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CURTIS,N.W. Pennsylvania Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
SCHWENCER,A. Licensing Branch 2

SUBJECT: Forwards Rev 1 to inservice insp program plan & response to 840912 request for addl info on program.Rev to program is result of addl relief requests identified & editorial changes deemed necessary.Fee paid.

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Norman W. Curtis
Vice President-Engineering & Construction-Nuclear
215/770-7501

DEC 19 1984

Director of Nuclear Reactor Regulation
Attention: Mr. A. Schwencer, Chief
Licensing Branch No. 2
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUSQUEHANNA STEAM ELECTRIC STATION
REQUEST FOR ADDITIONAL INFORMATION
ON UNIT 1 ISI RESPONSE & REVISION 1
TO UNIT 1 ISI PROGRAM PLAN
ER 100450 FILE 841-4 & 899
PLA-2357 Docket No. 50-387

Reference: (1) PLA-1732 dated 6/30/83
(2) Letter from A. Schwencer to N. Curtis dated 9/12/84.

Dear Mr. Schwencer:

Under Reference (1) PP&L transmitted its Inservice Inspection Program for Susquehanna Unit 1 in accordance with License Condition 2.C.10 of Facility Operating License No. NPF-14 for your review and approval. This letter transmits a revision to this program (Revision 1) and the response to your comments (Reference (2)) on our previous submittal of the program.

The revision to our program is the result of additional relief requests which have been identified and some minor nontechnical or editorial changes we deemed necessary. Also attached are ISI Classification Boundary Drawings for your use. Pursuant to 10CFR170.22, the appropriate fee is enclosed.

We trust the Commission will find this submittal satisfactory.

Very truly yours,

N. W. Curtis
Vice President-Engineering & Construction-Nuclear

Attachments (see list of Attachments immediately following)

cc: M. J. Campagnone - NRC
R. H. Jacobs - NRC Susq. SES
R. A. McBrearty - NRC Region I

A047
1/1

w/check # 150.00

List of Attachments

Section 1: Response to Request for Additional Information on the Susquehanna Unit 1 ISI Program

Section 2: Susquehanna Unit 1 Inservice Inspection Program Rev. 1

(Note: ISI Classification Boundary Drawings are enclosed as part of this revision and a list of these drawings follows this page.)

Attachment #1 ISI-T-107.0, Component Listing & ISI 10 Year Plan

Attachment #2 Weld and Hanger Identification Isometrics

Attachment #3 Component Identification Drawings

Attachment #4 Selected Pages from ISI-T-111.0, Selection Document for ISI Class 1 Piping Welds, Category B-J

Attachment #5 Selected Pages from ISI-T-113.0, Equivalent of One Loop Calculation of ISI Class 2 Piping and ISI-T-114.0, Selection Document for ISI Class 2 Piping Welds, Category C-F

Attachment #6 PP&L ISI Ultrasonic Procedures

List of ISI Classification Boundary Drawings Enclosed

ISI DRAWING NUMBER	UNIT	DESCRIPTION	DRAWING NUMBER
ISI-M-100-1		LEGEND & SYMBOLS	C-193230-1
ISI-M-101	1	MAIN STEAM	C-193231
ISI-M-109	1	SERVICE WATER	C-193232
ISI-M-110	1	SERVICE WATER	C-193233
ISI-M-111-1	1	EMERGENCY SERVICE WATER	C-193234-1
ISI-M-111-2	1	EMERGENCY SERVICE WATER	C-193234-2
ISI-M-112	1	RHR SERVICE WATER	C-193235
ISI-M-123-4	1	PROCESS SAMPLING	C-193236-4
ISI-M-123-5		PROCESS SAMPLING	C-193236-5
ISI-M-134	1	DIESEL AUXILIARIES	C-193237
ISI-M-139	1	MSIV LEAKAGE CONTROL	C-193238
ISI-M-141	1	NUCLEAR BOILER	C-193239
ISI-M-142	1	NUCLEAR BOILER VESSEL INSTRUMENTATION	C-193240
ISI-M-143	1	REACTOR RECIRCULATION	C-193241
ISI-M-144	1	REACTOR WATER CLEAN-UP	C-193242
ISI-M-147	1	CONTROL ROD DRIVE-PART B	C-193243
ISI-M-148	1	STANDBY LIQUID CONTROL	C-193244
ISI-M-149	1	REACTOR CORE ISOLATION COOLING	C-193245
ISI-M-150	1	RCIC TURBINE-PUMP	C-193246
ISI-M-151-1	1	RESIDUAL HEAT REMOVAL	C-193247-1
ISI-M-151-2	1	RESIDUAL HEAT REMOVAL	C-193247-2
ISI-M-152	1	CORE SPRAY	C-193248
ISI-M-153	1	FUEL POOL COOLING & CLEANUP	C-193249
ISI-M-155	1	HIGH PRESSURE COOLANT INJECTION	C-193250
ISI-M-156	1	HPCI TURBINE AND PUMP	C-193251
ISI-M-186	1 AND 2	CONTROL STRUCTURE CHILLED WATER	C-193252
ISI-M-2111	1 AND 2	EMERGENCY SERVICE WATER	C-193253
ISI-M-2112	1 AND 2	RHR SERVICE WATER	C-193254

ATTACHMENT #4 - Selected pages from document ISI-T-110.0, Selection Document for ISI Class 1 Piping Welds, Category B-J.

ATTACHMENT #5 - Selected pages from document ISI-T-113.0, Equivalent of One Loop Calculation of ISI Class 2 Piping; and ISI-T-114.0, Selection Document for ISI Class 2 Piping Welds, Category C-F.

UNCONTROLLED

IST-T-111.0
Revision 1
(114.4001.0219)

SELECTION DOCUMENT FOR ISI CLASS 1 PIPING WELDS, CATEGORY B-J

SUSQUEHANNA STEAM ELECTRIC STATION
UNIT 1

Prepared for:
Pennsylvania Power and Light Company

Prepared by:
NUTECH Engineers, Inc.
Chicago, Illinois

FOR INFORMATION ONLY

AE/SUPPLIER DOCUMENT REVIEW

CATEGORY 1	• ACCEPTED • MANUFACTURING, PROCESSING, ACTIVITY MAY PROCEED. DOCUMENT MAY BE USED AS INTENDED
CATEGORY 2	• ACCEPTED • AS NOTED (MAKE CHANGES AS SHOWN AND RESUBMIT). MANUFACTURING, PROCESSING, ACTIVITY MAY PROCEED. DOCUMENT (WITH CHANGES) MAY BE CONSIDERED ACCEPTED.
CATEGORY 3	• UNACCEPTABLE • CORRECT AND RESUBMIT. MANUFACTURING, PROCESSING, ACTIVITY SHALL NOT PROCEED.
CATEGORY 4	• INFORMATION ONLY • ACCEPTANCE NOT REQUIRED. FOR RECORD PURPOSES ONLY.

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DAEG SIGNATURE M. Strenk DATE 7/31/84

P.O./CONTRACT NO.

PP&L, TWO N. NINTH ST., ALLENTOWN, PA 18101

Prepared by:

Richard C. Bean

R. C. Bean
Project Engineer

Issued by:

J B Martin

J. B. Martin
Engineering Director

Approved by:

John M. Clauss

J. M. Clauss, P.E.
Engineering Manager

Date: July 26, 1984

TABLE 2.0-1
ISI CLASS 1 WELD COUNT SUMMARY

Isometric Number (Rev. no.)	Number of Welds by Item Number						
	B9.11	B9.12	B9.21	B9.22	B9.31	B9.32	B9.40
System: Core Spray							
ISI-DCA-107-1(0)	11	0	0	0	0	0	0
ISI-DCA-107-2(0)	11	0	0	0	0	0	0
ISI-DCA-109-1(0)	4	0	0	0	0	0	0
ISI-DCA-109-2(0)	4	0	0	0	0	0	0
Total	30						
System: Feedwater							
ISI-DLA-101-1(0)	6	0	0	0	0	0	0
ISI-DLA-102-1(0)	40	1	0	0	0	0	0
ISI-DLA-103-1(0)	6	0	0	0	0	0	0
ISI-DLA-104-1(0)	11	1	0	0	0	0	0
ISI-DLA-104-2(0)	11	0	0	0	0	0	0
ISI-DLA-104-3(0)	11	0	0	0	0	0	0
ISI-DLA-104-4(0)	9	0	0	0	0	0	0
Total	94	2					
System: High Pressure Coolant Injection							
ISI-DBA-102-1(0)	12	0	0	0	0	0	0
Total	12						

TABLE 2.0-2

Core Spray System Selections, Item No. B9.11

Weld Total = 30

25% of 30 = 8

	WELD NUMBER	COMPONENT DESCRIPTION	SELECTION BASIS	INTERSECTING LONGITUDINAL SEAM WELD (B9.12)
1.	DCA1071-FW-5	RED-SE EXT	High Stress Intensity and High Cumulative Usage	None
2.	DCA1072-FW-5	RED-SE EXT	High Stress Intensity and High Cumulative Usage	None
3.	DCA1071-1-B	P-E	Random	None
4.	DCA1071-2-B	P-RED	Random	None
5.	DCA1072-1-A	E-P	Random	None
6.	DCA1072-2-A	E-P	Random	None
7.	DCA1091-1-D	E-P	Random	None
8.	DCA1092-FW-4	FH-P	Random	None

SUMMARY OF SELECTED WELDS

1. DCA1071-FW-5
2. DCA1071-1-B
3. DCA1071-2-B
4. DCA1072-FW-5
5. DCA1072-1-A
6. DCA1072-2-A
7. DCA1091-1-D
8. DCA1092-FW-4

Transmittal No.
840954

AE/SUPPLIER DOCUMENT REVIEW

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CATEGORY 2 - ACCEPTED - AS NOTED (MAKE CHANGES AS SHOWN AND RESUBMIT). MANUFACTURING, PROCESSING, ACTIVITY MAY PROCEED. DOCUMENT (WITH CHANGES) MAY BE CONSIDERED ACCEPTED.

CATEGORY 3 - UNACCEPTABLE - CORRECT AND RESUBMIT. MANUFACTURING, PROCESSING, ACTIVITY SHALL NOT PROCEED.

CATEGORY 4 - INFORMATION ONLY - ACCEPTANCE NOT REQUIRED. FOR RECORD PURPOSES ONLY.

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DAG SIGNATURE M. Strenk DATE 8/15/84

P.O./CONTRACT NO.

PP&L, TWO N. NINTH ST., ALLENTOWN, PA 18101

ISI-T-113.0
Revision 1
(114.4001.0217)

Transmittal No.
G-8408707

PLE-5524

EQUIVALENT OF ONE LOOP CALCULATION

FOR ISI CLASS 2 PIPING WELDS

SUSQUEHANNA STEAM ELECTRIC STATION

UNIT 1

Prepared for:
Pennsylvania Power & Light Company

Prepared by:
NUTECH Engineers, Inc.
Chicago, Illinois

Prepared by:
John M. Clauss
J. M. Clauss, P.E.
Engineering Manager

Issued by:
John M. Clauss for
J. B. Martin, P.E.
Engineering Director

Approved by:
John M. Clauss
J. M. Clauss, P.E.
Engineering Manager

Date: August 7, 1984

REV.	DATE	DESCRIPTION	APPROVAL	REV.	DATE	DESCRIPTION	APPROVAL
	8/30/84	Deleted References to MSIV LC Loop F-C2	DAG/MKS				

TABLE 3.0 - 1

SYSTEM: Core Spray System , Loop Summary, Item No. CS.11

ASME Section XI, 1974 Edition Through Summer 1975 Addenda
Equivalent of One Loop Calculation Per IWC-2411(b)

Revision 0 — John M. Clauss (Prepared by) — 8/7/84 (Date)

Richard C. Bean (Reviewed by) — 8/7/84 (Date)

___ System Circulates Reactor Coolant
(25% of the equivalent of one loop to be examined each interval)

X System Does Not Circulate Reactor Coolant
(12.5% of the equivalent of one loop to be examined each interval)

Loop Number	Equivalent of One Loop (# of Components)	Interval Percentage		# of Components to be Examined
CS-G01	11	0.125	=	2
CS-G02	4	0.125	=	1
CS-G03	6	0.125	=	1
CS-G04	10	0.125	=	2
CS-G05	13	0.125	=	2
CS G06	2	0.125	=	1
CS-G07	6	0.125	=	1
			=	
			=	
			=	
			=	
			=	
				10

TABLE 3.0 - 2

SYSTEM: Core Spray System , Loop Summary, Item No. CS. 21

ASME Section XI, 1974 Edition Through Summer 1975 Addenda
Equivalent of One Loop Calculation Per IWC-2411(b)

Revision 0 — John M. Clauss (Prepared by) — 8/7/84 (Date)

