



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.brihemsteel.com

Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0411** Product Size: **NPS 24 SCH 60** Production Date: **July 12, 2012**
 Production Method: **Hot Expansion** Product Heat Treatment: **As-rolled**
 Product Standards: **ASTM/ASME A/SA106-2011 Grade B, A/SAS3-2012 Grade B Type S, NACE MR0175-2009**
 Product Markings: **.BRI-STEEL MFG NPS 24 SCH 60 ASTM/ASME A/SA106 GR B A/SAS3 GR B HEAT BSM-0411 (PIPE # LENGTH MASS) 238.1lb/ft NDE 1000PSI NACE MR0175 2012/07 MADE IN CANADA.**


Product Details						Non-Destructive Testing									
Heat	Test Type	NPS	Wall Thickness	Pieces	Length	Mass lb/ft	Geiger μ R/hr	Res. Mag. Gauss	Visual Insp.	OD Pass	UT WT Pass	UT ASTM E213	ET ASTM E309	HydroTest 1000 psi/5s	End Condition
BSM-0411	Heat	24	SCH 60	1	DRL	238.10	<5	<20	Pass	Pass	Pass	---	Pass	Pass	Plain End

		Chemical Analysis (wt%)														
Heat	Test Type	Steelmaking Method														
		Blast Furnace; EAF; Ladle Refining; Vacuum Degass														
BSM-0411	Heat	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE (IIW)	CE (CSA)
		0.15	0.99	0.018	0.007	0.24	0.06	0.06	0.01	0.03	0.004	0.003	0.001	0.0001	0.34	0.32

		Mechanical Properties								
Heat	Test Type	Microstructure	Hardness HRBW	Flattening Test	Tension Test			Y/T	Elongation (A) %	
					50mm GL, 38mm x WT	Yield (Rt0.5) psi	Yield (Rp0.2) psi			Tensile (Rm) psi
BSM-0411	Heat	Ferrite & Pearlite	71	Pass	Transverse	47,800	46,600	67,500	0.71	55
					Longitudinal	45,000	44,800	68,000	0.66	57

- 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/SAS3-2012 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:


 2012 July 26
 Kenton Dechant, P. Eng.
 Manager of Quality and R&D