

7- FIELD WELDS

# AD Cryogenics Department In-Process Weld Inspection Form

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 3-25-2015 Project: G-2  
Pipe Section: Helium Line Weld Number: 8  
Weld location: G-2  
Welder: LEONARD J. HARBACEK Inspector: Kelly Hardin

### Before Welding:

Type of weld: (butt)  (other) \_\_\_\_\_  
(1) Pipe #1 Size, Schedule and material: 7 FIELD WELD ON HELIUM SUPPLY + RETURN  
(2) Pipe #2 Size, Schedule and material: \_\_\_\_\_

### (1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? Yes

### (2) Welding Machine

(a) Remote foot pedal?   
(b) DC straight machine? \_\_\_\_\_

### (3) Joint Fit-up, and Internal Alignment

(a) Internal alignment acceptable? Yes  
(b) Joint Clearance acceptable? Yes  
(c) End Preparation acceptable? Yes

### (4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 304.L  
(b) Filler rod: Class \_\_\_\_\_ Diameter .045

### (5) Purge Gas

(a) type of purge gas : Argon  
(b) time length of purge: 1 MINUTE PRIOR purge flow rate: 10 CFL  
(b) (if done) O2 reading: \_\_\_\_\_ O2 Monitor manf/model : \_\_\_\_\_

### (6) Inspection After Root Pass

(a) No visible cracks. None  
(b) No suck holes, which are small holes in middle of weld. None  
(c) No porosity or obvious imperfections. None  
(d) Filler material fused along edges of weld. Yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hardin

1 FIELD WELD

# AD Cryogenics Department In-Process Weld Inspection Form

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

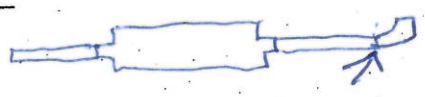
Date 3-25-2015 Project: G-2  
Pipe Section: \_\_\_\_\_ Weld Number: 8  
Weld location: G-2  
Welder: LEONARD J. HARBACEK Inspector: Kelly Hardin

### Before Welding:

Type of weld: (butt) X (other) \_\_\_\_\_  
(1) Pipe #1 Size, Schedule and material: 1" ELBOW WELDED ON 1 1/4" TUBE  
(2) Pipe #2 Size, Schedule and material: \_\_\_\_\_

### (1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? yes



### (2) Welding Machine

(a) Remote foot pedal? X  
(b) DC straight machine? \_\_\_\_\_

### (3) Joint Fit-up, and Internal Alignment

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

### (4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 304L  
(b) Filler rod: Class \_\_\_\_\_ Diameter .045

### (5) Purge Gas

(a) type of purge gas : Argon  
(b) time length of purge: 1 MINUTE PER INCH purge flow rate: 10 CFH  
(c) (if done) O2 reading: \_\_\_\_\_ O2 Monitor manf/model : \_\_\_\_\_

### (6) Inspection After Root Pass

(a) No visible cracks. None  
(b) No suck holes, which are small holes in middle of weld. NONE  
(c) No porosity or obvious imperfections. NONE  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hardin

2 FIELD WELDS

# AD Cryogenics Department In-Process Weld Inspection Form

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 3-25-2015 Project: G-2  
Pipe Section: Helium line Weld Number: 8  
Weld location: G-2  
Welder: LEONARD J. HARBACEK Inspector: Kelly Hardin

### Before Welding:

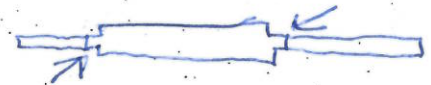
Type of weld: (butt) X (other) \_\_\_\_\_

(1) Pipe #1 Size, Schedule and material: 1" TUBE 9' 4" LONG + 10 1/4" TUBE WELDED

(2) Pipe #2 Size, Schedule and material: \_\_\_\_\_ TO BELLOWS

### (1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? yes



### (2) Welding Machine

(a) Remote foot pedal? X

(b) DC straight machine? \_\_\_\_\_

### (3) Joint Fit-up, and Internal Alignment

(a) Internal alignment acceptable? yes

(b) Joint Clearance acceptable? yes

(c) End Preparation acceptable? yes

### (4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 304 L

(b) Filler rod: Class \_\_\_\_\_ Diameter .045

### (5) Purge Gas

(a) type of purge gas : Argon

(b) time length of purge: 1 MINUTE PRIOR purge flow rate: 10 CFH

(b) (if done) O2 reading: \_\_\_\_\_ O2 Monitor manf/model : \_\_\_\_\_

### (6) Inspection After Root Pass

(a) No visible cracks. None

(b) No suck holes, which are small holes in middle of weld. None

(c) No porosity or obvious imperfections. None

(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hardin

**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 3-25 Project: G-2  
Pipe Section: Helium Line Weld Number: 8  
Weld location: G-2  
Welder: LEONARD T. HARBACEK Inspector: Kelly Harbin

Before Welding:

Type of weld: (butt) X (other) \_\_\_\_\_

(1) Pipe #1 Size, Schedule and material: \_\_\_\_\_

(2) Pipe #2 Size, Schedule and material: \_\_\_\_\_

1" 20'S TUBE WELDED TO ELBOW



(1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? yes

(2) Welding Machine

(a) Remote foot pedal? X

(b) DC straight machine? \_\_\_\_\_

(3) Joint Fit-up, and Internal Alignment

(a) Internal alignment acceptable? yes

(b) Joint Clearance acceptable? yes

(c) End Preparation acceptable? yes

(4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 304L

(b) Filler rod: Class \_\_\_\_\_ Diameter .045

(5) Purge Gas

(a) type of purge gas : Argon

(b) time length of purge: 1 Minute Per Inch purge flow rate: 10 CFH

(b) (if done) O2 reading: \_\_\_\_\_ O2 Monitor manf/model : \_\_\_\_\_

(6) Inspection After Root Pass

(a) No visible cracks. NONE

(b) No suck holes, which are small holes in middle of weld. NONE

(c) No porosity or obvious imperfections. NONE

(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Harbin

2 welds

# AD Cryogenics Department In-Process Weld Inspection Form

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

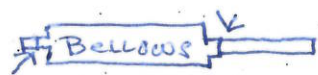
Date \_\_\_\_\_ Project: G-2  
Pipe Section: \_\_\_\_\_ Weld Number: 8  
Weld location: G-2  
Welder: LEONARD J. HARBACEK Inspector: Kelly HARDIN

### Before Welding:

Type of weld: (butt) \_\_\_\_\_ (other) \_\_\_\_\_  
(1) Pipe #1 Size, Schedule and material: 1" TUBE + 20" TUBE welded TO BELLOW  
(2) Pipe #2 Size, Schedule and material: \_\_\_\_\_

### (1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? yes



### (2) Welding Machine

(a) Remote foot pedal? X  
(b) DC straight machine? \_\_\_\_\_

### (3) Joint Fit-up, and Internal Alignment

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

### (4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 304.L  
(b) Filler rod: Class \_\_\_\_\_ Diameter .045

### (5) Purge Gas

(a) type of purge gas : Argon  
(b) time length of purge: 1 MINUTE PER PASS purge flow rate: 10 CFH  
(b) (if done) O2 reading: \_\_\_\_\_ O2 Monitor manf/model : \_\_\_\_\_

