

PP&L

**SUSQUEHANNA STEAM ELECTRIC STATION
CALCULATION SHEET**

CALC. NO. PLS-9330 REV. NO. 0 SHEET 6 OF 31
 ORIGINATOR C. Z. Phorak DATE 10/29/93 CHECKED M. S. P... DATE 10/29/93
 SYSTEM FUEL POOL COOLING
 SUBJECT EVALUATION OF FPC PIPING FOR LOCA LOADS

PIPE STRESS EVALUATION

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

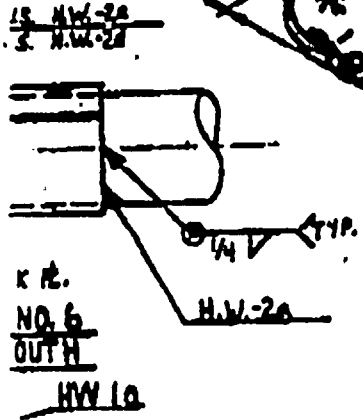
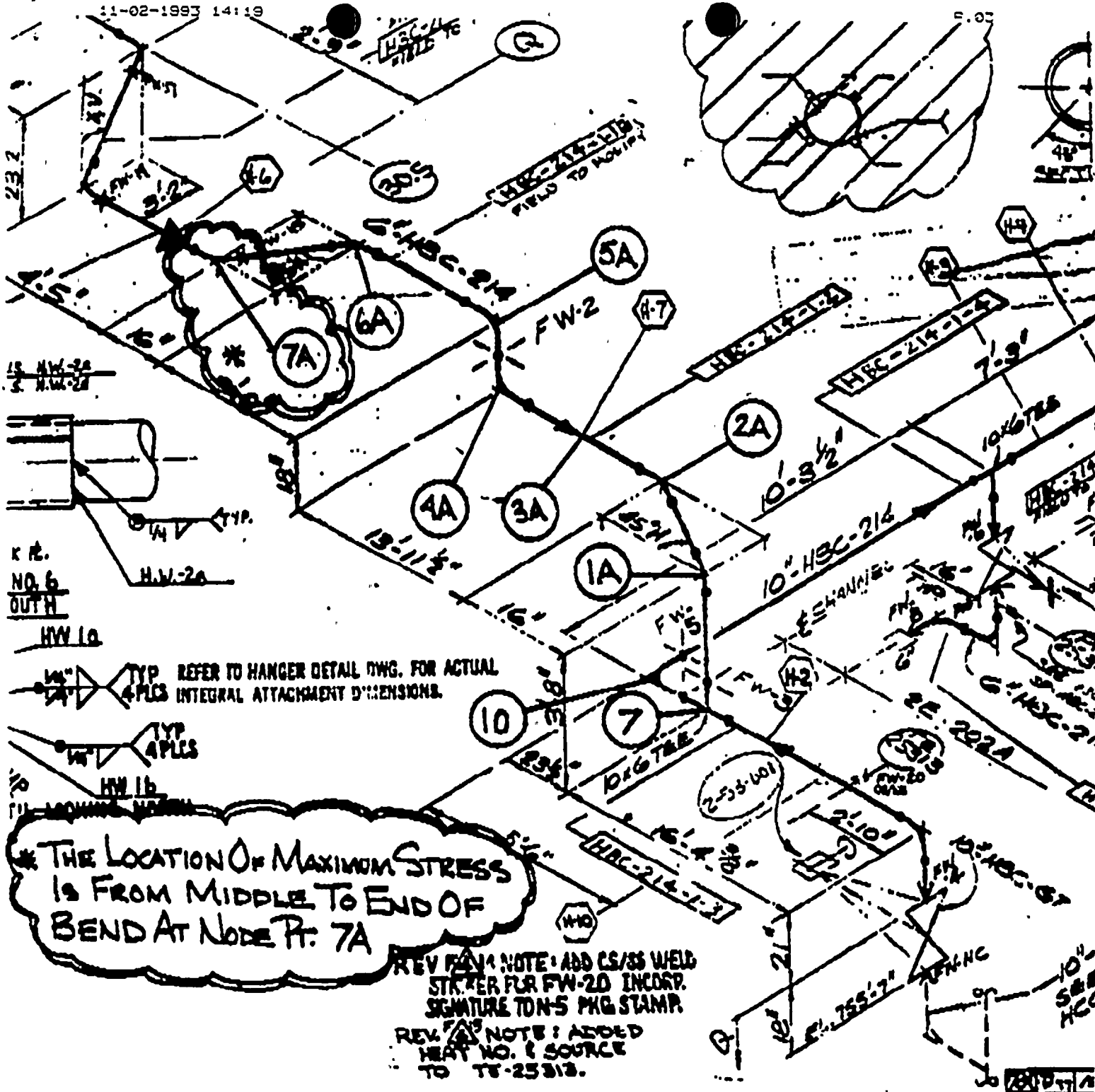
PIPING STRESS SUMMARY CHECK AND COVER SHEET
 AENE SECT. III, CLASSES 2 & 3

