





**COLORADO INTERSTATE GAS COMPANY**  
P.O. BOX 1087  
COLORADO SPRINGS, COLORADO

P. O. No. 14396

Page 2 of 4.

**PURCHASE ORDER**

DATE June 3, 1955.

MARK THIS PURCHASE ORDER NUMBER ON ALL INVOICES.

~~XXXXXXXXXXXXXXXXXXXX~~  
**SHIP COLLECT**  
~~XXXXXXXXXXXXXXXXXXXX~~  
**SHIP COLLECT**

A. O. Smith Corporation  
805 Thompson Building  
Tulsa 3, Oklahoma

DATE  
REQUIRED

INVOICE IN TRIPLICATE TO:  
COLORADO INTERSTATE GAS COMPANY  
P. O. BOX 1087  
COLORADO SPRINGS, COLORADO

SHIP TO: COLORADO INTERSTATE GAS COMPANY  
CARE OF: see below

REQ. NO. 26392 FROM DWB

VIA see below  
FOB Milwaukee, Wisconsin TERMS: see below

ACCOUNT NUMBER		
LOCATION	ACCOUNT	SUB
	<u>13532</u>	

ITEM NO.	QUANTITY	DESCRIPTION	STOCK CODE	AMOUNT								
		<p><b>SHIPPING INSTRUCTIONS:</b> Shipping instructions and routing shall be furnished by I. W. Stimts, Traffic Manager. As shipments are forwarded on this order, wire car number, footage, number of joints and routing to I. W. Stimts, Traffic Manager, Colorado Springs, Colorado.</p> <p>Bills of Lading must show number of joints and footage.</p> <p><b>HIGH TESTLINE PIPE SPECIFICATIONS:</b> The specifications for High Test Line Pipe shall be in accordance with the API Bulletin entitled and dated "API Std. 5LX - 5th Edition, November 1954", except as herein modified or amended.</p> <p>Electric Weld Pipe 20" O.D. and larger, the wall tolerance shall be minus 10%.</p> <p>Electric Weld Pipe 20" O.D. and larger, and with wall thickness .375" or less, ultimate tensile strength shall be 72,000 p.s.i. minimum for Grade X-52.</p> <p><b>SECTION IV - PHYSICAL PROPERTIES &amp; TESTS</b></p> <p><b>Paragraph 11 - Pipe Elongation</b></p> <p>The minimum percent of elongation of a 2" test specimen for X-52 steel will be as follows:</p> <table border="0"> <tr> <td>Wall Thickness</td> <td>%</td> </tr> <tr> <td>0.250"</td> <td>18</td> </tr> <tr> <td>0.281"</td> <td>20</td> </tr> <tr> <td>0.312" thru 0.500"</td> <td>22</td> </tr> </table>	Wall Thickness	%	0.250"	18	0.281"	20	0.312" thru 0.500"	22		
Wall Thickness	%											
0.250"	18											
0.281"	20											
0.312" thru 0.500"	22											

TO BE USED FOR: Section I Denver to Laramie, Wyoming.

RECEIVING REPORT NO.	DATE RECEIVED
B. _____	_____
A. _____	_____
C. _____	_____
D. _____	_____

COLORADO INTERSTATE GAS COMPANY

BY \_\_\_\_\_  
PURCHASING AGENT

**COLORADO INTERSTATE GAS COMPANY**  
 P.O. BOX 1087  
 COLORADO SPRINGS, COLORADO

P. O. No. 143366

Page 3 of 4.

**PURCHASE ORDER**

DATE June 3, 19 55.

MARK THIS PURCHASE ORDER NUMBER ON ALL INVOICES.

**SHIP COLLECT**  
~~SHIP COLLECT~~  
 SHIP COLLECT

A. O. Smith Corporation  
 805 Thompson Building  
 Tulsa 3, Oklahoma

DATE  
 REQUIRED

INVOICE IN TRIPLICATE TO:  
 COLORADO INTERSTATE GAS COMPANY  
 P. O. BOX 1087  
 COLORADO SPRINGS, COLORADO

SHIP TO: COLORADO INTERSTATE GAS COMPANY  
 CARE OF: **see below**

REQ. NO: **26392** FROM **DWB**

VIA **see below**  
 FOB **Milwaukee, Wisconsin** TERMS **see below**

ACCOUNT NUMBER		
LOCATION	ACCOUNT	SUB
	13532	

ITEM NO.	QUANTITY	DESCRIPTION	STOCK CODE	AMOUNT
		<p><u>Paragraph 15* - Tensile Properties</u>            Plate - Copies of the tensile tests on the plate being used for rolling pipe shall be obtained and reported. At least one (1) tensile test in each heat will be made.</p> <p><u>SECTION V - HYDROSTATIC TESTS</u></p> <p><u>Paragraph 30 - Mill Inspection Hydrostatic Test</u>            The test pressures to be used for the mill inspection hydrostatic test will be 90% of the specified minimum yield strength.</p> <p><u>Paragraph 31 - Supplementary Hydrostatic Tests</u>            Full length destructive tests will be made by the "hydrostatic pressure water column" method on one (1) joint per 5,000 which is approx. one (1) test per 40 miles of pipe.            Burst Test @ \$400.00 per Test</p> <p><u>SECTION VI - DIMENSIONS, WEIGHTS &amp; LENGTHS</u></p> <p><u>Paragraph 33 - Diameter</u>            On all pipe a ring gauge will be used to determine the maximum O.D. and a snap gauge will be used to determine the minimum O.D. These tests will comply with the tolerance as specified in the API bulletin.</p> <p><u>Paragraph 36 - Length</u>            All pipe will be made in Double Random Lengths, averaging 39 feet or longer.</p>		

TO BE USED FOR Section I Denver to Laramie, Wyoming

RECEIVING REPORT NO.	DATE RECEIVED
B _____	_____
A _____	_____
C _____	_____
D _____	_____

COLORADO INTERSTATE GAS COMPANY  
 BY \_\_\_\_\_  
 PURCHASING AGENT



**COLORADO INTERSTATE GAS COMPANY**

P.O. BOX 1087  
 COLORADO SPRINGS, COLORADO

P. O. No. 14336 **7**

Page 4 of 4.

**PURCHASE ORDER**

DATE June 3, 1955.

MARK THIS PURCHASE ORDER NUMBER ON ALL INVOICES.

~~SHIP COLLECT~~

~~SHIP COLLECT~~

DATE  
 REQUIRED

A. O. Smith Corporation  
 805 Thompson Building  
 Tulsa, Oklahoma

INVOICE IN TRIPLICATE TO:

COLORADO INTERSTATE GAS COMPANY  
 P. O. BOX 1087  
 COLORADO SPRINGS, COLORADO

SHIP TO: COLORADO INTERSTATE GAS COMPANY  
 CARE OF: see below

REQ. NO. 26392 FROM DWB

VIA see below  
 FOB Milwaukee, Wisconsin

TERMS see below

ACCOUNT NUMBER		
LOCATION	ACCOUNT	SUB
	13532	

ITEM NO.	QUANTITY	DESCRIPTION	STOCK CODE	AMOUNT
		<p><u>Paragraph 37 - Joints</u>                      Joints will be shipped only to destinations specified by Company.</p> <p><u>SECTION VII - PIPE ENDS, FINISH &amp; WORKMANSHIP</u></p> <p><u>Paragraph 38 - Pipe Ends</u>                      The pipe covered by this specification shall be furnished with ends beveled to an angle of 30°, plus 5° or minus 0°, with a land or route face of 3/32" maximum and 1/32" minimum.</p> <p><u>Paragraph 39 - Coating</u>                      Mill coating of pipe will be omitted.</p> <p><u>SECTION VIII - MARKING</u></p> <p><u>Paragraphs 43, 44 and 45</u>                      The API monogram, the mill monogram and the inspector's monogram together with all dimensions, will be paint-stencilled on each joint of pipe. Dimensions shall be marked in feet and hundredths. No die stamps will be used.</p> <p>The above pipe will be inspected by the R. W. Hunt Company, Engineers, and it is requested that you advise them of your mill schedule.</p>		

RHM:mm

TO BE USED FOR Section I Denver to Laramie, Wyoming.

RECEIVING REPORT NO.	DATE RECEIVED
B _____	_____
A _____	_____
C _____	_____
D _____	_____

COLORADO INTERSTATE GAS COMPANY

BY \_\_\_\_\_  
 PURCHASING AGENT

OUR FILE	42070-9
OUR ORDER	B-79903
CLIENT'S ORDER	15227

# ROBERT W. HUNT COMPANY, ENGINEERS

INSPECTION, TESTS AND CONSULTATION

GENERAL OFFICE 2200 INSURANCE EXCHANGE, CHICAGO

INSPECTOR'S REPORT	
NO.	1947-LEH
SHEET NO.	1
OF	1
SHEETS	

## INSPECTION REPORT OF TUBULAR GOODS

FOR Colorado Interstate Gas Company DATE July 26, 19 55

CONSIGNEE TO Same - Speer, Wyoming

MANUFACTURED BY A. O. Smith Corporation AT Milwaukee, Wisconsin

THE FOLLOWING Line pipe HAVE BEEN INSPECTED ACCORDING TO INSTRUCTIONS AND BASED

ON OUR EXPERIENCE AND JUDGMENT ARE accepted to

SPECIFICATIONS API 5LX, grade X46 and Client's supplemental dtd 10/54

LOADED ON CAR		NO. PGS.	LINEAL FEET	DESCRIPTION	SHIPPERS WEIGHT lbs.
INITIALS	NUMBER				
MILW	84299	13	517'-10"	22" O.D. x .375" wall, electric weld line pipe, 86.61 pounds per foot, plain ends beveled 30° - 35° for welding. Bare and free of mill coating.	
		13	517'-10"	Clients P.O. # 14336	Total 45002

Note: To be used on Section I, Denver to Laramie, Wyoming.

TEMPORARILY REJECTED None

PERMANENTLY REJECTED None

SPECIFIED LIMITS	AREA OF TEST PIECE	YIELD STRENGTH LBS. PER SQUARE IN.		ULT. STRENGTH LBS. PER SQUARE IN.		PERCENT ELONG.		PER CENT RED. AREA	M.P.S. CHEMICAL ANALYSIS					
		LONG.	TRANS.	LONG.	TRANS.	IN. LONG.	INCHES TRANS.		CAR.	MANG.	PHOS.	SUL.	SIL.	
Ratio TS to T5 .85 Max.			46000 Min.		63000 Min.		23% Min.		.28 Max.	.55/ .90	.040 Max.	.050 Max.		*
L6976	.78	55650		75100		34.0		.28	.65	.010	.035	I3		
			58600		75550		31.5	.26	.62	.009	.035	T5		
					79150		Broke 1" from weld	.24	.62	.014	.032	T1		
*I3-Longitudinal test on plate and A.O.S. check analysis on plate. T5-Transverse test on pipe and mill ladle analysis. T1-Transverse test across weld and A.O.S. check analysis on pipe.														

RESULTS OF OTHER TESTS SPECIFIED: Each accepted pipe hydrostatically tested @ 1415 PSI satisfactorily. Flattening test satisfactory.

REMARKS: Each accepted pipe paint stenciled as follows: Mfr., size and wall, grade, total weight, length, hydrostatic test pressure, API Monogram and "RH" stamp on one end of pipe, inside.

INSPECTOR L.E. Hartman, Chicago DISTRICT

*Robert W. Hunt*  
SIGNATURE

OUR FILE 42070-9  
 OUR ORDER B79903  
 CLIENT'S ORDER 15227

**ROBERT W. HUNT COMPANY, ENGINEERS**

INSPECTION, TESTS AND CONSULTATION

GENERAL OFFICE 2200 INSURANCE EXCHANGE, CHICAGO

INSPECTOR'S REPORT  
 NO. 1950-LEH  
 SHEET NO. 1  
 OF 1 SHEETS

**INSPECTION REPORT OF TUBULAR GOODS**

FOR Colorado Interstate Gas Company DATE July 27, 19 55  
 CONSIGNED TO Same - Greeley Junction, Colorado  
 MANUFACTURED BY A. O. Smith Corporation AT Milwaukee, Wisconsin  
 THE FOLLOWING Line Pipe HAVE BEEN INSPECTED ACCORDING TO INSTRUCTIONS AND BASED  
 ON OUR EXPERIENCE AND JUDGMENT ARE Accepted to  
 SPECIFICATIONS API 5LX Grade X46 and Client's Supplemental 10/54

LOADED ON CAR		NO. PCS.	LINEAL FEET	DESCRIPTION	SHIPPERS WEIGHT lbs.
INITIALS	NUMBER				
MIW	86126	16	637'-4"	22" O.D. x .375" wall, electric weld line pipe, 86.61 pounds per foot, plain ends beveled 30° - 35° for welding. Bare and free of mill scale. No die stamping on pipe.	
Note: To be used for Section I Denver to Laramie, Wyoming					
		16	637'-4"	Client's P.O. #14336	Total 55126

TEMPORARILY REJECTED 1 grind seam (Corrected and accepted)

PERMANENTLY REJECTED None

SPECIFIED LIMITS	AREA OF TEST PIECE	YIELD STRENGTH LBS. PER SQUARE IN.		ULT. STRENGTH LBS. PER SQUARE IN.		PERCENT ELONG.		PER CENT RED. AREA	MFRS. CHEMICAL ANALYSIS				
		LONG.	TRANS.	LONG.	TRANS.	IN. 2 INCHES			CAR.	MANG.	PHOS.	SUL.	SIL.
						LONG.	TRANS.						
Ratio YS to TS .85 Max		46000 Min.		63000 Min.		23% Min.		.28 Max.	.55/ .90	.040 Max.	.050 Max.	*	
16976	.78	55650		75100		34.0 31.5 Broke 1" from weld		.28 .26 .24	.65 .62 .62	.010 .009 .014	.035 .035 .032	L3 T5 T1	
#L3-Longitudinal test on plate and A.O.S. check analysis on plate. T5-Transverse test on pipe and mill ladle analysis. T1-Transverse test across weld and A.O.S. check analysis on pipe.													

RESULTS OF OTHER TESTS SPECIFIED: Each accepted pipe tested hydrostatically @ 1415 PSI satisfactorily. Flattening test satisfactory.

REMARKS Each accepted pipe paint stenciled as follows: Mfgr., size and wall, grade, weight, length, test pressure, API Monogram, "H" stamp on one end, inside of pipe.

L.E. Hartman

INSPECTOR Chicago, Illinois DISTRICT

*Robert W. Hunt*  
 SIGNATURE

OUR FILE 42070-9  
 OUR ORDER B79903  
 CLIENT'S ORDER 15227

**ROBERT W. HUNT COMPANY, ENGINEERS**

INSPECTION, TESTS AND CONSULTATION

GENERAL OFFICE 2200 INSURANCE EXCHANGE, CHICAGO

INSPECTOR'S REPORT  
 NO. 1948-LEH  
 SHEET NO. 1  
 OF 1 SHEETS

**INSPECTION REPORT OF TUBULAR GOODS**

FOR Colorado Interstate Gas Company DATE July 27, 19 55

CONSIGNEE TO Same - Speer, Wyoming

MANUFACTURED BY A. O. Smith Corporation AT Milwaukee, Wisconsin

THE FOLLOWING Line Pipe HAVE BEEN INSPECTED ACCORDING TO INSTRUCTIONS AND BASED

ON OUR EXPERIENCE AND JUDGMENT ARE Accepted to

SPECIFICATIONS API 5LX Grade X46 and Client's Supplemental 10/54

LOADED ON CAR		NO. PCS.	LINEAL FEET	DESCRIPTION	SHIPPER'S WEIGHT
INITIALS	NUMBER				
MILW	85919	12	478'-0"	22" O.D. x .375" wall, electric weld line pipe, 86.61 pounds per foot, plain ends, beveled 30° - 35° for welding. Bare and free of mill coating.	
MILW	85143	12	473'-5"		
Note: To be used for Section I Denver to Laramie, Wyoming					
		<u>24</u>	<u>951'-5"</u>	Client's P.O. #14336	Total <u>82796</u>

TEMPORARILY REJECTED 1 grind seam

PERMANENTLY REJECTED 1 cutoff a/c lapped

SPECIFIED LIMITS	AREA OF TEST PIECE	YIELD STRENGTH LBS. PER SQUARE IN.		ULT. STRENGTH LBS. PER SQUARE IN.		PERCENT ELONG.		PER CENT RED. AREA	MFRS. CHEMICAL ANALYSIS				
		LONG.	TRANS.	LONG.	TRANS.	IN 2 INCHES			CAR.	MANG.	PHOS.	SUL.	SIL.
						LONG.	TRANS.						
	Ratio		46000	63000		23%		.28	.55/	.040	.050	*	
	YS to TS		Min.	Min.		Min.		Max.	.90	Max.	Max.		
	.85 Max.												
L6976	.78	55650		75100		34.0		.28	.65	.010	.035	L3	
			58600		75550	31.5		.26	.62	.009	.035	T5	
					79150	Broke 1" from weld		.24	.62	.014	.032	T1	
*L3-Longitudinal test on plate and A.O.S. check analysis on plate													
T5-Transverse test on pipe and mill ladle analysis.													
T1-Transverse test across weld and A.O.S. check analysis on pipe.													

RESULTS OF OTHER TESTS SPECIFIED: Each accepted pipe hydrostatically tested @ 1415 PSI

satisfactorily. Flattening test satisfactory.

