



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0405** Product Size: **NPS 20 TRUE80** Production Date: **July 9, 2012**

Production Method: **Hot Expansion** Product Heat Treatment: **Q&T then Hot Worked**

Product Standards: **API 5L-44th Ed. Grade X52 PSL1, NACE MR0175-2009, NACE MR0103-2010**

Product Markings: **BRI-STEEL MFG NPS 20 TRUE80 <API> 5L-0898 API 5L GR X52 PSL1 HEAT BSM-0405 (PIPE # LENGTH MASS) 208.9lb/ft NDE 2970PSI 2012/07 MADE IN CANADA.**

Product Details						Non-Destructive Testing									
Heat	Test Type	NPS	SCH	Pieces	Length	Mass lb/ft	Geiger μ R/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT	ET	HydroTest	End Condition
BSM-0405	Heat	20	TRUE80	3	SRL	208.90	<5	<20	Pass	Pass	Pass	Pass	Pass	Pass	Plain End


Steelmaking Method				Chemical Analysis (wt%)														
Heat	Test Type	Blast Furnace; EAF; Ladle Refining; Vacuum Degass		C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE (IIW)	CE (CSA)
BSM-0405	Heat			0.14	1.56	0.013	0.004	0.37	0.24	0.07	0.23	0.03	0.082	0.003	0.018	0.0002	0.52	0.48

Mechanical Properties										
Heat	Test Type	Microstructure	Hardness HRBW	Flattening Test	Tension Test	Yield (Rt0.5) psi	Yield (Rp0.2) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
BSM-0405	Heat	Tempered Martensite	93	Pass	50mm GL; 19.1mm x WT Transverse Longitudinal	63,000 55,000	74,500 54,000	111,000 110,000	0.57 0.50	30 33

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. and the purchase order requirements, and that the results meet the corresponding requirements.
- ✓ No weld repairs have been performed on this product. This product has no mercury contamination.
- ✓ 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.
- ✓ This certificate represents a quality control system that is compliant with EN 10204:2004 Type 3.1.

Mill Test Certificate approved by:


 2014 Mar 28
 Kenton Dechant, P. Eng.
 Manager of Quality and R&D