



Obrazec DCN

ADP-1.2.116, Revizija 1, Dodatek 6.16

Dokumentacija Elektrarna IGES	
MASTER DOCUMENT	
Issue Number:	27-07-2017
Log Number:	210903

OPOMBA: Obrazec ni uporaben za načrte ali postopke NEK

ŠŠSPP-G375ATEVILKA DOKUMENTA		LIST	REVIZIJA
SP-G375A		/	0
DCN št.:5			STRAN
Nosilec dokumenta:	1. Vpišite številko dokumenta, lista in revizije zadevnega dokumenta (kot je vpisano v bazi podatkov DCM). Vpišite številko DCN -ja in številko strani tega obrazca. 2. Spodaj, vpišite spremembo(e), stran ali sekcijo zadevnega dokumenta, na katero se sprememba(e) nanaša(jo), akcijo , katero je treba izvesti za (vsako) spremembo (uporabite spodaj navedene okrajšave). Izpolnite Obrazec DIW za zadevno številko DCN-j. 3. Oddajte spremembo(e), Obrazec DIW in Obrazec DCN v Center za dokumentacijo.		
Prejemnik kopije:	1. Spremenite kopijo <u>vašega</u> dokumenta, kot je navedeno v koloni akcija . 2. Shranite Obrazec DCN s kopijo vašega dokumenta.		
SPREMEMBA / OPIS SPREMEMBE		STRAN / SEKCIJA	AKCIJA
Add new pipe line specification 17K4-1, Rev. 1 (page1)			UP
AKCIJA: OB = Obnoviti DO = Dodati UM = Umakniti			

	IME IN PRIIMEK	PODPIS	DATUM
PRIPRAVIL	Zlatko Mlinac		26.07.2017
OPOMBA: Spodnji blok uporabite po potrebi			
PREGLEDAL	Dušan Papež		26/07/2017
PREGLEDAL			
PREGLEDAL			
ODOBRIL	Janko Cerjak		26/07/2017

Document Change Notice (DCN)


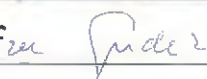
ESP-2.003, Revision 1, Appendix 6.3, PCN 1

Date Received: 19-12-2016

Log Number: 210903

NOTE: Do not use this form for DRAWINGS and PLANT PROCEDURES

DOCUMENT NUMBER	SHEET	REVISION
SP-G375A	/	0
DCN No.: 4		
Document Owner:	1. Complete this form by entering the Document Number , Sheet and Revision . Below, enter a Description of changes, the Page or Section number affected, the Action taken (using the codes below). Show as many action codes as necessary to describe the changes.	
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Copyholder:	1. Update <u>your</u> copy of the document as indicated in the Action column.	
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CHANGE / UPDATE DESCRIPTION	PAGE / SECTION	ACTION
In the technical specification SP-G375A rev.0 change:		
1. Update attachments line specifications	i	UP
2. Add new Pipe line specification:		
15D-4 (2 pages)	/	AD
15K6-1 (2 pages)	/	AD
ACTIONS: UP = UPDATE AD = ADD RM = REMOVE		

	PRINT NAME	SIGNATURE	DATE
PREPARED BY	S.Maljković		02.05.16.
NOTE: Use blocks below as required			
REVIEWED BY	B. Režek		02.05.16
REVIEWED BY	R. Rostohar		24.11.2016
REVIEWED BY			
APPROVED BY	J. Cerjak		19/12/2016

Document Change Notice (DCN)

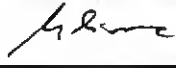
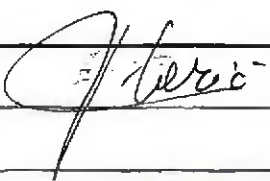

ESP-2.003, Revision 1, Appendix 6.3, PCN 1

Date Received: 03-11-2015

Log Number: 210903

NOTE: Do not use this form for DRAWINGS and PLANT PROCEDURES

DOCUMENT NUMBER	SHEET	REVISION
SP-G375A	/	0
DCN No.: 3		
Document Owner:	1. Complete this form by entering the Document Number, Sheet and Revision. Below, enter a Description of changes, the Page or Section number affected, the Action taken (using the codes below). Show as many action codes as necessary to describe the changes.	
	2. Complete a DIW for DCN No.	
	3. Submit the changed Page(s), DIW, and original of this form to the Document Center. Document Center shall retain original of this form in front of Master Document	
Copyholder:	1. Update your copy of the document as indicated in the Action column.	
	2. Keep this form in front of document.	
CHANGE / UPDATE DESCRIPTION	PAGE / SECTION	ACTION
V tehnični specifikaciji SP-G375A rev.0, je potrebno:		
1. Update attachments line specifications	1	UP
2. Add new Pipe Line Specifications:		
1586-2 (2 pages)	/	AD
1586-3 (2 pages)	/	AD
ACTIONS: UP = UPDATE AD = ADD RM = REMOVE		

	PRINT NAME	SIGNATURE	DATE
PREPARED BY	ZLATKO MLINAC		30.10.2015
NOTE: Use blocks below as required			
REVIEWED BY	Bojan Volarič		30.10.15
REVIEWED BY	N/A		
REVIEWED BY	N/A		
APPROVED BY	Janko Cerjak		3.11.15

Document Change Notice (DCN)



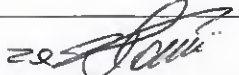
ESP-2.003, Revision 1, Appendix 6.3, PCN 1

Date Received: 20-07-2010

Log Number: 210903

NOTE: Do not use this form for DRAWINGS and PLANT PROCEDURES

DOCUMENT NUMBER SP-G375A	SHEET /	REVISION Ø
DCN No.: 2		
Document Owner:	<ol style="list-style-type: none">1. Complete this form by entering the Document Number, Sheet and Revision. Below, enter a Description of changes, the Page or Section number affected, the Action taken (using the codes below). Show as many action codes as necessary to describe the changes.2. Complete a DIW for DCN No.3. Submit the changed Page(s), DIW, and original of this form to the Document Center. Document Center shall retain original of this form in front of Master Document	
Copyholder:	<ol style="list-style-type: none">1. Update <u>your</u> copy of the document as indicated in the Action column.2. Keep this form in front of document.	
CHANGE / UPDATE DESCRIPTION	PAGE / SECTION	ACTION
Update line spec 15D-1	1 of 2 15D-1	UP
ACTIONS: UP = UPDATE AD = ADD RM = REMOVE		

	PRINT NAME	SIGNATURE	DATE
PREPARED BY	Z. Mlinac		20.07.2010
NOTE: Use blocks below as required			
REVIEWED BY	V. Planinc		20.7.2010
REVIEWED BY	N/A		
REVIEWED BY	N/A		
APPROVED BY	J. Cerjak		20.7.2010

Document Change Notice (DCN)

ESP-2.003, Revision 1, Appendix 6.3, PCN 1




Nuklearna Elektra Krško
MASTER DOCUMENT

Date Received: 07-02-2008

Log Number: 210903

NOTE: Do not use this form for DRAWINGS and PLANT PROCEDURES

DOCUMENT NUMBER	SHEET	REVISION
SP-G375A	/	0
DCN No.: 1		
Document Owner:	1. Complete this form by entering the Document Number , Sheet and Revision . Below, enter a Description of changes, the Page or Section number affected, the Action taken (using the codes below). Show as many action codes as necessary to describe the changes.	
	2. Complete a DIW for DCN No.	
	3. Submit the changed Page(s), DIW, and original of this form to the Document Center. Document Center shall retain original of this form in front of Master Document	
Copyholder:	1. Update <u>your</u> copy of the document as indicated in the Action column.	
	2. Keep this form in front of document.	
CHANGE / UPDATE DESCRIPTION		PAGE / SECTION
V tehnični specifikaciji SP-G375A rev.0, je potrebno:		
1. Update attachments line specifications		i UP
2. Add new Pipe Line Specifications:		
60D-1 (2 pages)		/ AD
90D-1 (2 pages)		/ AD
ACTIONS: UP = UPDATE AD = ADD RM = REMOVE		

	PRINT NAME	SIGNATURE	DATE
PREPARED BY	Zdenko Stolar		06.02.2008
NOTE: Use blocks below as required			
REVIEWED BY	Vinko Planinc 965		6.02.2008
REVIEWED BY	N/A		
REVIEWED BY	N/A		
APPROVED BY	Janko Cerjak		07/02/08

Nuklearna Elektrarna Krško MASTER DOCUMENT	
Date Received:	28. 09. 1998
Log Number:	210903

TECHNICAL SPECIFICATION
PIPING LINE SPECIFICATIONS
NON-SAFETY CLASS PIPING
KRŠKO NUCLEAR POWER PLANT
SP-G375A-536633-00036

Revision 0

NON-SAFETY RELATED
prepared for
NUKLEARNA ELEKTRARNA KRŠKO

<i>Mod. ...</i>	<i>Vag ...</i>	<i>4/4/96</i>
Originator/Date		
<i>Robert C Penning</i>		<i>11/11/96</i>
Reviewer/Verifier/Date		
<i>E. B. Tull</i>		<i>11-12-96</i>
Superintendent Engineering and Design Change/Date		

Parsons Power Group Inc.
2675 Morgantown Road
Reading, Pennsylvania 19607

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ATTACHMENTS LINE SPECIFICATIONS

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15G-1 (2 pages)
15G-2 (2 pages)
15G-3 (2 pages)
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15H-1 (2 pages)
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15K-2 (2 pages) ← 15K-6 (2 PAGES)
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15T-1 (2 pages)
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30A-1 (2 pages)
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30A-3 (2 pages)
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30D-1 (2 pages)
60A-1 (2 pages)
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150Q-1 (2 pages)
150T-1 (2 page)

| DCN No: 3

| DCN No: 4

| DCN No: 4

1.0 SCOPE

This piping line specification provides the ASME material specifications and the dimensional standards applicable to Non-Safety Class Piping systems installed in the Krsko Nuclear Power Plant. The dimensional standards are ANSI Standards unless otherwise noted.

2.0 LINE SPECIFICATION IDENTIFICATION

Line Specifications are identified by a unique number composed of an abbreviated pressure class number, material identifier, code identifier, and unique number identifier as follows:

2.1 Line Specification Number

Line Specifications are identified by a unique number composed of an abbreviated pressure class number, material identifier, code identifier, and unique number identifier as follows:

1 5 B 4 -1

Unique number identifier (e.g., 1, 2, 3, ...11, 12,...,etc.)

Code identifier (see Table III)

Material identifier (see Table II)

Pressure class identifier (see Table I)

TABLE I

<u>Designator</u>	<u>Pressure Class</u>	<u>Designator</u>	<u>Pressure Class</u>
12	125	60	600
15	150	90	900
17	175	150	1500
25	250	250	2500
30	300	450	4500
40	400		

NOTE: The pressure class designator is not necessarily compatible with the "Primary Service Ratings" associated with ANSI B16.5 for flanges. Pressure-temperature ratings are listed in each Line Specification. (See Item 3.3)

TABLE II

<u>Designator</u>	<u>Material</u>
A	Carbon steel (high temperature services)
B	Carbon steel (low grade)
C	Low and intermediate alloy steel
D	Stainless steel
E	Cast iron
F	Ductile iron
G	Galvanized carbon steel
H	Lined carbon steel
I	Duriron
J	Yoloy (no longer available)
K	Plastic (PVC, FRP, FRE, Polyethylene, fiberglass reinforced pipe, etc.)
L	Asbestos cement
M	Carpenter 20
N	Bronze, copper
P	Aluminum
Q	Carbon steel (low temperature service)
R	Clay pipe
T	Tubing

TABLE III

<u>Designator</u>	<u>Material</u>
None	ANSI B31.1
1	ASME Code Section III, Class 1
2	ASME Code Section III, Class 2
3	ASME Code Section III, Class 3
4	NFPA
5	AWWA
6	None

3.0 SERVICE

Service is specified as to the type of fluid (e.g., steam, water, feedwater, condensate, air, oil, and gas), and nature of fluid (corrosive, noncorrosive, flashing).

4.0 PRESSURE-TEMPERATURE RATINGS

- 4.1 Pressure-temperature ratings are based upon standards' ratings, specific system design, "weakest link" of components specified, or other, as listed in the Notes of each Line Specification.
- 4.2 The pressure-temperature ratings shall only be as specified in the Line Specification and are limited to those listed. The pressure is the internal pressure (external where specified) and is the maximum allowable nonshock pressure at the temperature specified (unless otherwise noted). For temperatures other than those listed, the allowable pressure may be interpolated between the temperatures listed.
- 4.3 Components specified are chosen to meet or exceed the pressure-temperature ratings listed in consideration of internal pressure only (external pressure where specified).

5.0 MATERIAL DESCRIPTION

5.1 Item

Item specifies pipe or piping component.

5.2 Size

Size is pipe or piping component nominal size unless otherwise indicated.

5.3 Schedule, Nom. (Nominal) Wall, Rating

- a. Schedule is pipe schedule as defined in dimensional standards noted.
- b. Nom. wall is wall thickness given in decimal form.
- c. Rating is pressure class or rating, as defined in dimensional standards noted. Manufacturer's rating may be specified instead.

5.4 ASTM Specification

ASTM Specification defines the number, type or class, grade and supplemental requirements of material for pipe or piping, components as defined by the American Society for Testing and Materials (ASTM).

5.5 Joint Type

Joint type specifies the method to be used to join pipe or piping components to each other, as follows:

- a. SW - socket weld
- b. BW - butt weld
- c. FLGD - flanged
- d. SCRD - screwed (threaded)

e. MECH - mechanical joint

5.6 Dimensional Standards

Dimensional standards specifies standards organization and specific standard to which piping or piping components are sized, rated and/or dimensioned.

6.0 REMARKS

6.1 Remarks provides additional information to the item or size of item not specified elsewhere.

6.2 Numbers in parentheses note additional information contained on reverse side of the Line Specification Sheets.

7.0 STRESS ALLOWABLE

7.1 Stress Allowable indicates maximum allowable stress in material due to internal pressure and joint efficiency at temperature for piping and piping components as specified in the design code noted for the Line Specification.

7.2 Stress values may be interpolated between values for other temperatures.

8.0 NOTES

Notes are given using the following standardized numbering system:

<u>No.</u>	<u>Note</u>
	Normal Requirements
1	Gaskets
2	Branch connections
3	Instrument connections
4	Fittings
5	Flanges
6	Weld end
7	Material
	Special Requirements
10	Internal treatment
11	External treatment
12	Special piping notes
13	Special fitting notes
14	Special joints
15	Special valve notes
20	Special standards
30	Special testing
40	Special components
50	Installation requirements
90	P-T (pressure-temperature) rating
100	Standards listing

9.0 APPLICABLE CODES AND STANDARDS

Material, fabrication, examination, inspection, and testing shall be in accordance with applicable portions of the following specifications, codes, and standards as specified in the Line Specifications or noted elsewhere in this Specifications or noted elsewhere in this Specification. The "latest issue" of the following codes and standards apply. "Latest issues" are defined as the issues (including latest published case rulings, interpretations, and addenda) in force at date of award of the contract.

a. American National Standards Institute (ANSI)

1. B1.1, "Unified Screw Threads"
2. B16.1 "Cast Iron Pipe Flanges and Flanged Fittings"
3. B16.3, "Malleable-Iron Screwed Fittings, 150 and 300 lb."
4. B16.5, "Steel Pipe Flanges and Flanged Fittings."
5. B16.9, "Factory-Made Wrought Steel Buttwelding Fittings."
6. B16.11, "Forged Steel Fittings, Socket-Welding and Threaded."
7. B16.12, "Cast Iron Threaded Drainage Fittings."
8. B16.18, "Cast Copper Alloy Solder-Joint Pressure Fittings."
9. B16.21, "Nonmetallic Gaskets for Pipe Flanges."
10. B16.34, "Valves-Flanged, Threaded, and Welded Ends."
11. B18.2.1, "Square and Hex Bolts and Screws, Including Askew Head Bolts, Hex Cap Screws, and Lag Screws."
12. B18.2.2, "Square and Hex Nuts."
13. B31.1, "Power Piping."
14. B36.10, "Welded and Seamless Wrought Steel Pipe."
15. B36.19, "Stainless Steel Pipe."

b. American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (ASME-BPVC):

Section I, "Power Boilers."
Section IX, "Welding and Brazing Qualifications"

c. American Society for Testing and Materials (ASTM):

1. A47, "Standard Specification for Ferritic Malleable Iron Castings"

2. A53, "Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless"
3. A 105, "Standard Specification for Forgings, Carbon Steel, for Piping Components."
4. A 106, "Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service."
5. A126, "Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings."
6. A134, "standard Specification for Pipe, Steel, Electric-Fusion (Arc)-Welded Pipe (Sizes NPS 16 and Over)."
7. A181, "Standard Specification for Forgings, Carbon Steel"
8. A 182, "Standard Specification for Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service."
9. A 193, "Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service."
10. A 194, "Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High-Pressure and High-Temperature Service."
11. A 213, "Specification for Seamless Ferritic and Austenitic Alloy-Steel boiler, Superheater, and Heat-Exchanger Tubes."
12. A 216, "Standard Specification for Steel Castings, Carbon, Suitable for Fusion Welding, for High-Temperature Service."
13. A 217, "Standard Specification for Steel Castings, Martensitic Stainless and Alloy, for Pressure-Containing Parts, Suitable for High-Temperature Service."
14. A 234, "Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures."
15. A307, "Standard Specification for Carbon Steel Bolts and Studs. 60,000 psi Tensile"
16. A 312, "Standard Specification for Seamless and Welded Austenitic Stainless Steel Pipes."
17. A 333, "Standard Specification for Seamless and Welded Steel Pipe for Low-Temperature Service"
18. A 335, "Standard Specification for Seamless Ferritic Alloy Steel Pipe for High-Temperature Service."

19. A 350, "Standard Specification for Forgings, Carbon Steel and Low-Alloy Steel, Requiring Notch Toughness Testing for Piping Components"
20. A351, "Standard Specification for Castings, Austenitic, Austenitic-Ferritic(Duplex), for Pressure-Containing Parts."
21. A352, "Standard Specification for Steel Castings, Ferritic and Martensitic, for Pressure-Containing Parts Suitable for Low-Temperature Service."
22. A 403, "Standard Specification for Wrought Austenitic Stainless Steel Piping Fittings."
23. A 420, "Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Low-Temperature Service"
24. A563, "Standard Specification for Carbon Steel and Alloy Steel Nuts"
25. A672, "Standard Specification for Electric-Fusion-Welded Steel pipe for High-Pressure Service at Moderate Temperatures."
26. A 700, "Standard Practices for Packaging, Marking, and Loading Methods for Steel Products for Domestic Shipment."
27. B 62, "Standard Specification for Composition Bronze or Ounce Metal Castings."
28. B 75, "Specification for Seamless Copper Tube."
29. B 88, "Standard Specification for Seamless Copper Water Tube."
30. B 251, "Standard Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tube."
31. B 462, "Standard Specification for Forged or Rolled UNS N08020, UNS N08024, UNS N08026, and UNS N08367 Alloy Pipe Flanges, Forged Fittings, and Valves and Parts for Corrosive High-Temperature Service."
32. B 464, "Standard Specification for Welded N08020, N08024, and N08026 Alloy Pipe."
33. D1784, "Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds."
34. D 1785, "Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120."
35. D 2310, "Standard Specification for machine-Made Fiberglass (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe."
36. D 2467, "Standard Specification for Socket-Type Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80."

d. American Water Works Association (AWWA):

1. ANSI/AWWA C104/A21.4, "Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water"
2. ANSI/AWWA C110/A21.10, "Ductile-Iron and Gray-Iron Fittings, 3 in. through 48 in.(75 mm through 1200 mm) for Water and Other Liquids."
3. ANSI/AWWA C111/A21.11, "Rubber-Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings."
4. ANSI/AWWA C151/A21.51, "Ductile-Iron Pipe, Centrifugally Cast, for Water or Other Liquids."
5. ANSI/AWWA C203, "Coal-Tar Protective Coatings and Linings for Steel Water Pipelines-Enamel and Tape- Hot Applied"
6. ANSI/AWWA C207, "Steel Flanges for Waterworks Service - Sizes 4 in. Through 144 in."
7. ANSI/AWWA C208, "Dimensions for Fabricated Steel Water Pipe Fittings."
8. ANSI/AWWA H3/A21.50, "Thickness Design of Ductile-Iron Pipe."
9. AWWA M11, "Steel Pipe Design and Installation."

e. American Welding Society (AWS) D1.1, "Structural Welding Code - Steel."

f. Manufacturers Standardization Society (MSS):

1. SP-25, "Standard Marking System for Valves, Fittings, Flanges, and Unions"
2. SP-42, "MSS 150 lb. Corrosion resistant cast Flanged Valves"
3. SP-43, "Wrought Stainless Steel Butt-Welding Fittings"
4. SP-58, "Pipe Hangers and Supports - Materials, Design, and Manufacture"
5. SP 69, "Pipe Hangers and Supports - Selection and Application"
6. SP-83, "Steel Pipe Unions Socket-Welded and Threaded"

g. National Board of Boiler and Pressure Vessel Inspectors (NBBI), NB-23, "National Boiler Inspector Code."

h. National Fire Protection Association (NFPA)

1. NFPA-11, "Standard for Foam Extinguishing Systems."

2. NFPA-13, "Standard for Installation of Sprinkler System."
3. NFPA-14, "Standard for Installation of Standpipe and Hose Systems"
- i. Pipe Fabrication Institute (PFI)
 1. ES 3, "Fabricating Tolerances."
 2. ES 21, "End Preparation for Manual Inert-Gas Tangsten-Arc Root-Pass Welding"
- j. Steel Structures Painting Council (SSPC):
 1. PA 1, "Shop, Field, and Maintenance Painting."
 2. SP 3, "Power Tool cleaning."
 3. SP 6, "Commercial Blast Cleaning."
- k. Where the above-referenced codes and standards contain recommendations in addition to requirements, the recommendations are considered requirements, unless this section states otherwise.
- l. If a conflict exists between codes, standards or specifications, the more stringent applies.

PARSONS POWER

PIPING LINE SPECIFICATION

DESIGN CODE ANSI B31.1

SPEC.(S):SP-G375A W.O.: 536633-00036

LINE NO. 12A-1

DATE/ADDENDA 1995

PROJECT: KRSKO NUCLEAR POWER PLANT

MATERIAL Carbon Steel

WELD END DETAIL DWG. D-301-001

ISSUED/REV 11-1-96/0

SERVICE

RAW WATER, GRAVITY DRAINS (EQUIPMENT), AIR

															MAX	
Temp °F															-20	150
Press PSIG															175	175
															200	225
															250	275
															145	

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL REQMTS			
PIPE	2 & SMLR	80	A-53	E or S	B	-	SCRD	ANSI B36.10	
	2 1/2-12	40	A-53	E or S	B	-	BW	ANSI B36.10	
FITTINGS	2 & SMLR	150 LB	A-47	-	32510	-	SCRD	ANSI B16.3	
	2 1/2-12	EQUAL TO PIPE	A-234	-	WPB	-	BW	ANSI B16.9	
FLANGES	2 & SMLR	125 LB	A-47	-	32510	-	-	ANSI B16.1	
	2 1/2-12	150 LB	A-105	-	-	-	-	ANSI B16.5	SLIP ON, FLAT FACE
BRANCH CONN.	2 & SMLR	2000 LB	A-105	-	-	-	SCRD	-	(2), (3)
	2 1/2-12	EQUAL TO PIPE	A-105	-	-	-	BW	-	(2)
VALVES	3 & SMLR	125 LB	A-126	-	B	-	SCRD	MFR STD	(15)
	4-12	125 LB	A-126	-	B	-	FLGD	ANSI B16.10	(15)
GASKETS	-	-	-	-	-	-	-	ANSI B16.21	(1)
BOLTS & STUDS	-	-	A-307	-	B	-	-	ANSI B18.2.1	HEAVY HEX BOLT
NUTS	-	-	A-563	-	A	-	-	ANSI B18.2.2	HEAVY HEX
UNIONS	NONE								

LINE NO. 12A-1										ISSUED/REV 11-1-96/0					
MATERIAL										STRESS ALLOWABLE, psi X 10 ³					
TEMP.,	F									-20	100	150	200	250	300
ASME	A-53B									15.0	15.0	15.0	15.0	15.0	15.0
ASME	A-105									17.5	17.5	17.5	17.5	17.5	17.5
ASME	A-234-WPB									15.0	15.0	15.0	15.0	15.0	15.0

NOTES	
<p>1. FULL FACE RUBBER GASKET, GARLOCK NO. 8314 OR EQUAL, 1/16" THICK</p> <p>2. BRANCH CONNECTIONS</p> <p style="margin-left: 20px;">a. 2 IN. AND SMALLER THREADED SOCKOLET, NIPOLET OR EQUAL: OR THREADED HALF-COUPLING OR COUPLET SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1. PARA. 104.3.1.C2. RIGHT ANGLE CONNECTIONS MAY ALSO BE MADE BY THREADING PROVIDED THE REQUIREMENTS OF ANSI B31.1 PARA. 104.3.1 B.4.2 ARE MET.</p> <p style="margin-left: 20px;">b. 2-1/2 TO 8 IN. (FOR HEADERS 10 IN. OR LESS)-SHAPED PIPE NIPPLE WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.2.1.D.</p> <p style="margin-left: 20px;">c. CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING.</p> <p style="margin-left: 20px;">d. OTHERS-WELDOLET, SWEEPOLET, OR EQUAL; OR TEE FITTING.</p> <p style="margin-left: 20px;">e. EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET REQUIREMENTS OF ANSI B31.1 PARA. 104.3.1.B3 AND 104.3.1.G.</p> <p>3. INSTRUMENT CONNECTIONS - SOCKOLET, NIPOLET, OR EQUAL: OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2.</p>	<p>15. VALVE MATERIAL AND RATING FOR REFERENCE ONLY.</p> <p>90) P-T RATINGS BASED ON 125 LB FLANGES PER ANSI B16.1.</p>

APPROVAL	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
MADE: <u>V.V.</u>	1											
CHKD: <u>RCP</u>	2											
	3											

[illegible][illegible]

										LINE NO.		12E6-1		
										ISSUED/REV		11-1-96/0		
MATERIAL					STRESS ALLOWABLE, psi X 10 ³									
TEMP.,	F													
ASME														
ASME														
ASME														

NOTES

90) P-T RATING BASED ON GRAVITY DRAINAGE WITH LEAKPROOF JOINTS PER ASTM 74.

