PP&L

SUSQUEHANNA STEAM ELECTRIC STATION
CALCULATION SHEET

CALC. NO. PLS-9330 REV. NO. 0 SHEET 6 OF 31
ORIGINATOR C L Dvorak DATE 10/21/93 CHECKED M. S. [illegible] DATE 10/21/93
SYSTEM FUEL POOL COOLING
SUBJECT EVALUATION OF FPC PIPING FOR LOCA LOADS

PIPE STRESS EVALUATION

FUEL POOL COOLING; CALCULATION #1 (ABR-2968)

PIPING STRESS SUMMARY CHECK AND COVER SHEET
ASME SECT. III, CLASSES 2 & 3

PROJECT SSES
JOB NO. – PLANT DESIGN GROUP
SYSTEM FUEL POOL COOLING FROM SURGE TANK TO HT.EXT.
CALC NO ABR-2968 ISO NO – REV NO –

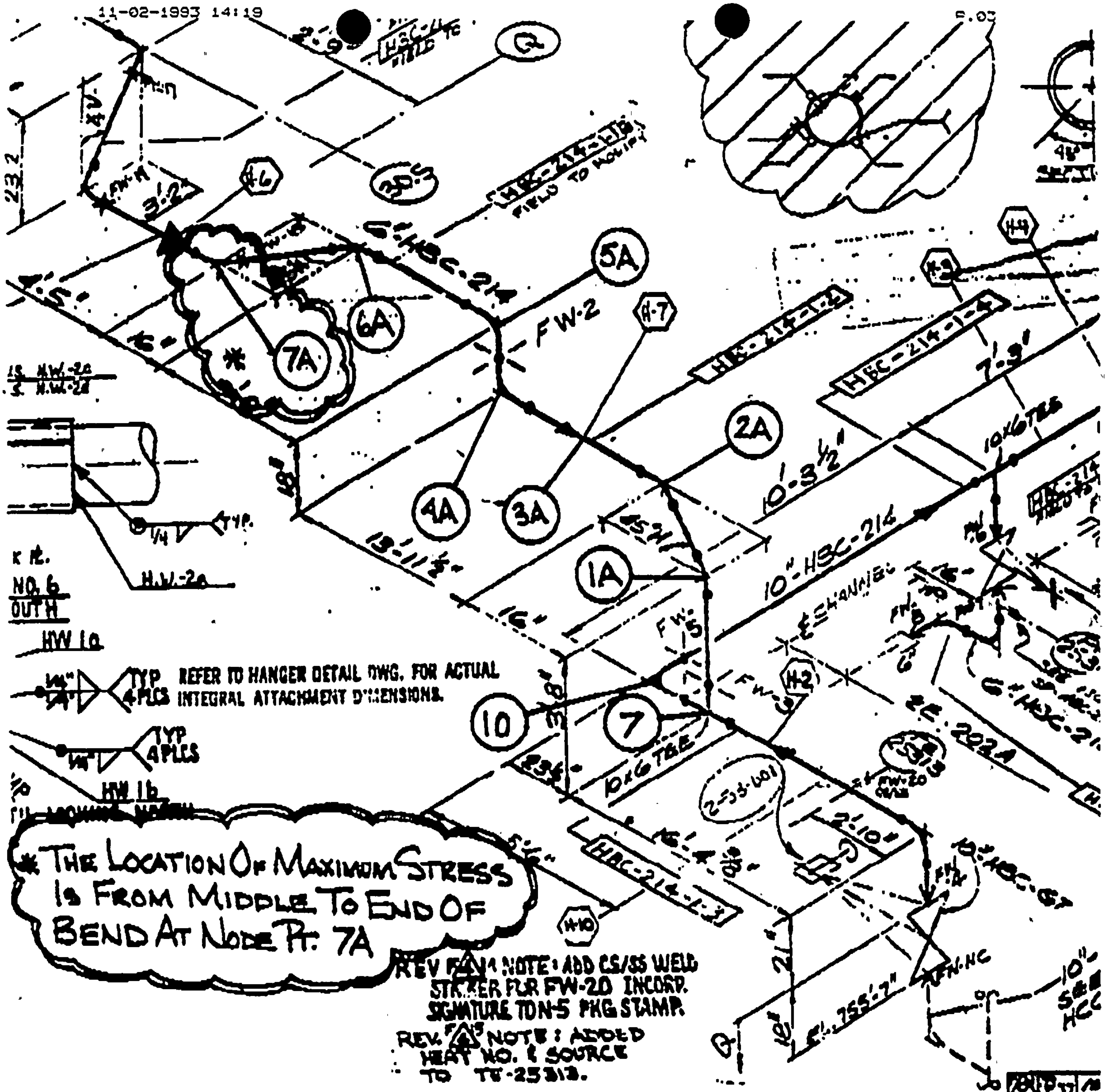
DESIGN CONDITION	LEVEL	LOCATION OF MAXIMUM END	LOCATION OF MAXIMUM ELEMENT	MAXIMUM COMPUTED STRESS(PSI)	ALLOWABLE STRESS (PSI)	COMPUTED / ALLOWABLE
SUSTAINED LOADS EQN. 8		102	100A 102	1168	SH 15000	0.078
OCCASIONAL LOADS EQN. 9	C	7A E	7A M 7A E	1592	1.8 SH 27000	0.059
OCCASIONAL LOADS EQN. 9	D	7A E	7A M 7A E	1582	2.4 SH 36000	0.044
THERMAL EXPANSION EQN. 11		5	5 5FA	24130	SA+SH 37500	0.643

