

TEXAS STEEL CONVERSION, INC.

CERTIFICATE of COMPLIANCE

SMITH INTERNATIONAL, INC. - PURCHASE ORDER NUMBER

239888

SMITH

457/0127A

SPECIFICATIONS (applicable parts):

API: 5D Rev. 5 (04-30-02)

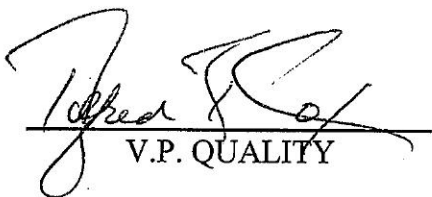
API: 7 Rev. 40 (03-01-02)

**This hereby certifies that the herein described
material meets all of the requirements of the
above referenced documents.**

STRING# 75P

SERIAL #s: 001-1097

1097 JTS., 34,837.97', 4.5, 0.337w, G105, 95% WALL,
RANGE 2, IEU, 6 1/4" OD TOOL JOINTS (2" LTS) NC-46, (4" IF),
STANDARD THREADS, ARMACOR M HARDBAND (BOX),
TK-34 INTERNAL PLASTIC COAT, CLOSED THREAD PROTECTORS


V.P. QUALITY


DATE

TEXAS STEEL CONVERSION, INC.

PROCESSOR OF OIL COUNTRY TUBULAR GOODS

MATERIAL CERTIFICATION

The herein described material has been processed, sampled, tested, and/or inspected in accordance with the referenced sales order using the applicable API specification as the guidelines and meets the customer's requirements for the grade indicated.

CUSTOMER: SMITH

SO# 457/0127A

SIZE : 4.500x0.337

GRADE : G105

HEAT TREAT : Q&T

UPSET: IEU

PO# 239888

MILL: TSC/C.E. KING

MFG.PROC.: SMLS

SPEC: API:5D,7

(Latest Edition)

<u>TEST#</u>	<u># JTS</u>	<u>HEAT #</u>	<u>LOT #</u>
91100	137	737531	457245
91101	136	737531	457246
91102	111	737533	457247
91103	126	737534	457248
91104	125	737534	457249
91105	139	737532	457250
91106	138	737532	457251
91107	106	737535	457252
91108	106	737535	457253

<u>HEAT#</u>	<u>C</u>	<u>Si</u>	<u>Mn</u>	<u>P</u>	<u>S</u>	<u>Cr</u>	<u>Mo</u>	<u>Ni</u>	<u>V</u>	<u>Al</u>	<u>Nb</u>	<u>Sn</u>	<u>Ti</u>	<u>Cu</u>	<u>Ca</u>	<u>B</u>
737531	.28	.23	.90	.011	.003	.96	.41	.13	.003	.031	.006	.013	.003	.10		
737533	.27	.23	.90	.010	.003	.96	.40	.13	.003	.029	.005	.013	.003	.10		
737534	.28	.23	.89	.011	.003	.96	.40	.13	.003	.027	.005	.012	.003	.10		
737532	.27	.23	.90	.010	.003	.96	.40	.13	.003	.033	.005	.014	.003	.10		
737535	.27	.23	.90	.010	.003	.96	.40	.13	.003	.033	.006	.014	.003	.16		


Alfred B. Cox

V.P. Quality

ABC/tp

2/1/06
DATE

TEXAS STEEL CONVERSION, INC

QUALITY TEST REPORT - DRILL PIPE

CUSTOMER: SMITH

TEST # 91100

SO# 457/0127A SIZE : 4.500X0.337

LOT # 457245

PO# 239888 UPSET: IEU

HEAT # 737531

MILL: TSC/C.E. KING GRADE: G105 .6% EUL

MFG.PROC. : SMLS

SPEC : API:5D

HEAT TREAT: Q&T

04/30/02

JTS/LOT : 137

TENSILE TEST

DIMENSIONS (Inches)	AREA (Sq.In.)	YIELD STRENGTH (Lbs/Sq.In.)	TENSILE STRENGTH (Lbs/Sq.In.)	% ELONG (IN 2")	ROA (%)
0.356X0.950	0.341	(B) 119200	130600	21.3	65.1
0.504 (BAR DIAM.)		(U) 123100	136200	22.3	66.2

BODY TYPE: LONGITUDINAL STRIP

TENSILE SPECIMEN HARDNESS VALUES (HRC)

O.D. 27.6

MID 27.4

I.D. 27.5

UPSET HARDNESS VARIATION (HRC)

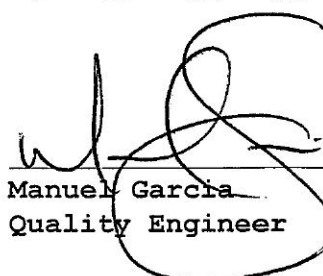
QUADRANT	1	2
O.D. VALUE	28.2	28.0
MID VALUE	28.0	28.0
I.D. VALUE	27.5	27.6

CHARPY IMPACT TEST

CHARPY TYPE	IMPACT (ftXlbs)	LATERAL EXPANSION (mils)	FRACTURE (% D/F)
LOCATION: BODY-MID WALL			
TESTED AT +70°F	81.0	63	100
SIZE: 10X7.5 mm	88.0	69	100
ORIENTATION: LONGITUDINAL	78.0	60	100
Average	82.3		

CHEMICAL PRODUCT ANALYSIS

#	C	Si	Mn	P	S	Cr	Mo	Ni	V	Al	Nb	Sn	Ti	Cu	Ca	B
1	.28	.21	.91	.009	.002	.93	.40	.12	.003	.026	.002	.008	.002	.12	.0009	.0004
2	.29	.21	.91	.010	.002	.93	.40	.12	.003	.026	.002	.008	.002	.12	.0020	.0004


Manuel Garcia
Quality Engineer

0-19-06

DATE

TEXAS STEEL CONVERSION, INC

QUALITY TEST REPORT - DRILL PIPE

CUSTOMER: SMITH

TEST # 91101

SO# 457/0127A	SIZE : 4.500X0.337	LOT # 457246
PO# 239888	UPSET: IEU	HEAT # 737531
MILL: TSC	GRADE: G105 .6% EUL	MFG.PROC. : SMLS
	SPEC : API:5D	HEAT TREAT: Q&T
	04/30/02	# JTS/LOT : 136

TENSILE TEST

DIMENSIONS (Inches)	AREA (Sq.In.)	YIELD STRENGTH (Lbs/Sq.In.)	TENSILE STRENGTH (Lbs/Sq.In.)	% ELONG (IN 2")	ROA (%)
0.358X0.991	0.358	(B) 125800	137300	21.5	63.1
0.505 (BAR DIAM.)		(U) 120400	134700	18.7	66.4

BODY TYPE: LONGITUDINAL STRIP

TENSILE SPECIMEN HARDNESS VALUES (HRC)

O.D.	28.2
MID	28.5
I.D.	27.8

UPSET HARDNESS VARIATION (HRC)

<u>QUADRANT</u>	<u>1</u>	<u>2</u>
O.D. VALUE	27.8	28.6
MID VALUE	28.7	28.4
I.D. VALUE	28.1	28.3

CHARPY IMPACT TEST

CHARPY TYPE	IMPACT (ftXlbs)	LATERAL EXPANSION (mils)	FRACTURE (% D/F)
LOCATION: BODY-MID WALL			
TESTED AT +70°F	91.0	68	100
SIZE: 10X7.5 mm	84.0	61	100
ORIENTATION: LONGITUDINAL	84.0	62	100
Average	86.3		


