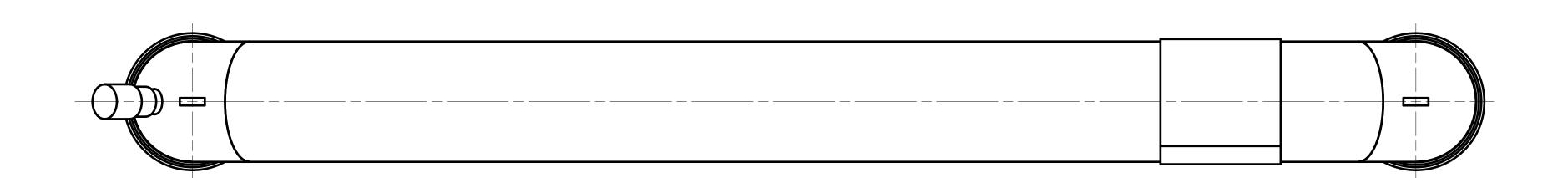
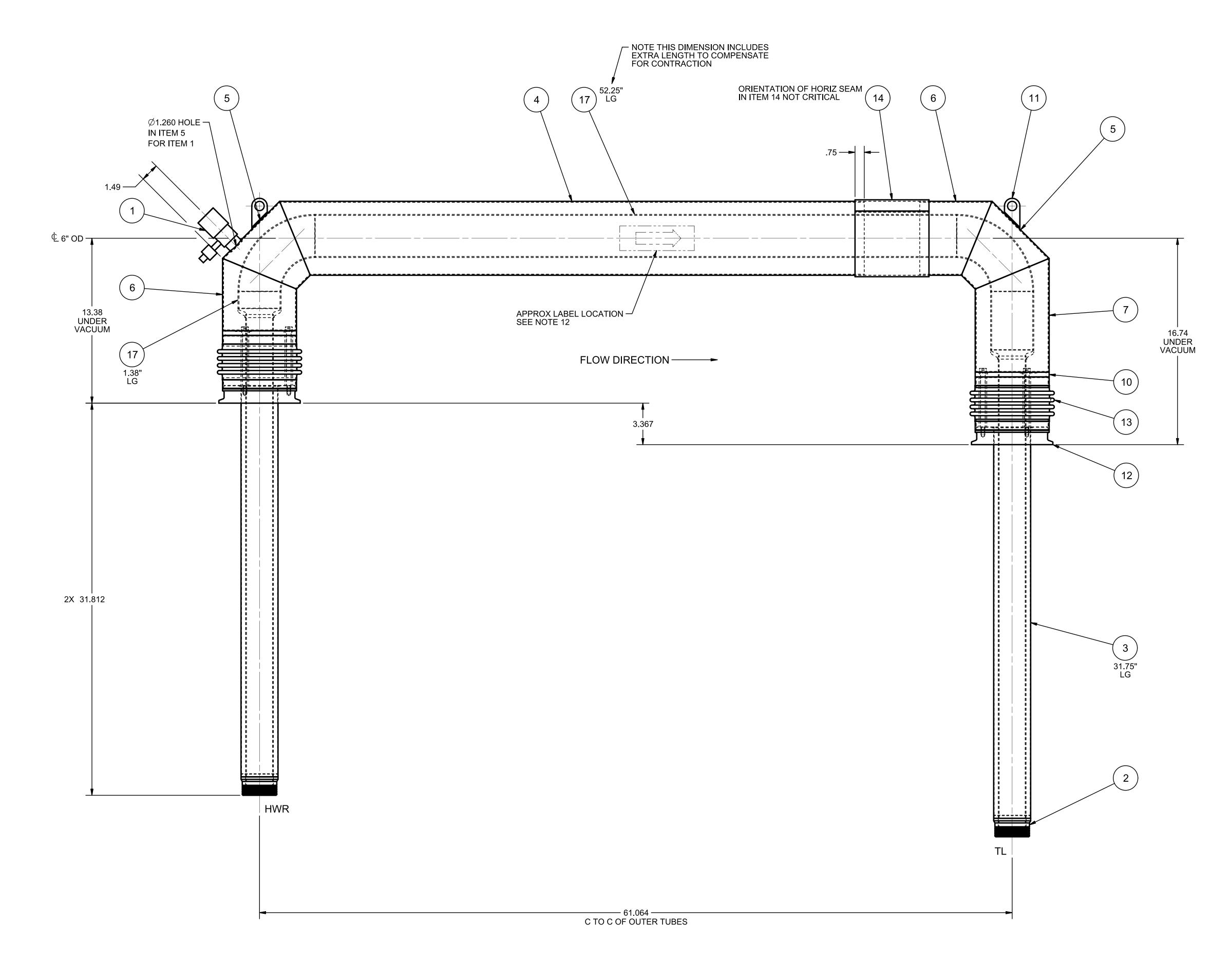
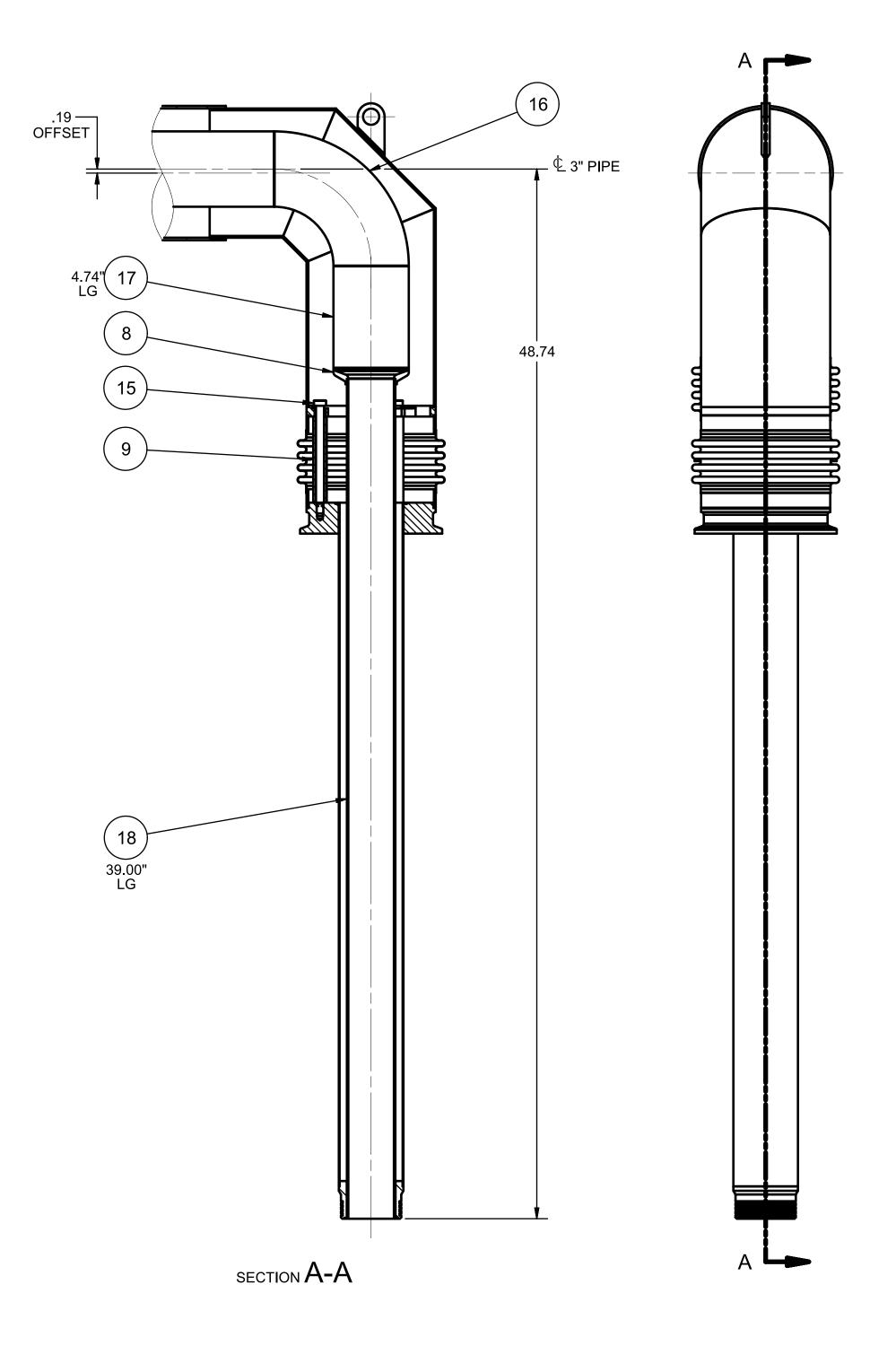
REV REVISION CONTROL DOCUMENT DATES DESCRIPTION: ASSEMBLY, U-TUBE, HWR DN65 2K RETURN