<p style="text-align: center;">APPROVAL</p> <p>MADE: <u>V.V.</u></p> <p>CHKD: <u>RSP</u></p>	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
	1											
	2											
	3											

[illegible][illegible]

LINE NO. 12F6-1 ISSUED/REV 11-1-96/0											
MATERIAL											
STRESS ALLOWABLE, psi X 10³											
TEMP., F											
ASME											
ASME											
ASME											

NOTES

90) P-T RATING IS BASED ON ANSI/AWWA H3/A21.50-71.

14) MECHANICAL JOINT IN ACCORDANCE WITH ANSI/AWWA C 111/A21.11-85.

5) FLANGES DRILLED IN ACCORDANCE WITH ANSI B16.1-125 LB.

APPROVAL MADE: <u>V.V.</u> CHKD: <u>RCP</u> 	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
	1											
	2											
	3											

[illegible][illegible]

										LINE NO.		12F6-2							
										ISSUED/REV		11-1-96/0							
MATERIAL										STRESS ALLOWABLE, psi X 10 ³									
TEMP.,	F																		
ASME																			
ASME																			
ASME																			

NOTES

90) P-T RATING IS BASED ON ANSI/AWWA H3/A21.50-71.

14) MECHANICAL JOINT IN ACCORDANCE WITH ANSI/AWWA C 111/A21.11-85.

5) FLANGES DRILLED IN ACCORDANCE WITH ANSI B16.1-125 LB.

1) FULL FACE RUBBER GASKET GARLOCK STYLE 22, OR EQUAL.

<p style="text-align: center;">APPROVAL</p> <p>MADE: <u>V.V.</u></p> <p>CHKD: <u>RCP</u></p>	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
	1											
	2											
	3											

PARSONS POWER

PIPING LINE SPECIFICATION

DESIGN CODE ANSI B31.1

SPEC.(S):SP-G375A W.O.: 536633-00036

LINE NO. 12H-1

DATE/ADDENDA 1995

PROJECT: KRSKO NUCLEAR POWER PLANT

MATERIAL LINED CARBON STEEL

WELD END DETAIL DWG. D-301-001

ISSUED/REV 11-1-96/0

SERVICE

CHLORINE SOLUTIONS

																MAX	
Temp °F												-20	150	200	225	250	275
Press PSIG												175	175	165	155	150	145

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NDM WALL, RATING	ASTM SPECIFICATION				JDINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/ CLASS	GRADE	SUPPL REQMTS			
PIPE	2 & SMLR	80	A-53	S	B	-	FLG	ANSI B36.10	(10)
	2 1/2-10	40	A-53	S	B	-	FLG	ANSI B36.10	(10)
	12-24	STD	A-53	S	B		FLG	ANSI B36.10	(10)
FLANGED FITTINGS	1/2-24	125	A126	A	-	-	-	ANSI B16.1	(10)
FLANGES	1/2-24	125	A126	B	-	-	SCRD	ANSI B16.1	(10)
GASKETS	-	-	-	-	-	-	-	ANSI B16.21	(1)
BOLTS & STUDS	-	-	A193	-	B-7	-	-	ANSI B18.2.1	
NUTS	-	-	A194	-	2H	-	-	ANSI B18.2.2	

LINE NO. 12H-1											11-1-96/0					
ISSUED/REV																
MATERIAL											STRESS ALLOWABLE, psi X 10 ³					
TEMP.,	F										-20	100	150	200	250	300
ASTM	A-53B										15.0	15.0	15.0	15.0	15.0	15.0

NOTES

1) GASKETS - BUNA N

10) ALL METAL SURFACES SHALL BE SHOT OR SAND BLASTED PRIOR TO APPLICATION OF THE LINING. THE RUBBER LINING MINIMUM TOTAL THICKNESS SHALL BE 1/8" FOR ALL PIPE SIZES UP THROUGH 4" AND 3/16" THICKNESS FOR SIZES 6" AND LARGER. FLANGE FACE COATING SHALL BE 1/8". TO PROVIDE CONTINUITY OF THE FINISHED LINING THE LINED PIPE SHALL BE TESTED WITH AN AC POTENTIAL OF 25,000 V MINIMUM.

ALL RUBBER LINING SHALL MEET THE FOLLOWING SPECIFICATIONS:

a) TENSILE STRENGTH (ASTM D 530) - 2400 PSI MIN.

b) HARNESS DUROMETER D SCALE 55 TO 70.

c) ADHENSION (ASTM D 413, MACHINE METHOD) - 40 POUND PULL.

90) P-T RATINGS BASED ON 125 LB FLANGES PER ANSI B16.1.

<p style="text-align: center;">APPROVAL</p> <p>MADE: <u><i>P.V.</i></u></p> <p>CHKD: <u><i>RCR</i></u></p>	REVISIONS				REVISIONS				REVISIONS				
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	
	1												
	2												
	3												

<div style="text-align: center;"> PARSONS POWER PIPING LINE SPECIFICATION </div>																
DESIGN CODE ANSI B31.1 DATE/ADDENDA 1995				SPEC.(S): SP-G375A W.O.: 536633-00036 PROJECT: KRSKO NUCLEAR POWER PLANT WELD END DETAIL DWG. D-301-001					LINE NO. 12H-2 MATERIAL LINED CARBON STEEL ISSUED/REV 11-1-96/0							
SERVICE																
CHLORINE SOLUTIONS (UNDERGROUND)																
MAX																
Temp °F											-20	150	200	225	250	275
Press PSIG											175	175	165	155	150	145

[illegible]

LINE NO. 12H-2										11-1-96/0					
ISSUED/REV															
MATERIAL										STRESS ALLOWABLE, psi X 10 ³					
TEMP.,	F									-20	100	150	200	250	300
ASTM	A-53B									15.0	15.0	15.0	15.0	15.0	15.0

NOTES	
<p>1) GASKETS - BUNA N</p> <p>10) ALL METAL SURFACES SHALL BE SHOT OR SAND BLASTED PRIOR TO APPLICATION OF THE LINING. THE RUBBER LINING MINIMUM TOTAL THICKNESS SHALL BE 1/8" FOR ALL PIPE SIZES UP THROUGH 4" AND 3/16" THICKNESS FOR SIZES 6" AND LARGER. FLANGE FACE COATING SHALL BE 1/8". TO PROVE CONTINUITY OF THE FINISHED LINING THE LINED PIPE SHALL BE TESTED WITH AN AC POTENTIAL OF 25,000 V MINIMUM.</p> <p>ALL RUBBER LINING SHALL MEET THE FOLLOWING SPECIFICATIONS:</p> <p>a) TENSILE STRENGTH (ASTM D 530) - 2400 PSI MIN.</p> <p>b) HARNESS DUROMETER D SCALE 55 TO 70.</p> <p>c) ADHENSION (ASTM D 413, MACHINE METHOD) - 40 POUND PULL.</p> <p>11) COATING IN ACCORDANCE WITH AWWA C-203-1986 WITH FOLLOWING SUPPLEMENTARY REQUIREMENTS:</p> <p>a) COATING SHALL BE COAL TAR ENAMEL WITH TYPE B PRIMER AND TYPE I OR II FINISH</p> <p>b) FELT SHALL BE NON-PERFORATED, WITH OR WITHOUT REINFORCEMENT</p> <p>c) WELDING ENDS SHALL BE LEFT UNCOATED FOR 1 FOOT</p> <p>d) PIPE FABRICATOR SHALL SUPERVISE INSPECTION AND TESTING OF COATING</p>	<p>e) COATING SHALL BE TESTED WITH A TINKER-RASOR HOLIDAY DETECTOR IN ACCORDANCE WITH THE TOTAL FILM THICKNESS APPLIED</p> <p>90) P-T RATINGS BASED ON 125 LB FLANGES PER ANSI B16.1.</p>

<p style="text-align: center;">APPROVAL</p> <p>MADE: <u>V.V.</u></p> <p>CHKD: <u>RCP</u></p>	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
	1											
	2											
	3											

[illegible][illegible]

														LINE NO. 1216-1		
														ISSUED/REV 11-1-96/0		
MATERIAL		STRESS ALLOWABLE, psi X 10 ³														
TEMP.,	F															

NOTES

<div style="text-align: center;">APPROVAL</div> MADE: <u>V.V.</u> CHKD: <u>RSP</u> 	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
	1											
	2											
	3											

PARSONS POWER

PIPING LINE SPECIFICATION

DESIGN CODE ANSI B31.1

SPEC.(S):SP-G375A W.O.: 536633-00036

LINE NO. 12J6-1

DATE/ADDENDA 1995

PROJECT: KRSKO NUCLEAR POWER PLANT

MATERIAL CARBON STEEL

WELD END DETAIL DWG. D-301-001

ISSUED/REV 11-1-96/0

SERVICE

CORROSIVE WATER SYSTEMS

MAX

Temp °F		-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750	
Press PSIG		275	275	255	240	225	210	195	180	165	150	140	130	120	110	100	
AFTER BENDING		275	275	255	240	225	210	195	180	165	150	140	130	120	110	100	

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL REQMTS			
PIPE	2 & SMLR	80	A-53	ERW	-	-	SW	ANSI B36.10	WELDED (7)
	2 1/2-12	40	A-53	S	-	-	BW	ANSI B36.10	SEAMLESS (7)
WELDING FITTINGS	2 & SMLR	3000	A-105	-	-	-	SW	ANSI B16.9	SCH. 80 (7)
	2 1/2-12	EQUAL TO PIPE	A-234	-	WPB	-	BW	ANSI B16.9	(4, (7)
FLANGES	2 & SMLR	150 LB	A-105	-	-	-	SW	ANSI B16.5	RAISED FACE, (7)
	2 1/2-12	150 LB	A-105	-	-	-	BW	ANSI B16.5	RAISED FACE, (7)
BRANCH CONN	2 & SMLR	3000 LB	A-105	-	-	-	SW		(2), (3), (7)
	2 1/2-12	EQUAL TO PIPE	A-105	-	-	-	SW		(2), (7)
BOLTS	-	-	A-193	-	B7	-	-	ANSI B18.2.1	HEAVY HEX BOLT, CLASS 2A THREADS
NUTS	-	-	A-194	-	2H	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREAD
GASKETS									(1)

LINE NO. 12J6-1																
ISSUED/REV 11-1-96/0																
MATERIAL					STRESS ALLOWABLE, psi X 10 ³											
TEMP.,	F									-20	100	200	300	400	500	600
YOLOY	A-53 SEAMLESS									21.0	21.0	19.8	18.6	17.4	16.2	15.0
A-105										17.5	17.5	17.5	17.5	17.5	17.5	17.5
YOLOY	A-53 ERW									17.85	17.85	16.8	15.8	14.8	13.8	12.7
A-234-WPB										15.0	15.0	15.0	15.0	15.0	15.0	15.0

NOTES

1) GASKETS - TO 500 DEGREES F - GYLON GARLOCK NO. 3510 OR EQUAL, 1/16" THICK
TO 750 DEGREES F - GARLOCK NO. 3123 OR 3125TC OR EQUAL, 1/16" THICK

2) BRANCH CONNECTIONS

a) 2 IN. AND SMALLER - DOCKOLET, NIPOLET OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2.

b) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING.

c) OTHERS - WELDOLET, SWEEPOLET OR EQUAL; OR TEE FITTING.

d) EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET THE REQUIREMENTS OF ANSI B31.1 PARA. 104.3.1.B3 AND 104.3.1.G.

3) INSTRUMENT CONNECTIONS - SOCKOLET, NIPOLET OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2.

4) ELBOWS SHALL BE LONG RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS.

90) P-T RATINGS BASED ON 150 LB FLANGES PER ANSI B16.5a-92.

APPROVAL	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
MADE: <u>V.V.</u>	1											
CHKD: <u>RCP</u>	2											
	3											

PARSONS POWER

PIPING LINE SPECIFICATION

DESIGN CODE ANSI B31.1

SPEC.(S):SP-G375A W.O.: 536633-00036

LINE NO. 15A-1

DATE/ADDENDA 1995

PROJECT: KRSKO NUCLEAR POWER PLANT

MATERIAL Carbon Steel

WELD END DETAIL DWG. D-301-001

ISSUED/REV 11-1-96/0

SERVICE

CONDENSATE, FEEDWATER, WATER, STEAM, OIL, AIR, GASES

MAX																	
Temp °F			-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
Press PSIG			275	275	255	240	225	210	195	180	165	150	140	130	120	110	100
After Bending			259	259	255	240	225	210	195	180	165	150	140	130	120	110	100

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL REQMTS			
PIPE	2 & SMLR	80	A-106	-	B	-	SW	ANSI B36.10M	
	2 1/2-10	40	A-106	-	B	-	BW	ANSI B36.10M	
	12-24	STD	A-106	-	B	-	BW	ANSI B36.10M	
	26-36	STD	A-672	31	B60	-	BW	ANSI B36.10M	
WELDING FITTINGS	2 & SMLR	3000 LB	A-105	-	-	-	SW	ANSI B16.11	SCH 80
	2 1/2-36	EQUAL TO PIPE	A-234	-	WPB	-	BW	ANSI B16.9	(4)
FLANGES	2 & SMLR	150 LB	A-105	-	-	-	-	ANSI B16.5	SOCKET WELDING, RAISED FACE
	2 1/2-36	150 LB	A-105	-	-	-	-	ANSI B16.5	WELDING NECK, RAISED FACE
BRANCH CONN.	2 & SMLR	3000 LB	A-105	-	-	-	SW	-	(2), (3)
	2 1/2-36	EQUAL TO PIPE	A-105	-	-	-	BW	-	(2)
VALVES	2 & SMLR	600 LB	A-105	-	-	-	SW	MFR STD	
	2 1/2-36	150 LB	A-216	-	WCB	-	BW	ANSI B16.34	
BOLTS & STUDS	-	-	A-193	-	B7	-	-	ANSI B18.2.1	HEAVY HEX BOLT, CLASS 2A THREADS
NUTS	-	-	A-194	-	2H	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREADS
GASKETS	-								(1)
UNIONS	NONE								

MATERIAL

STRESS ALLOWABLE, psi X 10³

TEMP.,	F		-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
ASTM	A-106-B		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	14.3	12.9
ASTM	A-216-WCB		14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	13.2	11.7
ASTM	A-105		17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	16.6	14.7
ASTM	A-234-WPB		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	14.3	12.9

NOTES

- 1) GASKETS
 - a) STEAM - SPIRAL WOUND SS WITH FLEXICARB FILTER, FLEXITALLIC TYPE CG OR EQUAL
 - b) WATER (TO 100F) COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - c) WATER (OVER 100F) COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - d) AIR & GASES - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - e) OIL (TO 150F) COMPRESSED NON-ASBESTOS FLAT RING, 1/32" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - f) OIL (OVER 250F) COMPRESSED NON-ASBESTOS FLAT RING, 1/32" THICK, GARLOCK STYLE IFG5500 OR EQUAL UP TO 550F, GARLOCK STYLE G9900 OR EQUAL UP TO 650F, GARLOCK STYLE 3125TC OR EQUAL UP TO 750F
- 2) BRANCH CONNECTIONS
 - a) 2 IN AND SMALL - SOCKOLET, NIPOLET OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2
 - b) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING
 - c) OTHERS-WELDOLET, SWEEPOLET OR EQUAL; OR TEE FITTING
 - d) EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET THE REQUIREMENTS OF ANSI B31.1 PARA 104.3.1.B3 AND 104.3.1.G
- 3) INSTRUMENT CONNECTIONS-SOCKOLET, NIPOLET OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA 104.3.1.C2.
- 4) ELBOWS SHALL BE LONG RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS
- 90) P-T RATINGS BASED ON 150 LB CARBON STEEL PER ANSI B16.5A-92.
- 15) VALVE MATERIAL AND RATING ARE FOR REFERENCE ONLY.

APPROVAL	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
MADE: <u>V.V.</u>	1											
CHKD: <u>RCP</u>	2											
	3											

PARSONS POWER

PIPING LINE SPECIFICATION

DESIGN CODE ANSI B31.1
DATE/ADDENDA 1995

SPEC.(S):SP-G375A W.O.: 536633-00036
PROJECT: KRSKO NUCLEAR POWER PLANT
WELD END DETAIL DWG. D-301-001

LINE NO. 15A-2
MATERIAL Carbon Steel
ISSUED/REV 11-1-96/0

SERVICE

FLASHING, EROSION - WATER, WET STEAM

MAX																	
Temp °F			-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
Press PSIG			275	275	255	240	225	210	195	180	165	150	140	130	120	110	100
After Bending			275	275	255	240	225	210	195	180	165	150	140	130	120	110	100

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL REQMTS			
PIPE	2 & SMLR	80	A-106	-	B	-	SW	ANSI B36.10M	
	2 1/2-10	40	A-106	-	B	-	BW	ANSI B36.10M	
	12-24	40	A-106	-	B	-	BW	ANSI B36.10M	
WELDING FITTINGS	2 & SMLR	3000 LB	A-105	-	-	-	SW	ANSI B16.11	SCH 80
	2 1/2-24	EQUAL TO PIPE	A-234	-	WPB	-	BW	ANSI B16.9	(4)
FLANGES	2 & SMLR	150 LB	A-105	-	-	-	-	ANSI B16.5	SOCKET WELDING, RAISED FACE
	2 1/2-24	150 LB	A-105	-	-	-	-	ANSI B16.5	WELDING NECK, RAISED FACE
BRANCH CONN.	2 & SMLR	3000 LB	A-105	-	-	-	SW	-	(2), (3)
	2 1/2-24	EQUAL TO PIPE	A-105	-	-	-	BW	-	(2)
VALVES	2 & SMLR	600 LB	A-105	-	-	-	SW	ANSI B16.34	(15)
	2 1/2-24	150 LB	A-216	-	WCB	-	BW	ANSI B16.34	(15)
BOLTS & STUDS	-	-	A-193	-	B7	-	-	ANSI B18.2.1	HEAVY HEX BOLT, CLASS 2A THREADS
NUTS	-	-	A-194	-	2H	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREADS
GASKETS	-								(1)
UNIONS	NONE								

MATERIAL		STRESS ALLOWABLE, psi X 10 ³															
TEMP.,	F		-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
ASTM	A-106-B		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	14.3	12.9
ASTM	A-216-WCB		14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	13.2	11.7
ASTM	A-105		17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	16.6	14.7
ASTM	A-234-WPB		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	14.3	12.9

NOTES

- 1) GASKETS
 - a) STEAM - SPIRAL WOUND SS WITH FLEXICARB FILLTER, FLEXITALLIC TYPE CG OR EQUAL
 - b) WATER (TO 100F) COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - c) WATER (OVER 100F) COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - d) AIR & GASES - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - e) OIL (TO 150F) COMPRESSED NON-ASBESTOS FLAT RING, 1/32" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - f) OIL (OVER 250F) COMPRESSED NON-ASBESTOS FLAT RING, 1/32" THICK, GARLOCK STYLE IFG5500 OR EQUAL UP TO 550F, GARLOCK STYLE G9900 OR EQUAL UP TO 650F, GARLOCK STYLE 3125TC OR EQUAL UP TO 750F
- 2) BRANCH CONNECTIONS
 - a) 2 IN AND SMALL - SOCKOLET, NIPOLET OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2
 - b) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING
 - c) OTHERS-WELDOLET, SWEEPOLET OR EQUAL; OR TEE FITTING
 - d) EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET THE REQUIREMENTS OF ANSI B31.1 PARA 104.3.1.B3 AND 104.3.1.G
- 3) INSTRUMENT CONNECTIONS-SOCKOLET, NIPOLET OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA 104.3.1.C2.
- 4) ELBOWS SHALL BE LONG RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS
- 12) THREADED PIPE SHALL BE SEAMLESS IF:
 - a) STEAM SERVICE, PRESSURE > 250 PSI
 - b) WATER SERVICE, PRESSURE > 100 PSI
TEMP. > 220 F
PER ANSI B31.1 PARA 104.1.2.C1
- 14) IN HEATING STEAM SYSTEMS, THREADED JOINTS MAY BE USED AT TRAPS AND HEATERS
- 90) P-T RATINGS BASED ON 150 LB CARBON STEEL PER ANSI B16.5A-92.
- 15) VALVE MATERIAL AND RATING ARE FOR REFERENCE ONLY.

APPROVAL	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
MADE: <i>V.V.</i>	1											
CHKD: <i>RCP</i>	2											
	3											

PIPING LINE SPECIFICATION

DATE/ADDENDA 1995

PROJECT: KRSKO NUCLEAR POWER PLANT

WELD END DETAIL DWG. D-301-001

MATERIAL	Carbon Steel
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ISSUED/REV 11-1-96/0

SERVICE

WATER, AIR

MAX

Temp °F

Press PSIG

After Bending

-20	100	150	200	250	300
275	275	255	240	335	210
275	275	255	240	225	210

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/ CLASS	GRADE	SUPPL REQMTS			
PIPE	2 & SMLR	80	A-53	S	B	-	SCRD	ANSI B36.10	SEAMLESS
	2 1/2-10	40	A-53	S	B	-	BW	ANSI B36.10	SEAMLESS
	12-24	STD	A-53	S	B	-	BW	ANSI B36.10	SEAMLESS
WELDING FITTINGS	2 & SMLR	2000 LB	A-105	-	-	-	SCRD	ANSI B16.11	SCH 80
	2 1/2-24	EQUAL TO PIPE	A-234	-	WPB	-	BW	ANSI B16.9	(4)
FLANGES	2 & SMLR	150 LB	A-105	-	-	-	-	ANSI B16.5	SCREWED, RAISED FACE
	2 1/2-24	150 LB	A-105	-	-	-	-	ANSI B16.5	WELDING NECK, RAISED FACE
BRANCH CONN.	2 & SMLR	2000 LB	A-105	-	-	-	SCRD	-	(2), (3), SCH. 80
	2 1/2-24	EQUAL TO PIPE	A-105	-	-	-	BW	-	(2)
VALVES	2 & SMLR	600 LB	A-105	-	-	-	SCRD	ANSI B16.34	
	2 1/2-24	150 LB	A-216	-	WCB	-	BW	ANSI B16.34	
BOLTS & STUDS	-	-	A-193	-	B7	-	-	ANSI B18.2.1	HEAVY HEX BOLT, CLASS 2A THREADS
NUTS	-	-	A-194	-	2H	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREADS
GASKETS	-								(1)
UNIONS	2&SMLR	3000 LB	A105	-	-	-	SCRD	MSS-SP-83	STEEL/STEEL SEAT

MATERIAL

STRESS ALLOWABLE, psi X 10³

TEMP.,	F											-20	100	150	200	250	300
ASTM	A-53-B											15.0	15.0	15.0	15.0	15.0	15.0
ASTM	A-105-WPB											17.5	17.5	17.5	17.5	17.5	17.5
ASTM	A-234-WPB											15.0	15.0	15.0	15.0	15.0	15.0
ASTM	A-216-WPB											14.0	14.0	14.0	14.0	14.0	14.0

NOTES

- 1) GASKETS
 - a) WATER (TO 100F) COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - b) WATER (TO 100F) COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - c) AIR & GASES - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
- 2) BRANCH CONNECTIONS
 - a) 2 IN AND SMALLER-THREADED - SOCKOLET, NIPOLET OR EQUAL; OR THREADED COUPLING OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1. PARA. 104.3.1.C2. CONNECTIONS MAY ALSO BE MADE BY THREADING PROVIDING THE REQUIREMENTS OF ANSI B31.1 PARA. 104.3.1 B.4.2 ARE MET.
 - b) 2-1/2 TO 8 INC. (FOR HEADERS 10 IN. OR LESS)-SHAPED PIPE NIPPLE WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.D.
 - c) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING
 - d) OTHERS-WELDOLET, SWEEPOLET OR EQUAL; OR TEE FITTING
 - e) EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET THE REQUIREMENTS OF ANSI B31.1 PARA 104.3.1.B3 AND 104.3.1.G
- 3) INSTRUMENT CONNECTIONS-SOCKOLET, NIPOLET, OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2.
- 4) ELBOWS SHALL BE LONG RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS.
- 15) VALVE MATERIAL AND RATING ARE FOR REFERENCE ONLY.
- 90) P-T RATINGS BASED ON 150 LB. CARBON STEEL PER ANSI B16.5a-92

APPROVAL

MADE:

V.V.