 Manuel Garcia
 Quality Engineer

01-19-06
 DATE

TEXAS STEEL CONVERSION, INC

QUALITY TEST REPORT - DRILL PIPE

CUSTOMER: SMITH

TEST # 91102

SO# 457/0127A

SIZE : 4.500X0.337

LOT # 457247

PO# 239888

UPSET: IEU

HEAT # 737533

MILL: TSC

GRADE: G105 .6% EUL

MFG.PROC. : SMLS

SPEC : API:5D

HEAT TREAT: Q&T

04/30/02

JTS/LOT : 111

TENSILE TEST

DIMENSIONS (Inches)	AREA (Sq.In.)	YIELD STRENGTH (Lbs/Sq.In.)	TENSILE STRENGTH (Lbs/Sq.In.)	% ELONG (IN 2")	ROA (%)
0.355X0.993	0.356	(B) 122600	134700	23.4	60.7
0.509 (BAR DIAM.)		(U) 122700	136200	21.8	66.6

BODY TYPE: LONGITUDINAL STRIP

TENSILE SPECIMEN HARDNESS VALUES (HRC)

O.D. 29.1
MID 27.9
I.D. 27.8

UPSET HARDNESS VARIATION (HRC)

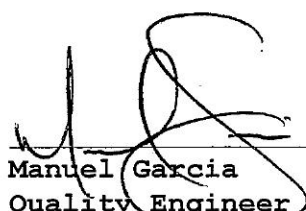
QUADRANT	1	2
O.D. VALUE	29.3	29.3
MID VALUE	28.7	28.7
I.D. VALUE	27.6	27.3

CHARPY IMPACT TEST

CHARPY TYPE	IMPACT (ftXlbs)	LATERAL EXPANSION (mils)	FRACTURE (% D/F)
LOCATION: BODY-MID WALL			
TESTED AT +70°F	67.0	52	100
SIZE: 10X7.5 mm	79.0	61	100
ORIENTATION: LONGITUDINAL	87.0	68	100
Average	77.7		

CHEMICAL PRODUCT ANALYSIS

#	C	Si	Mn	P	S	Cr	Mo	Ni	V	Al	Nb	Sn	Ti	Cu	Ca	B
1	.27	.21	.90	.011	.003	.94	.38	.13	.004	.026	.001	.009	.001	.11	.0011	.0004
2	.27	.21	.90	.010	.002	.94	.37	.13	.004	.026	.001	.009	.001	.11	.0011	.0004


Manuel Garcia
Quality Engineer

01-19-06
DATE

TEXAS STEEL CONVERSION, INC

QUALITY TEST REPORT - DRILL PIPE

CUSTOMER: SMITH

TEST # 91103

SO# 457/0127A

SIZE : 4.500X0.337

LOT # 457248

PO# 239888

UPSET: IEU

HEAT # 737534

MILL: TSC

GRADE: G105 .6% EUL

MFG.PROC. : SMLS

SPEC : API:5D

HEAT TREAT: Q&T

04/30/02

JTS/LOT : 126

TENSILE TEST

DIMENSIONS (Inches)	AREA (Sq.In.)	YIELD STRENGTH (Lbs/Sq.In.)	TENSILE STRENGTH (Lbs/Sq.In.)	% ELONG (IN 2")	ROA (%)
0.352X0.984	0.350	(B) 122000	133900	22.2	57.7
0.505 (BAR DIAM.)		(U) 117900	131900	19.8	67.7

BODY TYPE: LONGITUDINAL STRIP

TENSILE SPECIMEN HARDNESS VALUES (HRC)

O.D. 29.6
MID 29.4
I.D. 28.8

UPSET HARDNESS VARIATION (HRC)

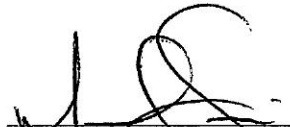
QUADRANT	1	2
O.D. VALUE	29.7	29.3
MID VALUE	29.2	29.5
I.D. VALUE	28.6	29.0

CHARPY IMPACT TEST

CHARPY TYPE	IMPACT (ftXlbs)	LATERAL EXPANSION (mils)	FRACTURE (% D/F)
LOCATION: BODY-MID WALL			
TESTED AT +70°F	81.0	61	100
SIZE: 10X7.5 mm	79.0	59	100
ORIENTATION: LONGITUDINAL	82.0	63	100
Average	80.7		

CHEMICAL PRODUCT ANALYSIS

#	C	Si	Mn	P	S	Cr	Mo	Ni	V	Al	Nb	Sn	Ti	Cu	Ca	B
1	.27	.22	.90	.011	.003	.93	.39	.13	.003	.020	.001	.008	.002	.11	.0009	.0004


Manuel Garcia
Quality Engineer

01-19-06
DATE

TEXAS STEEL CONVERSION, INC

QUALITY TEST REPORT - DRILL PIPE

CUSTOMER: SMITH

TEST # 91104

SO# 457/0127A

SIZE : 4.500X0.337

LOT # 457249

PO# 239888

UPSET: IEU

HEAT # 737534

MILL: TSC

GRADE: G105 .6% EUL

MFG.PROC. : SMLS

SPEC : API:5D

HEAT TREAT: Q&T

04/30/02

JTS/LOT : 125

TENSILE TEST

DIMENSIONS (Inches)	AREA (Sq.In.)	YIELD STRENGTH (Lbs/Sq.In.)	TENSILE STRENGTH (Lbs/Sq.In.)	% ELONG (IN 2")	ROA (%)
0.347X0.997	0.349	(B) 119700	132900	22.7	61.9
0.506 (BAR DIAM.)		(U) 117600	130600	19.6	68.7

BODY TYPE: LONGITUDINAL STRIP

TENSILE SPECIMEN HARDNESS VALUES (HRC)

O.D. 28.0

MID 28.2

I.D. 28.1

UPSET HARDNESS VARIATION (HRC)

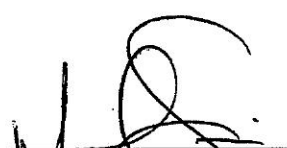
QUADRANT	1	2
O.D. VALUE	27.2	27.3
MID VALUE	27.4	26.9
I.D. VALUE	27.9	27.6

CHARPY IMPACT TEST

CHARPY TYPE	IMPACT (ftXlbs)	LATERAL EXPANSION (mils)	FRACTURE (% D/F)
LOCATION: BODY-MID WALL			
TESTED AT +70°F	80.0	60	100
SIZE: 10X7.5 mm	84.0	64	100
ORIENTATION: LONGITUDINAL	84.0	64	100
Average	82.7		

CHEMICAL PRODUCT ANALYSIS

#	C	Si	Mn	P	S	Cr	Mo	Ni	V	Al	Nb	Sn	Ti	Cu	Ca	B
2	.27	.22	.89	.011	.003	.93	.39	.13	.003	.020	.001	.008	.002	.11	.0011	.0004