REMARKS Each accepted pipe paint stenciled as follows: Mfr., size and wall, grade, total weight, length, hydrostatic test pressure, API Monogram, "H" stamp on one end of pipe inside.

L.E. Hartman

INSPECTOR Chicago, Illinois

DISTRICT

*Robert W. Hunt*  
 SIGNATURE

OUR FILE 42070-9  
 OUR ORDER B79903  
 CLIENT'S ORDER 15227

**ROBERT W. HUNT COMPANY, ENGINEERS**

INSPECTION, TESTS AND CONSULTATION

GENERAL OFFICE 2200 INSURANCE EXCHANGE, CHICAGO

INSPECTOR'S REPORT  
 NO. 1942-LEH  
 SHEET NO. 1  
 OF 1 SHEETS

**INSPECTION REPORT OF TUBULAR GOODS**

FOR Colorado Interstate Gas Company DATE July 25, 1955

CONSIGNEE TO Same - Greeley Junction, Colorado

MANUFACTURED BY A. O. Smith Corporation AT Milwaukee, Wisconsin

THE FOLLOWING Line Pipe HAVE BEEN INSPECTED ACCORDING TO INSTRUCTIONS AND BASED

ON OUR EXPERIENCE AND JUDGMENT ARE Accepted to

SPECIFICATIONS API 5LX Grade X46 Client's Supplemental 10/54

LOADED ON CAR		NO. PGS.	LINEAL FEET	DESCRIPTION	SHIPPER'S WEIGHT
INITIALS	NUMBER				
MILW	87289	6	1991-1"	22" O.D. x .375" wall, electric weld line pipe, 86.61 pounds per foot, plain ends beveled 30° - 35° for welding. Bare and free of mill coating. No die stamping on pipe.	
Note: To be used on Section I Denver to Laramie, Wyoming					
		6	1991-1"	Client's P.O. 14336	Total 17286

TEMPORARILY REJECTED 2 scabby - 1 grind seam (Corrected and accepted),

PERMANENTLY REJECTED

SPECIFIED LIMITS	AREA OF TEST PIECE	TENSILE STRENGTH LBS. PER SQUARE IN.		YLT. STRENGTH LBS. PER SQUARE IN.		PERCENT ELONG.		PER CENT RED. AREA	M.P.R.S. CHEMICAL ANALYSIS				
		LONG.	TRANS.	LONG.	TRANS.	IN. 2 INCHES			CAR.	MANG.	PHOS.	SUL.	SIL.
						LONG.	TRANS.						
Ratio TS to FS .85 Max		46000	63000		23%			.28	.55/	.040	.050		
		Min.	Min.		Min.			Max.	.90	Max.	Max.	*	
L6976	.78	55600	75100	75550	34.0	31.5		.28	.65	.010	.035	L3	
		58600	79150	79150	Broke	1" from weld		.26	.62	.009	.035	T5	
								.24	.62	.014	.032	T1	

\*L3-Longitudinal test on plate and A.O.S. check analysis on plate.  
 T5-Transverse test on pipe and mill ladle analysis.  
 T1-Transverse test across weld and A.O.S. check analysis on pipe.

Note: Above pipe shipped in car no. 87289 initialed MILW along with 3981-4" grade X42 pipe which is covered by our report 1941-LEH.

RESULTS OF OTHER TESTS SPECIFIED: Each accepted pipe hydrostatically tested @ 1415 PSI satisfactorily. Flattening test satisfactory.

REMARKS Each accepted pipe paint stencilled as follows: Mgr., size and wall, grade, total weight, length, test pressure, API Monogram, "H" stamp on one end of pipe inside.

L. E. Hartman

INSPECTOR Chicago, Illinois DISTRICT

*Robert W. Hunt*  
 SIGNATURE

OUR FILE 42070-9  
 OUR ORDER B-79903  
 CLIENT'S ORDER 15227

**ROBERT W. HUNT COMPANY, ENGINEERS**

INSPECTION, TESTS AND CONSULTATION

GENERAL OFFICE 2200 INSURANCE EXCHANGE, CHICAGO

INSPECTOR'S REPORT  
 NO. 1949-LEH  
 SHEET NO. 1  
 OF 1 SHEETS

**INSPECTION REPORT OF TUBULAR GOODS**

FOR Colorado Interstate Gas Company DATE July 29, 1955  
 CONSIGNED TO Same - Greeley Junction, Colorado  
 MANUFACTURED BY A. O. Smith Corporation AT Milwaukee, Wisconsin  
 THE FOLLOWING Line Pipe HAVE BEEN INSPECTED ACCORDING TO INSTRUCTIONS AND BASED  
 ON OUR EXPERIENCE AND JUDGMENT ARE Accepted to  
 SPECIFICATIONS: API 5LX Grade X46 and Client's Supplemental 10/54

LOADED ON CAR		NO. PCS.	LINEAL FEET	DESCRIPTION	SHIPPER'S WEIGHT lbs.
INITIALS	NUMBER				
MILW	90858	18	715'-0"	22" O.D. x .375" wall, electric weld line pipe, 86.61 pounds per foot, plain ends, beveled 30° - 35° for welding, bare and free of mill coating.	
Note: To be used for Section I Denver to Laramie, Wyoming					
		18	715'-0"	Client's P.O. #14336	Total 62160

TEMPORARILY REJECTED 1 reface - 1 scabby (Corrected and accepted)

PERMANENTLY REJECTED

SPECIFIED LIMITS	AREA OF TEST PIECE	YIELD STRENGTH LBS. PER SQUARE IN.		ULT. STRENGTH LBS. PER SQUARE IN.		PERCENT ELONG.		PER CENT RED. AREA	MFRS. CHEMICAL ANALYSIS				
		LONG.	TRANS.	LONG.	TRANS.	IN 2 INCHES			CAR.	MANG.	PHOS.	SUL.	SIL.
						LONG.	TRANS.						
Ratio YS to TS .85 Max.			46000 Min.		63000 Min.		23% Min.		.28 Max.	.55/ .90	.040 Max.	.050 Max.	*
L6976	.78	55650		75100		34.0		.28	.65	.010	.035	L3	
			58600		75550		31.5	.26	.62	.009	.035	T5	
					79150		Broke 1" from weld	.24	.62	.014	.032	T1	
*L3-Longitudinal test on plate and A.O.S. check analysis on plate. T5-Transverse test on pipe and mill ladle analysis. T1-Transverse test across weld and A.O.S. check analysis on pipe.													

RESULTS OF OTHER TESTS SPECIFIED: Each accepted pipe hydrostatically tested @ 1415 PSI satisfactorily. Flattening test satisfactory.

REMARKS: Each accepted pipe paint stenciled as follows: Mfr., size and wall, grade, total weight, length hydrostatic test pressure, API Monogram, "H" stamp on one end of pipe inside.

L. E. Hartman

INSPECTOR Chicago, Illinois DISTRICT

*Robert W. Hunt*  
 SIGNATURE

**COLORADO INTERSTATE GAS COMPANY**

P.O. BOX 1087  
COLORADO SPRINGS, COLORADO

P. O. NO. 14304

**PURCHASE ORDER**

DATE May 25, 19 25

MARK THIS PURCHASE ORDER NUMBER ON ALL INVOICES.

**SHIP COLLECT**  
~~XXXXXXXXXXXXXXXXXXXX~~  
~~XXXXXXXXXXXXXXXXXXXX~~

A. O. Smith, Corporation  
805 Thompson Building  
Tulsa 3, Oklahoma

DATE  
REQUIRED

See Below

INVOICE IN TRIPLICATE TO:  
COLORADO INTERSTATE GAS COMPANY  
P. O. BOX 1087  
COLORADO SPRINGS, COLORADO

Attention: Mr. A. E. Butts

SHIP TO: COLORADO INTERSTATE GAS COMPANY

CARE OF: See Below

REQ. NO. 2644 FROM

VIA See Below  
FOB: Milwaukee, Wisconsin

TERMS See Below

ACCOUNT NUMBER		
LOCATION	ACCOUNT	SUB
	13532	

ITEM NO.	QUANTITY	DESCRIPTION	STOCK CODE	AMOUNT
1	Approx. 309,989	feet (58.71 miles - 9,000.2 tons) 22" O.D. x .250 W.T. Electric Weld Line Pipe, fabricated in accordance with A.P.I. 5LX 52 Specification (latest edition) 58.07¢ per foot, Plain End, Bevelled for Welding 30 degrees, Double Random Lengths, free of mill coating and in accordance with Colorado Interstate Gas Company Supplemental Specifications for Main Line Pipe and Laterals, dated October 1954.  Mill Value @ \$150.82/Ton		\$1,357,410.16
Vendor agrees to equalize delivered costs of pipe shipped on this order with lower delivered costs of competing mills based on published mill prices and freight rates in effect on date of shipment. This will be accomplished by the granting of competitive allowances on invoices. Based on present mill prices and freight rates to the below listed tentative shipping destinations the amount of such competitive allowances would be calculated as follows:				

TO BE USED FOR Section I Denver to Laramie, Wyoming

RECEIVING REPORT NO.

DATE RECEIVED

B \_\_\_\_\_

A \_\_\_\_\_

C \_\_\_\_\_

D \_\_\_\_\_

COLORADO INTERSTATE GAS COMPANY

BY \_\_\_\_\_  
PURCHASING AGENT





**COLORADO INTERSTATE GAS COMPANY**  
P.O. BOX 1087  
COLORADO SPRINGS, COLORADO

P.O. No. 14308 <sup>29</sup>

Page 3 of 5

**PURCHASE ORDER**

DATE May 25, 19 55

MARK THIS PURCHASE ORDER NUMBER ON ALL INVOICES.

A. O. Smith, Corporation  
805 Thompson Building  
Tulsa 3, Oklahoma

DATE  
REQUIRED

See Below

**SHIP COLLECT**  
~~XXXXXXXXXXXX~~  
~~XXXXXXXXXXXX~~

INVOICE IN TRIPLICATE TO:

COLORADO INTERSTATE GAS COMPANY  
P. O. BOX 1087  
COLORADO SPRINGS, COLORADO

Attention: Mr. A. E. Butts

SHIP TO: COLORADO INTERSTATE GAS COMPANY

CARE OF: See Below

REQ. NO. FROM

VIA See Below

FOB Milwaukee, Wisconsin

TERMS See Below

ACCOUNT NUMBER		
LOCATION	ACCOUNT	SUB
	13532	

ITEM NO.	QUANTITY	DESCRIPTION	STOCK CODE	AMOUNT								
		<p><b>SHIPPING INSTRUCTIONS:</b> Shipping instructions and routing shall be furnished by I. W. Stimits, Traffic Manager. As shipments are forwarded on this order, wire car number, footage, number of joints and routing to I. W. Stimits, Traffic Manager, Colorado Springs, Colorado.</p> <p>Bills of Lading must show number of joints and footage.</p> <p><b>HIGH TEST LINE PIPE SPECIFICATIONS:</b> The Specifications for High Test Line Pipe shall be in accordance with the API Bulletin entitled and dated "API Std. 5LX - 5th Edition, November, 1954" except as herein modified or amended.</p> <p>Electric weld pipe 20" O.D. and larger, wall tolerance shall be minus 10%.</p> <p>Electric weld pipe 20" O.D. and larger, and with wall thickness .375" or less, ultimate tensile strength shall be 72,000 p.s.i. minimum for Grade X-52.</p> <p><b>SECTION IV - PHYSICAL PROPERTIES &amp; TESTS</b></p> <p><b>Paragraph 11 - Pipe Elongation</b></p> <p>The minimum percent of elongation of a 2" test specimen for X-52 steel will be as follows:</p> <table border="0"> <tr> <td>Wall Thickness</td> <td>%</td> </tr> <tr> <td>0.250"</td> <td>18</td> </tr> <tr> <td>0.281"</td> <td>20</td> </tr> <tr> <td>0.312" thru 0.500"</td> <td>22</td> </tr> </table> <p><b>Paragraph 15* - Tensile Properties</b></p> <p>Plate - Copies of the tensile tests on the plate being used for rolling pipe shall be obtained and reported. At least one (1) tensile test in each heat will be made.</p>	Wall Thickness	%	0.250"	18	0.281"	20	0.312" thru 0.500"	22		
Wall Thickness	%											
0.250"	18											
0.281"	20											
0.312" thru 0.500"	22											

TO BE USED FOR Section I Denver to Laramie, Wyoming

RECEIVING REPORT NO.	DATE RECEIVED
B _____	_____
A _____	_____
C _____	_____
D _____	_____

COLORADO INTERSTATE GAS COMPANY  
BY \_\_\_\_\_  
PURCHASING AGENT

PURCHASE COPY

**COLORADO INTERSTATE GAS COMPANY**  
P.O. BOX 1087  
COLORADO SPRINGS, COLORADO

P.O. No. 14308

30

**PURCHASE ORDER**

Page 4 of 5

DATE May 25, 19 55

MARK THIS PURCHASE ORDER NUMBER ON ALL INVOICES.

A. O. Smith, Corporation  
805 Thompson Building  
Tulsa 3, Oklahoma

DATE REQUIRED  
**See Below**

~~SHIP COLLECT~~  
~~RECEIVED BY~~  
~~DATE~~

INVOICE IN TRIPLICATE TO:  
COLORADO INTERSTATE GAS COMPANY  
P. O. BOX 1087  
COLORADO SPRINGS, COLORADO

Attention: Mr. A. E. Butts

SHIP TO: COLORADO INTERSTATE GAS COMPANY

REQ. NO. FROM

CARE OF: **See Below**

ACCOUNT NUMBER		
LOCATION	ACCOUNT	SUB
	13532	

VIA **See Below**  
FOB **Milwaukee, Wisconsin**

TERMS **See Below**

ITEM NO.	QUANTITY	DESCRIPTION	STOCK CODE	AMOUNT
<b><u>SECTION V - HYDROSTATIC TESTS</u></b>				
<b><u>Paragraph 30 - Mill Inspection Hydrostatic Test</u></b>				
The test pressures to be used for the mill inspection hydrostatic test will be 90% of the specified minimum yield strength.				
<b><u>Paragraph 31 - Supplementary Hydrostatic Tests</u></b>				
Full length destructive tests will be made by the "hydrostatic pressure water column" method on one (1) joint per 5,000 which is approx. one (1) test per 40 miles of pipe. <b>Burst Test @ \$400.00 per Test</b>				
<b><u>SECTION VI - DIMENSIONS, WEIGHTS &amp; LENGTHS</u></b>				
<b><u>Paragraph 33 - Diameter</u></b>				
On all pipe a ring gauge will be used to determine the maximum O.D. and a snap gauge will be used to determine the minimum O.D.. These tests will comply with the tolerance as specified in the API bulletin.				
<b><u>Paragraph 36 - Length</u></b>				
All pipe will be made in 40 foot random lengths. The average length for all pipe must be a minimum of 39 feet.				
<b><u>Paragraph 37 - Jointers</u></b>				
Jointers will be shipped only to destinations specified by Company				

To Be Used For **Section I Denver to Laramie, Wyoming**

RECEIVING REPORT NO.	DATE RECEIVED
B _____	_____
A _____	_____
C _____	_____
D _____	_____

COLORADO INTERSTATE GAS COMPANY

BY \_\_\_\_\_  
PURCHASING AGENT

PURCHASING COPY

**COLORADO INTERSTATE GAS COMPANY**  
 P.O. BOX 1087  
 COLORADO SPRINGS, COLORADO

P.O. No. 14308 **31**

Page 5 Of 5

**PURCHASE ORDER**

DATE May 25, 19 55

MARK THIS PURCHASE ORDER NUMBER ON ALL INVOICES.

