

July 31, 2006

Quality Documentation Package

Customer:

Purchase Order Number:

Sales Order Number:

4-1/2" OD .337" WT 16.60 LB./FT. "H-SERIES" IEU UPSET
RANGE 2 GRADE S-135 DRILL STRING WITH
(NC-46SST) PIN 6-1/4" OD X 3" ID 9" TONG SPACE WITH
ARMACOR M HARDBANDING & WITH SMOOTHEDGE
FEATURE & WITH H--SERIES BENCHMARKS AND
(NC-46) BOX 6-1/4" OD X 3--1/4" ID 12" TONG SPACE WITH
ARMACOR M HARDBANDING & WITH SMOOTHEDGE
FEATURE & WITH H-SERIES BENCHMARKS

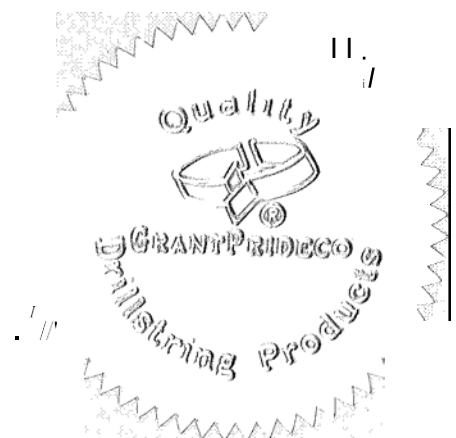


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Customer:

Date: July 31, 2006



Description: 4-1/2" OD .337" WT 16.60 LB./FT. "H-SERIES" IEU UPSET RANGE 2 GRADE S-135 DS w/(NC-46SST) PIN 6-1/4" OD X 3" ID 9" TONG SPACE w/ w/SMOOTHEDGE FEATURE & w/H-SERIES BM AND (NC-46) BOX 6-1/4" OD X 3-1/4" ID 12" TONG SPACE w/ARMACOR M HB & w/SMOOTHEDGE FEATURE & w/ H-SERIES BM

QUALITY DOCUMENTATION PACKAGE

FOR REFERENCE ONLY



Drill Pipe Performance Characteristics Sheet ©

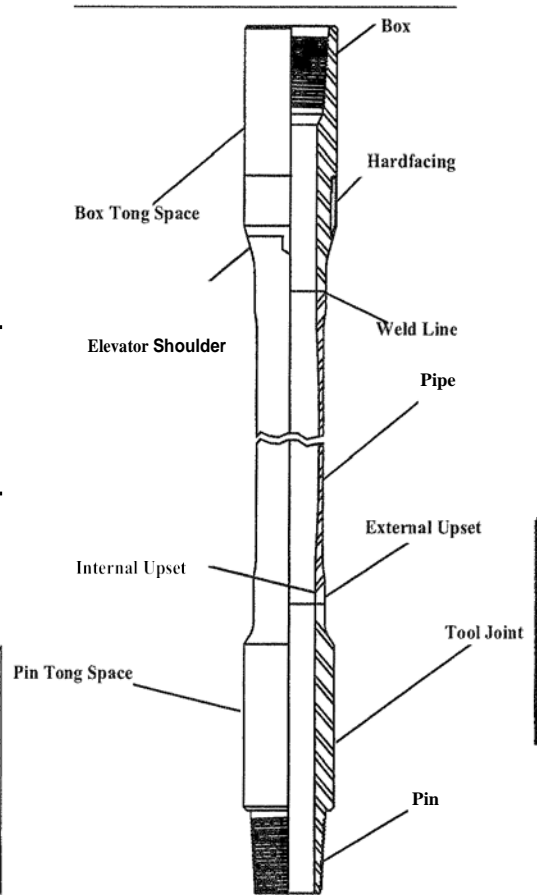
Pipe Size and Weight: 4-1/2" 16.60 H-Series®

Pipe Grade: S-135

Range: 2

Tool Joint: 6.250 X 3.000 NC46SS1

Pipe		4-1/2" 16.60 H-Series®	
Dimensional Data		New	Premium
OD (in)		4.500	4.365
Wall thickness (in)		0.337	0.270
ID (in)		3.826	3.826
Cross sectional area pipe body (in ²)		4.407	3.469
Cross sectional area OD (in ²)		15.904	14.966
Cross sectional area ID (in ²)		11.497	11.497
Section modulus (in ³)		4.271	3.347
Polar section modulus (in ³)		8.543	6.694
Performance Data		New	Premium
Torsional strength (ft-lbs)		55,500	43,500
Tensile strength (lbs)		595,000	468,300
80% Torsional strength (ft-lbs)		44,400	34,800
Pressure capacity (psi)		17,693	16,176
Collapse capacity (psi)		16,773	10,964
Tool Joint		6.250 X 3.000 NC46SS1	