### (6) Inspection After Root Pass

(a) No visible cracks. NONE  
(b) No suck holes, which are small holes in middle of weld. NONE  
(c) No porosity or obvious imperfections. NONE  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hardin

2 WELDS

# AD Cryogenics Department In-Process Weld Inspection Form

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

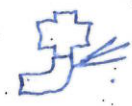
Date 3-25-2015 Project: G-2  
Pipe Section: Helium line Weld Number: 8  
Weld location: G-2  
Welder: LEONARD J. HARBACEK Inspector: Kelly Hardin

### Before Welding:

Type of weld: (butt)  (other) \_\_\_\_\_  
(1) Pipe #1 Size, Schedule and material: 1" ELBOW + VALVE WELDED TO HELIUM  
(2) Pipe #2 Size, Schedule and material: 1" ELBOW WELDED TO HELIUM LINE

### (1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? yes



### (2) Welding Machine

(a) Remote foot pedal?   
(b) DC straight machine? \_\_\_\_\_

### (3) Joint Fit-up, and Internal Alignment

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

### (4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 304  
(b) Filler rod: Class \_\_\_\_\_ Diameter .045

### (5) Purge Gas

(a) type of purge gas : Argon  
(b) time length of purge: 1 minute prior purge flow rate: 10 CFH  
(b) (if done) O2 reading: \_\_\_\_\_ O2 Monitor manf/model : \_\_\_\_\_

### (6) Inspection After Root Pass

(a) No visible cracks. None  
(b) No suck holes, which are small holes in middle of weld. None  
(c) No porosity or obvious imperfections. None  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hardin

**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 3-25-2015 Project: G-2  
Pipe Section: \_\_\_\_\_ Weld Number: 8  
Weld location: G-2  
Welder: LEONARD J. HARBACEK Inspector: Kelly Hardin

**Before Welding:**

Type of weld: (butt) \_\_\_\_\_ (other) Socket weld's  
(1) Pipe #1 Size, Schedule and material: 2 1 1/2" TUBES 1 Fuse weld  
(2) Pipe #2 Size, Schedule and material: 2 ISO FLANGES EACH END

**(1) Joint Preparation and Cleanliness**

Joint Preparation and Cleanliness acceptable? yes

**(2) Welding Machine**

(a) Remote foot pedal? X  
(b) DC straight machine? \_\_\_\_\_

**(3) Joint Fit-up, and Internal Alignment**

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

**(4) Filler Rod**

(a) AWS A5.9 stainless steel filler rod? N/A  
(b) Filler rod: Class \_\_\_\_\_ Diameter N/A

**(5) Purge Gas**

(a) type of purge gas : N/A  
(b) time length of purge: N/A purge flow rate: N/A  
(b) (if done) O2 reading: \_\_\_\_\_ O2 Monitor manf/model : \_\_\_\_\_

**(6) Inspection After Root Pass**

(a) No visible cracks. None  
(b) No suck holes, which are small holes in middle of weld. None  
(c) No porosity or obvious imperfections. None  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hardin

**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 3-25-2015 Project: G-2  
Pipe Section: \_\_\_\_\_ Weld Number: 8  
Weld location: G-2  
Welder: LEONARD T. HARBACEK Inspector: Kelly Hardin

**Before Welding:**

Type of weld: (butt) \_\_\_\_\_ (other) Socket weld  
(1) Pipe #1 Size, Schedule and material: 2 46" TUBES 1 FUSE WELD  
(2) Pipe #2 Size, Schedule and material: 2 ISO FLANGES EACH END

**(1) Joint Preparation and Cleanliness**

Joint Preparation and Cleanliness acceptable? yes

**(2) Welding Machine**

(a) Remote foot pedal? X  
(b) DC straight machine? \_\_\_\_\_

**(3) Joint Fit-up, and Internal Alignment**

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

**(4) Filler Rod**

(a) AWS A5.9 stainless steel filler rod? N/A  
(b) Filler rod: Class \_\_\_\_\_ Diameter N/A

**(5) Purge Gas**

(a) type of purge gas : N/A  
(b) time length of purge: N/A purge flow rate: N/A  
(c) (if done) O2 reading: \_\_\_\_\_ O2 Monitor manf/model : \_\_\_\_\_

**(6) Inspection After Root Pass**

(a) No visible cracks. None  
(b) No suck holes, which are small holes in middle of weld. None  
(c) No porosity or obvious imperfections. None  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hardin



7 WELDS

# AD Cryogenics Department

## In-Process Weld Inspection Form

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

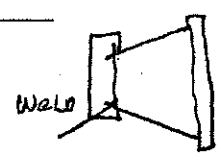
Date 3-14-2015 Project: 42  
Pipe Section: 6-2 Weld Number: 8  
Weld location: 4-2  
Welder: LEONARD T. HARBACEK Inspector: KELLY HARDIN

### Before Welding:

Type of weld: (butt) \_\_\_\_\_ (other) FILLET  
(1) Pipe #1 Size, Schedule and material: 3 1/2 TO 5 1/2 CONICAL REDUCER  
(2) Pipe #2 Size, Schedule and material: \_\_\_\_\_

### (1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? yes



### (2) Welding Machine

(a) Remote foot pedal? X  
(b) DC straight machine? \_\_\_\_\_

### (3) Joint Fit-up, and Internal Alignment

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

### (4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 304L  
(b) Filler rod: Class \_\_\_\_\_ Diameter .035

### (5) Purge Gas

(a) type of purge gas : NA  
(b) time length of purge: N/A purge flow rate: N/A  
(b) (if done) O2 reading: N/A O2 Monitor manf/model : N/A

### (6) Inspection After Root Pass

(a) No visible cracks. NONE  
(b) No suck holes, which are small holes in middle of weld. NONE  
(c) No porosity or obvious imperfections. NONE  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hardin

# AD Cryogenics Department In-Process Weld Inspection Form

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)



Date 3-14-2015 Project: 6-2  
Pipe Section: ~~5-2~~ 4-2 Weld Number: 8  
Weld location: 6-2  
Welder: LEONARD J. HARBACEK Inspector: KELLY HARCOIN

Before Welding:

Type of weld: (butt) X (other) \_\_\_\_\_  
(1) Pipe #1 Size, Schedule and material: 3 1/2 TO 5 1/2 CONICAL Reduced TO MARKON FLANGE  
(2) Pipe #2 Size, Schedule and material: \_\_\_\_\_

(1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? yes



(2) Welding Machine

(a) Remote foot pedal? X  
(b) DC straight machine? \_\_\_\_\_

(3) Joint Fit-up, and Internal Alignment

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

(4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 304L  
(b) Filler rod: Class \_\_\_\_\_ Diameter .035

(5) Purge Gas

(a) type of purge gas : N/A  
(b) time length of purge: N/A purge flow rate: NA  
(c) (if done) O2 reading: N/A O2 Monitor manf/model : NA

(6) Inspection After Root Pass

(a) No visible cracks. NONE  
(b) No suck holes, which are small holes in middle of weld. NONE  
(c) No porosity or obvious imperfections. NONE  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Harcoin

1 WELD  
NITRO LINE

PPD

~~AD~~ Cryogenics Department  
In-Process Weld Inspection Form

~~AD~~ A

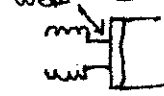
(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 3-4-2015 Project: U-2  
Pipe Section: BAYONET Weld Number: 8  
Weld location: U-2  
Welder: LEONARD T. HARBACEK Inspector: Kelly Hardin

