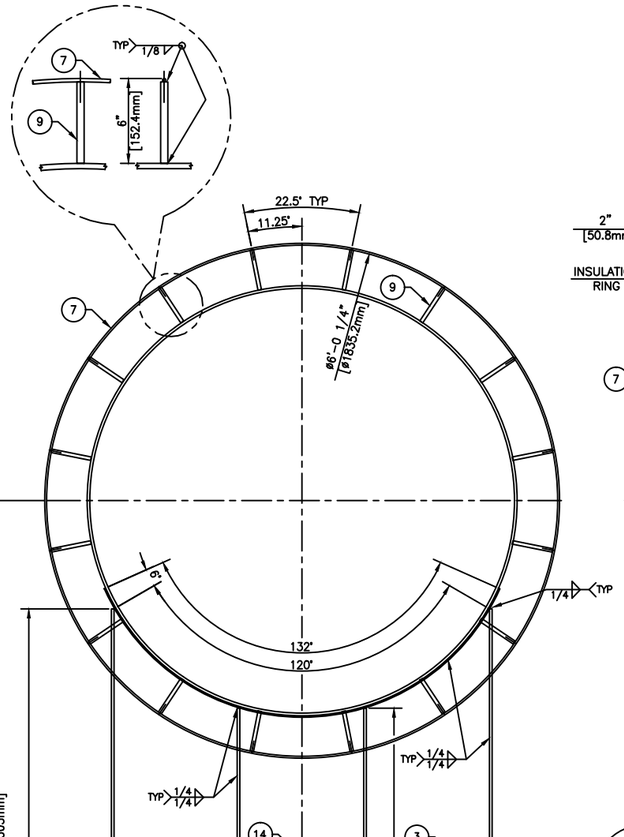
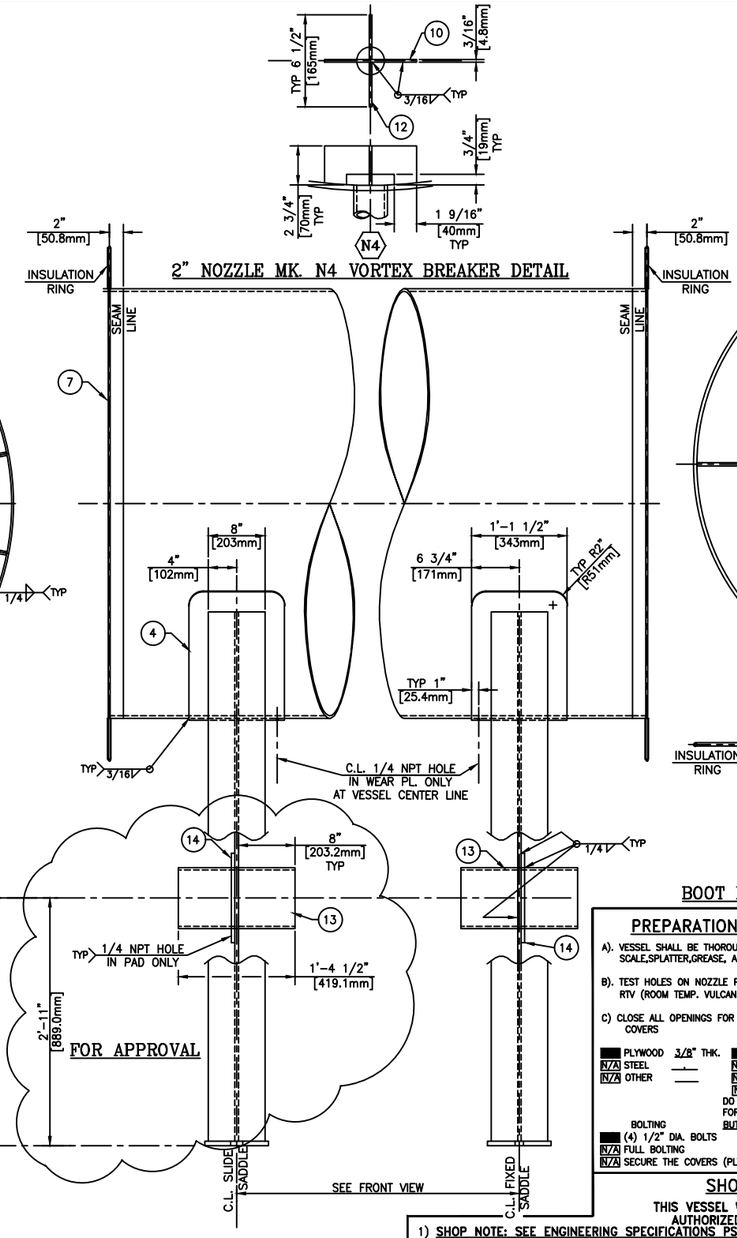
BILL OF MATERIALS:

ITEM	QTY.	DESCRIPTION:	MATERIAL
(1)	1	PL. 5/8" X 9" X 55" LG. (BASE PLATE W/SLOT HOLES) SEE DETAIL	SA-240 316/316L
(2)	1	PL. 5/8" X 9" X 55" LG. (BASE PLATE W/HOLES) SEE DETAIL	SA-240 316/316L
(3)	2	PL. 1/2" X 53" X 74 13/16" LG. (SADDLE PLATE) SEE DETAIL	SA-240 316/316L
(4)	2	PL. 1/4" X 13 1/2" X 70 1/4" LG. (WEAR PL. ROLL TO 60 3/4" I.D.)SEE DETAIL	SA-240 316/316L
(5)	4	PL. 3/8" X 8" X 74 13/16" LG. (SADDLE END PLATES) SEE DETAIL	SA-240 316/316L
(6)	8	PL. 3/8" X 3 3/4" X 60 3/4" LG. (SADDLE GUSSETS) SEE DETAIL	SA-240 316/316L
(7)	2	BAR 1/4" DIA. X 230" LG. (INSULATION RING) ROLL TO 72 1/4" I.D. SEE DETAIL	SA-479 316/316L
(8)	1	BAR 1/4" DIA. X 100 1/2" LG. (INSULATION RG) ROLL TO 31 1/2" I.D. SEE DETAIL	SA-479 316/316L
(9)	40	BAR 1/2" DIA. X 5 3/4" LG. (INSULATION RING SUPPORT) SEE DETAIL	SA-479 316/316L
(10)	2	PL. 3/16" X 2 3/4" X 6 1/2" LG. (VORTEX BREAKER PL.) SEE DETAIL	SA-240 316/316L
(11)	2	PL. 3/16" X 2 3/4" X 3 5/32" LG. (VORTEX BREAKER PL.) SEE DETAIL	SA-240 316/316L
(12)	2	PL. 3/16" X 2 13/16" X 3 5/32" LG. (VORTEX BREAKER PL.)SEE DETAIL	SA-240 316/316L
C (13)	2	8" SCH. 40S PIPE X 16 1/2" LG. (SADDLE OPENING)	SA-312 316/316L
(14)	2	PL. 1/2" THK. X 8 13/16" I.D. X 12 13/16" O.D. (OPENING PAD 2" W. PAD)	SA-240 316/316L
(15)	1	BAR 1" DIA. X 36" LG. (INTERNAL LADDER RUNG) SEE DETAIL & CUT AS REQUIRED	SA-479 316/316L