Dimensional Data		
OD (in)		6.250
ID (in)		3.000
Pin tong length (in)		9.0
Box tong length (in)		12.0
Performance Data		
Torsional Strength (ft-lbs)		39,700
Max Recommended Make-up Torque (ft-lbs)		20,500
Min Recommended Make-up Torque (ft-lbs)		19,800
Balance OD (in)		5.87
Tensile strength (lbs)		1,048,400
Tool joint/Drill pipe torsional ratio (New pipe)		0.72
Tool joint/Drill pipe torsional ratio (Prem pipe)		0.91
Min OD for premium class (in)		5.781

Drill pipe assembly with Conventional tool joint		
Adjusted weight (lbs/ft)		19.57
Approximate length (ft)		31.47
Fluid displacement (gal/ft)		0.299
Fluid capacity (gal/ft)		0.574
Drift size (in)		2.875



Certificate of Compliance

API Specification 5D, Latest Edition

API Specification 7, Latest Edition

Grant Prideco Specification for Grade S-135

Drill Pipe Spec. "Exhibit A"

Customer Purchase Order Number:

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

(394) joints of 4-1/2" OD .337" WT 16.60 LB./FT. "H-SERIES" IEU UPSET RANGE 2 GRADE S-135 DRILL STRING WITH (NC-46SST) PIN 6-1/4" OD X 3" ID 9" TONG SPACE WITH ARMACOR M HARDBANDING & WITH SMOOTHEDGE FEATURE & WITH H-SERIES

BENCHMARKS AND (NC-46) BOX 6-1/4" OD X 3-1/4" ID 12" TONG SPACE WITH ARMACOR M HARDBANDING & WITH SMOOTHEDGE FEATURE & WITH H-SERIES BENCHMARKS

July 31, 2006

Grant Prideco Representative

Date

Date: July 31, 2006



w/SMOOTHEDGE FEATURE & w/H-SERIES BM AND (NC-46)BOX 6-1/4" OD X 3-1/4" ID 12" TONG SPACE w/ARMACOR M HB & w/SMOOTHEDGE FEATURE & w/ H-SERIES BM

QUALITY DOCUMENTATION PACKAGE

Description: 4-1/2" OD .337" WT 16.60 LB./FT. "H-SERIES" IEU UPSET RANGE 2 GRADE S-135 OS w/(NC-46SST) PIN 6-1/4" OD X 3" ID 9" TONG SPACE w/ ARMACOR M HB &

w/SMOOTHEDGE FEATURE & w/H-SERIES BM AND (NC-46)BOX 6-1/4" OD X 3-1/4" ID 12" TONG SPACE w/ARMACOR M HB & w/SMOOTHEDGE FEATURE & w/ H-SERIES BM



Certificate of Make and Break

This hereby certifies that the Make and Break Operation has been performed on the following:

(NC-46SST) PIN 6-1/4" OD X 3" ID 9" TONG SPACE WITH ARMACOR M HARDBANDING & WITH SMOOTHEDGE FEATURE & WITH H-SERIES BENCHMARKS and

(NC-46) BOX 6-1/4" OD X 3-1/4" ID 12" TONG SPACE WITH ARMACOR M HARDBANDING & WITH SMOOTHEDGE FEATURE & WITH H-SERIES BENCHMARKS

in strict compliance with the Applicable Grant Prideco Standard Operating Procedure No. DS-OP-31 Rev. 9, February 27, 2003 for the Make and Break Operation, Latest Revision. The issuance of this certificate indicates that the Make and Break Operation was completed.

