

## TECHNICAL SPECIFICATIONS

Equipment No's: Ref. Enclosed page

Spec. No.: DP-5.5-07

**5-1/2" OD Drill Pipe, S-135, 5-1/2" FH. VAM EIS Conn's.**

**New**

**Premium**

80% remaining Body Wall

**DESCRIPTION**

Type  
Range  
Conventional=welded T-J. / Integral=Monoblock

IEU, 21.90 #  
2  
Conventional

### TUBE DATA

|                          |                   |         |       |         |       |
|--------------------------|-------------------|---------|-------|---------|-------|
| Material grade           |                   | S-135   |       |         |       |
| Internal plastic coating |                   | TK-34P  |       |         |       |
| Tube body OD x ID        | inch              | 5,500   | 4,778 | 5,355   | 4,778 |
| Wall thickness, nominal  | inch              | 0,361   |       | 0,289   |       |
| Cross Sectional Area     | inch <sup>2</sup> | 5,828   |       | 4,592   |       |
| Polar Sectional Modulus  | inch <sup>3</sup> | 14,062  |       | 11,042  |       |
| Tensile yield pipe       | lbf               | 786 800 |       | 619 900 |       |
|                          | kN                | 3 500   |       | 2 757   |       |
| Torsional yield pipe     | lbf-ft            | 91 280  |       | 71 680  |       |
|                          | kNm               | 123,8   |       | 97,2    |       |
| 80% Torsional Yield      | lbf-ft            | 73 024  |       | 57 344  |       |
|                          | kNm               | 99,0    |       | 77,7    |       |

### CONNECTION DATA

|                           |        |                    |       |           |       |
|---------------------------|--------|--------------------|-------|-----------|-------|
| Connection type           |        | 5-1/2" FH. VAM EIS |       |           |       |
| Material grade            |        | 130ksi             |       |           |       |
| Hardbanding               |        | Arnco-300XT        |       |           |       |
| OD x ID                   | inch   | 7,000              | 3,500 | 6,719     | 3,500 |
| B.S.R.                    | x : 1  | 1,97               |       | 1,64      |       |
| Tensile yield tooljoint   | lbf    | 1 731 000          |       | 1 731 000 |       |
|                           | kN     | 7 700              |       | 7 700     |       |
| Torsional yield tooljoint | lbf-ft | 103 130            |       | 84 950    |       |
|                           | kNm    | 139,8              |       | 115,2     |       |
| Make up torque (Max.)     | lbf-ft | 58 800             |       | 48 400    |       |
|                           | kNm    | 79,7               |       | 65,6      |       |

### OPERATIONAL DATA

|  |         |        |        |
|--|---------|--------|--------|
| Tool joint/Drill pipe torsional ratio  |         | 1,13   | 1,44   |
| Drift diameter                         | inch    | 3,375  |        |
| Type of elevator shoulder:             |         | 18°    |        |
| Burst pressure                         | psi     | 15 500 | 14 200 |
|  | Mpa     | 107    | 98     |
| Collapse pressure                      | psi     | 12 700 | 7 500  |
|  | MPa     | 88     | 52     |
| Adjusted weight                        | lbs/ft  | 25,3   |        |
|  | kg/mtr  | 37,7   |        |
| Approx weight each joint               | lbs     | 798    |        |
|  | kg      | 362    |        |
| Capacity                               | gal/ft  | 0,88   |        |
|  | ltr/mtr | 10,93  |        |
| Open end displacement                  | gal/ft  | 0,39   |        |
|  | ltr/mtr | 4,84   |        |
| Closed end displacement                | gal/ft  | 1,27   |        |
|  | ltr/mtr | 15,77  |        |
| Built In Length (shoulder to shoulder) | ft      | 31,5   |        |
|  | mtr     | 9,6    |        |