Manuel Garcia
Quality Engineer

01-19-06
DATE

TEXAS STEEL CONVERSION, INC

QUALITY TEST REPORT - DRILL PIPE

CUSTOMER: SMITH

TEST # 91105

SO# 457/0127A

SIZE : 4.500X0.337

LOT # 457250

PO# 239888

UPSET: IEU

HEAT # 737532

MILL: TSC

GRADE: G105 .6% EUL

MFG.PROC. : SMLS

SPEC : API:5D

HEAT TREAT: Q&T

04/30/02

JTS/LOT : 139

TENSILE TEST

DIMENSIONS (Inches)	AREA (Sq.In.)	YIELD STRENGTH (Lbs/Sq.In.)	TENSILE STRENGTH (Lbs/Sq.In.)	% ELONG (IN 2")	ROA (%)
0.373X0.950	0.358	(B) 120900	132100	19.9	64.8
0.501 (BAR DIAM.)		(U) 120400	133500	17.6	66.3

BODY TYPE: LONGITUDINAL STRIP

TENSILE SPECIMEN HARDNESS VALUES (HRC)

O.D. 28.6
MID 27.9
I.D. 27.1

UPSET HARDNESS VARIATION (HRC)

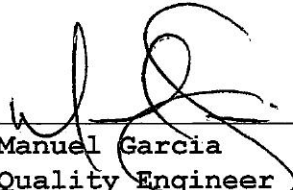
QUADRANT	1	2
O.D. VALUE	28.7	29.0
MID VALUE	28.2	28.2
I.D. VALUE	27.7	27.5

CHARPY IMPACT TEST

CHARPY TYPE	IMPACT (ftXlbs)	LATERAL EXPANSION (mils)	FRACTURE (% D/F)
LOCATION: BODY-MID WALL			
TESTED AT +70°F	77.0	64	100
SIZE: 10X7.5 mm	76.0	63	100
ORIENTATION: LONGITUDINAL	70.0	58	100
Average	74.3		

CHEMICAL PRODUCT ANALYSIS

#	C	Si	Mn	P	S	Cr	Mo	Ni	V	Al	Nb	Sn	Ti	Cu	Ca	B
1	.28	.22	.90	.014	.004	.94	.37	.15	.004	.029	.002	.012	.002	.11	.0013	.0004


Manuel Garcia
Quality Engineer

01-19-06
DATE

TEXAS STEEL CONVERSION, INC

QUALITY TEST REPORT - DRILL PIPE

CUSTOMER: SMITH

TEST # 91106

SO# 457/0127A SIZE : 4.500X0.337

LOT # 457251

PO# 239888

UPSET: IEU

HEAT # 737532

MILL: TSC/C.E. KING GRADE: G105 .6% EUL

MFG.PROC. : SMLS

SPEC : API:5D

HEAT TREAT: Q&T

04/30/02

JTS/LOT : 138

TENSILE TEST

DIMENSIONS (Inches)	AREA (Sq. In.)	YIELD STRENGTH (Lbs/Sq. In.)	TENSILE STRENGTH (Lbs/Sq. In.)	% ELONG (IN 2")	ROA (%)
0.358X1.010	0.365	(B) 121100	132600	23.5	63.0
0.495 (BAR DIAM.)		(U) 120600	134900	20.3	67.5

BODY TYPE: LONGITUDINAL STRIP

TENSILE SPECIMEN HARDNESS VALUES (HRC)

O.D. 28.9
MID 28.2
I.D. 27.6

UPSET HARDNESS VARIATION (HRC)

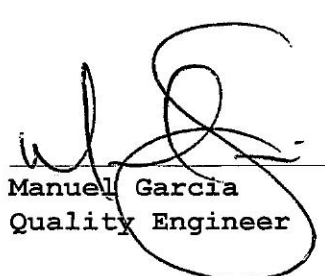
QUADRANT	1	2
O.D. VALUE	28.6	29.0
MID VALUE	27.7	28.3
I.D. VALUE	27.1	27.7

CHARPY IMPACT TEST

CHARPY TYPE	IMPACT (ftXlbs)	LATERAL EXPANSION (mils)	FRACTURE (% D/F)
LOCATION: BODY-MID WALL			
TESTED AT +70°F	83.0	68	100
SIZE: 10X7.5 mm	82.0	67	100
ORIENTATION: LONGITUDINAL	66.0	50	100
Average	77.0		

CHEMICAL PRODUCT ANALYSIS

#	C	Si	Mn	P	S	Cr	Mo	Ni	V	Al	Nb	Sn	Ti	Cu	Ca	B
2	.27	.21	.89	.012	.004	.93	.37	.12	.004	.030	.002	.009	.002	.11	.0012	.0004


Manuel Garcia
Quality Engineer

01-19-06
DATE

TEXAS STEEL CONVERSION, INC

QUALITY TEST REPORT - DRILL PIPE

CUSTOMER: SMITH

TEST # 91107

SO# 457/0127A

SIZE : 4.500X0.337

LOT # 457252

PO# 239888

UPSET: IEU

HEAT # 737535

MILL: TSC

GRADE: G105 .6% EUL

MFG.PROC. : SMLS

SPEC : API:5D

HEAT TREAT: Q&T

04/30/02

JTS/LOT : 106

TENSILE TEST

<u>DIMENSIONS</u> <u>(Inches)</u>	<u>AREA</u> <u>(Sq.In.)</u>	<u>YIELD STRENGTH</u> <u>(Lbs/Sq.In.)</u>	<u>TENSILE STRENGTH</u> <u>(Lbs/Sq.In.)</u>	<u>% ELONG</u> <u>(IN 2")</u>	<u>ROA</u> <u>(%)</u>
0.351X0.971	0.344	(B) 122900	134400	25.0	61.0
0.508 (BAR DIAM.)		(U) 118000	131800	20.3	70.3

BODY TYPE: LONGITUDINAL STRIP

TENSILE SPECIMEN HARDNESS VALUES (HRC)

O.D. 30.7
MID 29.8
I.D. 29.6

UPSET HARDNESS VARIATION (HRC)

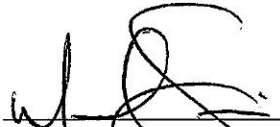
QUADRANT	1	2
O.D. VALUE	30.4	30.2
MID VALUE	30.4	30.1
I.D. VALUE	29.9	29.3

CHARPY IMPACT TEST

<u>CHARPY TYPE</u>	<u>IMPACT</u> <u>(ftXlbs)</u>	<u>LATERAL EXPANSION</u> <u>(mils)</u>	<u>FRACTURE</u> <u>(% D/F)</u>
LOCATION: BODY-MID WALL			
TESTED AT +70°F	76.0	58	100
SIZE: 10X7.5 mm	73.0	55	100
ORIENTATION: LONGITUDINAL	74.0	56	100
Average	74.3		

CHEMICAL PRODUCT ANALYSIS

#	C	Si	Mn	P	S	Cr	Mo	Ni	V	Al	Nb	Sn	Ti	Cu	Ca	B
1	.27	.22	.89	.014	.004	.93	.38	.14	.004	.027	.002	.011	.002	.11	.0009	.0004


