

NOV Grant Prideco

July 31, 2012

Quality Documentation Package

Customer: TRANSOCEAN OFFSHORE
Purchase Order Number: GLOBE-0000458292 (ITEM 20)
Sales Order Number: 1000104164

8-1/4" O.D. X 2-13/16" I.D. X 31' LONG SPIRAL DRILL COLLAR W/ 6-5/8 REGULAR RG PIN
X BB BOX CONNECTIONS W/ 16" LONG-CUST DIA ELEVATOR, 30" LONG-CUST DIA
SLIP, 30" PIN SH W 12" BELW SLIP
(GRADE: 4145M)

NOV GRANT PRIDECO
NAVASOTA TX USA



<http://www.nov.com/GrantPrideco/CustomerFeedback>

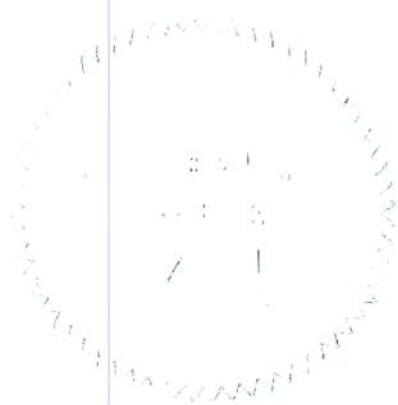


Table Of Contents

Item Number	Title
1	Drill Pipe Performance Characteristics Sheet
2	Certificate of Compliance
3	Certificate of Cold Rolled
4	Drill Stem Magnetic Inspection Report
5	ISO Certificate - Facility Certificate
6	Certificate of Testing for Drill Collars
7	Serialization Log
8	Mill Certificates
9	UT NDE Report
10	MSDS Thread Compound
11	Certificate of Compliance for Zinc Phosphate
12	Thread Inspection Report
13	Export Classification

Customer: TRANSOCEAN OFFSHORE DEEPWATER
 DRILLING, INC.
 Date: July 31, 2012
 Sales Order #: 1000104164
 Purchase Order #: GLOBE-0000458292 (ITEM 20)
 Description: 8-1/4" O.D. X 2-13/16" I.D. X 31' LONG SPIRAL DRILL COLLAR W/ 6-5/8" REGULAR RG PIN X BB BOX CONNECTIONS W/ 16" LONG-CUST DIA ELEVATOR, 30" LONG-CUST DIA SLIP, 30" PIN SH W 12" BELW SLIP (GRADE: 4145M)
 Grant Prideco

Drill Collar Performance Sheet

www.NOV.com/GrantPrideco Phone: +1 (281) 878-8000

Drill Collar Configuration

Connection	6-5/8 API Reg
Drill Collar OD	(in) 8.250
Drill Collar ID	(in) 2.812
Min Yield Strength (SMYS)	(psi) 100,000
Wall Thickness	(in) 2.718
Approximate Length	(m) 31.0
BSR (Bending Strength Ratio)	2.93

Connection Performance

Applied Make-up Torque (ft-lbs)	58,700	Tensile Limited	1,412,200	Tensile Limited	1,676,100
Separation Tension at Shoulder (lbs)					
Yield (tons)					
Recommended Make-up Torque	58,700				
Minimum Make-up Torque	53,400				
Tool Joint Torsional Strength (ft-lbs)	85,400				
Tool Joint Tensile Strength (lbs)	1,816,400				

Note: Recommended make-up torque is the maximum make-up torque that should be applied.

Drill Collar Length 31.0 (m)

Drill Collar Body Properties

Calculated plain end weight	(lbm) 160.617
Cross Sectional Area of Pipe Body	(in ²) 47.248
Cross Sectional Area of OD	(in ²) 53.456
Cross Sectional Area of ID	(in ²) 6.210
Section Modulus	(in ³) 54.383
Polar Section Modulus	(in ³) 108.765
Moment of inertia drill collar body	(in ⁴) 224.33
Polar moment of inertia drill collar body	(in ⁴) 448.66

Drill Collar Configuration (8.250 (in) OD X 2.812 (in) ID)

Best Estimates	(lbm) 160.62
Adjusted Weight	(gal/m) 2.45
Fluid Displacement	(bbl/m) 0.0684
Fluid Capacity	(gal/m) 0.32
Fluid Capacity	(bbl/m) 0.0077
Drift Size	(in) 2.687

Note: Drill Collar assembly values are best estimates and may vary due to length.
Note: Oil field barrel equals 42 US gallons.

www.NOV.com/GrantPrideco/CustomerFeedback



Note: This technical information is provided for informational purposes only. It is not intended to be used as a substitute for the product performance sheet and other attached documents. It is for reference only and should not be construed as a recommendation. The user is fully responsible for the accuracy and suitability of use of this 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 collar properties are calculated based on uniform OD and wall thickness. No safety factor is applied. It is the responsibility of the customer and the end user to determine the appropriate performance ratings, acceptable use of the product, maintain safe operational practices, and to apply a prudent safety factor where appropriate. For API connections that have different pin and box IDs, tool joint ID refers to the pin ID. For Chapter B, Section 4 VII of the API drilling manual, it is recommended that drilling torque should not exceed 80% of MUY.