Before Welding:

Type of weld: (butt) \_\_\_\_\_ (other) FILLET

(1) Pipe #1 Size, Schedule and material: FABRICATED WASHED TO OUTER JACKET OF  
(2) Pipe #2 Size, Schedule and material: \_\_\_\_\_ WELD BELLOWS



(1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? yes

(2) Welding Machine

(a) Remote foot pedal? X  
(b) DC straight machine? \_\_\_\_\_

(3) Joint Fit-up, and Internal Alignment

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

(4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 304L  
(b) Filler rod: Class \_\_\_\_\_ Diameter .035

(5) Purge Gas

(a) type of purge gas : Argon  
(b) time length of purge: 1 Minute Prior purge flow rate: 10 CFH  
(b) (if done) O2 reading: N/A O2 Monitor manf/model : N/A

(6) Inspection After Root Pass

(a) No visible cracks. NONE  
(b) No suck holes, which are small holes in middle of weld. NONE  
(c) No porosity or obvious imperfections. NONE  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hardin

**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 3-4-2015 Project: G-2  
Pipe Section: TRANSFER LINE Weld Number: 8  
Weld location: G-2  
Welder: LEONARD J. HARBACEK Inspector: Kelly Hardin

Before Welding:

Type of weld: (butt)  (other) \_\_\_\_\_  
(1) Pipe #1 Size, Schedule and material: 8 1/2 PIPE TO FABRICATED FLANGE  
(2) Pipe #2 Size, Schedule and material: \_\_\_\_\_ WELD



(1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? Yes

(2) Welding Machine

(a) Remote foot pedal?   
(b) DC straight machine? \_\_\_\_\_

(3) Joint Fit-up, and Internal Alignment

(a) Internal alignment acceptable? Yes  
(b) Joint Clearance acceptable? Yes  
(c) End Preparation acceptable? Yes

(4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 304L  
(b) Filler rod: Class \_\_\_\_\_ Diameter .045

(5) Purge Gas

(a) type of purge gas : N/A  
(b) time length of purge: N/A purge flow rate: N/A  
(b) (if done) O2 reading: N/A O2 Monitor manf/model : N/A

(6) Inspection After Root Pass

(a) No visible cracks. NONE  
(b) No suck holes, which are small holes in middle of weld. NONE  
(c) No porosity or obvious imperfections. NONE  
(d) Filler material fused along edges of weld. Yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hardin

1 WELD

NITRO LINE

A

# PPD Vacuum and Instrumentation Group In-Process Weld Inspection Form

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 3-4-2015 Project: Gr-2  
Pipe Section: BAYONET Weld Number: 8  
Weld location: A-2  
Welder: LEONARD J. HALLANCE Inspector: Kelly Hurdin

### Before Welding:

Type of weld: (butt) \_\_\_\_\_ (other) FUSION

(1) Pipe #1 Size, Schedule and material: 1/2 .035 TUBE TO WASHER

(2) Pipe #2 Size, Schedule and material: \_\_\_\_\_

Leak Checked 1.98-9 WELD

### (1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? yes

### (2) Welding Machine

(a) Remote foot pedal? X

(b) DC straight machine? \_\_\_\_\_

### (3) Joint Fit-up, and Internal Alignment.

(a) Internal alignment acceptable? yes

(b) Joint Clearance acceptable? yes

(c) End Preparation acceptable? yes

### (4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? FUSION

(b) Filler rod: Class \_\_\_\_\_ Diameter \_\_\_\_\_

### (5) Purge Gas.

(a) type of purge gas : N/A

(b) time length of purge: N/A purge flow rate: N/A

SCFH \_\_\_\_\_

(b) (if done) O2 reading: N/A O2 Monitor manf/model : N/A

### (6) Inspection After Root Pass

(a) No visible cracks: NONE

(b) No suck holes, which are small holes in middle of weld. NONE

(c) No porosity or obvious imperfections. NONE

(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: FUSION

(9) Final Inspection: Kelly Hurdin

1 weld  
NITRO LINE

A

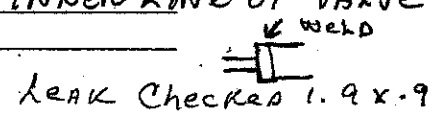
# PPD Vacuum and Instrumentation Group In-Process Weld Inspection Form

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 3-4-2015 Project: G-2  
Pipe Section: BOYANET Weld Number: 8  
Weld location: G-2  
Welder: LEONARD T. HANSEN Inspector: KELLY HARDIN

### Before Welding:

Type of weld: (butt) X (other) \_\_\_\_\_  
(1) Pipe #1 Size, Schedule and material: WASHER TO INNER LINE OF VALVE  
(2) Pipe #2 Size, Schedule and material: \_\_\_\_\_



### (1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? yes

### (2) Welding Machine

(a) Remote foot pedal? X  
(b) DC straight machine? \_\_\_\_\_

### (3) Joint Fit-up, and Internal Alignment

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

### (4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 304L  
(b) Filler rod: Class \_\_\_\_\_ Diameter .035

### (5) Purge Gas

(a) type of purge gas : Argon  
(b) time length of purge: 1 MINUTE PRIOR purge flow rate: 10 CFH  
SCFH \_\_\_\_\_  
(b) (if done) O2 reading: N/A O2 Monitor manf/model : N/A

### (6) Inspection After Root Pass

(a) No visible cracks: NONE  
(b) No suck holes, which are small holes in middle of weld. NONE  
(c) No porosity or obvious imperfections. NONE  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hardin

1 Weld  
NITRO Line

# AD Cryogenics Department In-Process Weld Inspection Form

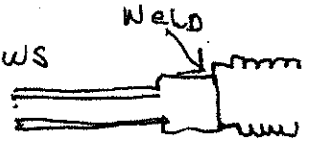
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(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 3-4-2015 Project: 6-2  
Pipe Section: BAYONET Weld Number: 8  
Weld location: 6-2  
Welder: LEONARDO T. HARPACEK Inspector: KELLY HARDIN

Before Welding:

Type of weld: (butt) \_\_\_\_\_ (other) Fillet  
(1) Pipe #1 Size, Schedule and material: STINGER TO BELLOWS  
(2) Pipe #2 Size, Schedule and material: \_\_\_\_\_



(1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? Yes

(2) Welding Machine

(a) Remote foot pedal? X  
(b) DC straight machine? \_\_\_\_\_

(3) Joint Fit-up, and Internal Alignment

(a) Internal alignment acceptable? Yes  
(b) Joint Clearance acceptable? Yes  
(c) End Preparation acceptable? Yes

(4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 304L  
(b) Filler rod: Class \_\_\_\_\_ Diameter .035

(5) Purge Gas

(a) type of purge gas : Argon  
(b) time length of purge: 1 MINUTE PRIOR purge flow rate: 10 CFH  
(b) (if done) O2 reading: N/A O2 Monitor manf/model : N/A

(6) Inspection After Root Pass

(a) No visible cracks. NONE  
(b) No suck holes, which are small holes in middle of weld. NONE  
(c) No porosity or obvious imperfections. NONE  
(d) Filler material fused along edges of weld. Yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hardin