Calculated using nominal OD & ID. Safety & Dope friction factor used: 1.0

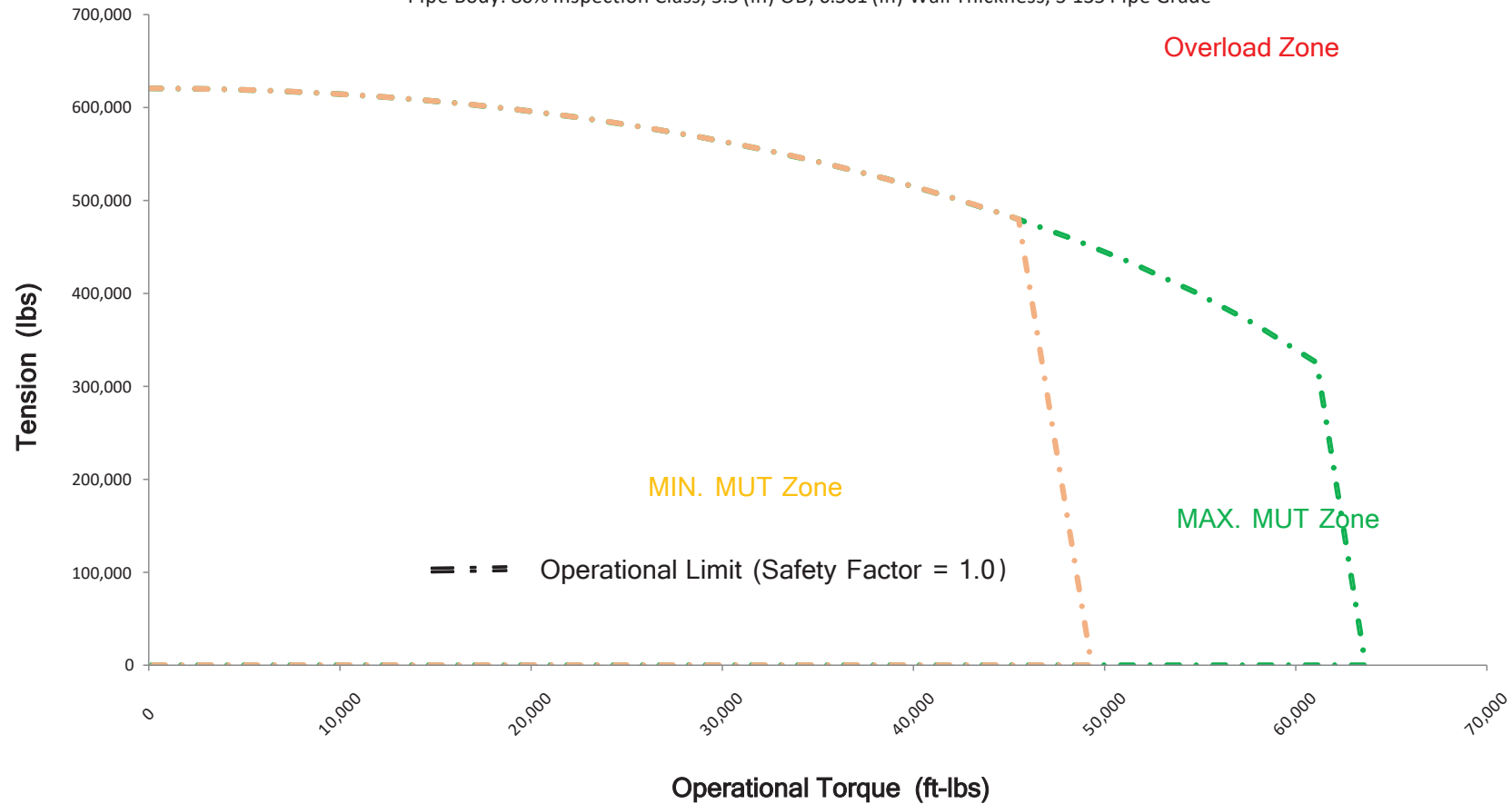
Values herein is meant as guidelines only. Odfjell will not be held liable for any damage or injuries !

| <b>String number:</b> | <b>Joints:</b> | <b>Individual serial numbers:</b> |
|-----------------------|----------------|-----------------------------------|
| OWS-DP-5121-EIS       | 444            | OWS-2000 to OWS-2443              |
|                       |                |                                   |
|                       |                |                                   |

**Drill Pipe Operational Limits (Connection at Recommended MUT = 63,649 (ft-lbs)) (Connection at Minimum MUT = 49,319 (ft-lbs))**

Connection: 5-1/2 FH EIS™-130 (7 (in) OD 3.5 (in) ID) SMYS = 130,000 (psi) Friction Factor = 1.0

