R9

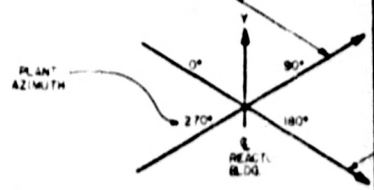
VALVE NO. (M SYS.)	TYPE (MARK NO.)	TYPE	SIZE & RATING	VALVE BODY MATL	VALVE BONNET MATL	VALVE DISC MATL	VALVE SEAT MATL	VALVE STEM MATL	VALVE TRIM TYPE	VALVE MANUFACTURER AND DRAWING NUMBER
15	47W400-13	GATE VLV	16" 1500 #	443			1400			WALWORTH A-12166 M3
16A	47W400-14	GATE VLV	16" 900 #	190		600	1662		25120	WALWORTH A-12819 M18

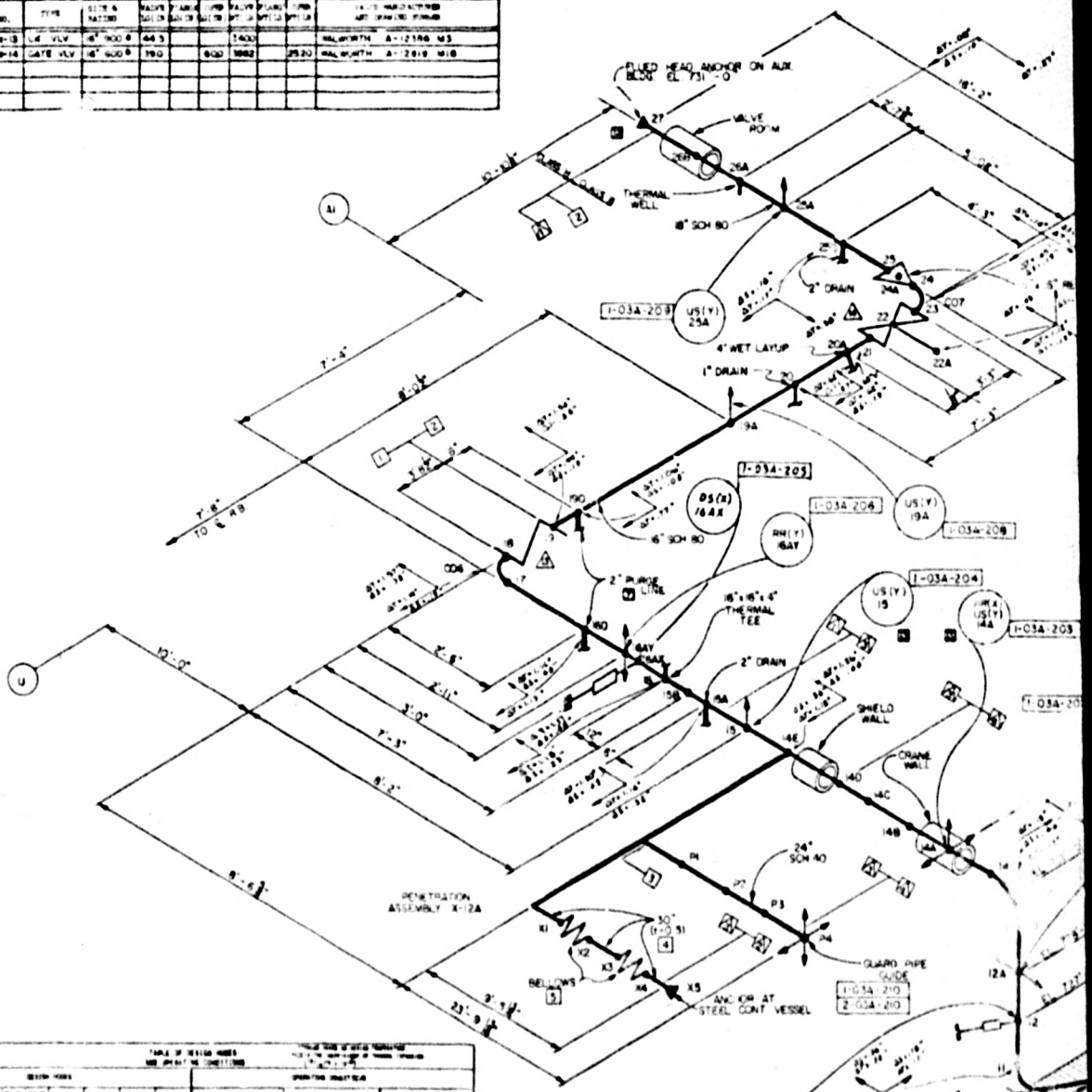
ITEM NO.	PIPE MARK NO.	DESIGN CONDITIONS PRESS. (PSIG)	DESIGN CONDITIONS TEMP. (°F)	T_n (IN.)	T_r (IN.)	T_{min} (IN.)	OPERATING CONDITIONS 1 PRESS. (PSIG)	OPERATING CONDITIONS 1 TEMP. (°F)	OPERATING CONDITIONS 1 T_s (IN.)	OPERATING CONDITIONS 1 T_r (IN.)	OPERATING CONDITIONS 1 T_{min} (IN.)	OPERATING CONDITIONS 2 PRESS. (PSIG)	OPERATING CONDITIONS 2 TEMP. (°F)	OPERATING CONDITIONS 2 T_s (IN.)	OPERATING CONDITIONS 2 T_r (IN.)	OPERATING CONDITIONS 2 T_{min} (IN.)
1	1	SA-333 GR 6	65	1400	25800	5000	5000	27.9	440	6.9	26.9	590	7.9	25.9	590	7.9	25.84
2	2	SA-333 GR 6	65	1400	25800	5000	5000	27.9	440	6.9	26.9	590	7.9	25.9	70		27.9
3	3	SA-106 GR B	350	1400	25800	5000	5000	27.9	70		27.9	70		27.9	70		27.9
4	4	SA-376 GR TP 316	750	3400	27500	27500	27.9	70		27.9	70		27.9	70		27.9
5	5	SA-240 TP304	250				28.3	70		28.3	70		28.3	70		28.3

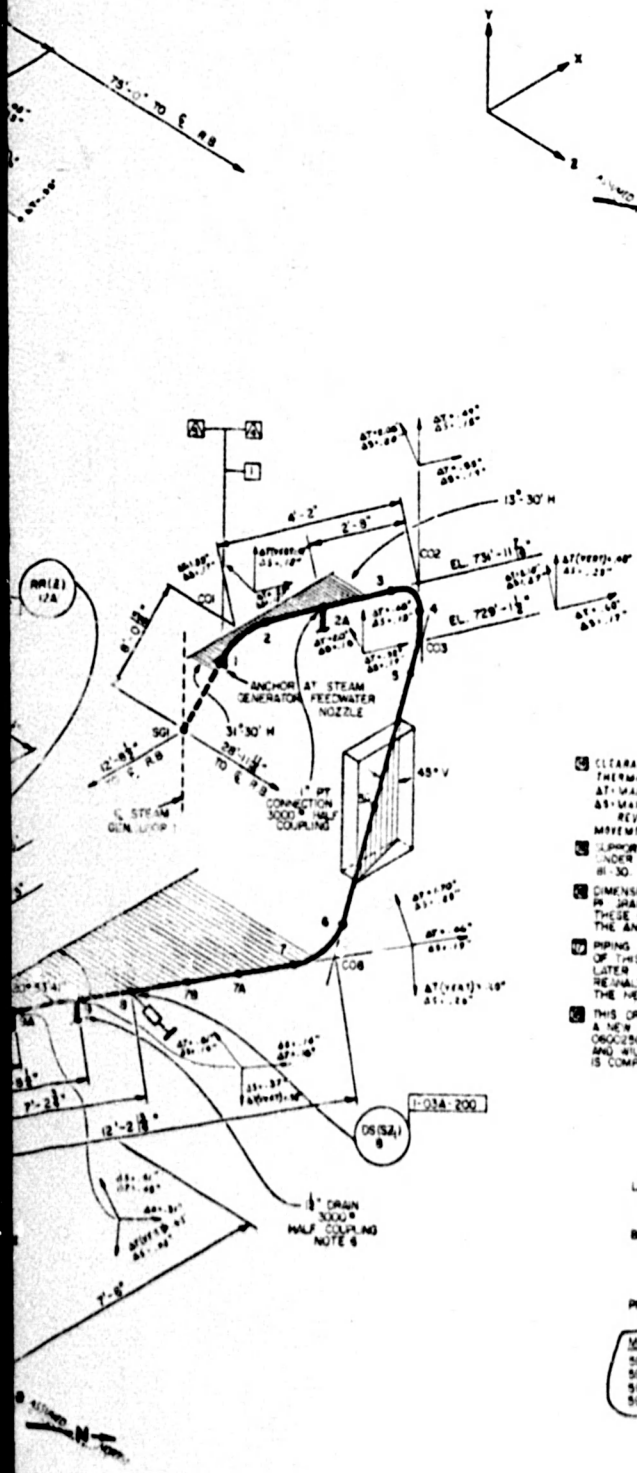


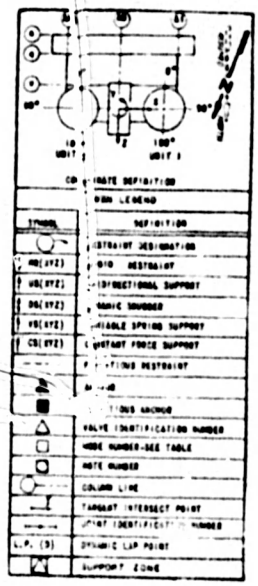
SKEWED COORDINATES DATA POINT 8, PLAN VIEW

SKEWED COORDINATES DATA POINT 12, PLAN VIEW









SUPPORT ZONE ID NUMBERS

- AUXILIARY BUILDING
- STEEL CONTAINMENT VESSEL
- SHIELD BUILDING
- INTERIOR CONCRETE STRUCTURE
- STEAM GENERATOR

NOTES:

1. UNIT 1 AS SHOWN
   ENTIRE PIPE IS HIGH ENERGY AND TVA CLASS B
   DIMENSIONS ARE FOR SUPPORT LOCATIONS ONLY
   ALL ELBOWS ARE LONG RADIUS
   ENTIRE PIPE HAS MIRROR INSULATION
   20, 21, 23, 23
   16" PIPE ... ITS 1 TO 44
   8" PIPE ... ITS 24A TO 27
   6" PIPE ... ITS 14E TO 24A
2. BRANCH LINE ANALYSIS BY ALTERNATE ANALYSIS METHOD
3. BRANCH LINE ANALYSIS CONTINUED AS EDS PROBLEM 0600200-02-09
4. SUPPORT ID NO. [ ] FOR UNIT 1 PIPING
5. THIS DRAWING SUPERCEDES EDS DRAWING 0600200-02-01 REV 1 REANALYSIS BY TVA TO INCLUDE NCR WBNCEB3014
6. FOR ANALYSIS INFORMATION SEE REPORT CEB-ME-78-5 FINAL DOCUMENTATION LOG
7. PIPE BREAK LOCATIONS ARE POSTULATED AT DATA POINTS 1, 4, 14E, & 27 IN MAIN PIPING AND AT TERMINAL ENDS OF THE FOLLOWING BRANCH PIPING 12" DRAIN LINE AT 9, 2" DRAIN LINE AT 15A & 25D, AND 2" PURGE LINE AT 16D & 19D
8. PIPING BEYOND THIS POINT IS DEADWEIGHT SUPPORTED ONLY EXISTING RIGID RESTRAINT (RR) IS ACCEPTABLE FOR THIS ANALYZED UNIDIRECTIONAL SUPPORT (US)

[4] CLEARANCE MUST BE MAINTAINED TO ALLOW FOR THERMAL PLUS SEISMIC PIPING MOVEMENTS
ΔT=MAXIMUM THERMAL MOVEMENT
ΔS=MAXIMUM SEISMIC MOVEMENT (DIRECTION IS REVERSING) LOCAL 2 VALVE SEAM MOVMNTS INCLUDED MOVEMENTS LESS THAN 1/16" ARE NOT SHOWN.

[5] SUPPORT LOCATION FOR UNIT 1 WAS DETERMINED UNDER PROGRAM IDENTIFIED BY CEB REPORT NO 81-30

[6] DIMENSION CHANGE FOR UNIT 1 DETERMINED BY PROGRAM IDENTIFIED BY CEB REPORT NO 81-30. THESE CHANGES HAVE BEEN INCORPORATED INTO THE ANALYSIS REPRESENTED BY R2 OF THIS DWG.

[7] PIPING ANALYSIS MODEL IS CURRENTLY TO REV 2 OF THIS DWG. PIPING CHANGES SHOWN ON ANY LATER REVS OF THIS DWG HAVE NOT REQUIRED REANALYSIS BUT WILL BE INCORPORATED INTO THE NEXT REANALYSIS

[8] THIS DRAWING 47W401-208 R2 IS FOR UNIT 1 ONLY A NEW DRAWING NO. 47W401-423, PROBLEM NO 0600250-02-01 HAS BEEN ASSIGNED FOR UNIT 2 AND WILL BE ISSUED WHEN THE UNIT 2 ANALYSIS IS COMPLETED

COMPANION DRAWINGS

LOAD TABLES	47W401-400
	47W401-401
	47W401-436
	47W401-437
BRANCH LINE DATA	47W401-438

REFERENCE DRAWINGS

PHYSICALS	47W401-1 R15, 2 R6, 4 R7
	47W401-3 R6

MIRROR INSULATION DRAWING NUMBERS

5B0009C5BC	SH 1 OF 2 REV B
5B0009C6GC	SH 1 OF 9 REV C
5B0009C6HC	SH 2 OF 9 REV C
5B0009C8EC	SH 1 OF 1 REV A

ANALYSIS INCLUDES
ECN NO. 2800
NCR NO. WBNCEB3014

INSPECTED AND APPROVED FOR ISSUE

REV	DESCRIPTION	DATE	BY
3	3100 REVISED TO RESOLVE 78-16 VARIANCE NO DISCREPANCIES		
2	2976 REV PER ECN 3375 ETC.		
1	3304 REVISED PER ECN 3304 TO ADD PIPE MOVEMENT DATA AND NOTES		

SCALE: (NTS) EXCEPT AS NOTED

REACTOR BUILDING & AUX. BLDG. UNIT 1

PROBLEM: 0600200-02-01
SUPPORT LOCATION DWG.
FEEDWATER PIPING, STEAM GEN. NO. 1

WATTS BAR NUCLEAR PLANT
TENNESSEE VALLEY AUTHORITY
DIVISION OF ENGINEERING DESIGN

SUBMITTED	RECOMMENDED	APPROVED

KNOXVILLE | 98 | 47W401-208 R3

SUPERSEDES EDS DWG 0600200-02 R3

850 N60 408-02

1 2 3 4 5 6

A B C D E F G

DESIGN MODES

OPERATING CONDITIONS

									COND. 1			COND. 2			COND. 3			COND. 4	
1	1	SA-106B	50	200	25600	15000	15000	27.5	120	68	27.7								
2	2	SA-106B	2483	650	25600	15000	15000	27.9	559	70	25.9								

VALVE NO. OR SYS.	PIPE LINE NO.	TYPE	
1	47W464-[illegible]	[illegible]	3"
2	47W464-[illegible]	GATE	3"
3	47W464-[illegible]	CHECK	3"
4	47W464-[illegible]	GLOBE	3"

α = IS THE COEFFICIENT OF THERMAL EXPANSION (IN/IN/°F x 10⁻⁶)