A. O. Smith, Corporation  
 805 Thompson Building  
 Tulsa 3, Oklahoma

DATE REQUIRED  
**See Below**

~~XXXXXXXXXXXXXXXXXXXX~~  
~~XXXXXXXXXXXXXXXXXXXX~~

INVOICE IN TRIPLICATE TO:  
 COLORADO INTERSTATE GAS COMPANY  
 P. O. BOX 1087  
 COLORADO SPRINGS, COLORADO

Attention: Mr. A. E. Butts

SHIP TO: COLORADO INTERSTATE GAS COMPANY

CARE OF: **See Below**

REQ. NO. FROM

VIA **See Below**  
 FOB **Milwaukee, Wisconsin**

TERMS **See Below**

ACCOUNT NUMBER		
LOCATION	ACCOUNT	SUB
	13532	

ITEM NO.	QUANTITY	DESCRIPTION	STOCK CODE	AMOUNT
		<p><b>SECTION VII - PIPE ENDS, FINISH &amp; WORKMANSHIP</b></p> <p><b>Paragraph 38 - Pipe Ends</b>                      The pipe covered by this specification shall be furnished with ends beveled to an angle of 30°, plus 5° or minus 0°, with a land or route face of 3/32" maximum and 1/32" minimum.</p> <p><b>Paragraph 39 - Coating</b>                      Mill coating of pipe will be omitted.</p> <p><b>SECTION VIII - MARKING</b></p> <p><b>Paragraphs 43, 44 &amp; 45</b>                      The API monogram, the mill monogram and the inspector's monogram together with all dimensions, will be paint-stencilled on each joint of pipe. Dimensions shall be marked in feet and hundredths. No die stamps will be used.</p> <p>The above pipe will be inspected by the R. W. Hunt Company, Engineers, and it is requested that you advise them of your mill schedule.</p>		

TO BE USED FOR: Section I Denver to Laramie, Wyoming

RECEIVING REPORT NO.	DATE RECEIVED
B _____	_____
A _____	_____
C _____	_____
D _____	_____

COLORADO INTERSTATE GAS COMPANY

BY \_\_\_\_\_  
 PURCHASING AGENT

# KINDER MORGAN

## PRESSURE TEST REPORT

COMPANY NAME/NUMBER: CIG

REPORT NO: 01-2018-PUEBLO

AFE NO: See Notes

COUNTY: Adams & Weld STATE: CO

FACILITY NAME: CIG 5A - 56<sup>th</sup> Ave to Cheyenne

LINE NO: 5A

PROJECT DESCRIPTION: CIG 5A 2018 Pressure Test for Class Changes

STA. #: see notes

S/T/R:

TO: STA. #: see notes

S/T/R:

OPERATING OFFICE: CHEYENNE

REFERENCE DRAWING:

TYPE OF FACILITY TESTED: Pipe

TEST MEDIUM: Water

SERVICE OF LINE:

GAUGE LOCATION: STATION #

SECTION/TOWNSHIP/RANGE:

Did this occur in an HCA?  No  Yes If Yes, send copy to Risk Engineering Department, Houston, TX

### PIPE DESCRIPTION

Length (Feet)	Outside Diameter (Inches)	Wall Thickness (Inches)	SMYS	SEAM	Coating Type	New	Existing
313	22	.375	X70	ERW	FBE	<input checked="" type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>

FITTING, VALVE, FLANGE, ETC. DESCRIPTION:

Design Pressure: 850 psig

Lowest SMYS within test segment: 2386

Min. flange or valve ANSI rating in test section:

MINIMUM TEST PRESSURE:

1275 psig as determined by:  
(Select one box)

- ASME B31.8S (1.25 x MAOP)
- ASME B31.8S (1.39 x MAOP)
- ASME B31.8S (1.4 x MAOP)
- ASME B31.8S (1.7 x MAOP)
- ASME B31.8S (2.2 x MAOP)

- 91.5% SYMS
- 1.5 x design
- 1.2 x design
- Operating pressure
- Line pressure + 50 PSIG

- Flange/valve rating
- Max. - 15 PSIG
- Seat/shell test
- %SMYS
- 100 PSIG

MAXIMUM TEST PRESSURE:

1700 psig as determined by:  
(Select one box)

- 100% SYMS
- 1.5 x design
- 2 x design
- 3 x design (PE pipe)

- Line pressure + 50 PSIG
- Flange/valve rating
- %SMYS
- Seat/shell test

PRESSURE CORRECTION:

	High	Low
High elevation of pipe		
Elevation of gauge	-	
Low elevation of pipe		-
Difference in elevation	= 0	= 0
Press. corr. (difference in elev. X 0.433)	= 0	= 0

ALLOWABLE GAUGE PRESSURE:

	High	Low
Minimum test pressure (from above)	1275	
High pressure correction (from above)	+ 0	
Minimum allowable gauge pressure	= 1275	
Maximum test pressure (from above)		1700
Low pressure correction (from above)		- 0
Maximum allowable gauge pressure		= 1700

COMPLETE ON DAY OF TEST:

DATE OF TEST: FROM 8:50  am  pm Date: 6/12/2018 TO 4:50  am  pm Date: 6/12/2018

ACTUAL TEST PRESSURE:

ACTUAL MIN. GAUGE PRESSURE 1570 PSI ACTUAL MAX. GAUGE PRESSURE 1600 PSI

HIGH PRESSURE CORRECTION LOW PRESSURE CORRECTION +

ACTUAL MIN. TEST PRESSURE = 1570 PSI ACTUAL MAX. PRESSURE = 1600 PSI

Test Supervisor:

*Chad Bullock*

Date: 6/13/18

Test Contractor:

Company Representative:

*[Signature]*

Date: 6-12-18

Date: 6-13-18

Date: 6-13-18

Reference: O&M Procedure 1600  
Distribution: Engr. Records Project Closure Package  
Field Operations Local Office Files  
Field Project Closure Package  
Risk Engineering - HCA Locations Only



DEADWEIGHT SERIAL NO. 3144

PRESSURE TEST LOG

Time	Deadweight	Ambient Temp.	Remarks
8:10AM	700 PSI		Left overnight
8:15AM	1263 PSI	76°	85% 30 min shut in
8:45AM	1263 PSI	76°	Resume pressure
8:50AM	1570 PSI	76°	Begin Test
9:00AM	1573 PSI	76°	clear sky
9:10AM	1575 PSI	76°	
9:20AM	1581 PSI	77°	
9:30AM	1586 PSI	77°	
9:40AM	1588 PSI	77°	
9:50AM	1594 PSI	78°	
10:00AM	1598 PSI	78°	1st Bleed down
10:05AM	1580 PSI	78°	Shut in bleed
10:20AM	1598 PSI	79°	2nd Bleed down
10:25AM	1578 PSI	79°	Shut in bleed
10:50AM	1600 PSI	79°	
10:51AM	1600 PSI	79°	3rd Bleed down
10:55AM	1576 PSI	79°	Shut in bleed
11:10AM	1598 PSI	79°	4th Bleed down
11:14AM	1572 PSI	79°	Shut in bleed
11:20AM	1580 PSI	79°	
11:30AM	1597 PSI	80°	5th Bleed down
11:33AM	1570 PSI	81°	Shut in bleed
11:50AM	1585 PSI	81°	
11:58AM	1595 PSI	81°	6th Bleed down
12:00PM	1570 PSI	81°	Shut in bleed
12:20PM	1580 PSI	81°	clear sky
12:30PM	1594 PSI	82°	7th Bleed down

Time	Deadweight	Ambient Temp.	Remarks
12:34PM	1571 PSI	82°	Shut in bleed
12:45PM			cloud cover
12:52PM	1580 PSI	83°	
1:13PM	1594 PSI		8th Bleed down
1:15PM	1570 PSI	83°	Shut in bleed
1:20PM	1577 PSI	83°	
1:40PM	1595 PSI	84°	9th Bleed down
1:44PM	1571 PSI	84°	Shut in bleed
1:50PM	1581 PSI	85°	
2:00PM	1596 PSI	85°	10th Bleed down
2:02PM	1570 PSI	85°	Shut in bleed
2:15PM			cloud cover
2:20PM	1575 PSI	85°	
2:45PM	1595 PSI	86°	11th Bleed down
2:46PM	1570 PSI	86°	Shut in bleed
2:50PM	1570 PSI	86°	
3:20PM	1583 PSI	87°	
3:27PM	1594 PSI	87°	12th Bleed down
3:30PM	1570 PSI	87°	Shut in bleed
3:50PM	1585 PSI	87°	
4:12PM	1593 PSI	88°	13th Bleed down
4:12PM	1570 PSI	88°	Shut in bleed
4:50PM	1590 PSI	88°	End Test

Comments on testing or additional pipe, fitting, valve, flange, etc. descriptions:

Pressure Testing for Emergency Pipe to be used for replacements section for PT at MP 16 (AFE 408710), MP 20 (AFE 408709), MP 43 (AFE408708), and MP 69 (AFE 408711). Pipe tested at Devine Shop, Pueblo, CO.

Test to 1600 PSI.

Total water bled from test - roughly 83 gallons



Enter drawings or photos below:

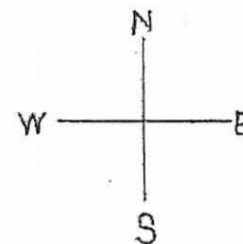
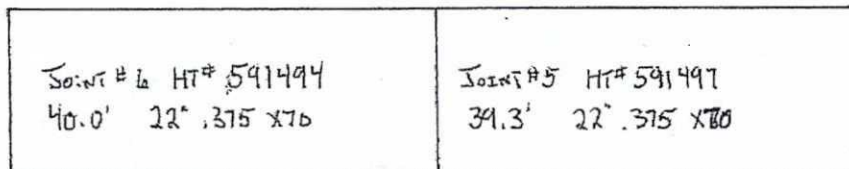
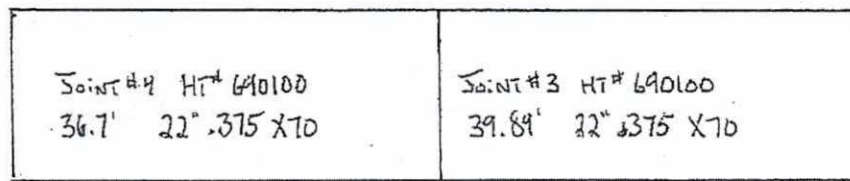
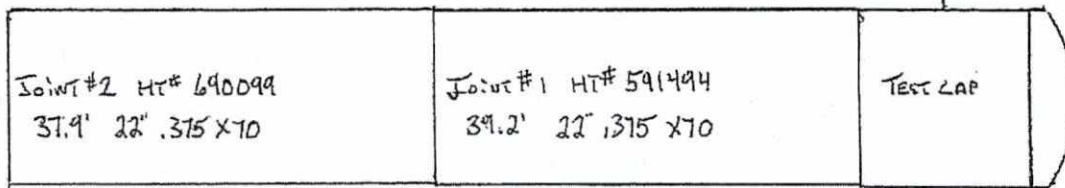
Reference: O&M Procedure 1600  
Distribution: Engr. Records Project Closure Package  
Field Operations Local Office Files  
Field Project Closure Package  
Risk Engineering – HCA Locations Only



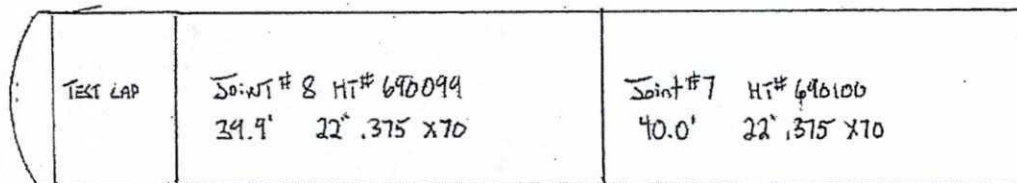
FULL LINE CARBON STEEL ■ STAINLESS ■ ALUMINUM ■ PRECISION PROCESSING

RELIANCE METALCENTER

RECORDER  
DEMULTIPLIER  
PUMP



AFE 408710  
P.M. JAMES PILGOT



312.89' 22" .375 X 70 TEST STRING

TEST #: 01-2018 PUEBLO DATE:

LOCATION: DEVINE STATION

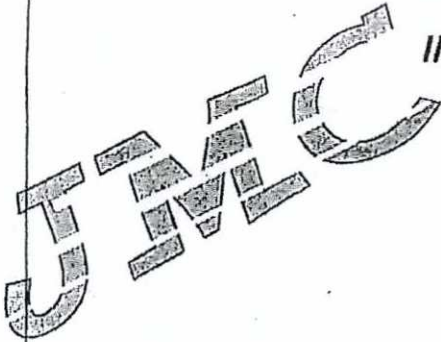
PRESSURE: 1570 PSI

PIPE: (8) JOINTS #1-8 = 22" .375WT X 70 FBE

P.O. # 6542549







**INSTRUMENTS, INC.**

9829 E Easter Ave • Centennial, Colorado 80112  
Telephone: (303) 794-8833 • Fax: (303) 730-1220

Date: May 4, 2018

**Cross Country Pipeline**

JMC Instruments, Inc. certifies that the listed one (1) instruments were calibrated on equipment which is traceable to the National Institute of Standards and Testing (N.I.S.T.). The standards have been compared to the standard of the State of Colorado. See certificate #17-043 issued by the State of Colorado. The equipment used for certification is serial number 1GA44774.

Calibration performed on work order number 4765

By: Brian McLain

Description: DEADWEIGHT CHANDLER ENGINEERING

CN 2-1                      SN 3144    50 TO 3050PSIG

PISTON ASSEMBLY PLUS 17 WEIGHTS

# Cross Country Pipeline Supply CO. Inc

Sales and Service

2251 Rifle Street - Aurora, Colorado 80011

Phone 303.361.6797 Fax 303.361.6836

## NIST CALIBRATION DATA

Model Number	Serial Number	Customer	Range	Accuracy
Barton	265-9804	Kinder Morgan	5000# - 150F	1/2%

Work Performed:	Calibration: Output/Reading	Results: Pressure
Calibrate to Mfg. Spec.	0 PSI	0 PSI
	1000 PSI	1000 PSI
	2000 PSI	2000 PSI
	3000 PSI	3000 PSI
	4000 PSI	4000 PSI
	5000 PSI	5000 PSI
	33 Deg	33 DEG
	71 DEG	71 DEG
	104 DEG	104 DEG
	149 DEG	140 DEG

PO Number	Sales Order Number	Date of Test
Recalibrated	Recerted	5/8/2018 8:30:51 AM

Remarks: ALL CALIBRATIONS ARE GOOD FOR ONE YEAR FROM DATE OF TEST

### Standard Used:

Manufacturer	Model	Instrument	Calibration Date	Certification #
Perma-Cal	101FTM15B21	Pressure Gauge	08/08/2017	17-043
Tech Instrumentation	TM99A	Thermometer	08/21/2017	59448

Don F.

Signature Don Frick 5-8-18



COLORADO INTERSTATE GAS HYDROSTATIC TEST DATA

Pipeline CIG AFE No. 408710  
Test Section - From Sta: - To Sta: -

Location of Recorder: DEWINE  
Make and Serial No. of Recorder: DEWINE  
DARTON SN#265-9804

Make and Serial No. Deadweight: CRAWLER SN#3144  
Deadweight Certified By: JMC INST. Date: 5/14/18

Test Medium: Water:  Other: -  
Begin Test: 6/12/18 Time: 8:50 AM Pressure: 1570 psig

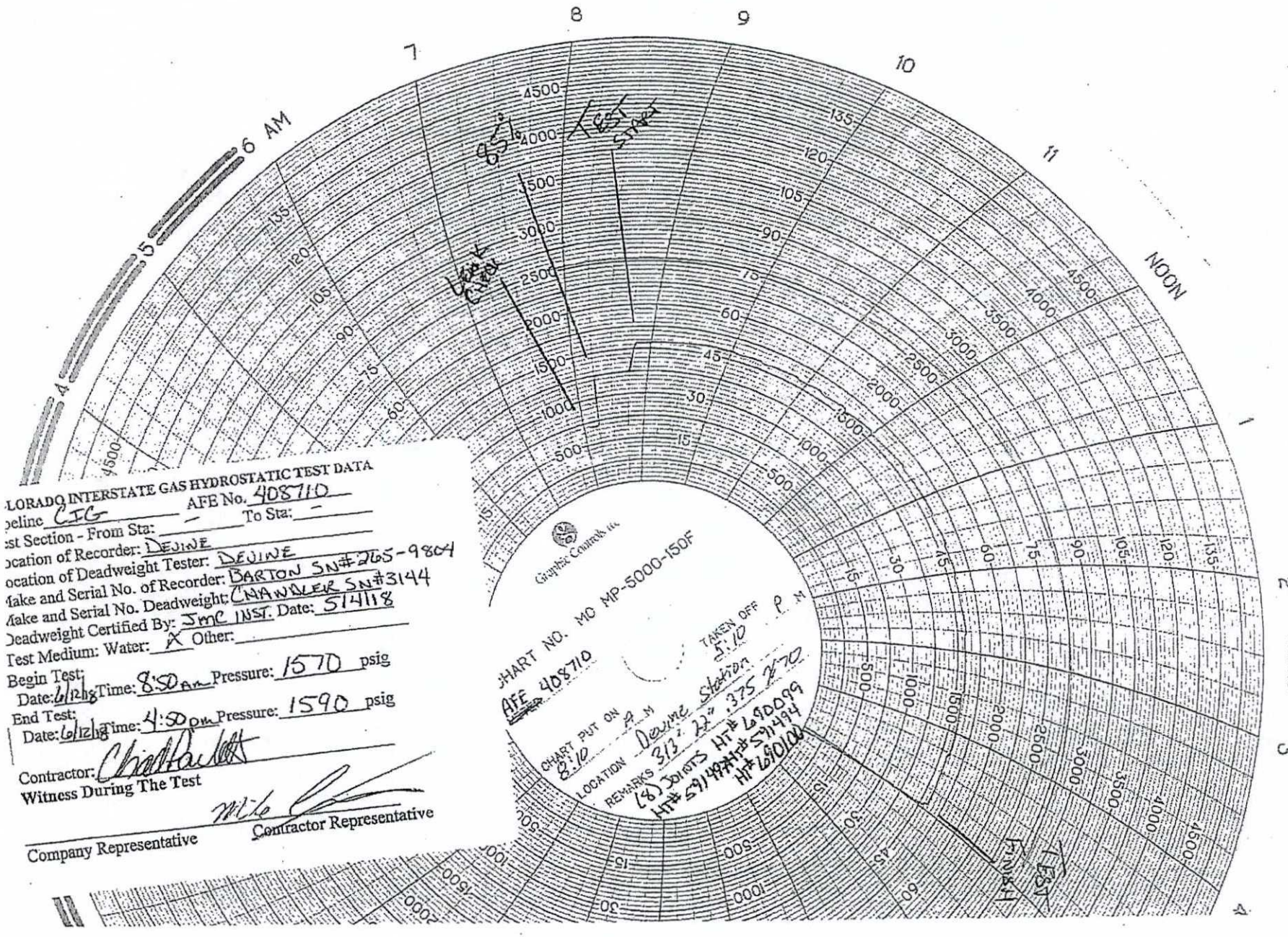
End Test: 6/12/18 Time: 4:50 PM Pressure: 1590 psig