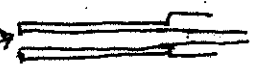
1 Weld  
NITRO Line

PPD  
~~AD~~ Cryogenics Department  
In-Process Weld Inspection Form

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 3-4-2015 Project: U-2  
Pipe Section: BAYONET Weld Number: 8  
Weld location: U-2  
Welder: LEONARD J. HARBAUGH Inspector: Kelly Hardin

Before Welding:

Type of weld: (butt) \_\_\_\_\_ (other) FUSION  
(1) Pipe #1 Size, Schedule and material: END OF BAYONET  
(2) Pipe #2 Size, Schedule and material: \_\_\_\_\_ WELD → 

(1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? yes

(2) Welding Machine

(a) Remote foot pedal? X  
(b) DC straight machine? \_\_\_\_\_

(3) Joint Fit-up, and Internal Alignment

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

(4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? NONE  
(b) Filler rod: Class \_\_\_\_\_ Diameter NA

(5) Purge Gas

(a) type of purge gas : N/A  
(b) time length of purge: N/A purge flow rate: N/A  
(b) (if done) O2 reading: N/A O2 Monitor manf/model : N/A

(6) Inspection After Root Pass

(a) No visible cracks. NONE  
(b) No suck holes, which are small holes in middle of weld. NONE  
(c) No porosity or obvious imperfections. NONE  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: FUSION

(9) Final Inspection: Kelly Hardin



PPD

1 Weld  
NITRO Line

**Cryogenics Department  
In-Process Weld Inspection Form**

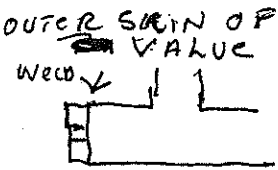
A

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 3-4-2015 Project: 6-2  
Pipe Section: BAYONET Weld Number: 8  
Weld location: 6-2  
Welder: LEONARD T. HARBACER Inspector: Kelly Haroin

Before Welding:

Type of weld: (butt)  (other) \_\_\_\_\_  
(1) Pipe #1 Size, Schedule and material: FABRICATED WASHER TO OUTER SKIN OF VALVE  
(2) Pipe #2 Size, Schedule and material: \_\_\_\_\_



(1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? yes

(2) Welding Machine

(a) Remote foot pedal?   
(b) DC straight machine? \_\_\_\_\_

(3) Joint Fit-up, and Internal Alignment

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

(4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 304L  
(b) Filler rod: Class \_\_\_\_\_ Diameter .035

(5) Purge Gas

(a) type of purge gas : ARGON  
(b) time length of purge: 1 MINUTE PRIOR purge flow rate: 10 CFH  
(b) (if done) O2 reading: N/A O2 Monitor manf/model : NA

(6) Inspection After Root Pass

(a) No visible cracks. NONE  
(b) No suck holes, which are small holes in middle of weld. NONE  
(c) No porosity or obvious imperfections. NONE  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Haroin

**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 5-19-2015 Project: 6-2  
Pipe Section: \_\_\_\_\_ Weld Number: 8  
Weld location: \_\_\_\_\_  
Welder: LEONARDO CHARBACEN Inspector: Kelly Hand

Before Welding:

Type of weld: (butt) \_\_\_\_\_ (other) FILLET 14 WELDS  
(1) Pipe #1 Size, Schedule and material: MANIFOLD WITH 12 VCR WELD  
(2) Pipe #2 Size, Schedule and material: + 2 VALVES + FLOW METER

(1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? yes

(2) Welding Machine

(a) Remote foot pedal? X  
(b) DC straight machine? \_\_\_\_\_

(3) Joint Fit-up and Internal Alignment

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

(4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 316  
(b) Filler rod: Class \_\_\_\_\_ Diameter 0.35

(5) Purge Gas

(a) type of purge gas : ARGON  
(b) time length of purge: 5 MINUTES purge flow rate: 10 CFH  
(b) (if done) O2 reading: N/A O2 Monitor manf/model : N/A

(6) Inspection After Root Pass

(a) No visible cracks. NONE  
(b) No suck holes, which are small holes in middle of weld. NONE  
(c) No porosity or obvious imperfections. NONE  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hand

**AD Cryogenics Department  
In-Process Weld Inspection Form**


(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 5-19-2015 Project: G-2  
Pipe Section: \_\_\_\_\_ Weld Number: R  
Weld location: \_\_\_\_\_  
Welder: LEONARD T. HARSAREK Inspector: Kelly Hardin

Before Welding:

Type of weld: (butt)  (other) \_\_\_\_\_  
(1) Pipe #1 Size, Schedule and material: 4.5° ELBOW WITH 4" TUBES WELDED  
(2) Pipe #2 Size, Schedule and material: EACH END ISO FLANGES + VCR ON TOP

(1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? yes  5 WELDS

(2) Welding Machine

(a) Remote foot pedal?   
(b) DC straight machine? \_\_\_\_\_

(3) Joint Fit-up and Internal Alignment

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

(4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 304  
(b) Filler rod: Class \_\_\_\_\_ Diameter .045

(5) Purge Gas

(a) type of purge gas: Argon  
(b) time length of purge: 10 MINUTE purge flow rate: 10 CFM  
(c) (if done) O2 reading: N/A O2 Monitor manf/model: N/A

(6) Inspection After Root Pass

(a) No visible cracks. NONE  
(b) No suck holes, which are small holes in middle of weld. NONE  
(c) No porosity or obvious imperfections. NONE  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hardin

**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 5-19-2015 Project: G-2  
Pipe Section: \_\_\_\_\_ Weld Number: 8  
Weld location: \_\_\_\_\_  
Welder: LEONARDO T. VARRACEL Inspector: Kelly Hadd

**Before Welding:**

Type of weld: (butt) \_\_\_\_\_ (other) Fillet  
(1) Pipe #1 Size, Schedule and material: 1" PIPE WELDED TO BOTH SIDES  
(2) Pipe #2 Size, Schedule and material: \_\_\_\_\_ OF BELLWS  
2 WELDS

**(1) Joint Preparation and Cleanliness**

Joint Preparation and Cleanliness acceptable? Yes

**(2) Welding Machine**

(a) Remote foot pedal? X  
(b) DC straight machine? \_\_\_\_\_

**(3) Joint Fit-up, and Internal Alignment**

(a) Internal alignment acceptable? Yes  
(b) Joint Clearance acceptable? Yes  
(c) End Preparation acceptable? Yes

**(4) Filler Rod**

(a) AWS A5.9 stainless steel filler rod? 304  
(b) Filler rod: Class \_\_\_\_\_ Diameter .045

**(5) Purge Gas**

(a) type of purge gas: Argon  
(b) time length of purge: 1 MINUTE purge flow rate: 5 CFH  
(c) (if done) O2 reading: N/A O2 Monitor manf/model: N/A

**(6) Inspection After Root Pass**

(a) No visible cracks. NONE  
(b) No suck holes, which are small holes in middle of weld. NONE  
(c) No porosity or obvious imperfections. NONE  
(d) Filler material fused along edges of weld. Yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hadd

**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 2-20-2015 Project: 62-2  
Pipe Section: \_\_\_\_\_ Weld Number: R  
Weld location: \_\_\_\_\_  
Welder: LEONARDO J. PRZACEK Inspector: Kelly Hardin

Before Welding:

Type of weld: (butt)  (other) \_\_\_\_\_

(1) Pipe #1 Size, Schedule and material: 10 FIELD WELDS ON HELIUM

(2) Pipe #2 Size, Schedule and material: \_\_\_\_\_

LINE  
SUPPLY + RETURN  
6 WELDS

(1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? yes

(2) Welding Machine

(a) Remote foot pedal?  \_\_\_\_\_

(b) DC straight machine? \_\_\_\_\_

(3) Joint Fit-up, and Internal Alignment

(a) Internal alignment acceptable? yes

(b) Joint Clearance acceptable? yes

(c) End Preparation acceptable? yes

(4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 304

(b) Filler rod: Class \_\_\_\_\_ Diameter .045

(5) Purge Gas

(a) type of purge gas : Argon

(b) time length of purge: 10 minute purge flow rate: 20 CFH

(b) (if done) O2 reading: N/A O2 Monitor manf/model: N/A

(6) Inspection After Root Pass

(a) No visible cracks. None

(b) No suck holes, which are small holes in middle of weld. None

(c) No porosity or obvious imperfections. None

(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hardin

**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 2-20-2015 Project: U-2  
Pipe Section: \_\_\_\_\_ Weld Number: 8  
Weld location: \_\_\_\_\_  
Welder: Leonard Harsanyi Inspector: Kelly Hardin

**Before Welding:**

Type of weld: (butt) \_\_\_\_\_ (other) Fillet  
(1) Pipe #1 Size, Schedule and material: 1/2" TUBE WITH ISOLATOR'S +  
(2) Pipe #2 Size, Schedule and material: VCR FITTINGS ON EACH END  
4 WELDS

**(1) Joint Preparation and Cleanliness**

Joint Preparation and Cleanliness acceptable? yes

**(2) Welding Machine**

(a) Remote foot pedal? X  
(b) DC straight machine? \_\_\_\_\_

**(3) Joint Fit-up, and Internal Alignment**

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

**(4) Filler Rod**

(a) AWS A5.9 stainless steel filler rod? 304  
(b) Filler rod: Class \_\_\_\_\_ Diameter 0.35

**(5) Purge Gas**

(a) type of purge gas: Argon  
(b) time length of purge: 1 MINUTE purge flow rate: 5 CFH  
(c) (if done) O2 reading: N/A O2 Monitor manf/model: N/A

**(6) Inspection After Root Pass**

(a) No visible cracks. None  
(b) No suck holes, which are small holes in middle of weld. None  
(c) No porosity or obvious imperfections. None  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hardin

**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 2-20-2015 Project: 6-2  
Pipe Section: \_\_\_\_\_ Weld Number: 8  
Weld location: \_\_\_\_\_  
Welder: LEONARD T. HARBACEW Inspector: Kelly Hardin

**Before Welding:**

Type of weld: (butt) X (other) \_\_\_\_\_

(1) Pipe #1 Size, Schedule and material: 2 ISOLATORS FOR Helium SUPPLY  
(2) Pipe #2 Size, Schedule and material: \_\_\_\_\_ 4 WELDS RETURN

**(1) Joint Preparation and Cleanliness**

Joint Preparation and Cleanliness acceptable? yes

**(2) Welding Machine**

(a) Remote foot pedal? X  
(b) DC straight machine? \_\_\_\_\_

**(3) Joint Fit-up, and Internal Alignment**

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

**(4) Filler Rod**

(a) AWS A5.9 stainless steel filler rod? 304  
(b) Filler rod: Class \_\_\_\_\_ Diameter .035

**(5) Purge Gas**

(a) type of purge gas: Argon  
(b) time length of purge: 1 MINUTE purge flow rate: 5-CFL  
(c) (if done) O2 reading: N/A O2 Monitor manf/model: N/A

**(6) Inspection After Root Pass**

(a) No visible cracks. None  
(b) No suck holes, which are small holes in middle of weld. None  
(c) No porosity or obvious imperfections. None  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hardin

**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 2-20-2015 Project: G-2  
Pipe Section: \_\_\_\_\_ Weld Number: 8  
Weld location: \_\_\_\_\_  
Welder: LEONARD-T. HANBACHER Inspector: Kelly Hadden

**Before Welding:**

Type of weld: (butt) \_\_\_\_\_ (other) FILLET  
(1) Pipe #1 Size, Schedule and material: NITROGEN OUTLET QUALITY METEX  
(2) Pipe #2 Size, Schedule and material: \_\_\_\_\_

ASSY  
10 WELDS

**(1) Joint Preparation and Cleanliness**

Joint Preparation and Cleanliness acceptable? yes

**(2) Welding Machine**

(a) Remote foot pedal? X  
(b) DC straight machine? \_\_\_\_\_

**(3) Joint Fit-up, and Internal Alignment**

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

**(4) Filler Rod**

(a) AWS A5.9 stainless steel filler rod? 304  
(b) Filler rod: Class \_\_\_\_\_ Diameter 1/16

**(5) Purge Gas**

(a) type of purge gas: ARGON  
(b) time length of purge: 3 MINUTES purge flow rate: 10 CFL  
(c) (if done) O2 reading: N/A O2 Monitor manf/model: N/A

**(6) Inspection After Root Pass**

(a) No visible cracks. NONE  
(b) No suck holes, which are small holes in middle of weld. NONE  
(c) No porosity or obvious imperfections. NONE  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 10 PASS EVERY WELD

(9) Final Inspection: Kelly Hadden



**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 3-25-2015 Project: G-2  
Pipe Section: Helium Line Weld Number: 8  
Weld location: G-2  
Welder: LEONARD J. JANCZEK Inspector: Kelly Hardin

**Before Welding:**

Type of weld: (butt) X (other) \_\_\_\_\_  
(1) Pipe #1 Size, Schedule and material: FIELD WELD TOP OF HELIUM TANK  
(2) Pipe #2 Size, Schedule and material: \_\_\_\_\_

1 WELD

**(1) Joint Preparation and Cleanliness**

Joint Preparation and Cleanliness acceptable? yes

**(2) Welding Machine**

(a) Remote foot pedal? X  
(b) DC straight machine? \_\_\_\_\_

**(3) Joint Fit-up, and Internal Alignment**

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

**(4) Filler Rod**

(a) AWS A5.9 stainless steel filler rod? 304  
(b) Filler rod: Class \_\_\_\_\_ Diameter .035

**(5) Purge Gas**

(a) type of purge gas : Argon  
(b) time length of purge: 10 MINUTE purge flow rate: 20 CFH  
(b) (if done) O2 reading: N/A O2 Monitor manf/model : N/A

**(6) Inspection After Root Pass**

(a) No visible cracks. NONE  
(b) No suck holes, which are small holes in middle of weld. NONE  
(c) No porosity or obvious imperfections. NONE  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hardin

**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 2-19-2015 Project: G-2  
Pipe Section: Helium Lines Weld Number: 8  
Weld location: \_\_\_\_\_  
Welder: LEONARD T. HARBACEK Inspector: Kelly Hood

Before Welding:

Type of weld: (butt)  (other) \_\_\_\_\_

(1) Pipe #1 Size, Schedule and material: 2 FIELD WELD OUT OF HELIUM BOX  
(2) Pipe #2 Size, Schedule and material: \_\_\_\_\_

(1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? yes

(2) Welding Machine

(a) Remote foot pedal?   
(b) DC straight machine? \_\_\_\_\_

(3) Joint Fit-up, and Internal Alignment

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

(4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 304  
(b) Filler rod: Class \_\_\_\_\_ Diameter .045

