



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-0881** Product Size: **NPS 24 XS** Production Date: **May 2, 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 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 A/SA53 GR B NPS 24 XS 0.5 inchWT HEAT BSM-0881 (PIPE # LENGTH MASS) 125.5lb/ft NDE 970 PSI SMIS NACE MR0175 2013/05 MADE IN CANADA.**

| Product Details | | | | Non-Destructive Testing | | | | | | | | | | | |
|-----------------|-----------|----------------------|--------|-------------------------|------------|-------------------|-----------------|--------------|------|------|------|------|------|-----------|---------------|
| Heat | Test Type | Product Size | Pieces | Length | Mass lb/ft | Geiger μ R/hr | Res. Mag. Gauss | Visual Insp. | OD | WT | UT | UT | ET | HydroTest | End Condition |
| BSM-0881 | Heat | NPS 24 XS 0.5 in. WT | 14 | DRL | 125.50 | <5 | <20 | Pass | Pass | Pass | Pass | Pass | Pass | Pass | 32.5" Bevel |

| Chemical Analysis (wt%) | | | | | | | | | | | | | | | | | |
|-------------------------|---|----------|------|------|-------|-------|------|------|------|------|------|-------|-------|-------|--------|----------|----------|
| Heat | Steelmaking Method | Analysis | C | Mn | P | S | Si | Cr | Cu | Mo | Ni | V | Ti | Nb | B | CE (IIV) | CE (CSA) |
| BSM-0881 | Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed | Heat | 0.18 | 0.87 | 0.014 | 0.005 | 0.25 | 0.04 | 0.08 | 0.01 | 0.04 | - | - | - | 0.0003 | - | - |
| | | Product | 0.18 | 0.86 | 0.017 | 0.008 | 0.26 | 0.04 | 0.08 | 0.01 | 0.03 | 0.003 | 0.001 | 0.001 | 0.0001 | 0.34 | 0.34 |

| Mechanical Properties | | | | | | | | | | |
|-----------------------|---------------|----------------------------|-------------------|-----------------|--------------|---------------------------|-------------------|------------------|----------------|------------------|
| Heat | Test Type | Microstructure | Hardness HRBW | Flattening Test | Tension Test | | Yield (Rt0.5) psi | Tensile (Rm) psi | Y/T (Rt0.5/Rm) | Elongation (A) % |
| | | | | | Pass | Longitudinal, 38.1mm x WT | | | | |
| BSM-0881 | Heat | Ferrite & Pearlite | 74 | Pass | 44,700 | 68,000 | 0.66 | 50 | | |
| Heat | Test Standard | Impact Test Sample Details | Temp $^{\circ}$ C | Impact Energy | | | Lateral Expansion | | | |
| | | | | J | J | AVG | mm | mm | mm | AVG |
| BSM-0881 | - | - | - | - | - | - | - | - | - | - |

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 May 9

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