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 ELEMENT	MAXIMUM COMPUTED STRESS (PSI)	ALLOWABLE STRESS (PSI)	COMPUTED ALLOWABLE
SUSTAINED LOADS EQN. 8		102 100A 102	1168	SH 18000	0.078
OCCASIONAL LOADS EQN. 9	C	7A E 7A H 7A E	1582	1.8 SH 27000	0.059
OCCASIONAL LOADS EQN. 9	D	7A E 7A H 7A E	1582	2.4 SH 36000	0.044
THERMAL EXPANSION EQN. 11		E E SPA	24130	2A+SH 37500	0.643

REFERENCE CALCULATIONS:

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



HW-2a
HW-1a
HW-1b
TYP REFER TO HANGER DETAIL DWG. FOR ACTUAL INTEGRAL ATTACHMENT DIMENSIONS.

TYP APPLS
HW-1b

*** THE LOCATION OF MAXIMUM STRESS IS FROM MIDDLE TO END OF BEND AT NODE Pt. 7A**

REV FROM NOTE: ADD CS/SS WELD STRIKER FOR FW-2D INCORP. SIGNATURE TD-N-5 PKG STAMP.

REV FROM NOTE: ADDED HEAT NO. & SOURCE TO TR-25313.

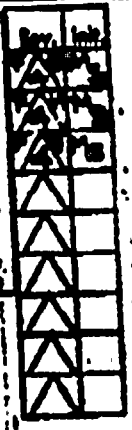
QTY	QTY
228	4
HTI	2
57	1

Source
2-53

ASME AS B30F
N-5 PACKAGE PREPARED
ALL CHANGES AFTER REV. 4.F.12...OF
THIS DRAWING MUST BE APPROVED BY
CODE DATA ENGINEER.

ASME N-5 SYSTEMS 2-35B-21A

ABR-2968



Welding Requirements

<input type="checkbox"/> P-A-UH	<input type="checkbox"/> E-7018
<input type="checkbox"/> Pre-Heat - 200°F	<input type="checkbox"/> E-7012
<input type="checkbox"/> Pre-Heat - 200°F max	
<input type="checkbox"/> Pre-Heat Insp. Req'd	
<input type="checkbox"/> Certified Corros. 222	

Welding Requirements

<input type="checkbox"/> PPT-Ag	<input type="checkbox"/> E-309
<input type="checkbox"/> PPT-A	<input type="checkbox"/> E-308L
<input type="checkbox"/> Pre-Heat - 200°F	<input type="checkbox"/> E-7018
<input type="checkbox"/> Inter Pass - 200°F	
<input type="checkbox"/> No. Weld Insp. Req'd	

Welding Requirements

<input type="checkbox"/> P-A-C-UH	
<input type="checkbox"/> P1-AT-UH	
<input type="checkbox"/> P-A	
<input type="checkbox"/> P-A-T-Ag	
<input type="checkbox"/> P-T-Ag	
<input type="checkbox"/> P-T	
<input type="checkbox"/> P-A-U	
<input type="checkbox"/> P-A-AT-U	
<input type="checkbox"/> P-A-T	
<input type="checkbox"/> P-T-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. Darrach DATE 10/28/93 CHECKED M.A. S... 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)