(5) Purge Gas

(a) type of purge gas : ARGON  
(b) time length of purge: 10 MINUTES purge flow rate: 20 CFH  
(c) (if done) O2 reading: N/A O2 Monitor manf/model : N/A

(6) Inspection After Root Pass

(a) No visible cracks. NONE  
(b) No suck holes, which are small holes in middle of weld. NONE  
(c) No porosity or obvious imperfections. NONE  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hood

**AD Cryogenics Department**  
**In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 2-19-2015 Project: U-2  
Pipe Section: \_\_\_\_\_ Weld Number: 8  
Weld location: \_\_\_\_\_  
Welder: LEONARD T. HARBACEK Inspector: Kelly Hard

Before Welding:

Type of weld: (butt) \_\_\_\_\_ (other) Fill  
(1) Pipe #1 Size, Schedule and material: 4 1/2 TUBE WITH 8 VCR FITTINGS  
(2) Pipe #2 Size, Schedule and material: \_\_\_\_\_ 8 WELDS

(1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? yes

(2) Welding Machine

(a) Remote foot pedal? X  
(b) DC straight machine? \_\_\_\_\_

(3) Joint Fit-up, and Internal Alignment

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

(4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 316  
(b) Filler rod: Class \_\_\_\_\_ Diameter .035

(5) Purge Gas

(a) type of purge gas : Argon  
(b) time length of purge: 5 MINUTES purge flow rate: 10 CFH  
(b) (if done) O2 reading: N/A O2 Monitor manf/model : N/A

(6) Inspection After Root Pass

(a) No visible cracks. None  
(b) No suck holes, which are small holes in middle of weld. None  
(c) No porosity or obvious imperfections. None  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hard

**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 2-19-2015 Project: h-2  
Pipe Section: \_\_\_\_\_ Weld Number: 8  
Weld location: \_\_\_\_\_  
Welder: LEONARD T. HARRISON Inspector: Kelly Hardin

Before Welding:

Type of weld: (butt) X (other) \_\_\_\_\_

(1) Pipe #1 Size, Schedule and material: CAST ELBOW + STRAIGHT TUBE

(2) Pipe #2 Size, Schedule and material: + PIPE THREAD ON ONE END

 2 WELD

(1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? Yes

(2) Welding Machine

(a) Remote foot pedal? X

(b) DC straight machine? \_\_\_\_\_

(3) Joint Fit-up, and Internal Alignment

(a) Internal alignment acceptable? Yes

(b) Joint Clearance acceptable? Yes

(c) End Preparation acceptable? Yes

(4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 304

(b) Filler rod: Class \_\_\_\_\_ Diameter .045

(5) Purge Gas

(a) type of purge gas : ARGON

(b) time length of purge: 1 MINUTE purge flow rate: 5 CFH

(c) (if done) O2 reading: NA O2 Monitor manf/model : N/A

(6) Inspection After Root Pass

(a) No visible cracks. None

(b) No suck holes, which are small holes in middle of weld. None

(c) No porosity or obvious imperfections. None

(d) Filler material fused along edges of weld. Yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hardin

**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 2-19-2015 Project: G-2  
Pipe Section: \_\_\_\_\_ Weld Number: 8  
Weld location: \_\_\_\_\_  
Welder: LEONARD J. WMAKEL Inspector: Kelly Hand

**Before Welding:**

Type of weld: (butt) \_\_\_\_\_ (other) FILLET  
(1) Pipe #1 Size, Schedule and material: 4 Tees  
(2) Pipe #2 Size, Schedule and material: #8 + 10 UCRS & WELAS

**(1) Joint Preparation and Cleanliness**

Joint Preparation and Cleanliness acceptable? yes

**(2) Welding Machine**

(a) Remote foot pedal? X  
(b) DC straight machine? \_\_\_\_\_

**(3) Joint Fit-up, and Internal Alignment**

(a) Internal alignment acceptable? N/A  
(b) Joint Clearance acceptable? N/A  
(c) End Preparation acceptable? N/A

**(4) Filler Rod**

(a) AWS A5.9 stainless steel filler rod? 316  
(b) Filler rod: Class \_\_\_\_\_ Diameter .035

**(5) Purge Gas**

(a) type of purge gas : Argon  
(b) time length of purge: 1 MINUTE PRIOR purge flow rate: 5 CFH  
(b) (if done) O2 reading: N/A O2 Monitor manf/model : N/A

**(6) Inspection After Root Pass**

(a) No visible cracks. None  
(b) No suck holes, which are small holes in middle of weld. None  
(c) No porosity or obvious imperfections. None  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hand

**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 2-19-2015 Project: G-2  
Pipe Section: Helium Line Weld Number: 8  
Weld location: \_\_\_\_\_  
Welder: Leonard T. Harbeck Inspector: Kelly Hard

Before Welding:

Type of weld: (butt) X (other) \_\_\_\_\_

(1) Pipe #1 Size, Schedule and material: Socket Bellows with two tubes

(2) Pipe #2 Size, Schedule and material: welded on each end + elbow  
welded on one end 4 welds

(1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? Yes

(2) Welding Machine

(a) Remote foot pedal? X

(b) DC straight machine? \_\_\_\_\_

(3) Joint Fit-up and Internal Alignment

(a) Internal alignment acceptable? Yes

(b) Joint Clearance acceptable? Yes

(c) End Preparation acceptable? Yes

(4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 304

(b) Filler rod: Class \_\_\_\_\_ Diameter .035

(5) Purge Gas

(a) type of purge gas : Argon

(b) time length of purge: 1 minute prior purge flow rate: 5-cek

(b) (if done) O2 reading: N/A O2 Monitor manf/model: N/A

(6) Inspection After Root Pass

(a) No visible cracks. None

(b) No suck holes, which are small holes in middle of weld. None

(c) No porosity or obvious imperfections. None

(d) Filler material fused along edges of weld. Yes

(8) Repeat inspection after every pass: 1 Pass

(9) Final Inspection: Kelly Hard

**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 2-19-2015 Project: GA-2  
Pipe Section: \_\_\_\_\_ Weld Number: 8  
Weld location: \_\_\_\_\_  
Welder: LEONARD T. HALBALEK Inspector: Kelly Hand

**Before Welding:**

Type of weld: (butt) X (other) \_\_\_\_\_

(1) Pipe #1 Size, Schedule and material: Socket Bellows with 2 Tubes

(2) Pipe #2 Size, Schedule and material: ONE EACH END WITH ELBOW  
WELDED ON ONE END

**(1) Joint Preparation and Cleanliness**

Joint Preparation and Cleanliness acceptable? yes 

**(2) Welding Machine**

(a) Remote foot pedal? X

(b) DC straight machine? \_\_\_\_\_

**(3) Joint Fit-up, and Internal Alignment**

(a) Internal alignment acceptable? yes

(b) Joint Clearance acceptable? yes

(c) End Preparation acceptable? yes

**(4) Filler Rod**

(a) AWS A5.9 stainless steel filler rod? 304

(b) Filler rod: Class \_\_\_\_\_ Diameter .035

**(5) Purge Gas**

(a) type of purge gas : ARGON

(b) time length of purge: 1 MINUTE PRIOR purge flow rate: 5 CFH

(b) (if done) O2 reading: NA O2 Monitor manf/model: NA

**(6) Inspection After Root Pass**

(a) No visible cracks. NONE

(b) No suck holes, which are small holes in middle of weld. NONE

(c) No porosity or obvious imperfections. NONE

(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hand

**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 2-19-2015 Project: 6-2  
Pipe Section: \_\_\_\_\_ Weld Number: 8  
Weld location: \_\_\_\_\_  
Welder: LEONARD T. HARBACH Inspector: Kelly Hardin

Before Welding:

Type of weld: (butt)  (other)

(1) Pipe #1 Size, Schedule and material: 2 Ceramic ISOLATORS

(2) Pipe #2 Size, Schedule and material: 4 FITTINGS 4 welds

(1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? yes

(2) Welding Machine

(a) Remote foot pedal?