Manuel Garcia
Quality Engineer

01-19-06
DATE

TEXAS STEEL CONVERSION, INC

QUALITY TEST REPORT - DRILL PIPE

CUSTOMER: SMITH

TEST # 91108

SO# 457/0127A

SIZE : 4.500X0.337

LOT # 457253

PO# 239888

UPSET: IEU

HEAT # 737535

MILL: TSC

GRADE: G105 .6% EUL

MFG.PROC. : SMLS

SPEC : API:5D

HEAT TREAT: Q&T

04/30/02

JTS/LOT : 106

TENSILE TEST

DIMENSIONS (Inches)	AREA (Sq.In.)	YIELD STRENGTH (Lbs/Sq.In.)	TENSILE STRENGTH (Lbs/Sq.In.)	% ELONG (IN 2")	ROA (%)
0.342x1.000	0.345	(B) 122000	133200	21.6	53.9
0.506 (BAR DIAM.)		(U) 121800	134700	19.9	66.5

BODY TYPE: LONGITUDINAL STRIP

TENSILE SPECIMEN HARDNESS VALUES (HRC)

O.D. 28.0
MID 27.5
I.D. 27.8

UPSET HARDNESS VARIATION (HRC)

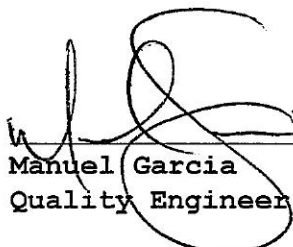
QUADRANT	1	2
O.D. VALUE	27.5	28.3
MID VALUE	28.6	28.1
I.D. VALUE	28.0	28.0

CHARPY IMPACT TEST

CHARPY TYPE	IMPACT (ftXlbs)	LATERAL EXPANSION (mils)	FRACTURE (% D/F)
LOCATION: BODY-MID WALL			
TESTED AT +70°F	80.0	52	100
SIZE: 10X7.5 mm	76.0	47	100
ORIENTATION: LONGITUDINAL	78.0	50	100
Average	78.0		

CHEMICAL PRODUCT ANALYSIS

#	C	Si	Mn	P	S	Cr	Mo	Ni	V	Al	Nb	Sn	Ti	Cu	Ca	B
2	.28	.22	.90	.013	.004	.94	.38	.15	.004	.030	.002	.012	.002	.10	.0018	.0004


Manuel Garcia
Quality Engineer

01-19-06

DATE

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - INERTIA WELD AREA

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7 (03/01/02)

TEST LOT#: 51012
TOOL JT#s: B1-B350

TENSILE TEST

BAR DIAM. (in.)	:	.502
YIELD STRENGTH (PSI)	:	117800
TENSILE STRENGTH (PSI)	:	135000
% ELONGATION	:	14.7
ROA (%)	:	63.6

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

	98.0
SIZE : 10X10	104.0
TEMP.: +70°F	101.0
	<u>101.0</u>

GUIDED TRANSVERSE SIDE BEND TEST

CLOCKWISE : Passed
COUNTERCLOCKWISE: Passed

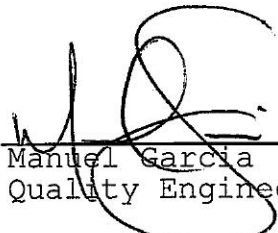
THROUGH-WALL HARDNESS TEST OF THE HAZ

PIPE VALUE (HRC)

OD : 29.5
ID : 28.3

TOOL JOINT VALUE (HRC)

OD : 32.7
ID : 32.4


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - INERTIA WELD AREA

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7 (03/01/02)

TEST LOT#: 51013
TOOL JT#s: B351-B730

TENSILE TEST

BAR DIAM. (in.) : .500
YIELD STRENGTH (PSI) : 116000
TENSILE STRENGTH (PSI) : 135200
% ELONGATION : 15.9
ROA (%) : 65.5

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

SIZE : 10X10
TEMP.: +70°F

98.0
108.0
96.0
<u>100.7</u>

GUIDED TRANSVERSE SIDE BEND TEST

CLOCKWISE : Passed
COUNTERCLOCKWISE: Passed

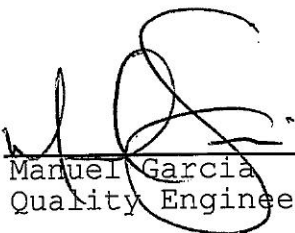
THROUGH-WALL HARDNESS TEST OF THE HAZ

PIPE VALUE (HRC)

OD : 30.4
ID : 31.0

TOOL JOINT VALUE (HRC)

OD : 32.6
ID : 32.7


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - INERTIA WELD AREA

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7 (03/01/02)

TEST LOT#: 51014
TOOL JT#s: B731-B1100

TENSILE TEST

BAR DIAM. (in.)	:	.501
YIELD STRENGTH (PSI)	:	110000
TENSILE STRENGTH (PSI)	:	128900
% ELONGATION	:	16.2
ROA (%)	:	64.9

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

SIZE :	10X10	89.0
TEMP.:	+70°F	117.0
		102.0
		<u>102.7</u>

GUIDED TRANSVERSE SIDE BEND TEST

CLOCKWISE : Passed
COUNTERCLOCKWISE: Passed

THROUGH-WALL HARDNESS TEST OF THE HAZ

PIPE VALUE (HRC)

OD : 30.7
ID : 29.1

TOOL JOINT VALUE (HRC)

OD : 32.3
ID : 33.0


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - INERTIA WELD AREA

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7 (03/01/02)

TEST LOT#: 51015
TOOL JT#s: P1-P350

TENSILE TEST

BAR DIAM. (in.)	:	.496
YIELD STRENGTH (PSI)	:	124100
TENSILE STRENGTH (PSI)	:	131400
% ELONGATION	:	16.3
ROA (%)	:	66.3

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

	97.0
SIZE : 10X10	112.0
TEMP.: +70°F	110.0
	<u>106.3</u>

GUIDED TRANSVERSE SIDE BEND TEST

CLOCKWISE : Passed
COUNTERCLOCKWISE: Passed

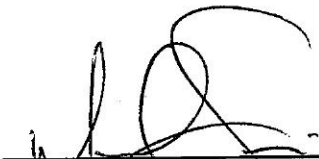
THROUGH-WALL HARDNESS TEST OF THE HAZ

PIPE VALUE (HRC)

OD : 30.6
ID : 29.1

TOOL JOINT VALUE (HRC)

OD : 33.8
ID : 33.9


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - INERTIA WELD AREA

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7 (03/01/02)

TEST LOT#: 51016
TOOL JT#s: P351-P730

TENSILE TEST

BAR DIAM. (in.)	:	.500
YIELD STRENGTH (PSI)	:	112200
TENSILE STRENGTH (PSI)	:	131200
% ELONGATION	:	16.3
ROA (%)	:	66.1

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

SIZE :	10X10	101.0
TEMP.:	+70°F	103.0
		108.0
		<u>104.0</u>

GUIDED TRANSVERSE SIDE BEND TEST

CLOCKWISE : Passed
COUNTERCLOCKWISE: Passed

THROUGH-WALL HARDNESS TEST OF THE HAZ

PIPE VALUE (HRC)

OD : 29.2
ID : 28.4

TOOL JOINT VALUE (HRC)

OD : 32.7
ID : 33.4


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - INERTIA WELD AREA

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7 (03/01/02)

