Foster Wheeler USA Corporation

Contract N.: 1310087902
Client: Valero Refining Company - Texas
Location: Texas City, Texas
Project: Valero Refinery Reconfiguration (TCRR)

Piping Material Specification
Spec. No. : 10087902-SP-50-03
Class : AM1A

Client Ref.	Rev. No.	Issue Date	Page
VALERO	1	03 Jun 02	1
Compared with:	0	28 Feb 02	

Appr. by: L.SMITH
Issued for : E
Issued by: T.WILLIAMSON
Checked by:T.WILLIAMSON

Service:
DRY CHLORINE.
(FOR BRANCH CONNECTIONS SEE ATTACHMENT "A")

Gaskets :	Rating/Facing :	Corrosion :	Facing Finish :		
SPIRAL WOUND MONEL/GRAPHITE	CL150 RF	0.030" (0.75MM)	ASME B16.5		
			Block Valve Trim :	**Weld Quality Insp :**	**Stress Relief :**
			API TRIM No. 9 (MONEL TRIM)	PER JOB SPEC SP-90-02	NO

Materials :
MONEL PIPING & VALVES (SEE GENERAL NOTES 1 THRU 14)

Temp/Press Limits :
175 PSIG AT 100F ; 175 PSIG AT 150F (See Note 3)

Item Name / Unique/Client* Code	Range from	Range to	Det	Rev
NEEDLE VALVE	**1/2"**	**1-1/2"**	**NED**	
517NQ0001				

Body Mat'l : MONEL ASTM B564 UNS N04400
Codes : ASME B16.34
Body constr. : BOLTED BONNET
Rating : 800#
Ends : S.W.
Trim constr. : NEEDLE TYPE, O.S. & Y.
Trim Mat'l : API TRIM N.9 (MONEL TRIM)
Bolt Mat'l : PER API STANDARD 602.
Gasket Mat'l : PER API STANDARD 602.
Packing : GRAPHITE PACKING .
Note : GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9
Operator : HANDWHEEL

* Client codes only, not including sizes

Continue....

BALL VALVE **1/2"** **1-1/2"** **BAL**
517BA0001

Body Mat'l : MONEL ASTM B564 UNS N04400
Codes : ASME B16.34 / API 607
Body constr. : REDUCED BORE, SHORT PATTERN
Rating : **150#**
Ends : **RF**
Face finish : ASME B16.5
Trim constr. : FLOATING BALL, FIRESAFE DESIGN, ANTISTATIC DEVICE, ANTI-BLOW OUT STEM
Trim Mat'l : MONEL 400 BALL, RTFE SEATS,
Bolt Mat'l : PER API STANDARD 602.
Gasket Mat'l : FLAT RING GRAPHOIL
Packing : GRAPHITE PACKING .
Note : GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9
Operator : LEVER

PIPE A/G **1/2"** **1-1/2"** **SCH. 40S** **PIP**
544SG0001

Material : MONEL ASTM B165 ANNEALED
Manufact. : SMLS
Codes : ASME B36.10
Note : PIPE SHALL COMPLY WITH JOB SPEC 52A2
Ends : **P.E.**

FLANGE **1/2"** **1-1/2"** **SCH. 40S** **FLG**
564NQ0002

Type : S.W.
Material : MONEL ASTM B564 UNS N04400 ANNEALED
Codes : ASME B16.5
Rating : **150#**
Ends : **RF**
Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2

FLANGE **1/2"** **1-1/2"** **SCH. 40S** **FL1**
564NQ0001

Type : S.W.
Material : MONEL ASTM B564 UNS N04400 ANNEALED
Codes : ASME B16.5
Rating : **150#**
Ends : **RF**
Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2

* Client codes only, not including sizes

Continue....