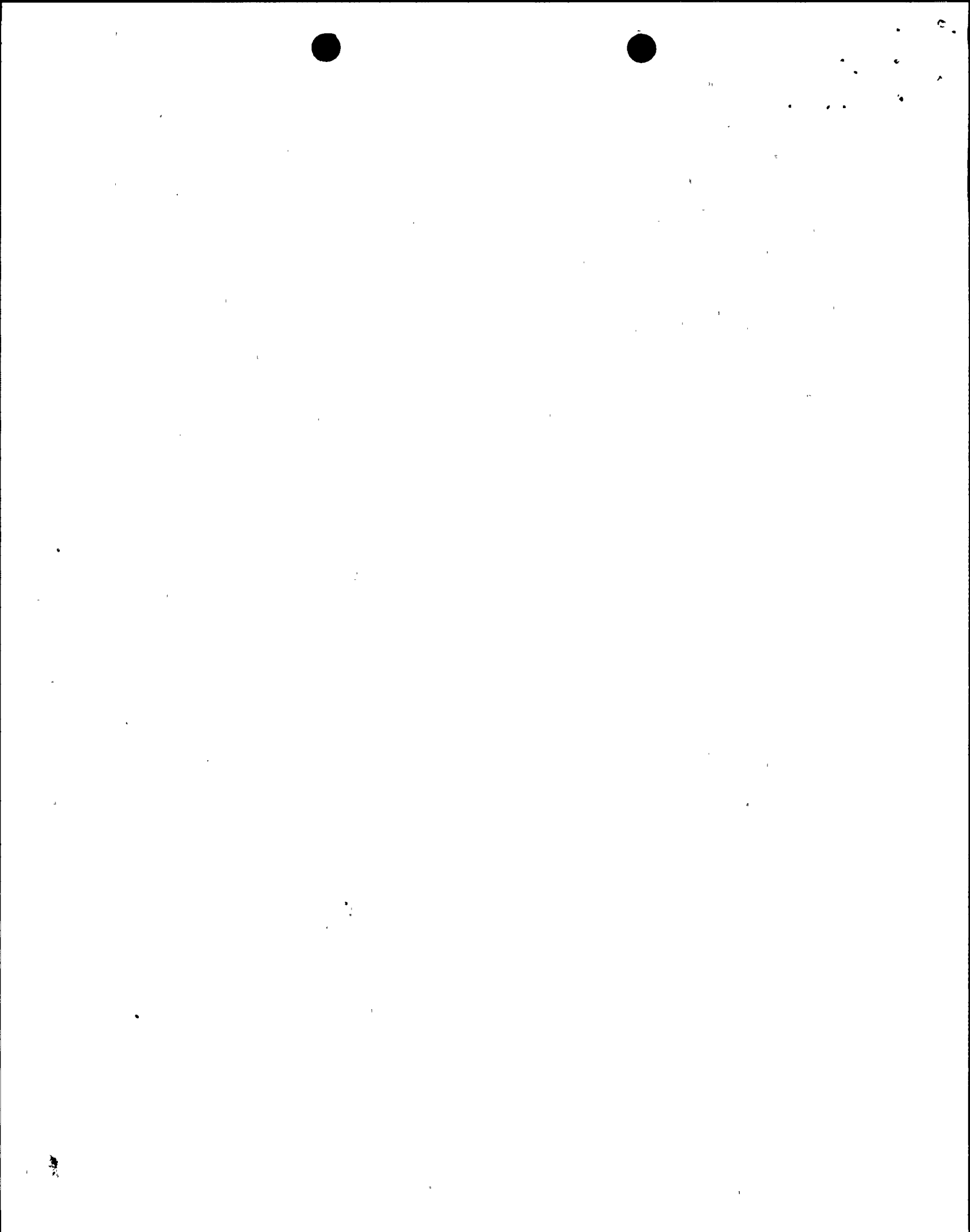
PIPING STRESS SUMMARY CHECK AND COVER SHEET
 ASME SECT. III, CLASSES 2 & 3

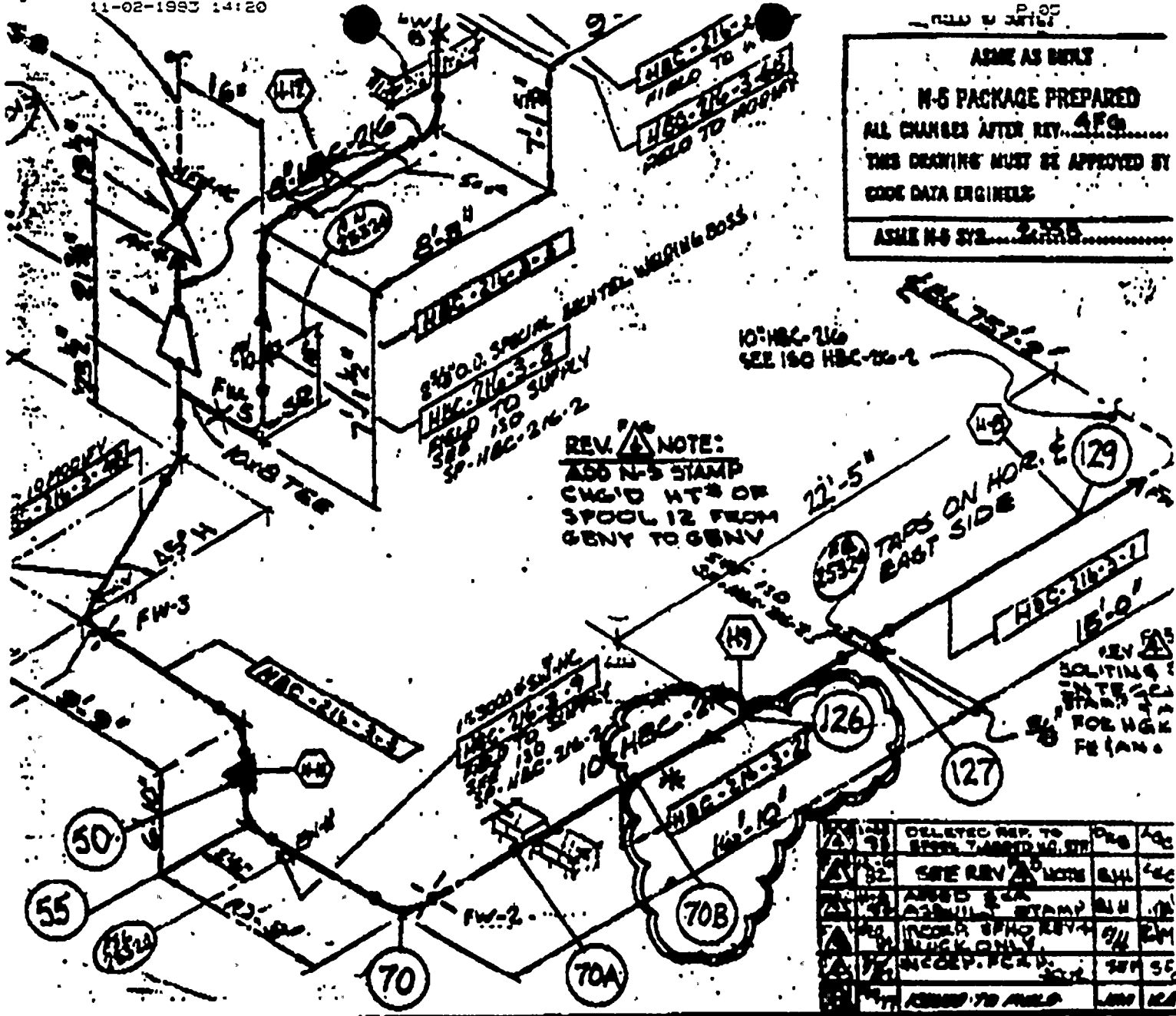
PROJECT SSES
 JOB NO. - PLANT DESIGN GROUP
 SYSTEM FUEL POOL COOLING PUMPS DISCHARGE LINE
 CALC NO ABR-2970 ISO NO - REV NO -