CHKD:

RCP

REVISIONS

NO.	MADE	CHKD	QA
1			
2			
3			

REVISIONS

NO.	MADE	CHKD	QA

REVISIONS

NO.	MADE	CHKD	QA

PARSONS POWER																	
PIPING LINE SPECIFICATION																	
DESIGN CODE ANSI B31.1			SPEC.(S):SP-G375A W.O.: 536633-00036										LINE NO. 15A-4				
DATE/ADDENDA 1995			PROJECT: KRSKO NUCLEAR POWER PLANT										MATERIAL CARBON STL				
			WELD END DETAIL DWG. D-301-001										ISSUED/REV 11-1-96/0				
SERVICE																	
WATER, STEAM, OIL, AIR, GASES																	
MAX																	
Temp °F			-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
Press PSIG			275	275	255	240	225	210	195	180	165	150	140	130	120	110	100
AFTER BENDING			259	259	255	240	225	210	195	180	165	150	140	130	120	110	100

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL REQMTS			
PIPING	2 & SMLR	80	A-106	E	B	-	SW	ANSI B36.10	(11)
	2 1/2-10	40	A-106	E	B	-	BW	ANSI B36.10	(11)
	12-24	STD	A-106	E	B	-	BW	ANSI B36.10	(11)
	26-36	STD	A-672	31	B60	-	BW	ANSI B36.10	(11)
WELDING FITTINGS	2 & SMLR	3000 LB	A-105	-	-	-	SW	ANSI B16.11	SCH. 80
	2 1/2-36	EQUAL TO PIPE	A-234	-	WPB	-	BW	ANSI B16.9	(4)
FLANGED	2 & SMLR	150 LB	A-105	-	-	-	-	ANSI B16.5	SOCKET WELDING, FLAT FACE
	2 1/2-36	150 LB	A-105	-	-	-	-	ANSI B16.5	WELDING NECK, FLAT FACE
BRANCH CONN.	2 & SMLR	3000 LB	A-105	-	-	-	SW	-	(2), (3)
	2-1/2-36	EQUAL TO PIPE	A-105	-	-	-	BW	-	(2)
VALVES	2 & SMLR	600 LB	A-105	-	-	-	SW	ANSI B16.34	
	2 1/2-36	150 LB	A-216	-	WCB	-	BW	ANSI B16.34	
BOLTS & STUDS	-	-	A-193	-	B7	-	-	ANSI B18.2.1	HEAVY HEX BOLT, CLASS 2A THREADS
NUTS	-	-	A-194	-	2H	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREADS
GASKETS									(1)
UNIONS									

LINE NO.																15A-4	
ISSUED/REV																11-1-96/0	
MATERIAL			STRESS ALLOWABLE, psi X 10 ³														
TEMP.,	F		-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
ASTM	A-106-B		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	14.3	12.9
ASTM	A-105		17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	16.6	14.7
ASTM	A-234-WPB		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	14.3	12.9
ASTM	A-216-WCB		14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	13.2	11.7
NOTES																	
1) GASKETS																	
a) STEAM-SPIRAL WOUND SS WITH FLEXICARB FILLER, FLEXITALLIC TYPE CG OR EQUAL																	
b) WATER (TO 100F) COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL																	
c) WATER (OVER 100F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL																	
d) AIR - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE 1FG5500 OR EQUAL																	
e) OIL (TO 250F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/32 THICK, GARLOCK STYLE 1FG5500 OR EQUAL																	
GARLOCK STYLE G9900 OR EQUAL UP TO 650F																	
GARLOCK STYLE 3125C OR EQUAL UP TO 750F																	
2) BRANCH CONNECTIONS																	
a) 2 IN. AND SMALLER-SOCKOLET, NIPOLET OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA 104.3.1.C2																	
b) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING																	
c) OTHERS-WELDOLET, SWEEPOLET OR EQUAL; OR TEE FITTING																	
d) EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET THE REQUIREMENTS OF ANSI B31.1 PARA. 104.3.1.B3 AND 104.3.1.G																	
3) INSTRUMENT CONNECTIONS-SOCKOLET, NIPOLET, OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2.																	
4) ALL ELBOWS SHALL BE LONG RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS																	
11) COATING IN ACCORDANCE WITH AWWA C-203-1986 WITH FOLLOWING SUPPLEMENT REQUIREMENTS:																	
a) COATING SHALL BE COAL TAR ENAMEL WITH TYPE B PRIMER AND TYPE I OR II FINISH																	
b) FELT SHALL BE NON-PERFORATED, WITH OR WITHOUT REINFORCING																	
c) WELDING ENDS SHALL BE LEFT UNCOATED FOR 1 FOOT																	
d) PIPE FABRICATOR SHALL SUPERVISE INSPECTION AND TESTING OR COATING																	
e) HOLIDAY DETECTOR IN ACCORDANCE WITH THE TOTAL FILM THICKNESS APPLIED																	
15) VALVE MATERIAL AND RATING ARE FOR REFERENCE ONLY.																	
90) PRESSURE-TEMPERATURE RATINGS BASED ON 150 RB CARBON STEEL PER ANSI B16.5A-68																	

APPROVAL		REVISIONS				REVISIONS				REVISIONS			
MADE:	<u>V.V.</u>	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
CHKD:	<u>RA</u>	1											
		2											
		3											

PARSONS POWER PIPING LINE SPECIFICATION																	
DESIGN CODE ANSI B31.1 DATE/ADDENDA 1995	SPEC.(S): SP-G375A W.O.: 536633-00036 PROJECT: KRSKO NUCLEAR POWER PLANT WELD END DETAIL DWG. D-301-001								LINE NO. 15B-1 MATERIAL CARBON STL ISSUED/REV 11-1-96/0								
SERVICE RAW WATER, GRAVITY DRAINS																	
																	MAX
Temp °F																	100
Press PSIG																	275
AFTER BENDING																	275

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL REQMTS			
PIPING	2 & UNDER	80	A-53	E	B	-	SW	ANSI B36.10	
	2 1/2-10	40	A-53	E	B	-	BW	ANSI B36.10	
	12-24	STD	A-53	E	B	-	BW	ANSI B36.10	
WELDING FITTINGS	2 & SMLR	3000 LB	A-105	-	-	-	SW	ANSI B16.11	SCH. 80
	2 1/2-24	EQUAL TO PIPE	A-234	-	WPB	-	BW	ANSI B16.9	(4)
FLANGED	2 & SMLR	150 LB	A-105	-	-	-	-	ANSI B16.5	SOCKET WELDING, FLAT FACE
	2 1/2-4	150 LB	A-105	-	-	-	-	ANSI B16.5	WELDING NECK, FLAT FACE
BRANCH CONN.	2 & SMLR	3000 LB	A-105	-	-	-	SW	-	(2), (3)
	2-1/2-24	EQUAL TO PIPE	A-105	-	-	-	BW	-	(2)
VALVES	2 & SMLR	600 LB	A-105	-	-	-	SW	ANSI B16.34	
	2 1/2-24	150 LB	A-216	-	WCB	-	BW	ANSI B16.34	
BOLTS & STUDS	-	-	A-193	-	B7	-	-	ANSI B18.2.1	HEAVY HEX BOLT, CLASS 2A THREADS
NUTS	-	-	A-194	-	2H	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREADS
GASKETS									(1)
UNIONS									

LINE NO.											15B-1								
ISSUED/REV											11-1-96/0								
MATERIAL		STRESS ALLOWABLE, psi X 10 ³																	
TEMP.,	F													-20	100	150	200	250	300
ASTM	A-53-B TYPE													12.7	12.7	12.7	12.7	12.7	12.7
ASTM	A-105													17.5	17.5	17.5	17.5	17.5	17.5
ASTM	A-234-WPB													15.0	15.0	15.0	15.0	15.0	15.0
ASTM	A-216-WCB													14.0	14.0	14.0	14.0	14.0	14.0

NOTES

1) GASKETS

a) WATER (TO 100F) COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL

b) WATER (OVER 100F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL

c) AIR - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL

2) BRANCH CONNECTIONS

a) 2 IN. AND SMALLER-SOCKOLET, NIPOLET OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA 104.3.1.C2

b) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING

c) OTHERS-WELDOLET, SWEEPOLET OR EQUAL; OR TEE FITTING

d) EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET THE REQUIREMENTS OF ANSI B31.1 PARA. 104.3.1.B3 AND 104.3.1.G

3) INSTRUMENT CONNECTIONS-SOCKOLET, NIPOLET, OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2.

4) ALL ELBOWS SHALL BE LONG RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS

15) VALVE MATERIAL AND RATING ARE FOR REFERENCE ONLY.

90) PRESSURE-TEMPERATURE RATINGS BASED ON CLASS D (150 PSI) AWWA C207 FLANGES

APPROVAL MADE: <u>V.V.</u> CHKD: <u>PCP</u>		REVISIONS				REVISIONS				REVISIONS			
		NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
		1											
		2											
		3											

PARSONS POWER PIPING LINE SPECIFICATION																		
DESIGN CODE ANSI B31.1			SPEC.(S):SP-G375A W.O.: 536633-00036										LINE NO. 15B-2					
DATE/ADOENDA 1995			PROJECT: KRSKO NUCLEAR POWER PLANT										MATERIAL CARBON STL					
WELD END DETAIL DWG. D-301-001																		
SERVICE																		
RIVER WATER (UNDERGROUND PIPE)																		
MAX																		
Temp °F																50	100	150
Press PSIG																150	150	150
AFTER BENDING																		-

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL REQMTS			
PIPING	2 & UNDER	80	A-106	-	B	-	SW	ANSI B36.10M	(11)
	2 1/2-14	40	A-106	-	B	-	BW	ANSI B36.10M	(11)
	16-30	STD	A-134	-	A283B	-	BW	ANSI B36.10M	(11)
	32-72ID	.500	A-134	-	A283B	-	BW	AWWA M11	(11)
WELDING FITTINGS	2 & SMLR	3000 LB	A-105	-	-	-	SW	ANSI B16.11	SCH. 80
	2 1/2-30	EQUAL TO PIPE	A-234		WPB		BW	ANSI B16.9	(4)
	32-72	EQUAL TO PIPE	A-234				BW	AWWA C208	
FLANGED	2 & SMLR	150 LB	A-105	-	-	-	SW	ANSI B16.5	SOCKET WELDING, RAISED FACE
	2 1/2-4	150 LB	A-181		60	-	BW	ANSI B16.5	SLIP-ON, RAISED FACE
	6-72	CLASS D 150 PSI	A-181		60		BW	AWWA C207	SLIP-ON, STEEL RING, RAISED FACE
BRANCH CONN.	2 & SMLR	3000 LB	A-105	-	-	-	SW	-	(2), (3)
	2-1/2-72	EQUAL TO PIPE	A-105	-	-	-	BW	-	(2)
BOLTS & STUDS			A-307	-	B	-	-	ANSI B18.2.1	REG. HEX BOLT, CLASS 2A THREADS
NUTS	-	-	A-563	-	A	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREADS
GASKETS									(1)

LINE NO. 15B-2															
ISSUED/REV 11-1-96/0															
MATERIAL		STRESS ALLOWABLE, psi X 10 ³													
TEMP.,	F												50	100	15.0
ASTM	A-106-B												15.0	15.0	15.0
ASTM	A-105												17.5	17.5	17.5
ASTM	A-283-B												9.2	9.2	9.2
ASTM	A-234-WPB												15.0	15.0	15.0
ASTM	A-181-GRI												15.0	15.0	15.0

NOTES

1) GASKETS

a) WATER (TO 100F) COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL

b) WATER (OVER 100F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL

2) BRANCH CONNECTIONS

a) 2 IN. AND SMALLER-SOCKOLET, NIPOLET OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA 104.3.1.C2

b) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING

c) OTHERS-WELDOLET, SWEEPOLET OR EQUAL; OR TEE FITTING

d) EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET THE REQUIREMENTS OF ANSI B31.1 PARA. 104.3.1.B3 AND 104.3.1.G

3) INSTRUMENT CONNECTIONS-SOCKOLET, NIPOLET, OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2.

4) ALL ELBOWS SHALL BE LONG RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS

90) PRESSURE-TEMPERATURE RATINGS BASED ON CLASS D (150 PSI) AWWA C207 FLANGES

APPROVAL	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
MADE: <u><i>VV</i></u>	1											
CHKD: <u><i>RCP</i></u>	2											
	3											

PARSONS POWER																
PIPING LINE SPECIFICATION																
DESIGN CODE ANSI B31.1				SPEC.(S):SP-G375A W.O.: 536633-00036								LINE NO. 15B-3				
DATE/ADDENDA 1995				PROJECT: KRSKO NUCLEAR POWER PLANT								MATERIAL CARBON STL				
				WELD END DETAIL DWG. D-301-001								ISSUED/REV 11-1-96/0				
SERVICE																
RIVER WATER (UNDERGROUND PIPE)																
MAX																
Temp °F														50	100	150
Press PSIG														150	150	150
AFTER BENDING																-

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL REQMTS			
PIPING	2 & UNDER	80	A-106	-	B	-	SW	ANSI B36.10M	(11)
	2 1/2-14	40	A-106	-	B	-	BW	ANSI B36.10M	(11)
	16-30	STD	A-134	-	A283B	-	BW	ANSI B36.10M	(11)
	32-72ID	.500	A-134	-	A283B	-	BW	AWWA M11	(11)
WELDING FITTINGS	2 & SMLR	3000 LB	A-105	-	-	-	SW	ANSI B16.11	SCH. 80
	2 1/2-30	EQUAL TO PIPE	A-234		WPB		BW	ANSI B16.9	(4)
	32-72	EQUAL TO PIPE	A-234				BW	AWWA C208	
FLANGED FITTINGS	2 & SMLR	150 LB	A-105	-	-	-	SW	ANSI B16.5	SLIP-ON, RAISED FACE
	2 1/2-4	150 LB	A-181		60	-	BW	ANSI B16.5	SLIP-ON, RAISED FACE
	6-72	CLASS D 150 PSI	A-181		60		BW	AWWA C207	SLIP-ON, STEEL RING, RAISED FACE
BRANCH CONN.	2 & SMLR	3000 LB	A-105	-	-	-	SW	-	(2), (3)
	2-1/2-72	EQUAL TO PIPE	A-105	-	-	-	BW	-	(2)
BOLTS & STUDS			A-307	-	B	-	-	ANSI B18.2.1	REG. HEX BOLT, CLASS 2A THREADS
NUTS	-	-	A-563	-	A	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREADS
GASKETS									(1)

MATERIAL

STRESS ALLOWABLE, psi X 10³

TEMP.,	F														50	100	15.0
ASTM	A-106-B														15.0	15.0	15.0
ASTM	A-105														17.5	17.5	17.5
ASTM	A-283-B														9.2	9.2	9.2
ASTM	A-234-WPB														15.0	15.0	15.0
ASTM	A-181-GRI														15.0	15.0	15.0

NOTES

- 1) GASKETS
 - a) WATER (TO 100F) COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - b) WATER (OVER 100F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
- 2) BRANCH CONNECTIONS
 - a) 2 IN. AND SMALLER-SOCKOLET, NIPOLET OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA 104.3.1.C2
 - b) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING
 - c) OTHERS-WELDOLET, SWEEPOLET OR EQUAL; OR TEE FITTING
 - d) EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET THE REQUIREMENTS OF ANSI B31.1 PARA. 104.3.1.B3 AND 104.3.1.G
- 3) INSTRUMENT CONNECTIONS-SOCKOLET, NIPOLET, OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2.
- 4) ALL ELBOWS SHALL BE LONG RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS
- 11) COATING IN ACCORDANCE WITH AWWA C-203-1986 WITH FOLLOWING SUPPLEMENTARY REQUIREMENTS:
 - a) COATING SHALL BE COAL TAR ENAMEL WITH TYPE B PRIMER AND TYPE I OR II FINISH
 - b) FELT SHALL BE NON-PERFORATED, WITH OR WITHOUT REINFORCEMENT
 - c) WELDING ENDS SHALL BE LEFT UNCOATED FOR 1 FOOT
 - d) PIPE FABRICATOR SHALL SUPERVISE INSPECTION AND TESTING OR COATING
 - e) COATING SHALL BE TESTED WITH A TINKER-RASOR HOLIDAY DETECTOR IN ACCORDANCE WITH THE TOTAL FILM THICKNESS APPLIED
- 90) PRESSURE-TEMPERATURE RATINGS BASED ON CLASS D (150 PSI) AWWA C207 FLANGES

APPROVAL	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
MADE: <u>V.V.</u>	1											
CHKD: <u>RRP.</u>	2											
	3											

PIPING LINE SPECIFICATION

LINE NO. 15B4-1
MATERIAL CARBON STL
ISSUED/REV 11-1-96/0

SERVICE

FLASHING, EROSION - WATER, WET STEAM

[illegible]

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL REQMTS			
PIPING	2 & SMLR	80	A-53	S	B	-	SCRD	ANSI B36.10	
	2 1/2-10	40	A-53	S	B	-	BW	ANSI B36.10	
	12	STD	A-53	S	B	-	BW	ANSI B36.10	
SCREWED FITTINGS	2 & SMLR	2000 LB	A-105	-	-	-	SW	ANSI B16.11	SCH. 80, (20)
FLANGES	3-12	150 LB	A-105	-	-	-	-	ANSI B16.5	WELDING NECK, FLAT FACE, (20), (21)
WELDING FITTINGS	2 1/2-12	EQUAL TO PIPE	A-234	-	WPB	-	BW	ANSI B16.9	(4), (20) (21)
BRANCH CONN.	2 1/2-12	EQUAL TO PIPE	A-105	-	-	-	BW	-	(21), WELDOLET OR EQUAL, OR TEE FITTING
VALVES	2 1/2 & SMLR	-	B-62	-	-	-	SCRD	-	(20) 175 PSIG WORKING PRESSURE HOZE THREAD VALVES
	3-12	125150 LB	A-126	-	B	-	FLGD	ANSI B16.1	(20) BRONZE TRIM 175 PSIG WORKING PRESSURE
GASKETS	-	-	-	-	-	-	-	ANSI B16.21	(1)
BOLTS	-	-	A-193	-	B7	-	-	ANSI B18.2.1	HEAVY HEX BOLT, CLASS 2A THREADS
NUTS	-	-	A-194	-	2H	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREADS

LINE NO.										15B4-1									
ISSUED/REV										11-1-96/0									
MATERIAL										STRESS ALLOWABLE, psi X 10 ³									
TEMP.,	F																		
ASTM																			
ASTM																			
ASTM																			

NOTES											
<p>1) GASKETS COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL</p> <p>4) ELBOWS SHALL BE LONG RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS</p> <p>20) APPROVED BY UNDERWRITERS LABORATORIES, INC. OR BY FACTORY MUTUAL INSURANCE COMPANY, OR EQUAL</p> <p>21) SECTIONS OF PIPING SYSTEM MAY BE SHOP FABRICATED BY WELDING. WELDED FABRICATION TO BE IN ACCORDANCE WITH ANSI B31.1</p> <p>30) THE FINISHED INSTALLED SYSTEM SHALL BE HYDROSTATICALLY TESTED AT 300 PSIG FOR 2 HOURS</p> <p>31) ENTIRE PIPING SYSTEM SHALL BE FLUSHED AS FOLLOWS:</p> <table style="width: 100%; margin-top: 10px;"> <tr> <td style="text-align: left;">PIPE SIZE (IN.)</td> <td style="text-align: left;">FLOW (GPM)</td> </tr> <tr> <td>6 & UNDER</td> <td>750</td> </tr> <tr> <td>8</td> <td>1000</td> </tr> <tr> <td>10</td> <td>1500</td> </tr> <tr> <td>12</td> <td>2000</td> </tr> </table> <p>90) PRESSURE-TEMPERATURE RATINGS BASED ON 150 LB. STAINLESS STEEL PER ANSI B16.5A-92</p>	PIPE SIZE (IN.)	FLOW (GPM)	6 & UNDER	750	8	1000	10	1500	12	2000	
PIPE SIZE (IN.)	FLOW (GPM)										
6 & UNDER	750										
8	1000										
10	1500										
12	2000										

<p style="text-align: center;">APPROVAL</p> <p>MADE: <u>V.V.</u></p> <p>CHKD: <u>RL</u></p>	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
	1											
	2											
	3											

PARSONS POWER PIPING LINE SPECIFICATION																	
DESIGN CODE NFPA-11 DATE/ADDENDA 1993	SPEC.(S): SP-G375A W.O.: 536633-00036 PROJECT: KRSKO NUCLEAR POWER PLANT WELD END DETAIL DWG. D-301-001								LINE NO. 15B4-2 MATERIAL CARBON STL ISSUED/REV 11-1-96/0								
SERVICE INTERIOR FIRE SERVICE																	
																	MAX
Temp °F																	150
Press PSIG																	175
AFTER BENDING																	-

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/ CLASS	GRADE	SUPPL REQMTS			
PIPING	2 & SMLR	80	A-53	S	B	-	SCRD	ANSI B36.10	
	2 1/2-4	40	A-53	S	B	-	SCRD	ANSI B36.10	
	6	40	A-53	S	B	-	FLGD	ANSI B36.10	
	8-10	30	A-53	S	B	-	FLGD	ANSI B36.10	
SCREWED FITTINGS	4 & SMLR	150 LB	A-47	-	32510	-	-	ANSI B16.3	(20)
FLANGED FITTINGS	6-10	125 LB	A-126	-	B	-	-	ANSI B16.1	(20)
FLANGES	3-10	125 LB	A-126	-	B	-	-	ANSI B16.1	(20)
WELDING FITTINGS	3-10	EQUAL TO PIPE	A-234	-	WPB	-	BW	ANSI B16.9	(20) (21)
BRANCH CONN.	2 1/2 & SMLR	3000 LB	A-105	-	-	-	SCRD	-	
	3-10	EQUAL TO PIPE	A-105	-	-	-	BW	-	
VALVES	2 1/2 & SMLR	125 LB	A-126	-	B	-	SCRD	-	BRONZE TRIM, (20), 175 PSIG WORKING PRESSURE
	3-10	125 LB	A-126	-	B	-	FLGD	ANSI B16.34	BRONZE TRIM (20) 175 PSIG WORKING PRESSURE
GASKETS	-	-	-	-	-	-	-	ANSI B16.21	(1)
BOLTS	-	-	A-193	-	B7	-	-	ANSI B18.2.1	HEAVY HEX BOLT, CLASS 2A THREADS
NUTS	-	-	A-194	-	2H	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREADS

LINE NO. 15B4-2																			
ISSUED/REV 11-1-96/0																			
MATERIAL		STRESS ALLOWABLE, psi X 10 ³																	
TEMP.,	F																		
ASTM	A-53-B TYPES																		
ASTM	A-126-13																		
ASTM																			

NOTES

1) GASKETS
COMPRESSED NON-ASBESTOS FLAT RING, 1/16"
THICK, GARLOCK STYLE IFG5500 OR EQUAL

4) ELBOWS SHALL BE LONG RADIUS UNLESS
INDICATED OTHERWISE ON DRAWINGS

20) APPROVED BY UNDERWRITERS LABORATORIES,
INC. OR BY FACTORY MUTUAL INSURANCE
COMPANY, OR EQUAL

21) SECTIONS OF PIPING SYSTEM MAY BE SHOP
FABRICATED BY WELDING. WELDED FABRICATION
TO BE IN ACCORDANCE WITH ANSI B31.1

30) THE FINISHED INSTALLED SYSTEM SHALL BE
HYDROSTATICALLY TESTED AT 200 PSIG FOR
2 HOURS

90) PRESSURE-TEMPERATURE RATINGS BASED ON 150
LB. STAINLESS STEEL PER ANSI B16.5A-92

<p style="text-align: center;">APPROVAL</p> <p>MADE: <u>V.V.</u></p> <p>CHKD: <u>RCP.</u></p>	REVISIONS				REVISIONS				REVISIONS				
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	
	1												
	2												
	3												

PIPE LINE SPECIFICATION

DESIGN CODE	ANSI B31.1	SPEC.(S)	SP-G375A-536633-00036	W.D.		LINE NO.	15B6-2
ATA/ADDENDA	15/12/2007	PROJECT	CTSE - MDD - 477-CT-L			MATERIAL	CARBON STEEL
		WELD END DETAIL DWG.	D-302-001			ISSUED/REV	15/12/2007

SERVICE

RIVER WATER, ABOVE GROUND

[illegible]

MATERIAL DESCRIPTION

[illegible]

DCN No: 3

LINE NO.													15B6-2
ISSEUD/REV.													15/12/2007
MATERIAL	STRESS ALLOWABLE, PSI X 10 ³												
TEMP °F													90 100 150
API 5L Gr. B, TENSILE													60,0 60,0 60,0
ASTM A 234													15,0 15,0 15,0
ASTM A 105													17,5 17,5 17,5

NOTES

1) GASKETS

a) WATER (TO 100F)-DUCK INSERTED RUBBER, GARLOCK NO.19 OR EQUAL, 1/16 IN. THICK

b) WATER (OVER 100 F)-GRAPHITED COMPRESSED ASBESTOS, GARLOCK NO. 951, OR EQUAL 1/16 THICK

2) BRANCH CONNECTIONS

a) 2 IN AND SMALLER SOCKLET, NIPOLET OR EQUAL OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1

b) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING

c) OTHERS-WELDOLET, SWEEPOLET OR EQUAL, OR TEE FITTING

4) ALL ELBOWS SHALL BE LONG RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS

90) P-T RATINGS BASED ON CLADD D; 150#; AWWA C207 FLANGES

11) COATING PIPE EXTERNAL SIMILAR TO:

- a) SANDBLASTING TO Sa2,5
- b) PRIMER Hempadur 15570 80 µm DFT
- c) INTERMEDIATE COAT Hempadur 45143 130 µm DFT
- d) FINAL HEMPATANE Topcoat 50 µm DFT

COATING PIPE INTERNAL SIMILAR TO:

- a) SANDBLASTING TO Sa 2,5
- b) HEMPADUR 15130 2 X 150 µm DFT

REVISION

QA

CHKD

MADE

NO.