REFERENCE CALCULATIONS:

WEIGHT WT01 SEISMIC-INERTIA PORTION – OTHERS –
THERMAL EXP THRM01 SEISMIC-ANCHOR MOVEMENT –
DYNAMIC SEISCA/SEISCO/SEISLO

9311150220

6 P.



	QUANTITY
028	4
HTI	2
57	1

SOURCE 2-53

F/4/15

ASME AS BUILT

N-5 PACKAGE PREPARED

ALL CHANGES AFTER REV. 4F12 OF THIS DRAWING MUST BE APPROVED BY CODE DATA ENGINEER.

ASME N-5 SYSTEM 2-338-211A

ABR-2968

Hangers WELDING REQUIREMENTS
- P1-A-Lh
- Pre-Heat - 60°F
- Pre-Heat - 200°F
- Pre-Weld Insp. Req'd
- Certified Correct

FW 20 WELDING REQUIREMENTS
- P8P1-T-Ag
- P8P1-A
- Pre-Heat - 60°F
- Inter Pass - 350°F

WELDING REQUIREMENTS
- P1-A-C-Lh
- P1-AT-Lh
- P8-A
- P8-AT-Ag
- P8-T-Ag
- P1-T
- P1-A-Lh
- P8A-AT-Lh
- P4-AT
- P8,P1-AT-Ag

Above Welding Requirements

PP&L | SUSQUEHANNA STEAM ELECTRIC STATION
CALCULATION SHEET

CALC. NO. PLS-9330 REV. NO. 0 SHEET 7 OF 31
ORIGINATOR C.L. Dovrsuk DATE 10/28/93 CHECKED M.L. Se... DATE 10/28/93
SYSTEM FUEL POOL COOLING
SUBJECT EVALUATION OF FPC PIPING FOR LOCA LOADS

PIPE STRESS EVALUATION

FUEL POOL COOLING ; CALCULATION #2 (ABR-2970)