Contractor: Chattanooga

Witness During The Test

Company Representative

Milo  
Contractor Representative





APE 408710

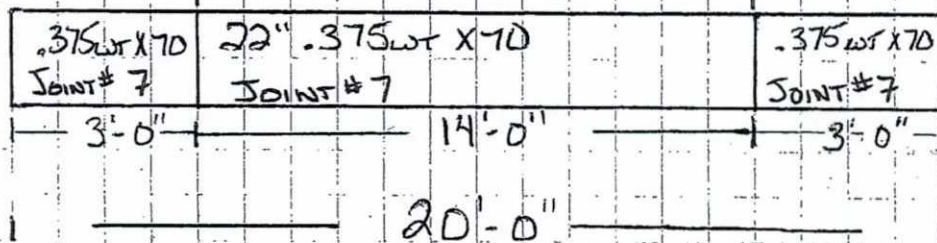
# CIG SA 22" LINE PIPE REPLACEMENT

END MACHINE TAPER TO .250"  
DEVINE STATION

D.C./H.D.-A

D.C./H.D.-A

END MACHINE TAPER TO .250"  
DEVINE STATION



22" .375 WT X 70

JOINT # 7: HT# 690100

TEST LOCATION: DEVINE STATION

TEST PRESSURE: 1570 PSI

HYDROTEST DATE: 6/12/18

P.O.#: 6542549



PRESSURE TEST REPORT

COMPANY NAME/NUMBER: CIG REPORT NO: 01-18-SAMP16
AFE NO: 408710 COUNTY: Adams STATE: CO
FACILITY NAME: CIG 5A - 56th Ave to Cheyenne LINE NO:
PROJECT DESCRIPTION: CIG 5A PT MP 16 - CLASS 2 UPGRADE
STA. #: MP16+4650 S/T/R: TO: STA. #: MP17+1620 S/T/R:
OPERATING OFFICE: CHEYENNE REFERENCE DRAWING:
TYPE OF FACILITY TESTED: Pipe TEST MEDIUM: Water SERVICE OF LINE:
GAUGE LOCATION: STATION # SECTION/TOWNSHIP/RANGE:
Did this occur in an HCA? [ ] No [X] Yes If Yes, send copy to Risk Engineering Department, Houston, TX

PIPE DESCRIPTION

Table with 8 columns: Length (Feet), Outside Diameter (Inches), Wall Thickness (Inches), SMYS, SEAM, Coating Type, New, Existing. Rows include pipe segments with lengths 1821, 390, and 39 feet.

FITTING, VALVE, FLANGE, ETC. DESCRIPTION:

Design Pressure: 822 psig Lowest SMYS within test segment: 1181.8 Min. flange or valve ANSI rating in test section:

MINIMUM TEST PRESSURE: 1081.4 psig as determined by: (Select one box)
ASME B31.8S (1.25 x MAOP) [X] 91.5% SYMS [ ] Flange/valve rating
ASME B31.8S (1.39 x MAOP) [ ] 1.5 x design [ ] Max. - 15 PSIG
ASME B31.8S (1.4 x MAOP) [ ] 1.2 x design [ ] Seat/shell test
ASME B31.8S (1.7 x MAOP) [ ] Operating pressure [ ] %SMYS
ASME B31.8S (2.2 x MAOP) [ ] Line pressure + 50 PSIG [ ] 100 PSIG

MAXIMUM TEST PRESSURE: 1205.5 psig as determined by: (Select one box)
100% SYMS [ ] Line pressure + 50 PSIG [ ]
1.5 x design [ ] Flange/valve rating [ ]
2 x design [ ] 102 %SMYS [ ]
3 x design (PE pipe) [ ] Seat/shell test [ ]

PRESSURE CORRECTION: High Low
High elevation of pipe -
Elevation of gauge -
Low elevation of pipe -
Difference in elevation = 0 = 0
Press. corr. (difference in elev. X 0.433) = 0 = 0

ALLOWABLE GAUGE PRESSURE: High Low
Minimum test pressure (from above)
High pressure correction (from above) + 0
Minimum allowable gauge pressure =
Maximum test pressure (from above)
Low pressure correction (from above) - 0
Maximum allowable gauge pressure =

COMPLETE ON DAY OF TEST:

DATE OF TEST: FROM 8:20 [X] am [ ] pm Date: 6/28/2018 TO 5:30 [ ] am [X] pm Date: 6/28/2018

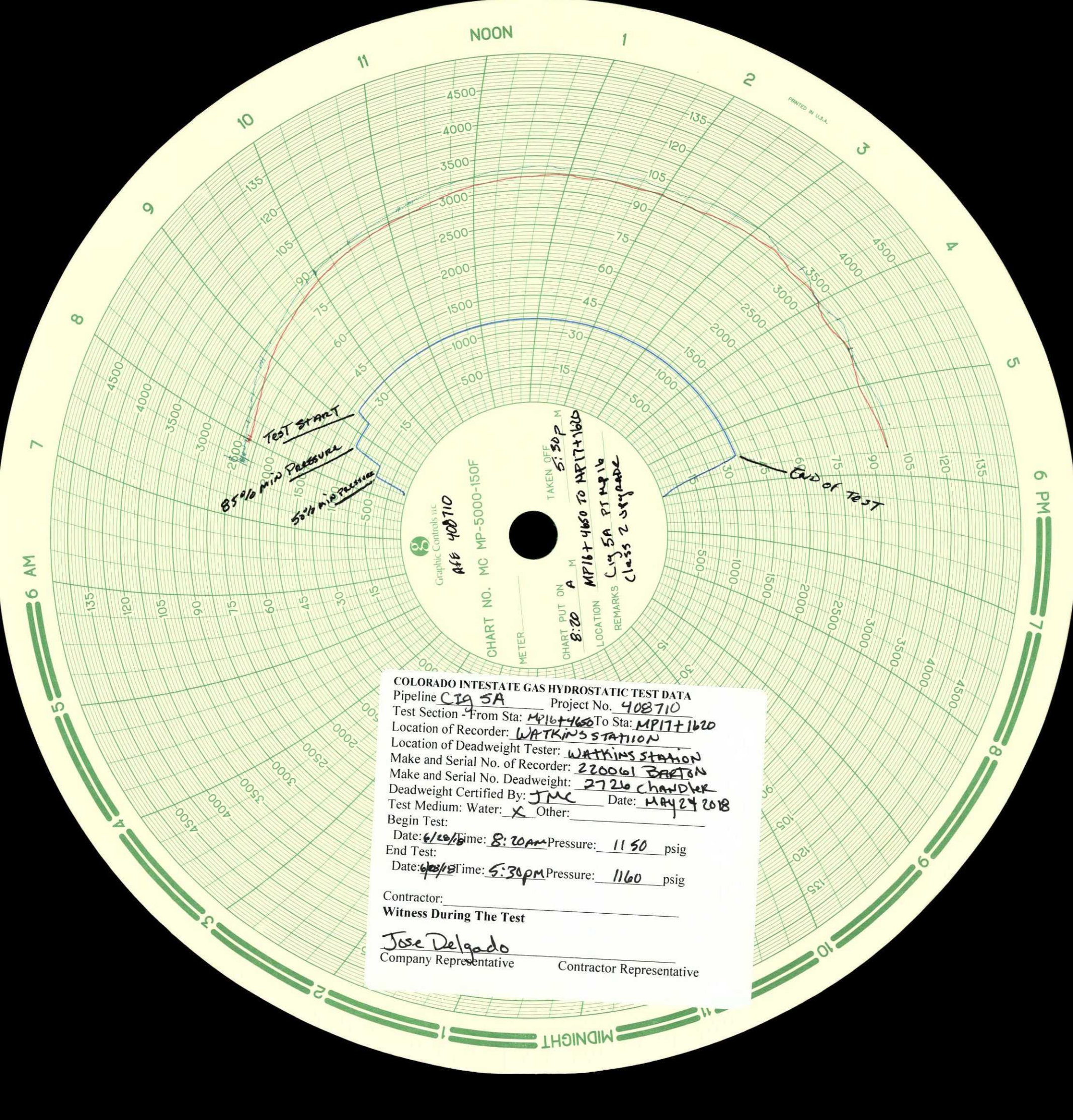
ACTUAL TEST PRESSURE:
ACTUAL MIN. GAUGE PRESSURE 1150 ACTUAL MAX. GAUGE PRESSURE 1160
HIGH PRESSURE CORRECTION - 0 LOW PRESSURE CORRECTION + 0
ACTUAL MIN. TEST PRESSURE = 1150 ACTUAL MAX. PRESSURE = 1160

Test Supervisor: Jose Delgado Date: 6/28/2018
Test Contractor: Jose Delgado Date: 6/28/2018
Company Representative: Jose Delgado Date: 6/28/2018
Project Manager: [Signature] Date: 6/28/18









**COLORADO INTESTATE GAS HYDROSTATIC TEST DATA**

Pipeline CIG SA Project No. 408710

Test Section - From Sta: MP16+460 To Sta: MP17+1620

Location of Recorder: WATKINS STATION

Location of Deadweight Tester: WATKINS STATION

Make and Serial No. of Recorder: 220061 BARTON

Make and Serial No. Deadweight: 27216 CHANDLER

Deadweight Certified By: JMC Date: MAY 24 2018

Test Medium: Water:  Other:

Begin Test:

Date: 6/20/18 Time: 8:20 AM Pressure: 1150 psig

End Test:

Date: 6/20/18 Time: 5:30 PM Pressure: 1160 psig

Contractor:

Witness During The Test

Jose Delgado

Company Representative

Contractor Representative





**INSTRUMENTS, INC.**

9829 E Easter Ave • Centennial, Colorado 80112  
Telephone: (303) 794-8833 • Fax: (303) 730-1220

Date: 24 May 2018

**Cross Country Pipeline**

JMC Instruments, Inc. certifies that the listed one (1) instruments were calibrated on equipment which is traceable to the National Institute of Standards and Testing (N.I.S.T.). The standards have been compared to the standard of the State of Colorado. See certificate #17-043 issued by the State of Colorado. The equipment used for certification is serial number 1GA44774.

Calibration performed on work order number 4772

By: Bm Brian McLain

Description: **DEADWEIGHT REFINERY SUPPLY**

SN 2726

50 to 3250 PSIG

**PISTON ASSEMBLY PLUS 21 WEIGHTS**



# Cross Country Pipeline Supply CO. Inc

Sales and Service

2251 Rifle Street - Aurora, Colorado 80011

Phone 303.361.6797 Fax 303.361.6836

## NIST CALIBRATION DATA

Model Number	Serial Number	Customer	Range	Accuracy
W-Measuremen	220061	Kinder Morgan	5000# - 150F -150F	1/2%
<b>Work Performed:</b>		<b>Calibration:</b>	<b>Results:</b>	
		<b>Output/Reading</b>	<b>Pressure</b>	
Calibrate to Mfg. Spec.		0 PSI	0 PSI	
		1500 PSI	1500 PSI	
		3000 PSI	3000 PSI	
		5000 PSI	5000 PSI	
		Red 32 Deg	Red 32 Deg	
		Red 85 Deg	Red 85 Deg	
		Red 147 Deg	Red 147 Deg	
		Green 30 Deg	Green 30 Deg	
		Green 92 Deg	Green 92 Deg	
		Green 148 Deg	Green 148 Deg	
<b>PO Number</b>		<b>Sales Order Number</b>	<b>Date of Test</b>	
Recalibrated		Recerted	5/24/2018 5:00:18 PM	

Remarks: ALL CALIBRATIONS ARE GOOD FOR ONE YEAR FROM DATE OF TEST

**Standard Used:**

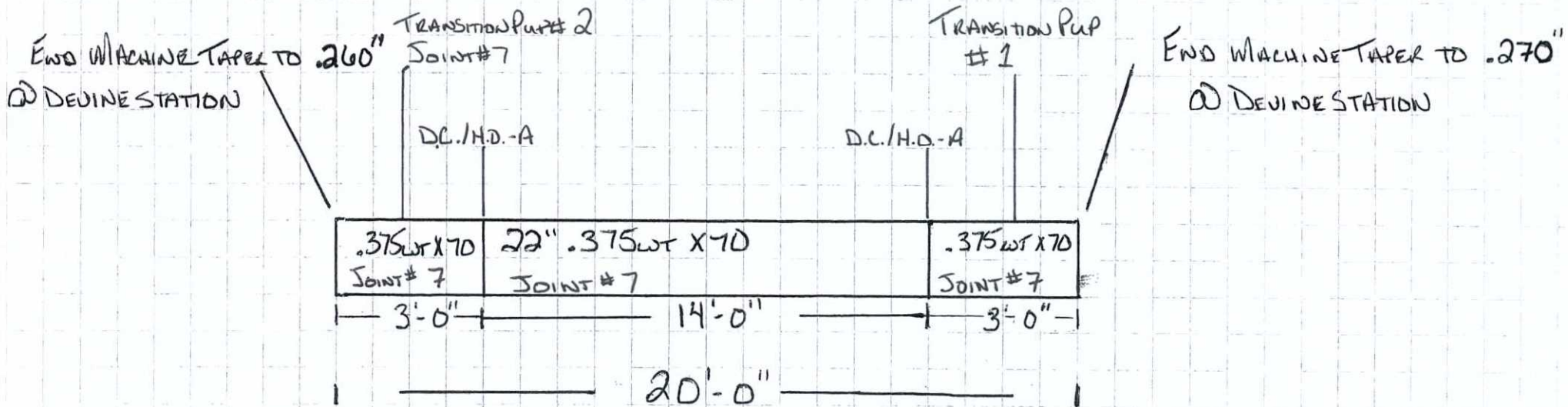
Manufacturer	Model	Instrument	Calibration Date	Certification #
Perma-Cal	101FTM15B21	Pressure Gauge	08/08/2017	17-043
Tech Instrumentation	TM99A	Thermometer	08/21/2017	59448

Don F.

Signature Don Frick 5-24-18

AFE 408710

# CIG SA 22" LINE PIPE REPLACEMENT



22" .375WT X 70

JOINT # 7: HT # 690100

TEST LOCATION: DEWINE STATION

TEST PRESSURE: 1570PSI

HYDROTEST DATE: 6/12/18

P.O.#: 6542549

DRAWING # 2

\* WELDS X-RAYED IN FIELD

# MATERIAL

## PURCHASE ORDERS & MATERIAL CERTIFICATIONS

Compliance Document: **C1700**

Chapter No: **3.3.1 AND 3.3.2**

Entity / Business Unit: **5021**

Location Name: **COLORADO INTERSTATE GAS CO LLC**

AFE Number: **408710**

AFE Description: **0180 CO Pipeline Fac - 5A MP16**

Project Manager: **PIGGOTT JR, JAMES DONALD**

Project Category: **Jurisdictional**

Project Type: **Pipeline Maintenance Capital**

In-Service Date: **7/13/2018**

Related Projects:

Scan File Name: **5021-408710-MTL-PO-MATERIAL-CERT.pdf**

File Name Breakdown:

Entity: **5021**

AFE: **408710**

Doc Type: **MTL**

Doc Sub Type: **PO-MATERIAL-CERT**

### CHIEF INSPECTOR CONTACT INFORMATION

Name: **Carter Cole**

Phone Number: **303.261.4363**

E-mail Address: **CARTER\_COLE@KINDERMORGAN.COM**

### SURVEY CONTACT INFORMATION

Name: **Galloway Survey-Perry Bassett**

Phone Number: **719-900-7220**

E-mail Address:

Applicable for this project:  YES  NO



AFE 408708/408709/408710/408711

# KINDER MORGAN

AFE 212439 - Line 5  
 AFE 212440 - Line 6

**PO #: 6542549-0-STAT**

PO DATE: 04/10/2018

TO 100188257  
 INDUSTRIAL PIPING SPECIALISTS  
 606 N 145TH AVE  
 TULSA OK 74158

VENDOR CONTACT:  
 PHONE: (918)270-6386 FAX:

Bill To:  
 COLORADO INTERSTATE GAS CO LLC  
 ATTN: ACCOUNTS PAYABLE  
 1001 LOUISIANA ST STE 1000  
 HOUSTON TX 77002

Ship To: PU7CO  
 PUEBLO, CO DEVINE SHOPS CIG  
 37351 E. HIGHWAY 96  
 PUEBLO CO 81006

TERMS	NET 45 DAYS FROM INVOICE DATE	SHIP VIA	PRICE	TOTAL
FRT TERMS	LOADED CONVEY	KMLOGISTIC		
SHIP TERMS	FREE CARRIER			
ITEM#	QUANTITY	U.O.M.	DESCRIPTION	
				Purchase Order Currency: US Dollars Invoice by mail Delivery Contact Contact Name: Jim Piggott Contact Number: 713-420-4539 ----- Supplier Information Company: IPS Name: Matt McDade Number: 713-983-2776 EMAIL: mmcdade@ipipes.com ----- DOCUMENTATION PO number, Reference and Activity must be on all documentation pertaining to this order Purchase Order No: 6542549-0-STAT Activity: Multiple Local REQ: 403580 ----- VENDOR DATA, INQUIRIES, AND REQUESTS SHALL BE EMAILED OR REQUESTED TO Requester: Jim Piggott Email: james_piggott@kindermorgan.com ----- MATERIAL DOCUMENTATION If applicable, Seller shall supply MTR's for the following: * All sizes and grades of steel pipe, fittings, flanges, tubing and other piping components used in gas service. * All valves, all manufactured equipment, and all other pressure containing components. All Seller documentation must show the following identification: KMs PO Number, KM Reference / Project Name, Product Description, and Engineering Equipment Tag Numbers. ----- MTRS AND OTHER CERTIFICATES OF COMPLIANCE SHALL BE SUBMITTED IN ALL 3 METHODS BELOW 1. Provided with the delivery of materials 2. Provided to Project Manager/Requester electronically via email (see contact information above) 3. Provided to the following email address: ----- ***** CONTINUED *****

