



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.brichemsteel.com

Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0384** Product Size: **NPS 20 TRUE80** Production Date: **July 2, 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 20 TRUE80 ASTM/ASME A/SA106 GR B A/SAS3 GR B HEAT BSM-0384 (PIPE # LENGTH MASS) 208.9lb/ft NDE 1000PSI NACE MR0175 2012/07 MADE IN CANADA.**

Product Details				Non-Destructive Testing											
Heat	Test Type	NPS	SCH	Pieces	Length	Mass	Geiger	Res. Mag.	Visual	UT	UT	ET	HydroTest	End	
BSM-0384	Heat	20	TRUE80	4	DRL	208.90	µR/hr	Gauss	Insp.	OD	WT	ASTM E213	ASTM E309	1000 psi/5s	Condition
							<5	<20	Pass	Pass	Pass	---	Pass	Platin End	

		Chemical Analysis (wt%)																
Heat	Test Type	Steelmaking Method		C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE	CE
BSM-0384	Heat	Blast Furnace; EAF; Ladle Refining; Vacuum Degass		0.14	0.97	0.016	0.005	0.23	0.05	0.07	0.01	0.03	0.004	0.003	0.001	0.0002	0.32	(CSA)

Mechanical Properties											
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test		Yield (Rt0.5)	Yield (Rp0.2)	Tensile (Rm)	Y/T	Elongation (A)
BSM-0384	Heat	Ferrite & Pearlite	HRBW	Pass	50mm GL, 38mm x WT	Transverse	psi	psi	psi	0.72	%
			72		Longitudinal		49,600	48,300	69,000	0.68	59
							45,300	45,500	66,500		60

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/SAS106-2011, 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:

Kenton Dechant
 2012 July 6
 Kenton Dechant, P.Eng.
 Manager of Quality and R&D