NOV GrantPrideco 07-30-2012

Certificate of Compliance



API Specification 7-1, Latest Edition

NOV GRANT PRIDECO SPECIFICATION 346, REVISION 9, APRIL 17, 2012

Transocean HQS-OPS-TIB-522-01 REV 1 DTD 07/25/08

Customer Purchase Order Number: GLOBE-0000458292 (ITEM 20)

(with engineering exceptions)

This hereby certifies that Grant Prideco has met or exceeded the manufacturing and quality requirements of the above referenced specification(s) in manufacturing the following below described material for:

TRANSOCEAN OFFSHORE DEEPWATER DRILLING,
INC.,

Sales Order Number: 1000104164

(100) joints of 8-1/4" O.D. X 2-13/16" I.D. X 31' LONG SPIRAL DRILL COLLAR W/ 6-5/8" REGULAR RG PIN X BB BOX CONNECTIONS W/ 16" LONG-CUST DIA ELEVATOR, 30" LONG-CUST DIA SLIP, 30" PIN SH W 12" BELW SLIP (GRADE: 4145M)

NOV Grant Prideco Representative

Michelle Hernandez

July 31, 2012
Date

Customer: TRANSOCEAN OFFSHORE DEEPWATER

DRILLING, INC.

Date: July 31, 2012

Sales Order #: 1000104164

Purchase Order #: GLOBE-0000458292 (ITEM 20)

Description: 8-1/4" O.D. X 2-13/16" I.D. X 31' LONG SPIRAL DRILL COLLAR W/ 6-5/8" REGULAR RG PIN X BB BOX CONNECTIONS W/ 16" LONG-CUST DIA ELEVATOR, 30" LONG-CUST DIA SLIP, 30" PIN SH W 12" BELW SLIP (GRADE: 4145M)

QUALITY DOCUMENTATION PACKAGE



Certificate of Cold Rolled Threads

This hereby certifies that the Cold Rolled Threads Operation has been performed on the following:

8-1/4" O.D. X 2-13/16" I.D. X 31' LONG SPIRAL DRILL COLLAR W/ 6-5/8 REGULAR RG PIN X BB BOX CONNECTIONS W/ 16" LONG-CUST DIA ELEVATOR, 30" LONG-CUST DIA SLIP, 30" PIN SH W 12" BELW SLIP (GRADE: 4145M)

in strict compliance with the Applicable NOV Grant Prideco Standard Operating Procedure DS-OP-14 Rev. 6, dated 4-20-12 for the Cold Rolled Threads Operation, Latest Revision. The issuance of this certificate indicates that the Cold Rolled Threads Operation was completed.

NOV Grant Prideco Representative

Michelle Hernandez

July 31, 2012
Date

Customer: TRANSOCEAN OFFSHORE DEEPWATER
DRILLING, INC.

Sales Order #: 1000104164

Purchase Order #: GLOBE-0000458292 (ITEM 20)

Date: July 31, 2012



Description: 8-1/4" O.D. X 2-13/16" I.D. X 31' LONG SPIRAL DRILL COLLAR W/ 6-5/8 REGULAR RG PIN X BB BOX CONNECTIONS W/ 16" LONG-CUST DIA ELEVATOR, 30" LONG-CUST DIA SLIP, 30" PIN SH W 12" BELW SLIP (GRADE: 4145M)

QUALITY DOCUMENTATION PACKAGE



DRILL STEM MAG SUMMARY

DATE: 07/31/2012

CO/MO#: 1000104164.020

INSPECTOR: 602256

PARTS ACCEPTED

100

PARTS REJECTED

TOTAL INSPECTED

100

INSPECTION PERFORMED:

WET

X

DRY

CONNECTION

X

HARDBAND

SLIP

ELEVATOR

FULL LENGTH

AREA INSPECTED:

COMMENTS:

DNV BUSINESS ASSURANCE

MANAGEMENT SYSTEM CERTIFICATE

Certificate No. CERT-05679-2006-USA-RVA

This is to certify that

NOV Grant Prideco

at

9475 FM 1227 Miller Industrial Park #1, Navasota, TX 77868 USA

has been found to conform to the Management System Standard:

ISO 9001:2008

This Certificate is valid for the following product or service ranges:

The Design And Manufacture Of Oil And Gas Drilling Products (OCTG)

Initial Certification date:
October 26, 1993

This Certificate is valid until:
March 04, 2015

The audit has been performed under the supervision of
Raymond Lejuez
Lead Auditor



Place and date:
Houston, Texas, March 04, 2012
for the Accredited Unit:
DNV CERTIFICATION B.V.,
THE NETHERLANDS

David Shields
Management Representative

Lack of fulfillment of conditions as set out in the Certification Agreement may render this Certificate invalid.
ACCREDITED UNIT: DET NORSKE VERITAS CERTIFICATION B.V., ZWOULSEWEG 1, 2994 LB, BARENDRUCHT, THE NETHERLANDS. TEL: +31 (0) 10 2922600 WWW.dnvba.com

Certificate of Testing for Drill Collars

Mill Chemistry

Mill	Type	Heat No.	C	MN	P	S	SI	CU	NI	CR	MO	AL
Timken	Product	N2089	0.450	1.060	0.0100	0.0120	0.200	0.160	0.150	1.080	0.300	0.023
Timken	Product	N2090	0.450	1.060	0.0100	0.0110	0.240	0.140	0.110	1.080	0.300	0.036
Timken	Product	N2110	0.460	1.060	0.0110	0.0090	0.230	0.160	0.100	1.090	0.300	0.037

Mechanical Test Data

Specimen	Position	Size	Heat No.	Tensile PSI	Yield PSI	Elong %	RA %	BHN
----------	----------	------	----------	-------------	-----------	---------	------	-----

Drill Collar	227872	0.500"	N2089	149520.0	132107.0	18.9	55.0	321
Drill Collar	227877	0.500"	N2089	149910.0	133049.0	19.1	55.0	321
Drill Collar	227914	0.500"	N2089	150140.0	131712.0	16.7	50.4	321
Drill Collar	227915	0.500"	N2089	151490.0	133902.0	18.9	54.0	321
Drill Collar	227918	0.500"	N2090	150630.0	131359.0	19.5	51.4	321
Drill Collar	227933	0.500"	N2090	147650.0	128897.0	20.1	55.7	321
Drill Collar	227948	0.500"	N2090	148220.0	129788.0	18.1	52.3	321
Drill Collar	227963	0.500"	N2090	148450.0	128190.0	18.3	51.8	321
Drill Collar	227824	0.500"	N2110	152200.0	133817.0	18.9	52.6	321
Drill Collar	227843	0.500"	N2110	153190.0	134688.0	19.8	53.3	321

Longitudinal Charpy-V Notch Impact Data (FT-LBS)

Size (mm)	Temp (F)	Heat No.	Position	A	B	C	Avg	Shear(%)
10 x 10 mm	-4 F	N2089	227872	58.0	58.0	58.0	58.0	50.0
10 x 10 mm	-4 F	N2089	227877	65.0	64.0	64.0	64.3	70.0
10 x 10 mm	-4 F	N2089	227914	50.0	50.0	46.0	48.7	50.0
10 x 10 mm	-4 F	N2089	227915	65.0	62.0	62.0	63.0	70.0
10 x 10 mm	-4 F	N2090	227918	54.0	53.0	48.0	51.7	70.0
10 x 10 mm	-4 F	N2090	227933	69.0	69.0	66.0	68.0	60.0
10 x 10 mm	-4 F	N2090	227948	52.0	58.0	60.0	56.7	70.0
10 x 10 mm	-4 F	N2090	227963	65.0	67.0	66.0	66.0	65.0
10 x 10 mm	-4 F	N2110	227824	53.0	52.0	54.0	53.0	60.0
10 x 10 mm	-4 F	N2110	227843	57.0	57.0	52.0	55.3	50.0

All properties meet the requirements of API Specification 7-1, Latest Edition, NOV GRANT PRIDECO SPECIFICATION 346, REVISION 9, APRIL 17, 2012, and Transocean HQS-OPS-TIB-522-01 REV 1 DTD 07/25/08. I certify that these tests were conducted in accordance with applicable specifications and that the data contained herein is true and correct.

NOV Grant Prideco Representative

Michelle Hernandez

Date

July 31, 2012

Customer: TRANSOCEAN OFFSHORE DEEPWATER

DRILLING, INC.