TEST LOT#: 51017
TOOL JT#s: P731-P1100

TENSILE TEST

BAR DIAM. (in.)	:	.506
YIELD STRENGTH (PSI)	:	97600
TENSILE STRENGTH (PSI)	:	127800
% ELONGATION	:	12.9
ROA (%)	:	66.0

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

SIZE :	10X10	110.0
TEMP.:	+70°F	97.0
		98.0
		<u>101.7</u>

GUIDED TRANSVERSE SIDE BEND TEST

CLOCKWISE : Passed
COUNTERCLOCKWISE: Passed

THROUGH-WALL HARDNESS TEST OF THE HAZ

PIPE VALUE (HRC)

OD : 29.2
ID : 29.3

TOOL JOINT VALUE (HRC)

OD : 33.3
ID : 34.1


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
 S.O.# : 457/0127A
 SPECS. : API:7
 CMA
 PIECES : 298

TEST#: 8502
 P.O.#: 0131391
 HEAT#: G77692
 CODE#: 58S
 TYPE : PIN

TENSILE TEST

BAR DIAM. (in.) : .346
 YIELD STRENGTH (PSI) : 136300
 TENSILE STRENGTH (PSI) : 152400
 % ELONGATION : 17.2
 ROA (%) : 61.9

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

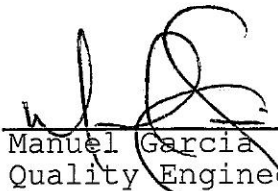
SIZE : 10 x 10 mm
 TEMP.: +70°F
 73.8
 74.5
 70.1
 AVG: 72.8

BRINELL HARDNESS (HBW)

325

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.36	.24	.93	.18	1.15	.29	.03	.003	.008	.028	.004	.001	.0017	.0000


 Manuel Garcia
 Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7
CMA

PIECES : 7

TEST#: 8504
P.O.#: 0131391
HEAT#: G77369
CODE#: 58Z
TYPE : PIN

TENSILE TEST

BAR DIAM. (in.) : .346
YIELD STRENGTH (PSI) : 139700
TENSILE STRENGTH (PSI) : 154000
% ELONGATION : 17.4
ROA (%) : 59.3

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

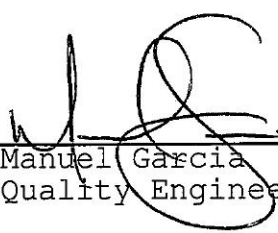
SIZE : 10 x 10 mm
TEMP.: +70°F
64.2
66.4
69.3
AVG: 66.6

BRINELL HARDNESS (HBW)

325

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.35	.25	.93	.16	1.13	.29	.09	.005	.010	.025	.007	.001	.001	.0001


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7
CMA
PIECES : 301

TEST#: 8521
P.O.#: 0131391
HEAT#: G77706
CODE#: 62F
TYPE : PIN

TENSILE TEST

BAR DIAM. (in.) : .346
YIELD STRENGTH (PSI) : 141400
TENSILE STRENGTH (PSI) : 156100
% ELONGATION : 17.0
ROA (%) : 61.0

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

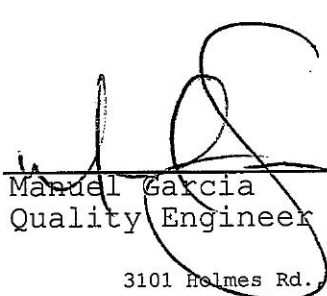
SIZE : 10 x 10 mm
TEMP.: +70°F
62.7
59.7
64.9
AVG: 62.4

BRINELL HARDNESS (HBW)

325

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.37	.23	.94	.17	1.16	.29	.07	.005	.008	.025	.004	.001	.0018	.0000


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7
CMA

PIECES : 294

TEST#: 8523
P.O.#: 0131391
HEAT#: 82730
CODE#: 62H
TYPE : PIN

TENSILE TEST

BAR DIAM. (in.) : .346
YIELD STRENGTH (PSI) : 141700
TENSILE STRENGTH (PSI) : 156800
% ELONGATION : 15.8
ROA (%) : 56.5

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

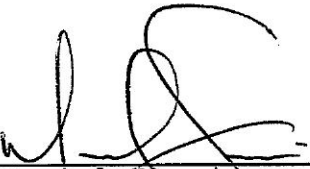
SIZE : 10 x 10 mm
TEMP.: +70°F
65.6
66.4
68.6
AVG: 66.9

BRINELL HARDNESS (HBW)

328

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.37	.22	.98	.20	1.10	.29	.18	.003	.009	.028	.008	.003	.001	.0001


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7
CMA
PIECES : 270

TEST#: 8538
P.O.#: 0131391
HEAT#: 24932
CODE#: 62R
TYPE : PIN

TENSILE TEST

BAR DIAM. (in.) : .346
YIELD STRENGTH (PSI) : 145800
TENSILE STRENGTH (PSI) : 160600
% ELONGATION : 15.5
ROA (%) : 54.4

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

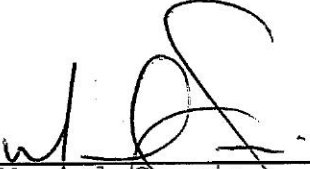
SIZE : 10 x 10 mm
TEMP.: +70°F
63.4
64.2
67.9
AVG: 65.2

BRINELL HARDNESS (HBW)

329

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.37	.25	.98	.19	1.12	.30	.13	.002	.009	.029	.007	.002	.0013	.0001


Mantel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7
CMA
PIECES : 217

TEST#: 8522
P.O.#: 0131391
HEAT#: G77706
CODE#: 62F
TYPE : PIN

TENSILE TEST

BAR DIAM. (in.) : .346
YIELD STRENGTH (PSI) : 146200
TENSILE STRENGTH (PSI) : 160300
% ELONGATION : 15.9
ROA (%) : 58.9

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

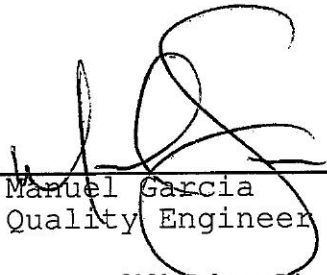
SIZE : 10 x 10 mm
TEMP.: +70°F
55.3
59.0
60.5
AVG: 58.3

BRINELL HARDNESS (HBW)

330

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.37	.23	.94	.17	1.16	.29	.07	.005	.008	.025	.004	.001	.0018	.0000


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7
CMA

PIECES : 289

TEST#: 8524
P.O.#: 0131391
HEAT#: 82730
CODE#: 62H
TYPE : PIN

TENSILE TEST

BAR DIAM. (in.) : .346
YIELD STRENGTH (PSI) : 139100
TENSILE STRENGTH (PSI) : 154200
% ELONGATION : 15.9
ROA (%) : 56.4

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

SIZE : 10 x 10 mm
TEMP.: +70°F

72.3
73.8
70.8
AVG: 72.3

BRINELL HARDNESS (HBW)

327

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.37	.22	.98	.20	1.10	.29	.18	.003	.009	.028	.008	.003	.001	.0001


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7
CMA
PIECES : 273

TEST#: 8539
P.O.#: 0131391
HEAT#: 24932
CODE#: 62R
TYPE : PIN

TENSILE TEST

BAR DIAM. (in.) : .346
YIELD STRENGTH (PSI) : 143900
TENSILE STRENGTH (PSI) : 158100
% ELONGATION : 15.5
ROA (%) : 56.5

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

SIZE : 10 x 10 mm
TEMP.: +70°F
64.2
63.4
67.1
AVG: 64.9

BRINELL HARDNESS (HBW)

