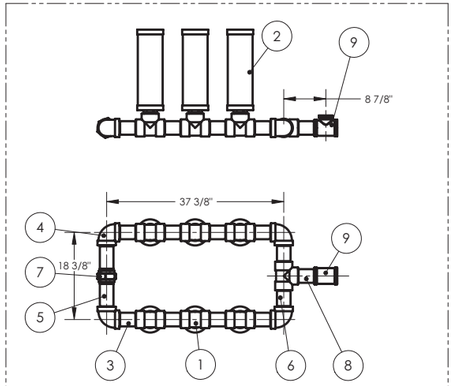
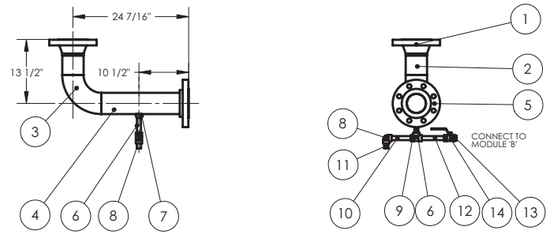
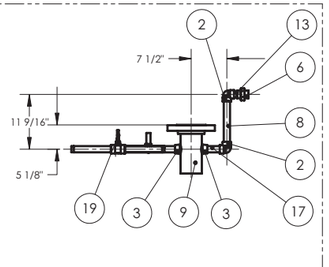