DCN No: 3

PIPE LINE SPECIFICATION

DESIGN CODE	<u>ANSI B31.1</u>	SPEC.(S)	<u>SP-G375A-536633-00036</u>	W.O.	<u> </u>	LINE NO.	<u>15B6-3</u>
ATA/ADDENDA	<u>15/12/2007</u>	PROJECT	<u>CTSE -- MOD -- 477-CT-1</u>			MATERIAL	<u>CARBON STEEL</u>
		WELD END DETAIL DWG.	<u>D-302-001</u>			ISSUED/REV	<u>15/12/2007</u>

SERVICE

RIVER WATER, UNDERGROUND

[illegible]

MATERIAL DESCRIPTION

[illegible]

DCN No: 3

LINE NO.													15B6-3
ISSEUD/REV.													15/12/2007
MATERIAL	STRESS ALLOWABLE, PSI X 10 ³												
TEMP °F													90 100 150
API 5L Gr. B, TENSILE													60,0 60,0 60,0
ASTM A 234													15,0 15,0 15,0
ASTM A 105													17,5 17,5 17,5

NOTES

1) GASKETS

a) WATER (TO 100F)-DUCK INSERTED RUBBER, GARLOCK NO.19 OR EQUAL, 1/16 IN. THICK

b) WATER (OVER 100 F)-GRAPHITED COMPRESSED ASBESTOS, GARLOCK NO. 951, OR EQUAL 1/16 THICK

2) BRANCH CONNECTIONS

a) 2 IN AND SMALLER SCKLET, NIPOLET OR EQUAL OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1

b) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING

c) OTHERS-WELDOLET, SWEEPOLET OR EQUAL, OR TEE FITTING

4) ALL ELBOWS SHALL E LONG RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS

90) P-T RATINGS BASED ON CLADD D; 150#; AWWA C207 FLANGES

11) COATING PIPE EXTERNAL SIMMILAR TO:

- a) SANDBLASTING TO Sa2,5
- b) 3-PLY POLETHYLENE INSULATION TAPE
- c) 3-PLY POLYETHLYNE MACHANICAL PROTECTION TAPE
- d) 50% OVERLAP, TOTAL THICKNESS 3,2 MM

COATING PIPE INTERNAL SIMMILAR TO:

- a) SANDBLASTING TO Sa 2,5
- b) HEMPADUR 15130 2 X 150 µm DFT

REVISION	QA	
	CHKD	
	MADE	
	NO.	

PARSONS POWER																	
PIPING LINE SPECIFICATION																	
DESIGN CODE ANSI B31.1			SPEC.(S):SP-G375A W.O.: 536633-00036										LINE NO. 15C-1				
DATE/ADDENDA 1995			PROJECT: KRSKO NUCLEAR POWER PLANT										MATERIAL CROM-MOLY				
			WELD END DETAIL DWG. D-301-001										ISSUED/REV 11-1/96/0				
SERVICE																	
FLASHING, EROSION - WATER, WET STEAM																	
MAX																	
Temp °F			-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
Press PSIG			275	275	255	240	225	210	195	180	165	150	140	130	120	110	100
AFTER BENDING			275	275	255	240	225	210	195	180	165	150	140	130	120	110	100

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL REQMTS			
PIPING	2 & SMLR	80	A-335	-	P22	-	SW	ANSI B36.10	
	2 1/2-10	40	A-335	-	P22	-	BW	ANSI B36.10	
	12-24	40	A-335	-	P22	-	BW	ANSI B36.10	
WELDING FITTINGS	2 & SMLR	3000 LB	A-182	-	F22	-	SW	ANSI B16.11	SCH. 80
	2 1/2-24	EQUAL TO PIPE	A-234	-	WP22	-	BW	ANSI B16.9	(4)
FLANGES	2 & SMLR	150 LB	A-182	-	F22	-	-	ANSI B16.5	SOCKET WELDING, RAISED FACE
	2 1/2-24	150 LB	A-182	-	F22	-	-	ANSI B16.4	WELDING NECK, RAISED FACE
BRANCH CONN.	2 & SMLR	3000 LB	A-182		F22	-	SW	-	(2), (3)
	2 1/2-24	EQUAL TO PIPE	A-182	-	F22	-	BW	-	(2)
VALVES	2 & SMLR	600 LB	A-105	-	-	-	SW	-	
	2 1/2-24	150 LB	A-216	-	WCB	-	BW	ANSI B16.5	
BOLTS & STUDS	-	-	A-193	-	B7	-	-	ANSI B18.2.1	HEAVY HEX BOLT, CLASS 2A THREADS
NUTS	-	-	A-194	-	2H	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREADS
UNIONS	NONE								

MATERIAL

STRESS ALLOWABLE, psi X 10³

TEMP.,	F		-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
ASTM	A-335-P22		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.3	15.0	15.0	15.0	15.0	15.0
ASTM	A-182-F22		17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
ASTM	A-182 F316		17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	16.6	14.7
ASTM	A-216-WCB		14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	13.2	11.7

NOTES

- 1) GASKETS
 - a) STEAM - SPIRAL WOUND SS WITH FLEXICARB FILLER, FLEXITALLIC TYPE CG OR EQUAL
 - b) WATER (TO 100F) COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - c) WATER (OVER 100F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - d) AIR & GASES - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - e) OIL (TO 250F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/32 THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - f) OIL (OVER 250F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/32 THICK, GARLOCK STYLE IFG5500 OR EQUAL UP TO 550F GARLOCK STYLE G9900 OR EQUAL UP TO 650F GARLOCK STYLE 3125TC OR EQUAL UP TO 750F
- 2) BRANCH CONNECTIONS
 - a) 2 IN. AND SMALLER-SOCKLET, NIPOLET, OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2
 - b) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING
- c) OTHERS-WELDOLET, SWEEPOLET OR EQUAL; OR TEE FITTING
- d) EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET THE REQUIREMENTS OF ANSI B31.1 PARA. 104.3.1.B3 AND 104.3.1.G
- 3) INSTRUMENT CONNECTIONS-SOCKLET, NIPOLET, OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2.
- 4) ELBOWS SHALL BE LONE RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS
- 15) VALVE MATERIAL AND RATING ARE FOR REFERENCE ONLY.
- 90) PRESSURE-TEMPERATURE RATINGS BASED ON 150 LB. STAINLESS STEEL PER ANSI B16.5A-92

APPROVAL

MADE: V.V.CHKD: RCP

REVISIONS

NO.	MADE	CHKD	QA
1			
2			
3			

REVISIONS

NO.	MADE	CHKD	QA

REVISIONS

NO.	MADE	CHKD	QA

PARSONS POWER

PIPING LINE SPECIFICATION

SIGN CODE ANSI B31.1
DATE/ADDENDA 1995

SPEC.(S): SP-G375A W.O.: 536633-00036
PROJECT: KRSKO NUCLEAR POWER PLANT
WELD END DETAIL DWG. D-301.001

LINE NO. 15D-1
MATERIAL STAINLESS ST
ISSUED/REV 11-1 96/0

SERVICE

CHEMICAL - CAUSTIC SOLUTIONS

											MAX					
Temp °F											-20	100	150	200	250	300
Press PSIG											275	275	255	240	225	210
AFTER BENDING											275	275	255	240	225	210

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL. REQMTS			
PIPING	2 & SMLR	40S	A-312	-	TP304	-	SW	ANSI B36.19	SEAMLESS OR WELDED
	2 1/2-12	40S	A-312	-	TP304	-	BW	ANSI B36.19	SEAMLESS OR WELDED
WELDING FITTINGS	2 & SMLR	3000 LB	A-182	-	F304	-	SW	ANSI B16.11	SCH. 80
	2 1/2-12	EQUAL TO PIPE	A-403	-	WP304	-	BW	ANSI 16.9	(4)
FLANGES	2 & SMLR	150	A-182	-	F304	-	SW	ANSI B16.5	SOCKET WELDING, FLAT FACE
	2 1/2-12	150	A-182	-	F304	-	BW	ANSI B16.5	WELDING NECK, FLAT FACE
BRANCH CONN.	2 & SMLR	3000 LB	A-182	-	F304	-	SW	-	(2), (3)
	2 1/2-12	EQUAL TO PIPE	A-182	-	F304	-	BW	-	(2)
VALVES	2 & SMLR	600 LB	A-182	-	F304	-	SWCH.	ANSI B16.34	
	2 1/2-24	150 LB	A-351	-	CF8	-	BW	ANSI B16.34	
BOLTS & NUTS		-	A-193	-	B7	-		ANSI B18.2.1	HEAVY HEX BOLT, CLASS 2A THREADS
NUTS		-	A-194	-	2H	-		ANSI B18.2.2	HEAVY HEX, CLASS 2B THREADS
GASKETS		-		-	-	-			(1)
UNIONS	NONE								

LINE NO. 15D-1																	
ISSUED/REV 11-1-96-0																	
MATERIAL		STRESS ALLOWABLE, psi X 10 ³															
TEMP., F																	
ASTM																	
ASTM																	

NOTES

- 1) GARLOCK STYLE GYLON 3510 OR EQUAL, 1/8" THICK

- 2) BRANCH CONNECTIONS
 - a) 2 IN. AND SMALLER-SOCKLET, NIPOLET, OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2
 - b) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING
 - c) OTHERS-WELDOLET, SWEEPOLET OR EQUAL; OR TEE FITTING
 - d) EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET THE REQUIREMENTS OF ANSI B31.1 PARA. 104.3.1.B3 AND 104.3.1.G

- 3) INSTRUMENT CONNECTIONS-SOCKOLET, NIPOLET, OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PRA. 104.3.1.C2.

- 4) ELBOWS SHALL BE LONG RADIUS UNLESS INDICATED OTHERSIDE ON DRAWINGS

- 15) VALVE MATERIAL AND RATING ARE FOR REFERENCE ONLY.

- 90) PRESSURE-TEMPERATURE RATINGS BASED ON 150 LB. STAINLESS STEEL PER ANSI B16.5A-92

APPROVAL	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
MADE: <u>V.V.</u>	1											
CHKD: <u>PCP</u>	2											
	3											

PARSONS POWER PIPING LINE SPECIFICATION																	
DESIGN CODE ANSI B31.1 DATE/ADDENDA 1995	SPEC.(S): SP-G375A W.O.: 536633-00036 PROJECT: KRSKO NUCLEAR POWER PLANT WELD END DETAIL DWG. D-301-001						LINE NO. 15D-2 MATERIAL STAINLESS ST ISSUED/REV 11-1-96/0										
SERVICE CORROSION SERVICE - LOW PRESSURE, GRAVITY																	
																	MAX
Temp °F																	100
Press PSIG																	275
AFTER BENDING																	

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/ CLASS	GRADE	SUPPL REQMTS			
PIPING	2 & SMLR	40S	A-312	-	TP304	-	SW	ANSI B36.19	
	2 1/2-4	40S	A-312	-	TP304	-	BW	ANSI B36.19	
	6-12	40S	A-312	-	TP304	-	BW	ANSI B36.19	
WELDING FITTINGS	2 & SMLR	3000 LB	A-182	-	F304	-	SW	ANSI B16.11	SCH. 80
	2 1/2-12	EQUAL TO PIPE	A-403	-	WP304	-	BW	MSS SP-43	
FLANGES	2 & SMLR	150 LB	A-182		F304	-	SW	ANSI B16.5	SOCKET WELDING, FLAT FACE
	2 1/2-12	-	A-182	-	F304	-	WN		WELDING NECK, FLAT FACE
VALVES	2 & SMLR	150 LB	A-182	-	316	-	SW	ANSI B16.34	
	2 1/2-12	150 LB	A-351	-	CF8M	-	BW	ANSI B16.34	
BOLTS & NUTS	-	-	A-193	-	B8	-	-	ANSI A18.2.1	REG. HEX BOLT, CLASS 2B THREADS
NUTS	-	-	A-194	-	B8	-	-	ANSI A18.2.2	HEAVY HEX, CLASS 2B THREADS
GASKETS	-	-	-	-	-	-	-	-	(1)
UNIONS	NONE								

MATERIAL

STRESS ALLOWABLE, psi X 10³

TEMP.,	F																			
ASTM	A-312 TP304																			
ASTM																				
ASTM																				

NOTES

- 1) GASKET-FULL FACE, SOFT RUBBER, 1/8" THICK
- 2) BRANCH CONNECTIONS
 - a) 2 IN. AND SMALLER-SOCKLET, NIPOLET, OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2
 - b) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING
 - c) OTHERS-WELDOLET, SWEEPOLET OR EQUAL; OR TEE FITTING
 - d) EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET THE REQUIREMENTS OF ANSI B31.1 PARA. 104.3.1.B3 AND 104.3.1.G
- 5) FLANGE DRILLING SHALL CONFORM TO ANSI B16.5
- 15) VALVE MATERIAL AND RATING ARE FOR REFERENCE ONLY.
- 90) PRESSURE-TEMPERATURE RATINGS BASED ON 150 LB. STAINLESS STEEL PER ANSI B16.5A-92

APPROVAL

MADE: V.V.CHKD: PCP

REVISIONS

NO.	MADE	CHKD	QA
1			
2			
3			

REVISIONS

NO.	MADE	CHKD	QA

REVISIONS

NO.	MADE	CHKD	QA

PARSONS POWER

PIPING LINE SPECIFICATION

DESIGN CODE ANSI B31.1
DATE/ADDENDA 1995

SPEC.(S):SP-G375A W.O.: 536633-00036
PROJECT: KRSKD NUCLEAR POWER PLANT
WELD END DETAIL DWG. D-301-001

LINE NO. 15D-3
MATERIAL STAINLESS ST
ISSUED/REV 3-26/76/1

SERVICE

CORROSION SERVICE - LOW PRESSURE, GRAVITY

MAX																	
Temp °F					-20	100	150	200	250	300	350	400	450	500	550	600	650
Press PSIG					275	275	255	240	225	215	195	195	165	170	140	140	125
AFTER BENDING																	

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NDM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/ CLASS	GRADE	SUPL REQMTS			
PIPING	1/2-2	40S	A-312	-	TP316	-	SW	ANSI B36.19M	SEAMLESS
	2 1/2-12	40S	A-312	-	TP316	-	BW	ANSI B36.19M	SEAMLESS
WELDING FITTINGS	1/2-2	3000 LB	A-403	-	WP316	-	SW	ANSI B16.11	
	1/2-2	3000 LB	A-182	-	F316	-	SW	ANSI B16.11	
	2 1/2-12	40S	A-403		WP316		BW	ANSI B16.9	
BRANCH CONN.	1/2-2	3000 LB	A-182		F316		SW	ANSI B16.11	(2)
	2 1/2-12	40S	A-403	-	WP316		BW	ANSI B16.9	(2)
	2 1/2-12	-	A-182	-	F316	-	BW	ANSI B16.9	
FLANGES AND FLANGED FITTINGS	1/2-2	150 LB	A-182	-	F316	-	SW	ANSI B16.5	S.W. FLANGES UNLESS OTHERWISE SPECIFIED (5)
	2 1/2-12	150 LB	A-182	-	F316	-	BW	ANSI B16.5	(5)
UNIONS	1/2-12	3000 LB	A-182	-	F316	-	-	MSS-SP-83	

MATERIAL		STRESS ALLOWABLE, psi X 10 ³															
TEMP.,	F				-20	100	150	200	250	300	350	400	450	500	550	600	650
ASTM	A-312 TP316				15.9	15.9	15.9	15.9	15.7	15.8	15.4	15.3	15.2	15.2	14.8	14.4	14.1
ASTM	A-403 WP316				18.7	18.7	18.7	16.1	15.3	14.8	13.9	13.3	12.8	12.4	12.1	11.8	11.5
ASTM	A-182 F316				17.5	17.5	17.5	17.5	17.3	17.1	16.9	16.8	16.8	16.8	16.8	16.8	16.6

NOTES

- 1) GARLOCK STYLE GYLON 3510 OR EQUAL, 1/8" THICK
- 2) BRANCH CONNECTIONS
 - a) 2 IN. AND SMALLER-SOCKLET, NIPOLET, OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2
 - b) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING
 - c) OTHERS-WELDOLET, SWEEPOLET OR EQUAL; OR TEE FITTING
 - d) EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET THE REQUIREMENTS OF ANSI B31.1 PARA. 104.3.1.B3 AND 104.3.1.G
- 3) INSTRUMENT CONNECTIONS-SOCKLET, NIPOLET, OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2.
- 4) ELBOWS SHALL BE LONE RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS
- 5) FLANGE DRILLING SHALL CONFORM TO ANSI B16.5
- 90) PRESSURE-TEMPERATURE RATINGS BASED ON 150 LB. STAINLESS STEEL PER ANSI B16.5A-92

APPROVAL MADE: <u>V.V.</u> CHKD: <u>ROP</u>	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
	1											
	2											
	3											

PIPING LINE SPECIFICATION KRSKO NUCLEAR POWER PLANT																	
DESIGN CODE		ANSI B31.1												LINE NO		15D-4	
DATE/ADDENDA		2016		SPEC.(S): SP-G375A										MATERIAL		STAINLESS ST	
				WELD END DETAIL DWG: D301-001										ISSUED/REV		02.05.2016/0	
SERVICE																	
WELL AND FILTERED WATER																	
Temp °F					-20	100	150	200	250	300	350	400	450	500	550	600	650
Press psig					275	275	255	240	225	210	195	180	165	150	140	130	120
AFTER BENDING																	

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING (mm)	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL REQMTS			
PIPES	2" – 12"	10S	A-312	-	TP316L	-	BW	ANSI B36.19	SEAMLESS
WELD FITTINGS	2" – 12"	10S	A-403	-	WP316L	-	BW	ANSI B16.9	SEAMLESS, (1)
FLANGE	2" – 12"	150 LB	A182	-	F316L	-	WN	ANSI B16.5	FLAT FACE, (2)
BOLTS & STUD	-	-	A193	-	B8M	-	-	ANSI B18.2.1 & ANSI B16.5	
NUTS	-	-	A194	-	8M	-	-	ANSI B18.2.2	
GASKETS	2" – 12"	150 LB	-	-	-	-	-	ANSI B16.5	FLAT, NON METALIC, (3)

LINE NO. 15D-4 ISSUED / REV 02.05.2016/0																
MATERIAL		STRESS ALLOWABLE, PSI x 1000														
Temp °F		-20	100	200	300	400	500	600	650	700	750	800	850	900	950	1000
A-312 TP316L		16,7	16,7	16,7	16,7	15,5	14,4	13,5	13,2	12,9	12,6	12,4	12,1	11,8	11,5	11,2
A-403 WP316L		16,7	16,7	16,7	16,7	15,5	14,4	13,5	13,2	12,9	12,6	12,4	12,1	11,8	11,5	11,2
A-182 F316L		16,7	16,7	16,7	16,7	15,5	14,4	13,5	13,2	12,9	12,6	12,4	12,1	11,8	11,5	11,2

NOTES

1) ELBOWS SHALL BE LONG RADIUS = 1,5OD

2) FLANGE DRILLING SHALL CONFORM TO ANSI B16.5

3) GASKETS SHALL BE FULL FACE, FLAT NONMETALLIC, 1/8" THICK

APPROVAL MADE: <u>S.Maljković</u> CHKD: <u>B.Režek</u>	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
	1				1				1			
	2				2				2			
	3				3				3			

PARSONS POWER PIPING LINE SPECIFICATION																	
DESIGN CODE NFPA-24 DATE/ADDENDA 1992	SPEC.(S): SP-G375A W.O.: 536633-00036 PROJECT: KRSKO NUCLEAR POWER PLANT WELD END DETAIL DWG. D-301-001										LINE NO. 15F4-1 MATERIAL DUCTILE IRON ISSUED/REV 11-1-96/0						
SERVICE																	
UNDERGROUND FIRE SERVICE WATER																	
																	MAX
Temp °F																	100
Press PSIG																	150
AFTER BENDING																	-

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/ CLASS	GRADE	SUPPL REQMTS			
PIPE	3-48	250	-	-	-	-	PUSH- ON	ANSI/AWWA C151/A21.51	DUCTILE IRON PIPE, CEMENT, MORTAR LINED, (10), (14), (20)
FITTINGS	3-48	250	-	-	-	-	MECH.	ANSI/AWWA C110/A21.10	DUCTILE IRON, CEMENT MORTAR LINED, (10), (14), (20), (3)
VALVES FITTINGS	3-48	175	-	-	-	-	MECH.	UL	UL APPROVED & LABELED, CAST IRON BODY, BRONZE TRIP
FIRE HYDRANT	-	150	A-126	-	-	-	MECH.	UL	UL APPROVED & LABELED BASE VALVE TYPE, 6 IN. INLET
BOLTS & NUTS	ALL	-	-	-	-	-	-	ANSI/AWWA C111/A21.11	
GASKETS	ALL	-	-	-	-	-	-	ANSI/AWWA C111/A21.11	VULCANIZED NATURAL OR SYNTHETIC RUBBER

LINE NO.										15F4-1									
ISSUED/REV										11-1-96/0									
MATERIAL										STRESS ALLOWABLE, psi X 10 ³									
TEMP.,	F																		
ASTM																			
ASTM																			
ASTM																			

NOTES											
<p>10) CEMENT LINED PER ANSI ANSI/AWWA C104/A21.4</p> <p>14) PIPE TO PIPE JOINTS TO BE PUSH-ON TYPE. PIPE TO FITTINGS OR VALVE JOINTS TO BE MECHANICAL JOINT TYPE.</p> <p>20) APPROVED BY UNDERWRITERS LABORATORIES, INC.</p> <p>30) TENSILE TEST COUPONS TO BE CAST AND TESTS MADE IN ACCORDANCE WITH ASTM A-536-84 EXCEPT GRADE SHALL BE 70-50-05.</p> <p>31) ENTIRE PIPING SYSTEM SHALL BE HYDROSTATICALLY TESTED AT 200 PSIG FOR A DURATION OF 2 HOURS MIN.</p> <p>32) ENTIRE PIPE SYSTEM SHALL BE FLUSHED AS FOLLOWS:</p> <table style="margin-left: 40px;"> <tr> <td>PIPE SIZE</td> <td>FLOW-GPM</td> </tr> <tr> <td>6 & UNDER</td> <td>880</td> </tr> <tr> <td>8</td> <td>1560</td> </tr> <tr> <td>10</td> <td>2440</td> </tr> <tr> <td>12</td> <td>3520</td> </tr> </table> <p>50) INSTALLATION TO BE IN ACCORDANCE WITH NATIONAL FIRE PROTECTION ASSOCIATION STANDARD NO. 24.</p>	PIPE SIZE	FLOW-GPM	6 & UNDER	880	8	1560	10	2440	12	3520	<p>51) RESTRAINTS USED ON PIPE SYSTEM TO BE TIE RODS, PIPE CLAMPS, OR CONCRETE THRUST BLOCKS IN ACCORDANCE WITH NFPA STANDARD NO. 24.</p> <p>90) PRESSURE-TEMPERATURE RATING-BASED ON LIMITS OF HYDRANT</p>
PIPE SIZE	FLOW-GPM										
6 & UNDER	880										
8	1560										
10	2440										
12	3520										

