



Camrose ERW

EVRAZ Camrose
CERTIFICATE OF TESTING
Tensile & Chemistry

Friday, July 28, 2017, 12:09:21

Certificate ID: 175163-3

Customer PO: 44771

Customer: ALBERTA PRODUCTS PIPE LINE LTD.

Diameter: 323.9 mm Wall Thickness: 9.500 mm Grade: GR.414-2
Specification: CSA Z245.1-14 GRADE 414 CAT II MSC, APPL Spec A00-10-STD-0002 Rev. 2, TSR 152197Rev. 2 and related agreements

Mill Order No: WA 054608-01

Table with columns: Supplier - Heat, Product ID, Test Type, Orientation, Wgt (%), C, Mn, P, S, Si, Cu, Ni, Cr, Mo, Sn, UTS (MPa), Elong% (50mm), Y/T, CEQ, Ca, Ce, SoAI. Rows include product details for various heat treatments and orientations.

TPA - Transverse Pipe Axis
PA - Longitudinal Pipe Axis

Flattening Test Acceptable

23100 KPA for 10 secs

We certify that the product described above has been manufactured, sampled, inspected, and tested in accordance to the referenced specification. The product has been found to be in compliance with all requirements.



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Certificate ID: 175163-3

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Diameter: 323.9 mm Wall Thickness: 9.500 mm Grade: GR.414-2  
Specification: CSA Z245.1-14 GRADE 414 CAT II MSC, APPL Spec A00-10-STD-0002 Rev. 2, TSR 152197Rev. 2 and related agreements

Mill Order No: WA 054608-01

Supplier - Heat	Product ID	Test Type				Orientation				Width (mm)		YS (MPa)		UTS (MPa)		Elong% (50mm)		Y/T		CEQ	Ca	Ce	SoAl
		Wgt (%)	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Sn	Al	V	Cb	N2	Ti	B					
TWA - Transverse Weld Axis FST - Full Section Testing FBN - Full Body Normalized Q&T - Quenched and Tempered SR - Stress Relieve AQ - As Quenched		Ultrasonic Weld Line Inspection Acceptable High Frequency Electric Welded Deoxidization Practice: Aluminum Fully Killed UT Cal. to 1/8" Drilled Hole and/or N10 ID/OD Notches Root Guided Bend Test Acceptable FLVI - Full length Visual Melted & Manufactured in Canada Yield Strength: 0.5% EFLI Steelmaking and Rolling at EVRAZ Regina Steel				Minimum Weld Seam Heat Treatment Temperature: 900 (C)																 Jamie Mohler	

form crtr3001XL



Camrose ERW

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CERTIFICATE OF TESTING
Tensile & Chemistry

Friday, July 28, 2017, 13:03:27

Certificate ID: 175170-3

Customer PO:

Customer: ALBERTA PRODUCTS PIPE LINE LTD.

Diameter: 323.9 mm Wall Thickness: 9.500 mm Grade: GR.414-2
Specification: CSA Z245.1-14 GRADE 414 CAT II M45C, APPL Spec A00-10-STD-0002 Rev. 2, TSR 152197Rev. 2 and related agreements

Mill Order No: WA 054608-02

Table with columns: Supplier - Heat, Product ID, Test Type, Orientation, Width (mm), YS (MPa), UTS (MPa), Elong% (50mm), Y/T, CEQ, Ca, Ce, SoAl. Rows include product details for various heat treatments and orientations.

TPA - Transverse Pipe Axis
PA - Longitudinal Pipe Axis

Flattening Test Acceptable

23100 KPA for 10 secs

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Friday, July 28, 2017, 13:03:27

Certificate ID: 175170-3

Customer PO:

Customer: ALBERTA PRODUCTS PIPE LINE LTD.

Diameter: 323.9 mm Wall Thickness: 9.500 mm Grade: GR.414-2  
Specification: CSA Z245.1-14 GRADE 414 CAT II M45C, APPL Spec A00-10-STD-0002 Rev. 2, TSR 152197Rev. 2 and related agreements

Mill Order No: WA 054608-02

Supplier - Heat	Product ID	Test Type				Orientation				Width (mm)		YS (MPa)		UTS (MPa)		Elong% (50mm)		Y/T		CEQ	Ca	Ce	SoAl
		Wgt (%)	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Sn	Al	V	Cb	N2	Ti	B					
TWA - Transverse Weld Axis FST - Full Section Testing FBN - Full Body Normalized Q&T - Quenched and Tempered SR - Stress Relieve AQ - As Quenched		Ultrasonic Weld Line Inspection Acceptable High Frequency Electric Welded Deoxidization Practice: Aluminum Fully Killed UT Cal. to 1/8" Drilled Hole and/or N10 ID/OD Notches Root Guided Bend Test Acceptable FLVI - Full length Visual Melted & Manufactured in Canada Yield Strength: 0.5% EFLI Steelmaking and Rolling at EVRAZ Regina Steel																				 Jamie Mohler	

Minimum Weld Seam Heat Treatment Temperature: 900 (C)

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Camrose ERW

EVRAZ Camrose
CERTIFICATE OF TESTING
Charpy

Friday, July 28, 2017, 12:09:21

Certificate ID: 175163-1

Customer PO: 44771

Customer: ALBERTA PRODUCTS PIPE LINE LTD.

