



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0455** Product Size: **NPS 18 STD** Production Date: **August 27, 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-0998 API 5L GR B PSL1 ASTM/ASME A/SA106 GR B A/SA53 GR B NPS 18 STD HEAT BSM-0455 (PIPE # LENGTH MASS) 70.59lb/ft NDE 890PSI SMIS NACE MR0175 2012/08 MADE IN CANADA.**

Product Details				Non-Destructive Testing											
Heat	Test Type	NPS	Wall Thickness	Pieces	Length	Mass	Geiger	Res. Mag.	Visual	OD	UT	UT	ET	HydroTest	End Condition
BSM-0455	Heat	18	STD	16	DRL	70.59	µR/hr	Gauss	Insp.	Pass	Pass	Pass	Pass	890 psi/5s	37.5° Bevel


Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Analysis	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE	CE
BSM-0455	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.20	0.91	0.009	0.007	0.24	0.06	0.09	0.06	-	-	-	-	0.0004	-	-
		Product	0.22	0.91	0.010	0.009	0.24	0.06	0.09	0.01	0.06	0.002	0.001	0.002	0.0001	0.40	0.40

Mechanical Properties										
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test	Yield (Rp0.5)	Yield (Rp0.2)	Tensile (Rm)	Y/T	Elongation (A)
BSM-0455	Heat	Ferrite & Pearlite	HRBW	Pass	50mm GL	psi	psi	psi	(Rt0.5/Rm)	%
			79		Transverse; 38.1mm x WT	46,500	43,800	75,500	0.62	37
					Longitudinal; 38.1mm x WT	46,300	46,000	73,000	0.63	41

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