APPROVAL	REVISIONS				REVISIONS				REVISIONS				
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	
	1												
	2												
	3												
MADE: <u>V.V.</u> CHKD: <u>RdP</u>													

PARSONS POWER															
PIPING LINE SPECIFICATION															
DESIGN CODE ANSI B31.1				SPEC.(S):SP-G375A W.O.: 536633-00036				LINE NO.		15G-1					
DATE/ADDENDA 1995				PROJECT: KRSKO NUCLEAR POWER PLANT				MATERIAL		COPPER					
				WELD END DETAIL DWG. D-301-001				ISSUED/REV		11-1-96/0					
SERVICE															
VENTS - ATMOSPHERIC, NON-CORROSIVE.															
												MAX			
Temp °F												100	150	200	250
Press PSIG												175	125	90	75
AFTER BENDING												-	-	-	-

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/ CLASS	GRADE	SUPPL REQMTS			
TUBE	2 & SMLR	TYPE L	B-88	-	L	-	SOLDER	ASTM B-88	RIGID
PIPE	2 2/2-4	TYPE L	B-88	-	L	-	SOLDER	ASTM B-88	RIGID (13)
FITTINGS	2 & SMLR	150 LB	B-88	-	-	-	SOLDER	ANSI B16.22	
	2 & SMLR	150 LB	B-62	-	-	-	SOLDER	ANSI B16.18	
	2 & SMLR	150 LB	A-47	-	32510	-	SCRD	ANSI B16.3	(13)
FLANGES	2 1/2-6	125 LB	A-47	-	32510	-	-	ANSI B16.1	SCREWED, FLAT FACE, GALVANIZED, (13)
BRANCH CONN.	ALL	-	-	-	-	-	-	-	TEE FITTING
VALVES	2 & SMLR	125 LB	B-62	-	-	-	SOLDER	-	
	2 1/2-6	150 LB	B-62	-	-	-	SCRD	-	
BOLTS & STUDS	-	-	A-307	-	B	-	-	ANSI B18.2.1	REG. HEX BOLT, CLASS 2A THREADS
NUTS	-	-	A-563	-	A	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREADS
GASKETS	-	-	-	-	-	-	-	-	BUTYL RUBBER, 1/8 IN. THICK

PARSONS POWER																		
PIPING LINE SPECIFICATION																		
DESIGN CODE ANSI B31.1			SPEC.(S):SP-G375A W.O.: 536633-00036									LINE NO. 15G-2						
DATE/ADDENDA 1995			PROJECT: KRSKO NUCLEAR POWER PLANT									MATERIAL GALV. STL.						
WELD END DETAIL DWG. D-301-001																		
SERVICE																		
VENTS - ATMOSPHERIC, NON-CORROSIVE.																		
MAX																		
Temp °F										-20	150	200	225	250	275	300	325	350
Press PSIG										175	175	165	155	150	145	140	130	125

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL REQMTS			
PIPE	2&SMLR	80	A-53	S	B	-	SCRD	ANSI B36.10	GALVANIZED, (13)
	2 1/2-6	40	A-53	S	B	-	SCRD	ANSI B36.10	GALVANIZED, (13)
FITTINGS	6 & SMLR	150 LB	A-46	-	32510	-	SCRD	ANSI B16.3	(13)
FLANGES	6 & SMLR	125 LB	A-47	-	32510	-	-	ANSI B16.1	SCREWED, FLAT FACE, GALVANIZED, (13)
BRANCH CONN.	ALL	-	-	-	-	-	-	-	TEE FITTING
VALVES	6 & SMLR	150 LB	B-62	-	-	-	SCRD	-	
GASKETS	-	-	-	-	-	-	-	-	RUTYL RUBBER, 1/8 IN. THICK
BOLTS & STUDS	-	-	A-307	-	B	-	-	ANSI B18.2.1	REG. HEX BOLT, CLASS 2A THREADS
NUTS	-	-	A-563	-	A	-	-	ANSI B18.2.2	REG. HEX, CLASS 2B THREADS

LINE NO.												15G-2				
ISSUED/REV												11-1-96/0				
MATERIAL												STRESS ALLOWABLE, psi X 10 ³				
TEMP.,	F											-20	100	150	200	250
ASTM	A-53-B											15.0	15.0	15.0	15.0	15.0

NOTES

13) GALVANIZED PER ASTM A-153

90) P-T RATINGS BASED ON 125 LB FLANGE PER ANSI B16.1-1975

15) VALVE MATERIAL AND RATING ARE FOR REFERENCE ONLY.

<div style="text-align: center;">APPROVAL</div> MADE: <u> <i>V.V.</i> </u> CHKD: <u> <i>pc</i> </u> 	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
	1											
	2											
	3											

PARSONS POWER																			
PIPING LINE SPECIFICATION																			
DESIGN CODE	ANSI B31.1						SPEC.(S) :SP-G375A	W.O.: 536633-00036				LINE NO.	15G-3						
DATE/ADDENDA	1995						PROJECT: KRSKO NUCLEAR POWER PLANT						MATERIAL	GALV. STL.					
												ISSUED/REV	11-1-96/0						
WELD END DETAIL DWG. D-301-001																			
SERVICE																			
SANITARY DRAINS																			
																MAX			
Temp °F																AMB			
Press PSIG																GRAV			

[illegible]

LINE NO.														15G-3		
ISSUED/REV														11-1-96/0		
MATERIAL				STRESS ALLOWABLE, psi X 10 ³												
TEMP.,	F															100
ASTM	A-53-B															15.0

NOTES

13) GALVANIZED PER ASTM A-153

APPROVAL MADE: <u>V.V.</u> CHKD: <u>RCP</u>	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
	1											
	2											
	3											

PARSONS POWER																		
PIPING LINE SPECIFICATION																		
DESIGN CODE		SPEC.(S):SP-G375A W.O.: 536633-00036										LINE NO.		15G4-1				
DATE/ADDENDA		PROJECT: KRSKO NUCLEAR POWER PLANT										MATERIAL		GALV. STL.				
		WELD END DETAIL DWG. D-301-001										ISSUED/REV		11-1-96/0				
SERVICE																		
ABOVE-GROUND OUTDOORS FIRE PROTECTION WATER SPRAY DELUGE																		
MAX																		
Temp °F										-20	150	200	225	250	275	300	325	350
Press PSIG										175	175	165	155	150	145	140	130	125
After Bending										-	-	-	-	-	-	-	-	-

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/ CLASS	GRADE	SUPPL REQMTS			
PIPE	2 & SMLR	80	A-53	S	B	-	SCRD	ANSI B36.10	SEAMLESS, (11) (21)
	2 1/2-4	40	A-53	S	B	-	SCRD	ANSI B36.10	SEAMLESS, (11) (21)
	6-8	40	A-53	S	B	-	FLGD	ANSI B36.10	SEAMLESS, (11) (21)
	10-12	30	A-53	S	B	-	FLGD	ANSI B36.10	SEAMLESS, (11) (21)
SCREWED FITTINGS	4 & SMLR	150 LB	A-47	-	32510	-	-	ANSI B16.3	(11), (20)
FLANGED FITTINGS	3-12	125 LB	A-126	-	A	-	-	ANSI B16.5	(11), (20)
FLANGES	3-12	150 LB	A-105	-	-	-	-	ANSI B16.5	(11), (20), (21) WELDING NECK, FLAT FACE
WELDING FITTINGS	3-12	EQUAL TO PIPE	A-234	-	WPB	-	BW	ANSI B16.5	(4), (11), (21)
BRANCH CONN.	1-12	EQUAL TO PIPE	A-105	-	-	-	BW	-	(21), WELDOLET OR EQUAL, OR TEE FITTINGS
VALVES	1-8	125 LB	A-126	-	B	-	SCRD	ANSI B16.1	(20), BRONZE TRIM, 175 LB RATING
	3-12	125 LB	A-126	-	B	-	FLGD	ANSI B16.1	(20), BRONZE TRIM, 175 LB RATING
GASKETS	-	-	-	-	-	-	-	ANSI B16.21	(1)
BOLTS	-	-	A-193	-	B7	-	-	ANSI B18.2.1	HEAVY HEX, CLASS 2A THREAD
NUTS	-	-	A-194	-	2H	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREAD
UNIONS	2&SMLR	3000 LB	A105	-	-	-	SCRD	MSS-SP-83	STEEL/STEEL SEATS (21)

LINE NO.												15G4-1					
ISSUED/REV												11-1-96/0					
MATERIAL		STRESS ALLOWABLE, psi X 10 ³															
TEMP.,	F		-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
ASTM	A-53		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	14.3	12.9

NOTES

1) GASKETS

COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL

4) ELBOWS SHALL BE LONG RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS

11) GALVANIZED IN ACCORDANCE WITH ASTM A-153

20) APPROVED BY UNDERWRITERS LABORATORIES, INC., OR BY FACTORY MUTUAL INSURANCE COMPANY; OR EQUAL

21) SECTIONS OF PIPING SYSTEM MAY BE SHOP FABRICATED BY WELDING AFTER WHICH THEY WILL BE GALVANIZED PER ASTM A-153 WELDING TO BE IN ACCORDANCE WITH ANSI B31.1

30) THE FINISHED INSTALLED SYSTEM SHALL BE HYDROSTATICALLY TESTED AT 200 PSIG FOR TWO OURS.

50) DAMAGED SURFACES OF GALVANIZED STEEL PIPE INCLUDING THREADS SHALL BE CLEANED AND SPOT PAINTED WITH GALVANOX AS MANUFACTURED BY SUBOX, DIV. OF CARBOLINE CO.

90) P-T RATINGS BASED ON 150 LB FLANGE PER ANSI B16.5a-92.

APPROVAL MADE: <u>V.V.</u> CHKD: <u>RCP</u>		REVISIONS				REVISIONS				REVISIONS			
		NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
		1											
		2											
		3											

<div style="text-align: center;"> PARSONS POWER PIPING LINE SPECIFICATION </div>																	
DESIGN CODE		SPEC.(S):SP-G375A W.O.: 536633-00036										LINE NO.		15H-1			
DATE/ADDENDA		PROJECT: KRSKO NUCLEAR POWER PLANT										MATERIAL		SARAN LINE			
		WELD END DETAIL DWG. D-301-001										ISSUED/REV		11-1-96/0			
SERVICE																	
CORROSIVE - SULFURIC ACID, DEMIN. WASTES (ABOVE GROUND), RESIN TRANSFER, CHLORINE SOLUTION (ABOVE GROUND)																	
MAX																	
Temp °F														-20	100	150	200
Press PSIG														275	275	255	240
After Bending														-	-	-	-

[illegible]

LINE NO.

15H-1

ISSUED/REV

11-1-96/0

MATERIAL

STRESS ALLOWABLE, psi X 10³

TEMP.,	F		-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
ASTM	A-53A-S		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	11.6	10.7

NOTES

1) GASKETS

FULL GASKET, BUNA-N

10) LINED WITH STABILIZED POLYVINYLIDENCE
CHLORIDE: SARAN AS MANUFACTURED BY DOW
CHEMICAL CO. OR EQUAL: MFG. STANDARDS20) DRILLING AND DIMENSIONS OF FLANGES SHALL
CONFORM TO ANSI STANDARDS AS NOTED.90) P-T RATINGS BASED ON 150 LB FLANGE PER ANSI
B16.5a-92.

APPROVAL

MADE: V.V.CHKD: RCV

REVISIONS

NO.	MADE	CHKD	QA
1			
2			
3			

REVISIONS

NO.	MADE	CHKD	QA

REVISIONS

NO.	MADE	CHKD	QA

PARSONS POWER

PIPING LINE SPECIFICATION

DESIGN CODE
DATE/ADDENDA

SPEC.(S):SP-G375A W.O.: 536633-00036
PROJECT: KRSKO NUCLEAR POWER PLANT
WELD END DETAIL DWG. D-301-001

LINE NO. 15H-2
MATERIAL SARAN LINE
ISSUED/REV 11-1-96/0

SERVICE

CORROSIVE - SULFURIC ACID, DEMIN. WASTES, RESIN TRANSFER, CHLORINE SOLUTION

														MAX			
Temp °F														-20	100	150	200
Press PSIG														275	275	255	240
After Bending														-	-	-	-

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/ CLASS	GRADE	SUPPL REQMTS			
PIPE	1-8	40	A-53	S	A	-	FLGD	MFGR STD	(10), (11), (20)
FLANGED FITTINGS	1-8	150 LB	A-216	-	WCB	-	-	ANSI B16.5	(10), (11), (20), FLAT FACE
FLANGES	1-8	150 LB	A-105	-	-	-	-	ANSI B16.5	SCREWED FLANGE, FLAT FACE, (20), (11)
GASKETS	-	-	-	-	-	-	-	-	(1)

MATERIAL

STRESS ALLOWABLE, psi X 10³

TEMP.,	F		-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
ASTM	A-53A-S		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	11.6	10.7

NOTES

1) GASKETS

FULL GASKET, BUNA-N

10) LINED WITH STABILIZED POLYVINYLIDENCE
CHLORIDE: SARAN AS MANUFACTURED BY DOW
CHEMICAL CO. OR EQUAL: MFG. STANDARDS11) COATING IN ACCORDANCE WITH AWWA C-203-1986
WITH FOLLOWING SUPPLEMENTARY
REQUIREMENTS:

- a) COATING SHALL BE COAL TAR ENAMEL WITH
TYPE B PRIMER AND TYPE I OR II FINISH
- b) FELT SHALL BE NON-PERFORATED, WITH OR
WITHOUT REINFORCEMENT
- c) WELDING ENDS SHALL BE LEFT UNCOATED
FOR 1 FOOT
- d) PIPE FABRICATOR SHALL SUPERVISE
INSPECTION AND TESTING OR COATING
- e) COATING SHALL BE TESTED WITH A TINKER-
RASOR HOLIDAY DETECTOR IN ACCORDANCE
WITH THE TOTAL FILM THICKNESS APPLIED.

20) DRILLING AND DIMENSIONS OF FLANGES SHALL
CONFORM TO ANSI STANDARDS AS NOTED.90) P-T RATINGS BASED ON 150 LB FLANGE PER ANSI
B16.5a-92.

APPROVAL

MADE: V.V.CHKD: RCB

REVISIONS

NO.	MADE	CHKD	QA
1			
2			
3			

REVISIONS

NO.	MADE	CHKD	QA

REVISIONS

NO.	MADE	CHKD	QA

PARSONS POWER

PIPING LINE SPECIFICATION

DESIGN CODE

SPEC.(S):SP-G375A W.O.: 536633-00036

LINE ND. 15K-1

DATE/ADDENDA -

PROJECT: KRSKO NUCLEAR POWER PLANT

MATERIAL REINF. PLAST

WELD END DETAIL DWG. D-301-001

ISSUED/REV 11-1-96/0

SERVICE

DEMINERALIZED WATER (UNDERGROUND), CHLORINE SOLUTION, DEMINERALIZER REGENERATIVE WASTES (UNDERGROUND)

MAX

Temp °F

Press PSIG

After Bending

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NDM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			ND.	TYPE/ CLASS	GRADE	SUPL REQMTS			
PIPE	1 1/2-12	MFR'S STD.	D-2310	-	-	-	FLGD	MFGR. STD.	BONDSTRAND 2000 OR EQUAL
FITTINGS	1 1/2-12	MFR'S STD.	-	-	-	-	-	-	BONDSTRAND SERIES 4000 OR EQUAL
FLANGES	1 1/2-12	MFR'S STD.	-	-	-	-	-	-	FLANGED DRILLING TO MEET ANSI B16.5 STDS. 150 I.B CLASS
GASKETS									BUNA N, SHORE HARDNESS 60- 70, FULL FACE, 1/8 IN.
BOLTS & STUDS	-	-	A-193	-	B8			ANSI B18.2.1	REG. HEX
NUTS	-	-	A-194	-	8			ANSI B18.2.2	HEAVY HEX

LINE NO. 15K-1									
ISSUED/REV 11-1-96/0									
MATERIAL	STRESS ALLOWABLE, psi X 10 ³								

90) P-T BASED ON 150 LB FITTINGS PER MFGR.

NOTES

<p style="text-align: center;">APPROVAL</p> <p>MADE: <u>V.V.</u></p> <p>CHKD: <u>RCP</u></p>	REVISIONS				REVISIONS				REVISIONS				
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	
	1												
	2												
	3												

PARSONS POWER																	
PIPING LINE SPECIFICATION																	
DESIGN CODE NONE			SPEC.(S):SP-G375A W.O.: 536633-00036										LINE NO. 15K-2				
DATE/ADDENDA -			PROJECT: KRSKO NUCLEAR POWER PLANT										MATERIAL PVC (SOLID)				
			WELD END DETAIL DWG. D-301-001										ISSUED/REV 11-1-96/0				
SERVICE																	
CORROSIVE																	
MAX																	
Temp °F																	100
Press PSIG																	150
After Bending																	-

MATERIAL DESCRIPTION									
ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/ CLASS	GRADE	SUPPL REQMTS			
PIPE	1/4-6	80	D1784	-	-	-	SW	ANSI D1785	(7) (14)
FITTINGS	1/4-6	80	D2467	-	-	-	SW	ANSI D2467	(14)
FLANGES AND FLANGED FITTINGS	1/4-6	150 LB	D1784	-	-	-	-	ANSI B16.5	(14)

LINE NO. 15K-2													
ISSUED/REV 11-1-96/0													
MATERIAL	STRESS ALLOWABLE, psi X 10 ³												

NOTES	
<p>7) MATERIAL DESIGNATIONS CODE PVC-1120, SOLVENT CEMENT IN ACCORDANCE WITH ASTM D2564 AND D2564 APPENDIX X1.1</p> <p>14) ACCORDING TO MANUFACTURER'S APPROVED STANDARDS</p> <p>90) P-T BASED ON SYSTEM DESIGN.</p>	

APPROVAL	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
MADE: <u>V.V.</u>	1											
CHKD: <u>RCP</u>	2											
	3											

LINE NO	15K6-1
MATERIAL	POLYETHYLENE
ISSUED/REV	02.05.2016/0

PN 16 – POLYETHYLENE (PE100) – SDR 11

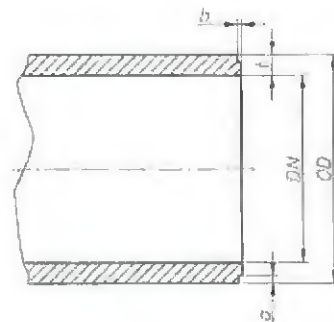
[illegible][illegible]

MATERIAL										STRESS ALLOWABLE, MPa							
Temp, C°										10	20	30	40	50	60	70	80
PE100										17,33	14,66	12,33	10,33	8,80	7,66	6,74	6,00

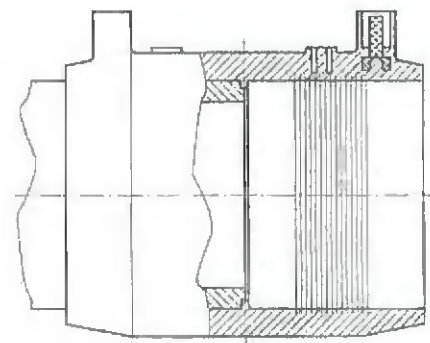
NOTES

- 1) PIPING AND FITTING MATERIAL SHALL HAVE A CELL CLASSIFICATION ACCORDANCE EN 12201
- 2) FITTINGS SHALL HAVE THE SAME PRESSURE RATING AS THE PIPE TO WHICH THE FITTINGS IS JOINED. MOLDED FITTINGS SHALL BE USED IN ALL APPLICATIONS. ALL PIPE AND FITTINGS SHALL BE MANUFACTURED TO FACTORY MUTUAL (FM) REQUIREMENTS AND STAMPED AS SUCH.
- 3) ELECTROFUSION JOINTS SHALL BE MADE BY HEAT FUSION IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
- 4) MECHANICAL JOINTS ARE MADE USING POLYETHYLENE FLANGE ADAPTER AND BACKUP RINGS.
- 5) VALVE MATERIALS ARE TO BE SELECTED BY THE ENGINEER BASED ON FLUID PROPERTIES. ALL VALVES TO BE APPROVED BY UNDERWRITER'S LABORATORIES, INC. AND FACTORY MUTUAL ENGINEERING DIVISION.
- 6) PIPES MAY BE COLD BENT TO A MINIMUM RADIUS OF 25 TIMES THE PIPE OUTSIDE DIAMETER. IF FITTINGS ARE PRESENT IN THE BEND, CONSULT THE MANUFACTURER FOR THE MINIMUM BEND RADIUS
- 7) BEDDING BACKFILL, AND MINIMUM COVER SHALL COMPLY WITH PIPE MANUFACTURER'S RECOMMENDATIONS.
- 8) IF APPLICABLE, PIPE MUST BE CHECKED FOR INTERNAL VACUUM, WATER HAMMER AND THERMAL STRESS AS RECOMMENDED BY THE MANUFACTURER.

- 9) DETAIL of PIPE END and ELECTROFUSION COUPLING



DN	80	100	150
OD	90	125	160
t	8,2	11,4	14,6
a	1,5	1,5	1,5
b	acc to manufacturer		



APPROVAL MADE: <u>S.Maljković</u> CHKD: <u>B.Režek</u>	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
	1				1				1			
	2				2				2			
	3				3				3			

PARSONS POWER																	
PIPING LINE SPECIFICATION																	
DESIGN CODE ANSI B31.1				SPEC.(S):SP-G375A W.O.: 536633-00036										LINE NO. 15M-1			
DATE/ADDENDA 1995				PROJECT: KRSKO NUCLEAR POWER PLANT										MATERIAL Carpenter 20			
WELD END DETAIL DWG. D-301-001										ISSUED/REV 11-1-96/0							
SERVICE																	
SULFURIC ACID (ALL STENGTHS)																	
MAX																	
Temp °F		-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Press PSIG		275	275	255	240	225	210	195	180	165	150	140	130	120	110	100	92
After Bending		275	275	255	240	225	210	195	180	165	150	140	130	120	110	100	92

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/ CLASS	GRADE	SUPPL REQMTS			
PIPE	1/2-2	40S	B-464	-	UNS ND8020	-	SW	ANSI B36.19	
WELDING FITTINGS	1/2-2MLR	3000 LB	B-462	-	UNS ND8020	-	SW	ANSI B16.11	SCH. 80
FLANGES	1/2-2	150 LB	B-462	-	UNS ND8020	-	-	ANSI B16.5	SOCKET WELDING, RAISED FACE
GASKETS	-	-	-	-	-	-	-	-	(1)
BOLTS	-	-	A-193	-	B8	-	-	ANSI B18.2.1	REG. HEX. CLASS 2A THREADS
NUTS	-	-	A-194	-	8	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREADS

LINE NO.										15M-1									
ISSUED/REV										11-1-96/0									
MATERIAL										STRESS ALLOWABLE, psi X 10 ³									
TEMP.,	F									100	200	300	400	500	600	650	700	750	800
ASTM	B-464									17.0	17.0	16.8	15.9	15.5	15.1	14.9	14.7	14.5	14.3
ASTM	B-462									20.0	20.0	19.8	18.7	18.2	17.7	17.5	17.3	17.1	16.8

NOTES

1) GASKET MATERIAL SHALL BE VIRGIN TEFLON COVERED SYNTHETIC FIBER FILLED, GARLOCK STYLE 6300 (1/8-INCH THICK FILLER WITH MILLED ENVELOPE).

90) P-T RATINGS BASED ON 150 LB FLANGE PER ANSI B16.5A-92 APPENDIX D.