00 VALUE BASED ON DESIGN TEMPERATURE

000 MODULUS OF ELASTICITY (PSI x 10⁶)

PEN X-508

DETAIL E

DETAIL F

DETAIL G

DETAIL H

DETAIL A

DETAIL K

DETAIL L

DETAIL M

DETAIL N

DETAIL P

DETAIL Q

DETAIL S

DETAIL T

REACTOR BLDG

CRANE WALL SLEEVE MARK 276

SEE DETAIL U

SEE DETAIL K

SEE DETAIL L

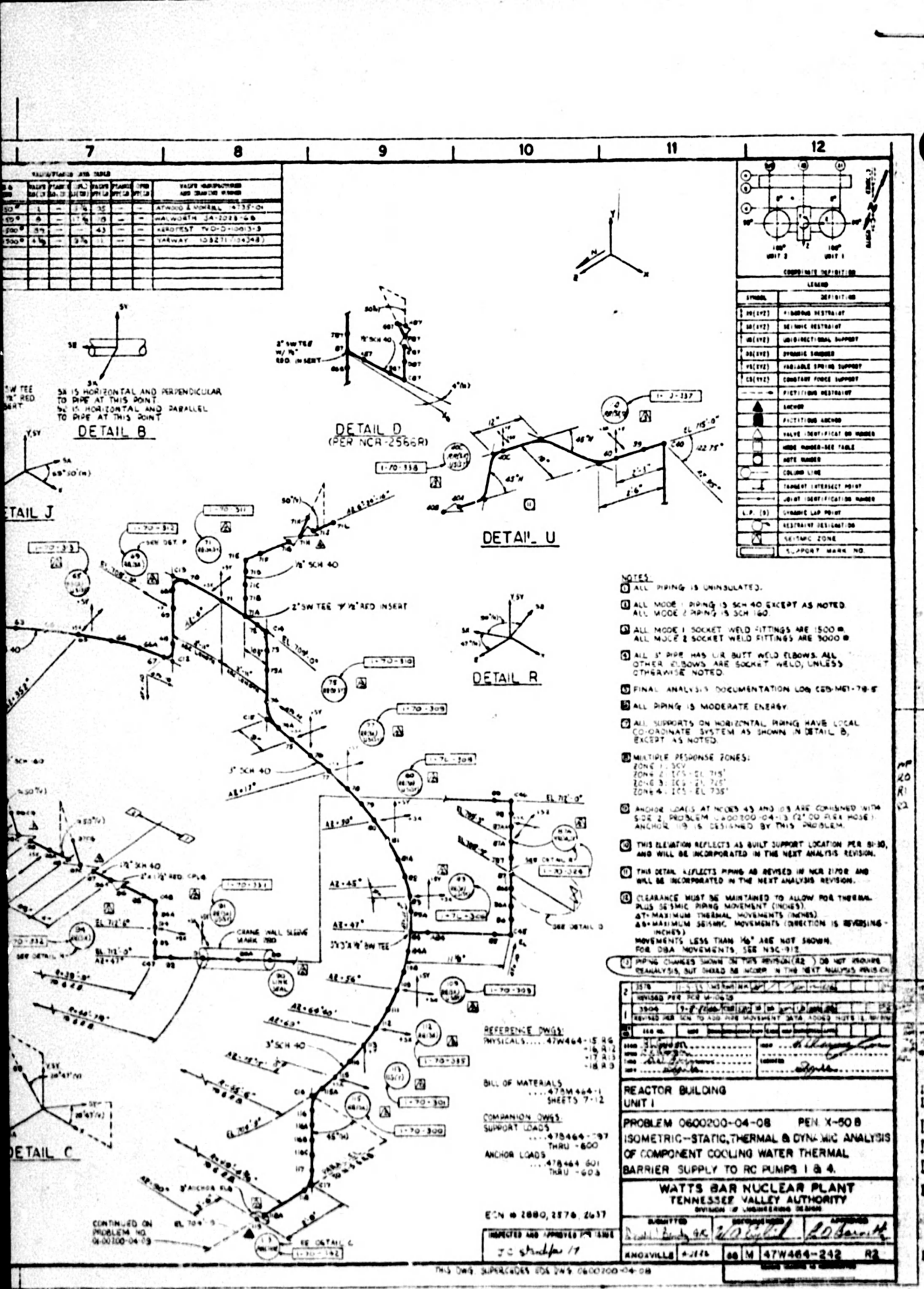
SEE DETAIL E

SEE DETAIL F

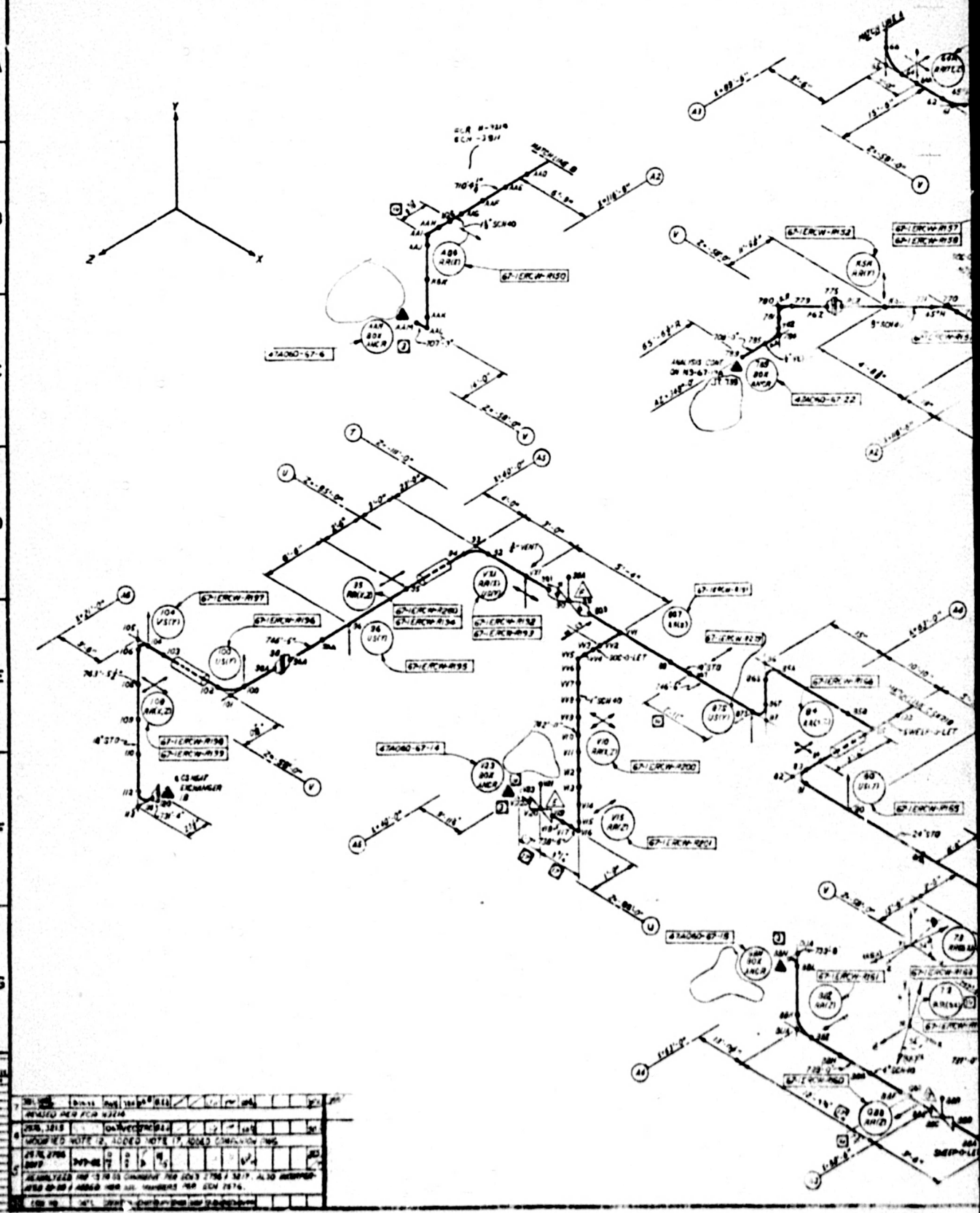
SEE DETAIL J

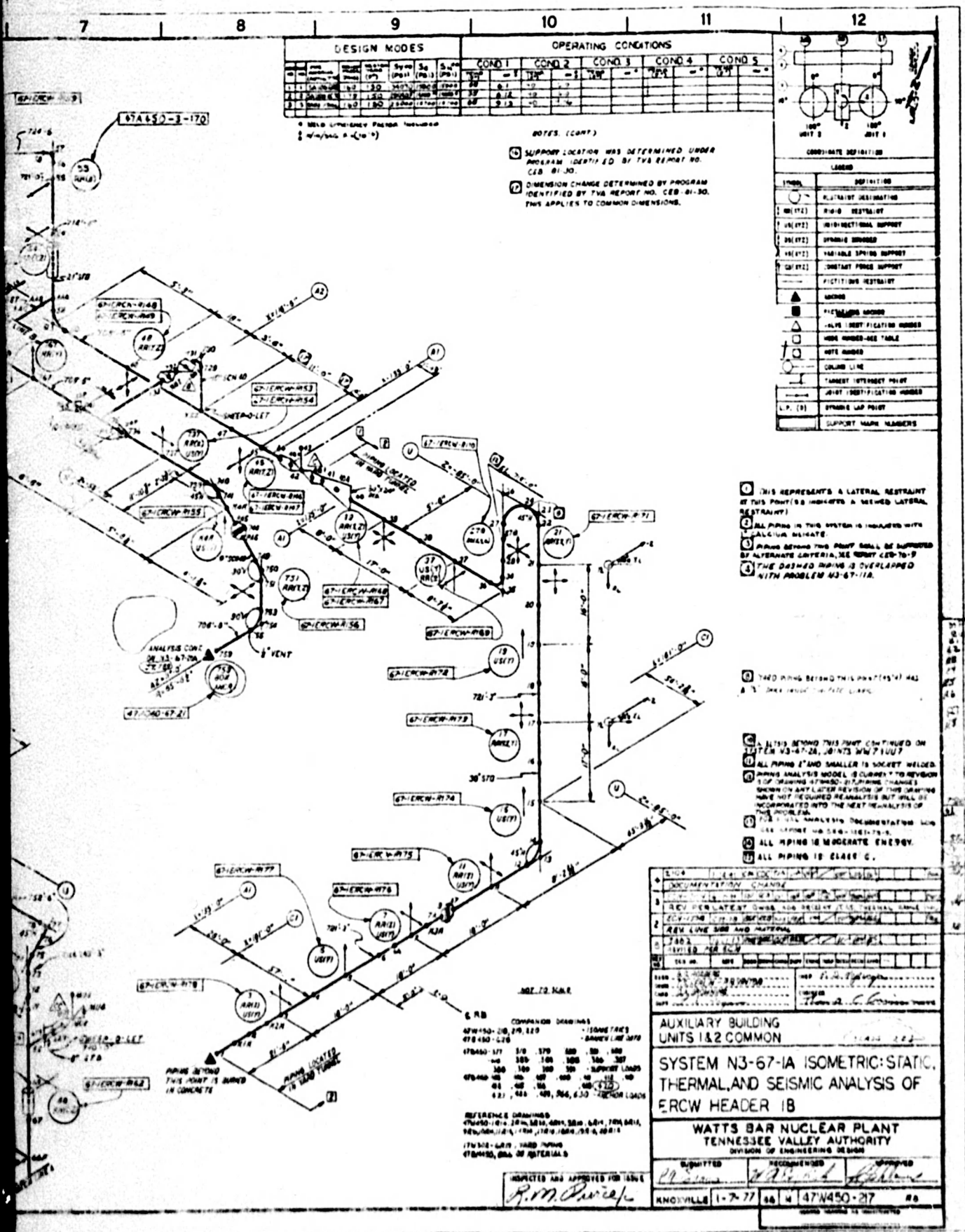
3" SCH 40

3"x3"x2" BW TEE



8501160408-03


1
2
3
4
5
6
A
B
C
D
E
F
G
Y
Z
X
67-ERCW-R150
67-ERCW-R52
67-ERCW-R57
67-ERCW-R58
67-ERCW-R97
67-ERCW-R96
67-ERCW-R95
67-ERCW-R98
67-ERCW-R99
67-ERCW-R200
67-ERCW-R34
67-ERCW-R93
67-ERCW-R91
67-ERCW-R92
67-ERCW-R46
67-ERCW-R65
67-ERCW-R201
67-ERCW-R195
67-ERCW-R64
67-ERCW-R60
67A060-67-6
67A060-67-22
67A060-67-14
67A060-67-18
6 CB HEAT EXCHANGER B
SCH 40
SCH 80



