

January 14, 2016

Mr. Byron Coy  
Director, Eastern Region  
Pipeline and Hazardous Materials Safety Administration  
820 Bear Tavern Road  
Suite 103  
West Trenton, NJ 08628

**RE: Spectra Energy Partners, LP Response  
Notice of Amendment  
CPF 1-2015-1027M**

Dear Mr. Coy,

From October 16 to 22, 2015, a representative of the Connecticut Department of Energy and Environmental Protection (CT DEEP) acting as an agent Pipeline and Hazardous Materials Safety Administration ("PHMSA") conducted an inspection of Algonquin Gas Transmission's ("AGT"), a unit of Spectra Energy Partners ("SEP")<sup>1</sup>, main construction work (SEP's AIM project) along the pipeline right-of-way, west of Milestone Road in Danbury, Connecticut.

Based on the inspection, PHMSA issued the above referenced Notice of Amendment relating to one (1) alleged inadequacy within AGT's welding procedures. The following is a brief summary of PHMSA's findings and SEP's response.

- 1. AGT's welding procedure specification is inadequate in that it does not specify the size of the root bead opening. API 1104 section 5.3.2.4 and section 12.4.2.5 both require that the welding procedure specification shall include the size of the root bead opening. AGT was using weld procedure AIM-BMX-423.0 for the Spectra AIM project. The operator's representative said that the size of the root bead was brought to his attention. AGT revised its welding procedure specification to identify that the root opening shall be 1/16" to 5/32". This was established as the test weld for this procedure was made using a root opening in this range**

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<sup>1</sup> On November 1, 2013, Spectra Energy Corp ("Spectra Energy") completed the drop-down of substantially all of SET's remaining U.S. transmission, storage and liquids assets, including Texas Eastern Transmission, LP, ("TETLP") to Spectra Energy Partners, LP ("SEP"), a master limited partnership. A wholly owned subsidiary of Spectra Energy, is the general partner of SEP.

SEP acknowledges the above referenced welding procedure AIM-BMX-423.0 did not specify the size of the root bead opening as required in API 1104 section 5.3.2.4 and 12.4.2.5. The root bead measurements were made during the AIM Project weld procedure qualification but were inadvertently left out by SEP's welding contractor (CRC-Evans) when generating the welding procedure specification. Enclosed is a letter generated by CRC-Evans clarifying that all required dimensions were specified, verified and monitored during the weld procedure qualification process. SEP amended AIM-BMX-423.0 to indicate a root bead opening dimension of 1/16" to 5/32".

As an additional layer of protection to assure that all girth welds meet API 1104 requirements, SEP's construction specifications require all girth welds be non-destructively tested. *CS-NDE 1.3, Non-Destructive Examination, section 4A*, states that "100% of the natural gas carrying production welds, excluding gathering lines, shall be non-destructively inspected." Non-destructive examination would have identified any weld defects caused by an improper root bead opening, and necessary repairs would have been made for any girth weld that did not satisfy API 1104 Section 9 acceptance standards. Thus pipeline safety was not compromised by this deficiency in the welding procedure specification. SEP recognizes that API 1104 requires these dimensions to be stated within the welding procedure specification. Thus, SEP will not contest this NOA.

The welding procedure AIM-BMX-423.0 has been amended as required by the NOA. A revised version of the welding procedure (AIM-BMX-423.0 Rev 2) is enclosed. Upon PHMSA acceptance of the amended procedure as being adequate to address the issues noted in the NOA, SEP will review its other welding procedure specifications and amend them as needed to address the issue raised in this NOA.

Please call me at (713) 627-5008 if you need additional information.

Sincerely,



Nathan Atanu

Manager, Operational Compliance



# Welding Procedure Specification

WPS No.	
AIM-BMX-423.0	
Sheet 1 of 1	Rev. 2
Client Welding Spec.	CS-PL1-10.9
Welding Code/Standard	API 1104 20th Ed.
Supporting PQR(s)	1103-A

Client	Spectra Energy and Henkels & McCoy
Project	AIM Pipeline Project
Project No.	C-1483

<b>SMAW / Mechanized FCAW Mainline</b>					
Material Specification	API 5L				Not Applicable
Type or Grade	X-70M	To	X-70M	CE	Not Applicable
Nominal Thickness	0.938"	To	0.938"	Pcm	Not Applicable
Nominal Diameter	42"	To	42"		
Manufacturer(s)	BERG PIPE				