(394) joints of 4-1/2" OD .337" WT 16.60 LB./FT. "H-SERIES" IEU UPSET RANGE 2 GRADE S-135 DRILL STRING WITH (NC-46SST) PIN 6-1/4" OD X 3" ID 9" TONG SPACE WITH ARMACOR M HARDBANDING & WITH SMOOTHEDGE FEATURE & WITH H-SERIES BENCHMARKS AND (NC-46) BOX 6-1/4" OD X 3-1/4" ID 12" TONG SPACE WITH ARMACOR M HARDBANDING & WITH SMOOTHEDGE FEATURE & WITH H-SERIES BENCHMARKS

July 31, 2006

Grant Prideco Representative _____

Date _____



GRANTPRIDECO

w/SMOOTHEDGE FEATURE & w/H-SERIES BM AND (NC-46) BOX 6-1/4" OD X 3-1/4" ID 12" TONG SPACE w/ARMACOR M HB & w/SMOOTHEDGE FEATURE & w/ H-SERIES BM

Date: July 31, 2006

QUALITY DOCUMENTATION PACKAGE

Description: 4-1/2" OD .337" WT 16.60 LB./FT. "H-SERIES" IEU UPSET RANGE 2 GRADE S-135 DS w/(NC-46SST)PIN 6-1/4" OD X 3" ID 9" TONG SPACE w/ ARMACOR M HB &

w/SMOOTHEDGE FEATURE & w/H-SERIES BM AND (NC-46)BOX 6-1/4" OD X 3-1/4" ID 12" TONG SPACE w/ARMACOR M HB & w/SMOOTHEDGE FEATURE & w/ H-SERIES BM



Certificate of Hardband

This hereby certifies that Armacor M Hardband has been applied on the following:

(NC-46SST) PIN 6-1/4" OD X 3" ID 9" TONG SPACE WITH ARMACOR M HARDBANDING & WITH SMOOTHEDGE FEATURE & WITH H-SERIES BENCHMARKS and

(NC-46) BOX 6-1/4" OD X 3-1/4" ID 12" TONG SPACE WITH ARMACOR M HARDBANDING & WITH SMOOTHEDGE FEATURE & WITH H-SERIES BENCHMARKS

in strict compliance with the Applicable Grant Prideco Standard Operating Procedure #DS-OP-13 Rev.4, Dated 9-30-05 for the Hardband Operation, Latest Revision. The issuance of this certificate indicates that the Hardband Operation was completed.

Grant Prideco Representative

July 31, 2006

Date

Date: July 31, 2006



Description: 4-1/2" OD .337" WT 16.60 LB./FT. "H-SERIES" IEU UPSET RANGE 2 GRADE S-135 DS w/(NC-46SST)PIN 6-1/4" OD X 3" ID 9" TONG SPACE w/ ARMACOR M HB & w/SMOOTHEDGE FEATURE & w/H-SERIES BM AND (NC-46)BOX 6-1/4" OD X 3-1/4" ID 12"

TONG SPACE w/ARMACOR M HB & w/SMOOTHEDGE FEATURE & w/ H-SERIES BM

QUALITY DOCUMENTATION P.ACIAGI!

Tuboscope.

A Varco Company

Certificate of Inspection

Customer: Grant Prideco P.O.# _____
 Shop Order# 42733.011 W.O.# _____
 DRJLLNPE X TUBING _____

Pipe Size	Pipe Weight	Nominal Wall	Grade	Range	Upset Type
4-1/2"	16.60#	.337"	S-135	II	IEU

Inspection TYPE PERFORMED TUBOSCOPE

SOP-GJO00

In conjunction with the latest edition of the following specifications:

_____ SCT _____ 5CT SR-2 , _____ I.Record Heat-#
X SD _____ SDSR-2 X I WETSEA
 _____ IUT ENDAREA
 _____ X I IwscOPE-AS

And includes the following inspections performed per the above referenced specification, Tuboscope standard operating procedures, and any applicable customer specifications defined herein:

_____ 4 0 4 I total Joints Inspected to _____ 9 5 .0 0 % o I Remaining Body Wall
 _____ 4 0 4 I Prime Joints with _____ I _____ I White land _____ I Blue Bands

Tuboscope Representative:

Date:

June B, 2006

Certificate of Tool Joint Magnetic Particle Inspection

This hereby certifies that Tool Joint Magnetic Particle Inspection
has been applied on the following:

**(NC-46SST) PIN 6-1/4" OD X 3" ID 9" TONG SPACE WITH ARMACOR M
HARDBANDING & WITH SMOOTHEDGE FEATURE & WITH H-SERIES
BENCHMARKS and**

**(NC-46) BOX 6-1/4" OD X 3-1/4" ID 12" TONG SPACE WITH ARMACOR M
HARDBANDING & WITH SMOOTHEDGE FEATURE & WITH H-SERIES
BENCHMARKS**

in strict compliance with the Applicable Grant Prideco Standard
Operating Procedure for Magnetic Particle Inspection, Latest
Revision. The issuance of this certificate indicates that Magnetic
Particle Inspection was completed.

