



Mill Test Certificate

Bri-Steel Manufacturing Inc.

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Product: **Seamless Carbon Steel Pipe**

Product Heat Number: **BSM-0441**

Product Size: **NPS 16 XS**

Production Date: **August 13, 2012**

Production Method: **Hot Expansion**

Product Heat Treatment: **As-rolled**

Product Standards: **API 5L-44th Ed. Grade B PSL1, ASTM/ASME A/SA106-2011 Grade B/C, 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 16 XS HEAT BSM-0441 (PIPE # LENGTH MASS) 82.77lb/ft NDE 1330PSI SMLS NACE MR0175 2012/08 MADE IN CANADA.**

Product Details					Non-Destructive Testing										
Heat	Test Type	NPS	Wall Thickness	Pieces	Length	Mass	Geliger	Res. Mag.	Visual	OD	UT	ET	HydroTest	End	
BSM-0441	Heat	16	XS	5	DRL	lb/ft	µR/hr	Gauss	Insp.	Pass	WT	ASTM E213	ASTM E309	1330 psi/5s	Condition
						82.77	<5	<20	Pass	Pass	Pass	---	Pass	Pass	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
			0.19	0.87	0.015	0.006	0.24	0.05	0.08	0.01	0.04	-	-	-	0.0005	-	-
			Heat	0.19	0.84	0.017	0.008	0.22	0.04	0.07	0.01	0.03	0.002	0.001	0.001	0.0001	0.35
BSM-0441	Vacuum Degas; Fully Killed	Product	0.19	0.84	0.017	0.008	0.22	0.04	0.07	0.01	0.03	0.002	0.001	0.001	0.0001	0.35	0.35

Mechanical Properties												
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test		Yield (Rt0.5)	Yield (Rp0.2)	Tensile (Rm)	V/T	Elongation (A)	
					HRBW	Pass						50mm GL
BSM-0441	Heat	Ferrite & Pearlite	75	Pass	Transverse: 38.1mm x WT	Longitudinal: 38.1mm x WT	48,000	44,700	45,800	73,500	0.65	44

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 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:

[Signature]
2012 Aug 20

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

cert # 1666