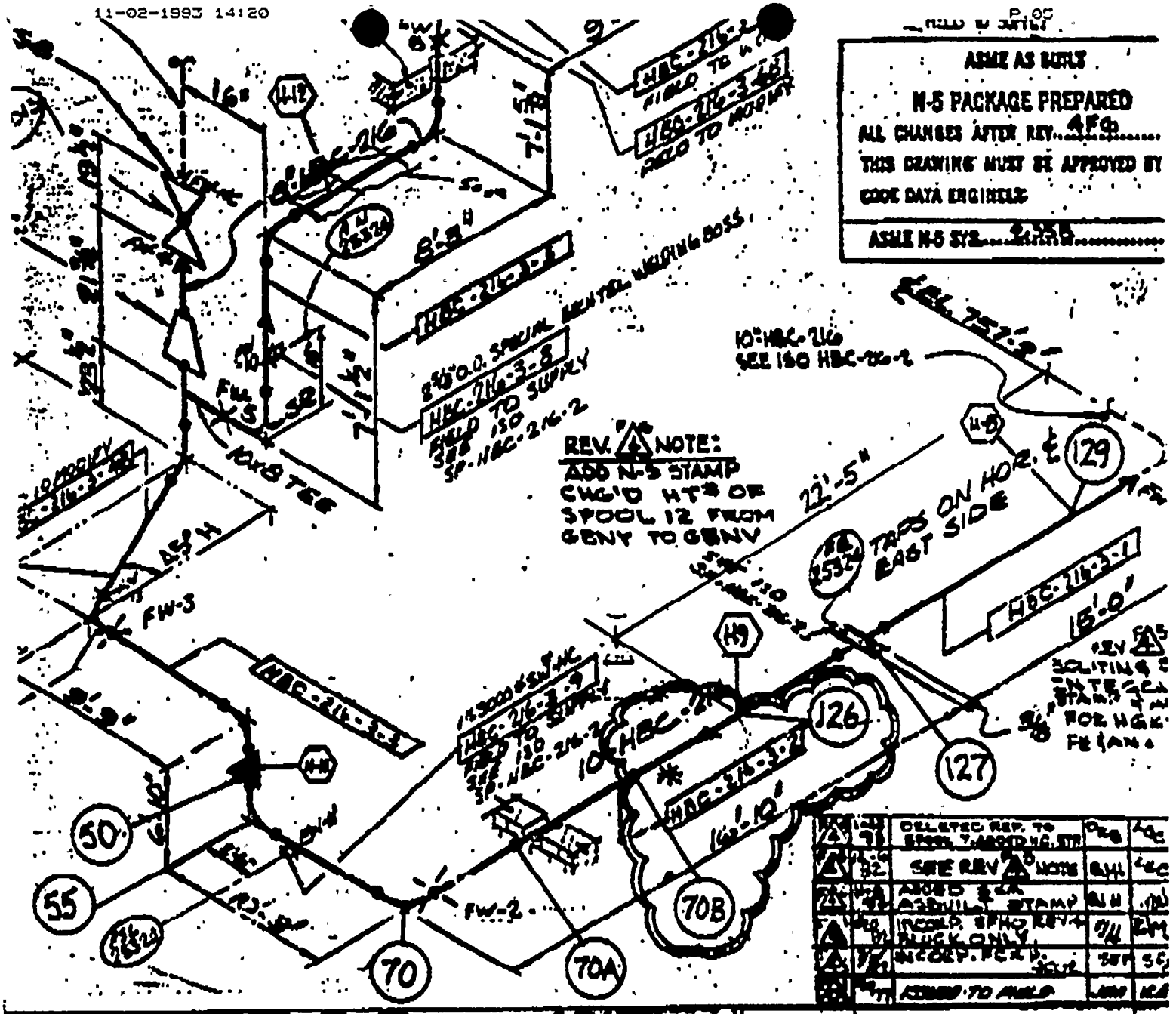
PIPING STRESS SUMMARY CHECK AND COVER SHEET
ASME SECT. III, CLASSES 2 & 3

PROJECT SSES
JOB NO. - PLANT DESIGN GROUP
SYSTEM FUEL POOL COOLING PUMPS DISCHARGE LINE
CALC NO ABR-2970 ISO NO - REV NO -