BLIND FLANGE **1/2"** **1-1/2"** **FBL**
564BQ0002

Material : MONEL ASTM B564 UNS N04400 ANNEALED
Codes : ASME B16.5
Rating : 150#
Ends : RF
Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2

BLIND FLANGE **1/2"** **1-1/2"** **FB1**
564BQ0001

Material : MONEL ASTM B564 UNS N04400 ANNEALED
Codes : ASME B16.5
Rating : 300#
Ends : RF
Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2

90 ELBOW **1/2"** **1-1/2"** **90E**
554HP0002

Material : MONEL ASTM B366 WPNC ANNEALED
Component : 90 DEGREES ELBOWS
Codes : ASME B16.11
Rating : 3000#
Ends : S.W.
Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

45 ELBOW **1/2"** **1-1/2"** **45E**
554HP0001

Material : MONEL ASTM B366 WPNC ANNEALED
Component : 45 DEGREES ELBOWS
Codes : ASME B16.11
Rating : 3000#
Ends : S.W.
Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

CAP **1/2"** **1-1/2"** **CAP**
554HP0003

Material : MONEL ASTM B366 WPNC ANNEALED
Component : CAP
Codes : ASME B16.11
Rating : 3000#
Ends : S.W.
Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

* Client codes only, not including sizes

Continue....

TEE **1/2"** **1-1/2"** **TEE**
554HP0006

Material : MONEL ASTM B366 WPNC ANNEALED
Component : TEE
Codes : ASME B16.11
Rating : 3000#
Ends : S.W.
Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

RED.TEE **1/2"** **1-1/2"** **TER**
554FP0001

Material : MONEL ASTM B366 WPNC ANNEALED
Component : REDUCER TEE
Codes : ASME B16.11
Ends : S.W.
Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2
Rating : 3000#

CONC.SWAGE **1/2"** **1-1/2"** **SCH. 40S** **CSA**
554SO0001

Material : MONEL ASTM B165 SMLS ANNEALED
Component : CONCENTRIC SWAGE
Codes : MANUFACTURED TO ASTM B366
Manufact. : SMLS
Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2
Ends : P.E.

ECC.SWAGE **1/2"** **1-1/2"** **SCH. 40S** **ESA**
554SO0002

Material : MONEL ASTM B165 SMLS ANNEALED
Component : ECCENTRIC SWAGE
Codes : MANUFACTURED TO ASTM B366
Manufact. : SMLS
Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2
Ends : P.E.

FULL CPLG. **1/2"** **1-1/2"** **CPL**
554HP0004

Material : MONEL ASTM B366 WPNC ANNEALED
Component : FULL COUPLING
Codes : ASME B16.11
Rating : 3000#
Ends : S.W.
Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

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Continue....

UNION **1/2"** **1-1/2"** **GRO**
554HP0005

Material : MONEL ASTM B366 WPNC ANNEALED
Component : UNION, GROUND JOINT, INTEGRAL SEATS
Codes : MSS SP83
Rating : **3000#**
Ends : **S.W.**
Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

STUD BOLTS **1/2"** **4"** **STU**
572SC0002

Material : ASTM A193 GR.B7 / WITH (2) HEAVY HEX NUTS ASTM A194 GR.2H
Thr'd Code : ANSI B18.2.1 & B18.2.2
Note : BOLTING SHALL COMPLY WITH JOB SPEC 52A3

GASKET **1/2"** **1-1/2"** **GAS**
574SA0022

Material : SPIRAL WOUND MONEL/GRAPHITE
Codes : DIMENSIONS PER ASME B16.20
Thickness : 3.2 MM (1/8")
Rating : **150#**
Ring Out/In : 3.2 MM (1/8") THK. OUTER C.S. RING
Note : GASKETS SHALL COMPLY WITH JOB SPEC 52A3. GASKETS TO BE SUPPLIED W/O TAPE, STRING OR OTHER WRAPPING AROUND SPIRAL WINDING.
Ends : **RF**

GASKET **1/2"** **1-1/2"** **GAS1**
574SA0023

Material : SPIRAL WOUND MONEL/GRAPHITE
Codes : DIMENSIONS PER ASME B16.20
Thickness : 3.2 MM (1/8")
Rating : **300#**
Ring Out/In : 3.2 MM (1/8") THK. OUTER C.S. RING
Note : GASKETS SHALL COMPLY WITH JOB SPEC 52A3. GASKETS TO BE SUPPLIED W/O TAPE, STRING OR OTHER WRAPPING AROUND SPIRAL WINDING.
Ends : **RF**

General Notes:
1.) Use Extended Body Gate Valves, Threaded Outlet, For Branches Not In Process Flow (Such As Vent, Drain, PI, Orifice Taps, Etc. Connections). Piping Downstream, If Any, Shall Usually Be In Accord With The Applicable Instrument Piping Material Specification. If No Piping, Insert A Plug In The Threaded Outlet. Other Valves, Such As SW x T Should Only Be Used When Spaced Restrictions Are Encountered.