TOTAL: \$22,184.40

FOR SERVICES: PLEASE REFER TO EXECUTED AGREEMENT REFERENCED ABOVE  
 FOR MATERIALS: PLEASE OBSERVE ATTACHED KINDER MORGAN TERMS AND CONDITIONS

PLEASE REPORT ANY PROCUREMENT RELATED ETHICS CONCERNS TO WWW.ETHICSPPOINT.COM OR (866) 293-2402



Bill To:  
 COLORADO INTERSTATE GAS CO LLC  
 ATTN: ACCOUNTS PAYABLE  
 1001 LOUISIANA ST STE 1000  
 HOUSTON TX 77002

**PO #: 6542549-0-STAT**

PO DATE: 04/10/2018

TO 100188257  
 INDUSTRIAL PIPING SPECIALISTS  
 606 N 145TH AVE  
 TULSA OK 74158

Ship To: PU7CO  
 PUEBLO, CO DEVINE SHOPS CIG  
 37351 E. HIGHWAY 96  
 PUEBLO CO 81006

VENDOR CONTACT:  
 PHONE: (918)270-6386 FAX:

TERMS		NET 45 DAYS FROM INVOICE DATE		SHIP VIA		PRICE	TOTAL	
FRT TERMS		LOADED CONVEY		KMLLOGISTIC				
SHIP TERMS		FREE CARRIER						
ITEM#	QUANTITY	U.O.M.	DESCRIPTION					
			ofelia_osborne@kindermorgan.com ----- <b>SHIPPING TERMS AND CONFIRMATION</b> Freight: No Freight Charge Ship Terms: Loaded Truck All transportation and logistics over 150lbs will be handled by Kinder Morgan Logistics (KML) on a loaded truck basis. Please make arrangements for transportation with Kinder Morgan Logistics @ 412-538-0046 or logistics@kindermorgan.com ----- <b>INVOICING</b> Invoices must be accompanied with proper documentation pertaining to the completion and/or delivery of goods, such as authorized inspection release or shipping documentation. ----- <b>THIS PURCHASE ORDER IS IN STRICT ACCORDANCE WITH</b> 1.) Kinder Morgan and IPS Agmnt 106670 Terms and Conditions 2.) Kinder Morgan Special Instructions to Sellers 3.) Per Email Quote submitted by Matt McDade dated 4/9/18, as it pertains to the material and delivery only. No other Terms and Conditions shall apply without prior written approval of the buyer. ----- <b>ACKNOWLEDGEMENT AND ACCEPTANCE</b> UPON RECEIPT, PLEASE SIGN AND RETURN THE PURCHASE ORDER <b>ACKNOWLEDGEMENT TO Ofelia VIA EMAIL</b> ofelia_osborne@kindermorgan.com OR VIA FAX 713-230-5598 WITHIN 72 HOURS OF PO ISSUE DATE. -----					
1	50.00 77.16	FT	22 in Steel Pipe 22 in Steel Pipe Requesting Location: PU7CO 50.0000 FT Req Comp: 0010 Deliver on April 19, 2018 Item Detail: 22 in Steel Pipe Procedure Information 22 in 0.375 in w.t., X50 to X70, FBE coated		408708	39.18, 37.98	92.98	4,649.00
2	50.00 76.57	FT	22 in Steel Pipe 22 in Steel Pipe Requesting Location: PU7CO 50.0000 FT Req Comp: 0010 ***** CONTINUED *****		408711	39.89, 36.68	92.98	4,649.00

TOTAL: \$22,184.40

FOR SERVICES: PLEASE REFER TO EXECUTED AGREEMENT REFERENCED ABOVE  
 FOR MATERIALS: PLEASE OBSERVE ATTACHED KINDER MORGAN TERMS AND CONDITIONS

PLEASE REPORT ANY PROCUREMENT RELATED ETHICS CONCERNS TO WWW.ETHICSPPOINT.COM OR (866) 293-2402





Bill To:  
 COLORADO INTERSTATE GAS CO LLC  
 ATTN: ACCOUNTS PAYABLE  
 1001 LOUISIANA ST STE 1000  
 HOUSTON TX 77002

**PO #: 6542549-0-STAT**

PO DATE: 04/10/2018

TO  100188257  
 INDUSTRIAL PIPING SPECIALISTS  
 606 N 145TH AVE  
 TULSA OK 74158

Ship To: PU7CO  
 PUEBLO, CO DEVINE SHOPS CIG  
 37351 E. HIGHWAY 96  
 PUEBLO CO 81006

VENDOR CONTACT:  
 PHONE: (918)270-6386 FAX:

TERMS		NET 45 DAYS FROM INVOICE DATE		SHIP VIA		PRICE	TOTAL
FRT TERMS		LOADED CONVEY		KMLOGISTIC			
SHIP TERMS		FREE CARRIER					
ITEM#	QUANTITY	U.O.M.	DESCRIPTION				
3	50.00 79.43	FT	Deliver on April 19, 2018 Item Detail: 22 in Steel Pipe Procedure Information 22 in 0.375 in w.t., X50 to X70, FBE coated Mfg: Ilva 22 in Steel Pipe 22 in Steel Pipe Requesting Location: PU7CO 50.0000 FT Req Comp: 0010 Deliver on April 19, 2018 Item Detail: 22 in Steel Pipe Procedure Information 22 in 0.375 in w.t., X50 to X70, FBE coated Mfg: Ilva		92.98	4,649.00	408709 39.36, 40.07
4	50.00 80.03	FT	22 in Steel Pipe 22 in Steel Pipe Requesting Location: PU7CO 50.0000 FT Req Comp: 0010 Deliver on April 19, 2018 Item Detail: 22 in Steel Pipe Procedure Information 22 in 0.375 in w.t., X50 to X70, FBE coated Mfg: Ilva		92.98	4,649.00	408710 39.95, 40.08
5	20.00 20.03	FT	22 in Steel Pipe 22 in Steel Pipe Requesting Location: PU7CO 20.0000 FT Req Comp: 0010 Deliver on April 19, 2018 Item Detail: 22 in Steel Pipe Procedure Information 22 in 0.500 in w.t., X50 to X70, bare Mfg: Ilva		89.71	1,794.20	212439 20.3
6	20.00 20.03	FT	22 in Steel Pipe 22 in Steel Pipe Requesting Location: PU7CO 20.0000 FT Req Comp: 0010 Deliver on April 19, 2018 Item Detail: 22 in Steel Pipe Procedure Information 22 in 0.500 in w.t., X50 to X70, bare Mfg: Ilva		89.71	1,794.20	212440 20.3
SUBTOTAL:							22,184.40

TOTAL: \$22,184.40

FOR SERVICES: PLEASE REFER TO EXECUTED AGREEMENT REFERENCED ABOVE  
 FOR MATERIALS: PLEASE OBSERVE ATTACHED KINDER MORGAN TERMS AND CONDITIONS


PLEASE REPORT ANY PROCUREMENT RELATED ETHICS CONCERNS TO WWW.ETHICSPPOINT.COM OR (866) 293-2402

BUYER NAME: OFELIA OSBORNE  
 BUYER PHONE AND FAX: (713)420-4872  
 BUYER EMAIL: ofelia\_osborne@kindermorgan.com


*Ofelia M. Osborne*

ACKNOWLEDGEMENT OF THIS ORDER IS REQUIRED BY EMAIL OR FAX  
 ORDER CONFIRMED BY VENDORS SIGNATURE \_\_\_\_\_




A01 Manufacturer's address: ILVA S.p.A. VIA ANTONINO DI LAZZIONE STRADORDIARIA		A02 Type of document: <b>INSPECTION CERTIFICATE</b> EN 10204 TYPE 3.1	A03 Document No. 2016/0000839/01	A04 Date of Issue 30/03/2016	A05 I ILVA
		A05 Originator of the document: <b>QUALITY CONTROL ILVA</b>	A07 Customer's Order No. 013326-A / MMEHP 213	A08 ILVA Order Ref. 16912397 0100	A09 Customer Reference 1007226/03/2016
LEGAL SEAT: Via Cassina 2/3, 20151 Milano ITALY TARANTO WORKS: Via Appia S.S. 9, km. 646 - 74121 TARANTO ITALY	A06 Customer:		A06.I Consignor:		

A06.2 Certificate Address:	A10 Supplementary Commercial Information: <b>MATERIAL DESCRIPTION: CARBON STEEL PIPE, WELDED</b>
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B01 Product: SAWN STEEL PIPES COLD EXPANDED B02 Steel Quality: ART 56 45TH EDITION-2012 X70M.PSL2/L485M PSL2 B03 Supplementary Requirements: 1 THERMO-MECHANICAL ROLLING B04 Delivery Condition:	B05 Marking:  5L-D187.1	NOM. DIMENSIONS Units: IN B07 Thickness: 0.3750 B10 Diameter: 22.0000 B11 Length: 4.80.0000 B12 Total Mass: 34.65 LBS B16 Rec'd no.: 591494
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Pipe manufacturing: ILVA Taranto pipe mill # 1 | D09 Hydrotest | PSE: 2150 sec: 10.  
 DELIVERED MATERIAL


B07 Pipe no.	B18 Heat	B13 Mass	B15 Length	Starting Material	B04 Reference, test, sample			PP1	PP2	PD	PS	PW
					PdC	PECL	PLC2					
0000125	591494	3638	40,70	876696101	000128	000133	000154				*880071	*880070
0000128	591494	3516	39,93	876697201	000128	000133	000154				*880071	*880076
0000133	591494	3472	39,98	876698201	000128	000133	000154				*880071	*880070
0000134	591494	3627	40,12	876809101	000128	000133	000154				*880071	*880075
0000135	591494	3593	39,99	877177201	000128	000133	000154				*880071	*880069
0000136	591494	3671	40,68	876703101	000128	000133	000154				*880071	000152
0000139	591494	3505	40,14	876698301	000128	000133	000154				*880128	*880072
0000140	591494	3560	39,93	876703201	000128	000133	000154				*880128	*880070
0000148	591494	3616	40,68	876702201	000128	000133	000154				*880071	*880076
0000150	591494	3530	39,85	876696301	000128	000133	000154				*880071	*880076
0000154	591494	3263	36,58	876810301	000128	000133	000154				*880071	*880070
0000159	591494	3384	37,86	876804201	000128	000133	000154				*880128	*880070
0000169	591494	3406	37,91	877173302	000128	000133	000154				*880128	*880070
0000181	591494	3516	39,32	877176201	000128	000133	000154				*880128	*880070
0000184	591494	3671	37,25	877176301	000128	000133	000154				*880128	*880070
0000192	591494	3593	40,08	876702101	000128	000133	000154				*880071	*880070
0000196	591494	3450	38,19	876808101	000128	000133	000154				*880128	000152
0000200	591494	3582	40,35	876595301	000128	000133	000154				*880128	*880075
0000201	591494	3582	40,34	876701201	000128	000133	000154				*880128	*880070
0000202	591494	3296	36,53	876809301	000128	000133	000154				*880071	*880075
0000205	591494	3627	40,65	877173201	000128	000133	000154				*880128	000152
0000218	591494	3527	39,19	876811101	000128	000133	000154				*880128	*880070
0000219	591494	3605	40,65	876817101	000128	000133	000154				*880128	*880070
0000226	591494	3616	40,45	876814201	000128	000133	000154				*880128	*880070
0000227	591494	3605	40,55	876695201	000128	000133	000154				*880128	*880070
0000231	591494	3494	39,17	876813301	000128	000133	000154				*880128	*880076
0000232	591494	3693	40,68	877177101	000128	000133	000154				*880128	*880070
0000235	591494	3671	40,63	877177301	000128	000133	000154				*880128	000152
0000237	591494	3627	40,65	876813201	000128	000133	000154				*880128	*880070
0000238	591494	3395	37,57	876812301	000128	000133	000154				*880128	*880075
0000240	591494	3538	39,91	876696201	000128	000133	000154				*880128	*880070
0000242	591494	3660	40,65	876815101	000128	000133	000154				*880128	*880075
0000244	591494	3638	40,65	876810201	000128	000133	000154				*880128	*880070
0000245	591494	3671	40,55	877176101	000128	000133	000154				*880128	000152
0000247	591494	3516	39,22	876809201	000128	000133	000154				*880128	*880075
0000249	591494	3483	38,78	876820301	000128	000133	000154				*880128	*880070
0000251	591494	3351	37,34	876704101	000128	000133	000154				*880128	*880069
0000252	591494	3516	39,24	876819101	000128	000133	000154				*880128	*880070
0000254	591494	3616	40,68	876818101	000128	000133	000154				*880128	*880069
0000255	591494	3638	40,67	876695101	000128	000133	000154				*880128	*880075
0000256	591494	3472	38,57	876815301	000128	000133	000154				*880128	000152
0000258	591494	3582	40,14	876812201	000128	000133	000154				*880128	*880075
0000251	591494	3616	40,62	876819201	000128	000133	000154				*880128	000152
0000253	591494	3671	40,62	876819201	000128	000133	000154				*880128	000152
0000254	591494	3439	38,09	876700101	000128	000133	000154				*880128	000152

C04 Frequency code: PdC = Heat PECL = Lot of heat PLC2 = Lot of heat PP1 = Prod. lot 1 PP2 = Prod. lot 2 PD = Per Day PS = Per Shift PW = Per Week	C10 Shape of the test piece: E = Flange C = Round bar * = Mill No. # = Reducc R = Retest	C11 Sample location: N = North end S = South end	Z01 Inspection Body Stamp  Z02 QC Validity Date: 
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A01 Manufacturer's works: ILVA S.p.A. INDIRIZZO STRADAZIONE STRAORDINARIA		A02 Type of document <b>INSPECTION CERTIFICATE</b> EN 10204 TYPE 3.1.1	A03 Document Nr. 2016/00000839/03	A04 Date of Issue 30/03/2016	A04 ILVA
			A07 Customer's Order nr 013326-A /MTHDP	Item 213	Date 06/10/2015
LEGAL SEAT: Viale Certosa, 229, 40131 Milano ITALY TARANTO Work: Via Appia 857, km 646-741 TARANTO ITALY	A05 Originator of the document <b>QUALITY CONTROL ILVA</b>	A08 ILVA Order Item 16912397 0100	A09 Customer Reference		
A06 Customer		A08 Consignor THORCO COUGAR			

A06B Certificate Address	A10 Supplementary Commercial Information <b>MATERIAL DESCRIPTION: CARBON STEEL PIPE, WELDED.</b>
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B01 Product: B02 Steel Quality: B03 Supplementary Requirements: B04 Delivery Condition:	SAWN STEEL PIPES COLD EXPANDED API 5L 45TH EDITION, 2012 X70M PSL2/FA85M PSL2 THERMOMECHANICAL ROLLING	B05 Marking  5L-0187.1	NON-DIMENSIONS Units: IN B08 Thickness: 0.3750 B09 Diameter: 22.0000 B10 Length: 480.0000 B11 Torsion: 3465 LBS B16 Weight: 591.434
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Restrictions	Heat		Product	
	Min	Max	Min	Max
V1 = Nb + Ti + V		0,150		0,150
V2 = C + Mn / 5		0,460		0,460
PCM		0,250		0,250
TIW		0,430		0,430


TENSILE TEST															
C00 Sample ID	C01 Loc.	C04 Code	C02 Dir	C03 Temp °C	B05 Heat Treatment	C10 Shape	C24 W/mm	C23 + E0 [xSOR(SO)]	C09 Unit	C11 YS RT0.5	C12 UTS	C13 EL. %	C14 Y/T	C15 Z %	C16 RmxA
000154	S TW	PLC2	T	+ 20		P	38,10	50,8mm	PSI	51083	104427	24,00	0,87		
000254	S TW	PLC2	T	+ 20		P	38,10								

IMPACT TEST																			
C00 Sample ID	C01 Loc.	C45	C04 Code	C02 Dir	C40 T. Type	B05 Heat Treat.	C41 Width	C09 Unit	C03 T °C	C42 K1	Energy Val KJ	C43 K2	C44 K3	Shear % D1	C46 D2	C47 D3	Ave. En. J	C48 S.A	
000128	S TW	surface	PAC	T	KV 332		7,5 FT-LB		0	95	69	92	92	100	100	100	100	22	1
000128	S TW	surface	PAC	T	KV 332		7,5 FT-LB		0	61	66	63	63					15	
000128	S TW	surface	PAC	T	KV 332		7,5 FT-LB		0	85	84	82	84					15	

HARDNESS TEST																
C00 Sample ID	C01 Loc.	C04 Code	C30 Method	C33 Load (Kg)	C31 min	WM max	ave	HAZ min	max	ave	EM min	max	ave			
000128	S TW	PAC	VICKERS	10	227	228	227	207	213	209	197	201	199			

BEND TEST									
C00 Sample ID	C01 Loc.	C04 Code	C02 Dir	C53 Kind of Test	C51 Angle	C52 Max	C50 Result		
000133	S TW	PLC1	T	Face-Root API 5L	180°	111,8	OK		
000265	S TW	PLC1	T	Face-Root API 5L	180°	111,8	OK		

D01 Visual marking and dimensional inspection: OK  
 D07 Method of Non Destructive weld inspection: Ultrasonic - notch NS - Hole 1,6  
 E01 We hereby certify that the material complies with the terms of the order.  
 Z05 MERCURY COMPOUNDS OR MERCURY HEARING INSTRUMENTS AND/OR EQUIPMENT HAVE BEEN USED IN ANY MANNER WHICH MIGHT CAUSE CONTAMINATION IN MANUFACTURE ASSEMBLY OR TEST OF MATERIAL.  
 NO WELD REPAIR WAS PERFORMED ON BASE MATERIAL.