DESIGN CONDITION	LEVEL	LOCATION OF MAXIMUM END	LOCATION OF MAXIMUM ELEMENT	MAXIMUM COMPUTED STRESS (PSI)	ALLOWABLE STRESS (PSI)	COMPUTED / ALLOWABLE
SUSTAINED LOADS EQN. 8		126	70B 126	2846	SH 15000	0.190
OCCASIONAL LOADS EQN. 9	C	126	70B 126	3190	1.8 SH 27000	0.118
OCCASIONAL LOADS EQN. 9	D	126	70B 126	3227	2.4 SH 36000	0.090
THERMAL EXPANSION EQN. 10		55 B	55 B 55 M	5830	SA 22500	0.259

REFERENCE CALCULATIONS:

WEIGHT WT01 SEISMIC-INERTIA PORTION ______ OTHERS ______
THERMAL EXP THRM01 SEISMIC-ANCHOR MOVEMENT ______
DYNAMIC SEISCA/SEISCO/SEISLO



* The Location Of Maximum Stress Is From Node Points 70B To 126

ABR-2970

PP&L SUSQUEHANNA STEAM ELECTRIC STATION
CALCULATION SHEET

CALC. NO. PLS-9330 REV. NO. 0 SHEET 8 OF 31
ORIGINATOR C. J. Dvorcek DATE 10/28/93 CHECKED M. S. [illegible] DATE 10/29/93
SYSTEM SERVICE WATER
SUBJECT EVALUATION OF S.W. PIPING FOR LOCA LOADS

PIPE STRESS EVALUATION

SERVICE WATER ; CALCULATION #3

PIPING STRESS SUMMARY CHECK AND COVER SHEET
ANSI-B31.1

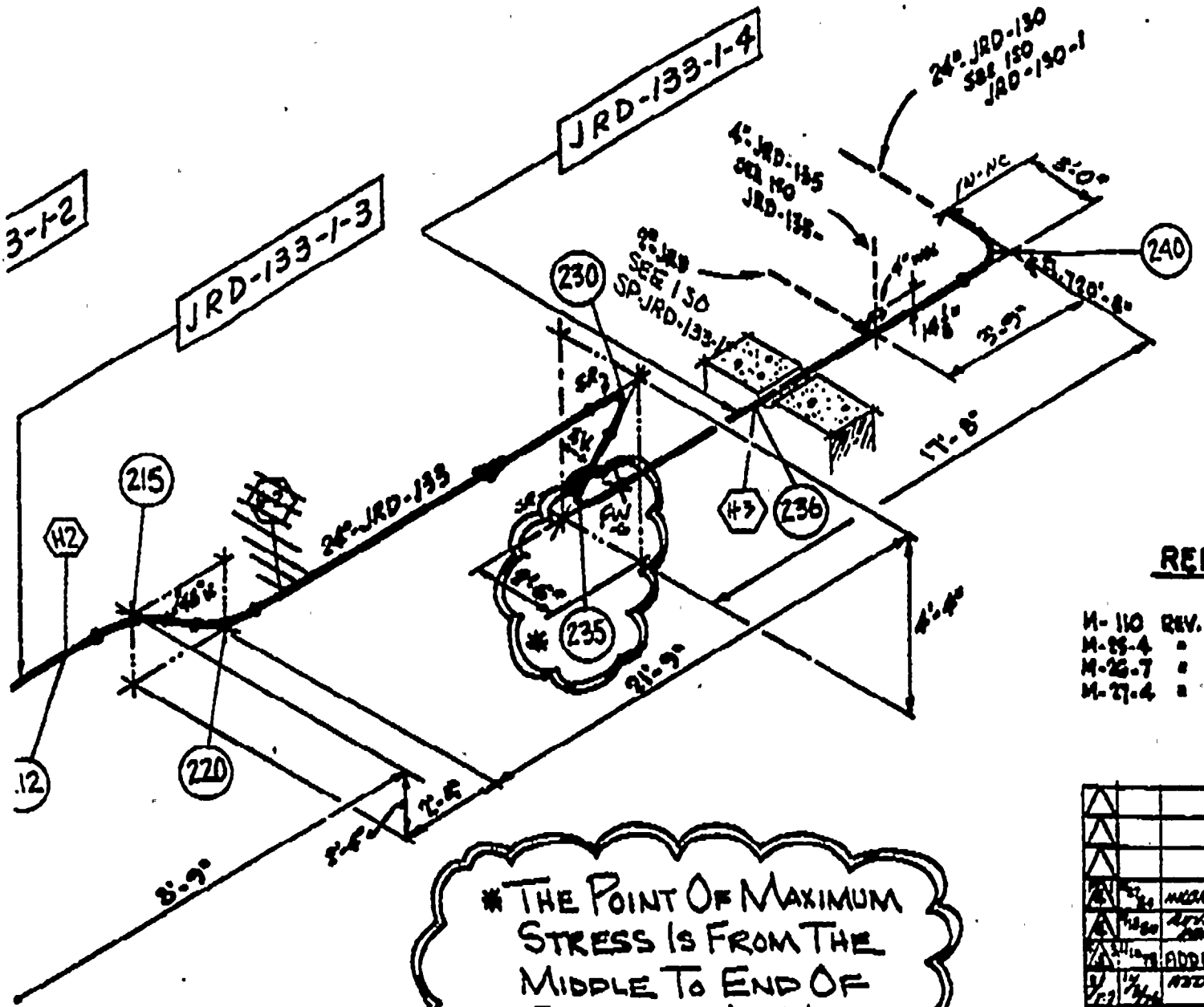
PROJECT SSES
JOB NO. – PLANT DESIGN GROUP
SYSTEM REACTOR BUILDING SERVICE WATER-UNIT 1
CALC NO ISO NO – REV NO –