July 31, 2006

Date

Date: July 31, 2006



Description: 4-1/2" OD .337" WT 16.60 LB./FT. "H-SERIES" IEU UPSET RANGE 2 GRADE S-135 DS w/(NC-46SST)PIN 6-1/4" OD X 3" ID 9" TONG SPACE w/ ARMACOR M HB & w/SMOOTHEDGE FEATURE & w/H-SERIES BM AND (NC-46)BOX 6-1/4" OD X 3-1/4" ID 12" TONG SPACE w/ARMACOR M HB & w/SMOOTHEDGE FEATURE & w/ H-SERIES BM



Certificate of Weld Area Ultrasonic Shear Wave and Magnetic Particle Inspection

This hereby certifies that Weld Area U/T and MPI Inspection has been performed on the following:

(NC-46SST) PIN 6-1/4" OD X 3" ID 9" TONG SPACE WITH ARMACOR M HARDBANDING & WITH SMOOTHEDGE FEATURE & WITH H-SERIES BENCHMARKS and

(NC-46) BOX 6-1/4" OD X 3-1/4" ID 12" TONG SPACE WITH ARMACOR M HARDBANDING & WITH SMOOTHEDGE FEATURE & WITH H-SERIES BENCHMARKS

in strict compliance with the Applicable Grant Prideco Standard Operating Procedure(s) for Weld Area U/T and MPI Inspection, Latest Revision. The issuance of this certificate indicates that Weld Area U/T and MPI Inspection was completed.

July 31, 2006

Grant Prideco Representative

Date

Date: July 31, 2006



Description: 4-1/2" OD .337" WT 16.60 LB./FT. "H-SERIES" IEU UPSET RANGE 2 GRADE S-135 OS w/(NC-46SST)PIN 6-1/4" OD X 3" ID 9" TONG SPACE w/ ARMACOR M HB & w/SMOOTHEDGE FEATURE & w/H-SERIES BM AND (NC-46)BOX 6-1/4" OD X 3-1/4" ID 12" TONG SPACE w/ARMACOR M HB & w/SMOOTHEDGE FEATURE & w/ H-SERIES BM

QUALITY DOCUMENTATION PACKAGE

Certificate of Testing for Drill Pipe ... 1

Mill	Type	Heat No.	C	MN	p	S	SI	CU	NI	CR	MO	V	B	AL
Voest Alpine	Product	358748	0.278	1.273	0.0138	0.0040	0.293	0.049	0.048	0.848	0.265	0.007	0.0003	0.033
Voest Alpine	Heat	358748	0.268	1.239	0.0119	0.0046	0.280	0.052	0.053	0.884	0.262	0.003	0.0011	0.029
Voest Alpine	Heat	358748	0.274	1.211	0.0116	0.0048	0.267	0.051	0.052	0.879	0.262	0.003	0.0013	0.028
Voest Alpine	Product	358749	0.280	1.300	0.0148	0.0041	0.293	0.042	0.036	0.853	0.262	0.007	0.0004	0.034
Voest Alpine	Heat	358749	0.269	1.274	0.0120	0.0046	0.285	0.059	0.054	0.863	0.244	0.003	0.0010	0.032
Voest Alpine	Heat	358749	0.277	1.287	0.0119	0.0052	0.288	0.058	0.055	0.870	0.250	0.003	0.0008	0.032
Voest Alpine	Product	358753	0.281	1.328	0.0145	0.0047	0.290	0.057	0.052	0.851	0.260	0.007	0.0003	0.032
Voest Alpine	Heat	358753	0.269	1.274	0.0120	0.0046	0.285	0.059	0.054	0.863	0.244	0.003	0.0010	0.032
Voest	Heat	358753	0.277	1.287	0.0119	0.0052	0.288	0.058	0.055	0.870	0.250	0.003	0.0008	0.032

Mechanical Test Data

Specimen	Position	Size	Heat No.	Lot No.	Tensile PSI	Yield PSI	Elong %	RA%
Tube	167	1.000	358748		152239.0	142509.0	22.5	
Upset	167	0.500"	358748		150870.0	140128.0	17.4	60.8
Tube	11	1.000	358749		152804.0	143894.0	20.0	
Upset	11	0.500"	358749		155760.0	145976.0	19.6	62.9
Tube	411		358753		150838.0	140374.0	20.2	
Upset	411	0.500"	358753		156691.0	147667.0	16.5	60.8