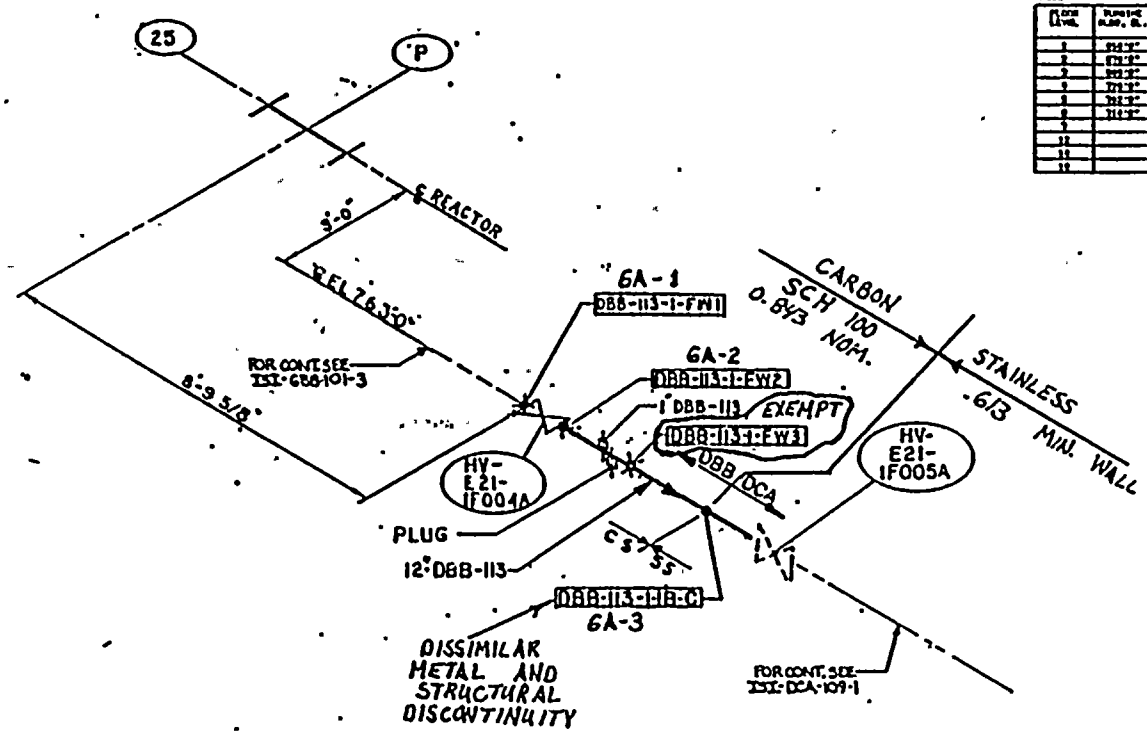
Richard C. Dean (Reviewed by) — 8/7/84 (Date)

___ System Circulates Reactor Coolant
(25% of the equivalent of one loop to be examined each interval)

X System Does Not Circulate Reactor Coolant
(12.5% of the equivalent of one loop to be examined each interval)

Loop Number	Equivalent of One Loop (# of Components)	Interval Percentage		# of Components to be Examined
CS-G01	0	0.125	=	0
CS-G02	0	0.125	=	0
CS-G03	0	0.125	=	0
CS-G04	0	0.125	=	0
CS-G05	0	0.125	=	0
CS-G06	4	0.125	=	1
CS-G07	0	0.125	=	0
			=	
			=	
			=	
			=	
			=	
				1

ISI-T-113.0
REVISION 0



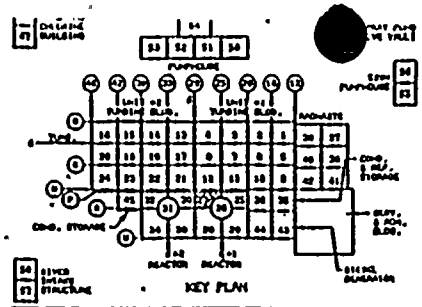


FIGURE 3.0-1
PG. 3-3

6A - (3)

REFERENCE TITLE	AE NO.	PP&L NO.	NO.	DATE	ACCOUNT	REVISION	BY	CH.	APPROVED
PLANT DESIGN PIPING PLAN	M-27-5	E-106477-5							
ISO REACTOR BLDG. CORE SPRAY		DBB-113-1 REV3/P6							
ISI BOUNDARY DWG	ISI-M-152	C-193246 REV0							
P&ID CORE SPRAY	M-152	E-106257							

QUALITY RELATED
PER SECTION 21

SUSQUEHANNA S.E.S. UNIT 1
INSERVICE INSPECTION ISOMETRIC
WELD IDENTIFICATION
ISI-DBB-113-1

PENNSYLVANIA POWER & LIGHT COMPANY
ALLENTOWN, PA.

C 198529

ISI-T-113.0
REVISION 0.

1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
[illegible]	[illegible]	[illegible]			[illegible]	[illegible]
[illegible]	[illegible]	[illegible]			[illegible]	[illegible]
7		[illegible]				[illegible]
12					[illegible]	[illegible]
14					[illegible]	[illegible]
18		[illegible]				[illegible]

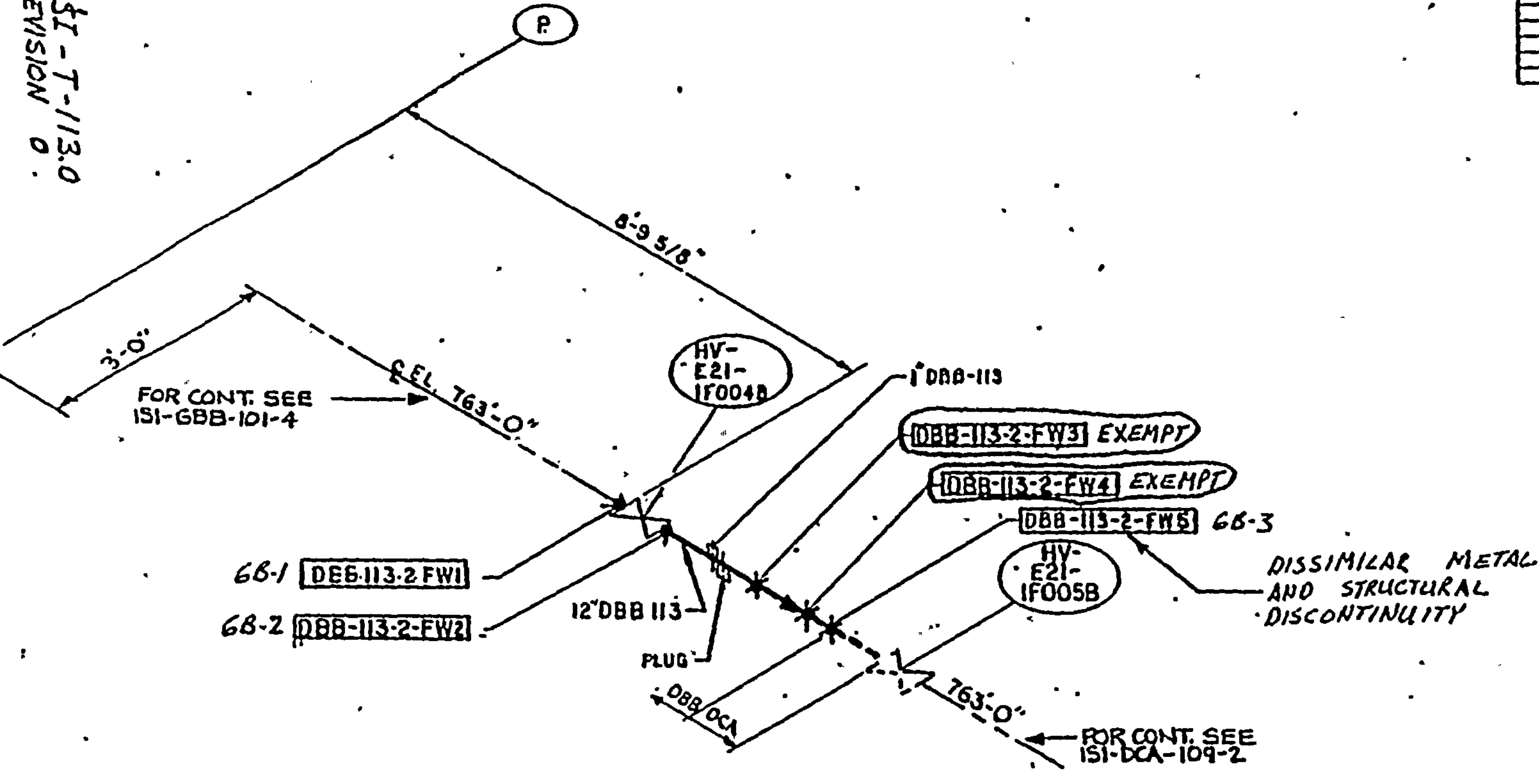


FIGURE 3.0-2
PG. 3-4

6B — (3)

ORE SPRAY	ISI-M-152	C-193246 REV.0
	M-152	E-106257
	M-25-5	E-106175
"B-D"		FCI-P49 835 REV.12
	DBB-113-2 R4:F.3	
	AE NO.	PP&L NO.

NO. | DATE | ACCOUNT | REVISION | BY | CH. | APPROVED

DECIMAL

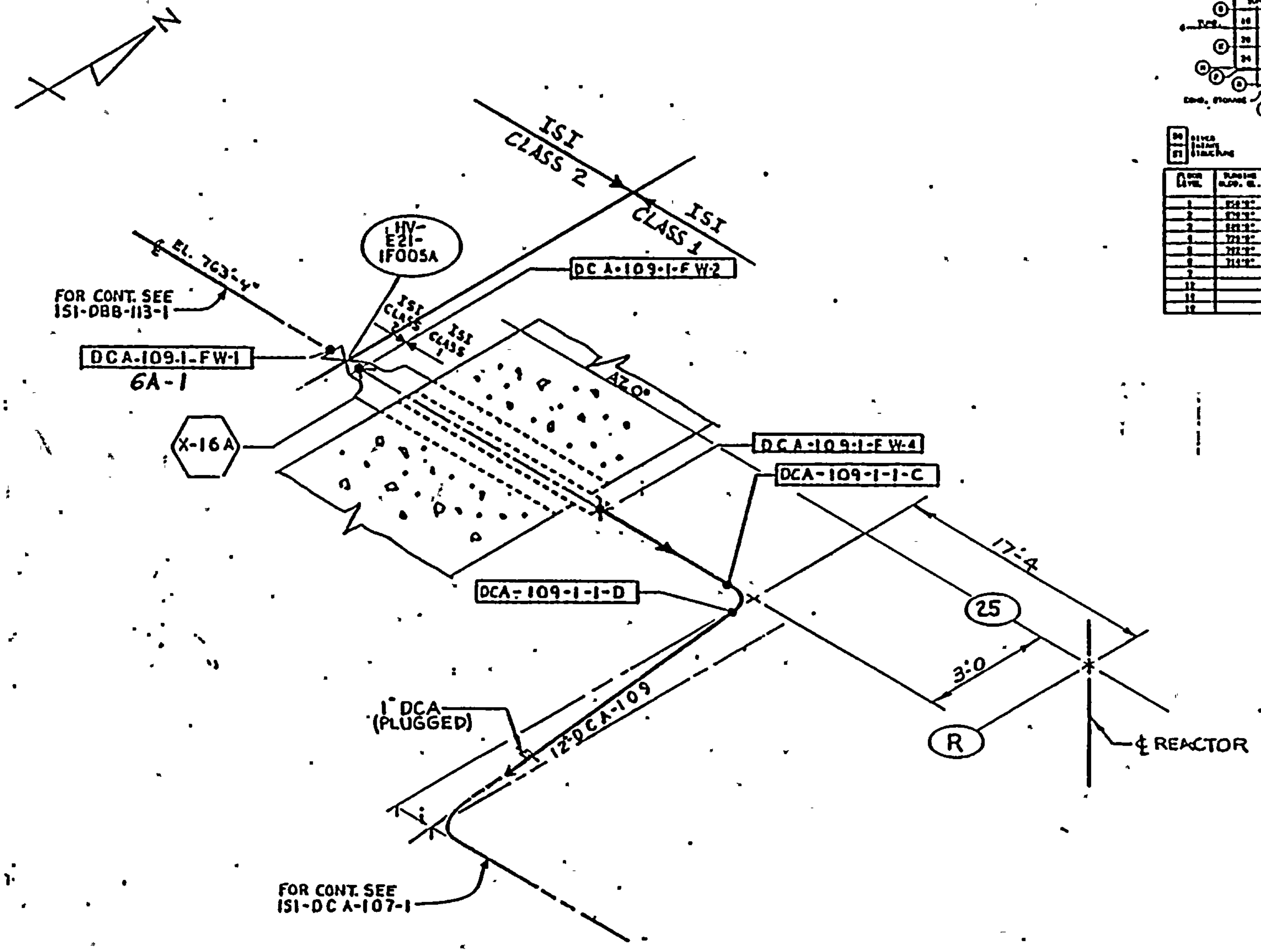
G 1 Z 2 0 | G | G | G | G — LOCATION CODES — H — SORTS

QUALITY RELATED
ASME SECTION XI
CLASS 2
ACCOUNT 741032
SCALE NONE
SIZE 25
ELEV. 749'-1"
APPROVED: M. Strek 4/30/81

SUSQUEHANNA S.E.S. UNIT 1
INSERVICE INSPECTION ISOMETRIC
WELD IDENTIFICATION
ISI-DBB-113-2
PENNSYLVANIA POWER & LIGHT COMPANY
ALLENTOWN, PA.