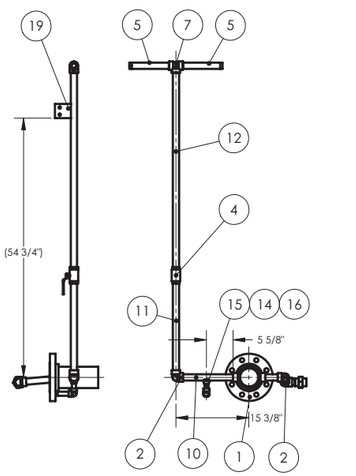
MODULE A
SCALE 1 : 16



MODULE C
SCALE 1 : 16

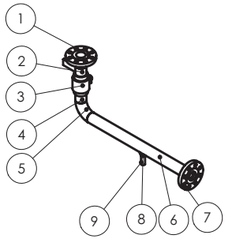
QTY=1 AS SHOWN
QTY=1 OPP. HAND

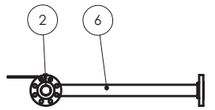


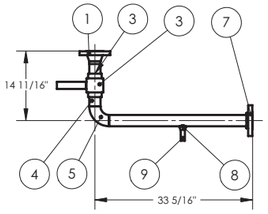


MODULE B
SCALE 1 : 16

QTY=1 AS SHOWN
QTY=1 OPP. HAND

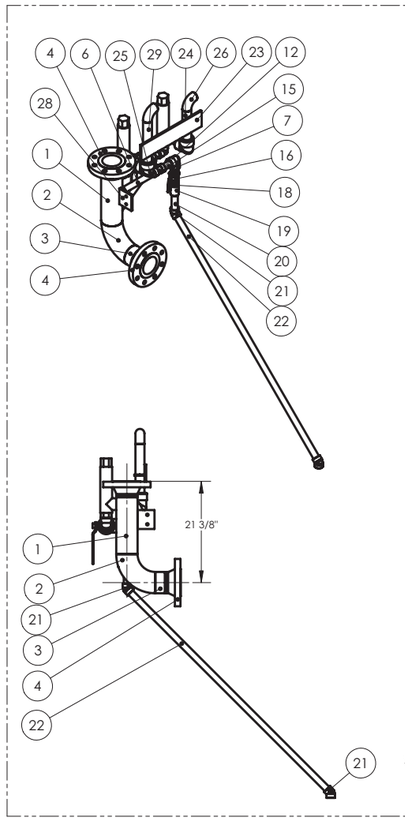


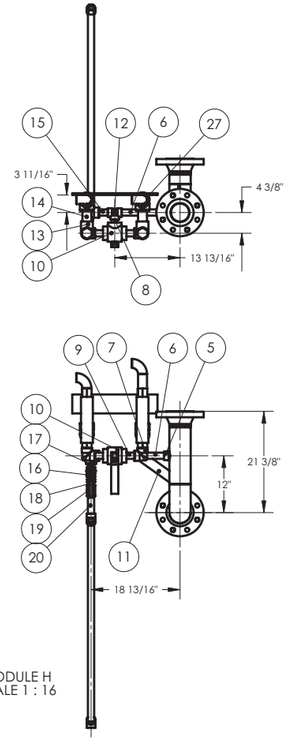




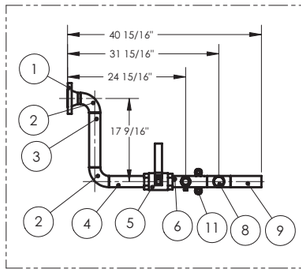
MODULE D
SCALE 1 : 16

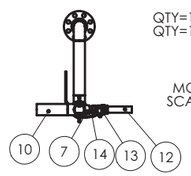
QTY=1 AS SHOWN
QTY=1 OPP. HAND





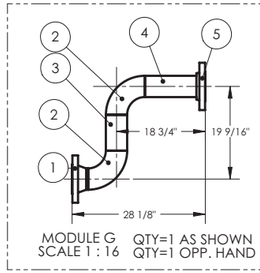
MODULE H
SCALE 1 : 16





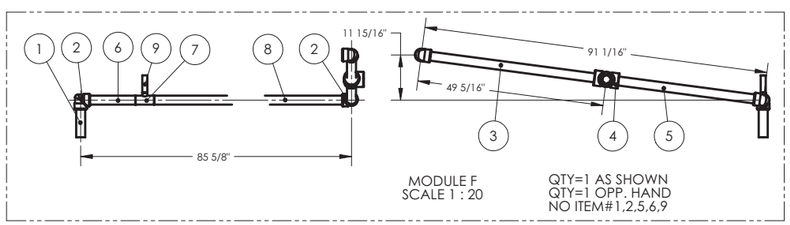
QTY=1 AS SHOWN
QTY=1 OPP. HAND

MODULE E
SCALE 1 : 16



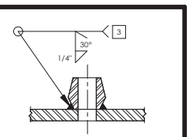
MODULE G
SCALE 1 : 16

QTY=1 AS SHOWN
QTY=1 OPP. HAND



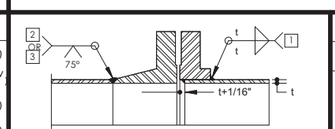
MODULE F
SCALE 1 : 20

QTY=1 AS SHOWN
QTY=1 OPP. HAND
NO ITEM#1,2,5,6,9



WELD PROCEDURES

1	609.2-S-170	(SMAW)
2	609.2-S-140	(GMAW / SMAW)
3	609.2-S-94-1	(SMAW)
4	609.2-S-161	(SMAW)



TYPICAL WELD DETAIL

PRESSURE PIPING SYSTEM DESIGN DATA (CODE-ANSI/ASME B31.3 2002 EDITION)

PROCESS	DESIGN PRESS. PSI (kPa)	DESIGN TEMP. °F (°C)	TEST PRESS. PSI (kPa)	TEST MEDIUM	MATERIAL SPEC. AND GRADE	PIPE DIAMETER AND SCHEDULE	FLANGE RATING	R.T. %
CO2	385 (2654)	115°/-40° (46°/-40°)	578 (3985)	H2O	SA350 LF2 SA333 GR6	2" SCH STD 2" SCH XH 4" SCH STD 4" SCH XH	CL 300#	5 %

SHOP NOTES:

1) FOR BUTT WELDING PIPE SCH. STD TO XH TOGETHER, GRIND THE XH PIPE OR FITTING WITH A 3:1 TAPER INSIDE.
2) ALL THREADED CONNECTIONS TO BE SCH 80 OR XH.
3) SHOP TO ADJUST PIPE LENGTH ON WELDED PIPING TO ALLOW FOR SHRINKAGE.
4) USE WELD PROCEDURE #4 FOR WELDING STAINLESS STEEL BALL VALVES TO CARBON STEEL.