Diameter: 323.9 mm

Wall Thickness: 9.500 mm

Grade: GR.414-2

Mill Order No: WA 054608-01

Specification: CSA Z245.1-14 GRADE 414 CAT II MSC, APPL Spec A00-10-STD-0002 Rev. 2, TSR 152197Rev. 2 and related agreements

Table with columns: Supplier - Heat, Product ID, Test Type, Orientation, Temp C, Energy (Joules) (#1, #2, #3, Avg), Percent Shear (#1, #2, #3, Avg), Test Position, Size, Flat. Contains multiple rows of test data for EVRAZ Regina products.

TPA - Transverse Pipe Axis
LPA - Longitudinal Pipe Axis
TWA - Transverse Weld Axis
FST - Full Section Testing
FBN - Full Body Normalized
Q&T - Quenched and Tempered
SR - Stress Relieve
AQ - As Quenched
PS - Full Size

Flattening Test Acceptable
Ultrasonic Weld Line Inspection Acceptable
High Frequency Electric Welded
Desoxidization Practice: Aluminum Fully Killed
UT Cal. to 1/8" Drilled Hole and/or N10 ID/OD Notches
Root Guided Bend Test Acceptable
FLVI - Full length Visual
Melted & Manufactured in Canada
Yield Strength: 0.5% EUL
Steelmaking and Rolling at EVRAZ Regina Steel

FSE Acceptance Criteria: Body: 54 WMZ: 27 HAZ: 0

23100 KPA for 10 secs
Minimum Weld Seam Heat Treatment Temperature: 900 (C)

We certify that the product described above has been manufactured, sampled, inspected, and tested in accordance to the referenced specification. The product has been found to be in compliance with all requirements.

Jamie Mohler (Signature)



Camrose ERW

EVRAZ Camrose
CERTIFICATE OF TESTING
Charpy

Friday, July 28, 2017, 13:03:27

Certificate ID: 175170-1

Customer PO:

Mill Order No: WA 054608-02

Customer: ALBERTA PRODUCTS PIPE LINE LTD.

Diameter: 323.9 mm

Wall Thickness: 9.500 mm

Grade: GR.414-2

Specification: CSA Z245.1-14 GRADE 414 CAT II M45C, APPL Spec A00-10-STD-0002 Rev. 2, TSR 152197Rev. 2 and related agreements

Table with columns: Supplier - Heat, Product ID, Test Type, Orientation, Temp C, Energy (Joules) (#1, #2, #3, Avg), Percent Shear (#1, #2, #3, Avg), Test Position, Size, Flat. Contains multiple rows of test data for EVRAZ Regina products.

TPA - Transverse Pipe Axis
LPA - Longitudinal Pipe Axis
TWA - Transverse Weld Axis
PST - Full Section Testing
FBN - Full Body Normalized
Q&T - Quenched and Tempered
SR - Stress Relieve
AQ - As Quenched
PS - Full Size

Flattening Test Acceptable
Ultrasonic Weld Line Inspection Acceptable
High Frequency Electric Welded
Desoxidization Practice: Aluminum Fully Killed
UT Cal. to 1/8" Drilled Hole and/or N10 ID/OD Notches
Root Guided Bend Test Acceptable
FLVI - Full length Visual
Melted & Manufactured in Canada
Yield Strength: 0.5% EUL
Steelmaking and Rolling at EVRAZ Regina Steel

FSE Acceptance Criteria: Body: 54 WMZ: 27 HAZ: 0

23100 KPA for 10 secs
Minimum Weld Seam Heat Treatment Temperature: 900 (C)

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J. Mohler
Jamie Mohler



Camrose ERW

### EVRAZ Camrose CERTIFICATE OF TESTING

Friday, July 28, 2017, 12:09:21

Certificate ID: **175163-2**

Customer P.O.: **44771**

Customer: **ALBERTA PRODUCTS PIPE LINE LTD.**

#### Macro Hardness

Diameter: **323.9 mm** Wall Thickness: **9.500 mm** Grade: **GR.414-2**  
Specification: **CSA Z245.1-14 GRADE 414 CAT II MSC, APPL Spec A00-10-STD-0002 Rev. 2, TSR 152197Rev. 2 and related agreements**