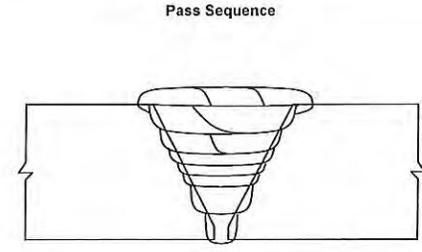
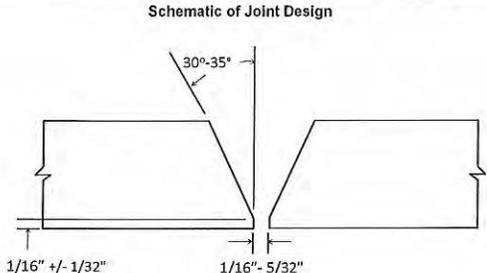
<b>Preheat/Interpass Information</b>	SMAW Preheat Temperature <sup>(1)</sup>	Minimum:	250 °F	Maximum:	400 °F
	SMAW Interpass Temperature <sup>(1)</sup>	Minimum:	250 °F	Maximum:	400 °F
	FCAW Interpass Temperature <sup>(1)</sup>	Minimum:	200 °F	Maximum:	400 °F
	Heating Method	Propane Torch / Resistance / Induction Coil			
	Control Method	Tempil Stick / Calibrated Contact Thermocouple			
	Distance to be Recorded	Preheat 2 inches from the bevel edge at the top and bottom of the weld. Interpass At the bevel edge at the location where the weld pass will start.			

<b>Operator/Welder Information</b>	Min. # of welders for root pass	2
	Min. # of welders on remaining	2

<b>Clamp Information</b>	Line-up Clamp Method	External Tipton Clamp
	Removal Stage	After 50% completion of the Root Pass.

<b>Time Between Passes</b>	Maximum time between end of root pass and start of next pass	60 Minutes
	Maximum time between hot pass and fill 1	As soon as applicable

<b>Joint/Bevel Information</b>	Joint Design/Type	V-Groove (Butt-Weld)
	Backing Requirements	Not Required
	Backing Material	Not Applicable



Representation of Typical Joint/Pass Configuration

Note: A minimum of 10 weld passes are required.

Notes:  
1. Dimensional Tolerances as per: API 1104 20th Ed.

Pass	Unit	Root	Hot Pass <sup>(3)</sup>	Fill 1	Fills 2-3 <sup>(4)</sup>	Fills 4-7	Strip Pass	Cap
Welding Process	(AWS)	SMAW	SMAW	FCAW	FCAW	FCAW	FCAW	FCAW
Welding Position	N/a	5G	5G	5G	5G	5G	5G	5G
Welding Direction	N/a	Downhill	Downhill	Downhill	Uphill	Uphill	Uphill	Uphill
Process Application	N/a	Manual	Manual	Mechanized	Mechanized	Mechanized	Mechanized	Mechanized
Welding System	N/a	Not Applicable	Not Applicable	M300	M300	M300	M300	M300
AWS Specification	(AWS)	A5.1	A5.5	A5.29	A5.29	A5.29	A5.29	A5.29
AWS Classification	(AWS)	E6010	E8010-P1	E81T1-GM	E81T1-GM	E81T1-GM	E81T1-GM	E81T1-GM
El./Wire Diameter	in.	1/8 & 5/32	5/32 & 3/16	0.047	0.047	0.047	0.047	0.047
Current and Polarity	+/-	DCEP	DCEP	DCEP	DCEP	DCEP	DCEP	DCEP
Shielding Composition	%	Not Applicable	Not Applicable	75Ar/25CO <sub>2</sub>	75Ar/25CO <sub>2</sub>	75Ar/25CO <sub>2</sub>	75Ar/25CO <sub>2</sub>	75Ar/25CO <sub>2</sub>
Shielding Flow Rate	CFH	Not Applicable	Not Applicable	60.0 74.0	60.0 74.0	60.0 74.0	60.0 74.0	60.0 74.0
Current	A	88 177	92 230	168 226	160 246	176 245	176 241	176 235
Voltage	V	16.5 34.5	14.8 39.0	22.9 28.0	22.8 28.6	22.2 28.7	22.7 28.8	22.6 28.8
Wire Feed Speed	in./min.	Not Applicable	Not Applicable	207 253	252 308	252 308	252 308	234 286
Travel Speed	in./min.	3.0 20.0	3.0 20.0	14.0 18.2	4.4 8.7	4.4 9.8	4.4 9.8	7.0 10.9
Heat Input	kJ/in.	11.0 60.6	7.6 94.2	15.5 23.3	30.8 69.6	29.4 68.0	30.0 57.4	26.8 47.2
Osc. Technique	N/a	Stringer	Stringer	Weave	Weave	Weave	Weave	Weave
Oscillation Speed	BPM	Not Applicable	Not Applicable	160 200	50 66	50 66	50 66	54 66
Oscillation Width	in.	As Needed	As Needed	0.18 0.22	0.18 0.50	0.18 0.44	0.18 0.44	0.18 0.24
Dwell Time	sec	As Needed	As Needed	0.018 0.022	0.200 0.400	0.200 0.400	0.200 0.400	0.200 0.400
Gas Nozzle Orifice Size	in.	Not Applicable	Not Applicable	0.75	0.75	0.75	0.75	0.75
C.T.W.D.	in.	Not Applicable	Not Applicable	As Needed	As Needed	As Needed	As Needed	As Needed
Head Angle	Deg.	As Needed	As Needed	0-5	0-5	0-5	0-5	0-5