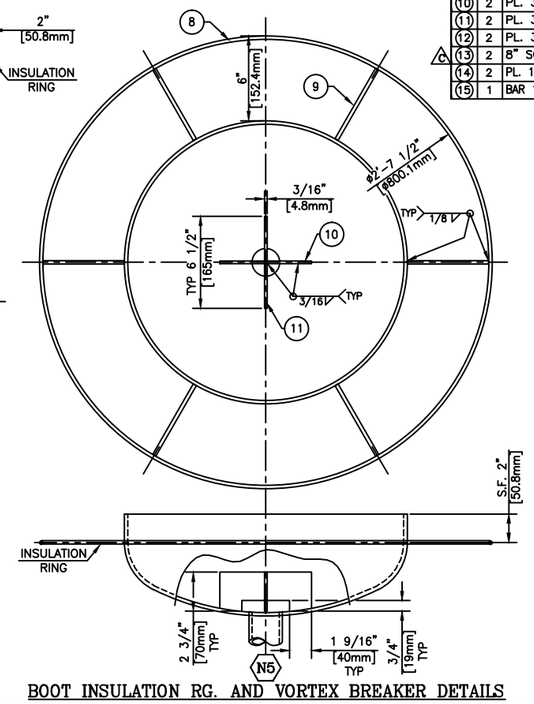
SECTION C-C @ (SLIDE SADDLE)

SECTION C-C @ (FIXED SADDLE)

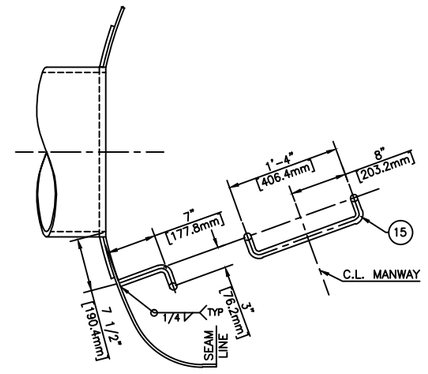


2" NOZZLE MK. N4 VORTEX BREAKER DETAIL

FOR APPROVAL



BOOT INSULATION RG. AND VORTEX BREAKER DETAILS



24" MANWAY MK. M1 LADDER RUNG DETAIL

PREPARATION FOR SHIPMENT

A). VESSEL SHALL BE THOROUGHLY CLEANED OF ALL LOOSE SCALE,SPLATTER,GREASE, AND ALL LOOSE FOREIGN MATTER

B). TEST HOLES ON NOZZLE PADS SHALL BE PLUGGED WITH SILICONE RTV (ROOM TEMP. VULCANIZING) RUBBER AFTER TESTING.

C) CLOSE ALL OPENINGS FOR SHIPMENT.

COVERS		GASKETS
PLYWOOD	3/8" THK.	RED RUBBER GSK'T.
N/A STEEL		N/A NEOPRENE GSK'T.
N/A OTHER		N/A NONE
		N/A OTHER

DO NOT USE MASKING OR DUCT TAPE FOR SHIPMENT ON FACE FLANGE

BOLTING — BUT DON'T SHIP W/OUT FLANGE PROTECTION

(4) 1/2" DIA. BOLTS
N/A FULL BOLTING
N/A SECURE THE COVERS (PLYWOOD) W/CABLE TIED

VESSEL TOLERANCES AND GENERAL NOTES:

1) ONE VESSEL REQUIRED MARK No. SEE TITLE BLOCK
2) VESSEL FABRICATOR SHALL FURNISH AND INSTALL ALL PARTS UNLESS OTHERWISE NOTED.
3) FLANGE FACE FINISH TO BE 63-250 MICRO INCH Ra.
4) NOZZLE PROJECTIONS ARE FROM CENTER OF VESSEL TO EXTREME FACE OF FLANGE.
   A) ORIENTATION IS FROM CENTER LINE OF VESSEL.
5) FAB. TOLERANCES: HUSKY SPECIFICATIONS 4A-SD-0009-02 (03/1987) FOR HORIZONTAL VESSELS
   A) CLOSER TOLERANCES WHEN REQUIRED, SHALL BE SHOWN ON FABRICATION DRAWINGS. (TOLERANCES ARE NOT CUMULATIVE)
   B) CL. TO CL. OF SUPPORT BOLT HOLES ACROSS WIDTH ± 1/8" AND DISTANCE BETWEEN SADDLES ± 1/4".
   C) SADDLE SUPPORT ORIENTATION MEASURED FROM REF. AXIS ON SHELL ± 3/16".
   D) FIRST SADDLE SUPPORT LOCATION FROM REF. LINE 1/4" MAXIMUM AND FROM VESSEL C.L. ± 1/4".
   E) SUPPORT TILT. 1/4" MAXIMUM ACROSS WIDTH AND SUPPORT OUT OF LEVEL 1/8" MAXIMUM.
   F) LOCATION OF MANWAY FROM REF. LINE ± 1/2" AND TO C.L. OF VESSEL ± 1/2".
   G) LOCATION OF ANY NOZZLE TO REF. LINE ± 1/4" AND TO C.L. OF VESSEL ± 3/16".
   H) NOZZLES OUT OF LEVEL MEASURED ACROSS GASKET FACE
      4" OR LESS 1/16" MAXIMUM.---6" THRU 14" 1/8" MAXIMUM
      16" THRU 24" 1/4" MAXIMUM
   I) NOZZLE ORIENTATION DEVIATION FROM REF, AXIS ON SHELL 1/4" MAXIMUM AND NOZZLE BOLT HOLE ORIENTATION DEVIATION AT BOLT HOLE CIRCLE 1/16" MAXIMUM.
   J) NOZZLES N7 4/8 AND N9 4/8 FIT-UP TO SHELL SHALL BE JIG-SET TO ENSURE DIMENSIONAL TOLERANCES, DISTANCE BETWEEN NOZZLES (LIQUID LEVEL AND GAUGE CONNECTIONS) C.L. TO C.L. DIMENSION ± 1/8" MAXIMUM.
   K) DEVIATION FROM AVERAGE I.D. (AS DETERMINED BY STRAPPING) FROM NOMINAL I.D. ± 1/4" ASME CODE SECTION VIII TO APPLY TO OUT OF ROUNDNESS, EXCEPT WHEN NOTED OTHERWISE.
   L) TANGENT LINE/TANGENT LINE ± 1/8" FOR EACH 25'-0" ± 1/2" FOR LENGTH OVER 100'-0", (NO TO EXCEED 1/2" MAX.).
6) ALL NOZZLES (EXCEPT NOZZLES WITH ATTACHED INTERNAL PIPING), AND MANWAY SHALL BE CUT FLUSH WITH VESSEL I.D. AND BE GROUND SMOOTH W/INSIDE WALL (BUT NOT FLUSH). AND ROUNDED TO ELIMINATE ALL SHARP CORNERS.
7) ALL REINFORCING PADS AND WEAR PLATES SHALL HAVE AT LEAST ONE 1/4 NPT HOLE AT ± 3/4" FROM LOWEST POINT.
8) ALL REINFORCING PADS SHALL BE TESTED TO 15 PSIG W/AIR AND SOLUTION SPECIFICALLY MANUFACTURED FOR BUBBLE TESTING, SOAP OR DETERGENTS SHALL NOT BE USED.
9) ALL BOLT HOLES STRADDLE CENTER LINES EXCEPT AS NOTED.
10) R.C. TECH. TO PROVIDE GASKETS FOR HYDROTESTING.
11) MANWAY MK. M1 AND NOZZLE N13 SHALL BE FURNISHED WITH BLIND FLANGE, STUDS AND GASKET.

SHOP NOTES:

THIS VESSEL WILL BE INSPECTED BY AUTHORIZED INSPECTOR/CLIENT

1) SHOP NOTE: SEE ENGINEERING SPECIFICATIONS PS-VT-01 AND WELDING PS-MW-01 FOR FULL WELDING PROCEDURES
   ALL PRESSURE BOUNDARY WELDS SHALL BE CHECKED FOR FERRITE CONTENTS DELTA fc SHALL BE <3
   ALL ATTACHMENT WELDS SHALL BE CONTINUOUS WELDED ALL AROUND.
   NOZZLE TO SHELL AND BOOT WELDS USING FCAW PROCESS SHALL BE 100% UT-EXAMINED.
   TEMPORARY ATTACHMENT AND TACK WELDS SHALL BE PERFORMED BY FULLY QUALIFIED WELDERS USING APPROVED WELDING PROCEDURE SPECIFICATIONS. PREHEAT REQUIREMENTS SHALL APPLY. ALL TEMPORARY WELDS AND ARC STRIKES SHALL BE COMPLETELY REMOVED BY GRINDING (REMOVAL BY HAMMER IS NOT PERMITTED). GROUND AREA SHALL BE DYE PENETRANT EXAMINED TO ENSURE IS FREE OF DEFECTS.
2) ALL WELDS SHALL BE IDENTIFIED TO THE INDIVIDUAL WELDER(S) BY MEANS OF WEATHER PROOF, LOW CHLORIDE/HALIDE, PERMANENT MARKING ADJACENT TO THE WELD IMMEDIATELY FOLLOWING COMPLETION. WELDERS IDENTITY SHALL BE DOCUMENTED ON THE NDE EXAMINATION REPORT AND ON THE WELD MAP/NDE MAP. UNIDENTIFIED WELDS ARE DEEMED UNACCEPTABLE AND SUBJECT TO IMMEDIATE CUT-OUT. DOT MATRIX LOW STRESS STAMPS CAN BE USED SUBJECT TO HUSKY ACCEPTANCE.
3) WELD MAP SHALL BE USED TO RECORD INFORMATION ON MATERIALS AND HEAT NUMBERS
4) THE WELDMENT OF LIFTING LUGS SHALL BE EXAMINED BY A SURFACE METHOD (DYE PENETRANT).
5) WHEN MARKING INK, PENCILS, OR PAINT IS USED ON AUSTENITIC STAINLESS STEEL, THE MARKING MATERIAL SHALL CONTAIN LESS THAN 250 PPM OF THE COMBINATION OF CHLORIDE, SULFUR, HALOGENS, LEAD OR ZINC.
6) HYDROTESTING SHALL BE DONE WITH CLEAN WATER AT TEMPERATURE OF AT LEAST 50°F AND MAXIMUM 100°F.
   PRESSURE-TIME RECORDING SHALL BE MADE DURING THE FINAL HYDROSTATIC.
7) HYDROSTATIC TEST PRESSURE SHALL BE HELD FOR MINIMUM OF ONE HOUR; VESSEL SHALL BE COMPLETELY DRAINED, THROUGHLY CLEANED AND DRIED IMMEDIATELY UPON COMPLETION OF HYDROTESTING.
8) DO NOT USE HEAT TO DRY STAINLESS STEELS EQUIPMENT. STEAM AND HOT AIR ARE CONSIDERED AS HEAT.

REV.	DESCRIPTION	DATE	BY	APPROVED
C	RE-ISSUED FOR APPROVAL	08/08/12	SG	DB
B	RE-ISSUED FOR APPROVAL	05/24/12	SG	DB
A	ISSUED FOR APPROVAL	04/02/12	SG	DB

CODE:
CUSTOMER P.O. No.: LATER
SHOP ORDER No.: 12459
DRAWN BY: SALVADOR GONZALEZ
REVISED BY: S.G.
DATE: 05/24/2012
CHK'D BY: DANNY S. BUGARIN
DATE: 05/24/2012
APPR'D BY: DANNY S. BUGARIN
DATE:

R.C. TECHNICAL WELDING & FABRICATION, INC.
ALLOY METAL SPECIALISTS
12814 MULA LANE STAFFORD, TEXAS 77477

CUSTOMER: VAREC BIOGAS
CLIENT: HUSKY
HUSKY ANSEL GAS PLANT PROJ. No. CS15481
TITLE
HC DRAIN DRUM
PRESSURE VESSEL-HORIZONTAL
ITEM No.

SIZE: D | FILE NAME: G:12459-2 | DWG. No.: RCT12-12459 | REV.: C
SCALE: N/A | DWG. IN AUTOCAD 2011 | SHEET 2 OF