



# 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-0735** Product Size: **NPS 24 STD** Production Date: **February 25, 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 <AP> 5L-0898 API 5L GR B PSL1 ASTM/ASME A/SA106 GR B A/SA53 GR B NPS 24 STD 0.375 InchWT HEAT BSM-0735 (PIPE # LENGTH MASS) 94.62lb/ft NDE 740 PSI SMLS NACE MR0175 2013/02 MADE IN CANADA.**

| Product Details |           |                        |        | Non-Destructive Testing |             |        |           |        |      |      |           |           |            |             |
|-----------------|-----------|------------------------|--------|-------------------------|-------------|--------|-----------|--------|------|------|-----------|-----------|------------|-------------|
| Heat            | Test Type | Product Size           | Pieces | Length                  | Mass        | Geiger | Res. Mag. | Visual | OD   | UT   | UT        | ET        | HydroTest  | End         |
| BSM-0735        | Heat      | NPS 24 STD 0.375 In.WT | 4      | DRL                     | 94.62 lb/ft | µR/hr  | Gauss     | Insp.  | Pass | Pass | ASTM E213 | ASTM E309 | 740 psi/5s | Condition   |
|                 |           |                        |        |                         |             | <5     | <20       | Pass   | 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   |
| BSM-0735                | Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed | Heat     | 0.19 | 0.87 | 0.012 | 0.009 | 0.25 | 0.03 | 0.08 | 0.02 | 0.04 | -     | -     | -     | 0.0004 | -    | -    |
|                         |  | Product  | 0.19 | 0.85 | 0.009 | 0.009 | 0.26 | 0.04 | 0.10 | 0.03 | 0.04 | 0.003 | 0.002 | 0.001 | 0.0003 | 0.35 | 0.36 |

| Mechanical Properties |           |                    |          |                 |                           |               |               |              |            |                |
|-----------------------|-----------|--------------------|----------|-----------------|---------------------------|---------------|---------------|--------------|------------|----------------|
| Heat                  | Test Type | Microstructure     | Hardness | Flattening Test | Tension Test              | Yield (Rp0.5) | Yield (Rp0.2) | Tensile (Rm) | Y/T        | Elongation (A) |
| BSM-0735              | Heat      | Ferrite & Pearlite | HRBW     | Pass            | 50mm GL                   | psi           | psi           | psi          | (Rt0.5/Rm) | %              |
|                       |           |                    | 69       |                 | Transverse; 38.1mm x WT   | 43,300        | 38,600        | 69,500       | 0.62       | 46             |
|                       |           |                    |          |                 | Longitudinal; 38.1mm x WT | 46,500        | 46,500        | 69,000       | 0.67       | 47             |

**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 Feb 28

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