328

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.37	.25	.98	.19	1.12	.30	.13	.002	.009	.029	.007	.002	.0013	.0001


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
 S.O.# : 457/0127A
 SPECS. : API:7
 CMA
 PIECES : 287

TEST#: 8540
 P.O.#: 0131391
 HEAT#: 24932
 CODE#: 62R
 TYPE : PIN

TENSILE TEST

BAR DIAM. (in.) : .346
 YIELD STRENGTH (PSI) : 142000
 TENSILE STRENGTH (PSI) : 155800
 % ELONGATION : 15.3
 ROA (%) : 55.0

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

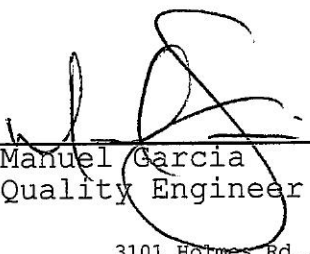
SIZE : 10 x 10 mm
 TEMP.: +70°F
 61.2
 64.9
 62.7
 AVG: 62.9

BRINELL HARDNESS (HBW)

326

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.37	.25	.98	.19	1.12	.30	.13	.002	.009	.029	.007	.002	.0013	.0001


 Manuel Garcia
 Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
 S.O.# : 457/0127A
 SPECS. : API:7
 CMA
 PIECES : 202

TEST#: 8541
 P.O.#: 0131391
 HEAT#: 24932
 CODE#: 62R
 TYPE : PIN

TENSILE TEST

BAR DIAM. (in.) : .346
 YIELD STRENGTH (PSI) : 140100
 TENSILE STRENGTH (PSI) : 155300
 % ELONGATION : 16.6
 ROA (%) : 56.7

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

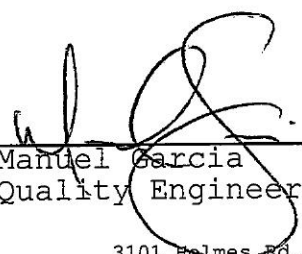
SIZE : 10 x 10 mm
 TEMP.: +70°F
 65.6
 59.7
 64.9
 AVG: 63.4

BRINELL HARDNESS (HBW)

325

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.37	.25	.98	.19	1.12	.30	.13	.002	.009	.029	.007	.002	.0013	.0001


 Manuel Garcia
 Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7
CMA
PIECES : 296

TEST#: 8527
P.O.#: 0131391
HEAT#: 82730
CODE#: 62H
TYPE : PIN

TENSILE TEST

BAR DIAM. (in.) : .346
YIELD STRENGTH (PSI) : 141800
TENSILE STRENGTH (PSI) : 156400
% ELONGATION : 16.0
ROA (%) : 56.2

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

SIZE : 10 x 10 mm
TEMP.: +70°F
60.5
59.7
63.4
AVG: 61.2

BRINELL HARDNESS (HBW)

328

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.37	.22	.98	.20	1.10	.29	.18	.003	.009	.028	.008	.003	.001	.0001


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
 S.O.# : 457/0127A
 SPECS. : API:7
 CMA

TEST#: 8689
 P.O.#: 0131391
 HEAT#: G77897
 CODE#: 63L
 TYPE : PIN

PIECES : 298

TENSILE TEST

BAR DIAM. (in.) : .346
 YIELD STRENGTH (PSI) : 141600
 TENSILE STRENGTH (PSI) : 156200
 % ELONGATION : 16.3
 ROA (%) : 59.0

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

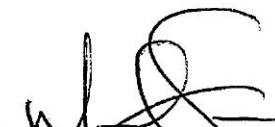
SIZE : 10 x 10 mm
 TEMP.: +70°F
 66.4
 70.8
 71.5
 AVG: 69.6

BRINELL HARDNESS (HBW)

326

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.37	.23	.95	.17	1.20	.30	.03	.007	.009	.025	.006	.001	.0011	.0000


 Manuel Garcia
 Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7
CMA

PIECES : 295

TEST#: 8690
P.O.#: 0131391
HEAT#: G77897
CODE#: 63L
TYPE : PIN

TENSILE TEST

BAR DIAM. (in.) : .346
YIELD STRENGTH (PSI) : 133700
TENSILE STRENGTH (PSI) : 150500
% ELONGATION : 17.3
ROA (%) : 62.3

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

SIZE : 10 x 10 mm
TEMP.: +70°F

78.9
73.8
76.0
AVG: 76.2

BRINELL HARDNESS (HBW)

323

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.37	.23	.95	.17	1.20	.30	.03	.007	.009	.025	.006	.001	.0011	.0000


Manuel Garcia
Quality Engineer

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TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7
CMA

PIECES : 288

TEST#: 8441
P.O.#: 0128729
HEAT#: 00071
CODE#: 60R
TYPE : BOX

TENSILE TEST

BAR DIAM. (in.) : .346
YIELD STRENGTH (PSI) : 139800
TENSILE STRENGTH (PSI) : 153700
% ELONGATION : 15.7
ROA (%) : 55.3

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

SIZE : 10 x 10 mm
TEMP.: +70°F

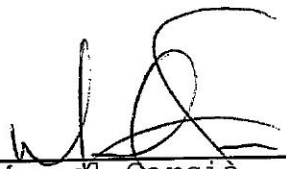
75.2
77.4
73.8
AVG: 75.5

BRINELL HARDNESS (HBW)

326

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.37	.25	.93	.14	1.10	.30	.02	.001	.010	.043	.004	.001	.001	.0001


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7
CMA

PIECES : 121

TEST#: 8442
P.O.#: 0128729
HEAT#: 00071
CODE#: 60R
TYPE : BOX

TENSILE TEST

BAR DIAM. (in.) : .346
YIELD STRENGTH (PSI) : 139800
TENSILE STRENGTH (PSI) : 155000
% ELONGATION : 15.4
ROA (%) : 54.8

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

SIZE : 10 x 10 mm
TEMP.: +70°F
77.4
76.0
78.9
AVG: 77.4

BRINELL HARDNESS (HBW)

326

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.37	.25	.93	.14	1.10	.30	.02	.001	.010	.043	.004	.001	.001	.0001


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7
CMA

PIECES : 262

TEST#: 8471
P.O.#: 0130681
HEAT#: 82457
CODE#: 61C
TYPE : BOX

TENSILE TEST

BAR DIAM. (in.) : .346
YIELD STRENGTH (PSI) : 138500
TENSILE STRENGTH (PSI) : 156400
% ELONGATION : 16.4
ROA (%) : 56.1

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

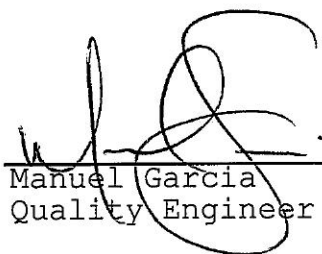
SIZE : 10 x 10 mm
TEMP.: +70°F
67.9
66.4
71.5
AVG: 68.6

BRINELL HARDNESS (HBW)

326

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.37	.25	.96	.20	1.15	.30	.16	.001	.008	.027	.006	.004	.0018	.0001