Mill Order No: **WA 054608-01**

Supplier - Heat	Product ID	Test Type	Scale	MS	Location	PM			HAZ			WMZ			HAZ			PM			AVERAGES		
																					PM	HAZ	WMZ
EVRAZ Regina - 406708	AE-120D CC857 7891-N	MILL CONTROL	Rockwell A	OK	OD	56.6	0.0	0.0	56.1	0.0	0.0	57.9	0.0	0.0	57.9	0.0	0.0	57.1	0.0	0.0	56.9	57.0	57.9
	AE-120D CC857 7891-N	MILL CONTROL	Rockwell A	OK	ID	56.5	0.0	0.0	54.1	0.0	0.0	55.6	0.0	0.0	55.1	0.0	0.0	56.8	0.0	0.0	56.7	54.6	55.6
EVRAZ Regina - 525473	AE-120D CC707 7006-L	MILL CONTROL	Rockwell A	OK	OD	54.4	0.0	0.0	54.8	0.0	0.0	56.7	0.0	0.0	56.4	0.0	0.0	54.3	0.0	0.0	54.4	55.6	56.7
	AE-120D CC707 7006-L	MILL CONTROL	Rockwell A	OK	ID	54.6	0.0	0.0	52.7	0.0	0.0	55.0	0.0	0.0	54.2	0.0	0.0	56.3	0.0	0.0	55.5	53.5	55.0
EVRAZ Regina - 525474	AE-120D CC753 7671-J	MILL CONTROL	Rockwell A	OK	OD	56.2	0.0	0.0	55.3	0.0	0.0	57.8	0.0	0.0	57.3	0.0	0.0	56.4	0.0	0.0	56.3	56.3	57.8
	AE-120D CC753 7671-J	MILL CONTROL	Rockwell A	OK	ID	56.4	0.0	0.0	54.1	0.0	0.0	55.7	0.0	0.0	54.4	0.0	0.0	56.3	0.0	0.0	56.4	54.3	55.7
EVRAZ Regina - 525475	AE-120D CC734 7386-L	MILL CONTROL	Rockwell A	OK	OD	56.6	0.0	0.0	55.6	0.0	0.0	58.0	0.0	0.0	57.5	0.0	0.0	56.0	0.0	0.0	56.3	56.6	58.0
	AE-120D CC734 7386-L	MILL CONTROL	Rockwell A	OK	ID	56.1	0.0	0.0	54.3	0.0	0.0	56.1	0.0	0.0	55.1	0.0	0.0	55.9	0.0	0.0	56.0	54.7	56.1
EVRAZ Regina - 525476	AE-120D CC715 7110-V	MILL CONTROL	Rockwell A	OK	OD	55.4	0.0	0.0	55.5	0.0	0.0	57.0	0.0	0.0	55.4	0.0	0.0	55.0	0.0	0.0	55.2	55.5	57.0
	AE-120D CC715 7110-V	MILL CONTROL	Rockwell A	OK	ID	54.5	0.0	0.0	52.7	0.0	0.0	54.6	0.0	0.0	53.6	0.0	0.0	55.3	0.0	0.0	54.9	53.2	54.6
EVRAZ Regina - 525477	AE-120D CC727 7287-L	MILL CONTROL	Rockwell A	OK	OD	56.6	0.0	0.0	55.9	0.0	0.0	57.9	0.0	0.0	57.4	0.0	0.0	56.8	0.0	0.0	56.7	56.7	57.9
	AE-120D CC727 7287-L	MILL CONTROL	Rockwell A	OK	ID	55.6	0.0	0.0	53.0	0.0	0.0	55.7	0.0	0.0	54.2	0.0	0.0	56.2	0.0	0.0	55.9	53.6	55.7
EVRAZ Regina - 525478	AE-120D CC760 7776-N	MILL CONTROL	Rockwell A	OK	OD	54.9	0.0	0.0	54.4	0.0	0.0	56.4	0.0	0.0	56.0	0.0	0.0	55.1	0.0	0.0	55.0	55.2	56.4
	AE-120D CC760 7776-N	MILL CONTROL	Rockwell A	OK	ID	54.3	0.0	0.0	53.1	0.0	0.0	54.7	0.0	0.0	52.7	0.0	0.0	54.2	0.0	0.0	54.3	52.9	54.7
EVRAZ Regina - 525479	AE-120D CC741 7491-T	MILL CONTROL	Rockwell A	OK	OD	56.7	0.0	0.0	56.2	0.0	0.0	57.9	0.0	0.0	57.2	0.0	0.0	56.0	0.0	0.0	56.4	56.7	57.9
	AE-120D CC741 7491-T	MILL CONTROL	Rockwell A	OK	ID	56.2	0.0	0.0	54.6	0.0	0.0	56.3	0.0	0.0	54.7	0.0	0.0	56.3	0.0	0.0	56.3	54.7	56.3
EVRAZ Regina - 525480	AE-120D CC747 7581-V	MILL CONTROL	Rockwell A	OK	OD	49.5	0.0	0.0	52.6	0.0	0.0	55.9	0.0	0.0	54.3	0.0	0.0	54.1	0.0	0.0	51.8	53.5	55.9
	AE-120D CC747 7581-V	MILL CONTROL	Rockwell A	OK	ID	56.1	0.0	0.0	53.8	0.0	0.0	54.8	0.0	0.0	53.8	0.0	0.0	55.9	0.0	0.0	56.0	53.8	54.8
EVRAZ Regina - 525481	AE-120D CC721 7199-H	MILL CONTROL	Rockwell A	OK	OD	56.6	0.0	0.0	56.6	0.0	0.0	58.4	0.0	0.0	57.5	0.0	0.0	57.3	0.0	0.0	57.0	57.1	58.4
	AE-120D CC721 7199-H	MILL CONTROL	Rockwell A	OK	ID	56.6	0.0	0.0	55.2	0.0	0.0	56.7	0.0	0.0	55.6	0.0	0.0	56.5	0.0	0.0	56.6	55.4	56.7
EVRAZ Regina - 525749	AE-120D CC856 7868-H	MILL CONTROL	Rockwell A	OK	OD	56.8	0.0	0.0	56.6	0.0	0.0	57.3	0.0	0.0	56.1	0.0	0.0	56.7	0.0	0.0	56.8	56.4	57.3
	AE-120D CC856 7868-H	MILL CONTROL	Rockwell A	OK	ID	56.7	0.0	0.0	54.1	0.0	0.0	55.4	0.0	0.0	54.6	0.0	0.0	57.3	0.0	0.0	57.0	54.4	55.4