C 198530 . 0

ISI-T-113-0
REVISION 0



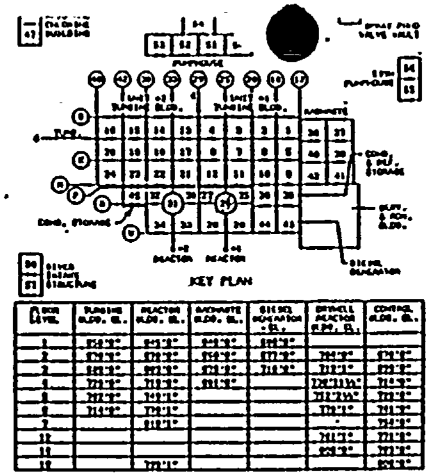


FIGURE 3.0-3
PG 3-5

6A ①

REFERENCE TITLE	AE NO.	PP&L NO.
ISI BOUNDARY DWG. CORE SPRAY	ISI-M-152	C-193216 REV.0
P&ID CORE SPRAY	M-152	E-106257
PLANT DESIGN DWG.	M-26-12	E-106176 SH.12
PLANT DESIGN DWG.	M-27-5	E-106177 SH.5
CORE SPRAY PUMPS DISCH "A&C"		FCI-P19-834-A-12
ISO. CORE SPRAY	DCA-109-1 B.5;F.6	

NO.	DATE	ACCOUNT	REVISION	BY	CH.	APPROVED

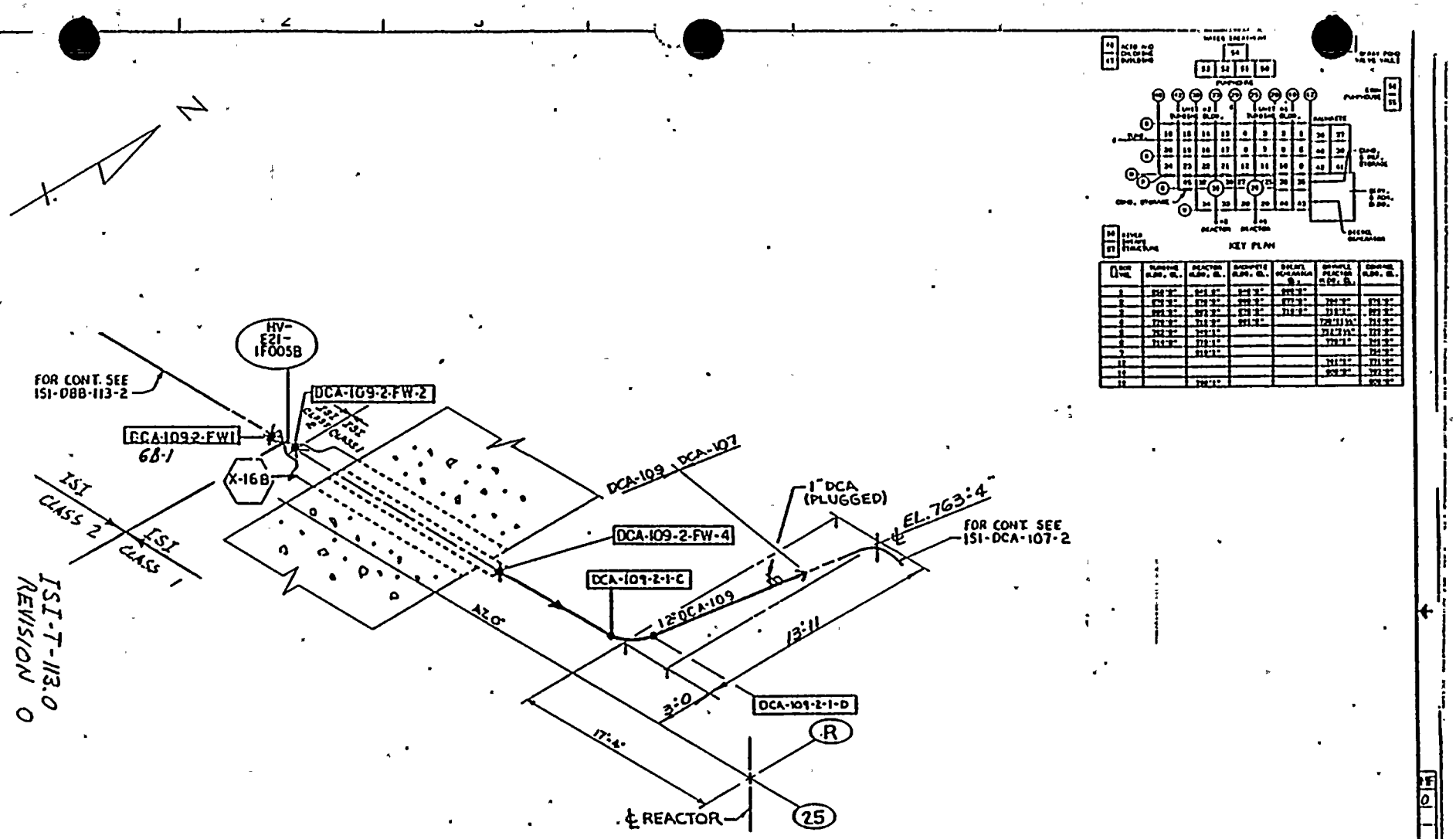
QUALITY RELATED
ASME SECTION XI
741032
26.27
761'-1"

SUSQUEHANNA S.E.S. UNIT 1
INSERVICE INSPECTION ISOMETRIC
WELD IDENTIFICATION
ISI-DCA-109-1

PENNSYLVANIA POWER & LIGHT COMPANY
ALLENTOWN, PA.

M. Shieck 5/3/84

C 198557



ISI-T-113.0
REVISION 0

FIGURE 3.0-4
PG. 3-6

6B - (1)

ISI BOUNDARY DWG. CORE SPRAY	ISI-M-152	C-193246 REV.0
P&ID CORE SPRAY	M-152	E-106259
PLANT DESIGN DWG.	M-25-3	E-106175 SH.5
PLANT DESIGN DWG.	M-26-12	E-106176 SH.12
CORE SPRAY PUMPS LEICH "B C D"		FCI P19836 R-12
ISO. CORE SPRAY	DCA109-2 R6-FE	
SUBSERVICE TITLE	P.E. NO.	P.P.&L. NO.

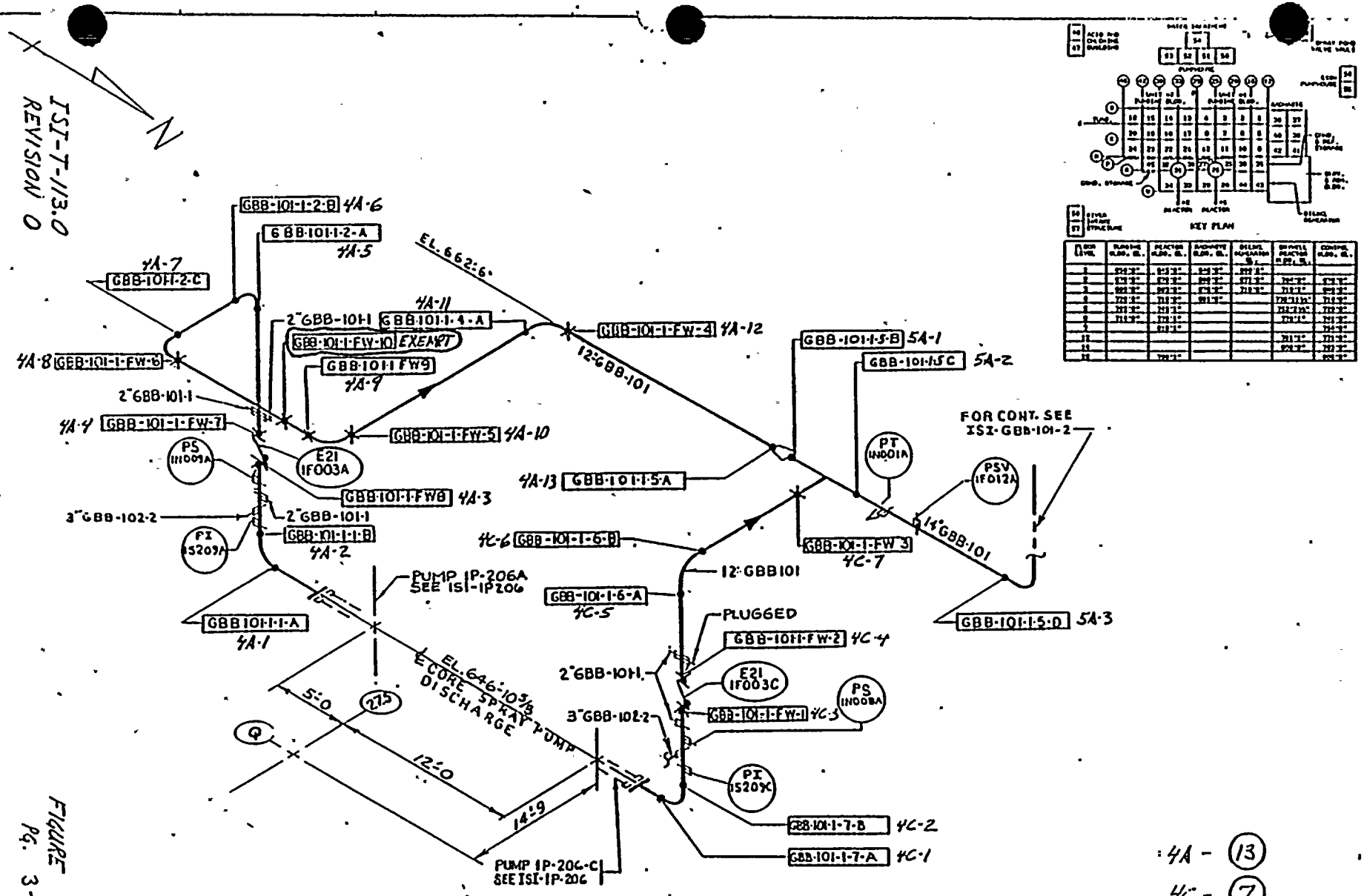
NO.	DATE	ACCOUNT	REVISION	BY	CH.	APPROVED

QUALITY RELATED

SUSQUEHANNA S.E.S. UNIT 1
INSERVICE INSPECTION ISOMETRIC
WELD IDENTIFICATION
ISI-DCA-109-2

PENNSYLVANIA POWER & LIGHT COMPANY
ALLENTOWN, PA.

C 19855.8 0



REFERENCE TITLE	AE NO.	PP&L NO.
PLANT DESIGN PIPING PLAN	M-27-1	E-106177-1
LP ISO: CORE SPRAY		GBB-101-1 A/1/9
P+ID CORE SPRAY	M-152	E-106257
ISI CLASS 2 DRY. DWG. CORE SPRAY	ISI M-152	C-193246 R0

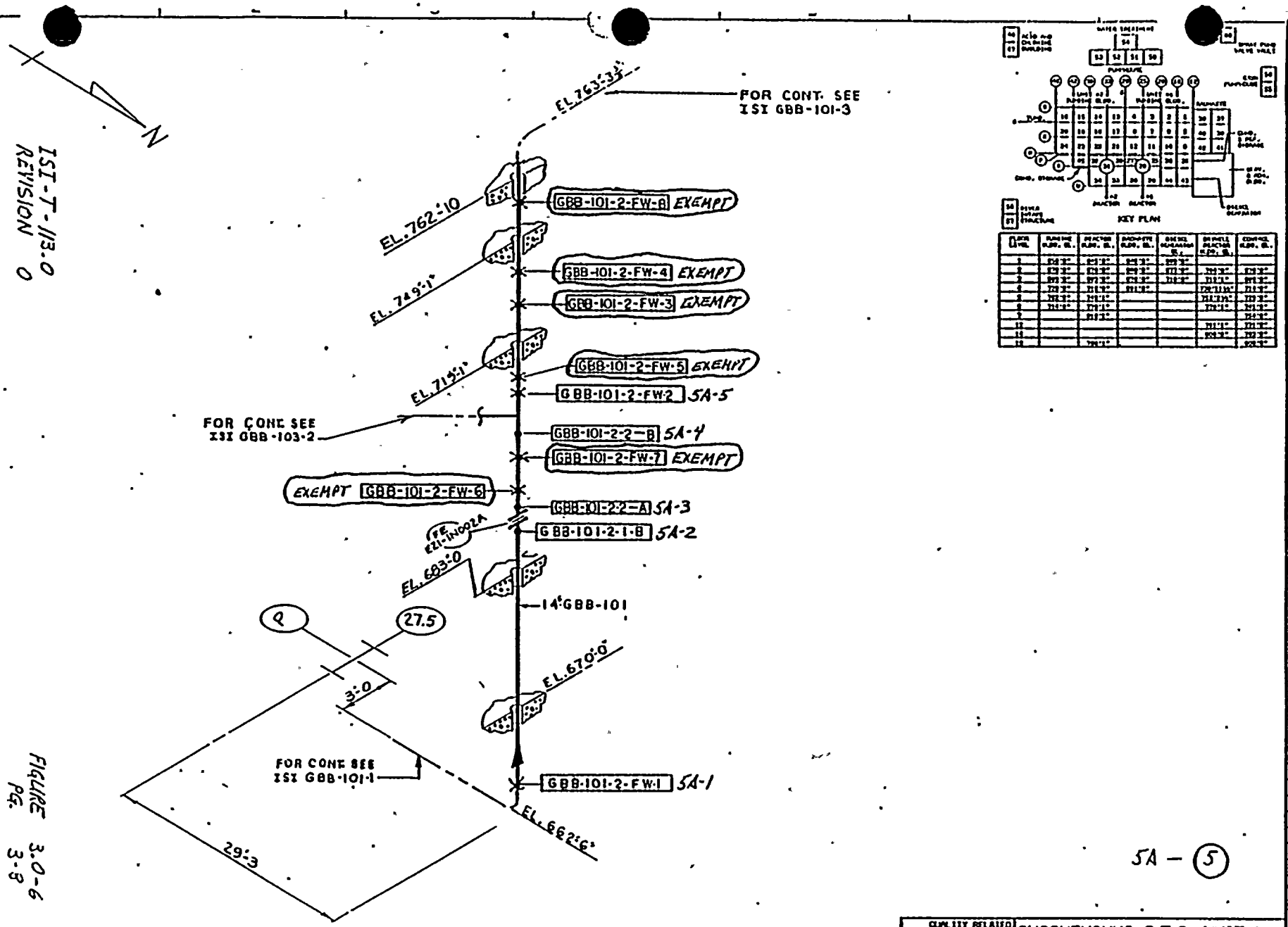
NO.	DATE	ACCOUN#	REVISION	BY	CH.	APPROVED

QUALITY RELATED

SUSQUEHANNA S.E.S. UNIT 1
INSERVICE INSPECTION ISOMETRIC
WELD IDENTIFICATION
ISI-GBB-101-1

PENNSYLVANIA POWER & LIGHT COMPANY
ALLENTOWN, PA.