Date: July 31, 2012

Sales Order #: 1000104164

Purchase Order #: GLOBE-0000458292 (ITEM 20)



Description: 8-1/4" O.D. X 2-13/16" I.D. X 31' LONG SPIRAL DRILL COLLAR W/ 6-5/8" REGULAR RG PIN X BB BOX CONNECTIONS W/ 16" LONG-CUST DIA ELEVATOR, 30" LONG-CUST DIA SLIP, 30" PIN SH W 12" BELW SLIP (GRADE: 4145M)

QUALITY DOCUMENTATION PACKAGE

Serialization Log

Total Number of Joints: 100
Total Length (ft): 3148.9

Serial Number(s)	Heat Number(s)	Work Order	Customer Serial	Length
------------------	----------------	------------	-----------------	--------

227918	N2090	1000104164.020	D11CC359T	31.1
227839	N2110	1000104164.020	D11CC360T	31.4
227913	N2089	1000104164.020	D11CC361T	31.5
227880	N2089	1000104164.020	D11CC362T	31.5
227962	N2090	1000104164.020	D11CC363T	31.4
227822	N2110	1000104164.020	D11CC364T	31.5
227846	N2110	1000104164.020	D11CC365T	31.5
227848	N2110	1000104164.020	D11CC366T	31.5
227931	N2090	1000104164.020	D11CC367T	31.5
227882	N2089	1000104164.020	D11CC368T	31.5
227834	N2110	1000104164.020	D11CC369T	31.5
227955	N2090	1000104164.020	D11CC370T	31.5
227845	N2110	1000104164.020	D11CC371T	31.5
227933	N2090	1000104164.020	D11CC372T	31.0
227844	N2110	1000104164.020	D11CC373T	31.5
227928	N2090	1000104164.020	D11CC374T	31.5
227925	N2090	1000104164.020	D11CC375T	31.5
227850	N2110	1000104164.020	D11CC376T	31.5
227837	N2110	1000104164.020	D11CC377T	31.5
227941	N2090	1000104164.020	D11CC378T	31.5
227964	N2090	1000104164.020	D11CC379T	31.5
227937	N2090	1000104164.020	D11CC380T	31.5
227832	N2110	1000104164.020	D11CC381T	31.5
227923	N2090	1000104164.020	D11CC382T	31.5
227836	N2110	1000104164.020	D11CC383T	31.5
227856	N2110	1000104164.020	D11CC384T	31.5
227874	N2089	1000104164.020	D11CC385T	31.5
227833	N2110	1000104164.020	D11CC386T	31.5
227828	N2110	1000104164.020	D11CC387T	31.5
227947	N2090	1000104164.020	D11CC388T	31.5
227878	N2089	1000104164.020	D11CC389T	31.5
227949	N2090	1000104164.020	D11CC390T	31.5
227825	N2110	1000104164.020	D11CC391T	31.5
227869	N2110	1000104164.020	D11CC392T	31.5
227959	N2090	1000104164.020	D11CC393T	31.5
227886	N2089	1000104164.020	D11CC394T	31.5
227847	N2110	1000104164.020	D11CC395T	31.5

Customer: TRANSOCEAN OFFSHORE DEEPWATER

DRILLING, INC.

Sales Order #: 1000104164

Purchase Order #: GLOBE-0000458292 (ITEM 20)

Date: July 31, 2012



Description: 8-1/4" O.D. X 2-13/16" I.D. X 31' LONG SPIRAL DRILL COLLAR W/ 6-5/8" REGULAR RG PIN X BB BOX CONNECTIONS W/ 16" LONG-CUST DIA ELEVATOR, 30" LONG-CUST DIA SLIP, 30" PIN SH W 12" BETW SLIP (GRADE: 4145M)

QUALITY DOCUMENTATION PACKAGE

Serialization Log

Total Number of Joints: 100
Total Length (ft): 3148.9

Serial Number(s)	Heat Number(s)	Work Order	Customer Serial	Length
------------------	----------------	------------	-----------------	--------