MS - Micro Structure  
 FN - Full Body Normalized  
 Q&T - Quenched and Tempered  
 SR - Stress Relieve  
 AQ - As Quenched

Flattening Test: Acceptable  
 Ultrasonic Weld Line Inspection: Acceptable  
 High Frequency Electric Welded  
 Deoxidization Practice: Aluminum Fully Killed  
 UT Cal. to 1/8" Drilled Hole and/or N10 ID/OD Notches  
 Root Guided Bend Test: Acceptable  
 F&V - Full length Visual  
 Melted & Manufactured in Canada  
 Yield Strength: 0.5% EUL  
 Steelmaking and Rolling at EVRAZ Regina Steel

23100 KPA for 10 secs  
 Minimum Weld Seam Heat Treatment Temperature: 900 (C)

We certify that the product described above has been manufactured, sampled, inspected, and tested in accordance to the referenced specification. The product has been found to be in compliance with all requirements.

*J. Mohler*  
 Jamie Mohler

form crtr3006XL



Camrose ERW

### EVRAZ Camrose CERTIFICATE OF TESTING

Friday, July 28, 2017, 13:03:27

Certificate ID: **175170-2**

#### Macro Hardness

Customer PO:

Customer: ALBERTA PRODUCTS PIPE LINE LTD.

Diameter: 323.9 mm Wall Thickness: 9.500 mm Grade: GR.414-2  
Specification: CSA Z245.1-14 GRADE 414 CAT II M45C, APPL Spec A00-10-STD-0002 Rev. 2, TSR 152197Rev. 2 and related agreements

Mill Order No: WA 054608-02

Supplier - Heat	Product ID	Test Type	Scale	MS	Location	PM			HAZ			WMZ			HAZ			PM			AVERAGES		
																					PM	HAZ	WMZ
EVRAZ Regina - 406708	AE-120D CC857 7891-N	MILL CONTROL	Rockwell A	OK	OD	56.6	0.0	0.0	56.1	0.0	0.0	57.9	0.0	0.0	57.9	0.0	0.0	57.1	0.0	0.0	56.9	57.0	57.9
	AE-120D CC857 7891-N	MILL CONTROL	Rockwell A	OK	ID	56.5	0.0	0.0	54.1	0.0	0.0	55.6	0.0	0.0	55.1	0.0	0.0	56.8	0.0	0.0	56.7	54.6	55.6
EVRAZ Regina - 525473	AE-120D CC707 7006-L	MILL CONTROL	Rockwell A	OK	OD	54.4	0.0	0.0	54.8	0.0	0.0	56.7	0.0	0.0	56.4	0.0	0.0	54.3	0.0	0.0	54.3	55.6	56.7
	AE-120D CC707 7006-L	MILL CONTROL	Rockwell A	OK	ID	54.6	0.0	0.0	52.7	0.0	0.0	55.0	0.0	0.0	54.2	0.0	0.0	56.3	0.0	0.0	55.5	53.5	55.0
EVRAZ Regina - 525474	AE-120D CC753 7671-J	MILL CONTROL	Rockwell A	OK	OD	56.2	0.0	0.0	55.3	0.0	0.0	57.8	0.0	0.0	57.3	0.0	0.0	56.4	0.0	0.0	56.3	56.3	57.8
	AE-120D CC753 7671-J	MILL CONTROL	Rockwell A	OK	ID	56.4	0.0	0.0	54.1	0.0	0.0	55.7	0.0	0.0	54.4	0.0	0.0	56.3	0.0	0.0	56.4	54.3	55.7
EVRAZ Regina - 525475	AE-120D CC734 7386-L	MILL CONTROL	Rockwell A	OK	OD	56.6	0.0	0.0	55.6	0.0	0.0	58.0	0.0	0.0	57.5	0.0	0.0	56.0	0.0	0.0	56.3	56.6	58.0
	AE-120D CC734 7386-L	MILL CONTROL	Rockwell A	OK	ID	56.1	0.0	0.0	54.3	0.0	0.0	56.1	0.0	0.0	55.1	0.0	0.0	55.9	0.0	0.0	56.0	54.7	56.1
EVRAZ Regina - 525476	AE-120D CC715 7110-V	MILL CONTROL	Rockwell A	OK	OD	55.4	0.0	0.0	55.5	0.0	0.0	57.0	0.0	0.0	55.4	0.0	0.0	55.0	0.0	0.0	55.2	55.5	57.0
	AE-120D CC715 7110-V	MILL CONTROL	Rockwell A	OK	ID	54.5	0.0	0.0	52.7	0.0	0.0	54.6	0.0	0.0	53.6	0.0	0.0	55.3	0.0	0.0	54.9	53.2	54.6
EVRAZ Regina - 525477	AE-120D CC727 7287-L	MILL CONTROL	Rockwell A	OK	OD	56.6	0.0	0.0	55.9	0.0	0.0	57.9	0.0	0.0	57.4	0.0	0.0	56.8	0.0	0.0	56.7	56.7	57.9
	AE-120D CC727 7287-L	MILL CONTROL	Rockwell A	OK	ID	55.6	0.0	0.0	53.0	0.0	0.0	55.7	0.0	0.0	54.2	0.0	0.0	56.2	0.0	0.0	55.9	53.6	55.7
EVRAZ Regina - 525478	AE-120D CC760 7776-N	MILL CONTROL	Rockwell A	OK	OD	54.9	0.0	0.0	54.4	0.0	0.0	56.4	0.0	0.0	56.0	0.0	0.0	55.1	0.0	0.0	55.0	55.2	56.4
	AE-120D CC760 7776-N	MILL CONTROL	Rockwell A	OK	ID	54.3	0.0	0.0	53.1	0.0	0.0	54.7	0.0	0.0	52.7	0.0	0.0	54.2	0.0	0.0	54.3	52.9	54.7
EVRAZ Regina - 525479	AE-120D CC741 7491-T	MILL CONTROL	Rockwell A	OK	OD	56.7	0.0	0.0	56.2	0.0	0.0	57.9	0.0	0.0	57.2	0.0	0.0	56.0	0.0	0.0	56.4	56.7	57.9
	AE-120D CC741 7491-T	MILL CONTROL	Rockwell A	OK	ID	56.2	0.0	0.0	54.6	0.0	0.0	56.3	0.0	0.0	54.7	0.0	0.0	56.3	0.0	0.0	56.3	54.7	56.3
EVRAZ Regina - 525480	AE-120D CC747 7581-V	MILL CONTROL	Rockwell A	OK	OD	49.5	0.0	0.0	52.6	0.0	0.0	55.9	0.0	0.0	54.3	0.0	0.0	54.1	0.0	0.0	51.8	53.5	55.9
	AE-120D CC747 7581-V	MILL CONTROL	Rockwell A	OK	ID	56.1	0.0	0.0	53.8	0.0	0.0	54.8	0.0	0.0	53.8	0.0	0.0	55.9	0.0	0.0	56.0	53.8	54.8
EVRAZ Regina - 525481	AE-120D CC721 7199-H	MILL CONTROL	Rockwell A	OK	OD	56.6	0.0	0.0	56.6	0.0	0.0	58.4	0.0	0.0	57.5	0.0	0.0	57.3	0.0	0.0	57.0	57.1	58.4
	AE-120D CC721 7199-H	MILL CONTROL	Rockwell A	OK	ID	56.6	0.0	0.0	55.2	0.0	0.0	56.7	0.0	0.0	55.6	0.0	0.0	56.5	0.0	0.0	56.6	55.4	56.7
EVRAZ Regina - 525749	AE-120D CC856 7868-H	MILL CONTROL	Rockwell A	OK	OD	56.8	0.0	0.0	56.6	0.0	0.0	57.3	0.0	0.0	56.1	0.0	0.0	56.7	0.0	0.0	56.8	56.4	57.3
	AE-120D CC856 7868-H	MILL CONTROL	Rockwell A	OK	ID	56.7	0.0	0.0	54.1	0.0	0.0	55.4	0.0	0.0	54.6	0.0	0.0	57.3	0.0	0.0	57.0	54.4	55.4