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7
CMA

PIECES : 274

TEST#: 8487
P.O.#: 0131391
HEAT#: 00446
CODE#: 61M
TYPE : BOX

TENSILE TEST

BAR DIAM. (in.) : .346
YIELD STRENGTH (PSI) : 140700
TENSILE STRENGTH (PSI) : 155200
% ELONGATION : 16.8
ROA (%) : 60.6

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

SIZE : 10 x 10 mm
TEMP.: +70°F
71.5
72.3
76.0
AVG: 73.3

BRINELL HARDNESS (HBW)

327

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.37	.25	.92	.15	1.09	.28	.02	.002	.014	.033	.003	.001	.001	.0001


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7
CMA

PIECES : 292

TEST#: 8496
P.O.#: 131391
HEAT#: 00884
CODE#: 61Z
TYPE : BOX

TENSILE TEST

BAR DIAM. (in.) : .346
YIELD STRENGTH (PSI) : 137900
TENSILE STRENGTH (PSI) : 151400
% ELONGATION : 17.3
ROA (%) : 62.9

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

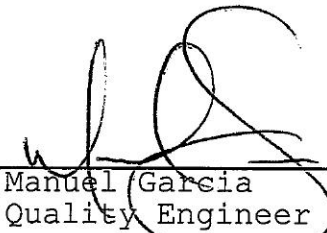
SIZE : 10 x 10 mm 76.7
TEMP.: +70°F 73.8
73.0
AVG: 74.5

BRINELL HARDNESS (HBW)

324

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.35	.26	.93	.13	1.08	.30	.02	.002	.010	.037	.005	.001	.002	.0001


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7
CMA

PIECES : 54

TEST#: 8488
P.O.#: 0131391
HEAT#: 00446
CODE#: 61M
TYPE : BOX

TENSILE TEST

BAR DIAM. (in.) : .346
YIELD STRENGTH (PSI) : 140700
TENSILE STRENGTH (PSI) : 154900
% ELONGATION : 16.3
ROA (%) : 59.7

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

SIZE : 10 x 10 mm
TEMP.: +70°F
71.5
71.5
70.1
AVG: 71.0

BRINELL HARDNESS (HBW)

326

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.37	.25	.92	.15	1.09	.28	.02	.002	.014	.033	.003	.001	.001	.0001


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7
CMA
PIECES : 293

TEST#: 8497
P.O.#: 0131391
HEAT#: 00884
CODE#: 61Z
TYPE : BOX

TENSILE TEST

BAR DIAM. (in.) : .346
YIELD STRENGTH (PSI) : 142300
TENSILE STRENGTH (PSI) : 155800
% ELONGATION : 16.2
ROA (%) : 62.0

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

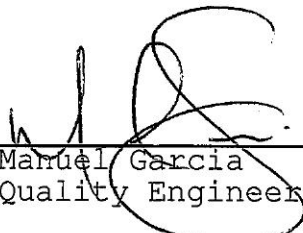
SIZE : 10 x 10 mm
TEMP.: +70°F
70.8
73.8
69.3
AVG: 71.3

BRINELL HARDNESS (HBW)

327

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.35	.26	.93	.13	1.08	.30	.02	.002	.010	.037	.005	.001	.002	.0001


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
S.O.# : 457/012/A
SPECS. : API:7
CMA

PIECES : 295

TEST#: 8489
P.O.#: 0131391
HEAT#: 00446
CODE#: 61M
TYPE : BOX

TENSILE TEST

BAR DIAM. (in.)	:	.346
YIELD STRENGTH (PSI)	:	142000
TENSILE STRENGTH (PSI)	:	155800
% ELONGATION	:	14.4
ROA (%)	:	47.9

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

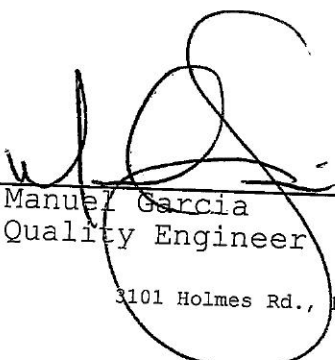
SIZE : 10 x 10 mm	66.4
TEMP.: +70°F	67.1
	70.8
AVG:	68.1

BRINELL HARDNESS (HBW)

325

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.37	.25	.92	.15	1.09	.28	.02	.002	.014	.033	.003	.001	.001	.0001


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
 S.O.# : 457/0127A
 SPECS. : API:7
 CMA
 PIECES : 264

TEST#: 8498
 P.O.#: 0131391
 HEAT#: 00884
 CODE#: 61Z
 TYPE : BOX

TENSILE TEST

BAR DIAM. (in.) : .346
 YIELD STRENGTH (PSI) : 137800
 TENSILE STRENGTH (PSI) : 152300
 % ELONGATION : 17.5
 ROA (%) : 64.4

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

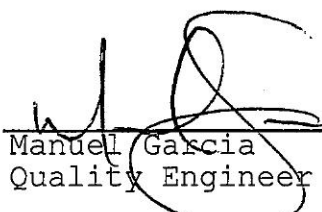
SIZE : 10 x 10 mm
 TEMP.: +70°F
 77.4
 73.8
 72.3
 AVG: 74.5

BRINELL HARDNESS (HBW)

325.

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.35	.26	.93	.13	1.08	.30	.02	.002	.010	.037	.005	.001	.002	.0001


 Manuel Garcia
 Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7
CMA
PIECES : 294

TEST#: 8490
P.O.#: 0131391
HEAT#: 00446
CODE#: 61M
TYPE : BOX

TENSILE TEST

BAR DIAM. (in.) : .346
YIELD STRENGTH (PSI) : 145200
TENSILE STRENGTH (PSI) : 157900
% ELONGATION : 16.8
ROA (%) : 60.0

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

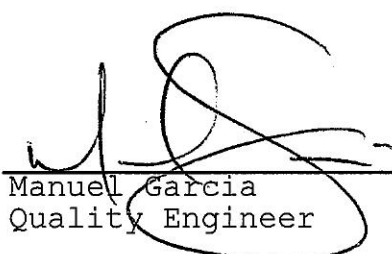
SIZE : 10 x 10 mm 63.4
TEMP.: +70°F 66.4
AVG: 64.2
64.7

BRINELL HARDNESS (HBW)

327

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.37	.25	.92	.15	1.09	.28	.02	.002	.014	.033	.003	.001	.001	.0001


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7
CMA

PIECES : 199

TEST#: 8499
P.O.#: 0131391
HEAT#: 00884
CODE#: 61Z
TYPE : BOX

TENSILE TEST

BAR DIAM. (in.) : .346
YIELD STRENGTH (PSI) : 137800
TENSILE STRENGTH (PSI) : 152100
% ELONGATION : 17.0
ROA (%) : 60.9

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

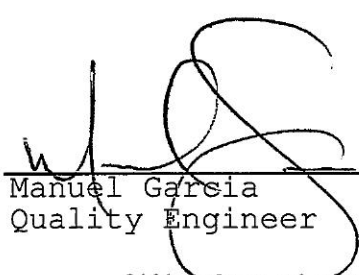
SIZE : 10 x 10 mm
TEMP.: +70°F
75.2
73.8
71.5
AVG: 73.5

BRINELL HARDNESS (HBW)

323

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.35	.26	.93	.13	1.08	.30	.02	.002	.010	.037	.005	.001	.002	.0001


