



# Mill Test Certificate

Bri-Steel Manufacturing Inc.  
 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-1276      Product Size: 20XS      Production Date: Sep 25, 2013  
 Production Method: Hot Expansion      Product Heat Treatment: As-rolled      Certificate No.: MTR- 000490  
 Product Standards: ASME B36.10-2004, ASTM/ASME A106-2014/SA106-2013 Grade B/C NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012



Product Markings: NPS 20 XS 0.500 INCH/WT SMLS 2013/09 NDE 1200PSI  
 HEAT BSM-1276 (PIPE # LENGTH MASS) 104.1lb/ft ASTM/ASME A/SA106 GR B/C 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 1200PSI/ 5 s	End Condition			
BSM-1276	Heat	NPS 20 XS 0.500in WT	13	DRL	104.1	<5	<5	Pass	Pass	Pass	Pass	Pass	Pass	Plain End			
Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	NI	V	TI	Nb	B	CE(IIW)	CE(CSA)
BSM-1276	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.19	0.82	0.022	0.010	0.22	0.07	0.01	-	0.04	-	-	-	-	-	-
		Product	0.22	0.90	0.028	0.015	0.24	0.08	0.01	0.01	0.04	0.005	0.003	0.001	0.0002	0.39	0.39

Mechanical Properties														
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 50mm GL	Yield (R <sub>0.5</sub> ) psi	Tensile (R <sub>m</sub> ) psi	Y/T (R <sub>0.5</sub> /R <sub>m</sub> )	Elongation (A) %					
BSM-1276	Heat	Ferrite & Pearlite	75 HRBW	Pass	Longitudinal; 38.1 mm x WT	44,800	72,000	0.62	43					
Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy		% Shear		Lateral Expansion						
BSM-1276	-	-	-	J	J	AVG	%	%	AVG	mm	mm	mm	mm	AVG

Additional Details:  
 ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with ASTM/ASME A106-2014/SA106-2013 Grade B/C 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:

*T. Lam* Feb 10 3 / 2015


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



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 Production Method: Hot Expansion    Product Heat Treatment: As-rolled    Certificate No.: MTR- 000490  
 Product Standards: ASME B36.10-2004, API 5L-45th 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  <API> 5L-0898 API SPEC 5L NPS 20 XS 0.500 INCHWT GR B PSL1 SMLS 2013/09 NDE 1200PSI  
 HEAT BSM-1276 (PIPE # LENGTH MASS) 104.1lb/ft ASTM/ASME A/SA106 GR B/C A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA

Product: Details						Non-Destructive Testing									
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BSM-1276	Heat	NPS 20 XS 0.500in. WT	13	DRL	104.1	ok	<5	Pass	Pass	-	Pass	Pass	Pass	Plain End	

Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(CSA)
BSM-1276	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.19	0.82	0.022	0.010	0.22	0.07	0.01		0.04					-	-
		Product	0.22	0.90	0.028	0.015	0.24	0.08	0.01	0.01	0.04	0.005	0.003	0.001	0.0002	0.39	0.39

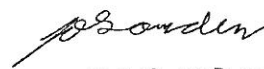
Mechanical Properties										
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 50mm GL	Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %	
BSM-1276	Heat	Ferrite & Pearlite	75 HRBW	Pass	Longitudinal; 38.1 mm x WT	44,800	72,000	0.62	43	

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy				% Shear				Lateral Expansion					
				J	J	J	AVG	%	%	%	AVG	mm	mm	mm	AVG		
BSM-1276	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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 2013 OCT 02

Paul Sowden, T.T.  
 Assistant QA Manager