



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-0460**

Product Size: **NPS 18 STD**

Production Date: **September 3, 2012**

Production Method: **Hot Expansion**

Product Heat Treatment: **As-rolled**

Product Standards: **ASME B36.10-2004, API 5L-44th Ed. Grade B PSL1, ASTM/ASME A/SA106-2011 Grade B, A/SA53-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010**

Product Markings: **.BRI-STEEL MFG <API> 5L-0898 API 5L GR B PSL1 ASTM/ASME A/SA106 GR B A/SA53 GR B NPS 18 STD HEAT BSM-0460 (PIPE # LENGTH MASS) 70.59lb/ft NDE 890PSI SMIS NACE MR0175 2012/09 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	WT	UT	UT	ET	HydroTest	End Condition
BSM-0460	Heat	18	STD	3	DRL	70.59	<5	<20	Pass	Pass	Pass	Pass	Pass	Pass	Pass	37.5° Bevel

Steelmaking Method		Chemical Analysis (wt%)															
Heat	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	TI	Nb	B	CE (IIW)	CE (CSA)	
BSM-0460		0.20	0.88	0.010	0.011	0.23	0.05	0.08	0.01	0.06	-	-	-	0.0003	-	-	
		Product	0.19	0.87	0.009	0.012	0.22	0.05	0.08	0.01	0.06	0.002	0.001	0.001	0.0002	0.36	0.36

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-0460	Heat	Ferrite & Pearlite	78	Pass	Transverse: 38.1mm x WT Longitudinal: 38.1mm x WT	47,400	46,100	74,000	0.64	38
						46,200	45,600	74,500	0.62	42

Additional Details:

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with API 5L-44th Ed., ASTM/ASME A/SA106-2011, A/SA53-2012 and the purchase order requirements, and that the results meet the corresponding requirements.
- ✓ This pipe product meets 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 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:

Kenton Dechant
 2012 Sept 5
 Kenton Dechant, P.Eng.
 Manager of Quality and R&D