



MATERIAL TEST REPORT

Results are only to items tested. Test report not to be reproduced except in full without written approval of the Quality Manager

LSO: 2001391744 **Product:** 11.750 60.00 L-80 PSL 2 **15-DUSS-04-235744** **Customer Order:** 15-135
 Item: 1 .489" Wall
 Heat: 76000D **Specification:** Buttress T&C RG 3 (38' - 42.5') C **Customer Resource:**
 Lot: 19 API 5CT 9TH EDITION (1/1/12), L80 PSL-2, ERW **Customer Specification:**
 MANUFACTURED IN THE U.S.A. ; COUNTRY OF MELT U.S.A.

*****Sold to***** *****Ship to*****

TUBULAR SOLUTIONS ALASKA LLC
TUBULAR SOLUTIONS ALASKA LLC
310 K ST STE 402
ANCHORAGE AK 99501-2039

TUBULAR SOLUTIONS ALASKA LLC
TUBULAR SOLUTIONS ALASKA LLC
C/O AWE YARD
SPUR 5438
FAIRBANKS AK 99701

CHEMICAL ANALYSIS %

	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Sn	Al	V	B	Cb	Ti	Ca	N	O	CEQ	DI	PeM	SR1	SR2	SR3
Heat	.24	1.37	.011	.004	.20	.03	.01	.064	.035	.009	.030	.034	.0002	.003	.003	.0022	.0049		.494		0.32			
Check	.25	1.39	.010	.005	.20	.02	.01	.067	.032	.008	.032	.033	.0002	.003	.003	.0020	.0013		.512		0.34			
Check	.25	1.39	.009	.005	.20	.02	.01	.067	.032	.008	.031	.033	.0003	.003	.003	.0020	.0015		.508		0.34			
Check																								

Heat analysis performed at separate location

MECHANICAL PROPERTIES

Hardness Tests

Test	Dir	Loc	Notch	Yield	Tensile	Elong. %	Fracture	Y/T	Grain Size	Scale	Loc.	Hard 1	Hard 2	Hard 3	Avg.
				KSI	KSI	in 2"	Location	Ratio							
1	L	B	N	89.8	100.1	32		.91	Collapse, PSI	HRBW OD		96.5	98.0	96.7	97.1
2	L	B	N	90.8	101.7	30		.89	Hydrotest, PSI 5300	HRBW MW		95.2	95.1	95.6	95.3
3									Flattening P	HRBW ID		95.8	95.9	95.7	95.8
4									Specimen Size 1.5	HRBW OD		97.4	96.6	98.9	97.6
									Heat Treat Type	HRBW MW		95.4	96.5	97.4	96.4
										HRBW ID		96.9	98.5	97.8	97.7

Charpy Impact Tests

Test	Dir	Loc	Size	Temp	Energy1	Energy 2	Energy 3	Avg.	% Shear 1	% Shear 2	%Shear 3	Avg	Latt Exp. 1	Latt Exp. 2	Latt Exp. 3	Avg.
1	T	W	3/4	-50F	44	44	46	44.7	75	75	80	76.7				
2	T	W	3/4	-50F	46	48	46	46.7	75	75	75	75				
3																
4																

Remarks

Inspection Performed

HYDRO TEST HELD - 5 SECONDS
REFERENCED STANDARD - N5 NOTCH
MIN HEAT TREATMENT OF WELD SEAM - 1600 DEG F

VISUAL
ULTRASONIC WELDLINE
FULL BODY ULTRASONIC

Tests are performed in accordance with one or more of the following test methods: E3, E8, E10, E18, E45, E112, E340, E381, E384, E407, E415, E1019, E1077, A255, A370

A. F. Hanson, Jr.

Supplier Notification of SARA Title 313 chemical(s) subject to the reporting requirements of EPCRA section 313(40 CFR 372): MN 7439-96-5 1.41% by wt.

Quality Manager

This is to certify that the product described herein was manufactured, sampled, tested, and/or inspected in accordance with the specification/order and fulfills the requirements in such respects

MELTED AT: GRANITE CITY WORKS, GRANITE CITY, IL
COIL ROLLED AT: GRANITE CITY WORKS, GRANITE CITY, IL



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Product: 11.750 60.00 L-80 PSL 2
.489" Wall
Buttress T&C RG 3 (38' - 42.5') C
Specification: API 5CT 9TH EDITION (1/1/12), L80 PSL-2, ERW

Customer Order: 15-135

Item: 1

Customer Resource:

Heat: 76003D

Customer Specification:

Lot: 14

MANUFACTURED IN THE U.S.A. ; COUNTRY OF MELT U.S.A.

