



Mill Test Certificate

Bri-Steel Manufacturing Inc.

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Product: **Seamless Carbon Steel Pipe**

Product Heat Number: **BSM-0758**

Product Size: **NPS 28 STD**

Production Date: **March 5, 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 28 STD 0.375 inchWT HEAT BSM-0758 (PIPE # LENGTH MASS) 110.6lb/ft NDE 630 PSI SMIS NACE MR0175 2013/03 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-0758 | Heat | NPS 28 STD 0.375 in WT | 3 | DRL | 110.60 | µR/hr | Gauss | Insp. | Pass | Pass | Pass | Pass | 630 psi/5s | 37.5° Bevel |

| Chemical Analysis (wt%) | | | | | | | | | | | | | | | | | |
|-------------------------|----------------------------|----------|------|------|-------|-------|------|------|------|------|------|-------|-------|-------|--------|------|------|
| Heat | Steelmaking Method | Analysis | | | | | | | | | | | | | | | |
| | | C | Mn | P | S | Si | Cr | Cu | Mo | Ni | V | Ti | Nb | B | | | |
| | | Heat | 0.19 | 0.89 | 0.010 | 0.014 | 0.21 | 0.03 | 0.07 | 0.01 | 0.04 | - | - | - | 0.0003 | | |
| BSM-0758 | Vacuum Degas: Fully Killed | Product | 0.21 | 0.89 | 0.011 | 0.015 | 0.23 | 0.03 | 0.08 | 0.01 | 0.03 | 0.003 | 0.001 | 0.001 | 0.0002 | 0.37 | 0.38 |

| Mechanical Properties | | | | | | | | | | |
|-----------------------|-----------|--------------------|----------|--------------|-----------------|---------------|---------------|--------------|------|----------------|
| Heat | Test Type | Microstructure | Hardness | Tension Test | | Yield (Rt0.5) | Yield (Rp0.2) | Tensile (Rm) | Y/T | Elongation (A) |
| | | | | 50mm GL | | | | | | |
| | | | | HRBW | Flattening Test | | | | | |
| BSM-0758 | Heat | Ferrite & Pearlite | 75 | Pass | Pass | psi | psi | psi | psi | % |
| | | | | | | 40,800 | 39,100 | 70,000 | 0.58 | 48 |
| | | | | | | 44,000 | 44,000 | 69,500 | 0.63 | 43 |

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:

Kent Dechant
 2013 Mar 7
 Kenton Dechant, P.Eng.
 Manager of Quality and R&D