65 KSI

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

Size (mm)	Temp (F)	Heat No.	Position	A	B	C	Avg	Shear(%)
10x7.5mm	14 F	358748	167	55.0	54.0	54.0	54.3	95.0
10x7.5mm	14F	358749	11	57.0	56.0	58.0	57.0	95.0
10x7.5mm	14 F	358753	411	48.0	55.0	48.0	50.3	95.0

AVG. 3/4" SIZE 14F

July 31, 2006

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QUALITY DOCUMENTATION PACKAGE

Certificate of Testing for Drill Pipe ... 1

Mill	Type	Heat No.	C	MN	p	S	SI	CU	NI	CR	MO	V	B	AL
Voest Alpine	Product	461862	0.272	1.255	0.0140	0.0031	0.273	0.016	0.021	0.842	0.262	0.007	0.0002	0.029
Voest Alpine	Heat	461862	0.274	1.265	0.0140	0.0045	0.270	0.018	0.024	0.868	0.260	0.003	0.0010	0.028
VoestAl ine	Heat	461862	0.270	1.258	0.0135	0.0040	0.267	0.018	0.024	0.865	0.257	0.003	0.0009	0.027

Mechanical Test Data

Specimen	Position	Size	Heat No.	Lot No.	Tensile PSI	Yield PSI	Elong %	RA%
Upset	369	0.500"	461862		150920.0	140040.0	17.7	64.0
Tube	369	1.000"	461862		150767.0	141751.0	20.3	

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

Size (mm)	Temp (F)	Heat No.	Position	A	B	C	Avg	Shear(%)
10x7.5mm	14F	461862	369	59.0	60.0	60.0	59.7	95.0

Date
July 31, 2006

Date: July 31, 2006



Description: 4-1/2" OD .337" WT 16.60 LB./FT. "H-SERIES" IEU UPSET RANGE 2 GRADE S-135 DS w/(NC-46SST)PIN 6-1/4" OD X 3" ID 9" TONG SPACE w/ ARMACOR M HB & w/SMOOTHEDGE FEATURE & w/H-SERIES BM AND (NC-46)BOX 6-1/4" OD X 3-1/4" ID 12" TONG SPACE w/ARMACOR M HB & w/SMOOTHEDGE FEATURE & w/ H-SERIES BM

QUALITY DOCUMENTATION PACKAGE

Certificate of Testing for Pin Tool Joints

Mill Chemistry

Mill	Type	HeatNo.	Heat Code	C	MN	P	S	SI	CU	NI	CR	MO	V	B	AL
Corus	Product	07410	68K	0.370	0.970	0.01100	0.0010	0.250	0.031	0.160	1.090	0.300	0.004	0.0001	0.041
MITTAL	Product	G80609	69E	0.3510	0.9190	0.00700	0.00200	0.2500	0.0250	0.1771	1.1490	0.2850	0.0050	0.0000	0.028

Mechanical Test Data

Specimen	Position	Size	Heat No.	Heat Code	Tensile PSI	Yield PSI	Elong %	RA%	BHN
Pin	1	0.500"	07410	68K	154669.0	138318.0	16.3	63.2	331
Pin	4261-1	0.500"	07410	68K	154319.0	137930.0	17.1	60.3	321
Pin	4261-2	0.500"	07410	68K	151998.0	136769.0	19.5	62.1	321
Pin	4261-3	0.500"	07410	68K	149098.0	133434.0	16.3	55.3	323
Pin	4261-4	0.500"	07410	68K	155769.0	141556.0	15.9	54.7	323
Pin	4261-5	0.500"	07410	68K	149533.0	133724.0	16.6	58.3	323
Pin	4261-6	0.500"	07410	68K	148807.0	132563.0	18.1	60.3	326
Pin	4261-7	0.500"	07410	68K	157945.0	143586.0	15.8	53.5	326
Pin	4261-8	0.500"	07410	68K	151418.0	135174.0	16.3	55.2	329
Pin	1	0.500"	G80609	69E	143357.0	124420.0	18.8	64.4	319
Pin	4131-1	0.500"	G80609	69E	156059.0	140105.0	16.4	61.5	328
Pin	4131-2	0.500"	G80609	69E	156059.0	141556.0	17.2	61.9	322
Pin	4261-1	0.500"	G80609	69E	157365.0	142281.0	16.1	59.3	321
Pin	4261-2	0.500"	G80609	69E	150693.0	134594.0	16.3	60.2	325
Pin	4261-3	0.500"	G80609	69E	154174.0	139090.0	17.7	60.3	322
Pin	4261-4	0.500"	G80609	69E	150258.0	134014.0	18.5	61.9	321
Pin	4261-5	0.500"	G80609	69E	151708.0	135754.0	17.7	61.7	328
Pin	4261-6	0.500"	G80609	69E	151998.0	136914.0	16.9	59.5	328