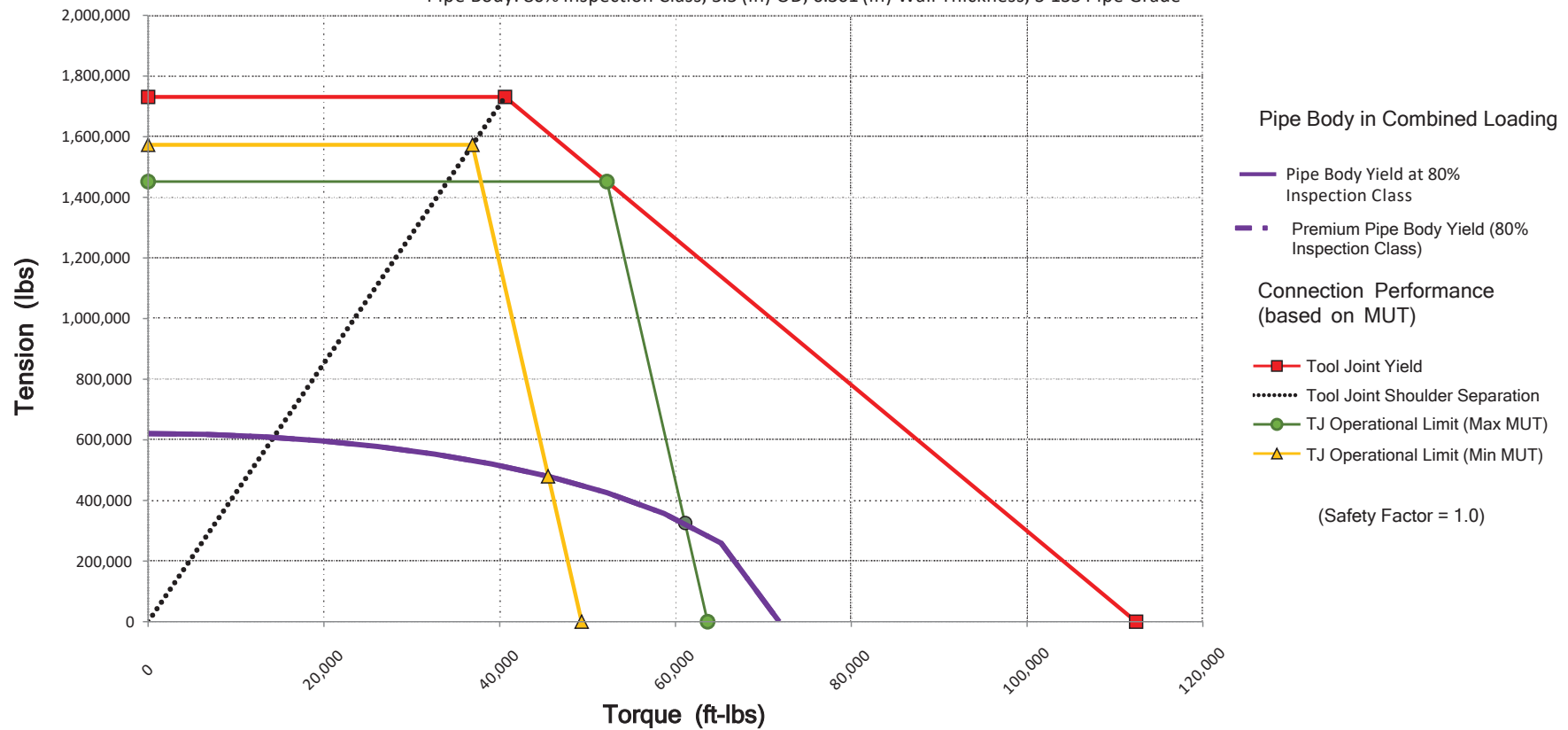
Pipe Body: 80% Inspection Class, 5.5 (in) OD, 0.361 (in) Wall Thickness, S-135 Pipe Grade



All references to any internal standards or specifications are per the current edition/revision at the point of manufacturing, unless otherwise stated. All references to any external standards or specifications are per the current edition/revision at the original purchase order (P.O.) date, unless otherwise stated.

## Torque-Tension Graph

Connection: 5-1/2 FH EIS™-130 (7 (in) OD 3.5 (in) ID) SMYS = 130,000 (psi) Friction Factor = 1.0  
 Pipe Body: 80% Inspection Class, 5.5 (in) OD, 0.361 (in) Wall Thickness, S-135 Pipe Grade



All references to any internal standards or specifications are per the current edition/revision at the point of manufacturing, unless otherwise stated. All references to any external standards or specifications are per the current edition/revision at the original purchase order (P.O.) date, unless otherwise stated.