APPROVAL	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
MADE: <u>V.V.</u>	1											
CHKD: <u>RCP</u>	2											
	3											

PARSONS POWER																	
PIPING LINE SPECIFICATION																	
DESIGN CODE ANSI B31.1				SPEC.(S):SP-G375A W.O.: 536633-00036						LINE NO. 15T-1							
DATE/ADDENDA 1995				PROJECT: KRSKO NUCLEAR POWER PLANT						MATERIAL Copper Tubing							
WELD END DETAIL DWG. D-301-001																	
SERVICE																	
CONTROL TUBING, STEAM, WATER, OIL, AIR																	

																		MAX
Temp °F										-20	100	150	200	250	300	350	400	406
Press PSIG										1240	1240	1240	1185	1144	1102	690	344	250
After Bending										1240	1240	1240	1185	1144	1102	699	344	250

MATERIAL DESCRIPTION																		
ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)									
			NO.	TYPE/CLASS	GRADE	SUPPL REQMTS												
TUBING	1/4 O.D.	0.035	B-75	-	-	-		ASTM B-251	LIGHT DRAWN									
	3/8 O.D.	0.049	B-75	-	-	-		ASTM B-251	LIGHT DRAWN									
	1/2 O.D.	0.049	B-75	-	-	-		ASTM B-251	LIGHT DRAWN									
	5/8 O.D.	0.049	B-75	-	-	-		ASTM B-251	LIGHT DRAWN									
	3/4 O.D.	0.049	B-75	-	-	-		ASTM B-251	LIGHT DRAWN									
FITTINGS	1/4-3/4	-	-	-	-	-	-	MFR	BRASS; SWAGELOCK OR EQUAL									

										LINE NO.		15T-1							
										ISSUED/REV		11-1-96/0							
MATERIAL										STRESS ALLOWABLE, psi X 10 ³									
TEMP.,	F									-20	100	200	250	300	350	400			
ASTM	B-75-LT. DN.									9.0	9.0	9.0	8.6	8.3	5.0	2.5			

NOTES

90) P-T RATINGS BASED ON P/S = 0.13787 AND FIGURE NC-3676.6(A)(1)-1 SECTION III OF ASME BOILER AND PRESSURE VESSEL CODE PARA. NC-3676.

<p style="text-align: center;">APPROVAL</p> <p>MADE: <u>V.V.</u></p> <p>CHKD: <u>RCP</u></p>	REVISIONS				REVISIONS				REVISIONS				
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	
	1												
	2												
	3												

PARSONS POWER PIPING LINE SPECIFICATION																	
DESIGN CODE NFPA DATE/ADDENDA 1995	SPEC.(S): SP-G375A W.O.: 536633-00036 PROJECT: KRSKO NUCLEAR POWER PLANT WELD END DETAIL DWG. D-301-001						LINE NO. 17K4-1 MATERIAL POLY EXTRA ISSUED/REV 11-1-96/0										
SERVICE CLASS 200 - POLYETHYLENE-SDR 9 - UNDERGROUND FIRE PROTECTION																	
																	MAX
Temp °F																	COLD
Press PSIG																	200
AFTER BENDING																	

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/ CLASS	GRADE	SUPPL REQMTS			
PIPING	4.00	0.500	D-3350	-	-	-	BUTT FUSION	ASTM F714	(1)(3)(6)(7)(8)
	6.00	0.736	D-3350	-	-	-	BUTT FUSION	ASTM F714	(1)(3)(6)(7)(8)
	8.00	0.958	D-3350	-	-	-	BUTT FUSION	ASTM F714	(1)(3)(6)(7)(8)
	10.00	1.194	D-3350	-	-	-	BUTT FUSION	ASTM F714	(1)(3)(6)(7)(8)
	12.00	1.417	D-3350	-	-	-	BUTT FUSION	ANSI B16.11	(1)(3)(6)(7)(8)
FITTINGS	4-12	-	D-3350	-	-	-	BUTT FUSION	ASTM F714	(1)(2)(3)
VALVES	4-12	175	-	-	-	-	MECH.	UL	UL APPROVED & LABELED, CAST IRON BODY, BRONZE TRIM
FIRE HYDRANTS	-	150 LB	A-126	-	-	-	MECH.	UL	UL APPROVED * LABELED BASE VALVE TYPE, 6 IN. INLET
BOLTS & NUTS	ALL	-	-	-	-	-	-	ANSI A21.11	
GASKETS	ALL	-	-	-	-	-	-	ANSI B21.11	VULCANIZED NATURAL OR SYNTHETIC RUBBER

LINE NO.										17K4-1																			
ISSUED/REV										11-1-96/0																			
MATERIAL										STRESS ALLOWABLE, psi X 10 ³																			
TEMP., F																													
ASTM																													
PIPING: POLYETHYLENE																													

NOTES	
<p>1) PIPING AND FITTING MATERIAL SHALL HAVE A CELL CLASSIFICATION OF 345434C IN ACCORDANCE WITH ASTM D-3350.</p> <p>2) FITTINGS SHALL HAVE THE SAME PRESSURE RATING AS THE PIPE TO WHICH THE FITTING IS JOINED. MOLDED FITTINGS SHALL BE USED IN ALL APPLICATIONS. ALL PIPE AND FITTINGS SHALL BE MANUFACTURED TO FACTORY MUTUAL (FM) REQUIREMENTS AND STAMPED AS SUCH.</p> <p>3) BUTT FUSION JOINTS SHALL BE MADE BY HEAT FUSION IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.</p> <p>4) MECHANICAL JOINTS ARE MADE USING POLYETHYLENE FLANGE ADAPTERS AND BACKUP RINGS.</p> <p>5) VALVE MATERIALS ARE TO BE SELECTED BY THE ENGINEER BASED ON FLUID PROPERTIES. ALL VALVES TO BE APPROVED BY UNDERWRITER'S LABORATORIES, INC. AND FACTORY MUTUAL ENGINEERING DIVISION.</p> <p>PIPE MAY BE COLD BENT TO A MINIMUM RADIUS OF 25 TIMES THE PIPE OUTSIDE DIAMETER. IF FITTINGS ARE PRESENT IN THE BEND, CONSULT THE MANUFACTURER FOR THE MINIMUM BEND RADIUS.</p>	<p>7) BEDDING, BACKFILL, AND MINIMUM COVER SHALL COMPLY WITH PIPE MANUFACTURER'S RECOMMENDATIONS.</p> <p>8) IF APPLICABLE, PIPE MUST BE CHECKED FOR INTERNAL VACUUM, WATER HAMMER, AND THERMAL STRESS AS RECOMMENDED BY THE MANUFACTURER.</p>

APPROVAL	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
MADE: <u>V.V.</u>	1											
CHKD: <u>Red</u>	2											
	3											

PARSONS POWER

PIPING LINE SPECIFICATION

DESIGN CODE ANSI B31.1
DATE/ADDENDA 1995

SPEC.(S):SP-G375A W.O.: 536633-00036
PROJECT: KRSKO NUCLEAR POWER PLANT
WELD END DETAIL DWG. D-301-001

LINE NO. 30A-1
MATERIAL CARBON STL
ISSUED/REV 11-1-96/0

SERVICE

CONDENSATE, FEEDWATER, WATER, STEAM, OIL, AIR, GASES

MAX																	
Temp °F			-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
Press PSIG			720	720	710	700	690	680	675	665	650	625	590	555	515	470	425
AFTER BENDING			720	720	710	700	690	680	675	665	650	625	590	555	515	470	425

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL REQMTS			
PIPING	2 & SMLR	80	A-106	-	B	-	SW	ANSI B36.10	
	2 1/2-24	40	A-106	-	B	-	BW	ANSI B36.10	
WELDING FITTINGS	2 & SMLR	3000 LB	A-105	-	-	-	SW	ANSI B16.11	SCH. 80
	2 1/2-24	EQUAL TO PIPE	A-234	-	WPB	-	BW	ANSI B16.9	(4)
FLANGED	2 & SMLR	300 LB	A-105	-	-	-	-	ANSI B16.5	SOCKET WELDING, FLAT FACE
	2 1/2-24	300 LB	A-105	-	-	-	-	ANSI B16.5	WELDING NECK, FLAT FACE
BRANCH CONN.	2 & SMLR	3000 LB	A-105	-	-	-	SW	-	(2), (3)
	2-1/2-24	EQUAL TO PIPE	A-105	-	-	-	BW	-	(2)
VALVES	2 & SMLR	600 LB	A-105	-	-	-	SW	ANSI B16.34	
	2 1/2-24	300 LB	A-216	-	WCB	-	BW	ANSI B16.34	
BOLTS & STUDS	-	-	A-193	-	B7	-	-	ANSI B18.2.1	HEAVY HEX BOLT, CLASS 2A THREADS
NUTS	-	-	A-194	-	2H	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREADS
GASKETS	-								(1)
UNIONS	NONE								

MATERIAL

STRESS ALLOWABLE, psi X 10³

TEMP.,	F		-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
ASTM	A-106-B		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	14.3	12.9
ASTM	A-105		17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	16.6	14.7
ASTM	A-216-WPB		14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	13.2	11.7

NOTES

1) GASKETS

- a) STEAM-SPIRAL WOUND SS WITH FLEXICARB FILLER, FLEXITALLIC TYPE CG OR EQUAL
- b) WATER (TO 100F) COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
- c) WATER (OVER 100F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
- d) AIR - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
- e) OIL (TO 250F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/32 THICK, GARLOCK STYLE 1FG5500 OR EQUAL
GARLOCK STYLE G9900 OR EQUAL UP TO 650F
GARLOCK STYLE 3125C OR EQUAL UP TO 750F

- 3) INSTRUMENT CONNECTIONS-SOCKOLET, NIPOLET, OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2.

- 4) ALL ELBOWS SHALL BE LONG RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS

- 15) VALVE MATERIAL AND RATING ARE FOR REFERENCE ONLY.

- 90) PRESSURE-TEMPERATURE RATINGS BASED 300 LB. CARBON STEEL PER ANSI B16.5A-92

2) BRANCH CONNECTIONS

- a) 2 IN. AND SMALLER-SOCKOLET, NIPOLET OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA 104.3.1.C2
- b) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING
- c) OTHERS-WELDOLET, SWEEPOLET OR EQUAL; OR TEE FITTING
- d) EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET THE REQUIREMENTS OF ANSI B31.1 PARA. 104.3.1.B3 AND 104.3.1.G

APPROVAL

MADE: *V.V.*CHKD: *RCP*

REVISIONS

NO.	MADE	CHKD	QA
1			
2			
3			

REVISIONS

NO.	MADE	CHKD	QA

REVISIONS

NO.	MADE	CHKD	QA

PARSONS POWER																	
PIPING LINE SPECIFICATION																	
DESIGN CODE ANSI B31.1			SPEC.(S):SP-G375A W.O.: 536633-00036										LINE NO. 30A-2				
DATE/ADDENDA 1995			PROJECT: KRSKO NUCLEAR POWER PLANT										MATERIAL CARBON STL				
WELD END DETAIL DWG. D-301-001										ISSUED/REV 11-1-96/0							
SERVICE																	
FLASHING, EROSION - WATER, WET STEAM																	
MAX																	
Temp °F			-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
Press PSIG			720	720	710	700	690	680	675	665	650	625	590	555	515	470	425
AFTER BENDING			720	720	710	700	690	680	675	665	650	625	590	555	515	470	425

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL REQMTS			
PIPING	2 & SMLR	80	A-106	-	B	-	SW	ANSI B36.10	
	2 1/2-6	80	A-106	-	B	-	BW	ANSI B36.10	
	8-24	100	A-106	-	B	-	BW	ANSI B36.10	
WELDING FITTINGS	2 & SMLR	3000 LB	A-105	-	-	-	SW	ANSI B16.11	SCH. 80
	2 1/2-24	EQUAL TO PIPE	A-234	-	WPB	-	BW	ANSI B16.9	(4)
FLANGED	2 & SMLR	300 LB	A-105	-	-	-	-	ANSI B16.5	SOCKET WELDING, FLAT FACE
	2 1/2-24	300 LB	A-105	-	-	-	-	ANSI B16.5	WELDING NECK RAISED FACE
BRANCH CONN.	2 & SMLR	3000 LB	A-105	-	-	-	SW	-	(2), (3)
	2-1/2-24	EQUAL TO PIPE	A-105	-	-	-	BW	-	(2)
VALVES	2 & SMLR	600 LB	A-105	-	-	-	SW	ANSI B16.34	
	2 1/2-24	300 LB	A-216	-	WCB	-	BW	ANSI B16.34	
BOLTS & STUDS	-	-	A-193	-	B7	-	-	ANSI B18.2.1	HEAVY HEX BOLT, CLASS 2A THREADS
NUTS	-	-	A-194	-	2H	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREADS
GASKETS	-								(1)
UNIONS	NONE								

MATERIAL

STRESS ALLOWABLE, psi X 10³

TEMP.,	F		-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
ASTM	A-106-B		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	14.3	12.9
ASTM	A-105		17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	16.6	14.7
ASTM	A-216-WPB		14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	13.2	11.7

NOTES

- 1) GASKETS
 - a) STEAM-SPIRAL WOUND SS WITH FLEXICARB FILLER, FLEXITALLIC TYPE CG OR EQUAL
 - b) WATER (TO 100F) COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - c) WATER (OVER 100F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - d) AIR & GASES - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - e) OIL (TO 250F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/32 THICK, GARLOCK STYLE IFG5500 OR EQUAL
GARLOCK STYLE G9900 OR EQUAL UP TO 650F
GARLOCK STYLE 3125C OR EQUAL UP TO 750F
- 2) BRANCH CONNECTIONS
 - a) 2 IN. AND SMALLER-SOCKOLET, NIPOLET OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA 104.3.1.C2
 - b) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING
 - c) OTHERS-WELDOLET, SWEEPOLET OR EQUAL; OR TEE FITTING
 - d) EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET THE REQUIREMENTS OF ANSI B31.1 PARA. 104.3.1.B3 AND 104.3.1.G
- 3) INSTRUMENT CONNECTIONS-SOCKOLET, NIPOLET, OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2.
- 4) ALL ELBOWS SHALL BE LONG RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS
- 15) VALVE MATERIAL AND RATING ARE FOR REFERENCE ONLY.
- 90) PRESSURE-TEMPERATURE RATINGS BASED 300 LB. CARBON STEEL PER ANSI B16.5A-92

APPROVAL	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
MADE: <i>V.V.</i>	1											
CHKD: <i>PCP</i>	2											
	3											

PARSONS POWER																	
PIPING LINE SPECIFICATION																	
DESIGN CDDE ANSI B31.1			SPEC.(S):SP-G375A W.D.: 536633-00036										LINE NO.		30A-3		
DATE/ADDENDA 1995			PROJECT: KRSKO NUCLEAR POWER PLANT										MATERIAL		CARBON STL		
			WELD END DETAIL DWG. D-301-001										ISSUED/REV		11-1-96/0		
SERVICE																	
CONDENSATE																	
MAX																	
Temp °F			-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
Press PSIG			523	523	523	523	523	523	523	523	523	523	523	523	523	470	425
AFTER BENDING			523	523	523	523	523	523	523	523	523	523	523	523	515	470	425

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			ND.	TYPE/CLASS	GRADE	SUPPL REQMTS			
PIPING	2 & SMLR	80	A-106	-	B	-	SW	ANSI B36.10	
	2 1/2-10	40	A-106	-	B	-	BW	ANSI B36.10	
	12-18	STD	A-106	-	B	-	BW	ANSI B36.10	
	20-24	30	A-106	-	B	-	BW	ANSI B36.10	
WELDING FITTINGS	2 & SMLR	3000 LB	A-105	-	-	-	SW	ANSI B16.11	SCH. 80
	2 1/2-24	EQUAL TO PIPE	A-234	-	WPB	-	BW	ANSI B16.9	
FLANGED	2 & SMLR	300 LB	A-105	-	-	-	-	ANSI B16.5	SOCKET WELDING, FLAT FACE
	2 1/2-24	300 LB	A-105	-	-	-	-	ANSI B16.5	WELDING NECK, RAISED FACE
BRANCH CONN.	2 & SMLR	3000 LB	A-105	-	-	-	SW	-	(2), (3), SCH. 80
	2-1/2-24	300 LB	A-105	-	-	-	BW	-	(2)
VALVES	2 & SMLR	600 LB	A-105	-	-	-	SW	ANSI B16.34	
	2 1/2-24	300 LB	A-216	-	WCB	-	BW	ANSI B16.34	
GASKETS	-								(1)
BOLTS & STUDS	-	-	A-193	-	B7	-	-	ANSI B18.2.1	HEAVY HEX BOLT, CLASS 2A THREADS
NUTS	-	-	A-194	-	2H	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREADS
UNIONS	NONE								

MATERIAL

STRESS ALLOWABLE, psi X 10³

TEMP.,	F		-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
ASTM	A-106-B		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	14.3	12.9
ASTM	A-105		17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	16.6	14.7
ASTM	A-216-WPB		14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	13.2	11.7

NOTES

- 1) GASKETS
 - a) STEAM-SPIRAL WOUND SS WITH FLEXICARB FILLER, FLEXITALLIC TYPE CG OR EQUAL
 - b) WATER (TO 100F) COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - c) WATER (OVER 100F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - d) AIR & GASES - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - e) OIL (TO 250F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/32 THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - f) OIL (OVER 250F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/32 THICK, GARLOCK STYLE 1FG5500 OR EQUAL UP TO 550F GARLOCK STYLE G9900 OR EQUAL UP TO 650F GARLOCK STYLE 3125C OR EQUAL UP TO 750F
- 2) BRANCH CONNECTIONS
 - a) 2 IN. AND SMALLER-SOCKOLET, NIPOLET OR EQUAL; OR HALF-COUPPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA 104.3.1.C2
 - b) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING
 - c) OTHERS-WELDOLET, SWEEPOLET OR EQUAL; OR TEE FITTING
 - d) EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET THE REQUIREMENTS OF ANSI B31.1 PARA. 104.3.1.B3 AND 104.3.1.G
- 3) INSTRUMENT CONNECTIONS-SOCKOLET, NIPOLET, OR EQUAL; OR HALF-COUPPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2.
- 4) ALL ELBOWS SHALL BE LONG RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS
- 5) P-T RATINGS BASED ON 18 IN. STD WALL PIPE (P/S = 0.03485) UP TO 600F ABOVE 600F, 300 LB FLANGES ARE LIMITING PER ANSI B16.5a-92
- 15) VALVE MATERIAL AND RATING ARE FOR REFERENCE ONLY.

APPROVAL	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
MADE: <u>V.V.</u>	1											
CHKD: <u>PCP</u>	2											
	3											

PARSONS POWER

PIPING LINE SPECIFICATION

DESIGN CODE ANSI B31.1
DATE/ADDENDA 1995

SPEC.(S):SP-G375A W.O.: 536633-00036
PROJECT: KRSKO NUCLEAR POWER PLANT
WELD END DETAIL DWG. D-301-001

LINE NO. 30C-1
MATERIAL CARBON STL
ISSUED/REV 11-1-96/0

SERVICE

FLASHING - WATER, WET STEAM

MAX																	
Temp °F			-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
Press PSIG			720	720	710	700	690	680	675	665	650	625	590	555	515	470	425
AFTER BENDING			720	720	710	700	690	680	675	665	650	625	590	555	515	470	425

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL REQMTS			
PIPING	2 & SMLR	80	A-335	-	P22	-	SW	ANSI B36.10	
	2 1/2-24	80	A-335	-	P22	-	BW	ANSI B36.10	
WELDING FITTINGS	2 & SMLR	3000 LB	A-182	-	F22	-	SW	ANSI B16.11	SCH. 80
	2 1/2-24	EQUAL TO PIPE	A-234	-	WP22	-	BW	ANSI B16.9	(4)
FLANGED	2 & SMLR	300 LB	A-182	-	-	-	-	ANSI B16.5	SOCKET WELDING, FLAT FACE
	2 1/2-24	300 LB	A-182	-	F22	-	-	ANSI B16.5	WELDING NECK, RAISED FACE
BRANCH CONN.	2 & SMLR	3000 LB	A-182	-	F22	-	-	-	(2), (3)
	2-1/2-24	EQUAL TO PIPE	A-182	-	F22	-	-	-	(2)
VALVES	2 & SMLR	600 LB	A-182	-	F22	-	-	ANSI B16.34	
	2 1/2-24	300 LB	A-216	-	WCB	-	-	ANSI B16.34	
BOLTS & STUDS	-	-	A-193	-	B7	-	-	ANSI B18.2.1	HEAVY HEX BOLT, CLASS 2A THREADS
NUTS	-	-	A-194	-	2H	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREADS
GASKETS	-								(1)
UNIONS	NONE								

LINE NO.

30C-1

ISSUED/REV

11-1-96/0

MATERIAL

STRESS ALLOWABLE, psi X 10³

TEMP.,	F		-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
ASTM	A-335-P22		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
ASTM	A-182-F22		17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
ASTM	A-105		17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	16.6	14.7
ASTM	A-216-WPB		14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	13.2	11.7

NOTES

1) GASKETS

- STEAM-SPIRAL WOUND SS WITH FLEXICARB FILLER, FLEXITALIC TYPE CG OR EQUAL
- WATER (TO 100F) COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
- WATER (OVER 100F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
- AIR & GASES - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
- OIL (TO 250F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/32 THICK, GARLOCK STYLE IFG5500 OR EQUAL
- OIL (OVER 250F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/32 THICK, GARLOCK STYLE IFG5500 OR EQUAL UP TO 550F GARLOCK STYLE G9900 OR EQUAL UP TO 650F GARLOCK STYLE 3125C OR EQUAL UP TO 750F

- INSTRUMENT CONNECTIONS-SOCKOLET, NIPOLET, OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2.

- ELBOWS SHALL BE LONG RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS

- VALVE MATERIAL AND RATING ARE FOR REFERENCE ONLY.

- P-T RATINGS BASED ON 300 LB FLANGE PER ANSI B16.5a-92

2) BRANCH CONNECTIONS

- 2 IN. AND SMALLER-SOCKOLET, NIPOLET OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA 104.3.1.C2
- CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING
- OTHERS-WELDOLET, SWEEPOLET OR EQUAL; OR TEE FITTING
- EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET THE REQUIREMENTS OF ANSI B31.1 PARA. 104.3.1.B3 AND 104.3.1.G

APPROVAL	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
MADE: <u>V.V.</u>	1											
CHKD: <u>RCP</u>	2											
	3											

PARSONS POWER

PIPING LINE SPECIFICATION

DESIGN CODE ANSI B31.1
DATE/ADOENDA 1995

SPEC.(S):SP-G375A W.O.: 536633-00036
PROJECT: KRSKO NUCLEAR POWER PLANT
WELD END DETAIL DWG. D-301-001

LINE NO. 30D-1
MATERIAL STAINLESS
ISSUED/REV 11-1-96/0

SERVICE

CHEMICAL - CAUSTIC SOLUTIONS

MAX																	
Temp °F												-20	100	150	200	250	300
Press PSIG												615	615	585	550	520	495
AFTER BENDING												615	615	585	550	520	495

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/ CLASS	GRADE	SUPPL REQMTS			
PIPING	2 & SMLR	40S	A-312	-	TP304	-	SW	ANSI B36.19	
	2 1/2-14	40S	A-312	-	TP304	-	BW	ANSI B36.19	
	16-24	40S	A-312	-	TP304	-	BW	ANSI B36.10	
WELDING FITTINGS	2 & SMLR	3000 LB	A-182	-	F304	-	SW	ANSI B16.11	SCH. 80
	2 1/2-24	EQUAL TO PIPE	A-403	-	WP304	-	BW	ANSI B16.9	(4)
FLANGED	2 & SMLR	300 LB	A-182	-	F304	-	-	ANSI B16.5	SOCKET WELDING, FLAT FACE
	2 1/2-24	300 LB	A-182	-	F304	-	-	ANSI B16.5	WELDING NECK, RAISED FACE
BRANCH CONN.	2 & SMLR	3000 LB	A-182	-	-	-	SW	-	(2), (3)
	2-1/2-12	EQUAL TO PIPE	A-182	-	-	-	BW	-	(2)
VALVES	2 & SMLR	600 LB	A-182	-	F304	-	-	-	
	2 1/2-24	300 LB	A-351	-	CF8	-	-	ANSI B16.5	
BOLTS & STUDS	-	-	A-193	-	B7	-	-	ANSI B18.2.1	HEAVY HEX BOLT, CLASS 2A THREADS
NUTS	-	-	A-194	-	2H	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREADS
GASKETS	-								(1)
UNIONS	NONE								

LINE NO.										30D-1									
ISSUED/REV										11-1-96/0									
MATERIAL		STRESS ALLOWABLE, psi X 10 ³																	
TEMP.,	F																		
ASTM	A-312-TP304																		
ASTM	A-182-F304																		
ASTM	A-351-CF8																		
ASTM	A-403-WP304																		

NOTES

1) GASKETS

SOFT RUBBER, 1/16 IN. THICK

2) BRANCH CONNECTIONS

a) 2 IN. AND SMALLER-SOCKOLET, NIPOLET OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA 104.3.1.C2

b) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING

c) OTHERS-WELDOLET, SWEEPOLET OR EQUAL; OR TEE FITTING

d) EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET THE REQUIREMENTS OF ANSI B31.1 PARA. 104.3.1.B3 AND 104.3.1.G

3) INSTRUMENT CONNECTIONS-SOCKOLET, NIPOLET, OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2.