SCALE NONE
DRAWING NO. C-198577
REV. NO. 0

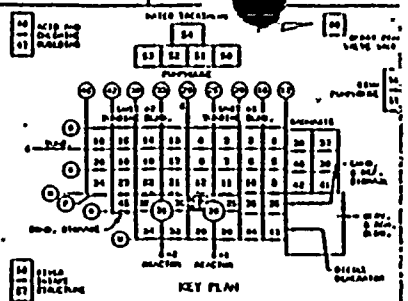


REFERENCE TITLE	AE NO.	PP&L NO.
PLANT DESIGN PIPING PLAN	M-27-1&2 27-3	E-106177-1&2 E-5
LP. ISO. CORE SPRAY		GBB-101-2 Sh 1/2
P&ID CORE SPRAY	M-132	E-106257
ISI CLASS BNDRY. DWG. CORE SPRAY	ISI-M-132	C-193246 R0

NO.	DATE	ACCOUNT	REVISION	BY	CH.	APPROVED

QUALITY RELATED
SUSQUEHANNA S.E.S. UNIT 1
INSERVICE INSPECTION ISOMETRIC HELD IDENTIFICATION
ISI-GBB-101-2
PENNSYLVANIA POWER & LIGHT COMPANY
ALLENTOWN, PA.
C 198578 0

ISI-T-113.0
REVISION 0



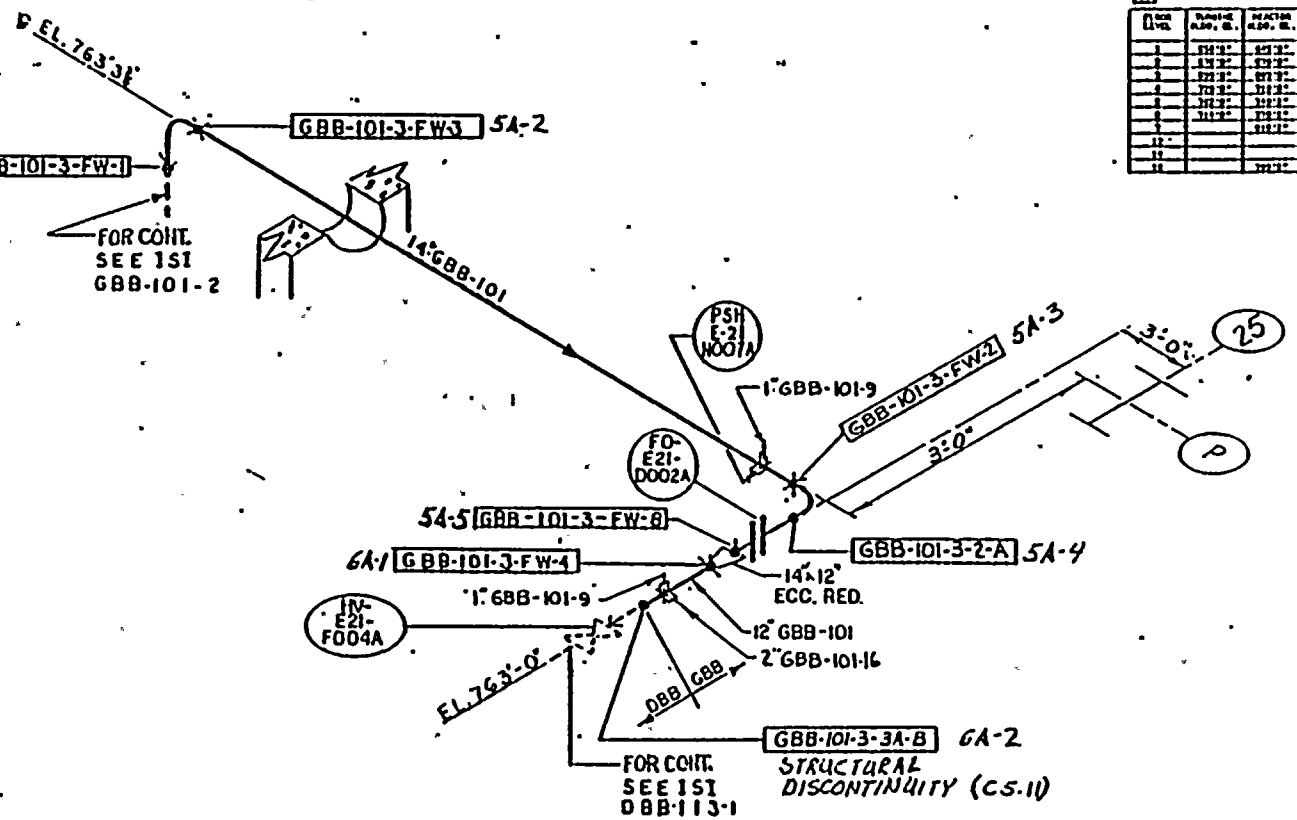


FIGURE 3.0-7
PG. 3-9

5A - (5)

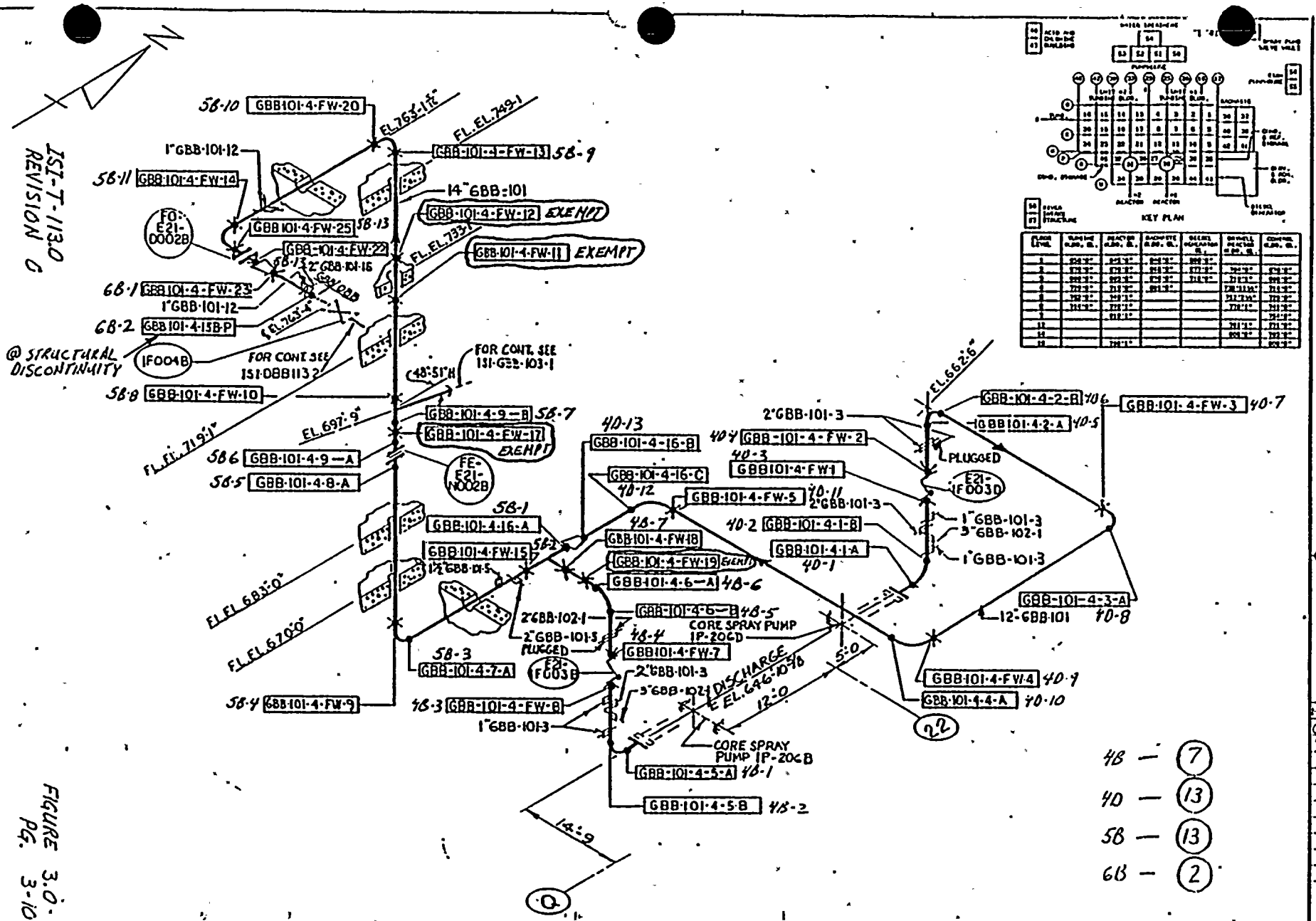
6A - (2)

ISO. REACTOR BLDG. CORE SPRAY		GBB-101-3 R3FR
SYS. ISO. CORE SPRAY PUMPS "A" "C" DISCH.		FCI-P49-833 R.12
ISI BOUNDARY DWG. CORE SPRAY	ISI-M-152	G-193246
PP. PLAN EL. 749'-1"	M-27-5	E-106177 SH.5
P&ID CORE SPRAY	M-152	E-106257

QUALITY RELATED

SUSQUEHANNA S.E.S. UNIT 1
INSERVICE INSPECTION ISOMETRIC
WELD IDENTIFICATION
ISI-GBB-101-3
PENNSYLVANIA POWER & LIGHT COMPANY
ALLENTOWN, PA.

198639



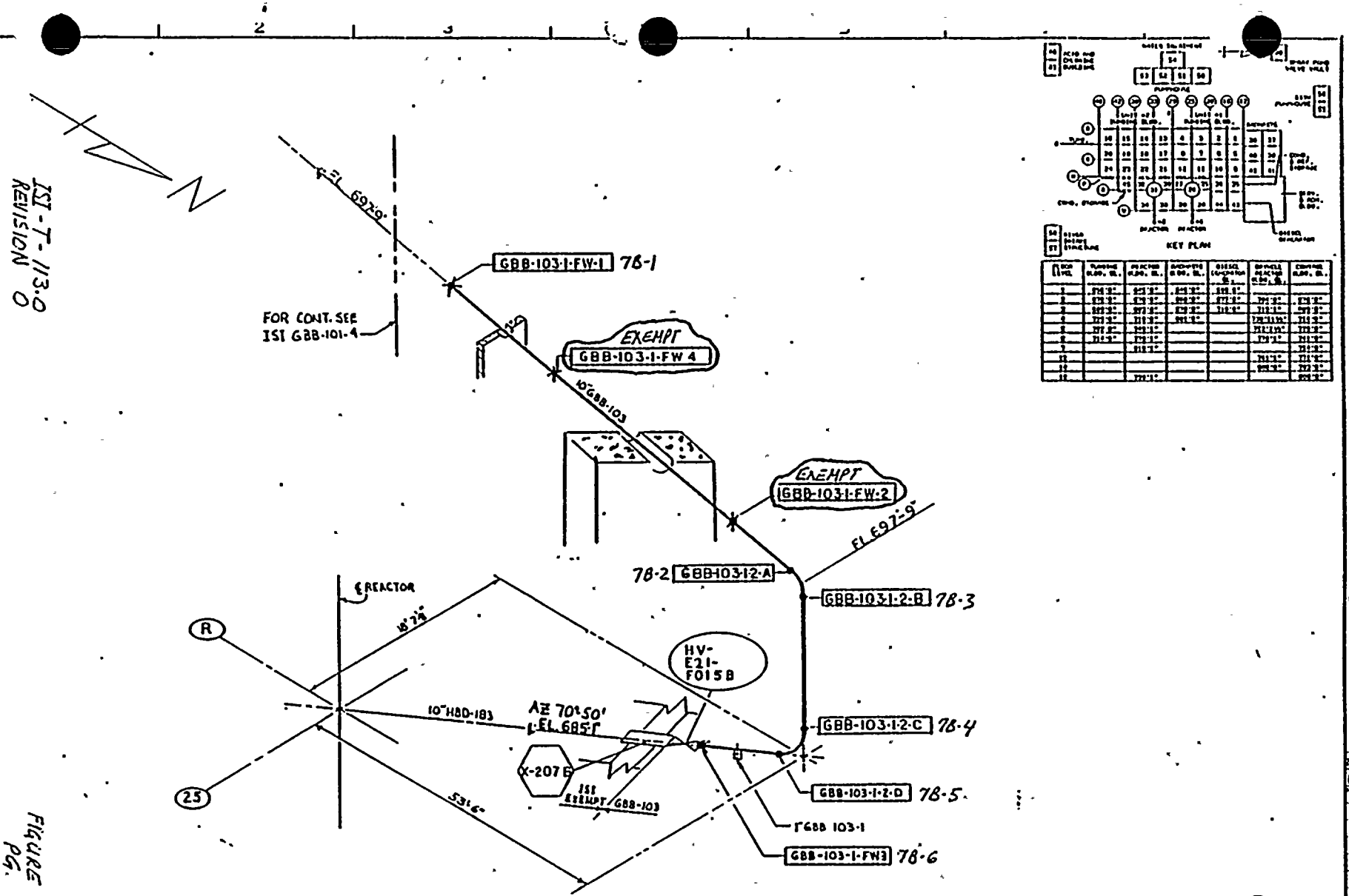
ISO. REACTOR BLDG. CORE SPRAY		GBB-101-4 R9/F11
ISI BOUNDARY DWG. CORE SPRAY	ISI-M-152	C-193246 R.0
PIPING PLAN EL. 645'-0" THRU 799'-1"	M-25-1.2.3.4.15	E-106175-L2,3,4,5
P&ID CORE SPRAY	M-152	E-106257
REFERENCE TITLE	AE NO.	PP&L NO.