140 KSI MIN 120 KSI MIN 13.0 MIN 285 MIN - 341 MAX

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

Size (mm)	Temp (F)	Heat No.	Position	Heat Code	A	B	C	Avg	Shear(%)
10 x10 mm	-4 F	07410	1	68K	75.0	70.0	66.0	70.3	95.0

(NC-46SST) PIN 6-1/4" OD X 3" ID 9" TONG SPACE WITH ARMACOR M HARDBANDING & WITH SMOOTHEDGE FEATURE & WITH H-SERIES BENCHMARKS

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Description: 4-1/2" OD .337" WT 16.60 LB./FT. "H-SERIES" IEU UPSET RANGE 2 GRADE S-135 DS w/(NC-46SST)PIN 6-1/4" OD X 3" ID 9" TONG SPACE w/ ARMACOR M HB & w/SMOOTHEDGE FEATURE & w/H-SERIES BM AND (NC-46)BOX 6-1/4" OD X 3-1/4" ID 12" TONG SPACE w/ARMACOR M HB & w/SMOOTHEDGE FEATURE & w/ H-SERIES BM

QUALITY DOCUMENTATION PACKAGE

Certificate of Testing for Pin Tool Joints

10 x 10 mm	-4 F	07410	4261-1	68K	71.0	73.0	72.0	72.0	100.0
10 x 10 mm	-4 F	07410	4261-2	68K	77.0	73.0	74.0	74.7	100.0
10 x 10 mm	-4 F	07410	4261-3	68K	84.0	81.0	80.0	81.7	100.0
10x 10 mm	-4 F	07410	4261-4	68K	70.0	73.0	71.0	71.3	100.0
10 x 10 mm	-4 F	07410	4261-5	68K	70.0	70.0	74.0	71.3	100.0
10 x 10 mm	-4 F	07410	4261-6	68K	70.0	71.0	75.0	72.0	100.0
10 x 10 mm	-4 F	07410	4261-7	68K	70.0	66.0	67.0	67.7	100.0
10 x 10 mm	-4 F	07410	4261-8	68K	77.0	73.0	72.0	74.0	100.0
10 x 10 mm	-4 F	G80609	1	69E	63.0	60.0	62.0	61.7	90.0
10 x 10 mm	-4 F	G80609	4131-1	69E	67.0	68.0	73.0	69.3	100.0
10 x 10 mm	-4 F	G80609	4131-2	69E	73.0	75.0	71.0	73.0	100.0
10x10mm	-4 F	G80609	4261-1	69E	75.0	73.0	78.0	75.3	100.0
10 x 10 mm	-4 F	G80609	4261-2	69E	75.0	77.0	78.0	76.7	100.0
10 x 10 mm	-4 F	G80609	4261-3	69E	71.0	73.0	70.0	71.3	100.0
10 x 10 mm	-4 F	G80609	4261-4	69E	70.0	73.0	72.0	71.7	100.0
10 x 10 mm	-4 F	G80609	4261-5	69E	73.0	75.0	78.0	75.3	100.0
10 x 10 mm	-4 F	G80609	4261-6	69E	70.0	71.0	74.0	71.7	100.0

(NC-46SST) PIN 6-1/4" OD X 3" ID 9" TONG SPACE WITH ARMACOR M HARDBANDING & WITH SMOOTHEDGE FEATURE & WITH H-SERIES BENCHMARKS

All properties meet the requirements of API Specification 7, Latest Edition, Grant Prideco Specification for Grade S-135, and Drill Pipe Spec. "Exhibit A". I certify that these tests were conducted in accordance.

