

X-ray Results for the Titanium Vessel on ACC-013

An explanation of the labeling: The dressed cavity ACC-013 contains the titanium vessel that the manufacturer, Hi-Tech, labeled Vessel #6. Vessel #6 contains the welded 9.5-inch diameter tube that Hi-Tech labeled Tube #9.

The following reader sheet shows that there are non-conformities in the bellows weld (Weld #3) and in the seam weld (Weld #5). See Figure 1 for weld numbers.

ALLOYWELD INSPECTION COMPANY, INC.

796 MAPLE LANE PHONE: (630) 595-2145 FAX: (630) 595-2123 BENSenville, ILLINOIS 60106-1585

X-RAY READER SHEET

TO: HI-TECH MANUFACTURING, LLC
4637 N. 25TH AVE.
SCHILLER PARK, IL 60176 DATE: OCTOBER 27, 2009

ORDER NO: 26432
REGISTER NO: 1164
WORK ORDER NO: 59984
PAGE 1 OF 1

INSPECTION INFORMATION

PART NUMBER	D812766 REV A	MATERIAL	HEAT CODE
FILM NUMBER	U726	NO OF VIEWS	NO OF FILM
PROCESSED IN ACCORDANCE WITH:		453-2RT REV 5	

6

PO 26432 Job Acc

X-RAY SERIAL NUMBER SERIAL #6	Accept	Non-Conforming	Cracks	Shrinkage	Shrink Cavities	Porosity	Gas Holes	Voids	Surface	REMARKS OR OTHER DISCONTINUITIES
WELD #1 A-B	X									
B-C	X									
C-D	X									
D-A	X									
WELD #2 A-B	X									ID SURFACE
B-C	X									
C-D	X									
D-A	X									
WELD #3 A-B	X									
B-C	X		X				X			
C-D	X		X				X			
D-E	X									
E-F	X									
F-G	X									
G-H	X									
H-A	X									
WELD #4 A-B	X									
B-C	X									
C-D	X									
D-E	X									
E-F	X									
F-G	X									
G-H	X									
H-A	X									
WELD #5 A-B	X		X							LACK OF FUSION
B-C	X		X							LACK OF FUSION
C-D	X		X							LACK OF FUSION

This report is limited to the defects of the type that can be located with the above method. Any changes to shaded areas make this report void.

ACCEPTABLE 0 PCS.

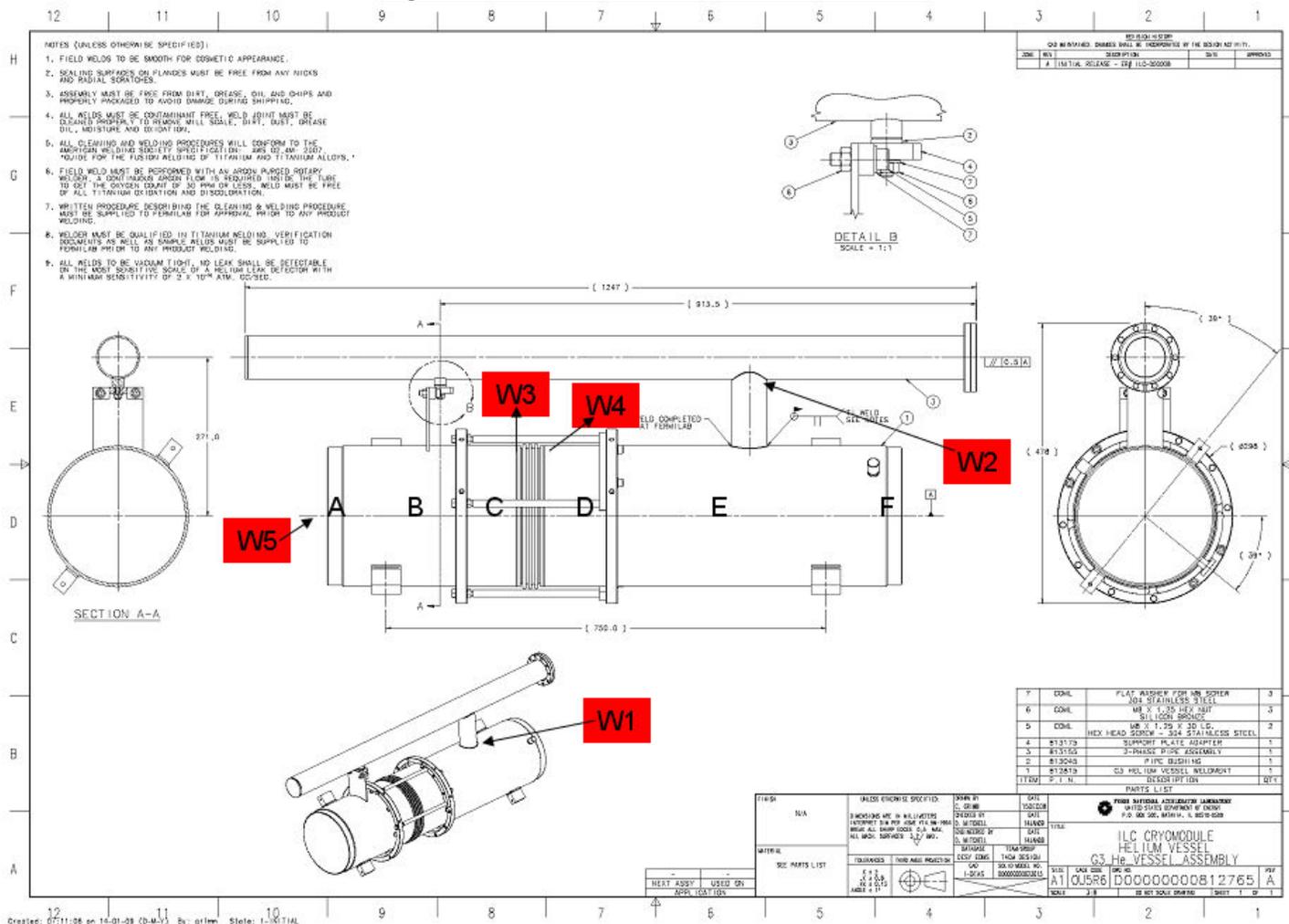
NON-CONFORMING 1 PCS.

