



# Test Certificate

Form TC1: Revision 3: Date 7 Feb 2018

13609 Industrial Road, Houston, TX 77015, US

|   |  |                                    |   |  |
|---|--|------------------------------------|---|--|
| <b>Customer:</b><br>NORTH SHORE STEEL CO, INC<br>1566 MILES STREET<br>VENDOR 52155<br>HOUSTON<br>TX 77015 | <b>Customer P.O.No.:</b> 303965  | <b>Mill Order No.</b> 41-544068-04 | <b>Shipping Manifest:</b> HT117234                        |  |
|   | <b>Product Description:</b> ASTM A36(14)/A709(17)36/ASME SA36(17)<br>AASHTO M270(15)36, 0.80-1.20 MN |                                    | <b>Ship Date:</b> 27 Jun 18<br><b>Cert Date:</b> 27 Jun18 | <b>Cert No:</b> 031207169<br>(Page 1 of 1) |
|   | <b>Size:</b> 0.313 X 96.00 X 480.0 (IN)  |                                    |   |  |

| Tested Pieces: |          |                  |         | Tensiles: |           |     |                    |         | Charpy Impact Tests |                                |  |  |  | BDWTT<br>Tm %Shr |                      |  |  |  |         |         |
|----------------|----------|------------------|---------|-----------|-----------|-----|--------------------|---------|---------------------|--------------------------------|--|--|--|------------------|----------------------|--|--|--|---------|---------|
| Heat Id        | Piece Id | Piece Dimensions | Tst Loc | YS (KSI)  | UTS (KSI) | %RA | Elong %<br>2in 8in | Tst Dir | Hardness            | Abs. Energy(FTLB)<br>1 2 3 Avg |  |  |  |                  | % Shear<br>1 2 3 Avg |  |  |  | Tst Tmp | Tst Dir |
| M8D214         | 0655     | 0.312 (T.L.C)    | L<br>C  | 52<br>53  | 69<br>70  |     | 32<br>32           | T<br>T  |                     |                                |  |  |  |                  |                      |  |  |  |         |         |

| Heat Id | Chemical Analysis |     |      |      |     |        |     |     |     |     |      |      |      |       |       |     |     | ORGN |
|---------|-------------------|-----|------|------|-----|--------|-----|-----|-----|-----|------|------|------|-------|-------|-----|-----|------|
|         | C                 | Mn  | P    | S    | Si  | Tot Al | Cu  | Ni  | Cr  | Mo  | Cb   | V    | Ti   | B     | N     | IIW |     |      |
| M8D214  | .16               | .83 | .009 | .002 | .03 | .037   | .29 | .14 | .08 | .04 | .002 | .005 | .014 | .0001 | .0090 | .36 | USA |      |

KILLED STEEL  
 MERCURY IS NOT A METALLURGICAL COMPONENT OF THE STEEL AND NO MERCURY WAS INTENTIONALLY ADDED DURING THE MANUFACTURE OF THIS PRODUCT.  
 $CEV (IIW) = C + Mn/6 + (Cr+Mo+V)/5 + (Ni+Cu)/15$   
 MTR EN 10204:2004 INSPECTION CERTIFICATE 3.1 COMPLIANT  
 100% MELTED AND MANUFACTURED IN THE USA.  
 MATERIAL MARKED BELOW WITH AN ASTERISK IS PRODUCED FROM COIL  
 PRODUCTS SHIPPED:  
 \* M8D214                    0655                    PCS:    8,    LBS:    32720

|                       |  |   |
|-----------------------|--|---|
| (P)      Cust Part #: | WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH, AND MEETS THE REQUIREMENTS OF, THE APPROPRIATE SPECIFICATION | <u>Justin Ward</u><br>SENIOR METALLURGIST - PRODUCT |
|-----------------------|--|---|