(b) DC straight machine? \_\_\_\_\_

(3) Joint Fit-up and Internal Alignment

(a) Internal alignment acceptable? yes

(b) Joint Clearance acceptable? yes

(c) End Preparation acceptable? yes

(4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 304

(b) Filler rod: Class \_\_\_\_\_ Diameter .035

(5) Purge Gas

(a) type of purge gas : Argon

(b) time length of purge: 1 MINUTE PRIOR purge flow rate: 5-6FL

(b) (if done) O2 reading: N/A O2 Monitor manf/model : NA

(6) Inspection After Root Pass

(a) No visible cracks. NONE

(b) No suck holes, which are small holes in middle of weld. NONE

(c) No porosity or obvious imperfections. NONE

(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hardin



**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 2-19-2015 Project: 6-2  
Pipe Section: \_\_\_\_\_ Weld Number: 8  
Weld location: \_\_\_\_\_  
Welder: LEONARD T. HANBAUGH Inspector: Kelly Hardin

Before Welding:

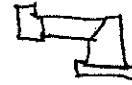
Type of weld: (butt) X (other) \_\_\_\_\_

(1) Pipe #1 Size, Schedule and material: 2 6" TUBES COJ AT 45°

(2) Pipe #2 Size, Schedule and material: 2 FLANGES ON EACH END 3 WELDS

(1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? yes



(2) Welding Machine

(a) Remote foot pedal? X

(b) DC straight machine? \_\_\_\_\_

(3) Joint Fit-up, and Internal Alignment

(a) Internal alignment acceptable? yes

(b) Joint Clearance acceptable? yes

(c) End Preparation acceptable? yes

(4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 304

(b) Filler rod: Class \_\_\_\_\_ Diameter .045

(5) Purge Gas

(a) type of purge gas : ARGON

(b) time length of purge: 5 MINUTES PRIOR purge flow rate: 10 CFH

(b) (if done) O2 reading: N/A O2 Monitor manf/model : N/A

(6) Inspection After Root Pass

(a) No visible cracks. NONE

(b) No suck holes, which are small holes in middle of weld. NONE

(c) No porosity or obvious imperfections. NONE

(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hardin

**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 2-19-2015 Project: G-2  
Pipe Section: \_\_\_\_\_ Weld Number: 8  
Weld location: \_\_\_\_\_  
Welder: LEONARD T. HARBACEK Inspector: Kelly Hood

**Before Welding:**

Type of weld: (butt) X (other) FILLET

(1) Pipe #1 Size, Schedule and material: BELLOWS WITH 2 TUBES ON EACH END  
(2) Pipe #2 Size, Schedule and material: 1 ISOLATER ON ONE END

**(1) Joint Preparation and Cleanliness**

Joint Preparation and Cleanliness acceptable? yes



**(2) Welding Machine**

(a) Remote foot pedal? X  
(b) DC straight machine? \_\_\_\_\_

**(3) Joint Fit-up, and Internal Alignment**

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

**(4) Filler Rod**

(a) AWS A5.9 stainless steel filler rod? 304  
(b) Filler rod: Class \_\_\_\_\_ Diameter .045

**(5) Purge Gas**

(a) type of purge gas : Argon  
(b) time length of purge: 1 MINUTE PRIOR purge flow rate: 5- CF6  
(b) (if done) O2 reading: N/A O2 Monitor manf/model : N/A

**(6) Inspection After Root Pass**

(a) No visible cracks. None  
(b) No suck holes, which are small holes in middle of weld. None  
(c) No porosity or obvious imperfections. None  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hood

**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 2-19-2015 Project: 2-2  
Pipe Section: \_\_\_\_\_ Weld Number: 8  
Weld location: \_\_\_\_\_  
Welder: LEONARD T. HARBACEK Inspector: Kelly Harder

**Before Welding:**

Type of weld: (butt) X (other) \_\_\_\_\_  
(1) Pipe #1 Size, Schedule and material: 1 1/2 ALUM TUBE CUT AT 45°  
(2) Pipe #2 Size, Schedule and material: ALUMINUM FLANGES 4 WELDS

**(1) Joint Preparation and Cleanliness**

Joint Preparation and Cleanliness acceptable? yes

**(2) Welding Machine**

(a) Remote foot pedal? Y  
(b) DC straight machine? \_\_\_\_\_

**(3) Joint Fit-up, and Internal Alignment**

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

**(4) Filler Rod**

(a) AWS A5.9 stainless steel filler rod? 4043  
(b) Filler rod: Class \_\_\_\_\_ Diameter 1/16

**(5) Purge Gas**

(a) type of purge gas : N/A  
(b) time length of purge: N/A purge flow rate: N/A  
(b) (if done) O2 reading: N/A O2 Monitor manf/model : N/A

**(6) Inspection After Root Pass**

(a) No visible cracks. NONE  
(b) No suck holes, which are small holes in middle of weld. NONE  
(c) No porosity or obvious imperfections. NONE  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Harder

**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 5-19-2015 Project: G-2  
Pipe Section: Helium Line Weld Number: 8  
Weld location: G-2  
Welder: LEONARD J. HARBAKEN Inspector: Kelly Hardin

**Before Welding:**

Type of weld: (butt)  (other) \_\_\_\_\_  
(1) Pipe #1 Size, Schedule and material: 6" TUBE  
(2) Pipe #2 Size, Schedule and material: 1 1/2" FLANGE 2 WELDS

**(1) Joint Preparation and Cleanliness**

Joint Preparation and Cleanliness acceptable? yes

**(2) Welding Machine**

(a) Remote foot pedal?   
(b) DC straight machine? \_\_\_\_\_

**(3) Joint Fit-up, and Internal Alignment**

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

**(4) Filler Rod**

(a) AWS A5.9 stainless steel filler rod? 304  
(b) Filler rod: Class \_\_\_\_\_ Diameter .035

**(5) Purge Gas**

(a) type of purge gas : Argon  
(b) time length of purge: 1 MINUTE PRIOR purge flow rate: 5 CFH  
(b) (if done) O2 reading: N/A O2 Monitor manf/model : NA

**(6) Inspection After Root Pass**

(a) No visible cracks. NONE  
(b) No suck holes, which are small holes in middle of weld. NONE  
(c) No porosity or obvious imperfections. NONE  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hardin

**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 5-19-2015 Project: U-2  
Pipe Section: Helium Line Weld Number: 8  
Weld location: U-2  
Welder: LEONARDO J. HARBACEK Inspector: Kelly Hurd

Before Welding:

Type of weld: (butt) \_\_\_\_\_ (other) 4  
(1) Pipe #1 Size, Schedule and material: FIELD WELDS SUPPLY + RETURN  
(2) Pipe #2 Size, Schedule and material: HELIUM LINE

