




# Mill Test Certificate

Bri-Steel Manufacturing Inc.  
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Product: Seamless Carbon Steel Pipe      Product Heat Number: BSM-2199      Product Size: 18T80      Production Date: Dec 11, 2014  
Production Method: Hot Expansion      Product Heat Treatment: As-rolled      Certificate No.: MTR- 001511  
Product Standards: ASME B36.10-2004, API 5L-45th Ed. Grade B PSL1, ASTM/ASME A106-2014/SA106-2013 Grade B NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012  
Product Markings  
 <API & L/C No.> API SPEC 5L NPS 18 TRUE 80 0.940 INCHWT GR B PSL1 SMLS 2014/12 NDE 2500PSI  
HEAT BSM-2199 (PIPE # LENGTH MASS) 170.8lb/ft ASTM/ASME A/SA106 GR B A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA

Product: Details					Non-Destructive Testing									
Heat	Test Type	Product Size	Pieces	Length	Mass lb/ft	Geiger $\mu$ R/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM	HydroTest 2500 PSI/ 5 s	End Condition
BSM-2199	Heat	NPS 18 TRUE 80 0.940in. WT	3	DRL	170.8	<5	20	Pass	Pass	Pass	Pass	Pass	Pass	Plain End

Heat		Steelmaking Method	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(CSA)
BSM-2199	Blast Furnace: EAF; Ladle Refining: Vacuum Degass; Fully Killed		Heat	0.18	0.87	0.006	0.003	0.25	0.05	0.07	0.03	0.03				0.0004	-	-
			Product	0.19	0.85	0.005	0.005	0.23	0.05	0.06	0.03	0.03	0.004	0.002	0.000	0.0003	0.35	0.35

Mechanical Properties										Yield (Rt0.5) psi				Tensile (Rm) psi		Y/T (Rt0.5/Rm)		Elongation (A) %	
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 50mm GI														
BSM-2199	Heat	Ferrite & Pearlite	75 HRBW	Pass	Longitudinal; 19.05 mm x WT					40,900				67,500		0.61		47	

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy J				% Shear				Lateral Expansion mm			
				J	J	J	AVG	%	%	%	AVG	mm	mm	mm	AVG
BSM-2199	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

## 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-45th Ed., ASTM/ASME A106-2014/SA106-2013 Grade B A53-2012/SA53-2013, and the purchase order requirements, and that the results meet the corresponding requirements. Bri-Steel Manufacturing is registered and certified to ISO-9001:2008 and API Q1.

✓ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service-2009 NACE MR0103-2012 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:

Tonya Lam, C.E.T.  
Assistant QA Manager

*T. Lam* Dec 11/18/2014