DESIGN CONDITION	LEVEL	LOCATION OF MAXIMUM STRESS	MAXIMUM COMPUTED STRESS (PSI)	ALLOWABLE STRESS (PSI)	COMPUTED ALLOWABLE
SUSTAINED LOADS EQN. 8		126 708 126	2846	SE 15000	0.190
OCCASIONAL LOADS EQN. 9	C	126 708 126	3190	1.8 SE 27000	0.118
OCCASIONAL LOADS EQN. 9	D	126 708 126	3227	2.4 SE 36000	0.090
THERMAL EXPANSION EQN. 10		SS B SS B SS M	2830	SA 22800	0.259

REFERENCE CALCULATIONS:

WEIGHT WTO1 SEISMIC-INERTIA PORTION - OTHERS -
 THERMAL EXP THRM01 SEISMIC-ANCHOR MOVEMENT -
 DYNAMIC SEISCA/SEISCD/SEISLO





ASME AS BUILT
 N-S PACKAGE PREPARED
 ALL CHANGES AFTER REV. 476
 THIS DRAWING MUST BE APPROVED BY
 CODE DATA ENGINEER
 ASME N-S SYD 2/2/83

REV. 476 NOTE:
 ADD N-S STAMP
 CNG'D HT'S OR
 SPOOL 12 FROM
 GENV TO GENV

22'-5"
 10" HBC-216
 SEE ISO HBC-216-2

REV. 476
 SOLITING
 IN THE
 STAMP
 FOR HGC
 FE 1 AN.

NO.	DESCRIPTION	DATE	BY	CHK
1	DELETED REF. TO			
2	STAMP			
3	NOTE			
4	STAMP			
5	STAMP			
6	STAMP			
7	STAMP			
8	STAMP			
9	STAMP			
10	STAMP			

* THE LOCATION OF MAXIMUM STRESS IS FROM NODE POINTS 70B TO 126

WELDING REQUIREMENTS
 E-7018
 E-7015
 E-308-L
 E-309
 E-309-16
 E-308-16
 E-308-2
 E-618
 NOT APPLICABLE

WELDING REQUIREMENTS

Welding Requirement	Field Code
<input type="checkbox"/> P-A-C-Uh	<input type="checkbox"/> E-708-2
<input type="checkbox"/> P-AT-Uh	<input type="checkbox"/> E-618
<input type="checkbox"/> P-A	<input type="checkbox"/> E-7015
<input type="checkbox"/> P-AT-Ag	<input type="checkbox"/> E-308-L
<input type="checkbox"/> P-T-Ag	<input type="checkbox"/> E-309
<input type="checkbox"/> P-T	<input type="checkbox"/> E-309-16
<input type="checkbox"/> P-T-A-Uh	<input type="checkbox"/> E-308-16
<input type="checkbox"/> P-A-AT-Uh	<input type="checkbox"/> E-308-2
<input type="checkbox"/> P-AT	<input type="checkbox"/> E-618
<input type="checkbox"/> P, P-AT-Ag	<input type="checkbox"/> NOT APPLICABLE

Above Welding Requirements Are Certified Correct

ABR-2970

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SUSQUEHANNA STEAM ELECTRIC STATION
CALCULATION SHEET

CALC. NO. PLS-9330 REV. NO. 0 SHEET 8 OF 31
 ORIGINATOR C. J. Dwork DATE 10/20/93 CHECKED M. S. ... DATE 10/27/93
 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	3675	SM 12000	0.306
OCCASIONAL LOADS EQN. 12	C	235 E	235 M 235 E	4831	1.8 SM 21600	0.224
OCCASIONAL LOADS EQN. 12	D	235 E	235 M 235 E	5203	2.4 SM 28800	0.181
THERMAL EXPANSION EQN. 13		50 E	50 E 50 M	3445	EA 18000	0.191

REFERENCE CALCULATIONS:

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