4) ELBOWS SHALL BE LONG RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS

15) VALVE MATERIAL AND RATING ARE FOR REFERENCE ONLY.

90) P-T RATINGS BASED ON 300 LB FLANGE PER ANSI B16.5a-92

APPROVAL	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
MADE: <u>V.V.</u>	1											
CHKD: <u>Ref</u>	2											
	3											

PARSONS POWER																	
PIPING LINE SPECIFICATION																	
DESIGN CODE ANSI B31.1			SPEC.(S):SP-G375A W.O.: 536633-00036										LINE NO. 60A-1				
DATE/ADDENDA 1995			PROJECT: KRSKO NUCLEAR POWER PLANT										MATERIAL CARBON STL				
WELD END DETAIL DWG. D-301-001															ISSUED/REV 11-1-96/0		
SERVICE																	
CONDENSATE, FEEDWATER, WATER, STEAM, OIL, AIR, GASES																	
																	MAX
Temp °F			-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
Press PSIG			1440	1440	1420	1400	1380	1365	1350	1330	1305	1250	1180	1110	1030	940	850
AFTER BENDING			1440	1440	1420	1400	1380	1365	1350	1330	1305	1250	1180	1110	1030	940	850

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL REQMTS			
PIPING	2 & SMLR	80	A-106	-	B	-	SW	ANSI B36.10	
	2 1/2-3 1/2	40	A-106	-	B	-	BW	ANSI B36.10	
	4-8	80	A-106	-	B	-	BW	ANSI B36.10	
	10-24	100	A-106	-	B	-	BW	ANSI B36.10	
WELDING FITTINGS	2 & SMLR	3000 LB	A-105	-	-	-	SW	ANSI B16.11	SCH. 80
	2 1/2-24	EQUAL TO PIPE	A-234	-	WPB	-	BW	ANSI B16.9	(4)
FLANGED	2 & SMLR	600 LB	A-105	-	-	-	-	ANSI B16.5	SOCKET WELDING, FLAT FACE
	2 1/2-24	600 LB	A-105	-	-	-	-	ANSI B16.5	WELDING NECK, RAISED FACE
BRANCH CONN.	2 & SMLR	3000 LB	A-105	-	-	-	SW	-	(2), (3)
	2-1/2-24	EQUAL TO PIPE	A-105	-	-	-	BW	-	(2)
VALVES	2 & SMLR	600 LB	A-105	-	-	-	SW	ANSI B16.34	
	2 1/2-24	600 LB	A-216	-	WCB	-	BW	ANSI B16.34	
BOLTS & STUDS	-	-	A-193	-	B7	-	-	ANSI B18.2.1	HEAVY HEX BOLT, CLASS 2A THREADS
NUTS	-	-	A-194	-	2H	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREADS
GASKETS	-								(1)
UNIONS	NONE								

LINE NO.

60A-1

ISSUED/REV

11-1-96/0

MATERIAL

STRESS ALLOWABLE, psi X 10³

TEMP.,	F		-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
ASTM	A-106-B		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	14.3	12.9
ASTM	A-105		17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	16.6	14.7
ASTM	A-216-WCB		14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	13.2	11.7
ASTM	A-234-WPB		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	14.3	12.9

NOTES

- 1) GASKETS
 - a) STEAM-SPIRAL WOUND SS WITH FLEXICARB FILLER, FLEXITALLIC TYPE OG OR EQUAL
 - b) WATER (TO 100F) COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - c) WATER (OVER 100F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - d) AIR & GASES - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - e) OIL (TO 250F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/32 THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - f) OIL (OVER 250F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/32 THICK, GARLOCK STYLE 1FG5500 OR EQUAL UP TO 550F
GARLOCK STYLE G9900 OR EQUAL UP TO 650F
GARLOCK STYLE 3125C OR EQUAL UP TO 750F
- 2) BRANCH CONNECTIONS
 - a) 2 IN. AND SMALLER-SOCKOLET, NIPOLET OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA 104.3.1.C2
 - b) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING
 - c) OTHERS-WELDOLET, SWEEPOLET OR EQUAL; OR TEE FITTING
 - d) EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET THE REQUIREMENTS OF ANSI B31.1 PARA. 104.3.1.B3 AND 104.3.1.G
- 3) INSTRUMENT CONNECTIONS-SOCKOLET, NIPOLET, OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2.
- 4) ELBOWS SHALL BE LONG RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS
- 15) VALVE MATERIAL AND RATING ARE FOR REFERENCE ONLY.
- 90) P-T RATINGS BASED ON 300 LB FLANGE PER ANSI B16.5a-92

APPROVAL	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
MADE: <u>V.V.</u>	1											
CHKD: <u>REP</u>	2											
	3											

PARSONS POWER

PIPING LINE SPECIFICATION

DESIGN CODE ANSI B31.1

SPEC.(S):SP-G375A W.O.: 536633-00036

LINE NO. 60A-2

DATE/ADDENDA 1973/b

PROJECT: KRSKO NUCLEAR POWER PLANT

MATERIAL CARBON STL

WELD END DETAIL DWG. D-301-001

ISSUED/REV 11-1-96/0

SERVICE

FLASHING, EROSION - WATER, WET STEAM

MAX																	
Temp °F			-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
Press PSIG			1440	1440	1420	1400	1380	1365	1350	1330	1305	1250	1180	1110	1030	940	850
AFTER BENDING			1440	1440	1420	1400	1380	1365	1350	1330	1305	1250	1180	1110	1030	940	850

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL REQMTS			
PIPING	2 & SMLR	80	A-106	-	B	-	SW	ANSI B36.10	
	2 1/2-24	160	A-106	-	B	-	BW	ANSI B36.10	
WELDING FITTINGS	2 & SMLR	3000 LB	A-105	-	-	-	SW	ANSI B16.11	SCH. 80
	2 1/2-24	EQUAL TO PIPE	A-234	-	WPB	-	BW	ANSI B16.9	(4)
FLANGED	2 & SMLR	600 LB	A-105	-	-	-	-	ANSI B16.5	SOCKET WELDING, FLAT FACE
	2 1/2-24	600 LB	A-105	-	-	-	-	ANSI B16.5	WELDING NECK, RAISED FACE
BRANCH CONN.	2 & SMLR	3000 LB	A-105	-	-	-	SW	-	(2), (3)
	2-1/2-24	EQUAL TO PIPE	A-105	-	-	-	BW	-	(2)
VALVES	2 & SMLR	600 LB	A-105	-	-	-	SW	ANSI B16.34	
	2 1/2-24	600 LB	A-216	-	WCB	-	BW	ANSI B16.34	
BOLTS & STUDS	-	-	A-193	-	B7	-	-	ANSI B18.2.1	HEAVY HEX BOLT, CLASS 2A THREADS
NUTS	-	-	A-194	-	2H	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREADS
GASKETS	-								(1)
UNIONS	NONE								

MATERIAL		STRESS ALLOWABLE, psi X 10 ³															
TEMP.,	F		-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
ASTM	A-106-B		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	14.3	12.9
ASTM	A-105		17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	16.6	14.7
ASTM	A-216-WCB		14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	13.2	11.7
ASTM	A-234-WPB		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	14.3	12.9

NOTES

1) GASKETS

- a) STEAM-SPIRAL WOUND SS WITH FLEXICARB FILLER, FLEXITALIC TYPE CG OR EQUAL
- b) WATER (TO 100F) COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
- c) WATER (OVER 100F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
- d) AIR & GASES - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
- e) OIL (TO 250F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/32 THICK, GARLOCK STYLE IFG5500 OR EQUAL
- f) OIL (OVER 250F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/32 THICK, GARLOCK STYLE IFG5500 OR EQUAL UP TO 550F
GARLOCK STYLE G9900 OR EQUAL UP TO 650F
GARLOCK STYLE 3125C OR EQUAL UP TO 750F

- 3) INSTRUMENT CONNECTIONS-SOCKOLET, NIPOLET, OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2.

- 4) ELBOWS SHALL BE LONG RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS

- 15) VALVE MATERIAL AND RATING ARE FOR REFERENCE ONLY.

- 90) P-T RATINGS BASED ON 300 LB FLANGE PER ANSI B16.5a-92

2) BRANCH CONNECTIONS

- a) 2 IN. AND SMALLER-SOCKOLET, NIPOLET OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA 104.3.1.C2
- b) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING
- c) OTHERS-WELDOLET, SWEEPOLET OR EQUAL; OR TEE FITTING
- d) EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET THE REQUIREMENTS OF ANSI B31.1 PARA. 104.3.1.B3 AND 104.3.1.G

APPROVAL	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
MADE: <i>V.V.</i>	1											
CHKD: <i>REP</i>	2											
	3											

PARSONS POWER																	
PIPING LINE SPECIFICATION																	
DESIGN CODE ANSI B31.1			SPEC.(S):SP-G375A W.O.: 536633-00036										LINE NO.		60C-1		
DATE/ADDENDA 1995			PROJECT: KRSKO NUCLEAR POWER PLANT										MATERIAL		CROM-MOLY		
			WELD END DETAIL DWG. D-301-001										ISSUED/REV		11-1-96/0		
SERVICE																	
FLASHING, EROSION - WATER, WET STEAM																	
MAX																	
Temp °F			-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
Press PSIG			1440	1440	1420	1400	1380	1365	1350	1330	1305	1250	1180	1110	1030	940	850
AFTER BENDING			1440	1440	1420	1400	1380	1365	1350	1330	1305	1250	1180	1110	1030	940	850

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL REQMTS			
PIPING	2 & SMLR	80	A-335	-	P22	-	SW	ANSI B36.10	
	2 1/2-3 1/2	80	A-335	-	P22	-	BW	ANSI B36.10	
	4-8	100	A-335	-	P22	-	BW	ANSI B36.10	
	10-24	100	A-335	-	P22	-	BW	ANSI B36.10	
WELDING FITTINGS	2 & SMLR	3000 LB	A-182	-	F22	-	SW	ANSI B16.11	SCH. 80
	2 1/2-24	EQUAL TO PIPE	A-234	-	WP22	-	BW	ANSI B16.9	(4)
FLANGED	2 & SMLR	600 LB	A-182	-	F22	-	-	ANSI B16.5	SOCKET WELDING, RAISED FACE
	2 1/2-24	600 LB	A-182	-	F22	-	-	ANSI B16.5	WELDING NECK, RAISED FACE
BRANCH CONN.	2 & SMLR	3000 LB	A-182	-	F22	-	SW	-	(2), (3)
	2-1/2-24	EQUAL TO PIPE	A-182	-	F22	-	BW	-	(2)
VALVES	2 & SMLR	600 LB	A-182	-	F22	-	SW	ANSI B16.34	
	2 1/2-24	600 LB	A-217	-	WC9	-	BW	ANSI B16.34	
BOLTS & STUDS	-	-	A-193	-	B7	-	-	ANSI B18.2.1	HEAVY HEX BOLT, CLASS 2A THREADS
NUTS	-	-	A-194	-	2H	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREADS
GASKETS	-								(1)
UNIONS	NONE								

MATERIAL

STRESS ALLOWABLE, psi X 10³

TEMP.,	F		-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
ASTM	A-335-P22		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
ASTM	A-182-F22		17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
ASTM	A-105		17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	16.6	14.7
ASTM	A-216-WCB		14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	13.2	11.7

NOTES

1) GASKETS

- a) STEAM-SPIRAL WOUND SS WITH FLEXICARB FILLER, FLEXITALLIC TYPE CG OR EQUAL
- b) WATER (TO 100F) COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
- c) WATER (OVER 100F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
- d) AIR & GASES - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
- e) OIL (TO 250F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/32 THICK, GARLOCK STYLE IFG5500 OR EQUAL
- f) OIL (OVER 250F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/32 THICK, GARLOCK STYLE IFG5500 OR EQUAL UP TO 550F
GARLOCK STYLE G9900 OR EQUAL UP TO 650F
GARLOCK STYLE 3125C OR EQUAL UP TO 750F

- 3) INSTRUMENT CONNECTIONS-SOCKOLET, NIPOLET, OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2.
- 4) ELBOWS SHALL BE LONG RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS
- 15) VALVE MATERIAL AND RATING ARE FOR REFERENCE ONLY.
- 90) P-T RATINGS BASED ON 300 LB FLANGE PER ANSI B16.5a-92

2) BRANCH CONNECTIONS

- a) 2 IN. AND SMALLER-SOCKOLET, NIPOLET OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA 104.3.1.C2
- b) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING
- c) OTHERS-WELDOLET, SWEEPOLET OR EQUAL; OR TEE FITTING
- d) EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET THE REQUIREMENTS OF ANSI B31.1 PARA. 104.3.1.B3 AND 104.3.1.G

APPROVAL	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
MADE: <i>V.V.</i>	1											
CHKD: <i>RCP</i>	2											
	3											

PIPING LINE SPECIFICATION																	
DESIGN CODE: ASME B.31.1						SPEC.(S): SP-G375A						LINE NO. 60D-1					
DATE/ADDENDA: 2004						PROJECT: KRSKO NUCLEAR POWER PLANT						MATERIAL: STAINLESS ST. 7)					
						WELD END DETAIL DWG. D-301-001						ISSUED/REV 27.12.07/0					
SERVICE																	
FLASHING, EROSION WATER, WET STEAM																	
MAX 90)																	
Temp F							100	200	300	400	500	600	650	700	750	800	850
Press PSIG							1200	1015	910	825	765	720	700	685	670	660	645
AFTER BENDING							1200	1015	910	825	765	720	700	685	670	660	645

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL REOMTS			
PIPING	2 & SMLR	80S	A-312	316L	-	-	SW	ANSI B36.19M	SEAMLESS
	2 1/2-8	80S	A-312	316L	-	-	BW	ANSI B36.19M	SEAMLESS
WELDING FITTINGS	2 & SMLR	3000 LB	A-182	-	F316L	-	SW	ANSI B16.11	
	2 1/2-8	80S	A-182	-	F316L	-	BW	ANSI B16.9	(4)
	2 1/2-8	80S	A-403	-	WP316L	-	BW	ANSI B16.9	(4)
BRANCH CONN.	2 & SMLR	3000 LB	A-182	-	F316L	-	SW	ANSI B16.11	(2)
	2 1/2-8	80S	A-403	-	WP316L	-	BW	ANSI B16.9	(2)
FLANGES	2 & SMLR	600 LB	A-182	-	F316L	-	SW	ANSI B16.5	(5)
	2 1/2-8	600 LB	A-182	-	F316L	-	BW	ANSI B16.5	(5)

LINE NO. 60D-1
ISSUED / REV. 27.12.07/0

MATERIAL								STRESS ALLOWABLE, PSI x 1000								
TEMPERATURE, F								-20	100	200	300	400	500	600	650	700
ASTM - A312TP316L								15.7	15.7	13.3	11.9	10.8	10.0	9.4	9.2	9.0
ASTM - A182Gr.316L								15.7	15.7	13.3	11.9	10.8	10.0	9.4	9.2	9.0
ASTM - A403WP316L								15.7	15.7	13.3	11.9	10.8	10.8	9.4	9.2	9.0

NOTES

- 2) Branch Connections
 - a) 2in. & smaller – sockolet, nipolet or equal, or half-coupling shaped and welded to outside of pipe in accordance with ASME B31.1
 - b) connection same size as header-weldolet or equal, or tee fitting
 - c) others-weldolet, sweepolet or equal; or tee fitting
 - d) extruded outlets may be substituted where they meet the requirements of ASME B31.1
- 4) Fittings
Elbows shall be long radius unless indicated otherwise on drawings
- 5) Flange drilling shall conform to ANSI B16.5
- 7) Material
Stainless Steel Piping specified in this Spec.sheet have purpose to support maintenance activities on piping replacement because of erosion / corrosion damages on the existing A106Gr.B piping. The condition of the piping system and support / restraint scheme shall be determined by field inspections and the examinations of maintenance records, manufacturer;s certifications, and / or other available information to ensure conformance with the Code requirements for the new design conditions.
- 90) Pressure-Temperature ratings on 600 Lb Stainless Steel per ANSI B16.5a-2003

APPROVAL MADE: <u>NeK</u> CHKD: <u>Se</u> _____	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
	1				1				1			
	2				2				2			
	3				3				3			

PARSONS POWER																	
PIPING LINE SPECIFICATION																	
DESIGN CODE ANSI B31.1			SPEC.(S):SP-G375A W.O.: 536633-00036										LINE NO. 90A-1				
DATE/ADDENDA 1995			PROJECT: KRSKO NUCLEAR POWER PLANT										MATERIAL CARBON STL				
WELD END DETAIL DWG. D-301-001										ISSUED/REV 11-1-96/0							
SERVICE																	
CONDENSATE, FEEDWATER, WATER, STEAM, OIL, AIR, GASES																	
MAX																	
Temp °F			-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
Press PSIG			2160	2160	2130	2100	2070	2050	2025	2000	1955	1875	1775	1660	1550	1410	1275
AFTER BENDING			2160	2160	2130	2100	2070	2050	2025	2000	1955	1875	1775	1660	1550	1410	1275

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL REQMTS			
PIPING	2 & SMLR	80	A-106	-	B	-	SW	ANSI B36.10	
	2 1/2-3	80	A-106	-	B	-	BW	ANSI B36.10	
	4-8	120	A-106	-	B	-	BW	ANSI B36.10	
	10-24	140	A-106	-	B	-	BW	ANSI B36.10	
WELDING FITTINGS	2 & SMLR	3000 LB	A-105	-	-	-	SW	ANSI B16.11	SCH. 80
	2 1/2-24	EQUAL TO PIPE	A-234	-	WPB	-	BW	ANSI B16.9	(4)
FLANGES	2 & SMLR	900 LB	A-105	-	-	-	-	ANSI B16.5	SOCKET WELDING, RAISED FACE
	2 1/2-24	900 LB	A-105	-	-	-	-	ANSI B16.5	WELDING NECK, RAISED FACE
BRANCH CONN.	2 & SMLR	3000 LB	A-105	-	-	-	SW	-	(2), (3)
	2-1/2-24	EQUAL TO PIPE	A-105	-	-	-	BW	-	(2)
VALVES	2 & SMLR	1500 LB	A-105	-	-	-	SW	ANSI B16.34	
	2 1/2-24	900 LB	A-216	-	WCB	-	BW	ANSI B16.34	
BOLTS & STUDS	-	-	A-193	-	B7	-	-	ANSI B18.2.1	HEAVY HEX BOLT, CLASS 2A THREADS
NUTS	-	-	A-194	-	2H	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREADS
GASKETS	-								(1)
UNIONS	NONE								

LINE NO.																	90A-1	
ISSUED/REV																	11-1-96/0	
MATERIAL		STRESS ALLOWABLE, psi X 10 ³																
TEMP.,	F		-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750	
ASTM	A-106-B		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	14.3	12.9	
ASTM	A-105		17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	16.6	14.7	
ASTM	A-216-WPB		14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	13.2	11.7	
ASTM	A-234-WPB		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	14.3	12.9	
NOTES																		
1) GASKETS									d) EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET THE REQUIREMENTS OF ANSI B31.1 PARA. 104.3.1.B3 AND 104.3.1.G									
a) STEAM-SPIRAL WOUND SS WITH FLEXICARB FILLER, FLEXITALLIC TYPE CG OR EQUAL																		
b) WATER (TO 100F) COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL									3) INSTRUMENT CONNECTIONS-SOCKOLET, NIPOLET, OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2.									
c) WATER (OVER 100F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL									4) ELBOWS SHALL BE LONG RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS									
d) AIR & GASES - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL									15) VALVE MATERIAL AND RATING ARE FOR REFERENCE ONLY.									
e) OIL (TO 250F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/32" THICK, GARLOCK STYLE IFG5500 OR EQUAL									90) P-T RATINGS BASED 900 LB. CARBON STEEL PER ANSI B16.5A-92									
f) OIL (OVER 250F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/32" THICK, GARLOCK STYLE IFG5500 OR EQUAL UP TO 550F GARLOCK STYLE G9900 OR EQUAL UP TO 650 F GARLOCK STYLE 3125TC OR EQUAL UP TO 750F																		
2) BRANCH CONNECTIONS																		
a) 2 IN. AND SMALLER-SOCKOLET, NIPOLET OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA 104.3.1.C2																		
b) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING																		
c) OTHERS-WELDOLET, SWEEPOLET OR EQUAL; OR TEE FITTING																		

APPROVAL		REVISIONS				REVISIONS				REVISIONS			
		NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
MADE: <u>V.V.</u>		1											
CHKD: <u>PCP</u>		2											
		3											

PARSONS POWER																	
PIPING LINE SPECIFICATION																	
DESIGN CODE ANSI B31.1			SPEC.(S):SP-G375A W.O.: 536633-00036										LINE NO. 90A-2				
DATE/ADDENDA 1995			PROJECT: KRSKO NUCLEAR POWER PLANT										MATERIAL CARBON STL				
			WELD END DETAIL DWG. D-301-001										ISSUED/REV 11-1-96-0				
SERVICE																	
FEEDWATER																	
MAX																	
Temp °F			-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
Press PSIG			1525	1525	1525	1525	1525	1525	1525	1525	1525	1525	1525	1525	1525	1410	275
AFTER BENDING			1492	1492	1492	1492	1492	1492	1492	1492	1492	1492	1492	1492	1492	1321	191

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL REQMTS			
PIPING	2 & SMLR	80	A-106	-	B	-	SW	ANSI B36.10	
	2 1/2-8	80	A-106	-	B	-	BW	ANSI B36.10	
	10-12	100	A-106	-	B	-	BW	ANSI B36.10	
	14-24	80	A-106	-	C	-	BW	ANSI B36.10	
WELDING FITTINGS	2 & SMLR	3000 LB	A-105	-	-	-	SW	ANSI B16.11	SCH. 80
	2 1/2-12	EQUAL TO PIPE	A-234	-	WPB	-	BW	ANSI B16.9	(4)
	14-24	EQUAL TO PIPE	A-234	-	WPC	-	BW	ANSI B16.9	(4)
FLANGES	2 & SMLR	900 LB	A-105	-	-	-	-	ANSI B16.5	SOCKET WELDING, RAISED FACE
	2 1/2-24	900 LB	A-105	-	-	-	-	ANSI B16.5	WELDING NECK, RAISED FACE
BRANCH CONN.	2 & SMLR	3000 LB	A-105	-	-	-	SW	-	(2), (3)
	2-1/2-24	EQUAL TO PIPE	A-105	-	-	-	BW	-	(2)
VALVES	2 & SMLR	1500 LB	A-105	-	-	-	SW	ANSI B16.34	
	2 1/2-24	900 LB	A-216	-	WCB	-	BW	ANSI B16.34	
BOLTS & STUDS	-	-	A-193	-	B7	-	-	ANSI B18.2.1	HEAVY HEX BOLT, CLASS 2A THREADS
NUTS	-	-	A-194	-	2H	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREADS
GASKETS	-								(1)
UNIONS	NONE								

MATERIAL		STRESS ALLOWABLE, psi X 10 ³															
TEMP.,	F		-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
ASTM	A-106-B		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	14.3	12.9
ASTM	A-106-C		17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	16.6	14.7
ASTM	A-105		17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	16.6	14.7
ASTM	A-216-WPB		14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	13.2	11.7
ASTM	A-234-WPB		17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	16.6	14.7

NOTES

- 1) GASKETS
 - a) STEAM-SPIRAL WOUND SS WITH FLEXICARB FILLER, FLEXITALLIC TYPE CG OR EQUAL
 - b) WATER (TO 100F) COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - c) WATER (OVER 100F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - d) AIR & GASES - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - e) OIL (TO 250F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/32" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - f) OIL (OVER 250F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/32" THICK, GARLOCK STYLE IFG5500 OR EQUAL UP TO 550F GARLOCK STYLE G9900 OR EQUAL UP TO 650F GARLOCK STYLE 3125TC OR EQUAL UP TO 750F
- 2) BRANCH CONNECTIONS
 - a) 2 IN. AND SMALLER-SOCKOLET, NIPOLET OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA 104.3.1.C2
 - b) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING
 - c) OTHERS-WELDOLET, SWEEPOLET OR EQUAL; OR TEE FITTING
- d) EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET THE REQUIREMENTS OF ANSI B31.1 PARA 104.3.1.B3 AND 104.3.1.G
- 3) INSTRUMENT CONNECTIONS-SOCKOLET, NIPOLET, OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA 104.3.1.C2.
- 4) ELBOWS SHALL BE LONG RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS
- 15) VALVE MATERIAL AND RATING ARE FOR REFERENCE ONLY.
- 90) P-T RATINGS BASED ON P/S RATIO OF 0.10167 (1525 PSIG/460F/15x10³ PSI) UP TO 650F. FROM 700F TO 750F P-T BASED ON 900 LB FLANGE PER ANSI B16.5A-92

APPROVAL	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
MADE: <u>K. V.</u>	1											
CHKD: <u>ROP</u>	2											
	3											

SPECIAL WALL PIPE

LINE NO. 90A2-3

ISSUED/REV 11-1-96/0

STRESS ALLOWABLE, psi X 10³

MAX.

