



# Mill Test Certificate

**Bri-Steel Manufacturing Inc.**  
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0260** Product Size: **NPS 18 XS** Production Date: **March 19, 2012**

Production Method: **Hot Expansion** Product Heat Treatment: **As-rolled**

Product Standards: **ASTM/ASME A/SA106-2011 Grade B/C, A/SA53-2010 Grade B Type S, NACE MR0175-2009**

Product Markings: **.BRI-STEEL MFG NPS 18 XS ASTM/ASME A/SA106 GR B/C A/SA53 GR B HEAT BSM-0260 (PIPE # LENGTH MASS) NDE 1370PSI NACE MR0175 2012/03 MADE IN CANADA.**

| Product Details |           |     |     |        |        | Non-Destructive Testing |                   |                 |              |         |            |              |              |                       |               |
|-----------------|-----------|-----|-----|--------|--------|-------------------------|-------------------|-----------------|--------------|---------|------------|--------------|--------------|-----------------------|---------------|
| Heat            | Test Type | NPS | SCH | Pieces | Length | Mass lb/ft              | Geiger $\mu$ R/hr | Res. Mag. Gauss | Visual Insp. | OD Pass | UT WT Pass | UT ASTM E213 | ET ASTM E309 | HydroTest 1370 psi/5s | End Condition |
| BSM-0260        | Heat      | 18  | XS  | 1      | DRL    | 93.45                   | <5                | <20             | Pass         | Pass    | Pass       | ---          | Pass         | Pass                  | 37.5° Bevel   |

| Chemical Analysis (wt%) |           |   |      |       |       |      |      |      |      |      |       |       |       |        |          |          |
|-------------------------|-----------|---|------|-------|-------|------|------|------|------|------|-------|-------|-------|--------|----------|----------|
| Heat                    | Test Type | Steelmaking Method                                |      |       |       |      |      |      |      |      |       |       |       |        |          |          |
| BSM-0260                | Heat      | Blast Furnace; EAF; Ladle Refining; Vacuum Degass |      |       |       |      |      |      |      |      |       |       |       |        |          |          |
|                         |           | C   | Mn   | P     | S     | Si   | Cr   | Cu   | Mo   | Ni   | V     | Ti    | Nb    | B      | CE (IIW) | CE (CSA) |
|                         |           | 0.19  | 0.88 | 0.020 | 0.007 | 0.22 | 0.03 | 0.14 | 0.01 | 0.04 | 0.003 | 0.001 | 0.002 | 0.0002 | 0.36     | 0.36     |

| Mechanical Properties |           |                    |               |                 |                    |            |                   |                   |                  |               |                  |
|-----------------------|-----------|--------------------|---------------|-----------------|--------------------|------------|-------------------|-------------------|------------------|---------------|------------------|
| Heat                  | Test Type | Microstructure     | Hardness HRBW | Flattening Test | Tension Test       |            | Yield (Rp0.5) psi | Yield (Rp0.2) psi | Tensile (Rm) psi | V/T (R0.5/Rm) | Elongation (A) % |
| BSM-0260              | Heat      | Ferrite & Pearlite | 76            | Pass            | 50mm GL; 38mm x WT | Transverse | 45,100            | 44,000            | 73,000           | 0.62          | 42               |
|                       |           |                    |               |                 | Longitudinal       |            | 44,300            | 43,700            | 73,500           | 0.60          | 47               |

**Additional Details:**

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with ASTM/ASME A/SA106-2011, A/SA53-2010 and the purchase order requirements, and that the results meet the corresponding requirements.
- ✓ This pipe product meet 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 no mercury contamination.
- ✓ This certificate represents a quality control system that is compliant with EN 10204:2004 Type 3.1.

Mill Test Certificate approved by:

  
 2012MAR27

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