



Mill Test Certificate

Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-1029** Product Size: **NPS 24 STD** Production Date: **July 1, 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/SAA106-2011 Grade B NDE, A/SAS3-2012 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/SAA106 GR B A/SAS3 GR B NPS 24 STD 0.375 inchWT HEAT BSM-1029 (PIPE # LENGTH MASS) 94.62lb/ft NDE 750 PSI SMIS NACE MR0175 2013/07 MADE IN CANADA.**

| Product Details | | | | Non-Destructive Testing | | | | | | | | | | | |
|-----------------|-----------|-------------------------|--------|-------------------------|-------------|----------|-----------|------------|------|------|------|------|------|------------|-------------|
| Heat | Test Type | Product Size | Pieces | Length | Mass | Geiger | Res. Mag. | Visual | OD | WT | UT | UT | ET | HydroTest | End |
| BSM-1029 | Heat | NPS 24 STD 0.375 in. WT | 22 | DRL | 94.62 lb/ft | <5 µR/hr | <20 Gauss | Insp. Pass | Pass | Pass | Pass | Pass | Pass | 750 psi/5s | 32.5° Bevel |

| Chemical Analysis (wt%) | | | | | | | | | | | | | | | | |
|-------------------------|--|----------|------|------|-------|-------|------|------|------|------|------|-------|-------|--------|--------|------|
| Heat | Steelmaking Method | Analysis | | | | | | | | | | | | | | |
| | | C | Mn | P | S | Si | Cr | Cu | Mo | Ni | V | Ti | Nb | B | CE | CE |
| BSM-1029 | Blast Furnace: EAF; Ladle Refining; Vacuum Degas; Fully Killed | Heat | 0.19 | 0.91 | 0.016 | 0.006 | 0.22 | 0.04 | 0.07 | 0.03 | 0.03 | - | - | 0.0005 | - | - |
| | | Product | 0.22 | 0.94 | 0.018 | 0.013 | 0.25 | 0.05 | 0.05 | 0.02 | 0.03 | 0.004 | 0.002 | 0.001 | 0.0002 | 0.39 |

| Mechanical Properties | | | | | | | | | | | | | | | |
|-----------------------|---------------|--------------------|----------|-----------------|---------------------------|---------|---------|-------------------|--------------|-----|----------------|-----|----|-----|---|
| Heat | Test Type | Microstructure | Hardness | Flattening Test | Tension Test | | | Yield (Rt0.5) | Tensile (Rm) | V/T | Elongation (A) | | | | |
| | | | | | HRBW | 50mm GL | psi | | | | | psi | % | | |
| BSM-1029 | Heat | Ferrite & Pearlite | 71 | Pass | Longitudinal: 38.1mm x WT | 40,800 | 64,000 | 0.64 | 46 | | | | | | |
| Heat | Test Standard | Impact Test | Temp | Impact Energy | | | % Shear | Lateral Expansion | | | | | | | |
| | | | | 9C | J | J | | J | AVG | % | mm | mm | mm | AVG | |
| BSM-1029 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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/SAA106-2011, A/SAS3-2012, 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:

2013 JUL 03

Paul Sowden, T.T.
 Assistant QA Manager