| Combined Loading for Drill Pipe  |                           |                            |                           |
|--|---------------------------|----------------------------|---------------------------|
| Connection: 5-1/2 FH EIS™ 7.0" x 3.5" (130 KSI SMYS ) Friction Factor: 1.0 |                           |                            |                           |
| Pipe: 5.5" OD 0.361" Wall Thickness S135 80% Inspection Class              |                           |                            |                           |
| At Max MUT (63600 ft-lbs )   |                           | At Min MUT (49300 ft-lbs ) |                           |
| Operational Torque(ft-lbs)   | Assembly Max Tension(lbs) | Operational Torque(ft-lbs) | Assembly Max Tension(lbs) |
| 0  | 620600                    | 0                          | 620600                    |
| 3200   | 620000                    | 2400                       | 620300                    |
| 6400   | 618100                    | 4800                       | 619200                    |
| 9600   | 615000                    | 7200                       | 617500                    |
| 12900  | 610500                    | 9600                       | 615000                    |
| 16100  | 604800                    | 12000                      | 611900                    |
| 19300  | 597700                    | 14400                      | 608000                    |
| 22500  | 589300                    | 16800                      | 603400                    |
| 25700  | 579400                    | 19200                      | 598000                    |
| 28900  | 568000                    | 21600                      | 591800                    |
| 32100  | 555000                    | 24000                      | 584900                    |
| 35400  | 539800                    | 26400                      | 577100                    |
| 38600  | 523200                    | 28800                      | 568400                    |
| 41800  | 504400                    | 31200                      | 558900                    |
| 45000  | 483400                    | 33600                      | 548400                    |
| 48200  | 459700                    | 36000                      | 536800                    |
| 51400  | 433000                    | 38300                      | 524800                    |
| 54700  | 401700                    | 40700                      | 511100                    |
| 57900  | 366600                    | 43100                      | 496200                    |
| 61100  | 325400                    | 45500                      | 479900                    |

The Technical information contained herein, including the product performance sheet and other attached documents, is for reference only and should not be considered as a recommendation. The user is fully responsible for the accuracy and suitability of use of the technical information. NOV Grant Prideco cannot assume responsibility for the results obtained through the use of this material. No expressed or implied warranty is intended. Drill pipe assembly properties are calculated based on uniform OD and wall thickness. No safety factor is applied. The information provided for various inspection classes and for various wear conditions (remaining body wall) is for information only and does not represent or imply acceptable operating limits. It is the responsibility of the customer and the end user to determine the appropriate performance ratings, acceptable use of the product, maintain safe operating practices, and to apply a prudent safety factor suitable for the application. For API connections that have different pin and box IDs, tool joint ID refers to the pin ID. Per Chapter DS, Section DS-16 of the drilling manual, it is recommended that drilling torque should not exceed 80% of MUT.