MODULE F

QTY=1 AS SHOWN
QTY=1 OPP. HAND NO ITEM 1,2,5,6,9

ITEM NO.	PART NO	QTY.	U.M.	DESCRIPTION	COMMENTS
1	51552	0.7	FT	PIPE 2" XH SMLS SA106B TBE	1 PCS 8" LG
2	18615092	3	EA	ELBOW 90 2 NPT 2000# SA105	
3	51552	3.8	FT	PIPE 2" XH SMLS SA106B TBE	1PCS 45" LG
4	51695	1	EA	TEE 2 NPT 2000# SA 105	
5	51552	3.2	FT	PIPE 2" XH SMLS SA106B TBE	1PCS 37 3/8" LG
6	51552	1.1	FT	PIPE 2" XH SMLS SA106B TOE/BOE	1 PCS 12 11/16 LG
7	67074	1	EA	TEE WELD RED 2 X 2 X 1 XH SA234 WPB	
8	51552	5.4	FT	PIPE 2" XH SMLS SA106B BOE/TOE	1 PCS 64 7/16 LG
9	51545	0.4	FT	PIPE 1" XH SMLS SA 106B	1 PCS 4 1/2" LG

MODULE G

QTY=1 AS SHOWN
QTY=1 OPP. HAND

ITEM NO.	PART NO	QTY.	U.M.	DESCRIPTION	COMMENTS
1	53809	1	EA	FLG 4 CL300 RFWN XH BORE SA105N	
2	53802	2	EA	ELBOW WELD 90 LR 4 STD SA234 WPB BBE	
3	51563	0.7	FT	PIPE 4" STD SMLS SA 106B BBE	1 PCS 7-9/16" LG
4	51563	1.0	FT	PIPE 4" STD SMLS SA 106B BOE/POE	1 PCS 12" LG
5	65369	1	EA	FLG 4 CL300 RFSO SA105N	

MODULE A

ITEM NO.	PART NO	QTY.	U.M.	DESCRIPTION	COMMENTS
1	REF.	6	EA	TEE 4 NPT 2000# SA105 (MOD. TO SO-THD-SO)	
2	REF.	6	EA	4" MUFFLER (AUTOMUFFLER)	
3	51563	3.9	FT	PIPE 4" STD SMLS SA 106B	8 PCS 5 3/4" LG
4	REF.	4	EA	ELBOW 90 4 NPT 2000# SA105 (MOD. TO SO-SO)	
5	51563	1.2	FT	PIPE 4" STD SMLS SA 106B	2 PCS 7" LG
6	51563	1.0	FT	PIPE 4" STD SMLS SA 106B	2 PCS 5 3/4" LG
7	REF.	1	EA	UNION SCRD 4" NPT SA105	
8	51563	0.5	FT	PIPE 4" STD SMLS SA 106B	1 PCS 5 3/4" LG
9	REF.	1	EA	TEE RAD 4 X 4 X 2 STD SA234WPB	

MODULE B

QTY=1 AS SHOWN
QTY=1 OPP. HAND

ITEM NO.	PART NO	QTY.	U.M.	DESCRIPTION	COMMENTS
1	65369	1	EA	FLG 4 CL300 RFSO SA105N	
2	18615060	2	EA	ELBOW 90 1 NPT 3000# SA105	
3	63794	2	EA	THREDOLET 1 3000# X 5-4 RUN SA105	
4	18120181	1	EA	VALVE BALL 1" F PORT 83-105-01	
5	51545	1.5	FT	PIPE 1" XH SMLS SA 106B TOE/CUT OTHER END AT 45 DEG	2 PCS 9" LG
6	18640061	1	EA	UNION SCRD 1 3000# SA105	
7	51692	1	EA	TEE 1 NPT 2000# SA 105	
8	51545	0.8	FT	PIPE 1" XH SMLS SA 106B TBE	1 PCS 9-1/8" LG
9	51564	0.8	FT	PIPE 4" XH SMLS SA 106B TOE/POE	1 PCS 9 1/2" LG
10	51545	1.0	FT	PIPE 1" XH SMLS SA 106B TBE	1 PCS 11 15/16" LG
11	51545	1.7	FT	PIPE 1" XH SMLS SA 106B TBE	1 PCS 19 11/16" LG
12	51545	3.6	FT	PIPE 1" XH SMLS SA 106B TBE	1 PCS 42 3/8" LG
13	53975	1	EA	NIPPLE 1MNPT X 2 XH SMLS SA106B	
14	68681	1	EA	THREDOLET 1/2" 3000# x 1 RUN SA105	
15	68695	1	EA	ELBOW STREET 90 1/2" 3000#	
16	68181	1	EA	VALVE HYDROSTATIC RLF 1/2" 450 PSI F/CO2	
17	51658	1	EA	NIPPLE 1MNPT X 4 XH SMLS SA 106B	
19	51422	0.3	FT	BAR FLAT 3/8" X 3" 44W	1 PCS 3 3/8" LG