NO.	DATE	ACCOUNT	REVISION	BY	CH.	APPROVED

QUALITY RELATED
ASME SECTION XI
SCALE: NONE
SCALE: 1/2" = 1'-0"
111 Quirk 4/30/84
OP Mgr 4/2/84

SUSQUEHANNA S.E.S. UNIT 1
INSERVICE INSPECTION ISOMETRIC
WELD IDENTIFICATION
ISI-GBB-101-4
PENNSYLVANIA POWER & LIGHT COMPANY
ALLENTOWN, PA.

C 198579 0



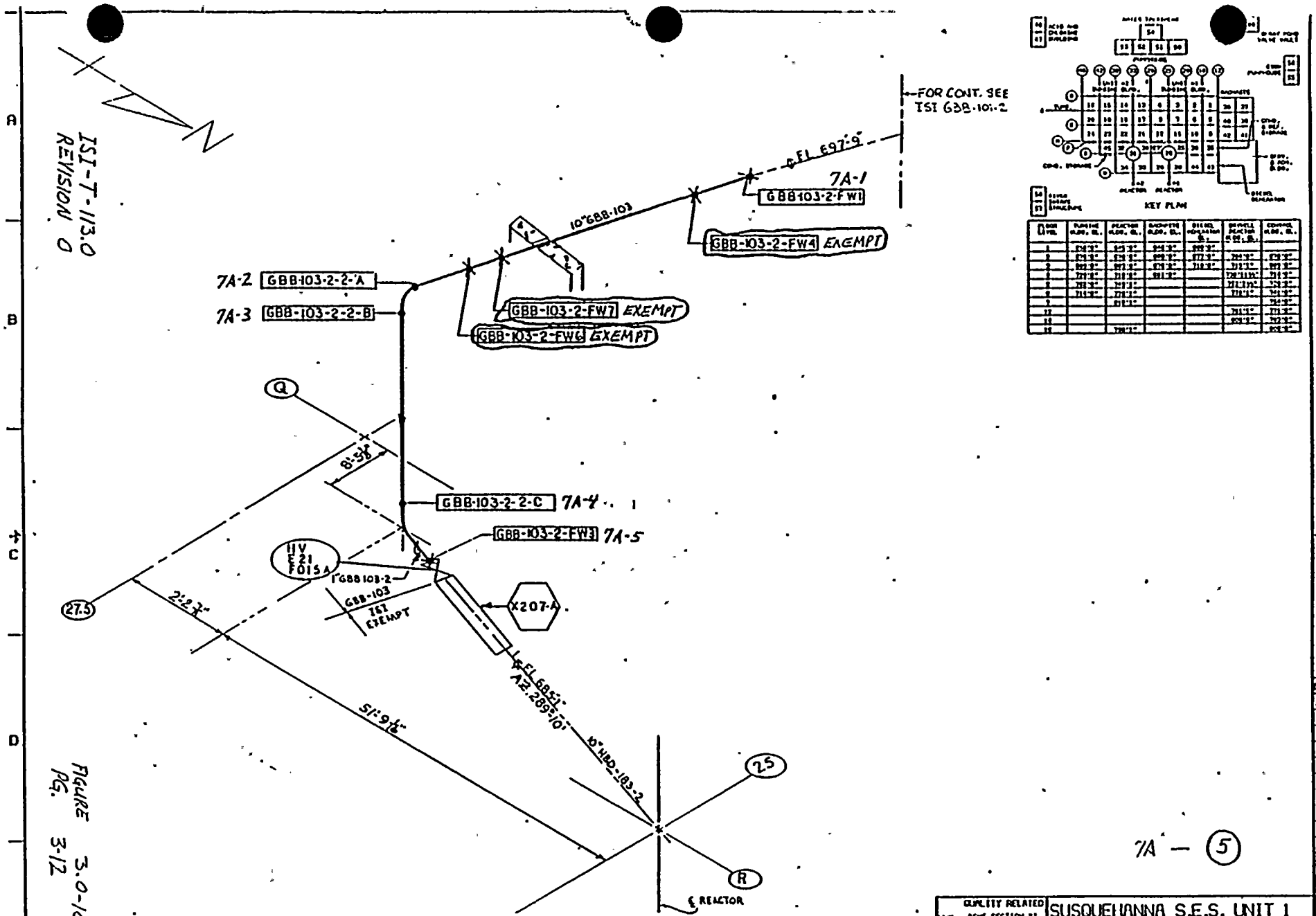
P&ID CORE SPRAY	M-152	E-106257							
PLANT DSGN DWG. AREA 25 E-685-0	M-25-3	E-106175 R/c							
ISI CLASS BDRY. DWG.	ISI-M-152	C-193245 R/c							
ISO REFS BLDG. CORE SPRAY		GBB-103-1 R/c							
REFERENCE TITLE	RE NO.	FPIL NO.	NO.	DATE RECORD	REVISION	BY	CH.	APPROVED	

QUALITY RELATED

SUSQUEHANNA S.E.S. UNIT 1
INSERVICE INSPECTION ISOMETRIC
WELD IDENTIFICATION
ISI GBB-103-1

PENNSYLVANIA POWER & LIGHT COMPANY
ALLENTOWN, PA.

C 198580 0



RHR-CORE SPRAY	M-152	E-106257
SYSTEM-RHR CORE SPRAY		FCC P49-871 R/11
PLANT DSGN DWG AREA 27 EL 685'-0"	M-27-3	E-106177 R/6
ISI CLASS BDRY. DWG.	ISI-M-152	C-193246 R/6
ISI-RHR BLDG CORE SPRAY		GBB-103-2 R/4
REFERENCE TITLE	AE NO.	PP&L NO.

NO.	DATE	ACCOUNT	REVISION	BY	CH.	APPROVED

QUALITY RELATED

SUSQUEHANNA S.E.S. UNIT 1
INSERVICE INSPECTION ISOMETRIC
WELD IDENTIFICATION
1ST GBB-103-2

PENNSYLVANIA POWER & LIGHT COMPANY
ALLENTOWN, PA.

SCALE NONE	SECTION XI	27	685'-0"

M. Shenk 9/30/84
C. J. Mowrey 9/30/84

C 19858.1 0

ISI-T-113.0
REVISION 0

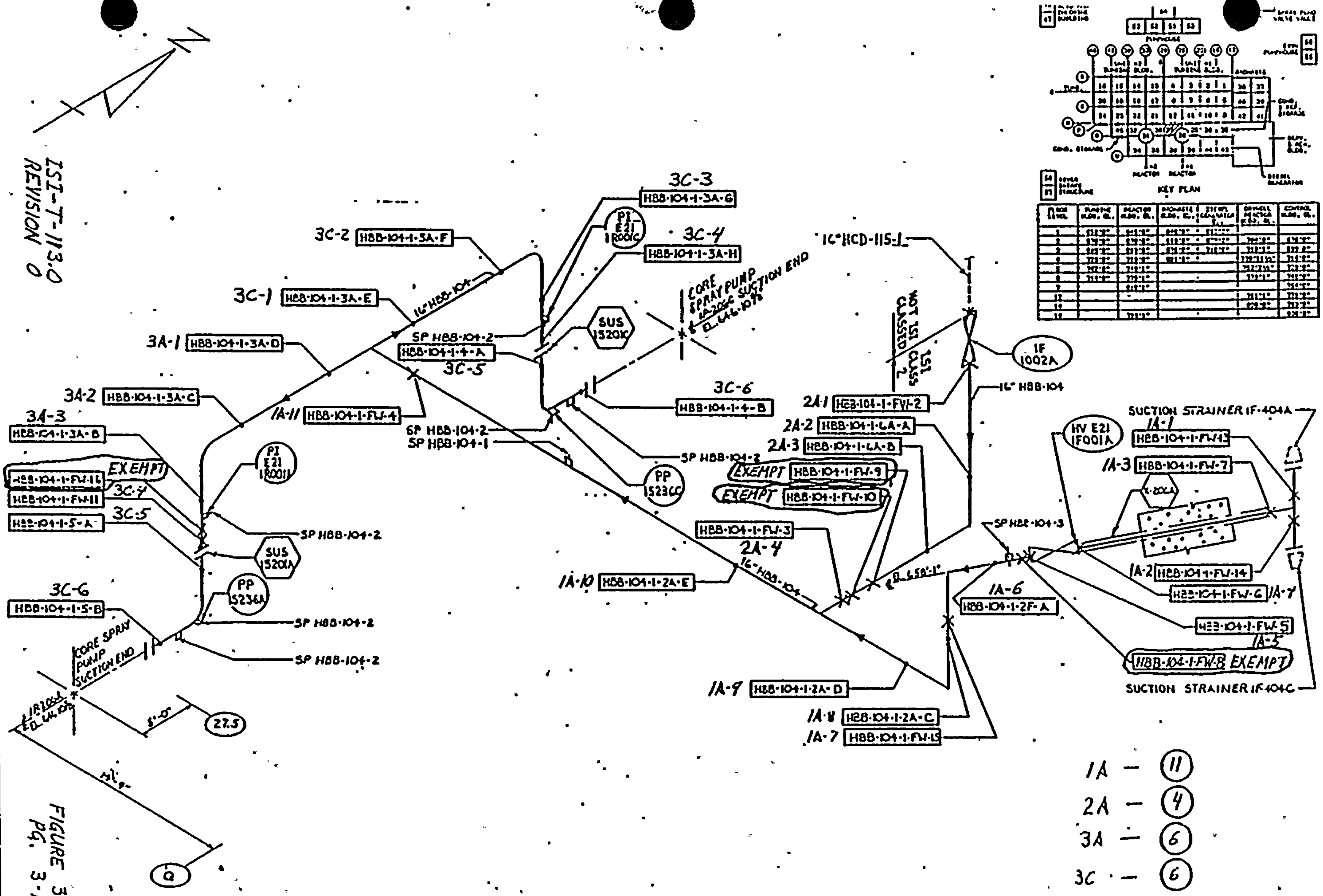


FIGURE 3.0-11
PG. 3-13

REFERENCE TITLE	AE NO.	PP&L NO.
ISI CLASS BDRY. DWG. CORE SPRAY	ISI-M-152	C-193246 REV.0
ISO. REACTOR BLDG. CORE SPRAY UNIT 1		HBB-104-1 R.8F4
P&ID CORE SPRAY	M-152	E-106257
PLANT DESIGN DWG. PP. PLAN EL. 645'-0"	M-27-1	E-106177-1

NO.	DATE	ACCOUNT	REVISION	BY	CH.	APPROVED

QUALITY RELATED

ASME SECTION XI

27 — 645'-0"

M. Strunk 4/30/84

SUSQUEHANNA S.E.S. UNIT 1
INSERVICE INSPECTION ISOMETRIC
WELD IDENTIFICATION
ISI-H22-104-1

PENNSYLVANIA POWER & LIGHT COMPANY
ALLENTOWN, PA.