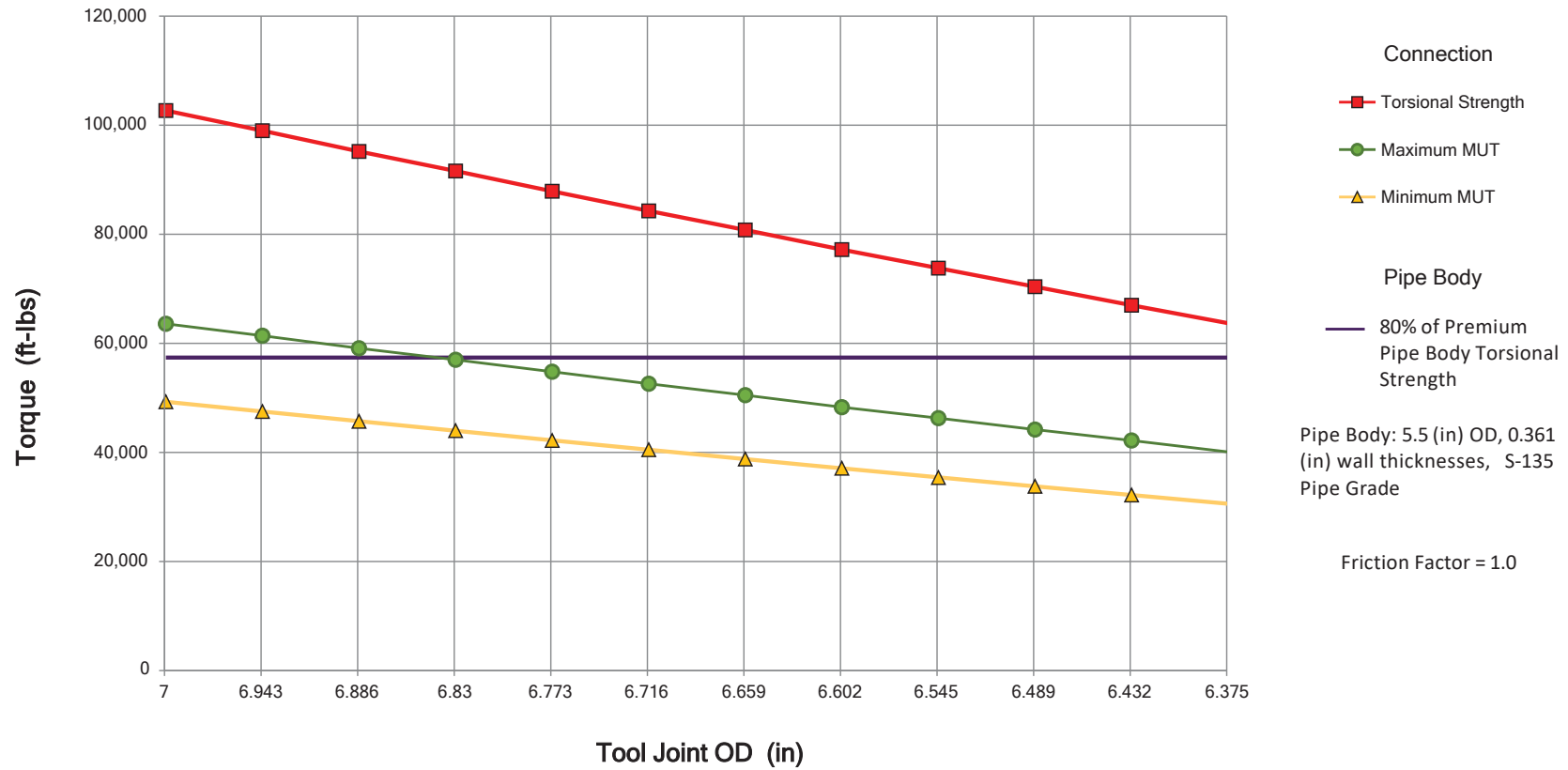
| Connection Wear Table  |                 |                 |
|--|-----------------|-----------------|
| Connection: 5-1/2 FH EIS™ 7.0" x 3.5" (130 KSI SMYS ) Friction Factor: 1.0 |                 |                 |
| Tool Joint OD (in)   | Max MUT(ft-lbs) | Min MUT(ft-lbs) |
| 7.0  | 63600           | 49300           |
| 6.943  | 61400           | 47500           |
| 6.886  | 59100           | 45700           |
| 6.83   | 57000           | 44000           |
| 6.773  | 54800           | 42200           |
| 6.716  | 52600           | 40500           |
| 6.659  | 50500           | 38800           |
| 6.602  | 48300           | 37100           |
| 6.545  | 46300           | 35400           |
| 6.489  | 44200           | 33800           |
| 6.432  | 42200           | 32200           |
| 6.375  | 40100           | 30600           |

| Elevator Capacity   |                               |                   |
|---|-------------------------------|-------------------|
| Elevator Bore Diameter: 5.813" Elevator SMYS: 110,100 psi Box Taper Angle: 18 deg |                               |                   |
| Connection: 5-1/2 FH EIS™ 5.5" 0.361" wall IEU S135                               |                               |                   |
| Tool Joint OD (in.)   | Elevator Hoist Capacity (lbs) |                   |
|   | No Wear                       | 1/32" Wear Factor |
| 7.0   | 1315200                       | 1283700           |
| 6.943   | 1246400                       | 1214900           |
| 6.886   | 1178300                       | 1146800           |
| 6.83  | 1111900                       | 1080400           |
| 6.773   | 1044800                       | 1013300           |
| 6.716   | 978300                        | 946800            |
| 6.659   | 912400                        | 880900            |
| 6.602   | 847000                        | 815500            |
| 6.545   | 782200                        | 750700            |
| 6.489   | 719100                        | 687600            |
| 6.432   | 655400                        | 623900            |
| 6.375   | 592300                        | 560800            |

All references to any internal standards or specifications are per the current edition/revision at the point of manufacturing, unless otherwise stated. All references to any external standards or specifications are per the current edition/revision at the original purchase order (P.O.) date, unless otherwise stated.

## Connection Wear for 5-1/2 FH EIS™-130 (7 (in) OD x 3.5 (in) ID)

Material SMYS (Specified Minimum Yield Strength) = 130,000 (psi)



All references to any internal standards or specifications are per the current edition/revision at the point of manufacturing, unless otherwise stated. All references to any external standards or specifications are per the current edition/revision at the original purchase order (P.O.) date, unless otherwise stated.