- Notes:
- If the weld cools below the minimum preheat/interpass temperature, preheat shall be re-applied and the weld shall be reheated to the minimum preheat/interpass temperature around the full circumference of the pipe.
  - Grinding/Cleaning: Surfaces to be welded shall be smooth, uniform, free from lamination, scales, slag, grease, paint, and other foreign material that adversely affects welding. Cleaning tools include power brush, grinder, hand brush and/or file, which can be used as needed.
  - Special attention shall be given to the grinding preparation of the weld bead following completion of the SMAW hot pass and prior to the first downhill FCAW fill pass. When necessary, the weld metal shall be ground until free of any slag or excessive bead geometry that could hinder the welding performance.
  - Welds shall contain a minimum of 2 FCAW fill passes prior to being left incomplete.
  - Post Weld Heat Treat not required.

CRC Originator  <b>Ryan Keisling</b>  Date 10/26/2015	 <b>Paul Spielbauer</b> <small>CRC Reviewer          DN: cn=Paul Spielbauer, o=Stanley Oil&amp;Gas, ou=CRC-Evans Onshore West, email=paul.spielbauer@stnrc.com, c=US          Date: 2015.10.26 12:20:52 -0500</small>	Client Approval  <b>Russell J. Scoles</b>  Date 10/26/2015	Contractor Approval   <b>10/26/15</b>  Date
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Procedure Qualification Record

Weld # Sheet 1 of 1  
**1103-A**  
 Client Spec: CS-PL1-10.9  
 Welding Code: API 1104 20th Ed

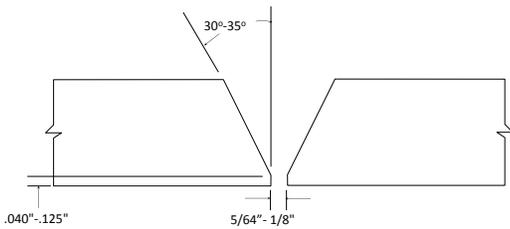
Mainline Procedure

Material Specification:	API 5L	to	API 5L	Contractor:	Henkels & McCoy
Type or Grade:	X-70M	to	X-70M	Company:	Spectra Energy
Nominal Thickness:	0.938"	to	0.938"	Project(s):	AIM Pipeline Project
Nominal Diameter:	42.0"	to	42.0"	% C:	Not Applicable
Manufacturer(s):	Berg	to	Berg	CE:	Not Applicable
Heat Number(s):	634011	to	634011	Pcm:	Not Applicable

Welding Parameters

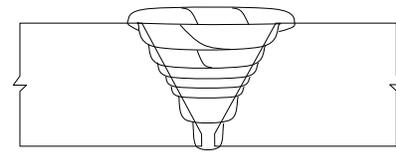
Pass No.	Units	Root	Hot Pass	Fill 1	Remaining Fills & Strip	Cap
Travel Direction		Downhill	Downhill	Downhill	Uphill	Uphill
EI./Wire Manufacturer		Lincoln Electric	Lincoln Electric	Lincoln Electric	Lincoln Electric	Lincoln Electric
EI./Wire Trade Name		Fleetweld 5P+	Pipeliners Arc 80	Pipeliners 81M	Pipeliners 81M	Pipeliners 81M
EI./Wire Classification	AWS	E6010	E8010-P1	E81T1-GM	E81T1-GM	E81T1-GM
EI./Wire Heat Number		Not Applicable	Not Applicable	1128S & 1180N	1128S & 1180N	1128S & 1180N
EI./Wire Diameter	in.	1/8 & 5/32	5/32 & 3/16	0.047	0.047	0.047
Gas Flow Rate	CFH	Not Applicable	Not Applicable	67	67	67
Shielding Gas Type	%	Not Applicable	Not Applicable	75Ar/25CO <sub>2</sub>	75Ar/25CO <sub>2</sub>	75Ar/25CO <sub>2</sub>
Gas Nozzle Orifice Size	in.	Not Applicable	Not Applicable	0.75	0.75	0.75
C.T.W.D	in.	Not Applicable	Not Applicable	As Needed	As Needed	As Needed
Oscillation Rate	BPM	As Required	As Required	180	55-60	60
Oscillation Width	in.	As Required	As Required	0.20	0.22-0.40	0.22
Head Angle	Deg.	Not Applicable	Not Applicable	0-5	0-5	0-5
Equipment Type		Not Applicable	Not Applicable	M300	M300	M300
Welding Process		SMAW	SMAW	FCAW-G	FCAW-G	FCAW-G
Welding Position		5G	5G	5G	5G	5G
Electrical Current/Polarity		DCEP	DCEP	DCEP	DCEP	DCEP