MODULE C

QTY=1 AS SHOWN
QTY=1 OPP. HAND

ITEM NO.	PART NO	QTY.	U.M.	DESCRIPTION	COMMENTS
1	53809	1	EA	FLG 4 CL300 RFWN XH BORE SA105N	
2	51563	0.4	FT	PIPE 4" STD SMLS SA 106B BBE	1 PCS 4-1/8" LG
3	53802	1	EA	ELBOW WELD 90 LR 4 STD SA234 WPB BBE	
4	51563	1.5	FT	PIPE 4" STD SMLS SA 106B BOE/POE	1 PCS 17-11/16" LG
5	65369	1	EA	FLG 4 CL300 RFSO SA105N	
6	18620421	1	EA	NIPPLE 1/2MNPT X 4 XH SMLS SA106B	
7	18660380	1	EA	THREDOLET 1/2 3000# X 4 RUN SA105	
8	18615040	1	EA	ELBOW 90 1/2 NPT 2000# SA105	
9	18635040	1	EA	TEE 1/2 NPT 2000# SA105	
10	66683	1	EA	NIPPLE 1/2MNPT X 5 XH SMLS SA106B	
11	68181	1	EA	VALVE HYDROSTATIC RLF 1/2" 450 PSI F/CO2	
12	66683	1	EA	NIPPLE 1/2MNPT X 5 XH SMLS SA106B	
13	18630040	1	EA	PLUG HEX HEAD 1/2 NPT SA105	
14	(67845)	1	EA	VALVE BALL 1/2" SS/NPT	

MODULE D

QTY=1 AS SHOWN
QTY=1 OPP. HAND

ITEM NO.	PART NO	QTY.	U.M.	DESCRIPTION	COMMENTS
1	54686	1	EA	FLG 2 CL300 RFWN XH BORE SA105N	
2	51551	0.3	FT	PIPE 2" STD SMLS SA 106B BOE/POE	1 PCS 2-3/4" LG
3	(67153)	1	EA	VALVE BALL 2" SW FP VENTED EMICO	
4	51551	0.3	FT	PIPE 2" STD SMLS SA 106B BOE	1 PCS 2-5/8" LG
5	51629	1	EA	ELBOW WELD 90 LR 2 STD SA234 WPB BBE	
6	51551	2.5	FT	PIPE 2" STD SMLS SA 106B BOE/POE	1 PCS 29-1/2" LG
7	56001	1	EA	FLG 2 CL300 RFSO SA105N	
8	67826	1	EA	THREDOLET 1/2 3000# X 2 RUN SA105	
9	68181	1	EA	VALVE HYDROSTATIC RLF 1/2" 450 PSI F/CO2	

MODULE E

QTY=1 AS SHOWN
QTY=1 OPP. HAND

ITEM NO.	PART NO	QTY.	U.M.	DESCRIPTION	COMMENTS
1	54686	1	EA	FLG 2 CL300 RFWN XH BORE SA105N	
2	51629	2	EA	ELBOW WELD 90 LR 2 STD SA234 WPB BBE	
3	51551	1.1	FT	PIPE 2" STD SMLS SA 106B BBE	1 PCS 12-1/2" LG
4	51551	0.7	FT	PIPE 2" STD SMLS SA 106B BOE/POE	1 PCS 8-11/16 LG
5	(67153)	1	EA	VALVE BALL 2" SW FP VENTED EMICO	
6	51552	0.9	FT	PIPE 2" XH SMLS SA 106B TOE/POE	1 PCS 11" LG
7	54579	2	EA	THREDOLET 1 3000# X 2 RUN SA105	
8	51691	1	EA	TEE WELD 2 STD SA234 WPB	
9	51551	0.6	FT	PIPE 2" STD SMLS SA 106B BOE/TOE	1 PCS 6-1/2" LG
10	51551	0.6	FT	PIPE 2" STD SMLS SA 106B BBE	1 PCS 6-1/2" LG
11	56694	2	EA	EYE PAD 3/4" ID	
12	51545	0.5	FT	PIPE 1" XH SMLS SA 106B TBE	1 PCS 5 13/16 LG
13	(18120181)	1	EA	VALVE BALL 1" F PORT 83-105-01	
14	53975	1	EA	NIPPLE 1MNPT X 2 XH SMLS SA106B	

