



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0043** Product Size: **NPS 20 STD** Production Date: **2011 Oct 5**

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

Product Standards: **ASTM/ASME A/SA106-2010 Grade B, A/SA53-2010 Grade B Type S, NACE MR0175-2009**

Product Markings: **BRI-STEEL MFG NPS 20 STD ASTM/ASME A/SA106 GR B A/SA53 GR B HEAT BSM-0043 (PIPE # LENGTH MASS) NDE 800PSI NACE MR0175 2011/09 MADE IN CANADA.**

Product Details				Non-Destructive Testing											
Heat	Test Type	NPS	SCH	Pieces	Length	Mass lb/ft	Geiger μ R/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 800 psi/5s	End Condition
BSM-0043	Heat	20	STD	1	DRL	78.60	<5	<20	Pass	Pass	Pass	---	Pass	Pass	37.5° Bevel

		Chemical Analysis (wt%)																
Heat	Test Type	Steelmaking Method		C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE (IIW)	CE (CSA)
		Blast Furnace; EAF; Ladle Refining; Vacuum Degass	0.20	0.86	0.014	0.013	0.22	0.03	0.11	0.03	0.03	0.03	0.002	0.001	0.001	0.0003	0.36	0.37
BSM-0043	Heat																	

Mechanical Properties								
Heat	Test Type	Microstructure	Hardness HRBW	Flattening Test	Tension Test		Elongation (A)	
					Transverse; 50mm GL; 38mm x WT	Yield (Rp0.5) psi		Yield (Rp0.2) psi
BSM-0043	Heat	Ferrite & Pearlite	76	Pass	49,100	49,800	76,000	34

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/SA106-2010, A/SA53-2010 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:

[Signature]
 2012 Jan 20
 Kenton Dechant, P. Eng.
 Manager of Quality and R&D