8501160408-04

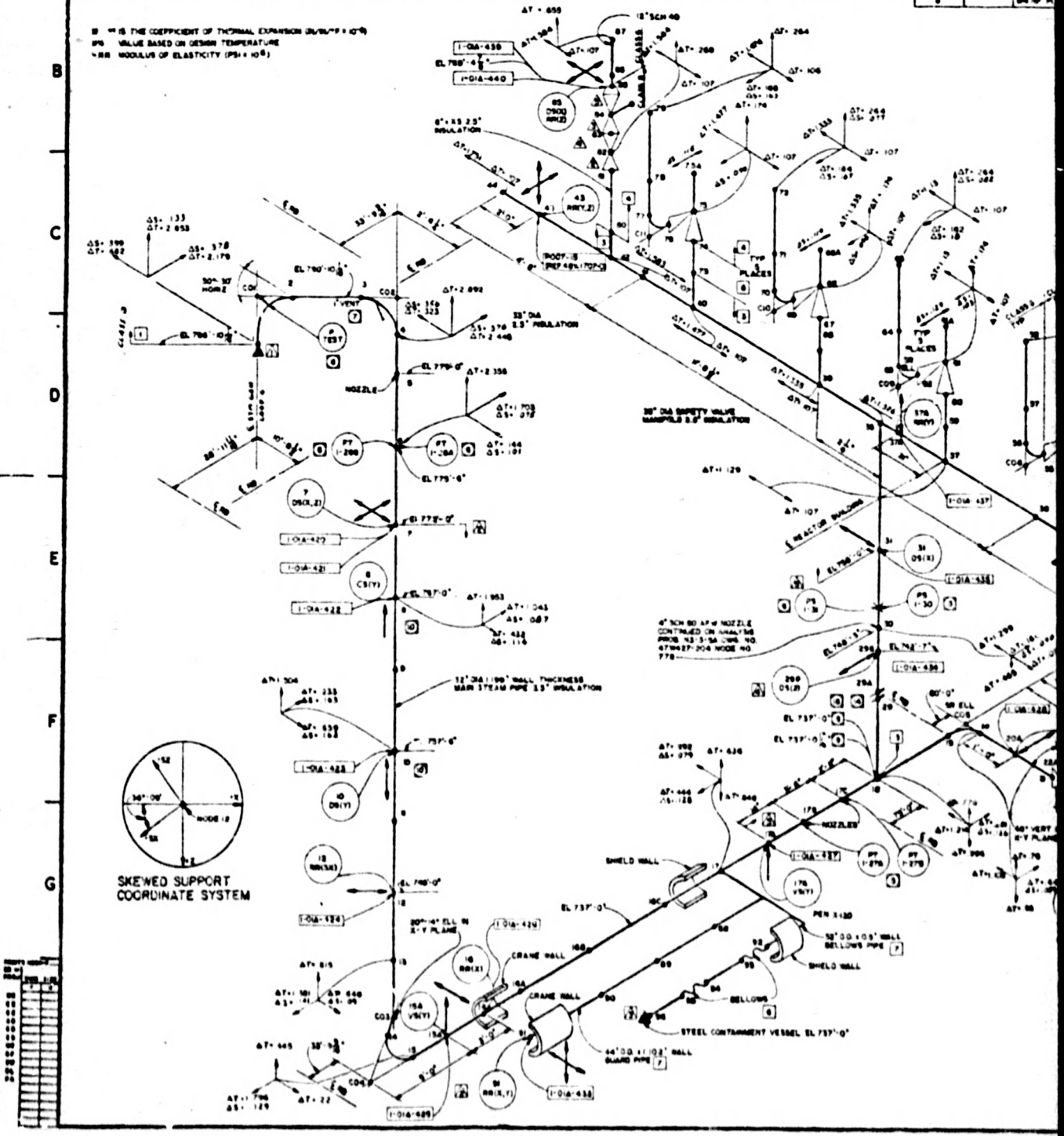
47W400-216 | R | 08

DESIGN MODES								OPERATING CONDITIONS															
								NOR A/V OPR			AV & SV OPR			ISLN +LV +LSO			COLD SPR FOR SERVICE						
PIPING SYS. NO.	SHEET NO.	PIPE MATERIAL (ASTM TYPE)	DESIGN PRESS. (PSIG)	DESIGN TEMP. (°F)	S_h (PSI)	S_c (PSI)	S_a (PSI)	TEMP (°F)	C_{OP}	E_{OP}	TEMP (°F)	C_{OP}	E_{OP}	TEMP (°F)	C_{OP}	E_{OP}	TEMP (°F)	C_{OP}	E_{OP}				
1A	1	SA508-1CF70	1185	600	28400	17500	17500	557	7.138	26.0	579	7.184	25.847	579	7.184	25.847	70	—	27.9				
1B	2	SA508-1CF70	1185	600	28400	17500	17500	557	7.138	26.0	579	7.184	25.847	70	—	27.9	70	—	27.9				
1C	3	SA508-1CF70	1185	600	28400	17500	17500	70	—	27.9	579	7.184	25.847	579	7.184	25.847	70	—	27.9				
2	4	SA106-B	500	650	13650	15000	15000	70	—	27.9	579	7.184	25.847	579	7.184	25.847	70	—	27.9				
4D	5	SA508-1CF70	1185	600	28400	17500	17500	70	—	27.9	579	7.184	25.847	579	7.184	25.847	70	—	27.9				
5	6	SA376-304	15	250	23750	16800	17200	120	9.196	28.07	120	9.196	28.07	120	9.196	28.07	70	—	28.3				
6	7	SA508-1CF70	15	600	28400	17500	17500	120	6.178	27.92	120	6.178	27.92	120	6.178	27.92	70	—	27.9				
9	8	SA508	1185	600	28800	17500	17500	70	—	27.9	579	7.184	25.847	579	7.184	25.847	70	—	27.9				

VALVE NO. OR TAG NO.	TYPE VALVE NO.	TYPE
1	PCV-1-20	1"GLOBE
2	4799600-1	GATE
3	PCV-1-19	RELIEF
4		MSS TYP FU
5		MSS TYP FU
6		LG WY FU
7	4799600-	GATE
	104 thru 106	
8		MSS TYP FU

B = THE COEFFICIENT OF THERMAL EXPANSION (IN/IN/°F x 10⁻⁶)
EOP = VALUE BASED ON DESIGN TEMPERATURE
EOR = MODULUS OF ELASTICITY (PSI x 10⁶)

SKEWED SUPPORT COORDINATE SYSTEM



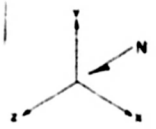
7	8	9	10	11	12

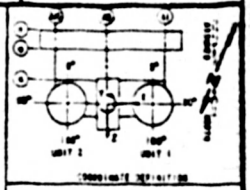
VALVE/FLANGE DATA TABLE

SIZE & RATING	VALVE QTY (2)	FLANGE QTY (2)	VALVE QTY (3)	VALVE QTY (4)	FLANGE QTY (4)	VALVE QTY (5)	VALVE MANUFACTURER AND DRAWING NUMBER
150-600	73	NA	48	25	NA	NA	ATWOOD & MORRILL DWG NO. 15620-D-11
0-900	20	NA	NA	37	NA	NA	WALWORTH LO DWG NO. SA-2034-44
6418-900	43	NA	8	2000	NA	NA	COPES-VULCAN DWG NO. E-174288
			2				
0-900	NA	8	NA	NA	110	NA	
12-600	NA	8	NA	NA	325	NA	
0-1500	NA	2	NA	NA	236	NA	GRAVO CORP DWG NO. E-2878-9008
6418-1500	26	NA	23	4990	NA	NA	CONSOLIDATED DWG NO. 3AC-040
0-300	NA	8	NA	NA	91	NA	

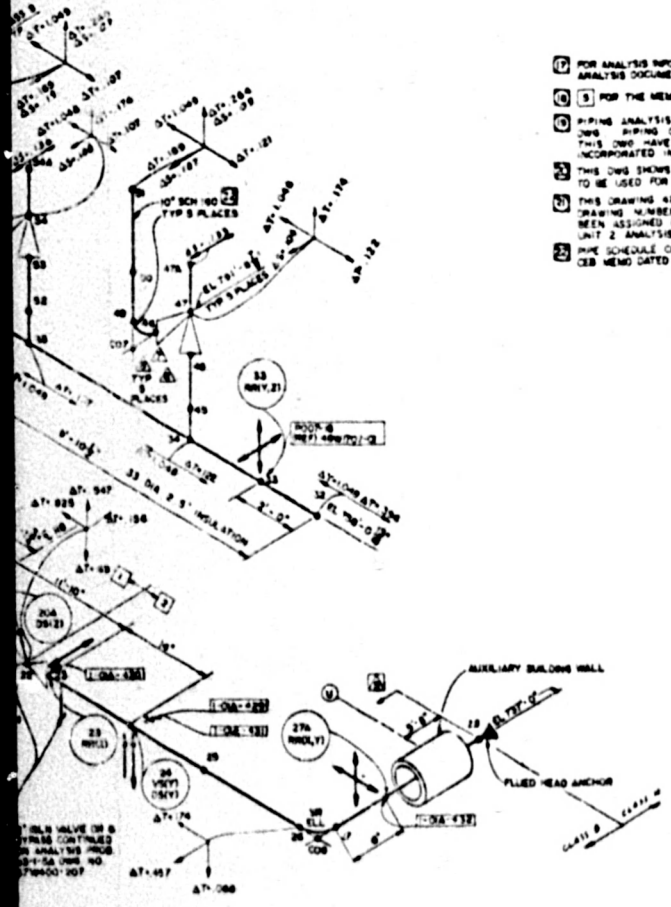
SUPPORT ZONE I.D. NUMBERS

- STEAM GENERATOR
- INTERIOR CONCRETE STRUCTURE
- STEEL CONTAINMENT VESSEL
- SHIELD BUILDING
- AUXILIARY BUILDING





SYMBOL	DEFINITION
	RIGID RESTRAINT
	SNUBBER RESTRAINT
	VERTICAL SUPPORT
	SPRING HANGER
	VARIABLE SPRING SUPPORT
	CONSTANT FORCE SUPPORT
	FRICTION RESTRAINT
	ANCHOR
	FICTITIOUS ANCHOR
	VALVE IDENTIFICATION NUMBER
	PIPE NUMBER-SEE TABLE
	NOTE NUMBER
	COLLAR LUG
	TANGENT INTERSECT POINT
	JOINT IDENTIFICATION NUMBER
	DYNAMIC LAP POINT
	RESTRAINT DIRECTION
	SEISMIC ZONE
	SUPPORT MARK NO



1. FOR ANALYSIS INFORMATION SEE CEB REPORT CEB-MEI-78-9 FINAL ANALYSIS DOCUMENTATION LOG.
2. 5 FOR THE MEMBER BETWEEN NODES 29 AND 29A
3. PIPING ANALYSIS MODEL IS CURRENT TO REVISION 0 OF THIS DWG. PIPING CHANGES SHOWN ON ANY LATER REVISION OF THIS DWG HAVE NOT REQUIRED REANALYSIS BUT WILL BE INCORPORATED INTO THE NEXT REANALYSIS OF THIS PROBLEM.
4. THIS DWG SHOWS THE ANALYSIS SUPPORT LOCATION AND IS NOT TO BE USED FOR SUPPORT FABRICATION OR INSTALLATION.
5. THIS DRAWING 47W400-216 R0 IS FOR UNIT 1 ONLY. A NEW DRAWING NUMBER 47W400-223 AND 0600250-06-04 HAS BEEN ASSIGNED FOR UNIT 2 AND WILL BE ISSUED WHEN THE UNIT 2 ANALYSIS IS COMPLETED.
6. PIPE SCHEDULE CHANGE NEEDED FOR STRESS QUALIFICATION PER CEB MEMO DATED DEC. 2, 1982 MEDS ACCNO CEB 821202 011

NOTES:

1. ALL ELBOWS LR UNLESS OTHERWISE NOTED.
2. ENTIRE PIPE IS INSULATED AS SHOWN (MIRROR INSULATION)
3. ENT AS PIPE IS HIGH ENERGY.
4. RUPTURE LOCATION HAS BEEN IDENTIFIED PER THE GUIDELINES OF DESIGN CRITERIA WB-DC-20-13-3 AND AS MODIFIED BY TVA LETTER WB-DN-, DATED NOV 6, 1975. SUPPORT TO BE PROVIDED BY TVA. THE INTERMEDIATE RUPTURE LOCATIONS AT JOINT 7 AND JOINT 17C DO NOT EXCEED THE RUPTURE STRESS CRITERIA AND ARE DEFINED TO MEET MINIMUM RUPTURE LOCATION CRITERIA.
5. BRANCH CONNECTION ANALYZED IN ACCORDANCE WITH TVA LETTER WB-DN-, DATED NOV 6, 1975. SUPPORT TO BE PROVIDED BY TVA.
6. BRANCH CONNECTION TO BE SUPPORTED IN ACCORDANCE WITH ALTERNATE ANALYSIS CRITERIA.
7. RUPTURE STRESSES (ALLOWABLE RUPTURE STRESS = 1.8 SH) = 37500 PSI

JOINT	MEMBER	RUPTURE STRESS PSI	BREAK LOCATION TYPE
1	COR	23726	TERMINAL
7	8A	31774	INTERMEDIATE
17C	9A	30400	INTERMEDIATE
28	7A	43479	TERMINAL

8. ERECTED TEE CENTERLINE ELEVATION BEFORE COLD PULLING.
9. ERECTED TEE CENTERLINE ELEVATION AFTER COLD PULLING.
10. SUPPORTS AT JOINTS 8 & 10 ARE LUG ATTACHMENTS.
11. BELLOWS WELDED TO SCV BEFORE COLD PULL.
12. 1.6" COLD PULL GAP. APPROX COLD PULL FORCE = 2875 LBS. SUPPORTS SHOULD BE ADJUSTED TO CARRY PIPE DEADWEIGHT DURING COLD PULL OPERATION.
13. SUPPORT LOCATIONS WERE DETERMINED UNDER PROGRAM IDENTIFIED BY TVA REPORT NO. CEB 81-50.
14. CLEARANCE MUST BE MAINTAINED TO ALLOW FOR THERMAL PLUS SEISMIC PIPING MOVEMENTS AT MAXIMUM THERMAL MOVEMENTS ONLY (INCLUDES COLD SPRING MOVEMENTS) PLUS MAXIMUM SEISMIC MOVEMENTS (IN DIRECTION IS REVERSING AND INCLUDES STEAM HAMMER, RELIEF VALVE THRUST, DBA PRESSURE LOAD ON BELLOWS, AND REL LOCA MOVEMENTS)
MOVEMENTS LESS THAN .06" ARE NOT SHOWN.

COMP DWGS: 47B400-408, 47B400-409, 47B400-410, 47B400-421

REF DWGS: 47W400-114, 217, 446, 47B410-185, 47W332-197, 47W804-113

R0 ISSUED FOR ECN 3481

INSPECTED AND APPROVED FOR ISSUE

AUXILIARY BUILDING
UNIT 1

SYSTEM 0600200-06-04 ISO.- 32" Ø MAIN STEAM LINE FROM GEN (LOOP 4) TO AUX BLDG ANCR

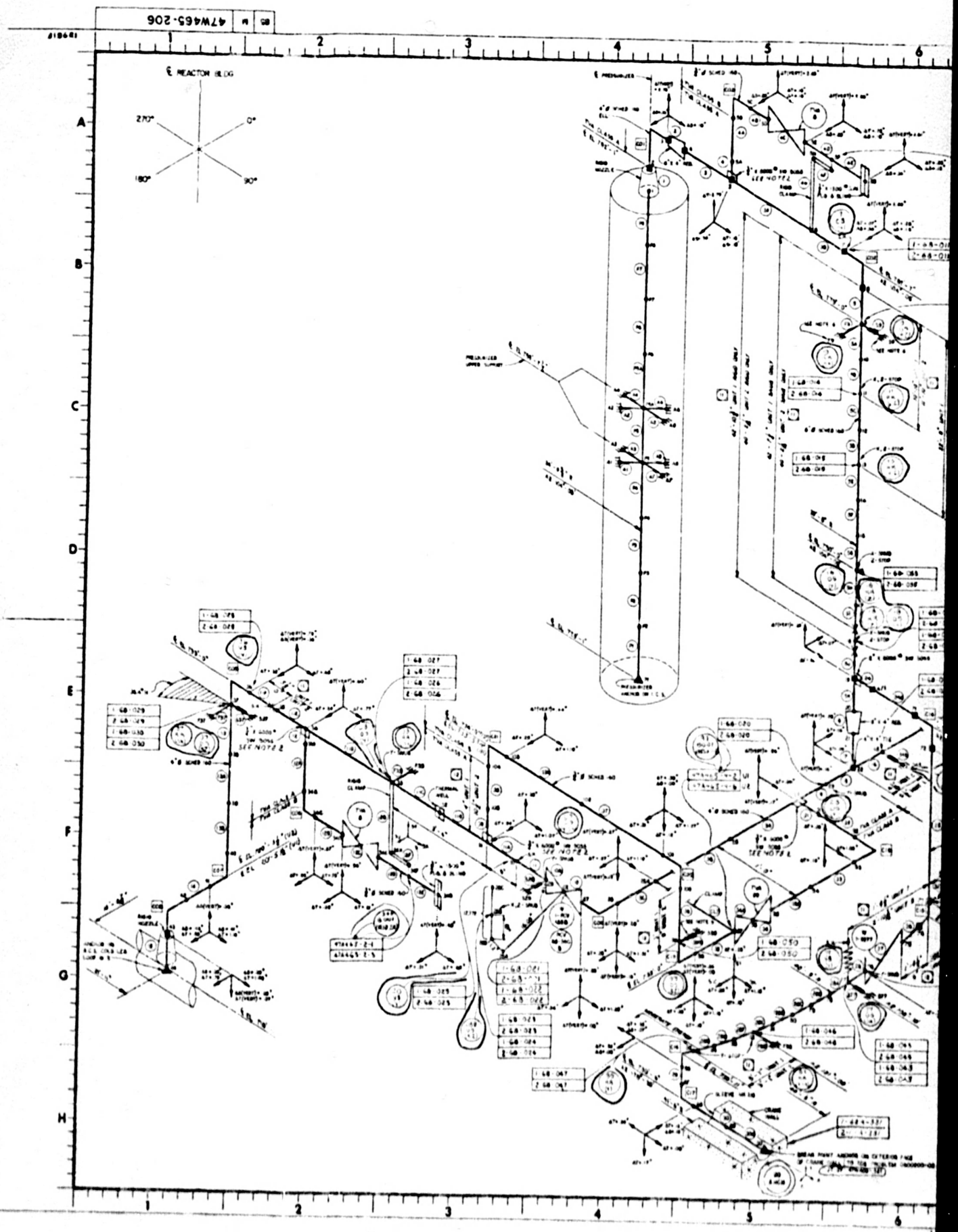
WATTS BAR NUCLEAR PLANT
TENNESSEE VALLEY AUTHORITY
DIVISION OF ENGINEERING DESIGN

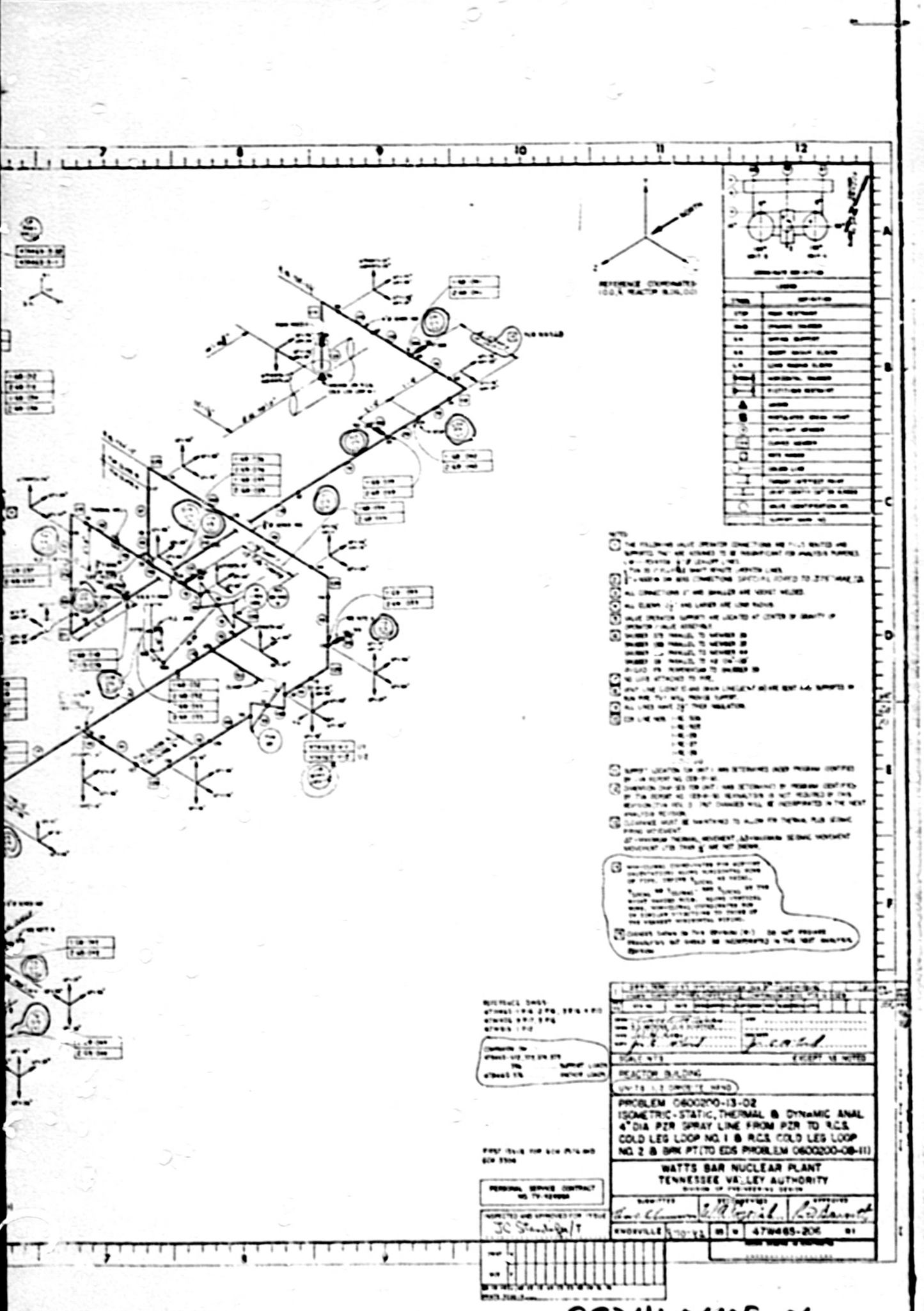
SUBMITTED	RECOMMENDED	APPROVED

KNOXVILLE | 44-43 | AB | M | 47W400-216 | R0

This drawing supersedes EDS drawing number 0600200-06-04, R0

8501160 408-05


47W465-206
REACTOR BLDG
270°
0°
180°
90°
A
B
C
D
E
F
G
H
1
2
3
4
5
6



PROBLEM 0600200-13-02
ISOMETRIC-STATIC, THERMAL & DYNAMIC ANAL
4" DIA PZR SPRAY LINE FROM PZR TO R.C.S.
COLD LEG LOOP NO. 1 & R.C.S. COLD LEG LOOP
NO. 2 & BRK PT (TO EDS PROBLEM 0600200-08-11)

