



# Mill Test Certificate

Bri-Steel Manufacturing  
 2125-64 Avenue, Edmonton, AB Canada T6P 1Z4  
 Tel: 001 (780) 469-6603  
 Fax: 001 (780) 469-6986  
 www.bri-steel.com

Product: Seamless Carbon Steel Pipe    Product Heat Number: BSM-2654    Product Size: NPS 20 SCH 60    Production Date: Feb 24, 2016  
 Production Method: Hot Expansion    As Rolled    Certificate No.: MTR- 002099  
 Product Standards: ASME B36.10M-2015, ASTM/ASME A106-2014/SA106-2013 Grade B NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012

Product Markings  
 NPS 20 SCH 60 0.812 INCHWT SMLS 2016/02 NDE 1700PSI  
 HEAT BSM-2654 (PIPE # LENGTH MASS) 166.4lb/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 μR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT Pass	ET	HydroTest	End Condition
BSM-2654	Heat	NPS 20 SCH 60 0.812in. WT	4	DRL	166.4	<5	<20	Pass	Pass	Pass	Pass	-	Pass	Plain End

Chemical Analysis (wt%)														
Heat	Steelmaking Method	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	CE(IIW)
BSM-2654	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	0.20	0.56	0.020	0.008	0.22	0.18	0.01	0.00	0.05	0.001	0.001	0.001	B
	Product	0.19	0.56	0.016	0.003	0.24	0.18	0.01	0.01	0.05	0.002	0.002	0.001	0.0002
		-	-	-	-	-	-	-	-	-	-	-	-	-

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 2 in. GL	Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
BSM-2654	Heat	Ferrite & Pearlite	72 HRBW	Pass	Longitudinal; 0.5 in. Round Bar	37,700	70,000	0.54	42

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy			% Shear			Lateral Expansion			
				J	J	AVG	%	%	%	mm	mm	mm	AVG
BSM-2654	-	-	-	-	-	-	-	-	-	-	-	-	-

Additional Details:

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with ASTM/ASME A106-2014/SA106-2013, 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, API Q1, and PED 97/23/EC.
- ✓ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service, and NACE MR0103-2012 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:

*T. Lam* March 10 / 2016

Tonya Lam, P. Tech (Eng.)  
 Assistant QA Manager