



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0452** Product Size: **NPS 18 XS** Production Date: **August 24, 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 GR B PSL1 ASTM/ASME A/SA106 GR B A/SA53 GR B NPS 18 XS HEAT BSM-0452 (PIPE # LENGTH MASS) 93.45lb/ft NDE 1180PSI SM15 NACE MR0175 2012/08 MADE IN CANADA.**

Product Details				Non-Destructive Testing											
Heat	Test Type	NPS	Wall Thickness	Pieces	Length	Mass lb/ft	Geiger	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT	ET	HydroTest	End Condition
BSM-0452	Heat	18	XS	3	DRL	93.45	<5	<20	Pass	Pass	Pass	Pass	Pass	Pass	37.5° Bevel


Steelmaking Method		Chemical Analysis (wt%)														
Heat	Blast Furnace; EAF; Ladle Refining; Vacuum Degs; Fully Killed	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE (IIW)	CE (CSA)
BSM-0452		0.19	0.94	0.012	0.008	0.25	0.06	0.08	0.01	0.07	-	-	-	0.0005	-	-
		0.19	0.94	0.013	0.010	0.24	0.06	0.09	0.01	0.06	0.002	0.001	0.001	0.0001	0.37	0.38

Mechanical Properties										
Heat	Test Type	Microstructure	Hardness HRBW	Flattening Test	Tension Test		Yield (Rp0.2)	Tensile (Rm)	Y/T (Rt0.5/Rm)	Elongation (A) %
					50mm GL	38.1mm x WT				
BSM-0452	Heat	Ferrite & Pearlite	74	Pass	Transverse; 38.1mm x WT	Longitudinal; 38.1mm x WT	42,700	66,000	0.58	46
							42,400	71,000	0.60	45

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:


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