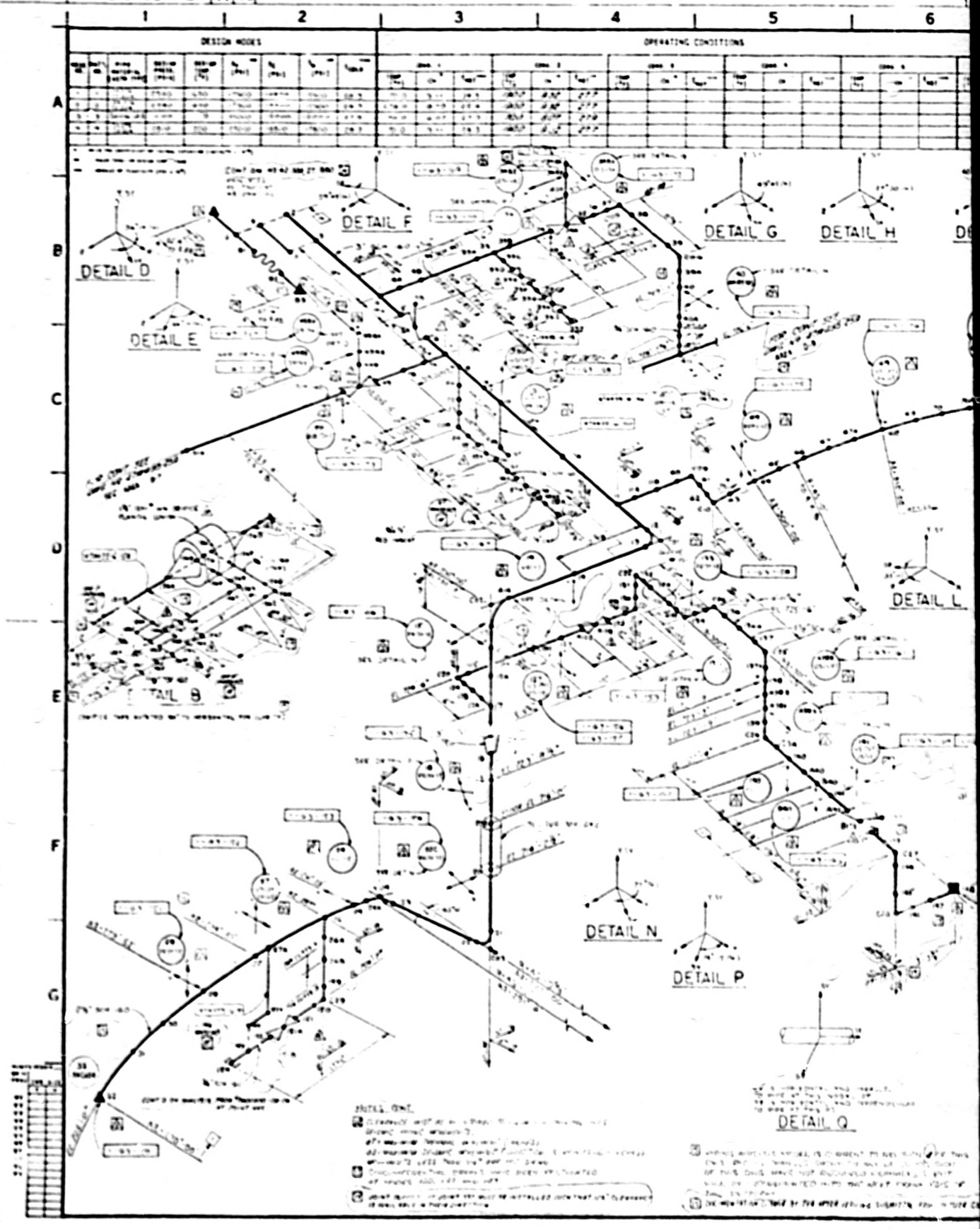
WATTS BAR NUCLEAR PLANT
TENNESSEE VALLEY AUTHORITY

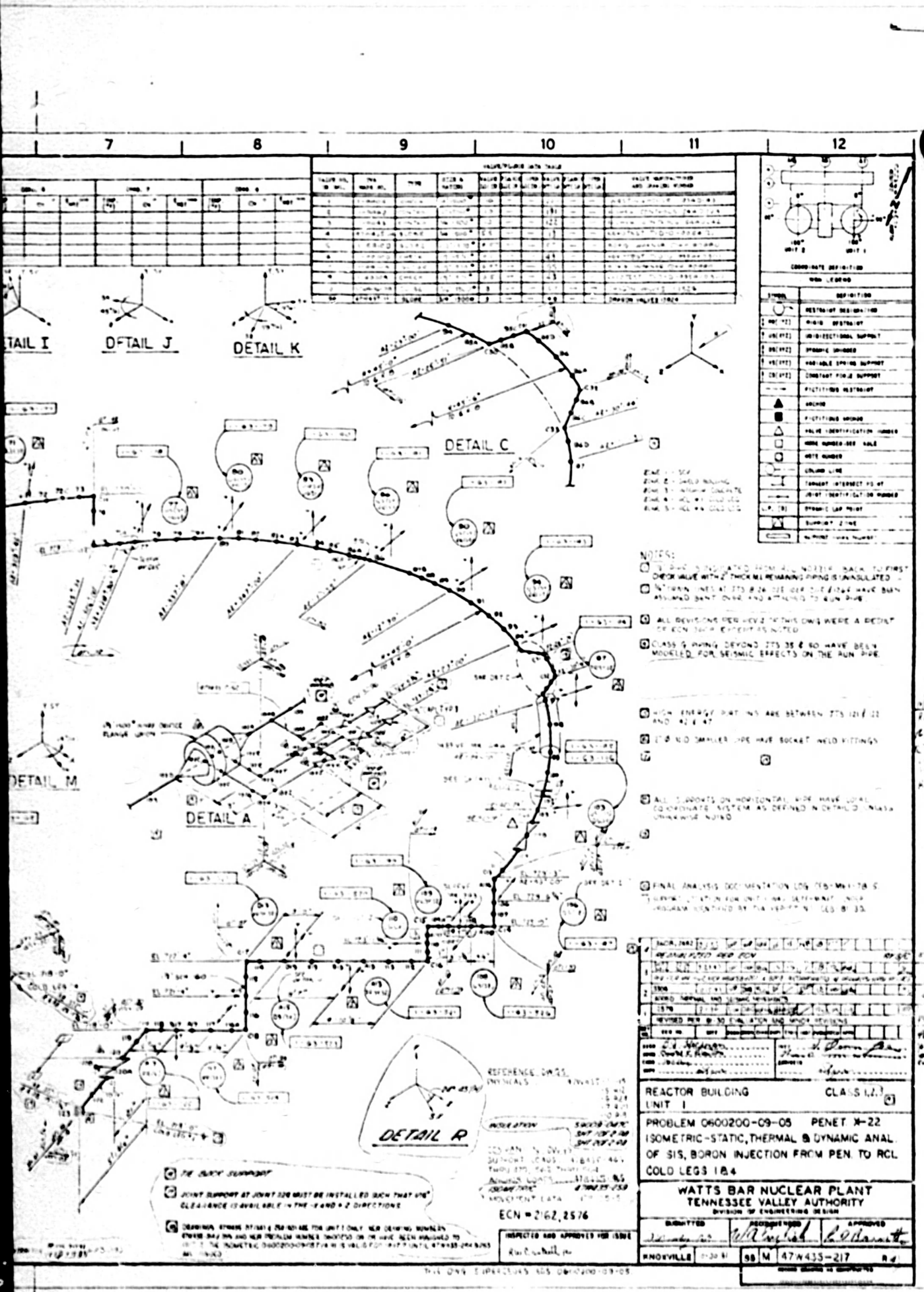
REACTOR BUILDING

KNOXVILLE

47W465-206

8501160408-06


1
2
3
4
5
6
A
B
C
D
E
F
G
DESIGN MODES
OPERATING CONDITIONS
DETAIL B
DETAIL D
DETAIL E
DETAIL F
DETAIL G
DETAIL H
DETAIL L
DETAIL N
DETAIL P
DETAIL Q