C 198609 C

ISI-T-113.0
REVISION 0

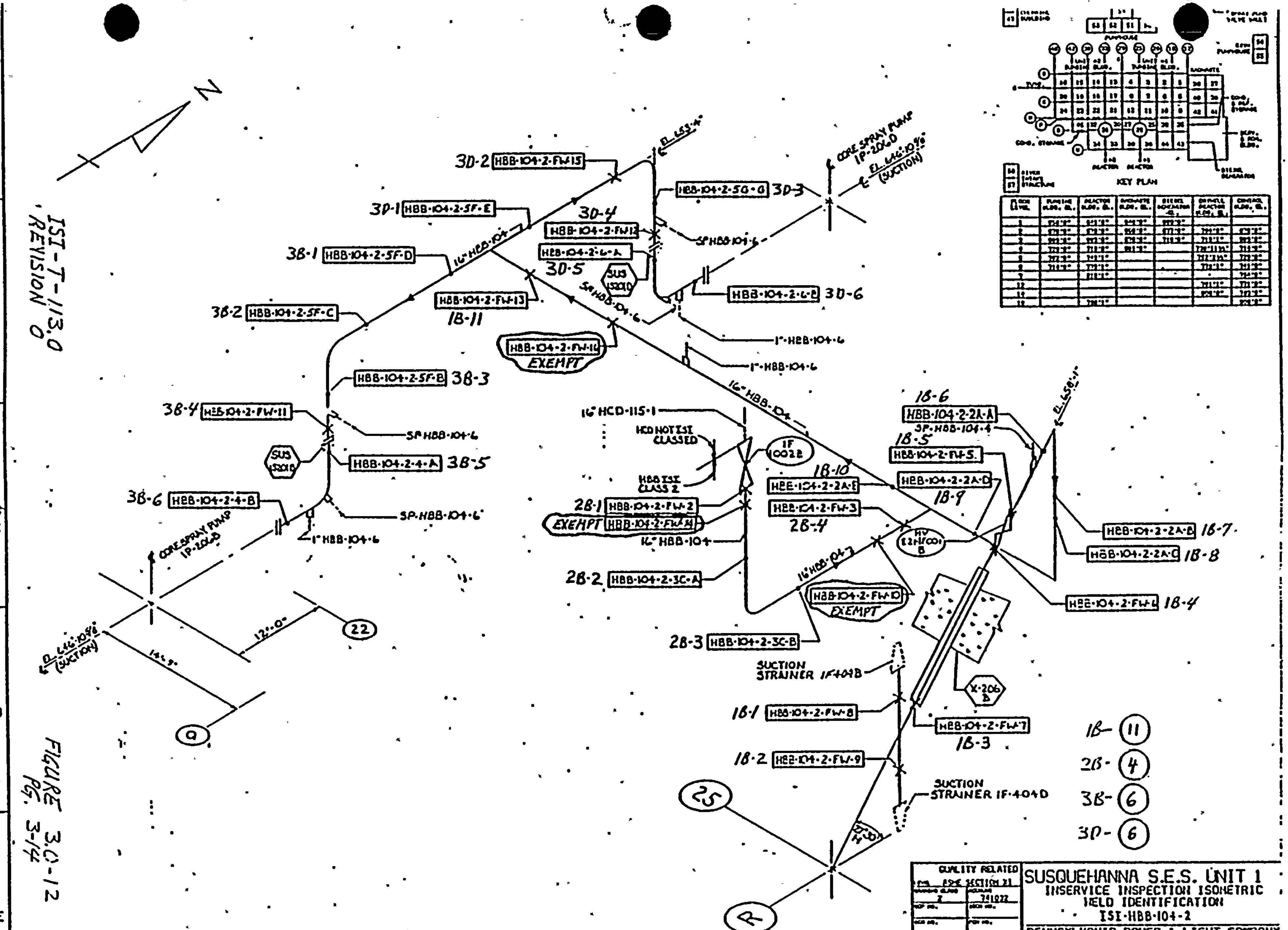


FIGURE 3.0-12
PG. 3-14

QUALITY RELATED	
ASME SECTION XI	
2	741272
25	645'-0"

SUSQUEHANNA S.E.S. UNIT 1
INSERVICE INSPECTION ISOMETRIC
WELD IDENTIFICATION
ISI-HBB-104-2

PENNSYLVANIA POWER & LIGHT COMPANY
ALLENTOWN, PA.

C 198616

REFERENCE TITLE	AE NO.	PP&L NO.
ISI CLASSIFICATION BOUNDARY DWG	ISI-M-152 R-0	C-193246 REV.0
P&ID CORE SPRAY	M-152	E-106257
PLANT DESIGN DWG.	M-25-1	E-105175 SH 1
ISO. REACTOR BLDG. CORE SPRAY		HBB-104-2R-1F-X

NO.	DATE	ACCOUNT	REVISION	BY	CH.	APPROVED

TABLE 3.0-3

SYSTEM: Core Spray System , Loop CS-G01

ASME Section XI, 1974 Edition Through Summer 1975 Addenda
Equivalent of One Loop Calculation Per IWC-2411(b)

Revision 0 — John M. Clauss (Prepared by) — 8/7/84 (Date)

Richard C. Bezu (Reviewed by) — 8/7/84 (Date)

Loop Description and Number of Components in Each Loop

System: Core Spray Number of Loops 2

Loop Description Core spray suction from the suppression pool strainers to the Tee for each pump suction line

___ Circulates Reactor Coolant X Does Not Circulate Reactor Coolant

Equivalent of One Loop

Item Number[1]	Loop A + B + C + D + E + F = Total	÷ No. of Loops	= Equivalent
C5.11	11 + 11 + 0 + 0 + 0 + 0 = 22	÷ 2	11
C5.12			0
C5.21			0
C5.22			0
C5.31			0
C5.32			0

(1) 1980 Edition through and including Winter 1980 Addenda Item Numbers are used to determine examination requirements

TABLE 3.0 - 3 (cont'd)

A Loop CS-G01

Isometric Number	Rev	Source	Number of Components, by Item Number C5.11	C5.12	C5.21	C5.22	C5.31	C5.32
ISI-HBB-104-1	0	PP&L	11					
			11	0	0	0	0	0

B Loop CS-G01

ISI-HBB-104-2	0	PP&L	11					
			11	0	0	0	0	0

___ Loop _____

___ Loop _____

TABLE 3.0 - 4

SYSTEM: Core Spray System, Loop CS-G02

ASME Section XI, 1974 Edition Through Summer 1975 Addenda
Equivalent of One Loop Calculation Per IWC-2411(b)

Revision 0 — John M. Clauss, Prepared by — 8/7/84, Date

Richard C. Bean, Reviewed by — 8/7/84, Date

Loop Description and Number of Components in Each Loop

System: Core Spray — Number of Loops 2

Loop Description Core spray suction from the condensate storage tank to the tee in the suction line from the suppression pool

____ Circulates Reactor Coolant X Does Not Circulate Reactor Coolant

Equivalent of One Loop

Item Number[1]	Loop A + B + C + D + E + F	= Total	÷ No. of Loops	= Equivalent
C5.11	4 + 4 + 0 + 0 + 0 + 0	= 8	÷ 2	= 4
C5.12	— — — — — —	—	—	0
C5.21	— — — — — —	—	—	0
C5.22	— — — — — —	—	—	0
C5.31	— — — — — —	—	—	0
C5.32	— — — — — —	—	—	0

(1) 1980 Edition through and including Winter 1980 Addenda Item Numbers are used to determine examination requirements

TABLE 3.0 - 4 (cont'd)

A Loop CS-G02

Isometric Number	Rev	Source	Number of Components, by Item Number C5.11	C5.12	C5.21	C5.22	C5.31	C5.32
ISI-HBB-104-1	0	PP&L	4					
			4	0	0	0	0	0

B Loop CS-G02

ISI-HBB-104-2	0	PP&L	4					
			4	0	0	0	0	0

___ Loop _____

___ Loop _____

TABLE 3.0 - 5

SYSTEM: Core Spray System , Loop CS-G03

ASME Section XI, 1974 Edition Through Summer 1975 Addenda
Equivalent of One Loop Calculation Per IWC-2411(b)

Revision 0 — John M. Clauss (Prepared by) — 8/7/84 (Date)

Richard C. Bean (Reviewed by) — 8/7/84 (Date)

Loop Description and Number of Components in Each Loop

System: Core Spray Number of Loops 4

Loop Description Core spray suction from the Tee in the main line to the pump casing

____ Circulates Reactor Coolant X Does Not Circulate Reactor Coolant

Equivalent of One Loop

Item Number[1]	Loop A + B + C + D + E + F = Total	÷ No. of Loops =	Equivalent
C5.11	6 + 6 + 6 + 6 + 0 + 0 = 24	÷ 4	6
C5.12			0
C5.21			0
C5.22			0
C5.31			0
C5.32			0

(1) 1980 Edition through and including Winter 1980 Addenda Item Numbers are used to determine examination requirements

TABLE 3.0 - 5 (cont'd)

A Loop CS-603

Isometric Number	Rev	Source	Number of Components, by Item Number C5.11	C5.12	C5.21	C5.22	C5.31	C5.32
ISI-HBB-104-1	0	PP&L	6					
			6	0	0	0	0	0

B Loop CS-603

ISI-HBB-104-2	0	PP&L	6					
			6	0	0	0	0	0

C Loop CS-603

ISI-HBB-104-1	0	PP&L	6					
			6	0	0	0	0	0

D Loop CS-603

ISI-HBB-104-2	0	PP&L	6					
			6	0	0	0	0	0

TABLE 3.0 - 6

SYSTEM: Core Spray System , Loop CS G04

ASME Section XI, 1974 Edition Through Summer 1975 Addenda
Equivalent of One Loop Calculation Per IWC-2411(b)

Revision 0 — John M. Clauss, Prepared by — 8/7/84, Date

Richard C. Dean, Reviewed by — 8/7/84, Date

Loop Description and Number of Components in Each Loop

System: Core Spray Number of Loops 4

Loop Description Core spray pump discharge from the pump casing to the 14" common header for two pumps

___ Circulates Reactor Coolant X Does Not Circulate Reactor Coolant

Equivalent of One Loop

Item Number[1]	Loop A + B + C + D + E + F	= Total	÷ No. of Loops	= Equivalent
C5.11	13 + 7 + 7 + 13 + 0 + 0	= 40	÷ 4	= 10
C5.12				0
C5.21				0
C5.22				0
C5.31				0
C5.32				0

(1) 1980 Edition through and including Winter 1980 Addenda Item Numbers are used to determine examination requirements

TABLE 3.0 - 6 (cont'd)

A Loop CS-G04

Isometric Number	Rev	Source	Number of Components, by Item Number C5.11	C5.12	C5.21	C5.22	C5.31	C5.32
ISI-GBB-101-1	0	PP&L	13					
			13	0	0	0	0	0

B Loop CS G04

ISI-GBB-101-4	0	PP&L	7					
			7	0	0	0	0	0

C Loop CS-G04

ISI-GBB-101-1	0	PP&L	7					
			7	0	0	0	0	0

D Loop CS-G04

ISI-GBB-101-4	0	PP&L	13					
			13	0	0	0	0	0

TABLE 3.0 - 7

SYSTEM: Core Spray System , Loop CS-Gas

ASME Section XI, 1974 Edition Through Summer 1975 Addenda
Equivalent of One Loop Calculation Per IWC-2411(b)

Revision 0 — John M. Clauss, Prepared by — 8/7/84, Date

Richard C. Bezzi, Reviewed by — 8/7/84, Date

Loop Description and Number of Components in Each Loop

System: Core Spray Number of Loops 2

Loop Description Core spray discharge from the 14" common header at the pump discharge to the 14"x12" reducer just before the containment isolation valve

___ Circulates Reactor Coolant X Does Not Circulate Reactor Coolant

Equivalent of One Loop

Item Number[1]	Loop A + B + C + D + E + F = Total	÷ No. of Loops	= Equivalent
C5.11	13 + 13 + 0 + 0 + 0 + 0 = 26	÷ 2	= 13
C5.12	— — — — — — —	—	0
C5.21	— — — — — — —	—	0
C5.22	— — — — — — —	—	0
C5.31	— — — — — — —	—	0
C5.32	— — — — — — —	—	0

(1) 1980 Edition through and including Winter 1980 Addenda Item Numbers are used to determine examination requirements

TABLE 3.0 - 7 (cont'd)

A Loop CS-Gas

Isometric Number	Rev	Source	Number of Components, by Item Number C5.11	C5.12	C5.21	C5.22	C5.31	C5.32
ISI-GBB-101-1	0	PP&L	3					
ISI-GBB-101-2	0	PP&L	5					
ISI-GBB-101-3	0	PP&L	5					
			13	0	0	0	0	0

B Loop CS-Gas

ISI-GBB-101-4	0	PP&L	13					
			13	0	0	0	0	0

___ Loop ____

___ Loop ____

TABLE 3.0 - 8

SYSTEM: Core Spray System , Loop CS G06

ASME Section XI, 1974 Edition Through Summer 1975 Addenda
Equivalent of One Loop Calculation Per IWC-2411(b)

Revision 0 — John M. Clauss (Prepared by) — 8/7/84 (Date)

Richard C. Bean (Reviewed by) — 8/7/84 (Date)

Loop Description and Number of Components in Each Loop

System: Core Spray Number of Loops 2

Loop Description Core spray discharge from the 14"x12" reducer to the containment isolation valve

___ Circulates Reactor Coolant X Does Not Circulate Reactor Coolant

Equivalent of One Loop

Item Number[1]	Loop A + B + C + D + E + F = Total	÷ No. of Loops	= Equivalent
C5.11	2 + 2 + 0 + 0 + 0 + 0 = 4	÷ 2	= 2
C5.12	— — — — — — —	—	0
C5.21	4 + 4 + 0 + 0 + 0 + 0 = 8	÷ 2	= 4
C5.22	— — — — — — —	—	0
C5.31	— — — — — — —	—	0
C5.32	— — — — — — —	—	0

(1) 1980 Edition through and including Winter 1980 Addenda Item Numbers are used to determine examination requirements

TABLE 3.0 - 8 (cont'd)

A Loop CS-G06

Isometric Number	Rev	Source	Number of Components, by Item Number C5.11	C5.12	C5.21	C5.22	C5.31	C5.32
ISI-GBB-101-3	0	PP&L	2		0			
ISI-DBB-113-1	0	PP&L	0		3			
ISI-DCA-109-1	0	PP&L	0		1			
			2	0	4	0	0	0

B Loop CS G06

ISI-GBB-101-4	0	PP&L	2		0			
ISI-DBB-113-2	0	PP&L	0		3			
ISI-DCA-109-2	0	PP&L	0		1			
			2	0	4	0	0	0

___ Loop _____

___ Loop _____

TABLE 3.0 - 9

SYSTEM: Core Spray System , Loop CS-607

ASME Section XI, 1974 Edition Through Summer 1975 Addenda
Equivalent of One Loop Calculation Per IWC-2411(b)

Revision 0 — John M. Clauss, Prepared by — 8/7/84, Date

Richard C. Bezu, Reviewed by — 8/7/84, Date

Loop Description and Number of Components in Each Loop

System: Core Spray Number of Loops 2

Loop Description 10" Core spray full flow Test line from the main header To The suppression pool containment isolation value

___ Circulates Reactor Coolant X Does Not Circulate Reactor Coolant

Equivalent of One Loop

Item Number[1]	Loop A + B + C + D + E + F = Total	÷ No. of Loops	= Equivalent
C5.11	6 + 5 + 0 + 0 + 0 + 0 = 11	÷ 2	= 6
C5.12			0
C5.21			0
C5.22			0
C5.31			0
C5.32			0

(1) 1980 Edition through and including Winter 1980 Addenda Item Numbers are used to determine examination requirements

TABLE 3.0 - 9 (cont'd)

A Loop CS-G07

Isometric Number	Rev	Source	Number of Components, by Item Number C5.11	C5.12	C5.21	C5.22	C5.31	C5.32
ISI-GBB-103-2	0	PP&L	6					
			6	0	0	0	0	0

B Loop CS G07

ISI-GBB-103-1	.0	PP&L	5					
			5	0	0	0	0	0

___ Loop _____

___ Loop _____

ISI-T-114.0
Revision 2
114.4001.0206

SELECTION DOCUMENT FOR ISI CLASS 2 PIPING WELDS, CATEGORY C-F

Prepared for:
Pennsylvania Power and Light Company

Prepared by:
NUTECH Engineers, Inc.
Chicago, Illinois

AE/SUPPLIER DOCUMENT REVIEW

CATEGORY 1 • ACCEPTED • MANUFACTURING, PROCESSING, ACTIVITY MAY PROCEED. DOCUMENT MAY BE USED AS INTENDED.