Schematic of Joint Design



Representation of Typical Joint/Pass Configuration

Weld Pass Sequence



Pass No.	Units	Root	Hot Pass	Fill 1	Fill 2	Fill 3	Fill 4	Fill 5	Fill 6	Fill 7	Strip 1	Strip 2	Cap 1	Cap 2	Cap 3
Max Amps	A	161	209	205	224	208	218	218	218	223	211	219	213	212	214
Min Amps	A	98	102	187	199	178	196	204	195	196	196	196	196	196	198
Max Volts	V	31.4	35.5	26.7	25.9	26.0	26.1	25.9	26.0	26.1	26.2	25.8	26.2	25.9	26.0
Min Volts	V	18.3	16.4	25.4	25.3	25.3	24.8	25.2	25.0	24.7	25.3	25.2	25.3	25.1	25.3
Max WFS	in./min.	NA	NA	230	280	280	280	280	280	280	280	280	260	260	260
Min WFS	in./min.	NA	NA	230	280	280	280	280	280	280	280	280	260	260	260
Max Travel Speed	in./min.	8.8	11.9	16.5	7.9	7.9	8.9	8.9	8.9	8.9	8.9	8.9	9.9	9.9	9.9
Min Travel Speed	in./min.	5.5	5.2	15.5	5.5	5.5	7.0	7.0	5.5	6.5	6.5	6.5	7.8	7.8	7.8
Max Heat Input	kJ/in.	55.1	85.6	21.2	63.3	59.0	48.8	48.4	61.8	53.7	51.0	52.2	42.9	42.2	42.8
Min Heat Input	kJ/in.	12.2	8.4	17.3	38.2	34.2	32.8	34.7	32.9	32.6	33.4	33.3	30.1	29.8	30.4
Max Temperature	F°	250	289	255	217	241	256	292	330	253	227	311	250	292	318

Notes

Welder Information:	CW Side: Seth Dyas & Derrick Green	CCW Side: Toby Guidry & Zack Strickland			
Weld Time/Date:	Root Complete: 3:45 PM	Hot Pass Start: 4:54 PM	8/3/2015	Weld Complete: 1:32 PM	8/4/15
Power Supplies:	Root Pass: Lincoln Advantage 400 & Miller PipePro 304	Remaining Passes: Miller BigBlue PipePro 350			
Heating Method:	Propane Torch				
Grinding/Cleaning:	Hand filing, Power grinding and power cleaning as needed.				
Clamp Information:	External clamp removed after 50% of the Root pass was complete.				
Preheat/Interpass:	Min. Preheat: 250° F	Max. Interpass: 330° F	Min. FCAW Preheat: 255° F		
Comments:					
Visual Inspection:	Acceptable				
Radiographic Inspection:	Acceptable				
Mechanical Testing:	Acceptable				
					Prepared By: Ryan Keisling



**CRC-EVANS Automatic Welding**

7011 High Life Drive  
Houston, Texas, USA – 77066

To Whom It May Concern:

This letter is to confirm that the root gap measurements were made during the AIM Pipeline procedure qualification but were inadvertently left out of the welding procedures.

During welding, a Floor Sheet was used to record the necessary welding information, which eventually was transferred into a digital PQR format. When the PQR's and WPS's were being authored, the root gap dimension was overlooked and is the reason that the specified root gap was absent on the original documents. Since then, the welding procedures have been revised to reflect the recorded information. Together with this statement are the Floor Sheets that the PQR values were derived from.

When the error had been caught, the revised WPS's with the root gap dimensions were re-issued, but the PQR's of the previous revision were distributed with them. The most current PQR's that specify the measured root gap have been supplied to Spectra Energy to correct this mistake.

Sincerely,

A handwritten signature in blue ink, appearing to read "Ryan Keisling".

Ryan Keisling  
Welding Engineer  
CRC-Evans Pipeline International



[www.crc-evans.com](http://www.crc-evans.com)