July 31, 2006

Date: July 31, 2006



Description: 4-1/2" OD .337" WT 16.60 LB./FT. "H-SERIES" IEU UPSET RANGE 2 GRADE S-135 DS w/(NC-46SST)PIN 6-1/4" OD X 3" ID 9" TONG SPACE w/ ARMACOR M HB & w/SMOOTHEDGE FEATURE & w/H-SERIES BM AND (NC-46)BOX 6-1/4" OD X 3-1/4" ID 12" TONG SPACE w/ARMACOR M HB & w/SMOOTHEDGE FEATURE & w/ H-SERIES BM

Certificate of Testing for Box Tool Joints

Mill Chemistry

Mill	Type	Heat No.	Heat Code	C	MN	P	S	SI	CU	NI	CR	MO	V	B	AL
ABS	Product	84694	69S	0.370	0.950	0.00800	0.0040	0.240	0.150	0.190	1.150	0.300	0.004	0.0001	0.026
ABS	Product	84697	69M	0.361	0.980	0.00700	0.0020	0.250	0.150	0.200	1.190	0.300	0.005	0.0001	0.027

Specimen	Position	Size	Heat No.	Heat Code	Tensile PSI	Yield PSI	Elong %	RA%	BHN
Box	1	0.500"	84694	69S	154421.0	137587.0	19.7	60.9	326
Box	4262-1	0.500"	84694	69S	154754.0	140540.0	16.6	60.0	319
Box	4262-2	0.500"	84694	69S	150983.0	136769.0	16.7	54.4	324
Box	4262-3	0.500"	84694	69S	154464.0	139090.0	15.4	53.3	323
Box	4262-4	0.500"	84694	69S	151418.0	136769.0	16.3	56.8	323
Box	4262-5	0.500"	84694	69S	154029.0	138075.0	16.1	57.1	325
Box	4262-6	0.500"	84694	69S	153739.0	139670.0	17.0	61.9	323
Box	4262-7	0.500"	84694	69S	147502.0	133143.0	16.7	60.3	325
Box	1	0.500"	84697	69M	151577.0	133339.0	18.8	60.6	321
Box	4262-1	0.500"	84697	69M	154174.0	138365.0	15.6	53.6	323
Box	4262-2	0.500"	84697	69M	154319.0	139525.0	15.5	53.0	328
Box	4262-3	0.500"	84697	69M	154464.0	139815.0	15.3	51.7	323
Box	4262-4	0.500"	84697	69M	155189.0	139670.0	15.2	51.7	324
Box	4262-5	0.500"	84697	69M	151418.0	135319.0	16.9	60.9	322

140 KSI MIN 120 KSI MIN 13.0 MIN 285 MIN - 331 MAX

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

Size (mm)	Temp (F)	Heat No.	Position	Heat Code	A	B	C	Avg	Shear(%)
10x 10 mm	-4 F	84694	1	69S	62.0	64.0	65.0	63.7	90.0
10 x10 mm	-4 F	84694	4262-1	69S	66.0	69.0	70.0	68.3	100.0
10x 10 mm	-4 F	84694	4262-2	69S	67.0	69.0	70.0	68.7	100.0
10 x10 mm	-4 F	84694	4262-3	69S	64.0	66.0	68.0	66.0	100.0
10 x10 mm	-4 F	84694	4262-4	69S	66.0	67.0	70.0	67.7	100.0
10 x 10 mm	-4 F	84694	4262-5	69S	66.0	67.0	70.0	67.7	100.0

(NC-46) BOX 6-1/4" OD X 3-1/4" ID 12" TONG SPACE WITH ARMACOR M HARDBANDING & WITH SMOOTHEDGE FEATURE & WITH H-SERIES BENCHMARKS

Grant Prideco Representative

July 31, 2006

Date

Date: July 31, 2006



Description: 4-1/2" OD .337" WT 16.60 LB./FT. "H-SERIES" IEU UPSET RANGE 2 GRADE S-135 DS w/(NC-46SST)PIN 6-1/4" OD X 3" ID 9" TONG SPACE w/ ARMACOR M HB & w/SMOOTHEDGE FEATURE & w/H-SERIES BM AND (NC-46)BOX 6-1/4" OD X 3-1/4" ID 12" TONG SPACE w/ARMACOR M HB & w/SMOOTHEDGE FEATURE & w/ H-SERIES BM

