



## Mill Test Certificate

Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0782** Product Size: **NPS 24 SCH 30** Production Date: **March 20, 2013**

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/C NDE, 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/C A/SA53 GR B NPS 24 SCH 30 0.562 inch WT HEAT BSM-0782 (PIPE # LENGTH MASS) 140.8lb/ft NDE 1140 PSI SMLS NACE MR0175 2013/03 MADE IN CANADA.**

Product Details				Non-Destructive Testing									
Heat	Test Type	Product Size	Pieces	Length	Mass	Geiger	Res. Mag.	Visual	OD	UT	ET	HydroTest	End
BSM-0782	Heat	NPS 24 SCH 30 0.562 in. WT	2	DRL	140.80	µR/hr	Gauss	Insp.	Pass	Pass	Pass	1140 psi/5s	Condition
						<5	<20	Pass	Pass	Pass	Pass	Pass	Plain End

Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Analysis	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE	CE
BSM-0782	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.18	0.87	0.017	0.009	0.23	0.07	0.06	0.02	0.04	-	-	-	0.0004	-	-
		Product	0.20	0.87	0.016	0.013	0.24	0.04	0.08	0.02	0.04	0.002	0.001	0.004	0.0002	0.37	0.37

Mechanical Properties											
Heat	Test Type	Microstructure	Hardness HRBW	Flattening Test	Tension Test		Yield (Rp0.5)	Yield (Rp0.2)	Tensile (Rm)	Y/T	Elongation (A)
					50mm GL	psi					
BSM-0782	Heat	Ferrite & Pearlite	75	Pass	Transverse; 38.1mm x WT	44,800	42,600	72,000	0.62	0.66	49
					Longitudinal; 38.1mm x WT	47,200	47,000	71,000	0.66		51

**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:

*[Signature]*  
2013 Mar 26

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