DESIGN CONDITION	LEVEL	LOCATION OF MAXIMUM END	LOCATION OF MAXIMUM ELEMENT	MAXIMUM COMPUTED STRESS (PSI)	ALLOWABLE STRESS (PSI)	COMPUTED / ALLOWABLE
SUSTAINED LOADS EQN. 11		235 E	235 M 235 E	3676	SH 12000	0.306
OCCASIONAL LOADS EQN. 12	C	235 E	235 M 235 E	4831	1.8 SH 21600	0.224
OCCASIONAL LOADS EQN. 12	D	235 E	235 M 235 E	5203	2.4 SH 28800	0.181
THERMAL EXPANSION EQN. 13		50 B	50 B 50 M	3445	SA 18000	0.191

REFERENCE CALCULATIONS:

WEIGHT WT01 SEISMIC-INERTIA PORTION – OTHERS –
THERMAL EXP THRM01 SEISMIC-ANCHOR MOVEMENT –
DYNAMIC SEISCA/SEISCO/SEISLD

REV. 1 NOTE: 9 DELETE 17'-8"



* THE POINT OF MAXIMUM STRESS IS FROM THE MIDDLE TO END OF THE BEND AT NODE PT. 235

REFER

M-110 REV. 2
M-25-4 " 5
M-26-7 " 6
M-27-4 " 5

WELDING REQUIREMENTS Pipe Class: JRD

☐ P1-A-C-Lh	☐ E-705-2	▩ Pre-Heat-60°F
☐ P1-AT-Lh	☐ E-6010	☐ Pre-Heat-200°F
☐ P8-A	▩ E-7018	☐ Pre-Heat-250°F
☐ P8-AT-Ag	☐ ER-308-L	☐ Pre-Heat-375°F
☐ P8-T-Ag	☐ ER-309	☐ Pre-Heat-450°F
☐ P1-T	☐ E-309-16	☐ Pre-Heat-____°F
▩ P1-A-Lh	☐ E-308L-16	☐ Inter Pass-____°F
☐ P1A-AT-Lh	☐ E-8018 B-2	▩ Backing Ring Req'd
☐ P4-AT	☐ ER-515	☐ Argon Purge Req'd

SERVICE WATER - UNIT 1

ISOMETR