ALLOYWELD INSPECTION - RADIOGRAPHER SIGNATURE

JENNIFER ANAYA
NAS 410/MIL-STD-410E LEVEL II

WELDING: ARC-HELIARC, BRAZING, SILVER AND SOFT SOLDERING • INSPECTION: MAGNETIC PARTICLE, PENETRANT, X-RAY, COMPUTED RADIOLOGY, IMMERSION ULTRASONICS, PASSIVATING, NITAL ETCH, SURFACE TEMPER ETCH, STRESS RELIEF

Figure 1 – Weld numbers labeled for Vessel #6



Regarding the seam weld on Vessel #6 (Weld #5): When the tube (Tube #9) was first seam welded, it was x-rayed. The following reader sheet shows that weld was acceptable (SN: 9). For this reason, Fermilab accepts this vessel assembly as conforming Code.

ALLOYWELD INSPECTION COMPANY, INC.

796 MAPLE LANE PHONE: (630) 595-2145 FAX: (630) 595-2128 BENSENVILLE, ILLINOIS 60106-1585

X-RAY READER SHEET

TO:

HI-TECH MFG. LLC
4637 N. 25TH AVE.
SCHILLER PARK, IL 60176

DATE: JULY 22, 2009

ORDER NO: 25387

REGISTER NO: 176951

WORK ORDER NO: 58461

PAGE 1 OF 1

INSPECTION INFORMATION

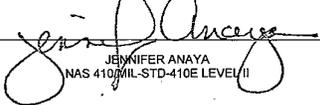
PART NUMBER	D849685 REV A	MATERIAL	TITANIUM	HEAT CODE
FILM NUMBER	U513	NO OF VIEWS	3	NO OF FILM
(30)CR SHOTS				
PROCESSED IN ACCORDANCE WITH:				
ASME B31.3				

X-RAY SERIAL NUMBER								REMARKS OR OTHER DISCONTINUITIES	
	Accept	Non-Conforming	Cracks	Shrinkage	Shrink Cavities	Porosity	Gas Holes		Veils
SN: 1 A-B	X								
B-C		X							IF
C-D		X							IF
SN: 2 A-B		X							IF
B-C		X							IF
C-D		X							IF
SN: 3 A-B		X							IF
B-C		X							IF
C-D	X								
SN: 4 A-B		X							IF
B-C		X							IF
C-D		X							IF
SN: 5 A-B		X							IF
B-C		X							IF
C-D		X							IF
SN: 6 A-B		X							IF
B-C		X							IF/IF
C-D		X							IF
SN: 7 A-B		X							IF
B-C		X							IF
C-D	X								
SN: 8 A-B		X							IF
B-C		X							IF/IP
C-D	X								
SN: 9 A-B		X							
B-C		X							
C-D	X								ROOT CONCAVITY
SN: 10 A-B		X							IF
B-C		X							IF
C-D		X							IF

This report is limited to the defects of the type that can be located with the above method. Any changes to shaded areas make this report

ACCEPTABLE 1 PCS.
NON-CONFORMING 9 PCS.

ALLOYWELD INSPECTION - RADIOGRAPHER SIGNATURE


JENNIFER ANAYA
NAS 410/MIL-STD-410E LEVEL II

WELDING: ARC-HELLARC, BRAZING, SILVER AND SOFT SOLDERING • INSPECTION: MAGNETIC PARTICLE, PENETRANT, X-RAY, COMPUTED RADIOLOGY, IMMERSION ULTRASONICS, PASSIVATING, NITAL ETCH, SURFACE TEMPER ETCH, STRESS RELIEF