C04 Reference Code PAC = Heat PLC1 = Lot of heat PLC2 = Lot of heat PZ = Prod lot 1 PZ2 = Prod lot 2 PD = Per Day PS = Per Shift PW = Per Week	D10 Shape of the test piece N = Notched S = Smooth R = Round bar	C01 Sample location N = North end S = South end	Z03 Inspector's Body Stamp  Z04 QC Validated
Z08 Management System Certification "Q&HSE Management System certified by ICG according to ISO 9001, ISO/TS 16949, ISO 14001 and BS OHSAS 18001" Quality Management System certified by DNV			



A01 Manufacturer's Mark ILVA S.p.A. IN AMMINISTRAZIONE STRAORDINARIA	A02 Type of document INSPECTION CERTIFICATE EN 10204 TYPE 3.1	A03 Document No. 2016/00000840/01	A04 Date of issue 30/03/2016	A05 ILVA
		A07 Customer's Order No. 013326-A /MMTHP0	A08 Item No. 213	A09 Date 06/10/2015
LEGAL SEAT: Viale Certosa 239, 70141 Mottola ITALY TARANTO Works Via Arigna 557, 70142 Taranto, ITALY	A05 Originator of the document QUALITY CONTROL ILVA	A08 Item Order Ref. 16512497-0100	A09 Customer Reference	
		A12 Vessel Name TRIGCO COUGAR	A13 Code 1007226/03/2016	A14 Date


A061 Customer	A062 Consensus
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A063 Certificate Address	A10 Supplementary Commercial Information MATERIAL DESCRIPTION: CARBON STEEL PIPE, WELDED
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A01 Product SAWL STEEL PIPES, COLD EXPANDED	A02 Steel Quality API 5L 45TH EDITION: 2007 X70M PSL2/L485M PSL2	A03 Supplementary Requirements THERMO MECHANICAL ROLLING	A04 Delivery Condition	A05 Marking  6L-0187.1	A06 DIMENSIONS Unit: IN. A07 Thickness: 0.3750 A08 Diameter: 22.0000 A09 Length: 480.0000 A10 Theoretical Weight: 34.55 LBS A11 Heat No.: 591497
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Pipe manufacturing: ILVA Taranto pipe mill # 1 ... DO9 Hydrotest ... PSI: 2160 sec: 10.

DELIVERED MATERIAL													
B07 Pipe no	B08 Heat	B13 Mass	B15 Length	Starting Material	C04 Reference	PG	PG1	PG2	PP1	PP2	PD	PS	PW
0000123	591497	3671	40,70	876644101	000130	000124	000127					*880071	*880070
0000124	591497	3671	40,09	876632101	000130	000124	000127					*880071	*880070
0000126	591497	3636	40,17	876628101	000130	000124	000127					*880071	*880069
0000127	591497	3560	39,57	876654301	000130	000124	000127					*880071	*880070
0000129	591497	3616	40,67	876655301	000130	000124	000127					*880071	*880075
0000130	591497	3627	39,94	876617101	000130	000124	000127					*880071	*880072
0000132	591497	3593	39,98	876613301	000130	000124	000127					*880071	*880070
0000137	591497	3660	40,66	876651101	000130	000124	000127					*880071	*880070
0000138	591497	3660	40,63	876613101	000130	000124	000127					*880071	*880070
0000141	591497	3649	40,67	876610101	000130	000124	000127					*880071	*880076
0000144	591497	3494	38,99	876615201	000130	000124	000127					*880071	*880075
0000145	591497	3638	40,69	876612301	000130	000124	000127					*880071	*880070
0000146	591497	3627	40,59	876619201	000130	000124	000127					*880071	*880070
0000147	591497	3627	40,75	876611201	000130	000124	000127					*880071	*880072
0000149	591497	3527	39,91	876618201	000130	000124	000127					*880071	*880076
0000151	591497	3725	40,63	876625101	000130	000124	000127					*880071	*880070
0000153	591497	3616	40,39	876613201	000130	000124	000127					*880071	*880076
0000155	591497	3638	40,29	876628101	000130	000124	000127					*880071	*880070
0000158	591497	3582	39,80	876633201	000130	000124	000127					*880071	*880076
0000160	591497	3660	39,98	876614201	000130	000124	000127					*880071	*880072
0000161	591497	3472	38,47	876612101	000130	000124	000127					*880071	*880069
0000163	591497	3571	39,60	876614101	000130	000124	000127					*880071	*880076
0000167	591497	3536	39,58	876613101	000130	000124	000127					*880071	*880076
0000168	591497	3638	40,79	876611301	000130	000124	000127					*880071	*880070
0000170	591497	3616	40,85	876652201	000130	000124	000127					*880071	*880070
0000173	591497	3582	40,39	876655201	000130	000124	000127					*880071	*880072
0000179	591497	3627	39,84	876633301	000130	000124	000127					*880071	*880070
0000182	591497	3516	39,48	876628201	000130	000124	000127					*880071	*880072
0000187	591497	3616	40,58	876618301	000130	000124	000127					*880071	*880070
0000188	591497	3500	39,73	876614301	000130	000124	000127					*880071	*880070
0000189	591497	3605	40,45	876609201	000130	000124	000127					*880071	*880052
0000193	591497	3605	40,03	876653101	000130	000124	000127					*880071	*880070
0000198	591497	3406	38,21	876616201	000130	000124	000127					*880071	*880069
0000199	591497	3627	40,65	876610201	000130	000124	000127					*880071	*880052
0000209	591497	3252	37,12	876622301	000130	000124	000127					*880071	*880076
0000212	591497	3582	39,62	876629301	000130	000124	000127					*880071	*880075
0000217	591497	3527	39,35	876625301	000130	000124	000127					*880071	*880052
0000220	591497	3682	40,72	876609101	000130	000124	000127					*880071	*880069
0000239	591497	3593	40,65	876623201	000130	000124	000127					*880071	*880070
0000246	591497	3627	40,70	876612301	000130	000124	000127					*880071	*880076
0000248	591497	3560	39,67	876609301	000130	000124	000127					*880071	*880070
0000250	591497	3307	37,09	876623101	000130	000124	000127					*880071	*880070
0000253	591497	3284	37,83	876621101	000130	000124	000127					*880071	*880070
0000257	591497	3593	40,70	876622101	000130	000124	000127					*880071	*880070
0000259	591497	3549	39,73	876621301	000130	000124	000127					*880071	*880076

C04 Frequency code PHC = Heat PL1 = Lot of Heat PL2 = Lot of Heat PP1 = Prod. lot 1 PP2 = Prod. lot 2 PD = Per Day PS = Per Shift PW = Per Week	C10 Slope of the test piece P = Pismatic R = Round bar * = Mill No. R = Reject R = Retest	C11 Sample location N = North end S = South end SKT 782036	Z03 Inspection Body Stamp  Z02 QC Validation 
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Z05 Management System Certification  
 "OHS&E Management System certified by IGC according to ISO 9001, ISO 14001, ISO 18001 and BS OHSAS 18001"  
 "Company with Quality Management System certified by DNV"



A01 Manufacturer's works: ILVA S.p.A. IN AGENZIA STRAORDINARIA

A02 Type of Document: INSPECTION CERTIFICATE EN 10204 TYPE 3.1

A03 Originator of the document: QUALITY CONTROL ILVA

A03 Document No.: 2016/00000840/03

A04 Date of Issue: 30/03/2016

A07 Customer's Order No.: 013226-A / MATHEP

A08 ILVA Order Item: 16912397 0100

A09 Customer Reference: 2131 06/10/2015

A12 Vendor Name: THORCO COUGAR

A13 Code: 1007206/03/2016

A14 Date: 06/10/2015

A06.1 Customer: \_\_\_\_\_

A06.2 Consignor: \_\_\_\_\_

A06.3 Certificate Address: \_\_\_\_\_


A10 Supplementary Commercial Information: MATERIAL DESCRIPTION: CARBON STEEL PIPE, WELDED

B01 Product: SAWN STEEL RIBS COLD EXPANDED

B02 Steel Quality: API 5L 45TH EDITION-2012

B03 Supplementary Requirements: X70M PSL2/M485M PSL2

B04 Delivery Condition: THERMOMECHANICAL ROLLING

B06 Marking: 

NO. DIMENSIONS IN:

B05 Thickness: 0,3750

B10 Diameter: 22,0000

B11 Length: 480,0000

B12 Theoretical Mass: 34,65 LBS

B16 Heat no.: 591497

C00 Sample ID	C01 Test Location	C04 Code	C03 Ti %	C04 N ppm	C05 B ppm	C06 Ca ppm	C07 V	C08 V2	C09 V3	C10 V4	C11 V5	C12 V6	C13 V7	C14 V8	C15 V9	C16 V10
000127	S Product	PLC2	0,019	0	0	0,064	0,395	0,061	0,386							
000130	S Product	PdC	0,018	0	0	0,060	0,386									

Restrictions	Heat Min	Heat Max	Product Min	Product Max
V1 = Nb + Bi + V		0,150		0,150
V2 = C + Mn / S		0,460		0,460
JCM		0,250		0,250
TIW		0,430		0,430

TENSILE TEST

C00 Sample ID	C01 Loc.	C04 Code	C02 Dir	C03 Temp °C	B05 Heat Treatment	C18 Shape	C24 W/mm	C23 # 50	C09 Unit	C11 YS	C12 UTS	C13 EL. %	C14 Y/T	C15 Z %	C16 RmxA
000127	S T180	PLC2	T	+ 20		P	38,10	50, 80mm	PSL	87747	100656	28,00	0,87		
000127	S TW	PLC2	T	+ 20		P	38,10		PSI		10225L				

IMPACT TEST

C00 Sample ID	C01 Loc.	C45	C04 Code	C02 Dir	C40 T. Type	B05 Heat Treat.	C41 Width	C09 Unit	C03 Tr °C	C42 Energy Val	C43 Ave	C44 Shear %	C45 D1	C46 D2	C47 D3	C48 Ave	C49 En.	C50 S.A
000130	S T90	surface	PdC	T	KV 332		7,5	FT-LB	0	106	114	111	110	100	100	100	22	15
000130	S WM	surface	PdC	T	KV 332		7,5	FT-LB	0	79	71	74	75					15
000130	S HAZ	surface	PdC	T	KV 332		7,5	FT-LB	0	98	100	99						15

HARDNESS TEST

C00 Sample ID	C01 Loc.	C04 Code	C30 Method	C33 Load (Kg)	C31 min	WM max	ave	HAZ min	max	ave	PM min	max	ave
000130	S TW	PdC	VECKERS	10	224	225	224	206	212	209	197	202	199

BEND TEST

C00 Sample ID	C01 Loc.	C04 Code	C02 Dir	C51 Kind of Test	C51 Angle	C52 Male	C50 Result
000124	S TW	PLC1	T	Face-Root API 5L	180°	111,8	OK
000262	S TW	PLC1	T	Face-Root API 5L	180°	111,8	OK

D01 Visual marking and dimensional inspection: OK

D07 Method of Non Destructive weld inspection: Ultrasonic - notch N5 - hole 1,6.

E01 We hereby certify that the material complies with the terms of the order.

Z05 MERCURY COMPOUNDS OR MERCURY BEARING INSTRUMENTS AND/OR EQUIPMENT HAVE BEEN USED IN ANY MANNER WHICH MIGHT CAUSE CONTAMINATION IN MANUFACTURE ASSEMBLY OR TEST OF MATERIAL.

NO WELD REPAIR WAS PERFORMED ON BASE MATERIAL.

F01 Frequency code: PdC = Heat, PLC1 = Lot 1 of heat, PLC2 = Lot 2 of heat, PPA = Prod lot 1, PPL = Prod lot 2, PD = Per Day, PS = Per Shift, PW = Per Week

C11 Shape of the test: P = Parallel, C = Round bar

C01 Sample location: N = North end, S = South end

\* = Mill No., R = Retest

Skf 782036

Z05 Management System Certification: Q&HSE Management System certified by IGO according to ISO 9001, ISO/TS 16949, ISO 14001 and BS OHSAS 18001

Compliant with Quality Management System certified by DNV

E03 Inspection Body Stamp: \_\_\_\_\_

Z02 QC Mill defect: \_\_\_\_\_



**A01 Manufacturer's Mark:**  
ILVA S.p.A.  
IN AMMINISTRAZIONE STRAORDINARIA

**A02 Type of document:**  
INSPECTION CERTIFICATE  
EN 10204 TYPE 3.1

**A03 Document Nr.:** 2016/0000841/01  
**A04 Date of Issue:** 30/03/2016  
**A05 Customer's Order nr.:** 013326-A /MMTHP  
**A06 Date:** 213 | 06/10/2015

**A07 Customer's Reference:** A08 ILVA Order nr.  
**A09 Customer Reference:** J.6912397.0100  
**A10 Vendor Name:** THORCO COUGAR  
**A11 Code:** A14 Date: 1007206/03/2016

**A05 - Computer of the document:**  
QUALITY CONTROL ILVA


**A08: Customer:**  
**A09: Operator:**

**A06: Certificate Address:**

**A10 Supplementary Commercial Information:**  
MATERIAL DESCRIPTION: CARBON STEEL PIPE; WELDED.

**B01 Product:** SAWL STEEL PIPES, COLD EXPANDED  
**B02 Steel Quality:** API 5L 48TH EDITION:2012  
X70M PSL2/T485M PSL2

**B03 Supplementary Requirements:**  
**B04 Delivery Condition:** THERMO MECHANICAL ROLLING

**Bo5 Marking:**   
5L-487.1

**NOM. DIMENSIONS:**  
Unit: IN.  
B08 Thickness: 0.3750  
B10 Diameter: 22.0000  
B11 Length: 4.0000  
B12 Theoretical Mass: 34.65 LBS.  
B16 Weight: 690099

Pipe manufacturing: ILVA Taranto pipe mill #. 1 | D09 Hydrotest | PSI: 2160 | sec: 10

DETAILED MATERIAL									
B07 Pipe No	B16 Heat	B13 Mass	B15 Length	Starting Material	CO4. Reference	test	sample	PS	FW
0000005	690099	3516	39.14	877603301	000005	000048	000045	*879959	*879961
0000008	690099	3549	39.58	877592301	000005	000048	000045	*879970	*879964
0000009	690099	3638	40.65	877592201	000005	000048	000045	*879970	*879964
0000013	690099	3638	40.67	877596201	000005	000048	000045	*879970	*879964
0000014	690099	3638	40.68	877549301	000005	000048	000045	*879970	*879961
0000017	690099	3627	40.57	877594201	000005	000048	000045	*879970	*879963
0000021	690099	3582	39.86	877601201	000005	000048	000045	*879970	*879960
0000022	690099	3693	40.60	877592101	000005	000048	000045	*879970	*879977
0000025	690099	3627	40.09	877600201	000005	000048	000045	*879970	*879977
0000028	690099	3527	39.37	877602301	000005	000048	000045	*879970	*879974
0000031	690099	3618	40.63	877547101	000005	000048	000045	*879970	*879964
0000032	690099	3616	39.70	877596101	000005	000048	000045	*879970	*879963
0000035	690099	3616	40.22	877596301	000005	000048	000045	*879970	*879961
0000036	690099	3593	40.04	877593301	000005	000048	000045	*879970	*879961
0000038	690099	3593	40.26	877544201	000005	000048	000045	*879970	*879960
0000041	690099	3671	40.67	877594301	000005	000048	000045	*879970	*879964
0000042	690099	3649	40.12	877594101	000005	000048	000045	*879970	*879961
0000043	690099	3560	40.49	877547301	000005	000048	000045	*879959	*879961
0000045	690099	3694	38.80	877604301	000005	000048	000045	*879970	*879977
0000046	690099	3538	40.45	877547201	000005	000048	000045	*879970	*879960
0000047	690099	3671	40.72	877595301	000005	000048	000045	*879970	*879964
0000048	690099	3538	39.03	877593101	000005	000048	000045	*879970	*879961
0000049	690099	3616	40.45	877549201	000005	000048	000045	*879970	*879964
0000050	690099	3627	40.68	877593201	000005	000048	000045	*879970	*879964
0000056	690099	3651	38.58	877549101	000005	000048	000045	*880026	*879961
0000057	690099	3627	40.67	878202101	000005	000048	000045	*880026	*879963
0000058	690099	3682	40.52	877542101	000005	000048	000045	*880026	*879977
0000061	690099	3616	40.63	877595201	000005	000048	000045	*880026	*879964
0000063	690099	3616	40.73	877605101	000005	000048	000045	*879970	*879961
0000066	690099	3450	38.32	877595101	000005	000048	000045	*880026	*879964
0000069	690099	3582	40.09	878201101	000005	000048	000045	*880026	*879964
0000076	690099	3516	40.19	878203201	000005	000048	000045	*880026	*879960
0000080	690099	3690	40.60	878202201	000005	000048	000045	*880026	*879961
0000081	690099	3636	39.90	878201201	000005	000048	000045	*880026	*879964
0000083	690099	3274	37.32	878203301	000005	000048	000045	*880026	*879960
0000086	690099	3527	39.52	877543201	000005	000048	000045	*880026	*879964
0000092	690099	3263	37.04	878201301	000005	000048	000045	*880026	*879964
0000093	690099	3406	38.06	877543301	000005	000048	000045	*880026	*879961
0000095	690099	3593	39.76	877801101	000005	000048	000045	*880026	*879963
0000096	690099	3549	39.30	877540101	000005	000048	000045	*880026	*879961
0000098	690099	3527	38.80	877541101	000005	000048	000045	*880071	*880070
0000101	690099	3638	40.21	877537201	000005	000048	000045	*880071	*880075
0000106	690099	3560	38.73	877539201	000005	000048	000045	*880071	*880070
0000109	690099	3616	40.52	877535201	000005	000048	000045	*880071	*880076
0000113	690099	3571	39.60	877535101	000005	000048	000045	*880071	*880076