MS - Micro Structure  
 FN - Full Body Normalized  
 Q&T - Quenched and Tempered  
 SR - Stress Relieve  
 AQ - As Quenched

Flattening Test: Acceptable  
 Ultrasonic Weld Line Inspection: Acceptable  
 High Frequency Electric Welded  
 Deoxidization Practice: Aluminum Fully Killed  
 UT Cal. to 1/8" Drilled Hole and/or N10 ID/OD Notches  
 Root Guided Bend Test: Acceptable  
 F&V - Full length Visual  
 Melted & Manufactured in Canada  
 Yield Strength: 0.5% EUL  
 Steelmaking and Rolling at EVRAZ Regina Steel

23100 KPA for 10 secs  
 Minimum Weld Seam Heat Treatment Temperature: 900 (C)

We certify that the product described above has been manufactured, sampled, inspected, and tested in accordance to the referenced specification. The product has been found to be in compliance with all requirements.

*J. Mohler*  
 Jamie Mohler

form crtr3006XL



Camrose ERW

EVRAZ Camrose
CERTIFICATE OF TESTING
Tensile & Chemistry

Friday, July 28, 2017, 13:09:04

Certificate ID: 175173-6

Customer PO: 44771

Customer: ALBERTA PRODUCTS PIPE LINE LTD.

Diameter: 323.9 mm Wall Thickness: 12.700 mm Grade: GR.414-2
Specification: CSA Z245.1-14 GRADE 414 CAT II MSC, APPL Spec A00-10-STD-0002 Rev. 2, TSR 152197Rev. 2 and related agreements

Mill Order No: WA 054608-03

Table with columns: Supplier - Heat, Product ID, Test Type, Orientation, Wgt (%), C, Mn, P, S, Si, Cu, Ni, Cr, Mo, Sn, YS (MPa), UTS (MPa), Elong% (50mm), Y/T, CEQ, Ca, Ce, SoAI. Rows include data for various heat treatments and product types like AE-120E 9139-H, AE-120E 9080-J, etc.



Camrose ERW

### EVRAZ Camrose CERTIFICATE OF TESTING Tensile & Chemistry

Friday, July 28, 2017, 13:09:04

Certificate ID: 175173-6

Customer PO: 44771

Customer: ALBERTA PRODUCTS PIPE LINE LTD.