Certificate of Testing for Box Tool Joints

10 x 10 mm	-4 F	84694	4262-6	69S	66.0	67.0	70.0	67.7	100.0
10 x 10 mm	-4 F	84694	4262-7	69S	66.0	66.0	68.0	66.7	100.0
10 x 10 mm	-4 F	84697	1	69M	62.0	65.0	61.0	62.7	90.0
10 x 10 mm	-4 F	84697	4262-1	69M	63.0	64.0	67.0	64.7	100.0
10 x 10 mm	-4 F	84697	4262-2	69M	70.0	69.0	73.0	70.7	100.0
10x10mm	-4 F	84697	4262-3	69M	69.0	70.0	72.0	70.3	100.0
10x10mm	-4 F	84697	4262-4	69M	63.0	66.0	67.0	65.3	100.0
10x10mm	-4 F	84697	4262-5	69M	75.0	73.0	71.0	73.0	100.0

(NC-46) BOX 6-1/4" OD X 3-1/4" ID 12" TONG SPACE WITH ARMACOR M HARDBANDING & WITH SMOOTHEDGE FEATURE & WITH H-SERIES BENCHMARKS

All properties meet the requirements of AP! Specification 7, Latest Edition, Grant Prideco Specification for Grade S-135, and Drill Pipe Spec. "Exhibit A". I certify that these tests were conducted in accordance with applicable specifications and that the data contained herein is true and correct.

Grant Prideco Representative

July 31, 2006

Date

Date: July 31, 2006



Description: 4-1/2" OD .337" WT 16.60 LB./FT. "H-SERIES" IEU UPSET RANGE 2 GRADE S-135 DS w/(NC-46SST)PIN 6-1/4" OD X 3" ID 9" TONG SPACE w/ ARMACOR M HB & w/SMOOTHEDGE FEATURE & w/H-SERIES BM AND (NC-46)BOX 6-1/4" OD X 3-1/4" ID 12" TONG SPACE w/ARMACOR M HB & w/SMOOTHEDGE FEATURE & w/ H-SERIES BM

QUALITY DOCUMENTATION PACKAGE

Certificate of Testing for Weld Area

Mechanical Test Data

Specimen	Position	Size	Tensile PSI	Yield PSI	Elong %	RA%
Weld-Pin	5	0.500"	117660.0	96352.0	20.1	67.0
Weld-Box	5	0.500"	116690.0	98602.0	16.5	67.8

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

Size (mm)	Temp (F)	Position	A	B	C	Avg
10 x 10mm	14 F	5	35.0	43.0	58.0	45.3
10x10mm	14 F	5	43.0	47.0	54.0	

180 Degree Bend Test and Microstructure Verification

Pos No.	Side Bend1	Side Bend2	Microstructure Verified
5	Pass	Pass	Yes
5	Pass	Pass	Yes

Throughwall Hardness HRC

Pos No.	Pipe Average			Tool Joint Average		
	OD	MD	ID	OD	MD	ID
5	24.8	24.7	23.3	31.0	27.5	27.5
5	25.9	25.1	25.0	32.2	31.0	32.7

Date: July 31, 2006



Description: 4-1/2" OD .337" WT 16.60 LB./FT. "H-SERIES" !EU UPSET RANGE 2 GRADE S-135 DS w/(NC-46SST)PIN 6-1/4" OD X 3" ID 9" TONG SPACE w/ ARMACOR M HB & w/SMOOTHEDGE FEATURE & w/H-SERIES BM AND (NC-46)BOX 6-1/4" OD X 3-1/4" ID 12" TONG SPACE w/ARMACOR M HB & w/SMOOTHEDGE FEATURE & w/ H-SERIES BM

QUALITY DOCUMENTATION PACKAGE

Date: July 31, 2006

This is to certify that the following material has been coated to Tuboscope's specifications and complies with the customer's specifications.

Customer: Grant Prideco

Work Order:

Shop/ Purchase Order:

Quantity: 394 Joints 100% Holiday Free

Description: 4 ½" 16.60# R2 S135 with NC46SST Connections

Coating: TK34

Thread Compound: Kopr Kote

Hardbanding: N/A

Inspection: Longitudinal and Transverse-Wet-OD & Dry-ID performed on 39 jts.



(GRANT•PRIDECO)

CERTIFICATE OF DS-1 LEVEL 5 INSPECTION

SUBJECT: DS-1 LEVEL 5 REQUIREMENTS FOR GRANT PRIDECO DRILL PIPE

PLEASE BE ADVISED THAT GRANT PRIDECO'S STANDARD DRILL PIPE PRODUCT MEETS OR EXCEEDS THE T.H. HILL DS-1 SERVICE CATEGORY 5 REQUIREMENTS FOR NEW DRILL PIPE FOR 4-1/2" 16.60 LB/FT. H-SERIES IEU RANGE 2 GRADE S-135 DRILL PIPE.