**CO1 Frequency code:**  
PdC = Heat  
DL(1) = Lot 1 of Heat  
DL(2) = Lot 2 of Heat  
FP1 = Prod. lot 1  
FP2 = Prod. lot 2  
PD = Per Day  
PS = Per Shift  
PW = Per Week

**CO2 Shape of the test piece:**  
P = Flat  
C = Round bar

**CO3 Sample location:**  
N = North end  
S = South end

**CO4 Identification:**  
\* = Mill No.  
F = Reject  
R = Re-test

**CO5 Inspection Body Stamp:**  
Skt 782036

**CO6 Management System Certification:**  
Q&HSE Management System certified by ISO 9001:2015, ISO 14001 and BS OHSAS 18001



A01 Manufacturer's work order  
 ILVA S.p.A.  
 IN AMMINISTRAZIONE STRAORDINARIA

A02 Type of document  
**INSPECTION CERTIFICATE**  
 EN 10204 TYPE 3.1

A03 Document No.  
 2016/00000841/03

A07 Customer's Order no.  
 013326-A / MMTPO-213

A08 ILVA Order item  
 16912397-0100

A09 Customer Reference  
 06/10/2015

LEGAL SEAT: Viale Cerchia 139, 20151 Milano ITALY  
 TARANTO Works  
 Via Appia 557, km 646 - 74123 TARANTO ITALY

A05 Originator of the document.  
**QUALITY CONTROL ILVA**

A12 Vessel Name  
 THORCO COUGAR

A13 Code  
 1007226/03/2016

A04 Client's

A062 Container

A063 Certificate Address

A10 Supplementary Commercial Information  
**MATERIAL DESCRIPTION: CARBON STEEL PIPE, WELDED**

B01 Product  
 B02 Steel Quality  
 B03 Supplementary Requirements  
 B04 Delivery Condition

B06 Marking

NOM. DIMENSIONS  
 Unit IN  
 B06 Thickness 0,3750  
 B06 Diameter 22,0000  
 B06 Length 480,0000  
 B06 Theoretical Mass 34,65 LBS  
 B06 Heat 690099

SAWL STEEL ELDES COILD EXPANDED  
 XET 5th EDITION: 2012  
 X70M PSL2/5485M PSL2  
 THERMOMECHANICAL ROLLING

51-0187.1

**CHEMICAL COMPOSITION AND STEEL MAKING PROCESS**

C70 Steel making process  
 Steel making shop: ILVA Taranto  
 Rolling Mill: Plate Mill

C94 Casting method: Continuous Casting

C00 Sample ID	C01 Test Location	C04 C71 Code	C72 C %	C73 Si %	C74 Mn %	C75 P %	C76 S %	C77 Al %	C78 Nb %	C79 V %	C80 Mo %	C81 Ni %	C82 Cr %	C83 Cu %
000005	S Product	PdC	0,075	0,231	1,685	0,019	0,0044	0,028	0,038	0,004	0,017	0,005	0,172	0,012
000045	S Product	PLC2	0,074	0,231	1,653	0,022	0,0046	0,025	0,035	0,002	0,016	0,006	0,171	0,011

C90 Sample ID	C91 Test Location	C94 Code	C93 Ti %	C94 N ppm	C95 B ppm	C96 Ca ppm	C97	C98	C99 V1	C90 V2	C91 V3	C92 V4	C93 PCM	C94 IIR
000005	S Product	PdC	0,018	1	1				0,053	0,417			0,180	0,401
000045	S Product	PLC2	0,018	1	1				0,056	0,406			0,177	0,396

Restrictions	Heat Min	Heat Max	Product Min	Product Max
V1 = Nb + Ti + V		0,150		0,150
V2 = C + Mn / 5		0,460		0,460
PCM		0,250		0,250
IIR		0,430		0,430

**TENSILE TEST**

C00 Sample ID	C01 Loc	C04 Code	C02 Dir	C03 Temp °C	B05 Heat Treatment	C10 Shape	C21 R0.5	C09 Unit	C11 R0.5	C12 UTS	C13 El. %	C14 Y/T	C15 Z %	C16 RmxA
000045	S TW	PLC2	T	+20		P	38,10	PSI	74839	91518	37,80	0,82		
000045	S TW	PLC2	T	+20		P	38,10	PSI		93549				

**IMPACT TEST**

C00 Sample ID	C01 Loc	C04 Code	C02 Dir	C40 T. Type	B05 Heat Treat	C41 Width	C09 Unit	C03 T °C	C42 Energy	V1 K1	V2 K2	V3 K3	C43 Ave	C44 Shear	C45 D1	C46 D2	C47 D3	C48 Ave	C49 En.	C50 S.A
000005	S TW	PLC2	T	KV 332		7,5 FT-LB	0	105	172	100	106	100	100	100	100	100	100	100	15	1
000005	S TW	PLC2	T	KV 332		7,5 FT-LB	0	71	61	66	66								15	
000005	S HAZ	PLC2	T	KV 332		7,5 FT-LB	0	82	81	91	85								15	

**HARDNESS TEST**

C00 Sample ID	C01 Loc	C04 Code	C03 Method	C33 Load (Kg)	C31 min	WM max	ave	HAZ min	max	ave	BM min	max	ave
000005	S TW	PLC2	VICKERS	10	227	227	227	209	213	211	197	202	199

**BEND TEST**

C00 Sample ID	C01 Loc	C04 Code	C02 Dir	C53 Kind of Test	C51 Angle	C52 Ma In	C50 Result
000048	S TW	PLC1	T	Face-Root APT 5L	180°	111,8	OK
000045	S TW	PLC1	T	Face-Root APT 5L	180°	111,8	OK

C04 Frequency code  
 PdC = Heat  
 PLC1 = Lot 1 of heat  
 PLC2 = Lot 2 of heat  
 PP1 = Prod lot 1  
 PP2 = Prod lot 2  
 DJ = Day  
 JW = Per Day  
 PW = Per Week

C10 Shape of the test piece  
 P = Parallel  
 C = Round bar


C01 Sample location  
 N = North end  
 S = South end

\* = Mill No.  
 R = Reject  
 R = Retest

205 Inspection Body Stamp


202 QC Validity

ISO 9001, ISO/TS 16949, ISO 14001 and BS OHSAS 18001

A01 Manufacturer's workpiece ILVA S.p.A. IN AMMINISTRAZIONE STRAORDINARIA		A02 Type of document INSPECTION CERTIFICATE EN 10204 TYPE 3.1	A03 Document No 2016/00000841/04	A04 Date of issue 30/03/2016	A04 F ILVA
		A05 Originator of the document QUALITY CONTROL ILVA	A07 Customer's Order No 013326-A / M/M/060 213	A08 ILVA Order Item 16972397 0100	A09 Customer Reference 06/10/2015
LEGAL SEAT: Viale Cassanese 237, 20151 Milano ITALY			A12 Vessel Name THORCO COUGAR	A13 Code 1007226	A14 Date 03/2016

A061 Customer	A062 Consignee
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A063 Certificate Address	A10 Supplementary Commercial Information MATERIAL DESCRIPTION: CARBON STEEL PIPE, WELDED
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B01 Product : SAWN STEEL PIPES COLD EXPANDED	B06 Marking  5L-0187.1	NOM. DIMENSIONS		
B02 Steel Quality : API 5L 45TH EDITION-2012		B09 Thickness : 0,3750	IN.	
B03 Supplementary Requirements : X70M E5L2/L485M E5L2		B10 Diameter : 22,0000	B11 Length : 480,0000	B12 Trench Mass : 3465 LBS
B04 Delivery Condition : THERMOMECHANICAL ROLLING		B16 Heat No. : 690099		

D01 Visual marking and dimensional inspection : OK  
 D07 Method of Non Destructive weld inspection: Ultrasonic - notch N5 - hole I,6  
 Z01 We hereby certify that the material complies with the terms of the order.  
 Z05 MERCURY COMPOUNDS OR MERCURY BEARING INSTRUMENTS AND/OR EQUIPMENT HAVE BEEN USED IN ANY MANNER WHICH MIGHT CAUSE CONTAMINATION IN MANUFACTURE ASSEMBLY OR TEST OF MATERIAL.  
 NO WELD REPAIR WAS PERFORMED ON BASE MATERIAL.

C04 Frequency code PaC = Heat PLQI = Heat 1 of heat PELQ = Heat 2 of heat RPI = Prod. lot 1 RPI2 = Prod. lot 2 RD = Per Day RS = Per Shift RW = Per Week	E10 Shape of the test piece R = Right end C = Right end	G01 Sample location N = North end S = South end
	* = Mill No. R = Reject R = Retest	Skt. 782036

Z03 Inspector Body Stamp
Z02 QC Validation

Z05 Management System Certification  
 "Q&ESE Management System certified by IGC according to  
 ISO 9001, ISO/TS 16949, ISO 14001 and BS OHSAS 18001"



A01 Manufacturer's Name:  
 ILVA S.p.A.  
 IN AMMINISTRAZIONE STRAORDINARIA

LEGAL SEAT: Via Cavour 239, 30131 Milano ITALY  
 TELEX: 320000  
 Via S. Anna 5571 km 648 - 41121 TARANTO ITALY



A02 Type of document:  
**INSPECTION CERTIFICATE**  
 EN 10204 TYPE 3.1

A05 Originator of the document:  
**QUALITY CONTROL ILVA**

A03 Document No.: 2016/00000842/01  
 Date of Issue: 30/03/2016  
 A04 I: ILVA

A07 Customer's Order No.: 013926-A/MMTHPO 213  
 Date: 05/10/2015

A08 ILVA Order Item: 16912397-0100  
 A09 Customer Reference: THORCO-COUGAR  
 A13 Code: 1007226/03/2016  
 A14 Date:

A06 Customer:

A02 Cohérence:

A06a Certificate Address:

A10 Supplementary Commercial Information:  
**MATERIAL DESCRIPTION: CARBON STEEL PIPES, WELDED.**

B01 Product: SAW STEEL PIPES COLD EXPANDED  
 B02 Steel Quality: APP 5L 45TH EDITION: 2012  
 B03 Supplementary Requirements: X70M PS12/1485M PS12  
 B04 Delivery Condition: THERMO MECHANICAL ROLLING

B05 Marking

B06 DIMENSIONS  
 Unit: IN  
 B06a Diameter: 0.8750  
 B06b Length: 480.0000  
 B06c Weight: 3465 LBS  
 B06d Heat no.: 690100

5L-0187.1

Pipe manufacturing ILVA Taranto pipe mill # 1 D09 Hydrotest .EST: 2160 Sec: 10

DELIVERED MATERIAL										PP1		PP2		PD		PS		PW	
B07 Pipe no	B16 Heat	B13 Mass	B15 Length	Starting Material	CO4 Reference	RBC	PLC1	PLC2	PLC3	PP1	PP2	PD	PS	PW	PP1	PP2	PD	PS	PW
0000002	690100	3505	39.04	877565301	000344	000007	000024						*879959	*879964					
0000003	690100	3549	39.83	8775616201	000344	000007	000024						*879959	*879974					
0000004	690100	3582	39.83	877560201	000344	000007	000024						*879959	*879961					
0000006	690100	3538	39.62	8775624301	000344	000007	000024						*879970	*879977					
0000007	690100	3516	40.04	8775615201	000344	000007	000024						*879959	*879960					
0000010	690100	3533	39.88	877607101	000344	000007	000024						*879970	*879974					
0000011	690100	3571	40.53	877557201	000344	000007	000024						*879959	*879963					
0000012	690100	3616	39.90	877555101	000344	000007	000024						*879970	*879960					
0000015	690100	3627	40.58	877514301	000344	000007	000024						*879970	*879974					
0000016	690100	3605	40.55	877555101	000344	000007	000024						*879970	*879964					
0000018	690100	3605	40.67	877557101	000344	000007	000024						*879970	*879964					
0000019	690100	3560	40.31	877555201	000344	000007	000024						*879970	*879964					
0000020	690100	3582	39.76	877512301	000344	000007	000024						*879970	*879963					
0000023	690100	3682	40.67	877556101	000344	000007	000024						*879970	*879964					
0000024	690100	3571	40.03	877526201	000344	000007	000024						*879959	*879960					
0000026	690100	3549	39.14	877567101	000344	000007	000024						*879970	*879961					
0000027	690100	3649	40.67	877563301	000344	000007	000024						*879970	*879964					
0000029	690100	3593	40.04	877561301	000344	000007	000024						*879970	*879964					
0000030	690100	3494	39.42	877555301	000344	000007	000024						*879970	*879961					
0000033	690100	3638	40.70	877559201	000344	000007	000024						*879970	*879977					
0000034	690100	3638	40.70	877564301	000344	000007	000024						*879970	*879974					
0000037	690100	3560	39.40	877613101	000344	000007	000024						*879970	*879977					
0000039	690100	3483	39.14	877622301	000344	000007	000024						*879970	*879961					
0000040	690100	3671	40.67	877608101	000344	000007	000024						*879970	*879977					
0000044	690100	3285	36.63	877558101	000344	000007	000024						*879970	*879964					
0000051	690100	3605	40.26	877622101	000344	000007	000024						*879970	*879961					
0000052	690100	3395	37.75	877550301	000344	000007	000024						*879970	*879977					
0000053	690100	3472	38.78	877556201	000344	000007	000024						*879970	*879964					
0000054	690100	3593	40.67	877563201	000344	000007	000024						*879970	*879974					
0000055	690100	3483	38.70	877567301	000344	000007	000024						*879970	*879964					
0000059	690100	3472	39.21	877623301	000344	000007	000024						*879970	*879963					
0000060	690100	3649	40.63	877562301	000344	000007	000024						*879970	*879964					
0000062	690100	3605	40.01	877618101	000344	000007	000024						*879970	*879974					
0000066	690100	3582	40.37	877617201	000344	000007	000024						*880026	*879964					
0000066	690100	3616	39.98	877566101	000344	000007	000024						*880026	*879961					
0000067	690100	3494	38.85	877550301	000344	000007	000024						*880026	*879963					
0000068	690100	3516	39.93	877562101	000344	000007	000024						*880026	*879964					
0000070	690100	3593	40.52	877558301	000344	000007	000024						*880026	*879963					
0000071	690100	3373	38.02	877617301	000344	000007	000024						*880026	*879961					
0000072	690100	3638	40.65	877626101	000344	000007	000024						*879970	*879964					
0000073	690100	3494	39.03	877616101	000344	000007	000024						*879970	*879961					
0000074	690100	3296	36.70	877565201	000344	000007	000024						*879970	*879961					
0000075	690100	3593	40.47	877624201	000344	000007	000024						*880026	*879977					
0000078	690100	3582	40.14	877567201	000344	000007	000024						*880026	*879960					
0000079	690100	3439	38.52	877562201	000344	000007	000024						*880026	*879960					

C04 Frequency code:  
 BCC = Heat  
 PLC1 = 1st of heat  
 PLC2 = 2nd of heat  
 PPL = Prod. loc.  
 PP2 = Prod. day  
 PD = Prod. day  
 PS = Prod. shift  
 PW = Prod. week

D10: Slices of the test piece  
 F = Flaming  
 C = Round bar

\* = Mill No.  
 F = Reject  
 R = Re-test

Skt 782036

C01 Sample location:  
 N = North end  
 S = South end

Z03 Inspection Body Stamp

Z02.1 QC Value Stamp



A01 Manufacturer's Works  
ILVA S.p.A.  
IN AMMINISTRAZIONE STRAORDINARIA

A02 Type of document  
**INSPECTION CERTIFICATE**  
EN 10204 TYPE 3.1.