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
 S.O.# : 457/0127A
 SPECS. : API:7
 CMA

TEST#: 8491
 P.O.#: 0131391
 HEAT#: 00446
 CODE#: 61M
 TYPE : BOX

PIECES : 322

TENSILE TEST

BAR DIAM. (in.) : .346
 YIELD STRENGTH (PSI) : 141000
 TENSILE STRENGTH (PSI) : 154500
 % ELONGATION : 17.1
 ROA (%) : 60.6

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

SIZE : 10 x 10 mm 73.8
 TEMP.: +70°F 74.5
 76.0
 AVG: 74.8

BRINELL HARDNESS (HBW)

326

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.37	.25	.92	.15	1.09	.28	.02	.002	.014	.033	.003	.001	.001	.0001


 Manuel Garcia
 Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
 S.O.# : 457/0127A
 SPECS. : API:7
 CMA

TEST#: 8492
 P.O.#: 0131391
 HEAT#: 00446
 CODE#: 61M
 TYPE : BOX

PIECES : 299

TENSILE TEST

BAR DIAM. (in.) : .346
 YIELD STRENGTH (PSI) : 138700
 TENSILE STRENGTH (PSI) : 152700
 % ELONGATION : 17.4
 ROA (%) : 62.2

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

SIZE : 10 x 10 mm
 TEMP.: +70°F

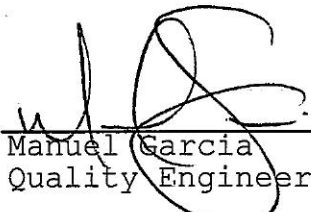
74.5
 74.5
 71.5
 AVG: 73.5

BRINELL HARDNESS (HBW)

327

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.37	.25	.92	.15	1.09	.28	.02	.002	.014	.033	.003	.001	.001	.0001


 Manuel Garcia
 Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7
CMA

PIECES : 278

TEST#: 8501
P.O.#: 0131391
HEAT#: 00884
CODE#: 61Z
TYPE : BOX

TENSILE TEST

BAR DIAM. (in.) : .346
YIELD STRENGTH (PSI) : 135200
TENSILE STRENGTH (PSI) : 150300
% ELONGATION : 17.4
ROA (%) : 61.2

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

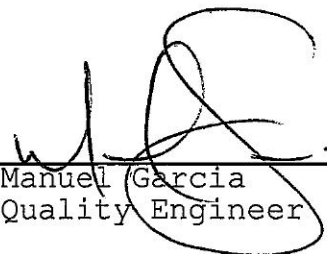
SIZE : 10 x 10 mm
TEMP.: +70°F
71.5
71.5
70.1
AVG: 71.0

BRINELL HARDNESS (HBW)

323

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.35	.26	.93	.13	1.08	.30	.02	.002	.010	.037	.005	.001	.002	.0001


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7
CMA

PIECES : 288

TEST#: 8493
P.O.#: 0131391
HEAT#: 00446
CODE#: 61M
TYPE : BOX

TENSILE TEST

BAR DIAM. (in.) : .346
YIELD STRENGTH (PSI) : 142700
TENSILE STRENGTH (PSI) : 157400
% ELONGATION : 16.7
ROA (%) : 59.5

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

SIZE : 10 x 10 mm
TEMP.: +70°F

67.9
70.1
71.5
AVG: 69.8

BRINELL HARDNESS (HBW)

327

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.37	.25	.92	.15	1.09	.28	.02	.002	.014	.033	.003	.001	.001	.0001


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7
CMA

PIECES : 298

TEST#: 8494
P.O.#: 0131391
HEAT#: 00446
CODE#: 61M
TYPE : BOX

TENSILE TEST

BAR DIAM. (in.) : .346
YIELD STRENGTH (PSI) : 140500
TENSILE STRENGTH (PSI) : 154800
% ELONGATION : 16.7
ROA (%) : 61.6

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

SIZE : 10 x 10 mm
TEMP.: +70°F

71.5
73.8
70.8
AVG: 72.0

BRINELL HARDNESS (HBW)

326

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.37	.25	.92	.15	1.09	.28	.02	.002	.014	.033	.003	.001	.001	.0001


Manuel Garcia
Quality Engineer

TEXAS STEEL CONVERSION, INC.

QUALITY TEST REPORT - TOOL JOINTS

CUSTOMER: SMITH
S.O.# : 457/0127A
SPECS. : API:7
CMA
PIECES : 291

TEST#: 8495
P.O.#: 0131391
HEAT#: 00446
CODE#: 61M
TYPE : BOX

TENSILE TEST

BAR DIAM. (in.) : .346
YIELD STRENGTH (PSI) : 143200
TENSILE STRENGTH (PSI) : 157700
% ELONGATION : 16.1
ROA (%) : 58.4

LONGITUDINAL CHARPY V-NOTCH TYPE A

IMPACT ft*lbs

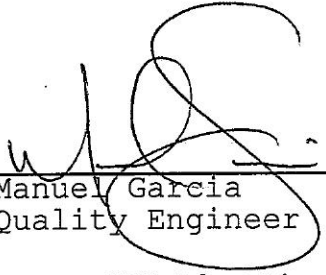
SIZE : 10 x 10 mm
TEMP.: +70°F
70.8
71.5
74.5
AVG: 72.3

BRINELL HARDNESS (HBW)

327

CHEMISTRY (ladle)

C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	V	Nb	Ca	B
.37	.25	.92	.15	1.09	.28	.02	.002	.014	.033	.003	.001	.001	.0001


Manuel Garcia
Quality Engineer



Inspection Report
Texas Steel Conversion
Department 06419

Report Date: 1/10/2006

Date Completed: 12/1/2005

Purch. Order #: 134830

Location: East Plant

Shop Order #: 457-127A

Inspection Order #: 111541

Ordered By: Lou Shreiber

Work Order #: H87551

Type Inspection Performed: Spectalog 5

Description:	4.5 Size	16.6 Weight	G105 Grade	.337 Wall	5.0% Insp. Level
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Drill Pipe Type	IEU End Finish	2 Range	TSC Manufacturer	SMLS SMLS / ERW	95.0% RBW
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Summary Of Inspection Results

1110	Lengths-Banded	White	(Accepted Lengths)	Footage:	
5	Lengths-Banded	Red	(Rejected Lengths)	Footage:	150.5
0	Lengths-Banded	Red / Yellow	(Repairable Lengths)	Footage:	
	Lengths-Banded		(Customer Rejects)	Footage:	
1115	Total Lengths Inspected		Total Reject	Footage:	150.5

Defect Evaluation Summary

O.D. Lap	3	I.D. Gouge		Mill Grind	
I.D. Lap		O.D. Cut		Stretch Mill Indentation	
O.D. Crack		I.D. Cut		Internal Plug Score	
I.D. Crack		O.D. Pit		I.D. Reflector	
Weld Line Crack		I.D. Pit		I.D. Reflector >5%	
O.D. Slug		Thin Wall		Other	
I.D. Slug		Dent		Other	
O.D. Gouge	2	Roll Burn		Other	

For additional Defect information see Defect Summary Sheet

Total Rejects 5

Comments:

Prepared By: Mark Pegues

Operator(s): M. Oviedo

Spec.(S) Used: API 5CT & 5A5

Prove-up Insp.: M. Narcisse

Unit Number: 6005

Shift: 1st