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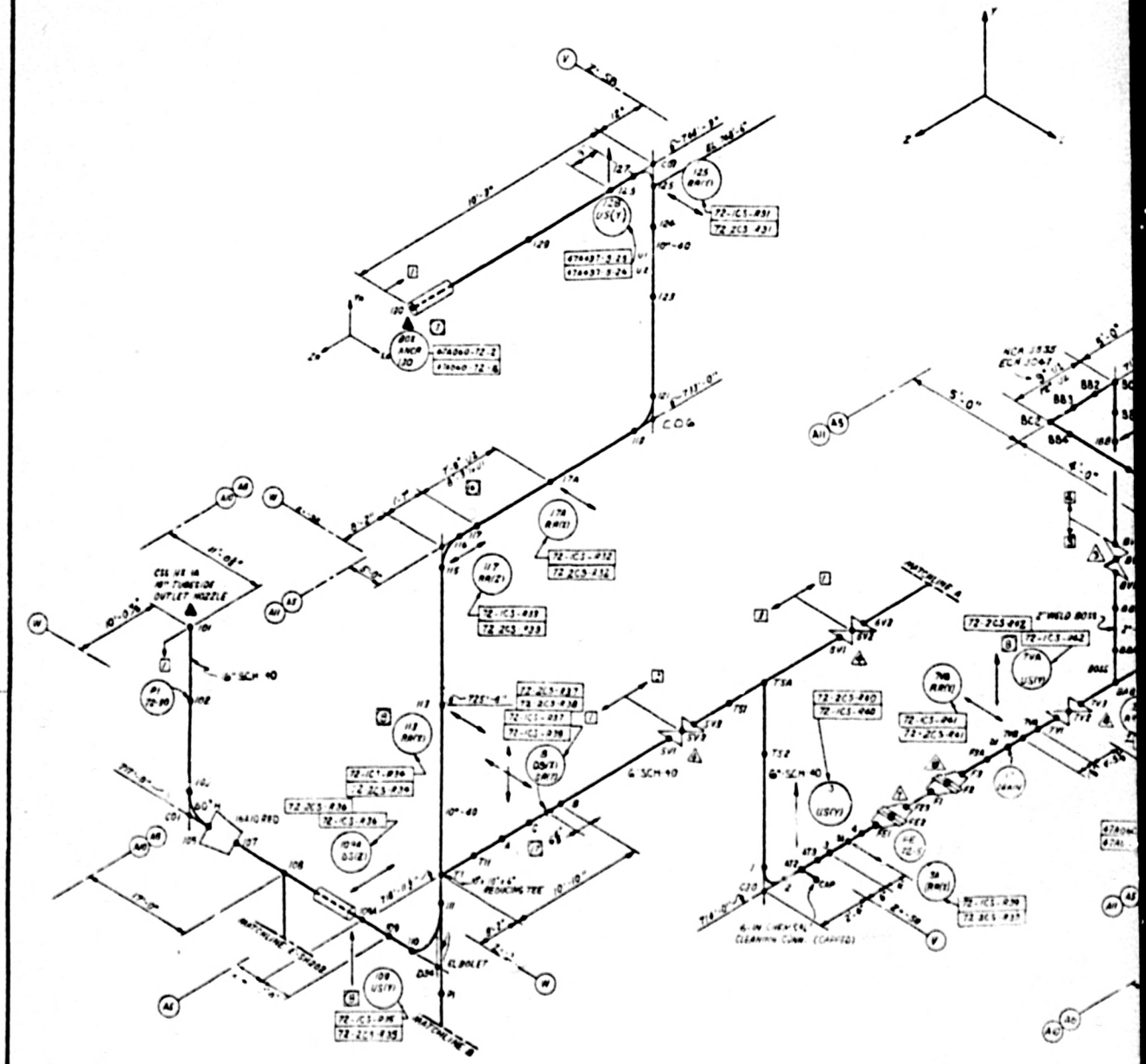


(NOTES CONT.)

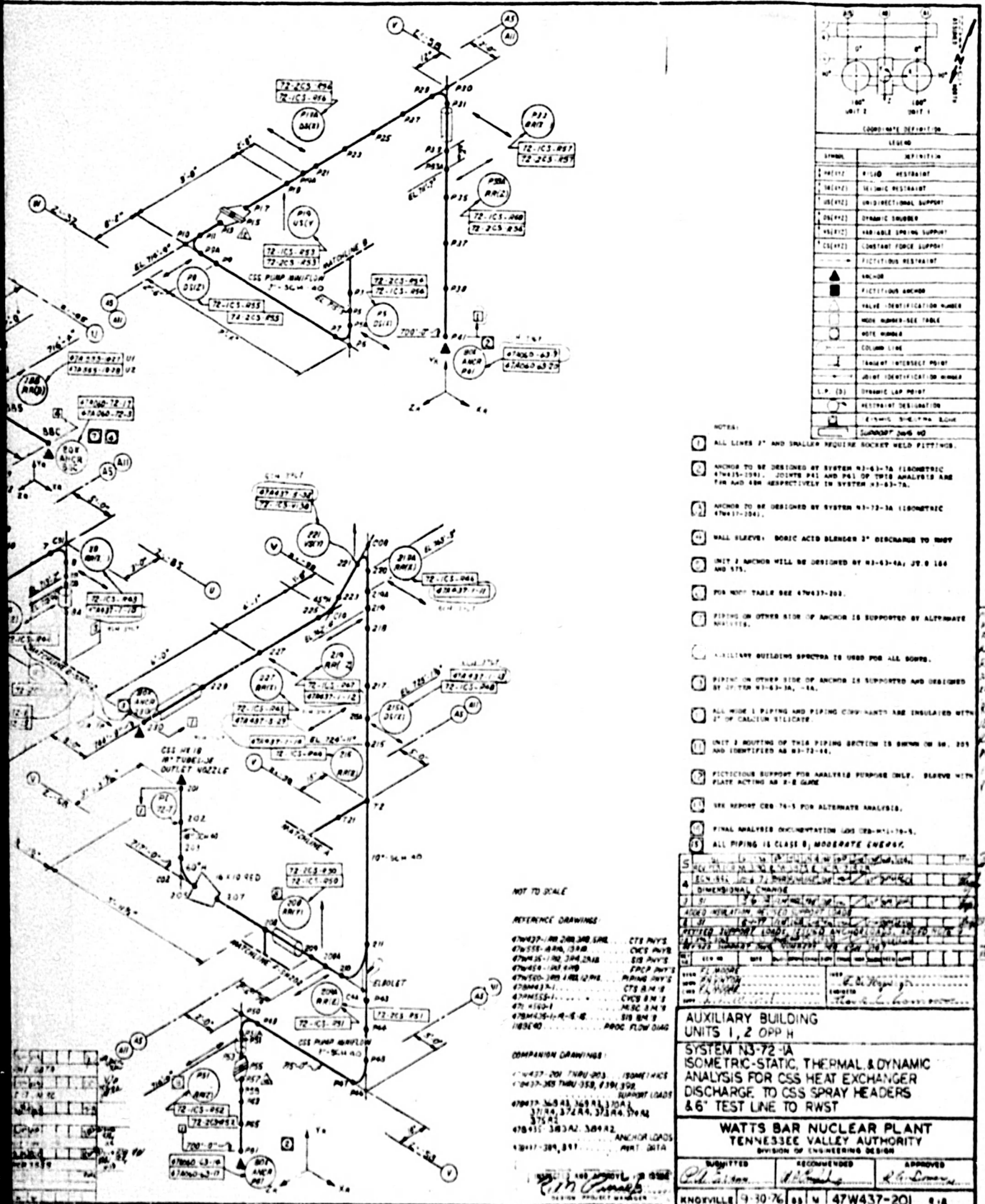
[6] SUPPORT LOCATION WAS DETERMINED UNDER PROGRAM IDENTIFIED BY TVA REPORT NO CEB-81-30.

[7] PIPING ANALYSIS MODEL IS CURRENT TO REVISION 7 OF THIS DWG. PIPING CHANGES SHOWN ON ANY LATER REVISION OF THIS DWG. ARE NOT REQUIRED REANALYSIS BUT WILL BE INCORPORATED INTO THE NEXT REANALYSIS OF THIS PROBLEM.

[8] THESE INSTRUMENT LINES HAVE PIPING INSTALLED BUT ARE STUBBED TO BE DECOUPLED FROM ANALYSIS AS PER EVALUATION IN CALCULATION [illegible]

UNIT 1 IS AS SHOWN
UNIT 2 IS OPPOSITE HAND EXCEPT AS NOTED.

11	12/13	[illegible]	[illegible]
	ADDED COMPANION DWG. 47B437-297		
10	2/82	[illegible]	[illegible]
	REVR VAT SH FOR 3 YRS. ADDED		
9	01/16	[illegible]	[illegible]
	REVISED PER CI 30		
8	05/79	[illegible]	[illegible]
7	12/78	[illegible]	[illegible]
	ADDED [illegible]		



NOTES:

1. ALL LINES 3" AND SMALLER REQUIRE SOCKET WELD FITTINGS.
2. ANCHOR TO BE DESIGNED BY SYSTEM N3-63-1A (ISOMETRIC 47W435-1061). JOINTS P41 AND P41 OF TYPE ANALYSIS ARE P40 AND P39 RESPECTIVELY IN SYSTEM N3-63-1A.
3. ANCHOR TO BE DESIGNED BY SYSTEM N3-72-1A (ISOMETRIC 47W437-204).
4. WALL SLEEVE: BORIC ACID BLENDER 3" DISCHARGE TO RWST
5. UNIT 2 ANCHOR WILL BE DESIGNED BY N3-63-4A; JT'S 184 AND 575.
6. FOR NOTE TABLE SEE 47W437-201.
7. PIPING ON OTHER SIDE OF ANCHOR IS SUPPORTED BY ALTERNATE SYSTEMS.
8. AUXILIARY BUILDING SPECTRA IS USED FOR ALL SOILS.
9. PIPING ON OTHER SIDE OF ANCHOR IS SUPPORTED AND DESIGNED BY SYSTEM N3-63-3A, -4A.
10. ALL HOT LINES PIPING AND PIPING COMPONENTS ARE INSULATED WITH 3" OF CALCIUM SILICATE.
11. UNIT 2 ROUTING OF THIS PIPING SECTION IS SHOWN ON SK. 205 AND IDENTIFIED AS N3-72-46.
12. FICTICIOUS SUPPORT FOR ANALYSIS PURPOSE ONLY. SLEEVE WITH PLATE ACTING AS 2-D GUIDE
13. SEE REPORT CEB 76-5 FOR ALTERNATE ANALYSIS.
14. FINAL ANALYSIS DOCUMENTATION GOES CEB-M-11-76-5.
15. ALL PIPING IS CLASS B, MODERATE ENERGY.