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*******Ship to*******

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310 K ST STE 402

TUBULAR SOLUTIONS ALASKA LLC
TUBULAR SOLUTIONS ALASKA LLC
C/O AWE YARD
SPUR 5438

ANCHORAGE AK 99501-2039

FAIRBANKS AK 99701

CHEMICAL ANALYSIS %

	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Sn	Al	V	B	Cb	Ti	Ca	N	O	CEQ	DI	PcM	SR1	SR2	SR3
Heat	.23	1.33	.016	.005	.20	.02	.01	.070	.034	.002	.032	.032	.0000	.000	.002	.0022	.0051		.480		0.31			
Check	.24	1.37	.015	.005	.20	.02	.01	.072	.032	.002	.038	.033	.0000	.002	.002	.0030	.0031		.496		0.32			
Check	.25	1.37	.015	.006	.20	.02	.01	.072	.033	.002	.037	.033	.0000	.002	.002	.0030	.0026		.507		0.33			
Check																								

Heat analysis performed at separate location

MECHANICAL PROPERTIES

Hardness Tests

Test	Dir	Loc	Notch	Yield		Tensile	Elong. %	Fracture	Y/T	Grain Size	Hardness Tests												
				KSI	KSI	KSI	in 2"	Location	Ratio		Scale	Loc.	Hard 1	Hard 2	Hard 3	Avg.							
1	L	B	N	86.1	101.2	101.2	31		.85	Collapse, PSI	HRBW OD	95.5	97.9	96.2	96.5								
2	L	B	N	90.1	104.2	104.2	32		.87	Hydrotest, PSI 5300	HRBW MW	97.6	97.0	97.1	97.2								
3										Flattening P	HRBW ID	97.7	98.5	97.9	98.0								
4										Specimen Size 1.5	HRBW OD	97.5	97.0	96.8	97.1								
										Heat Treat Type	HRBW MW	96.9	96.4	97.9	97.1								
											HRBW ID	96.2	96.8	96.4	96.5								

Charpy Impact Tests

Test	Dir	Loc	Size	Temp	Energy1	Energy 2	Energy 3	Avg.	% Shear 1	% Shear 2	%Shear 3	Avg	Latt Exp. 1	Latt Exp. 2	Latt Exp. 3	Avg.
1	T	W	3/4	-50F	45	47	46	46	75	80	80	78.3				
2	T	W	3/4	-50F	46	50	48	48	80	80	80	80				
3																
4																

Remarks

HYDRO TEST HELD - 5 SECONDS
REFERENCED STANDARD - N5 NOTCH
MIN HEAT TREATMENT OF WELD SEAM - 1600 DEG F

Supplier Notification of SARA Title 313 chemical(s)
subject to the reporting requirements of EPCRA section
313(40 CFR 372): MN 7439-96-5 1.37% by wt.

MELTED AT: GRANITE CITY WORKS, GRANITE CITY, IL
COIL ROLLED AT: GRANITE CITY WORKS, GRANITE CITY, IL

Inspection Performed

VISUAL
ULTRASONIC WELDLINE
FULL BODY ULTRASONIC

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U. S. Steel Tubular Products
Lone Star Tubular Operations

P.O. Box 1000
HWY. 259 S.
Lone Star, TX 75668

ISO 9001 REGISTERED QUALITY SYSTEM

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Page 1 of 1

Print Date: 11/23/2015

Serial Number: 2015 652753

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Customer Order: 15-135

Item: 1

Customer Resource:

Heat: 76001D

Customer Specification:

Lot: 15

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Heat	.23	1.34	.011	.005	.19	.02	.01	.066	.035	.002	.033	.035	.0000	.002	.002	.0029	.0049		.486		0.32			
Check	.25	1.37	.009	.006	.19	.02	.01	.070	.032	.001	.035	.033	.0003	.002	.002	.0030	.0031		.509		0.34			
Check	.25	1.41	.009	.005	.20	.02	.01	.071	.033	.001	.040	.035	.0002	.003	.003	.0030	.0094		.513		0.34			
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Hardness Tests

Test	Dir	Loc	Notch	Yield KSI	Tensile KSI	Elong. % in 2"	Fracture Location	Y/T Ratio	Grain Size	Hardness Tests				
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3									Flattening P	HRBW ID	97.0	97.4	96.5	97.0
4									Specimen Size 1.5	HRBW OD	97.9	97.5	97.5	97.6
									Heat Treat Type	HRBW MW	96.1	96.3	96.1	96.2
										HRBW ID	97.5	97.7	97.9	97.7

Charpy Impact Tests

Test	Dir	Loc	Size	Temp	Energy1	Energy2	Energy3	Avg.	% Shear 1	% Shear 2	% Shear 3	Avg	Latt Exp. 1	Latt Exp. 2	Latt Exp. 3	Avg.
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