NOTES:

PROJECT: PIP-II_Cryogenic

1) ALL PARTS ARE TO BE FREE OF GREASE, OIL OR ANY OTHER CONTAMINANTS PRIOR TO ASSEMBLY AND WELDING.

2) DIMENSIONS AT TUBE/PIPE ENDS ARE FOR REFERENCE ONLY AND DO NOT ACCOUNT FOR SIZE VARIATIONS OF CONNECTING PARTS/FITTINGS. ADJUST LENGTHS ACCORDINGLY TO MAINTAIN OVERALL AND ON CENTER DIMENSIONS.

3) SEAL-OFF VALVE (ITEM NO. 10) MUST BE DISASSEMBLED AND DEVOID OF O-RING PRIOR TO WELDING.

4) ITEM 15 MAY BE SPLIT ALONG ITS VERTICAL AXIS AS AN ASSEMBLY REQUIREMENT.

5) SUPERINSULATION - TAPER MLI ON VERTICAL LEGS BEGINNING WITH ONE LAYER AT TOP OF ITEM 8, INCREASING TO 15 LAYERS 32.5" FROM START. REMAINING INTERNAL PIPING IS SPIRAL WRAPPED WITH 60 LAYERS OF MLI.

6) SUPERINSULATION ADJACENT TO WELD JOINTS IS TO BE PROTECTED FROM EXCESS HEAT WITH 2 LAYERS OF GLASS CLOTH FABRIC, (MAURITZON INC. STYLE 200 WELDGARD, ORANGE, .055" THICK OR EQUAL). SECURE WITH SILVER METALIZED TAPE, (3M PART NO. 850-1-SILVER, 1" WIDE X 2 MILS THICK).

7) UNLESS NOTED OTHERWISE ALL WELDS ARE PROCESS GTAW LEAK TIGHT.

8) WELD INDICATED MUST NOT PROTRUDE BEYOND OD OF TUBE AND IS TO BE CHECKED WITH A "GO" GAGE \emptyset 3.009/3.005.

9) CONNECTION INDICATED REQUIRES SCREW THREADS TO BE COATED W/ EPOXY ADHESIVE PRIOR TO BEING MADE UP. EPOXY TYPE IS 3M SCOTCH WELD 2 PART STRUCTURAL ADHESIVE NO. 1838 B/A GREEN, FERMI STK# 1930-060000.

10) POLISH OUTER SURFACE OF TUBES (ITEM NO. 3) W/ A POLYESTER CLEANSING PAD (3M SCOTCH-BRITE NO. 7747, FERMI STK# 1202-202000, OR EQUIVALENT). SURFACE MUST BE FREE OF IRREGULARITIES, PITTING, DENTS AND DEBRIS AND CHECKED WITH A "GO" GAGE SPECIFIED IN NOTE 8.

11) VACUUM TEST- NO LEAK SHALL BE DETECTABLE ON THE MOST SENSITIVE SCALE OF A He MASS SPEC. LEAK DETECTOR, MINIMUM SENSITIVITY OF 1X10⁻⁹ atm. cc/sec.

12) AFFIX ARROW LABELS TO EACH SIDE OF OUTER PIPE, CENTERED HORIZONTALLY AND

VERTICALLY, POINTING IN FLOW DIRECTION.

18	FC0071353	TUBE, 2.25" OD x .065" W, 304 SST	2
17	FC0071352	PIPE, 3.00" NPS SCH 5S, 304 SST	3
16	FC0028338	ELBOW, PIPE-90, LONG, 3"x5S, 304 SS	2
15	FC0022491	HDSS,0.375D×4.5L×5/16-18,SS18-8	6
14	F10130959	SLEEVE, DN65 U-TUBE VAC JKT	1
13	F10121323	WELDMENT, 6" VACUUM BELLOWS, 3" U-TUBE	2
12	F10119608	FLANGE, V-BAND COUPLING, 3" MALE BAYONET	2
1 1	F10119396	LUG, LIFTING, 3" U-TUBE	2
10	F10119376	FLANGE, BELLOWS RESTRAINT	2
9	F10119375	TUBE, SPACER, .625" OD X .120" W, 304 SST	6
8	F10119348	APAPTER, 2.25" OD X 3.00" NPS SCH 5S	2
7	F10119346	TUBE, 6" OD VACUUM JACKET, VAR VERT MITER	1
6	F10117410	TUBE, 6" OD VACUUM JACKET, FIXED VERT MITER	2
5	F10117409	TUBE, 6" OD VACUUM JACKET, DOUBLE MITER	2
4	F10117408	TUBE, 6" OD VACUUM JACKET, HORIZ MITER	1
3	F10117406	TUBE, OUTER BAYONET, 3.00" OD	2
2	F10094364	END, MALE, 3" SUBATM BAYONET	2
1	F09000378	VALVE - 1 IN VAC SEAL-OFF - CVI V-1046-31 INCL TC	1
ITEM VENDOR \ NO	FERMI NO	PART NAME (QTY
UNLESS OTHERWISE SPECIFIED DRAWN	D.RICHARDSON	DATE 08-Apr-2019 FERMI NATIONAL ACCELERATOR LABORATORY	
±.X ±.XX ±.XXX ±X/X ±X° CHECKED .1 .02 .005 1/16 1° APPROVED	G S.JOHNSON	UNITED STATES DEPARTMENT OF ENERGY	
BREAK ALL SHARP EDGES, MAX: .015 USED ON	111111110	DATE 14-Feb-2020 NAME	=
DO NOT SCALE DRAWING DIMENSIONS BASED ON: ASME Y14.5-2009 MAX MACHINE ALL SURFACES: 125 DRAWING UNITS: INCHES		ASSEMBLY, U-TUBE, HWR DN65 2K RETURN	
MATERIAL	-	SCALE SIZE DRAWING NUMBER SHEET	REV
THIRD ANGLE PROJECTION GROUP:	SEE PARTS LI		-
I THIND ANOLE PROJECTION GROUP:	reclinical bivision - cryogenic s	support fevore cone occurs	