2.) Check Valves When Installed In The Horizontal Position Shall Be Bonnet Cover Up & Those Install In The Vertical Position Shall Be Flow Up Only.

* Client codes only, not including sizes

Continue....

3.) Typical Hydrotest Limiting Factor Is 1.5 x ASME Class Rating Cold Working Pressure Exception To This Include:
* 1.1 x CWP For Closed Valves (Test Against Seat. This Method Is Not Preferred.)
* Check Manufactures Data For Ball Valves.

4.) All Fabrication Shall Comply With 52A1.

5.) Pipe Supports And Spring Hangers Shall Comply With 59A2 And 59A3 Respectively.

6.) 'BEP' Nipples Shall Be Cut From Pipe.

7.) The Crotch Thickness Of The Branch Outlet Of Buttweld Tees Shall Be No Less Than 150% Of The Nominal Wall Thickness Of The Tee. The Crotch Radius Of The Branch Outlet Of Buttweld Tees Shall Be No Less Than 12.5% Of The Branch Outlet OD.

8.) Use Union Or Coupling To Join Pipe. Flanged Joint To Be Used Only Where Indicated On EFD'S.

9.) Couplings Shall Not Be Used For Branch Connections Use Inline Only.

10.) Flanges Shall Not Be Insulated.

11.) Temperature Instrument Connection Shall Be NPS 1-1/2" Flanged.

12.) Pressure Instrument Connection Shall Be NPS 3/4" Socket-weld.

13.) Branch Connections Should Follow The Guidlines Of Job Spec 52B2 And The Attachment Unless Specifically Overriden By The Pipe Stress Engineer.

14.) Remove Temporary Strainers After Flushing.

END OF DOCUMENT

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Class: AM1A

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Compared with:			

Contract #: 1310087902
Client: Valero Refining Company - Texas
Location: Texas City, Texas
Project: Valero Refining Reconfiguration (TCRR)

ATTACHMENT "A"

REINFORCEMENT CHART

APPLICABLE TO PIPE SPECIFICATION (S) : AM1A

MATERIAL (S) : | P/SE : | C.A. : NONE

DESIGN LIMIT (S) : 175 PSIG AT 100 F

NOM. SIZE	NOM. THICK.	NOMINAL SIZE OF BRANCH CONNECTION (INCHES)																			
		1/2	3/4	1	1 1/2	2	3	4	6	8	10	12	14	16	18	20	24				
1/2	40S	T																			
3/4	40S	RT	T																		
1	40S	RT	RT	T																	
1 1/2	40S	RT	RT	RT	T																
2																					
3																					
4																					
6																					
8																					
10																					
12																					
14																					
16																					
18																					
20																					
24																					

NOTE : FOR FABRICATION DETAILS AND CALCULATED WALL SEE ENGINEERING STANDARD 52B2

LEGEND :

T = TEE
RT = REDUCING TEE
RE = TEE AND REDUCER OR REDUCING INSERT
SK = SOCKOLET, SW ELBOLET OR LATROLET
TH = THREDOLET, THD ELBOLET OR LATROLET
W = WELDOLET, BW ELBOLET OR LATROLET
LW = LONG WELD NECK FLANGE
TB = TEE AND BUSHING
CA = CALCULATE
F1 = STUB IN WITH 3/8" FILLET WELD
P2 = STUB IN WITH 2" WIDE PAD (PAD TO BE SAME THICKNESS AS RUN SIZE)
P3 = STUB IN WITH 3" WIDE PAD (PAD TO BE SAME THICKNESS AS RUN SIZE)
P4 = STUB IN WITH 4" WIDE PAD (PAD TO BE SAME THICKNESS AS RUN SIZE)
P5 = STUB IN WITH 5" WIDE PAD (PAD TO BE SAME THICKNESS AS RUN SIZE)
P6 = STUB IN WITH 6" WIDE PAD (PAD TO BE SAME THICKNESS AS RUN SIZE)
P7 = STUB IN WITH 7" WIDE PAD (PAD TO BE SAME THICKNESS AS RUN SIZE)

NOTE : ANY SITUATION NOT COVERED BY THE ABOVE CHART SHOULD BE BROUGHT TO THE ATTENTION OF THE ASSIGNED PIPING ENGINEER.