NOT TO SCALE

REFERENCE DRAWINGS:

47W437-[illegible]	CTS PHYS
47W555-[illegible]	CVCS PHYS
47W435-[illegible]	SIS PHYS
47W456-[illegible]	EPCP PHYS
47W760-[illegible]	PIPING PHYS
47W443-1	CTS S.M.'S
47W455-1	CVCS S.M.'S
47W456-1	MISC S.M.'S
47W435-1-R-5-6	SIS S.M.'S
1883E40	PROC FLOW DIAG

COMPANION DRAWINGS:

47W437-201 THRU 203 ISOMETRICS
47W437-[illegible] SUPPORT LOADS
47W437-[illegible] ANCHOR LOADS
47W437-[illegible] PART DATA

AUXILIARY BUILDING
UNITS 1, 2 OPP H

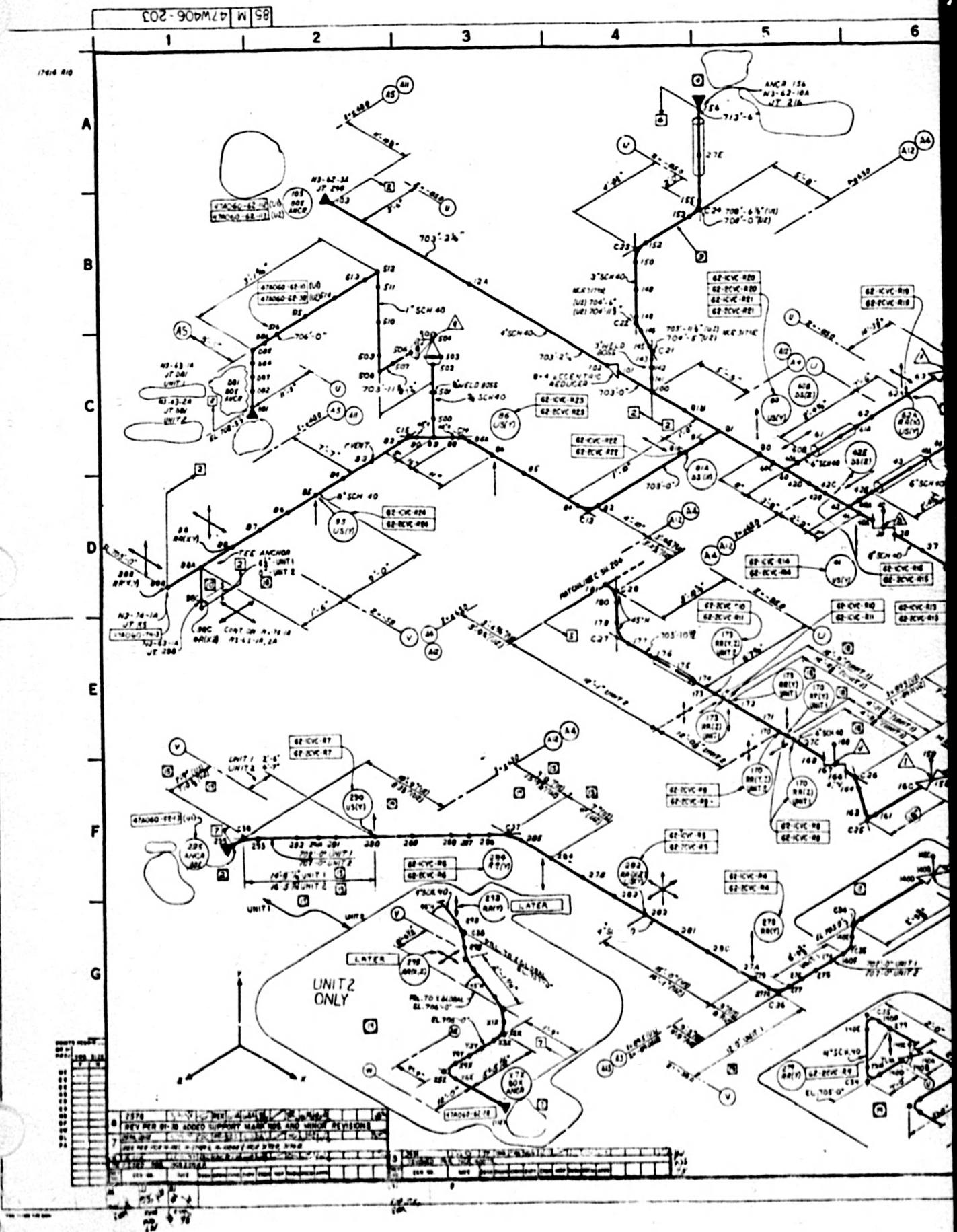
SYSTEM N3-72-1A
ISOMETRIC-STATIC, THERMAL, & DYNAMIC ANALYSIS FOR CSS HEAT EXCHANGER DISCHARGE TO CSS SPRAY HEADERS & 6" TEST LINE TO RWST

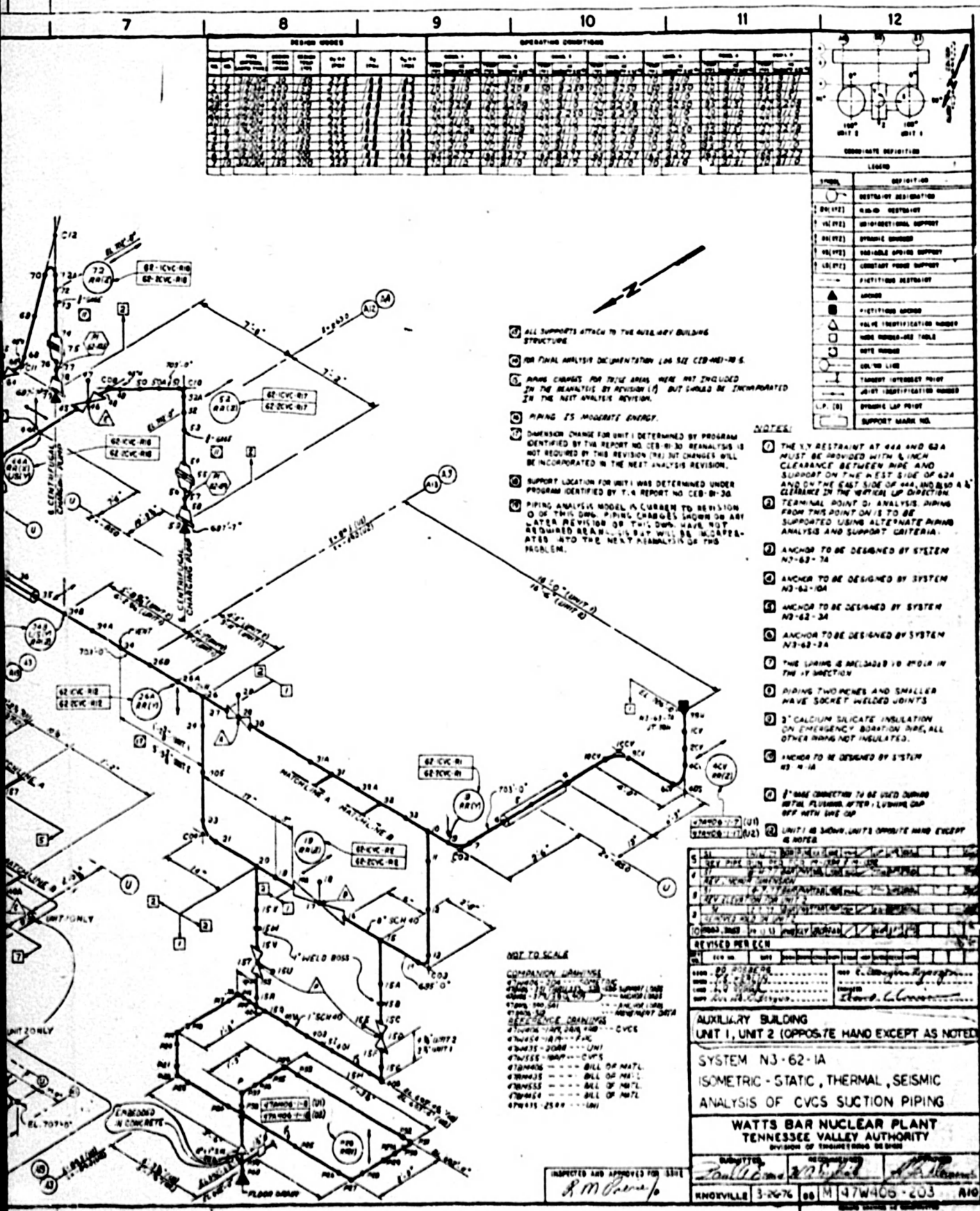
WATTS BAR NUCLEAR PLANT
TENNESSEE VALLEY AUTHORITY
DIVISION OF ENGINEERING DESIGN

SUBMITTED	RECOMMENDED	APPROVED

KNOXVILLE | 9-30-76 | 88 | M | 47W437-201 | 0-18

8501160408-08


85 M 47W406-203
1 2 3 4 5 6
A B C D E F G
UNIT 2 ONLY
UNIT 1
UNIT 2
LATER
ANCR 156
N3-62-10A
JT 21A
N3-62-34
JT 200
N3-43-1A
JT 201
UNIT 1
N3-43-2A
JT 201
UNIT 2
N3-76-1A
JT 55
N3-43-2A
JT 200
FEE ANCHOR
62-ICVC-R20
62-ICVC-R21
62-ICVC-R23
62-ICVC-R22
62-ICVC-R24
62-ICVC-R25
62-ICVC-R10
62-ICVC-R11
62-ICVC-R14
62-ICVC-R15
62-ICVC-R16
62-ICVC-R17
62-ICVC-R18
62-ICVC-R19
62-ICVC-R8
62-ICVC-R9
62-ICVC-R6
62-ICVC-R7
62-ICVC-R4
62-ICVC-R5
62-ICVC-R26
62-ICVC-R27
62-ICVC-R12
62-ICVC-R13
62-ICVC-R0
62-ICVC-R1
62-ICVC-R2
62-ICVC-R3
REV PER 81-10 ADDED SUPPORT MARK NOS AND MINOR REVISIONS



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