MODULE H

ITEM NO.	PART NO	QTY.	U.M.	DESCRIPTION	COMMENTS
1	51564	1.0	FT	PIPE 4" XH SMLS SA 106B BBE	1 PCS 12" LG
2	55889	1	EA	ELBOW WELD 90 LR 4 XH SA234 WPB	
3	51564	0.2	FT	PIPE 4" XH SMLS SA 106B BBE	1 PCS 2" LG
4	53809	2	EA	FLG 4 CL300 RFWN XH BORE SA105N	
5	61145	1	EA	WELDOLET 1 XH X 4 RUN SA105	
6	51545	0.9	FT	PIPE 1" XH SMLS SA 106B TOE/POE	1 PCS 10" LG
7	18615060	3	EA	ELBOW 90 1 NPT 3000# SA105	
8	53975	1	EA	NIPPLE 1MNPT X 2 XH SMLS SA106B	
9	18620561	2	EA	NIPPLE 1MNPT X 3 XH SMLS SA106B	
10	(68767)	1	EA	VALVE BALL 1" 3-WAY SS/FP/NPT ENDS/T-PORT/180 TURN RHINO	
11	51414	0.7	FT	BAR FLAT 3/8" X 2" SA 36/44W	1 PCS 8 1/2" LG
12	18635060	1	EA	TEE 1 NPT 3000# SA105	
13	(65428)	2	EA	VALVE RLF 1 X 1-1/2" PRESSURE (FARRIS)	27EA34-M20@325
14	51549	1.7	FT	PIPE 1-1/2" XH SMLS SA 106B TBE	2 PCS 3 5/8" LG
15	51545	0.3	FT	PIPE 1" XH SMLS SA 106B TBE	1 PCS 3 1/8" LG
16	(18120181)	1	EA	VALVE BALL 1" F PORT 83-105-01	
17	53975	1	EA	NIPPLE 1MNPT X 2 XH SMLS SA106B	
18	53975	1	EA	NIPPLE 1MNPT X 2 XH SMLS SA106B	
19	REF	1	EA	ECONIMIZER (FERUS GAS PROVIDED)	
20	51545	0.5	FT	PIPE 1" XH SMLS SA 106B TBE	1 PCS 5" LG
21	18615063	2	EA	ELBOW 45 1" NPT 2000# SA105	
22	51545	5.0	FT	PIPE 1" XH SMLS SA 106B TBE	1 PCS 60" LG
23	51427	1.5	FT	BAR FLAT 3/8" X 4" SA 36/44W	1 PCS 18" LG
24	51549	0.7	FT	PIPE 1-1/2" XH SMLS SA 106B TOE/BOE	1 PCS 8" LG
25	18615080	2	EA	ELBOW 90 1-1/2 NPT 3000# SA105	
26	61100	2	EA	ELBOW WELD 90 LR 1-1/2 XH SA234 WPB	
27	50427	2	EA	BOLT U 2" PIPE C/W PL & NUTS	
28	51427	0.4	FT	BAR FLAT 3/8" X 4" SA 36/44W	1 PCS 3 5/8" LG
29	51549	1.0	FT	PIPE 1-1/2" XH SMLS SA 106B TOE/BOE	1 PCS 11" LG

REV NO.	DRWN	DATE	CHECKED BY	APPROVED BY	DESCRIPTION
0	JW	06.05.23	DB	.	INITIAL RELEASE

Digitally signed by John Z Wang
Date: 2006.06.16 14:03:12 -06'00'

PIPING MODULES FOR 36,000 USWG 120" ID
CO2 SKIDDED STORAGE VESSEL
FERUS GAS

THIRD ANGLE PROJECTION

TOLERANCES UNLESS NOTED
DECIMAL ANGULAR FRACTION
X.X ±0.100 ±0.5° ±1/16 IF < 10'-0"
X.XX ±0.010 ±1/8 IF > 10'-0"
X.XXX ±0.005

JOB: 31-1544
DRAWING No. 2006-0523D SHEET 1 OF 1
REV 0
SCALE:
P/N: 69605

D PIPING MODUL REV