227843	N2110	1000104164.020	D11CC396T	31.5
227963	N2090	1000104164.020	D11CC397T	31.5
227934	N2090	1000104164.020	D11CC398T	31.5
227932	N2090	1000104164.020	D11CC399T	31.5
227868	N2089	1000104164.020	D11CC400T	31.5
227956	N2090	1000104164.020	D11CC401T	31.5
227922	N2090	1000104164.020	D11CC402T	31.5
227927	N2090	1000104164.020	D11CC403T	31.5
227948	N2090	1000104164.020	D11CC404T	31.5
227826	N2110	1000104164.020	D11CC405T	31.5
227858	N2110	1000104164.020	D11CC406T	31.5
227942	N2090	1000104164.020	D11CC407T	31.5
227946	N2090	1000104164.020	D11CC408T	31.5
227827	N2110	1000104164.020	D11CC409T	31.5
227952	N2090	1000104164.020	D11CC410T	31.5
227853	N2110	1000104164.020	D11CC411T	31.5
227835	N2110	1000104164.020	D11CC412T	31.5
227841	N2110	1000104164.020	D11CC413T	31.5
227854	N2110	1000104164.020	D11CC414T	31.5
227945	N2090	1000104164.020	D11CC415T	31.5
227884	N2089	1000104164.020	D11CC416T	31.5
227824	N2110	1000104164.020	D11CC417T	31.5
227961	N2090	1000104164.020	D11CC418T	31.5
227929	N2090	1000104164.020	D11CC419T	31.5
227851	N2110	1000104164.020	D11CC420T	31.5
227870	N2089	1000104164.020	D11CC421T	31.5
227940	N2090	1000104164.020	D11CC422T	31.5
227872	N2089	1000104164.020	D11CC423T	31.5
227951	N2090	1000104164.020	D11CC424T	31.5
227838	N2110	1000104164.020	D11CC425T	31.5
227953	N2090	1000104164.020	D11CC426T	31.5
227914	N2089	1000104164.020	D11CC427T	31.5
227857	N2110	1000104164.020	D11CC428T	31.5
227938	N2090	1000104164.020	D11CC429T	31.5
227954	N2090	1000104164.020	D11CC430T	31.5
227920	N2090	1000104164.020	D11CC431T	31.5
227873	N2089	1000104164.020	D11CC432T	31.5

Customer: TRANSOCEAN OFFSHORE DEEPWATER

DRILLING, INC.

Date: July 31, 2012

Sales Order #: 1000104164

Purchase Order #: GLOBE-0000458292 (ITEM 20)

Description: 8-1/4" O.D. X 2-13/16" I.D. X 31' LONG SPIRAL DRILL COLLAR W/ 6-5/8" REGULAR RG PIN X BB BOX CONNECTIONS W/ 16" LONG-CUST DIA ELEVATOR, 30" LONG-CUST DIA SLIP, 30" PIN SH W 12" BELW SLIP (GRADE: 4145M)

QUALITY DOCUMENTATION PACKAGE



Steel Certificate of Test

1835 QUEEN AVE. S.W.
CANTON, OHIO 44706

ID #0303778-1

Page 1 of 2

01/23/2012

Where You Turn

TIMKEN

S Grant Prideco
OT PO BOX 1310
D Navasota TX 77868 USA

S GRANT PRIDECO
H T MILLER INDUSTRIAL PARK #1
I O NAVASOTA TX 77868 USA

Customer Order: 1167418
Timken Order: 24446-J (1775001)
Customer Part Number: 23000016
Heat Number(s): N2110

Description of Material

DIMENSION: 8.250 in (209.550 mm)
Shape: RD
Sales Type: 4145M
Int Quality: ELECTRIC FURNACE-VACUUM DEGAS
Condition: HOT ROLL

Specification

- GRANT PRIDECO 346 Rev. B 8/2/2010 EXCEPT STRAIGHTNESS

Chemistry Information

%C	%Mn	%P	%S	%Si	%Cr	%Ni	%Mo	%Cu	%Al	%N
0.42	1.00			1.05						
SPEC Ladle Min:										
0.49	1.10		0.020	0.013	0.30	1.20		0.35		
SPEC Ladle Max:										

N2110 Ladle:

0.46 1.06 0.011 0.009 0.23 1.09 0.10 0.30 0.18 0.037 0.0079

Metallurgy Information

SPEC: Chemistry DI ASTM-A255 8 Min

Heat N2110 DI ASTM-A255: 8.60

SPEC: Grain Size SIZE 6/TIMER

6/TIMER

When shipping document is attached it becomes part of this certification.

We certify the above materials have been inspected and tested in accordance with the methods prescribed in the governing specifications and consistent with our Standard Commercial Terms and Conditions for Sale, Manufacture, and Shipping, which are incorporated into and made part of this certification. The results of such inspections and tests conform with the applicable requirements including the purchase order, specification(s) and exception(s). This certificate or report shall not be reproduced except in full, without the written approval of the Timken Corporation.

Approved: _____

NOTARY PUBLIC

by _____

Essie Dillard, CERTIFICATION PROCESSOR

THE TIMKEN CORPORATION