Diameter: 323.9 mm Wall Thickness: 12.700 mm Grade: GR.414-2  
Specification: CSA Z245.1-14 GRADE 414 CAT II MSC, APPL Spec A00-10-STD-0002 Rev. 2, TSR 152197Rev. 2 and related agreements

Mill Order No: WA 054608-03

Supplier - Heat	Product ID	Test Type	Orientation						Width (mm)		YS (MPa)		UTS (MPa)		Elong% (50mm)		Y/T		CEQ	Ca	Ce	SoAl
			Wgt (%)	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Sn	Al	V	Cb	N2	Ti				
EVRAZ Regina - 525614	AE-120E 9178-T	MILL CONTROL	PIPE TPA						37.800		481		567		40.7		0.85		0.19	0.0030	0.001	0.033
	AE-120E 9178-T	MILL CONTROL	PIPE TWA						37.800				603		0.0		0.00					
	Heat:	0.04	1.28	0.011	0.001	0.11	0.29	0.10	0.11	0.04	0.011	0.034	0.00	0.07	0.010	0.02	0.0002					
	Product:	0.04	1.26	0.010	0.001	0.11	0.28	0.10	0.11	0.04	0.010	0.035	0.00	0.07	0.009	0.02	0.0001					
	Heat:	0.04	1.27	0.011	0.001	0.11	0.29	0.10	0.11	0.04	0.011	0.033	0.00	0.07	0.010	0.02	0.0001					
	Product:	0.04	1.27	0.011	0.001	0.11	0.29	0.10	0.11	0.04	0.011	0.033	0.00	0.07	0.010	0.02	0.0001					
EVRAZ Regina - 525515	AE-120E 9640-T	MILL CONTROL	PIPE TPA						37.821		504		587		39.8		0.86		0.19	0.0027	0.000	0.032
	AE-120E 9640-T	MILL CONTROL	PIPE TWA						37.851				638		0.0		0.00					
	Heat:	0.04	1.29	0.012	0.002	0.11	0.29	0.10	0.09	0.03	0.010	0.035	0.00	0.07	0.009	0.02	0.0002					
	Product:	0.04	1.28	0.012	0.002	0.12	0.28	0.10	0.10	0.03	0.010	0.036	0.00	0.07	0.009	0.02	0.0001					
	Heat:	0.04	1.30	0.012	0.002	0.12	0.29	0.10	0.10	0.03	0.011	0.036	0.00	0.07	0.009	0.02	0.0001					
	Product:	0.04	1.30	0.012	0.002	0.12	0.29	0.10	0.10	0.03	0.011	0.036	0.00	0.07	0.009	0.02	0.0001					
EVRAZ Regina - 525663	AE-120E 9906-L	MILL CONTROL	PIPE TPA						37.869		496		575		43.0		0.86		0.19	0.0041	0.000	0.038
	AE-120E 9906-L	MILL CONTROL	PIPE TWA						37.960				605		0.0		0.00					
	Heat:	0.04	1.30	0.009	0.002	0.12	0.24	0.10	0.09	0.05	0.008	0.039	0.00	0.07	0.011	0.02	0.0002					
	Product:	0.04	1.30	0.009	0.002	0.12	0.24	0.10	0.09	0.05	0.008	0.041	0.00	0.07	0.010	0.02	0.0001					
	Heat:	0.04	1.28	0.008	0.002	0.12	0.24	0.10	0.09	0.04	0.008	0.039	0.00	0.07	0.010	0.02	0.0001					
	Product:	0.04	1.28	0.008	0.002	0.12	0.24	0.10	0.09	0.04	0.008	0.039	0.00	0.07	0.010	0.02	0.0001					
EVRAZ Regina - 525664	AE-120E 9992-S	MILL CONTROL	PIPE TPA						37.780		490		572		41.3		0.86		0.19	0.0021	0.001	0.037
	AE-120E 9992-S	MILL CONTROL	PIPE TWA						37.821				584		0.0		0.00					
	Heat:	0.04	1.26	0.008	0.001	0.12	0.25	0.10	0.08	0.04	0.009	0.038	0.00	0.07	0.009	0.02	0.0002					
	Product:	0.05	1.26	0.008	0.001	0.12	0.24	0.10	0.08	0.04	0.009	0.040	0.00	0.07	0.009	0.02	0.0001					
	Heat:	0.04	1.26	0.008	0.001	0.12	0.24	0.10	0.08	0.04	0.008	0.038	0.00	0.07	0.010	0.02	0.0001					
	Product:	0.04	1.26	0.007	0.001	0.12	0.24	0.10	0.08	0.04	0.008	0.038	0.00	0.07	0.010	0.02	0.0001					

TPA - Transverse Pipe Axis  
 LPA - Longitudinal Pipe Axis  
 TWA - Transverse Weld Axis  
 FST - Full Section Testing  
 FBN - Full Body Normalized  
 Q&T - Quenched and Tempered  
 SR - Stress Relieve  
 AQ - As Quenched

Flattening Test Acceptable  
 Ultrasonic Weld Line Inspection Acceptable  
 High Frequency Electric Welded  
 Deoxidization Practice: Aluminum Fully Killed  
 UT Cal. to 1/8" Drilled Hole and/or N10 ID/OD Notches  
 Root Guided Bend Test Acceptable  
 FLVI - Full length Visual  
 Melted & Manufactured in Canada  
 Yield Strength: 0.5% EUL  
 Steelmaking and Rolling at EVRAZ Regina Steel

27600 KPA for 10 secs  
 Minimum Weld Seam Heat Treatment Temperature: 900 (C)

We certify that the product described above has been manufactured, sampled, inspected, and tested in accordance to the referenced specification. The product has been found to be in compliance with all requirements.

