



# Mill Test Certificate

**Bri-Steel Manufacturing Inc.**  
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0913** Product Size: **NPS 20 TRUE40** Production Date: **May 16, 2013**

Production Method: **Hot Expansion** Product Heat Treatment: **As-rolled**

Product Standards: **ASME B36.10-2004, API 5L-44th Ed. Grade B PSL1, ASTM/ASME A/SA106-2011 Grade B/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010**

Product Markings: **BRI-STEEL MFG <API> 5L-0898 API 5L GR B PSL1 ASTM/ASME A/SA106 GR B/C A/SA53 GR B NPS 20 TRUE40 0.594 inchWT HEAT BSM-0913 (PIPE # LENGTH MASS) 122.9lb/ft NDE 1370 PSI SM1S NACE MR0175 2013/05 MADE IN CANADA.**

Product Details						Non-Destructive Testing									
Heat	Test Type	Product Size	Pieces	Length	Mass	Geiger	Res Mag.	Visual	OD	WT	UT	UT	ET	HydroTest	End
BSM-0913	Heat	NPS 20 TRUE40 0.594 in. WT	6	DRL	lb/ft 122.90	µR/hr <5	Gauss <20	Insp. Pass	Pass	Pass	Pass	Pass	Pass	Pass	Plain End

Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Analysis	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE	CE
BSM-0913	Blast Furnace: EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.20	0.87	0.016	0.006	0.26	0.06	0.01	-	0.04	-	-	-	-	(IIW)	(CSA)
		Product	0.21	0.88	0.024	0.009	0.25	0.07	0.01	0.00	0.04	0.003	0.002	0.001	0.0001	0.38	0.38

Mechanical Properties													
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test	Yield (Rt0.5)	Tensile (Rm)	V/T	Elongation (A)				
BSM-0913	Heat	Ferrite & Pearlite	HRBW 77	Pass	50mm GL Longitudinal; 38.1mm x WT	psi 45,000	psi 73,000		(Rt0.5/Rm) 0.62				
Heat	Test Standard	Impact Test	Temp	Impact Energy	% Shear	AVG	AVG	AVG	Lateral Expansion				
BSM-0913	-	Sample Details	°C	J	%	%	%	mm	mm	mm	mm	mm	mm
			-	-	-	-	-	-	-	-	-	-	-

**Additional Details:**

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with API 5L-44th Ed., ASTM/ASME A/SA106-2011, A/SA53-2012, and the purchase order requirements, and that the results meet the corresponding requirements.
- ✓ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service, and NACE MR0103-2010 Section 2.1.
- ✓ No weld repairs have been performed on this product.
- ✓ This product has not come into contact with mercury during the Bri-Steel Manufacturing processes.
- ✓ This certificate represents a quality control system that is compliant with EN 10204:2004 Type 3.1.

Mill Test Certificate approved by:

*Kenton Dechant*  
 2013 May 31

Kenton Dechant, P.Eng.  
 Manager of Quality and R&D