CATEGORY 2 • ACCEPTED • AS NOTED (MAKE CHANGES AS SHOWN AND RESUBMIT). MANUFACTURING, PROCESSING, ACTIVITY MAY PROCEED. DOCUMENT (WITH CHANGES) MAY BE CONSIDERED ACCEPTED.

CATEGORY 3 • UNACCEPTABLE • CORRECT AND RESUBMIT. MANUFACTURING, PROCESSING, ACTIVITY SHALL NOT PROCEED.

CATEGORY 4 • INFORMATION ONLY • ACCEPTANCE NOT REQUIRED. FOR RECORD PURPOSES ONLY.

ACCEPTANCE OF THIS DOCUMENT/DRAWING DOES NOT RELIEVE AE/SUPPLIER FROM FULL COMPLIANCE WITH CONTRACT OR PURCHASE ORDER REQUIREMENTS.

DAG SIGNATURE M Strenk DATE 7/31/84

P.O./CONTRACT NO.

PP&L, TWO N. NINTH ST., ALLENTOWN, PA 18101

Prepared by:

Richard C Bean
R. C. Bean
Project Engineer

Approved by:

John M. Clauss for
J. B. Martin, P.E.
Engineering Director

Approved by:

John M Clauss
J. M. Clauss, P.E.
Engineering Manager

Date: July 27, 1984

V.	DATE	DESCRIPTION	APPROVAL	REV.	DATE	DESCRIPTION	APPROVAL
	8/30/84	Deleted Loop	DAG MKS				

TABLE 2.0-3

Core Spray Selections, Category C-F*

Total Welds to be Examined per Interval: 12

A. Item No. C5.11

Loop Number(1)	Weld Number	Component Description	Selection Basis
CS-G01	1. HBB1041-FW-6	FH-V	Terminal End-Containment
	2. HBB1042-2A-E	T-P	Random
CS-G02	3. HBB1041-FW-3	P-T	Random
CS-G03	4. HBB1042-4-B	P-FL	Terminal End-Pump
CS-G04	5. GBB1011-FW-5	E-P	Random
	6. GBB1014-1-A	P-FL	Terminal End-Pump
CS-G05	7. GBB1012-1-B	P-FL	Terminal End-Anchor
	8. GBB1014-8-A	P-FL	Terminal End-Anchor
CS-G06	9. GBB1013-3A-B	P-P	Random
CS-G07	10. GBB1032-FW-3	E-V	Terminal End-Containment

B. Item No. C5.21

CS-G06	11. DBB1131-1-B-C	P-P	Dissimilar Metal Welds
	12. DBB1132-FW-5	P-P	Dissimilar Metal Welds

(1) See Document ISI-T-113.0

Section 1

Response to Request for Additional Information
on the Susquehanna Unit 1 ISI Program

The following information constitutes PP&L's response to your letter, A. Schwencer to N. Curtis dated 9/12/84. Note that all information presented is based on the latest revision of the Susquehanna Unit 1 ISI Plan which follows this section.

ISI PROGRAM

Question #1:

Although the initial ISI Program submittal contained a Section 5.0 titled, "Inservice Inspection Program Tables," a similar section was not included in the revised plan. Provide a revised edition of these tables reflecting the current code requirements and the inspection isometric drawings, which are essential for the staff evaluation of the ISI Program.

Response #1:

The format of the ISI Program Plan was significantly revised since the initial submittal of 1/27/81. The intent of the revised, latest format is to provide a brief summary of the applicable Code requirements for Susquehanna 1 and also provide an obvious indication - via reference to a Relief Request - where Code requirements could not be met, thereby, illustrating complete compliance for those components not specifically called out for relief.

For a more in-depth view, attached please find "For Information" copies of the following documents:

Attachment #1) ISI-T-107.0, Component Listing and ISI 10 Year Plan

Attachment #2) Weld and Hanger Identification Isometrics

Attachment #3) Component Identification Drawings

The above documents provide a comprehensive view of the Susquehanna 1 ISI Program by identifying all plant components subject to the examination requirements of ASME Section XI 80W80.

Question #2:

The code requirements for extent and frequency of examination under examination Categories B-J and C-F, Pressure Retaining Welds in Piping, depend on the weld configuration. In particular, welds in areas of high stress, dissimilar metal welds, welds at terminal ends and branch connections, and welds at structural discontinuities require examination during each interval. In the material to be provided under 1 above, indicate the method that these specific requirements were applied to determine the extent and frequency of examinations under Categories B-J and C-F and illustrate by example for a typical zone or system.

Response #2:

The selection basis for components within Code Categories BJ and CF are discussed in relief request #IRR-10 and IRR-3, respectively, in Section 7.0 of the Inservice Inspection Program Plan. In addition, further clarification is presented in Notes 2 and 3 in Section 10.0. Attached please find "For Information" excerpts from the following documents:

Attachment #4)	ISI-T-111.0, Selection Document for ISI Class 1 Piping Welds, Category B-J
Attachment #5)	ISI-T-113.0, Equivalent of One Loop Calculation of ISI Class 2 Piping; and ISI-T-114.0, Selection Document for ISI Class 2 Piping Welds, Category CF.

These documents provide supporting documentation for all weld selections in Categories BJ and CF. The Core Spray system has been arbitrarily chosen for an example.

Question #3:

In the ISI Program, Table 6.0 page 8 of 18 omits "Code Category B-M-1, Item Number B12.31: Valves Nominal Pipe Size ≥ 4 in." Please discuss the omission of this item.

Response #3:

Code Category B-M-1, Item Number B12.31 was inadvertently omitted from Table 6.0. However, no Susquehanna 1 components within the jurisdiction of the ISI program meet this description; therefore, the omission bears no impact on the Program. This item will be added for completeness in a subsequent revision.

Question #4:

No examination procedures were referenced in the ISI Program that would allow the staff to determine that suitable ultrasonic procedures are being used for detecting inservice flaws. Are the following documents that were cited during PSI review still applicable?

(a) AI Nuclear Energy Services, Inc., Document No. 80A2770 Rev. 3 5/18/79: Ultrasonic Examination, General Requirements, Pennsylvania Power and Light Company, Susquehanna Steam Electric Station Units 1 and 2.

(b) AI Nuclear Energy Services, Inc., Document No. 80A2771 Rev. 4, 8/8/79: Ultrasonic Examination Procedures for Piping Welds, Susquehanna Steam Electric Station Units 1 and 2.

(c) FF107160, 8856-M166-15-4, Specifications No. ISE-QAI-322, Rev. 3, 4/2/78: Ultrasonic Examination of Similar and Dissimilar Metal Welds for Susquehanna.

If there are newer applicable revisions, please reference them and summarize any significant changes.

Response #4:

The procedures referenced during the PSI review are no longer applicable. The following procedures are enclosed under Attachment #6 for your review:

PP&L No.	Title
TP-ISI-332	Measuring and Recording Search Unit Location and Maximum Signal Amplitude Data During Ultrasonic Weld Exams
TP-ISI-307	Manual Ultrasonic Examination of Austenitic Piping Welds
TP-ISI-309	Manual Ultrasonic Examination of Austenitic Thin Wall Piping Welds

While we will use additional UT procedures for ferritic piping, TP-ISI-307 and TP-ISI-309 are specifically intended to be used for the detection of IGSCC. As an aside, TP-ISI-307 has been demonstrated at the EPRI NDE Center using the Nine Mile Point samples per IE Bulletin 83-02. While TP-ISI-309 has not been demonstrated due to the unavailability of service induced cracked samples, PP&L has done a parametric evaluation between the two procedures and has concluded TP-ISI-309 adequately addresses the techniques necessary to detect IGSCC. Please note that these procedures have gone through an approval process but still are subject to change.

Question #5:

In Reference 3, Item c, PP&L states, "The Inservice Inspection Program will include requirements for augmented periodic ultrasonic and liquid penetrant testing to determine the inservice integrity of feedwater nozzles in accordance with the schedule in NUREG 0619, Table 2, Routine Inspection Intervals and the provisions of Section 4.3, 'Inspection'. "Identify the section of the plan that addresses this commitment.

Response #5:

Section 8.0 of the Inservice Inspection Program Plan lists compliance with the augmented inspection commitments of NUREG 0619 as committed to in other NRC correspondence. Specific details - such as a listing of affected components - may be found in the AUG3 section of Attachment #1 to this letter.

Question #6:

Reference 4 (under Item IV, Response to Guidance in NUREG 0803, Table 5.1) stated that the ISI program has been revised to include ISI of the SDV piping, commensurate with Section XI inspection requirements for Class 2 piping. Identify the section of the plan that addresses this commitment.

Response #6:

Section 8.0 of the Inservice Inspection Program Plan lists compliance with the augmented inspection commitments of NUREG 0803. Since the Control Rod Drive SDV piping and components have been classified as Section XI Class 2 in the SSES U#1 ISI program, details may be found in the Control Rod Drive System Section of Attachment #1.

RELIEF REQUESTS

IRR-4 Question:

Relief is requested from the volumetric examinations. Will an internal visual or surface examination be made of the pressure retaining welds in the Core Spray and RHR pumps if the pumps are disassembled for maintenance?

Response:

This relief request has been revised to include a VT-3 examination of the welds made accessible during pump motor removal or disassembly for maintenance.

IRR-7 Question:

Relief is requested from 100% volumetric examination requirements for feedwater inlet nozzles N4A and N4D due to geometric restrictions. In the ISI Program it was stated that the 60-degree segments of the two feedwater inlet nozzles N4A and N4D that cannot be inspected automatically will be examined manually to the extent possible.

Please provide sketches of Nozzles N4A and N4D, showing dimensions and proximity to Nozzles N11A and N11B and a narrative description of the reason that full volumetric examination cannot be accomplished using a combination of automated and manual scanning techniques. Also indicate approximately what fraction of the 60-degree segment not covered by automatic inspection can adequately be covered by manual inspection.

Response:

Figure 1 illustrates the approximate dimensions/clearances for the N11A,B instrumentation nozzles to the N4A,D feedwater nozzles. Figure 2 illustrates the nozzle to vessel weld details and the 80 W 80 Section XI examination volume.

For a complete manual examination - 45° and 60° - available scan paths of approximately 11" and 15.5" from weld centerline, respectively, are necessary. Inadequate scan paths exist for both the 45° and 60° manual scans for approximately nine (9) inches (30°) of nozzle circumference. Given the available scan path, and allowing 11/16" and 7/8" - for 45° and 60° respectively-shoe to beam exist point distances, approximately 65% of the required volume cannot be examined using a 60° angle beam, while 35% cannot be examined using a 45° angle beam.

Due to the clearances required for the automated equipment, no examination can be performed for a full 60° segment of the weld. Depending on specific access provisions in each location, it is anticipated that 50-60% of the area missed by the automatic equipment may be manually examined. Actual coverage will be evaluated on completion of the initial manual exams.