*J. Mohler*  
 Jamie Mohler



Camrose ERW

EVRAZ Camrose
CERTIFICATE OF TESTING
Tensile & Chemistry

Friday, July 28, 2017, 13:27:18

Certificate ID: 175177-3

Customer PO:

Customer: ALBERTA PRODUCTS PIPE LINE LTD.

Diameter: 323.9 mm Wall Thickness: 12.700 mm Grade: GR.414-2
Specification: CSA Z245.1-14 GRADE 414 CAT II M45C, APPL Spec A00-10-STD-0002 Rev. 2, TSR 152197Rev. 2 and related agreements

Mill Order No: WA 054608-04

Main data table with columns: Supplier - Heat, Product ID, Test Type, Orientation, Wgt (%), C, Mn, P, S, Si, Cu, Ni, Cr, Mo, Sn, YS (MPa), UTS (MPa), Elong% (50mm), Y/T, CEQ, Ca, Ce, SoAl. Includes rows for EVRAZ Regina - 525499, 525514, and 525515.

TPA - Transverse Pipe Axis
LPA - Longitudinal Pipe Axis
TWA - Transverse Weld Axis
FST - Full Section Testing
FBN - Full Body Normalized
Q&T - Quenched and Tempered
SR - Stress Relieve
AQ - As Quenched

Flattening Test Acceptable
Ultrasonic Weld Line Inspection Acceptable
High Frequency Electric Welded
Deoxidization Practice: Aluminum Fully Killed
UT Cal. to 1/8" Drilled Hole and/or N10 ID/OD Notches
Root Guided Bend Test Acceptable
FLVI - Full length Visual
Melted & Manufactured in Canada
Yield Strength: 0.5% EFL
Steelmaking and Rolling at EVRAZ Regina Steel

27600 KPA for 10 secs
Minimum Weld Seam Heat Treatment Temperature: 900 (C)

We certify that the product described above has been manufactured, sampled, inspected, and tested in accordance to the referenced specification. The product has been found to be in compliance with all requirements.

J. Mohler
Jamie Mohler



Camrose ERW

EVRAZ Camrose
CERTIFICATE OF TESTING
Macro Hardness

Friday, July 28, 2017, 13:09:04

Certificate ID: 175173-5

Customer P.O: 44771

Customer: ALBERTA PRODUCTS PIPE LINE LTD.

Diameter: 323.9 mm Wall Thickness: 12.700 mm Grade: GR.414-2
Specification: CSA Z245.1-14 GRADE 414 CAT II MSC, APPL Spec A00-10-STD-0002 Rev. 2, TSR 152197Rev. 2 and related agreements

Mill Order No: WA 054608-03

Table with columns: Supplier - Heat, Product ID, Test Type, Scale, MS, Location, PM, HAZ, WMZ, HAZ, PM, AVERAGES (PM, HAZ, WMZ). Rows include test results for EVRAZ Regina - 525498 through 525664.

MS - Micro Structure
FM - Full Body Normalized
Q&T - Quenched and Tempered
SR - Stress Relieve
MQ - As Quenched

Flattening Test Acceptable
Ultrasonic Weld Line Inspection Acceptable
High Frequency Electric Welded
Deoxidization Practice: Aluminum Fully Killed
UT Cal. to 1/8" Drilled Hole and/or N10 ID/OD Notches
Root Guided Bend Test Acceptable
FLVI - Full length Visual
Melted & Manufactured in Canada
Yield Strength: 0.5% EUL
Steelmaking and Rolling at EVRAZ Regina Steel

We certify that the product described above has been manufactured, sampled, inspected, and tested in accordance to the referenced specification. The product has been found to be in compliance with all requirements.
Signature: Jamie Mohler

form crtr3006XL



**EVRAZ Camrose**  
**CERTIFICATE OF TESTING**  
**Charpy**

Friday, July 28, 2017, 13:27:18

Certificate ID: **175177-1**

Camrose ERW

Customer: **ALBERTA PRODUCTS PIPE LINE LTD.**

Diameter: **323.9 mm**

Wall Thickness: **12.700 mm**

Grade: **GR.414-2**

Customer PO: **WA 054608-04**

Specification: **CSA Z245.1-14 GRADE 414 CAT II M45C, APPL Spec A00-10-STD-0002 Rev. 2, TSR 152197Rev. 2 and related agreements**

Supplier - Heat	Product ID	Test Type	Orientation	Temp C	Energy (Joules)				Percent Shear				Test Position	Size	Flat
					#1	#2	#3	Avg	#1	#2	#3	Avg			
EVRAZ Regina - 525499	AE-120E CC772 9080-J	MILL CONTROL	PIPE TPA	-45	133	250	200	194	70	100	100	90	90	2/3	
	AE-120E CC772 9080-J	MILL CONTROL	PIPE TWA	-45	210	236	235	227	100	100	100	100	WMZ	2/3	
EVRAZ Regina - 525514	AE-120E CC780 9178-T	MILL CONTROL	PIPE TPA	-45	155	190	160	168	90	100	100	97	90	2/3	
	AE-120E CC780 9178-T	MILL CONTROL	PIPE TWA	-45	192	256	220	223	100	100	100	100	WMZ	2/3	
EVRAZ Regina - 525515	AE-120E CC819 9640-T	MILL CONTROL	PIPE TPA	-45	142	174	180	165	80	100	100	93	90	2/3	
	AE-120E CC819 9640-T	MILL CONTROL	PIPE TWA	-45	202	186	176	188	100	100	100	100	WMZ	2/3	