(1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? yes

(2) Welding Machine

(a) Remote foot pedal? X  
(b) DC straight machine? \_\_\_\_\_

(3) Joint Fit-up, and Internal Alignment

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

(4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 304  
(b) Filler rod: Class \_\_\_\_\_ Diameter .045

(5) Purge Gas

(a) type of purge gas: ARGON  
(b) time length of purge: 5 MINUTES purge flow rate: 10 CFH  
(b) (if done) O2 reading: N/A O2 Monitor manf/model: N/A

(6) Inspection After Root Pass

(a) No visible cracks. NONE  
(b) No suck holes, which are small holes in middle of weld. NONE  
(c) No porosity or obvious imperfections. NONE  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hurd

**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 2-19-2015 Project: 6-2  
Pipe Section: AIR SYSTEM Weld Number: 8  
Weld location: \_\_\_\_\_  
Welder: LEONARD T. HARRACKER Inspector: Kelley Hardin

Before Welding:

Type of weld: (butt) X (other) \_\_\_\_\_

(1) Pipe #1 Size, Schedule and material: 4 - CYLINDER WITH CAPS + UICR FITTING  
(2) Pipe #2 Size, Schedule and material: 8 WELDS

(1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? yes

(2) Welding Machine

(a) Remote foot pedal? X

(b) DC straight machine? \_\_\_\_\_

(3) Joint Fit-up, and Internal Alignment

(a) Internal alignment acceptable? yes

(b) Joint Clearance acceptable? yes

(c) End Preparation acceptable? yes

(4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? ~~304~~ 316

(b) Filler rod: Class \_\_\_\_\_ Diameter .045

(5) Purge Gas

(a) type of purge gas : Argon

(b) time length of purge: 1 MINUTE PRIOR purge flow rate: 5 CFM

(b) (if done) O2 reading: N/A O2 Monitor manf/model : N/A

(6) Inspection After Root Pass

(a) No visible cracks. NONE

(b) No suck holes, which are small holes in middle of weld. NONE

(c) No porosity or obvious imperfections. NONE

(d) Filler material fused along edges of weld. NONE

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelley Hardin

**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 2-15-2015 Project: 6-2  
Pipe Section: 6-2 Weld Number: 8  
Weld location: \_\_\_\_\_  
Welder: LEONARD J. HARBACHEN Inspector: Kelly Hardin

Before Welding:

Type of weld: (butt) X (other) \_\_\_\_\_  
(1) Pipe #1 Size, Schedule and material: 4 VCR'S FITTINGS  
(2) Pipe #2 Size, Schedule and material: 2 MICRO FIT ELBOWS

(1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? yes

(2) Welding Machine

(a) Remote foot pedal? X  
(b) DC straight machine? \_\_\_\_\_

(3) Joint Fit-up, and Internal Alignment

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

(4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 316  
(b) Filler rod: Class \_\_\_\_\_ Diameter .035

(5) Purge Gas

(a) type of purge gas : Argon  
(b) time length of purge: 1 MINUTE PER IN purge flow rate: 5- CFH  
(b) (if done) O2 reading: N/A O2 Monitor manf/model : N/A

(6) Inspection After Root Pass

(a) No visible cracks. None  
(b) No suck holes, which are small holes in middle of weld. None  
(c) No porosity or obvious imperfections. None  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hardin

**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 2-15-2015 Project: G-2  
Pipe Section: \_\_\_\_\_ Weld Number: 8  
Weld location: \_\_\_\_\_  
Welder: LEONARD T. HARBALER Inspector: Kelly Hardie

Before Welding:

Type of weld: (butt)  (other) FUSION  
(1) Pipe #1 Size, Schedule and material: 6" MARMON  
(2) Pipe #2 Size, Schedule and material: CONFLAT FLANGE

(1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? yes

(2) Welding Machine

(a) Remote foot pedal?   
(b) DC straight machine? \_\_\_\_\_

(3) Joint Fit-up, and Internal Alignment

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

(4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? None  
(b) Filler rod: Class \_\_\_\_\_ Diameter \_\_\_\_\_

(5) Purge Gas

(a) type of purge gas : None  
(b) time length of purge: N/A purge flow rate: N/A  
(b) (if done) O2 reading: N/A O2 Monitor manf/model : N/A

(6) Inspection After Root Pass

(a) No visible cracks. None  
(b) No suck holes, which are small holes in middle of weld. None  
(c) No porosity or obvious imperfections. None  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hardie




**AD Cryogenics Department  
In-Process Weld Inspection Form**

(as per In-Process Weld Inspection Guidelines, AD Cryogenics, Nov 3, 2006)

Date 2-15-2015 Project: U-2  
Pipe Section: \_\_\_\_\_ Weld Number: 8  
Weld location: U-2  
Welder: LEONARD T. HANALEK Inspector: Kelly Hard

Before Welding:

Type of weld: (butt)  (other) \_\_\_\_\_  
(1) Pipe #1 Size, Schedule and material: 4" ALUM TUBE CUT AT 45°  
(2) Pipe #2 Size, Schedule and material: ALUMINUM FLANGE  LOWELPS

(1) Joint Preparation and Cleanliness

Joint Preparation and Cleanliness acceptable? yes

(2) Welding Machine

(a) Remote foot pedal?   
(b) DC straight machine? \_\_\_\_\_

(3) Joint Fit-up, and Internal Alignment

(a) Internal alignment acceptable? yes  
(b) Joint Clearance acceptable? yes  
(c) End Preparation acceptable? yes

(4) Filler Rod

(a) AWS A5.9 stainless steel filler rod? 4043  
(b) Filler rod: Class \_\_\_\_\_ Diameter 1/16

(5) Purge Gas

(a) type of purge gas : NA  
(b) time length of purge: NA purge flow rate: NA  
(b) (if done) O2 reading: N/A O2 Monitor manf/model : N/A

(6) Inspection After Root Pass

(a) No visible cracks. NONE  
(b) No suck holes, which are small holes in middle of weld. NONE  
(c) No porosity or obvious imperfections. NONE  
(d) Filler material fused along edges of weld. yes

(8) Repeat inspection after every pass: 1 PASS

(9) Final Inspection: Kelly Hard

## Fermilab Safety Code Requirements

Please fill out the following form verifying the minimum safety codes required by Fermilab have been met concerning leased cryogenic dewars which are owned and filled by the same vendor. A qualified employee's signature is required for verification.

1) Inner Pressure Vessel: ASME Boiler and Pressure Vessel Code (BPVC) Section VIII, CGA, or other applicable code

List Code Used: ASME SECTION VIII (VIA STAMP)

2) Relief Devices: Both the pressure and vacuum relief devices must be sized and rated at the applicable set pressure per ASME Boiler and Pressure Vessel Code (BPVC) Section VIII, CGA, API 521, or other applicable code

List Code Used: ASME SECTION VIII

3) Dewar Piping ASME B31.3, CGA, or other applicable code

List Code Used: ASME B31.3

4) Filling and Installation The vendor is responsible for the safe filling and installation of the dewar including adherence to CGA, API 521, or other applicable code

List Code Used: NFPA 55/CGA S-1.3-2008

5) All applicable code required examinations and tests shall be performed.

Vendor: AIR PRODUCTS

Qualified Employee (Print): BRYAN MIKO

I certify all of the above statements to be true:

Qualified Employee (Signature): [Signature]

Date: 4/26/2013