



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-1414 Production Date: Nov 18, 2013
 Production Method: Hot Expansion Product Heat Treatment: As-rolled Certificate No.: MTR- 000611
 Product Standards: ASME B36.10-2004, API 5L-45th 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: <API> 5L-0898 API SPEC 5L NPS 24 XS 0.500 INCHWT GR B PSL1 SM1S 2013/11 NDE 1000PSI
 HEAT BSM-1414 (PIPE # LENGTH MASS) 125.5lb/ft ASTM/ASME A/SA106 GR B A/SA53 GR B NACE MR0175/MR0103 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 | UT WT | UT ASTM E213 | ET ASTM | HydroTest 1000 PSI/ 5 s | End Condition |
| BSM-1414 | Heat | NPS 24 XS 0.500in. WT | 3 | DRL | 125.5 | <5 | <10 | Pass | Pass | Pass | Pass | Pass | Pass | 32.5° Bevel |

| Heat | | Steelmaking Method | Test Type | C | Mn | P | S | Si | Cr | Cu | Mo | NI | V | TI | Nb | B | CE(IIW) | CE(CSA) |
|----------|--|---|-----------|------|------|-------|-------|------|------|------|------|------|-------|-------|-------|--------|---------|---------|
| BSM-1414 | | Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed | Heat | 0.19 | 0.90 | 0.014 | 0.010 | 0.21 | 0.05 | 0.06 | 0.01 | 0.03 | 0.003 | 0.001 | 0.000 | 0.0004 | 0.36 | 0.36 |
| | | | Product | 0.19 | 0.88 | 0.015 | 0.007 | 0.23 | 0.04 | 0.06 | 0.01 | 0.03 | 0.003 | 0.001 | 0.000 | 0.0004 | 0.36 | 0.36 |

| Mechanical Properties | | | | | | | | | |
|-----------------------|-----------|--------------------|----------|-----------------|----------------------------|-------------------|------------------|----------------|------------------|
| Heat | Test Type | Microstructure | Hardness | Flattening Test | Tension Test 50mm GL | Yield (Rt0.5) psi | Tensile (Rm) psi | Y/T (Rt0.5/Rm) | Elongation (A) % |
| BSM-1414 | Heat | Ferrite & Pearlite | 77 HRBW | Pass | Longitudinal; 38.1 mm x WT | 40,200 | 66,000 | 0.61 | 48 |

| Heat | Test Standard | Impact Test Sample Details | Temp °C | Impact Energy | | | | Lateral Expansion | | | | | | |
|----------|---------------|----------------------------|---------|---------------|---|---|-----|-------------------|---|---|-----|----|----|-----|
| | | | | J | J | J | AVG | % | % | % | AVG | mm | mm | AVG |
| BSM-1414 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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-45th Ed., ASTM/ASME A/SA106-2011 Grade B 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-2009 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.

Paul Sowden, T.T.
 Assistant QA Manager

Mill Test Certificate approved by:

 2013 NOV 20