Bri-Steel Manufacturing Inc.
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Mill Test Certificate

Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0426** Product Size: **NPS 18 TRUE40** Production Date: **July 25, 2012**

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

Product Standards: ASTM/ASME A/SA106-2011 Grade B/C, A/SA53-2012 Grade B Type S, NACE MR0175-2009

Product Markings: **.BRI-STEEL MFG NPS 18 TRUE40 ASTM/ASME A/SA106 GR B/C A/SA53 GR B HEAT BSM-0426 (PIPE # LENGTH MASS) 104.8lb/ft NH NDE NACE MR0175 2012/07 MADE IN CANADA.**

Product Details							Non-Destructive Testing								
Heat	Test Type	NPS	Wall Thickness	Pieces	Length	Mass lb/ft	Geiger µR/hr	Res.Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 1300 psi/5s	End Condition
BSM-0426	Heat	18	TRUE40	22	DRL	104.80	<5	<20	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 (IIW)	CE (CSA)
BSM-0426	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.18	0.94	0.008	0.005	0.22	0.07	0.07	0.03	0.03	-	-	-	0.0005	-	-
		Product	0.20	0.94	0.009	0.008	0.22	0.06	0.07	0.03	0.03	0.002	0.001	0.001	0.0003	0.38	0.39

Mechanical Properties										
Heat	Test Type	Microstructure	Hardness HRBW	Flattening Test	Tension Test 50mm GL	Yield (Rt0.5) psi	Yield (Rp0.2) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
BSM-0426	Heat	Ferrite & Pearlite	78	Pass	Transverse; 38.1mm x WT	47,600	45,200	75,500	0.63	45
					Longitudinal; 38.1mm x WT	50,500	50,000	76,000	0.66	47

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 A/SA106-2011, A/SA53-2012 and the purchase order requirements, and that the results meet the corresponding requirements.

✓ This pipe product meet 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 no mercury contamination.

✓ This certificate represents a quality control system that is compliant with EN 10204:2004 Type 3.1.

Mill Test Certificate approved by:

FOR T. Lam

AUG-02-2012

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