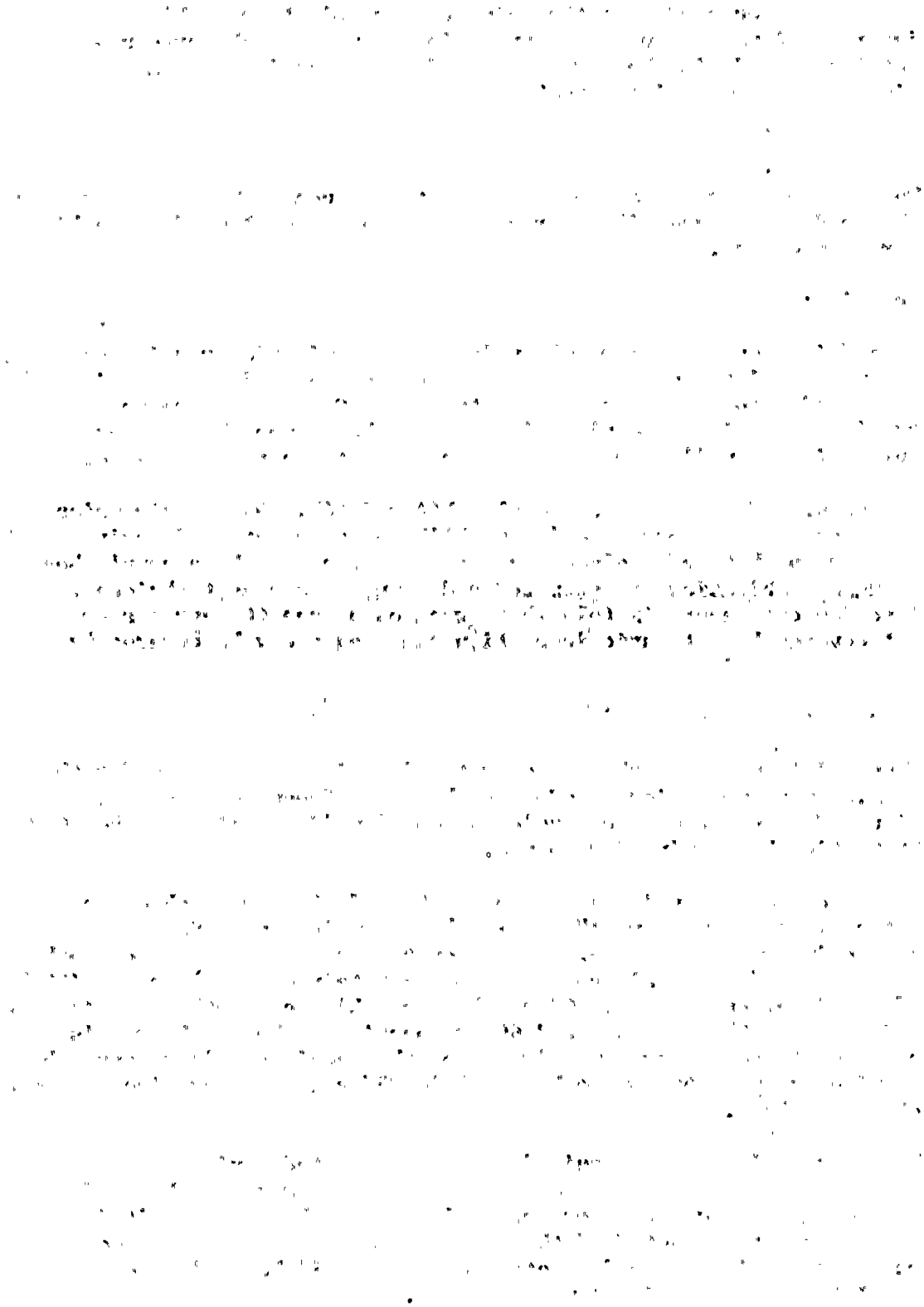
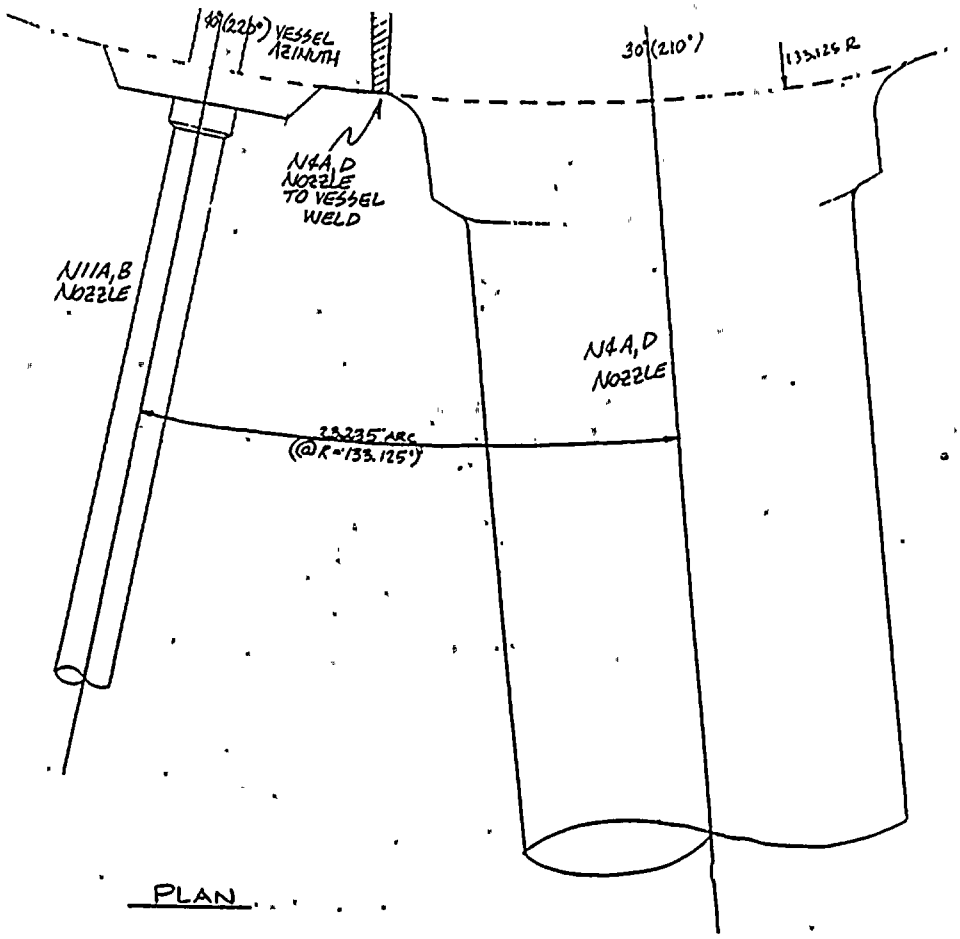
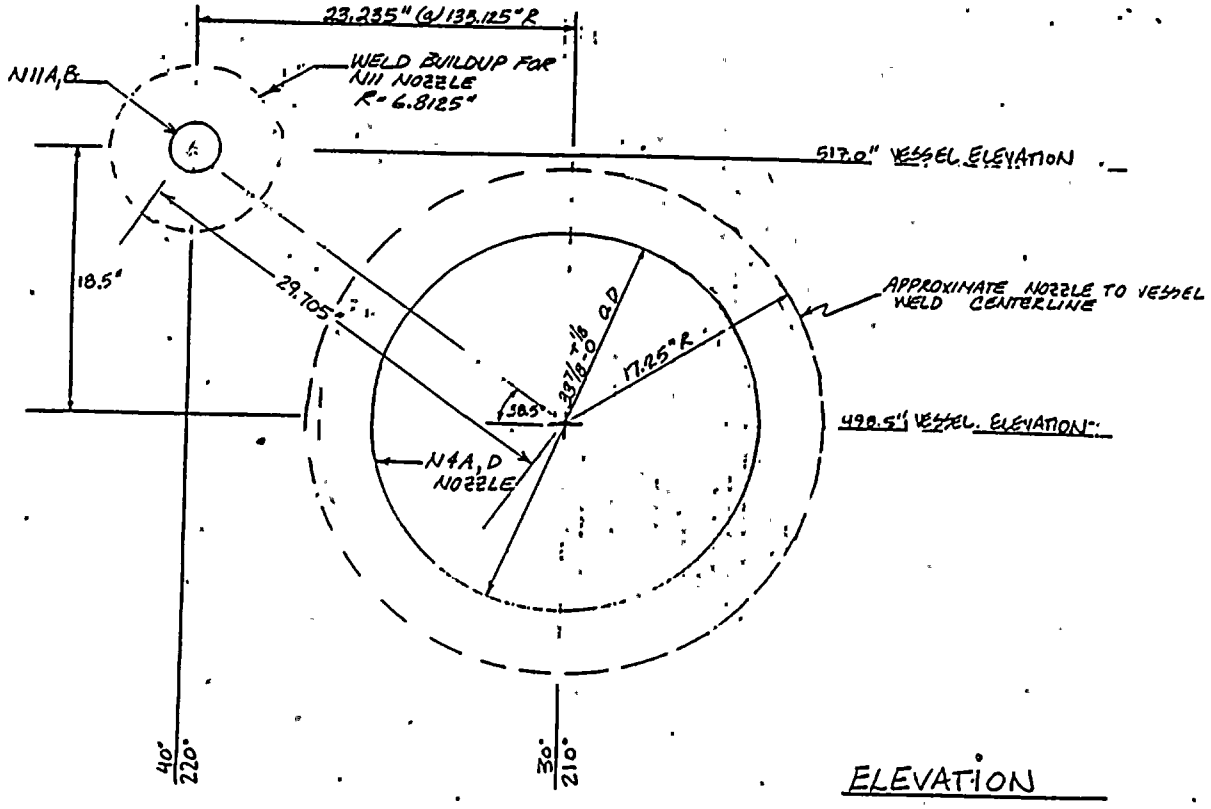


FIGURE 1

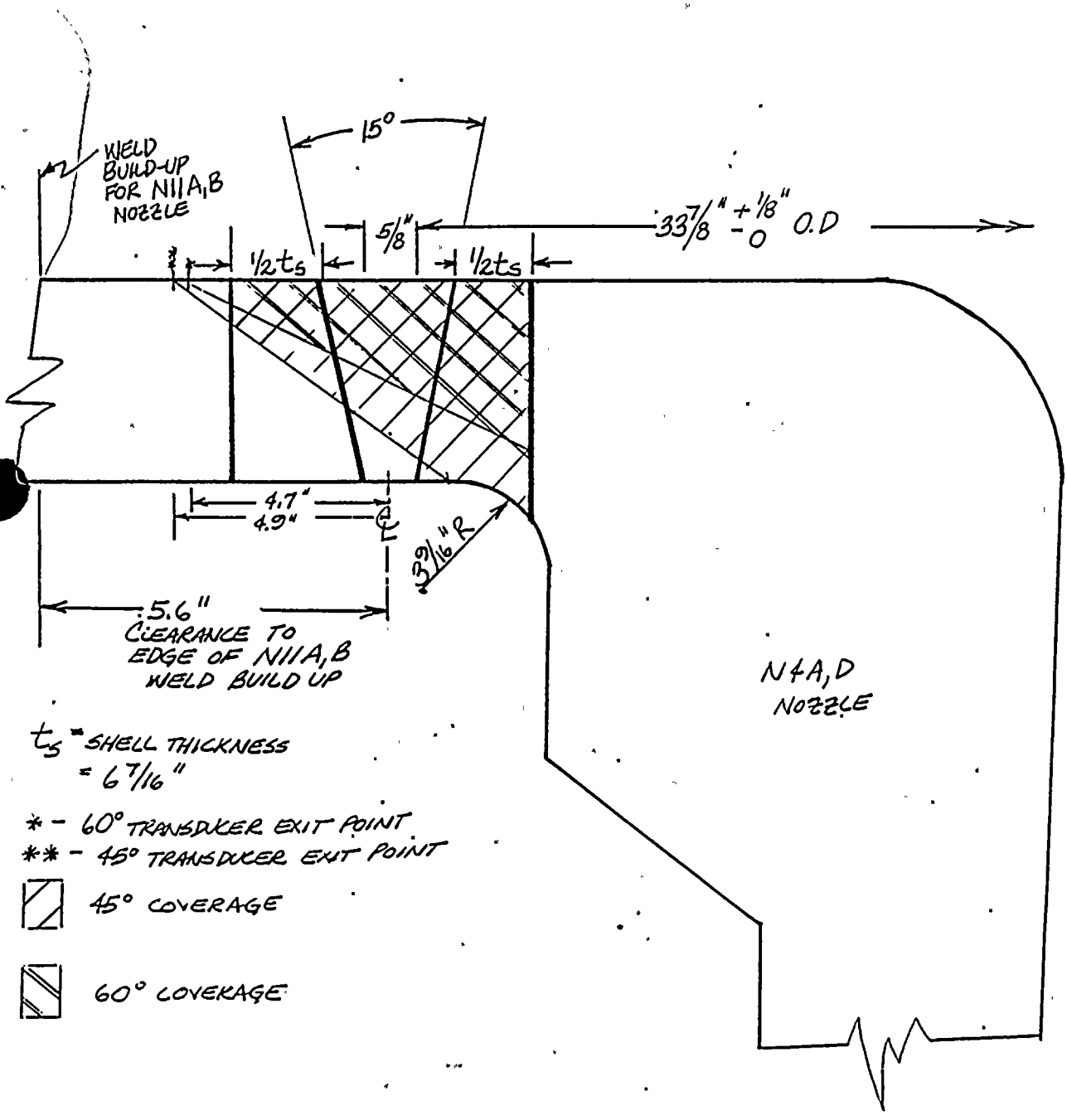


PLAN



ELEVATION

FIGURE 2


WELD BUILD-UP FOR N11A,B NOZZLE
15°
5/8"
33 7/8" +1/8" -0 O.D
1/2 ts
1/2 ts
4.7"
4.9"
3 9/16" R
5.6" CLEARANCE TO EDGE OF N11A,B WELD BUILD UP
N4A,D NOZZLE
ts = SHELL THICKNESS = 6 7/16"
* - 60° TRANSDUCER EXIT POINT
** - 45° TRANSDUCER EXIT POINT
45° COVERAGE
60° COVERAGE