TPA - Transverse Pipe Axis  
 LPA - Longitudinal Pipe Axis  
 TWA - Transverse Weld Axis  
 FST - Full Section Testing  
 FBN - Full Body Normalized  
 Q&T - Quenched and Tempered  
 SR - Stress Relieve  
 AQ - As Quenched  
 FS - Full Size

Flattening Test Acceptable  
 Ultrasonic Weld Line Inspection Acceptable  
 High Frequency Electric Welded  
 Deoxidization Practice: Aluminum Fully Killed  
 UT Cal. to 1/8" Drilled Hole and/or N10 ID/OD Notches  
 Root Guided Bend Test Acceptable  
 FLVT - Full length Visual  
 Melted & Manufactured in Canada  
 Yield Strength: 0.5% EUL  
 Steelmaking and Rolling at EVRAZ Regina Steel

FSE Acceptance Criteria: Body: 54 WMZ: 27 HAZ: 0  
 27600 KPA for 10 secs  
 Minimum Weld Seam Heat Treatment Temperature: 900 (C)

We certify that the product described above has been manufactured, sampled, inspected, and tested in accordance to the referenced specification. The product has been found to be in compliance with all requirements.

**Jamie Mohler**

form crtr3004XL



Camrose ERW

### EVRAZ Camrose CERTIFICATE OF TESTING

Friday, July 28, 2017, 13:27:18

Certificate ID: **175177-2**

Customer PO:

Customer: ALBERTA PRODUCTS PIPE LINE LTD.

Diameter: **323.9 mm** Wall Thickness: **12.700 mm** Grade: **GR.414-2**  
Specification: **CSA Z245.1-14 GRADE 414 CAT II M45C, APPL Spec A00-10-STD-0002 Rev. 2, TSR 152197Rev. 2 and related agreements**

Mill Order No: **WA 054608-04**

Supplier - Heat	Product ID	Test Type	Scale	MS	Location	PM			HAZ			WMZ			HAZ			PM			AVERAGES			
																					PM	HAZ	WMZ	
EVRAZ Regina - 525499	AE-120E	CC772 9080-J	MILL CONTROL	Rockwell A	OK	OD	57.1	0.0	0.0	57.1	0.0	0.0	57.8	0.0	0.0	56.8	0.0	0.0	56.2	0.0	0.0	56.7	57.0	57.8
	AE-120E	CC772 9080-J	MILL CONTROL	Rockwell A	OK	ID	55.7	0.0	0.0	54.1	0.0	0.0	54.6	0.0	0.0	53.5	0.0	0.0	56.3	0.0	0.0	56.0	53.8	54.6
EVRAZ Regina - 525514	AE-120E	CC780 9178-T	MILL CONTROL	Rockwell A	OK	OD	55.5	0.0	0.0	57.1	0.0	0.0	57.6	0.0	0.0	56.1	0.0	0.0	54.8	0.0	0.0	55.2	56.6	57.6
	AE-120E	CC780 9178-T	MILL CONTROL	Rockwell A	OK	ID	55.3	0.0	0.0	53.2	0.0	0.0	54.6	0.0	0.0	52.7	0.0	0.0	54.6	0.0	0.0	55.0	53.0	54.6
EVRAZ Regina - 525515	AE-120E	CC819 9640-T	MILL CONTROL	Rockwell A	OK	OD	55.2	0.0	0.0	57.7	0.0	0.0	58.4	0.0	0.0	57.7	0.0	0.0	56.4	0.0	0.0	55.8	57.7	58.4
	AE-120E	CC819 9640-T	MILL CONTROL	Rockwell A	OK	ID	56.1	0.0	0.0	54.2	0.0	0.0	55.0	0.0	0.0	53.5	0.0	0.0	55.7	0.0	0.0	55.9	53.9	55.0

MS - Micro Structure  
 FN - Full Body Normalized  
 Q&T - Quenched and Tempered  
 SR - Stress Relieve  
 AQ - As Quenched

Flattening Test Acceptable  
 Ultrasonic Weld Line Inspection Acceptable  
 High Frequency Electric Welded  
 Deoxidization Practice: Aluminum Fully Killed  
 UT Cal. to 1/8" Drilled Hole and/or N10 ID/OD Notches  
 Root Guided Bend Test Acceptable  
 FLVI - Full length Visual  
 Melted & Manufactured in Canada  
 Yield Strength: 0.5% EUL  
 Steelmaking and Rolling at EVRAZ Regina Steel

27600 KPA for 10 secs  
 Minimum Weld Seam Heat Treatment Temperature: 900 (C)

We certify that the product described above has been manufactured, sampled, inspected, and tested in accordance to the referenced specification. The product has been found to be in compliance with all requirements.

*J. Mohler*  
**Jamie Mohler**

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