

## Mill Test Certificate

Bri-Steel Manufacturing Inc.

2125-64 Avenue, Edmonton, AB Canada T6P 1Z4
Tel: 001 (780) 469-6603
Fax: 001 (780) 469-6986

www.brichemsteel.com

Product: Seamless Carbon Steel Pipe

Product Heat Number: BSM-0961

Product Size:

NPS 24 TRUE80

Produc

Production Date: June 4, 2013

Production Method: Hot Expansion

Product Heat Treatment: As-rolled

Product Standards: ASME B36.10-2004, ASTM/ASME A/SA106-2011 Grade B NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010

Product Markings: BRI-STEEL MFG ASTM/ASME A/SA106 GR B A/SA53 GR B NPS 24 TRUE80 1.219 inchWT HEAT BSM-0961 (PIPE # LENGTH MASS) 296.4Ib/ft NDE SMLS NACE MR0175 2013/06 MADE IN CANADA.

Mass Geiger Length lb/ft μR/hr DRL 296.40 <5	Mass 1 lb/ft 296.40	Mass Geiger Res.Mag. \ 1 lb/ft μR/hr Gauss 296.40 <5 <20	Mass Geiger Res.Mag. Visual  1 lb/ft μR/hr Gauss Insp.  296.40 <5 <20 Pass	Mass   Geiger   Res.Mag.   Visual   UT	Mass         Geiger         Res.Mag.         Visual         UT         UT         AS           1         lb/ft         μR/hr         Gauss         Insp.         OD         WT         AS           296.40         <5         <20         Pass         Pass         Pass         Pass	Mass         Geiger         Res.Mag.         Visual         UT         UT         UT           1         lb/ft         μR/hr         Gauss         Insp.         OD         WT         ASTM E213 ASTM E	Mass         Geiger         Res.Mag.         Visual         UT         UT         UT         ASTM E213 ASTM           1         lb/ft         μR/hr         Gauss         Insp.         OD         WT         ASTM E213 ASTM           296.40         <5         <20         Pass         Pass         Pass         Pass         P
Geiger µR/hr <5	Geiger µR/hr <5	Geiger Res.Mag. 1  µR/hr Gauss  <5 <20	Geiger Res.Mag. Visual μR/hr Gauss Insp. OI <5 <20 Pass Pas	Hon-Destructive       Geiger μR/hr     Res.Mag. Gauss     Visual List     UT List     UT List       4     C5     C20     Pass     Pass     Pass	Seiger Res.Mag. Visual UT μR/hr Gauss Insp. OD WT ASTN	Hon-Destructive Testing         Geiger       Res.Mag.       Visual       UT       UT       UT       UT       UT       ASTM E213 ASTN         μR/hr       Gauss       Insp.       OD       WT       ASTM E213 ASTN         <5	Seiger Res.Mag. Visual UT UT ET Hy μR/hr Gauss Insp. OD WT ASTM E213 ASTM E309
		Res.Mag. Gauss	Res.Mag. Visual Gauss Insp. OI <20 Pass Pa	Res.Mag. Visual UT Gauss Insp. OD WT <a href="https://www.example.com/">&lt;20</a> Pass Pass Pass	Non-Destructive Testing   Res.Mag.   Visual   UT   I	Res.Mag. Visual UT UT Gauss Insp. OD WT ASTM E213 ASTN <a href="#">CO Pass Pass Pass Pass P</a>	Res.Mag. Visual UT UT ET Hy Gauss Insp. OD WT ASTM E213 ASTM E309  <20 Pass Pass Pass Pass Pass
	Res.Mag. Gauss <20		Visual OI Pass Pas	Visual UT Insp. OD WT Pass Pass Pass	Visual UT ASTN Pass Pass Pass P	Visual OD WT ASTM E213 ASTN Pass Pass Pass Pass P	Non-Destructive Testing           Visual         UT         UT         ET         Hy           Insp.         OD         WT         ASTM E213         ASTM E309           Pass         Pass         Pass         Pass         Pass

	BSM-0961	Heat	:	
		at		
Vacuum Degas; Fully Killed	Blast Furnace; EAF; Ladle Refining;	Steelmaking Method		
Product	Heat	Analysis		
0.20	0.22	0		
0.88	0.93	Mn		
0.016	0.011	P		
0.003	0.004	S		Chemical
0.30	0.30	Si		Chemical Analysis (wt%)
0.04	0.04	Ç		(wt%)
0.06	0.10	5		
0.01	0.01	Mo		
0.03	0.04	<u>Z</u> .		
0.005	0.006	<		
0.002	0.002	ī		
0.001	0.001	Nb		
0.0001	0.0004	В		
0.36	1	(IIW)	CE	
0.37		(CSA)	Œ	

				Mechar	Mechanical Properties	£0.1			
			Hardness		Tension Test	Yield (Rt0.5)	Tensile (Rm)	Υ/Τ	Elongation (A)
Heat	Test Type	Microstructure	HRBW	Flattening Test	50mm GL	psi.	psi	(Rt0.5/Rm)	%
BSM-0961	Heat	Ferrite & Pearlite	78	Pass	Longitudinal; 19.1mm x WT	45,700	69,500	0.66	47

Г		Г	**
BSM-0961		Heat	
1		Standard	Test
,		Sample Details	Impact Test
		Õ	Temp
,		ے	
		ц.	Impact
		_	Energy
-		AVG	
i		%	
		%	% Shear
1		%	ear
		AVG	
		mm	
		mm	Lateral Ex
1		mm	pansion
•		AVG	

## Additional Details:

- results meet the corresponding requirements. Inc. in accordance with ASTM/ASME A/SA106-2011, A/SA53-2012, and the purchase order requirements, and that the ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing
- Service, and NACE MR0103-2010 Section 2.1. ✓ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour
- ✓ No weld repairs have been performed on this product.
- ✓ This product has not come into contact with mercury during the Bri-Steel Manufacturing processes
- $\checkmark$  This certificate represents a quality control system that is compliant with EN 10204:2004 Type 3.1.
- \*Note that this product was hydrotested to 1000 psi for 5 seconds.

Mill Test Certificate approved by:

2013 Jumi2

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