TEMP.,	F	0	20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
ASME	A-106-C		17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	16.6	14.7
ASME	A-155-KC70		17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	16.6	14.7
ASME																	

NOMINAL ID IN.	MIN. CALC. WALL IN.	NOMINAL WALL IN.	OD IN.	MANUF. TOLERANCE IN.	PIPE			PLATE			NOTES
					ASME	TYPE CLASS	GRADE	ASME	TYPE CLASS	GRADE	
25.75	0.995	-	-	-	SA-106	-	C	-	-	-	
25.75	2.000	-	-	-	A-234	-	WPB	-	-	-	TEE

FITTINGS

	PIPE BENDS	FORGING	CASTING
ASME	A-515	A-234	
TYPE/CLASS	1	-	
GRADE	K70	WPB	
I.D.	EQUAL TO ST. PIPE	EQUAL TO ST. PIPE	
MIN.CALC. WALL	EQUAL TO ST. PIPE	EQUAL TO ST. PIPE	
MIN. BEND DIAMETER	ANSI B16.9		
BENDING ALLOWANCE	ANSI B16.9		

APPROVAL MADE: <u>E. D. Toll</u> <i>WV.</i> CHKD: <u>R. C. Penney</u> <i>RCP.</i>	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
	1											
	2											
	3											

PARSONS POWER																			
PIPING LINE SPECIFICATION																			
DESIGN CODE ANSI B31.1			SPEC.(S):SP-G375A W.O.: 536633-00036										LINE NO.		90A-3				
DATE/ADDENDA 1995			PROJECT: KRSKO NUCLEAR POWER PLANT										MATERIAL		CARBON STL				
WELD END DETAIL DWG. D-301-001															ISSUED/REV		11-1-96-0		
SERVICE																			
STEAM, FEEDWATER																			
MAX																			
Temp °F			-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750		
Press PSIG			1185	1185	1185	1185	1185	1185	1185	1185	1185	1185	1185	1185	1185	1129	1019		
AFTER BENDING			1185	1185	1185	1185	1185	1185	1185	1185	1185	1185	1185	1185	1185	1129	1019		

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL REQMTS			
PIPE	2 & SMLR	80	A-106	-	B	-	SW	ANSI B36.10	
	2 1/2-24	80	A-106	-	B	-	BW	ANSI B36.10	
	25.75 ID	SPECIAL WALL	A-106	-	C	-	BW	ANSI B31.1	SEE SPWL SHEET ATTACHED
WELDING FITTINGS	2 & SMLR	3000 LB	A-105	-	-	-	SW	ANSI B16.11	SCH. 80
	2 1/2-24	EQUAL TO PIPE	A-234	-	WPB	-	BW	ANSI B16.9	(4)
FLANGES	2 & SMLR	900 LB	A-105	-	-	-	-	ANSI B16.5	SOCKET WELDING, RAISED FACE
	2 1/2-24	900 LB	A-105	-	-	-	-	ANSI B16.5	WELDING NECK, RAISED FACE
BRANCH CONN.	2 & SMLR	3000 LB	A-105	-	-	-	SW	-	(2), (3)
	2-1/2-24	EQUAL TO PIPE	A-105	-	-	-	BW	-	(2)
VALVES	2 & SMLR	1500 LB	A-105	-	-	-	SW	ANSI B16.34	
	2 1/2-24	900 LB	A-216	-	WCB	-	BW	ANSI B16.34	
BOLTS & STUDS	-	-	A-193	-	B7	-	-	ANSI B18.2.1	HEAVY HEX BOLT, CLASS 2A THREADS
NUTS	-	-	A-194	-	2H	-	-	ANSI B18.2.2	HEAVY HEX, CLASS 2B THREADS
GASKETS	-								(1)
UNIONS	NONE								

LINE NO.																	90A-3	
ISSUED/REV																	11-1-96-0	
MATERIAL		STRESS ALLOWABLE, psi X 10 ³																
TEMP.,	F		-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750	
ASTM	A-106-B		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	14.3	12.9	
ASTM	A-105		17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	16.6	14.7	
ASTM	A-216-WPB		14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	13.2	11.7	
ASTM	A-234-WPB		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	14.3	12.9	

NOTES

1) GASKETS

a) STEAM-SPIRAL WOUND SS WITH FLEXICARB FILLER, FLEXITALLIC TYPE CG OR EQUAL

b) WATER (TO 100F) COMPRESSED NON-ASBESTOS FLAT RING, 1/16: THICK, GARLOCK STYLE IFG5500 OR EQUAL

c) WATER (OVER 100F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL

d) AIR & GASES - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL

e) OIL (TO 250F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/32" THICK, GARLOCK STYLE IFG5500 OR EQUAL

f) OIL (OVER 250F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/32" THICK, GARLOCK STYLE IFG5500 OR EQUAL UP TO 550F
GARLOCK STYLE G9900 OR EQUAL UP TO 650 F
GARLOCK STYLE 3125TC OR EQUAL UP TO 750F

2) BRANCH CONNECTIONS

a) 2 IN. AND SMALLER-SOCKOLET, NIPOLET OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA 104.3.1.C2

b) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING

c) OTHERS-WELDOLET, SWEEPOLET OR EQUAL; OR TEE FITTING

d) EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET THE REQUIREMENTS OF ANSI B31.1 PARA. 104.3.1.B3 AND 104.3.1.G

3) INSTRUMENT CONNECTIONS-SOCKOLET, NIPOLET, OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA. 104.3.1.C2.

4) ELBOWS SHALL BE LONG RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS

15) VALVE MATERIAL AND RATING ARE FOR REFERENCE ONLY.

90) P-T RATINGS BASED ON P/S RATIO OF 0.079, (1185 PSIG/600F/17.5x10³ PSI).

APPROVAL		REVISIONS				REVISIONS				REVISIONS			
		NO.	MADE	CHKD	OA	NO.	MADE	CHKD	OA	NO.	MADE	CHKD	OA
MADE: <u>V.V.</u>		1											
CHKD: <u>PCD</u>		2											
		3											

PARSONS POWER																	
PIPING LINE SPECIFICATION																	
DESIGN CODE ANSI B31.1			SPEC.(S):SP-G375A W.O.: 536633-00036										LINE NO. 90C-1				
DATE/ADDENDA 1995			PROJECT: KRSKO NUCLEAR POWER PLANT										MATERIAL CHROM-MOLY				
			WELD END DETAIL DWG. D-301-001										ISSUED/REV 11-1-96/0				
SERVICE																	
FLASHING, EROSION-WATER, STEAM, WET STEAM																	
MAX																	
Temp °F			-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
Press PSIG			2160	2160	2130	2100	2070	2050	2025	2000	1955	1875	1775	1660	1550	1410	1595
AFTER BENDING			2160	2160	2130	2100	2070	2050	2025	2000	1955	1875	1775	1660	1550	1410	1596

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL REQMTS			
PIPE	2 & SMLR	80	A-335	-	P22	-	SW	ANSI B36.10	
	2 1/2-3	80	A-335	-	P22	-	BW	ANSI B36.10	
	4-8	120	A-335	-	P22	-	BW	ANSI B36.10	
	10-24	140	A-335	-	P22	-	BW	ANSI B36.10	
WELDING FITTINGS	2 & SMLR	3000 LB	A-182	-	F22	-	SW	ANSI B16.11	SCH. 80
	2 1/2-24	EQUAL TO PIPE	A-234	-	WP22	-	BW	ANSI B16.9	(4)
FLANGES	2 & SMLR	900 LB	A-182	-	F22	-	-	ANSI B16.5	SOCKET WELDING, RAISED FACE
	2 1/2-24	900 LB	A-182	-	F22	-	-	ANSI B16.5	WELDING NECK, RAISED FACE
BRANCH CONN.	2 & SMLR	3000 LB	A-182	-	F22	-	SW	-	
	2-1/2-24	EQUAL TO PIPE	A-182	-	F22	-	BW	-	
VALVES	2 & SMLR	1500 LB	A-182	-	F22	-	SW	ANSI B16.34	
	2 1/2-24	900 LB	A-217	-	WC9	-	BW	ANSI B16.34	
BOLTS & STUDS	-	-	A-193	-	B7	-	-	ANSI B18.2.1	HEAVY HEX BOLT, CLASS 3A THREADS
NUTS	-	-	A-194	-	2H	-	-	ANSI B18.2.2	HEAVY HEX, SEMI-FINISHED CLASS 2B THREADS
GASKETS	-	-	-	-	-	-	-	-	(1)
UNIONS	NONE								

MATERIAL

STRESS ALLOWABLE, psi X 10³

TEMP.,	F		-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
ASTM	A-335-P22		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	14.3	12.9
ASTM	A-182-F22		17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	16.6	14.7
ASTM	A-234-WP22		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	14.3	12.9
ASTM	A-105		17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	16.6	14.7
ASTM	A-216-WPB		14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	13.2	11.7

NOTES

- 1) GASKETS
 - a) STEAM-SPIRAL WOUND SS WITH FLEXICARB FILLER, FLEXITALIC TYPE CG OR EQUAL
 - b) WATER (TO 100F) COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - c) WATER (OVER 100F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - d) AIR & GASES - COMPRESSED NON-ASBESTOS FLAT RING, 1/16" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - e) OIL (TO 250F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/32" THICK, GARLOCK STYLE IFG5500 OR EQUAL
 - f) OIL (OVER 250F) - COMPRESSED NON-ASBESTOS FLAT RING, 1/32" THICK, GARLOCK STYLE IFG5500 OR EQUAL UP TO 550F GARLOCK STYLE G9900 OR EQUAL UP TO 650 F GARLOCK STYLE 3125TC OR EQUAL UP TO 750F
- 2) BRANCH CONNECTIONS
 - a) 2 IN. AND SMALLER-SOCKOLET, NIPOLET OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA 104.3.1.C2
 - b) CONN. SAME SIZE AS HEADER-WELDOLET OR EQUAL; OR TEE FITTING
 - c) OTHERS-WELDOLET, SWEEPOLET OR EQUAL; OR TEE FITTING
- d) EXTRUDED OUTLETS MAY BE SUBSTITUTED WHERE THEY MEET THE REQUIREMENTS OF ANSI B31.1 PARA 104.3.1.B3 AND 104.3.1.G
- 3) INSTRUMENT CONNECTIONS-SOCKOLET, NIPOLET, OR EQUAL; OR HALF-COUPLING SHAPED AND WELDED TO OUTSIDE OF PIPE IN ACCORDANCE WITH ANSI B31.1 PARA 104.3.1.C2.
- 4) ELBOWS SHALL BE LONG RADIUS UNLESS INDICATED OTHERWISE ON DRAWINGS
- 15) VALVE MATERIAL AND RATING ARE FOR REFERENCE ONLY.
- 90) P-T RATINGS BASED 900 LB FLANGE PER ANSI B16.5A-92.

APPROVAL	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
MADE: <i>V.V.</i>	1											
CHKD: <i>RCP</i>	2											
	3											

PIPING LINE SPECIFICATION																	
DESIGN CODE: ASME B.31.1							SPEC.(S): SP-G375A							LINE NO. 90D-1			
DATE/ADDENDA: 2004							PROJECT: KRSKO NUCLEAR POWER PLANT							MATERIAL: STAINLESS ST. 7			
							WELD END DETAIL DWG. D-301-001							ISSUED/REV 27.12.07/0			
SERVICE																	
FLASHING, EROSION WATER, WET STEAM																	
MAX 90°																	
Temp F							100	200	300	400	500	600	650	700	750	800	850
Press PSIG							1800	1520	1360	1240	1145	1080	1050	1030	1010	985	965
AFTER BENDING							1800	1520	1360	1240	1145	1080	1050	1030	1010	985	965

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/ CLASS	GRADE	SUPPL REQMTS			
PIPING	2 & SMLR	80S	A-312	316L	-	-	SW	ANSI B36.19M	SEAMLESS
	2 1/2-8	80S	A-312	316L	-	-	BW	ANSI B36.19M	SEAMLESS
WELDING FITTINGS	2 & SMLR	3000 LB	A-182	-	F316L	-	SW	ANSI B16.11	
	2 1/2-8	80S	A-182	-	F316L	-	BW	ANSI B16.9	(4)
	2 1/2-8	80S	A-403	-	WP316L	-	BW	ANSI B16.9	(4)
BRANCH CONN.	2 & SMLR	3000 LB	A-182	-	F316L	-	SW	ANSI B16.11	(2)
	2 1/2-8	80S	A-403	-	WP316L	-	BW	ANSI B16.9	(2)
FLANGES	2 & SMLR	600 LB	A-182	-	F316L	-	SW	ANSI B16.5	(5)
	2 1/2-8	600 LB	A-182	-	F316L	-	BW	ANSI B16.5	(5)

LINE NO. 90D-1
ISSUED / REV. 27.12.07/0

MATERIAL							STRESS ALLOWABLE, PSI x 1000									
TEMPERATURE, F							-20	100	200	300	400	500	600	650	700	
ASTM - A312TP316L							15.7	15.7	13.3	11.9	10.8	10.0	9.4	9.2	9.0	
ASTM - A182Gr.316L							15.7	15.7	13.3	11.9	10.8	10.0	9.4	9.2	9.0	
ASTM - A403WP316L							15.7	15.7	13.3	11.9	10.8	10.8	9.4	9.2	9.0	

NOTES

- 2) Branch Connections
 - a) 2in. & smaller – socket, nipple or equal, or half-coupling shaped and welded to outside of pipe in accordance with ASME B31.1
 - b) connection same size as header-weldolet or equal, or tee fitting
 - c) others-weldolet, sweepolet or equal; or tee fitting
 - d) extruded outlets may be substituted where they meet the requirements of ASME B31.1
- 4) Fittings
Elbows shall be long radius unless indicated otherwise on drawings
- 5) Flange drilling shall conform to ANSI B16.5
- 7) Material
Stainless Steel Piping specified in this Spec. sheet have purpose to support maintenance activities on piping replacement because of erosion / corrosion damages on the existing A106Gr.B piping. The condition of the piping system and support / restraint scheme shall be determined by field inspections and the examinations of maintenance records, manufacturer's certifications, and / or other available information to ensure conformance with the Code requirements for the new design conditions.
- 90) Pressure-Temperature ratings on 600 Lb Stainless Steel per ANST B16.5a-2003

APPROVAL MADE: <u>NeK</u> CHKD: <u>SG</u>	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
	1				1				1			
	2				2				2			
	3				3				3			

PARSONS POWER																		
PIPING LINE SPECIFICATION																		
DESIGN CODE ANSI B31.1					SPEC.(S):SP-G375A W.O.: 536633-00036										LINE NO. 150Q-1			
DATE/ADDENDA 1995					PROJECT: KRSKO NUCLEAR POWER PLANT										MATERIAL CARBON STL			
WELD END DETAIL DWG. D-301-001																		
ISSUED/REV 11-1-96/0																		
SERVICE																		
LOW TEMP. SERVICE - WATER, AIR, GASES																		
MAX																		
Temp °F					-20	100	150	200	250	300	350	400	450	500	550	600	650	
Press PSIG					3600	3600	3550	3500	3450	3415	3375	3330	3255	3125	2955	2770	2580	
AFTER BENDING					3600	3600	3550	3500	3450	3415	3375	3330	3255	3125	2955	2770	2580	

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/ CLASS	GRADE	SUPPL REQMTS			
PIPING	1/2 & SMLR	80	A-333	-	6	-	SW	ANSI B36.10	SEAMLESS (12)
	3/4-1	160	A-333	-	6	-	SW	ANSI B36.10	SEAMLESS (12)
	1 1/2-2	XXS	A-333	-	6	-	SW	ANSI B36.10	SEAMLESS (12)
	2 1/2-3	XXS	A-333	-	6	-	BW	ANSI B36.10	SEAMLESS (12)
	4-24	SPECIAL WALL	A-333	-	6	-	BW	ANSI B36.10	SEAMLESS (12)
WELDING FITTINGS	1/2 & SMLR	3000 LB	A-350	-	LF2	-	SW	ANSI B16.11	SCH. 80
	3/4-1	6000 LB	A-350	-	LF2	-	SW	ANSI B16.11	SCH. 160
	1 1/2-2	9000 LB	A-350	-	LF2	-	SW	ANSI B16.11	SCH. XXS
	2 1/2-3	EQUAL TO PIPE	A-420	-	WPL6	-	BW	ANSI B16.9	
	4-24	SPECIAL WALL	A-420	-	WPL6	-	BW	ANSI B31.1	
FLANGED	2 & SMLR	1500 LB	A-350	-	LF2	-	-	ANSI B16.5	SOCKET WELDING
	2 1/2-24	1500 LB	A-350	-	LF2	-	-	ANSI B16.5	WELDING NECK
BRANCH CONN.	2 & SMLR	EQUAL TO FITTINGS	A-350	-	LF2	-	SW	-	(2), (3)
	2 1/2-24	EQUAL TO PIPE	A-350	-	LF2	-	BW	-	(2)
VALVES	2 & SMLR	1500 LB	A-350	-	LF2	-	SW	ANSI B16.34	
BOLTS & STUDS	2 1/2-24	1500 LB	A-352	-	LCB	-	BW	ANSI B16.34	
NUTS									
GASKETS									
UNIONS									

LINE NO.

150Q-1

ISSUED/REV

11-1-96/0

MATERIAL

STRESS ALLOWABLE, psi X 10³

TEMP.,	F				-20	100	150	200	250	300	350	400	450	500	550	600	650
ASTM	A-333-GR6				15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
ASTM	A-350-LF2				17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
ASTM	A-420-WPL6																
ASTM	A-352-LCB				16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2

NOTES

- 1) GASKETS
SPIRAL WOUND SS WITH FLEXICARB FILLER,
FLEXITALLIC TYPE CG OR EQUAL
- 2) BRANCH CONNECTIONS
 - a) 2 IN. AND SMALLER-SOCKOLET, NIPOLET OR
EQUAL; OR HALF-COUPLING SHAPED AND
WELDED TO OUTSIDE OF PIPE IN
ACCORDANCE WITH ANSI B31.1 PARA
104.3.1.C2
 - b) 2 1/2 TO 8 IN (FOR HEADERS 10 IN. OR LESS) -
SHAPED PIPE NIPPLE WELDED TO OUTSIDE OF
PIPE IN ACCORDANCE WITH ANSI B31.1 PARA.
104.3.1.D
 - c) CONN. SAME SIZE AS HEADER-WELDOLET OR
EQUAL; OR TEE FITTING
 - d) OTHERS-WELDOLET, SWEEPOLET OR EQUAL;
OR TEE FITTING
 - e) EXTRUDED OUTLETS MAY BE SUBSTITUTED
WHERE THEY MEET THE REQUIREMENTS OF
ANSI B31.1 PARA. 104.3.1.B3 AND 104.3.1.G
- 3) INSTRUMENT CONNECTIONS-SOCKOLET,
NIPOLET, OR EQUAL; OR HALF-COUPLING
SHAPED AND WELDED TO OUTSIDE OF PIPE
IN ACCORDANCE WITH ANSI B31.1 PARA.
104.3.1.C2.
- 12) PIPING MAY BE SEAMWELDED WITH 100%
RADIOGRAPHY AS REQUIRED BY ANSI B31.1
- 15) VALVE MATERIAL AND RATING ARE FOR
REFERENCE ONLY.
- 90) P-T RATINGS BASED ON 1500 LB FLANGE
PER ANSI B16.5a-92

APPROVAL

MADE: V.V.CHKD: RCP

REVISIONS

NO.	MADE	CHKD	QA
1			
2			
3			

REVISIONS

NO.	MADE	CHKD	QA

REVISIONS

NO.	MADE	CHKD	QA

PARSONS POWER																	
PIPING LINE SPECIFICATION																	
DESIGN CODE ANSI B31.1			SPEC.(S):SP-G375A W.O.: 536633-00036										LINE NO.		150T-1		
DATE/ADDENDA 1995			PROJECT: KRSKO NUCLEAR POWER PLANT										MATERIAL		STAINLESS		
			WELD END DETAIL DWG. D-301-001										ISSUED/REV		11-1-96/0		
SERVICE																	
INSTRUMENT TUBING, SAMPLING TUBING																	
MAX																	
Temp °F			-20	100	150	200	250	300	350	400	450	500	550	600	650	700	750
Press PSIG			3085	3085	2915	2740	2605	2470	2360	2245	2150	2055	1985	1910	1845	1775	710
AFTER BENDING			3085	3085	2915	2740	2605	2470	2360	2245	2150	2055	1985	1910	1845	1775	710

MATERIAL DESCRIPTION

ITEM	SIZE(S)	SCH, NOM WALL, RATING	ASTM SPECIFICATION				JOINT TYPE	DIM STDS	REMARKS (See Page 2)
			NO.	TYPE/CLASS	GRADE	SUPPL REQMTS			
TUBING	1/4 OB	0.065	A-213	-	TP304	S1	SW	ASTM A-450	ANNEALED
	3/8 OD	0.065	A-213	-	TP304	S1	SW	ASTM A-450	ANNEALED
	1/2 OB	0.065	A-213	-	TP304	S1	SW	ASTM A-450	ANNEALED
	5/8 OD	0.065	A-213	-	TP304	S1	SW	ASTM A-450	ANNEALED
	3/4 OD	0.065	A-213	-	TP304	S1	SW	ASTM A-450	ANNEALED
WELDED FITTINGS	1/4 - 3/4	EQUAL TO TUBING	A-403	-	WP304	-	SW	MFR.STD.	SWAGELOK OR EQUAL
VALVES	1/4 - 3/4	1500 LB	A-182	-	F304	-	SW	MFR. STD.	
SWAGED FITTING	1/4 - 3/4	EQUAL TO TUBING	-	-	-	-	-	MFR. STD.	SWAGELOK, GYROLOK OR EQUAL

LINE NO.										150T-1									
ISSUED/REV										11-1-96/0									
MATERIAL										STRESS ALLOWABLE, psi X 10 ³									
TEMP.,	F									-20	100	200	300	400	500	600	650	700	750
A-213-TP304 TUBE										18.7	18.7	15.6	14.0	12.9	12.1	11.4	11.2	11.0	10.8

NOTES

15) VALVE MATERIAL AND RATING ARE FOR REFERENCE ONLY.

90) P-T RATINGS BASED ON 1500 LB 304 STAINLESS STEEL PER ANSI B16.5a-92

APPROVAL	REVISIONS				REVISIONS				REVISIONS			
	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA	NO.	MADE	CHKD	QA
MADE: <u>V.V.</u>	1											
CHKD: <u>PCP.</u>	2											
	3											

07-10-17/1

CLASS 200 – POLYETHYLENE – SDR9 – Underground Fire Protection

[illegible]

MATERIAL	STRESS ALLOWABLE, PSIx1000														
PIPING: Polyethylene															
TEMPERATURE °F															

NOTES

4.	Fittings shall have the same pressure rating as pipe to which the fitting is joined. Molded fittings shall be used in all applications. It is recommended that all pipe and fittings shall be requirements and stamped as such.
7.	Piping and fitting material shall have a cell classification of 345434C in accordance with ASTM D-3350.
14a	Butt fusion or electrical fusion joints shall be made by heat fusion in accordance with the manufacturer's instructions.
14b	Mechanical joints are made using polyethylene flange adapters and backup rings.
20.	Valve materials are to be selected by the engineer based on fluid properties. All valves to be approved by Underwriter's Laboratories, Inc. and Factory Mutual Engineering Division except for those fabricated according to note 21.
21.	Pipes, Fittings, Valves and Hydrants are acceptable to be manufactured according to Slovenian Codes and Standards
30.	If applicable, pipe must be checked for internal vacuum, water hammer, and thermal stress as recommended by the manufacturer.
50.	Pipe may be cold bent to a minimum radius of 25 times the pipe outside diameter. If fittings are present in the bend, consult the manufacturer for the minimum bend radius.
51	Bedding, backfill and minimum cover shall comply with pipe manufacturer's recommendations.
*	PE pipes nominal diameters justified by calculation XCALC-P-FP-001.
**	Saddle fusion joint shall be qualified in accordance with ASTM F905

PREPARED BY /A/E/: NEK		REVISIONS				
		NO.	MADE	CHECKED	APPROVED	DATE
MADE:	DATE:	1	M. DEKOLJ	S. LAJTMAN	D. LAPEZ	10.07.2017
CHECKED:	DATE:					
APPROVED:	DATE:					