A03 Document No.  
2016/00000842/03

A04 Date of Issue  
30/03/2016

A05 Originator of the document  
QUALITY CONTROL ILVA

A06 Customer's Order No.  
013326-A / MMTHP

A07 Date  
21/05/2015

A08 ILVA Order Item  
16912397-0100

A09 Customer Reference

A10 Vessel Name  
THORCO COBGAR

A11 Code  
A14 Date  
1007226/03/2016

A05.1 Consignee

A05.2 Consignee

A06.2 Certificate Address

A10 Supplementary Commercial Information  
MATERIAL DESCRIPTION: CARBON STEEL PIPE, WELDED


B01 Product : SAWL STEEL PIPES COLD EXPANDED

B02 Steel Quality : API 5L 45TH EDITION 2012

B03 Supplementary Requirements : X70M PSL2/E485M PSL2

B04 Delivery Condition : THERMOMECHANICAL ROLLING

B05 Marking



NOMI DIMENSIONI  
Unità IN.  
POSTERIORITÀ  
Ø 3750  
Ø1 Diameter Ø: 22,0000  
Ø2 Length: 400,0000  
Ø3 Weight: 3465 LBS  
Ø4 Heat No.: 690100

5L 0187.1

CHEMICAL COMPOSITION AND STEEL MAKING PROCESS

C70 Steel making process : X (Basic Oxygen)

Steel making shop: ILVA Taranto  
Rolling Mill : Plate Mill ILVA Taranto

C94 Casting method : Continuous Casting

C00 Sample ID	C01 Test Location	C04 Code	C71 C %	C72 Si %	C73 Mn %	C74 P %	C75 S %	C76 Al %	C77 Nb %	C78 V %	C79 Mo %	C80 Ni %	C81 Cr %	C82 Cu %
	Ladle		0,080	0,251	1,634	0,020	0,0035	0,029	0,019	0,004	0,017	0,008	0,174	0,013
000024	S Product	PLC2	0,079	0,248	1,623	0,019	0,0035	0,028	0,038	0,003	0,017	0,006	0,169	0,013
000344	S Product	PdC	0,078	0,248	1,616	0,019	0,0035	0,029	0,038	0,003	0,016	0,005	0,169	0,013

C00 Sample ID	C01 Test Location	C04 Code	C83 Ti %	C84 N ppm	C85 H ppm	C86 Ca ppm	C87	C88	C89 V1	C90 V2	C91 V3	C92 V4	C93 PCM	C94 LIW
	Ladle		0,020	2	2				0,063	0,407			0,180	0,393
000024	S Product	PLC2	0,020	2	2				0,060	0,403			0,178	0,389
000344	S Product	PdC	0,019	2	2				0,060	0,401			0,177	0,386

Restrictions	Heat		Products	
	Min.	Max.	Min.	Max.
V1 = Nb + Ti + V		0,150		0,150
V2 = C + Mn / 5		0,460		0,460
PCM		0,250		0,250
LIW		0,430		0,430

C00 Sample ID	C01 Loc.	C04 Code	C02 Dir	C03 Temp °C	B05 Heat Treatment	C10 Shape	C24 W/mm	C23 : ID [xSQR(S0)]	C09 Unit	C11 YS RTO.5	C12 UTS	C13 EL %	C14 Y/T	C15 Z %	C16 RmxA
000024	S TW	PLC2	T	+ 20		P	38,10	50,80mm	PSI	74549	87022	37,80	0,86		
000024	S TW	PLC2	T	+ 20		P	38,10		PSI		89053				

C00 Sample ID	C01 Loc.	C45	C04 Code	C02 Dir	C40 T. Type	B05 Heat Treat.	C41 Width	C09 Unit	C03 T °C	C42 Energy KJ	V1 K1	V1 K2	V1 K3	C43 Ave	C44 Shear D1	C44 Shear D2	C44 Shear D3	C45 Ave	C46 In.	C46 S.A.
000344	S TW	surface	PdC	T	KV 332		7,5	FT-DB	0	52	54	52	53	100	100	100	100	22	15	1
000344	S TW	surface	PdC	T	KV 332		7,5	FT-LB	0	50	55	48	51						15	
000344	S HAZ	surface	PdC	T	KV 332		7,5	FT-LB	0	41	49	39	43						15	

C00 Sample ID	C01 Loc.	C04 Code	C30 Method	C33 Load (Kg)	C34 min	C34 max	ave	HAZ min	HAZ max	ave	min	max	ave
000344	S TW	PdC	VICKERS	10	227	227	227	209	213	211	199	202	200

C00 Sample ID	C01 Loc.	C04 Code	C02 Dir	C53 Kind of Test	C51 Angle	C52 Rate	C50 Result
000007	S TW	PLC1	T	Face-Root API 5L	180°	111,8	OK

C04 Inspection code  
PdC = Heat  
PLC1 = Lot 1 of heat  
PLC2 = Lot 2 of heat  
PPT = Prod lot 1  
PPT2 = Prod lot 2  
PD = Per Day  
PS = Per Shift  
PW = Per Week

C10 Shape of the test piece  
H = Horizontal  
V = Vertical

C01 Sample location  
N = North end  
S = South end


\* = Mill No.  
R = Reject  
R = Retest

Skt 782036

Z03 Inspection Body Stamp


Z02.02C Validated

Z05 Management System Certification  
QMS Management System certified by IGC according to  
ISO 9001:2015 and ISO 14001:2015

A01 Manufacturer's works: ILVA S.p.A. IN AMMINISTRAZIONE STRAORDINARIA		A02 Type of document: INSPECTION CERTIFICATE EN 10204 TYPE B.1	A03 Document No. 2016/00000842/04.	A02a) Date of issue 30/03/2016	A04 I ILVA
			A07 Customer's Order No. 013326-A/MMTPO 253 F	Date 06/10/2015	
LEGAL SEAT: Viale Cassanese 239, 20151 Milano ITALY TARANCO Works: Via Appia 557, km 608 - 74123 TARANTO - ITALY		A05 Originator of the document: QUALITY CONTROL ILVA	A08 ILVA Order Item 16932397 0100	A09 Customer Reference	
			A12 Vessel Name THORCO COUGAR	A13 Code 1007226	A14 Date 03/2016

A06.1 Customer	A06.2 Certificate
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A06.3 Certificate Address	A10 Supplementary Commercial Information: MATERIAL DESCRIPTION: CARBON STEEL PIPE, WELDED.
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B01 Product B02 Steel Quality B03 Supplementary Requirements B04 Delivery Condition	SAWL STEEL PIPES COLD EXPANDED APT 5R 45TH EDITION: 2012 X70M PSL2 / L485M PSL2 THERMOMECHANICAL ROLLING	B06 Marking  5L-0187.1	NOM. DIMENSIONS Units: IN. B08 Thickness: 0,3750 B10 Diameter: 22,0000 B11 Length: 480,0000 B12 Theoretical Mass: 32,65 LBS B14 Heat No.: 690100
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BEND TEST

C00 Sample ID	C01 Loc.	C04 Code	C02 Dir.	C03 Kind of Test	C51 Angle	C52 Male	C50 Result
000343	S-TW	PLC1	T	Face-Root APT 5L	180°	11,8	OK


C04 Frequency code: PL1 = Heat PLC1 = Lot 1 of heat PLC2 = Lot 2 of heat RF1 = Prod. lot 1 RF2 = Prod. lot 2 RD = Prod. Day RS = Per Shift RW = Per Week	C10 Shape of the test piece: P = Prismatic C = Round bar  * = Mill. No. R = Reject R = Retest	C01 Sample location: N = North end S = South end  Skt 782036
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Z02 Inspection Body Stamp

Z02.2 QC Validation






A01 Manufacturer's work: ILVA S.p.A. IN AMMINISTRAZIONE STRAORDINARIA		A02 Type of document INSPECTION CERTIFICATE EN 10204 TYPE 3.1	A03 Document Nr. 2016/00000845/01	A02.1 Date of issue 30/03/2016	A04 $\pi$ ILVA
		A05 Originator of the document QUALITY CONTROL ILVA	A07 Customer's Order nr 013326-A /MMTPEP	Item 213	Date 06/10/2015
LEGAL SEAT: Viale Certosa 239, 20151 Milano ITALY TARANTO Works: Via Appia 557 km 648 - 74123 TARANTO ITALY		A08 ILVA Order Item 16912397 0200	A09 Customer Reference		
		A12 Vessel Name THEORCO COUGAR	A13 Code 1007226	A14 Date 03/2016	

A06.1 Customer	A06.2 Consignee
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A06.3 Certificate Address	A10 Supplementary Commercial Information MATERIAL DESCRIPTION: CARBON STEEL PIPE, WELDED
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B01 Product : SAWL STEEL PIPES COLD EXPANDED	B06 Marking  6L-0187.1	NOM. DIMENSIONS	
B02 Steel Quality : API 5L 45TH EDITION:2012 X70M PSL2/L485M PSL2		Units IN.	
B03 Supplementary Requirements :		B09 Thickness 0,5000	
B04 Delivery Condition : THERMOMECHANICAL ROLLING		B10 Diameter 22,0000	
		B11 Length 480,0000	
		B12 Theor. Mass 4594 LBS	
		B16 Heat nr. 690126	

Pipe manufacturing : ILVA Taranto pipe mill # 1      D09 Hydrotest      PSI: 2880    sec: 10

DELIVERED MATERIAL													
B07	B16	B13	B15	Starting	C04 Reference test sample							PS	PW
Pipe no	Heat	Mass	Length	Material	PdC	PLC1	PLC2	PP1	PP2	PD			
0001066	690126	4762	40,72	877646201	001133	001068	001102					*879813	*879751
0001068	690126	4552	38,73	877646101	001133	001068	001102					*879813	*879762
0001102	690126	4696	40,01	877646301	001133	001068	001102					*879813	*879762
0001133	690126	4619	39,68	877630201	001133	001068	001102					*879889	*879751
0001156	690126	4674	39,96	877645301	001133	001068	001102					*879889	*879762
0001158	690126	4729	40,32	877645101	001133	001068	001102					*879889	*879762
0001160	690126	4597	39,32	877643301	001133	001068	001102					*879889	*879762
0001161	690126	4729	40,58	877633301	001133	001068	001102					*879889	*879762
0001162	690126	4729	40,62	877641301	001133	001068	001102					*879889	*879751
0001163	690126	4751	40,49	877632101	001133	001068	001102					*879889	*879762
0001164	690126	4707	40,17	877644201	001133	001068	001102					*879889	*879737
0001165	690126	4663	40,04	877642301	001133	001068	001102					*879889	*879751
0001166	690126	4663	39,96	877632201	001133	001068	001102					*879889	*879762
0001167	690126	4751	40,65	877632301	001133	001068	001102					*879889	*879751
0001169	690126	4696	40,17	877633101	001133	001068	001102					*879889	*879751
0001171	690126	4718	40,58	877641201	001133	001068	001102					*879889	*879762
0001175	690126	4586	39,19	877644301	001133	001068	001102					*879889	*879751
0001184	690126	4707	40,60	877629101	001133	001068	001102					*879889	*879745
0001184	690126	4729	40,68	877630301	001133	001068	001102					*879889	*879762
0001191	690126	4729	40,70	877630101	001133	001068	001102					*879889	*879742
0001192	690126	4751	40,65	877642101	001133	001068	001102					*879889	*879751
0001193	690126	4740	40,65	877641101	001133	001068	001102					*879889	*879762
0001196	690126	4663	40,06	877641101	001133	001068	001102					*879889	*879751
0001197	690126	4685	40,47	877640201	001133	001068	001102					*879889	*879762
0001199	690126	4718	40,50	877639301	001133	001068	001102					*879889	*879762
0001203	690126	4707	40,37	877634201	001133	001068	001102					*879947	*879751
0001204	690126	4707	40,67	877629301	001133	001068	001102					*879889	*879737
0001205	690126	4475	38,48	877633201	001133	001068	001102					*879889	*879751
0001206	690126	4729	40,35	877634101	001133	001068	001102					*879889	*879739
0001207	690126	4685	40,01	877644101	001133	001068	001102					*879947	*879745
0001208	690126	4663	40,06	877639201	001133	001068	001102					*879889	*879762
0001209	690126	4762	40,72	877629201	001133	001068	001102					*879947	*879762
0001212	690126	4674	40,14	877639101	001133	001068	001102					*879947	*879751
0001214	690126	4641	39,96	877642201	001133	001068	001102					*879947	*879745
0001215	690126	4663	39,99	877631201	001133	001068	001102					*879889	*879751
0001217	690126	4674	39,96	877631101	001133	001068	001102					*879889	*879762
0001218	690126	4619	39,68	877640101	001133	001068	001102					*879889	*879737
0001220	690126	4619	39,63	877643201	001133	001068	001102					*879889	*879762
0001222	690126	4619	39,65	877634301	001133	001068	001102					*879947	*879762

B08 Total pieces : 38      B14 Total mass LBS: 177852      B17 Total Length FT : 1524,52


C04 Frequency ends PdC = Heat PLC1 = Lot 1 of heat PLC2 = Lot 2 of heat PP1 = Prod. lot 1 PP2 = Prod. lot 2 PD = Per Day PS = Per shift PW = Per Week	C10 Shape of the test piece P = Prismatic C = Round bar  * = Mill No. F = Reject R = Retest	C01 Sample location N = North end S = South end  Skt 782036	Z03 Inspection Body Stamp
Z05 Management System Certification "Q&HSE Management System certified by IGQ according to			Z02.2 QC Validation



A01 Manufacturer's works: ILVA S.p.A. IN AMMINISTRAZIONE STRAORDINARIA	A02 Type of document INSPECTION CERTIFICATE EN 10204 TYPE 3.1	A03 Document Nr. 2016/0000845/02	A04 Date of issue 30/03/2016	A04 I ILVA
LEGAL SEAT: Viale Certosa 239, 20131 Milano ITALY TARANTO Works: Via Appia Est 71 Km 648 - 74123 TARANTO ITALY	A05 Originator of the document QUALITY CONTROL ILVA	A07 Customer's Order nr 013326-A / MMTHEP0 213	Date 06/10/2015	
		A08 ILVA Order Item 16912397 0200	A09 Customer Reference	
		A12 Vessel Name THORCO COUGAR	A13 Code 1007226	A14 Date 03/2016

A06 Customer KURT ORBAN PARTNERS LLC 111 ANZA BLVD, SUITE 350 BURLINGAME 94010 CALIFORNIA USA	A062 Consignor KURT ORBAN PARTNERS LLC ***** 00000 HOUSTON USA
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A063 Certificate Address KURT ORBAN PARTNERS LLC 111 ANZA BLVD, SUITE 350 BURLINGAME 94010 CALIFORNIA USA	A10 Supplementary Commercial Information MATERIAL DESCRIPTION: CARBON STEEL PIPE, WELDED
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B01 Product : SAWL STEEL PIPES COLD EXPANDED	B06 Marking	NOM. DIMENSIONS
B02 Steel Quality : API 5L 45TH EDITION; 2012 X70M ESL2/L485M PSL2	 5L-0187.1	Units IN,
B03 Supplementary Requirements:		B09 Thickness 0,5000
B04 Delivery Condition : THERMOMECHANICAL ROLLING		B10 Diameter 0 22,0000
		B11 Length 480,0000
		B12 Theor. Mass 4594 TBS
		B16 Heat no. 690126

CHEMICAL COMPOSITION AND STEEL MAKING PROCESS		C94 Casting method : Continuous Casting
C70 Steel making process : r Y (Basic Oxygen)	Steel making shop: ILVA Taranto	
Rolling Mill : Plate Mill	ILVA Taranto	

C00 Sample ID	C01 Test Location	C04 Code	C71 C %	C72 Si %	C73 Mn %	C74 P %	C75 S %	C76 AL %	C77 Nb %	C78 V %	C79 Mo %	C80 Ni %	C81 Cr %	C82 Cu %
	Ladle		0,073	0,263	1,623	0,020	0,0045	0,025	0,040	0,002	0,005	0,004	0,169	0,013
001102	S Product	PLC2	0,076	0,263	1,614	0,019	0,0041	0,027	0,036	0,002	0,006	0,005	0,175	0,012
001133	S Product	PdC	0,072	0,265	1,628	0,019	0,0041	0,027	0,039	0,002	0,006	0,003	0,171	0,013

C00 Sample ID	C01 Test Location	C04 Code	C83 Ti %	C84 N ppm	C85 B ppm	C86 Ca ppm	C87	C88	C89 V1	C90 V2	C91 V3	C92 V4	C93 PCM	C94 ILW
	Ladle		0,020		2				0,061	0,398			0,173	0,380
001102	S Product	PLC2	0,020		2				0,058	0,399			0,175	0,383
001133	S Product	PdC	0,020		2				0,061	0,397			0,172	0,380

Restrictions	Heat		Product	
	Min	Max	Min	Max
V1 = Nb + Ti + V		0,150		0,150
V2 = C + Mn / 5		0,460		0,460
PCM		0,250		0,250
ILW		0,430		0,430

C00 Sample ID	C01 Ldc.	C02 Code	C03 Dir	B05 Heat Temp °C	C10 Shape	C24 W/mm	C23 : I0 [xSQR(S0)]	C09 Unit	C11 Y8 RT0.5	C12 UTS	C13 EL %	C14 Y/T	C15 Z %	C16 RMxA
001102	S TW	PLC2	T	+ 20	P	38,10	50,80mm	PSI	81511	95869	37,80	0,85		
001102	S TW	PLC2	T	+ 20	P	38,10		PSI		98190				

C00 Sample ID	C01 Ldc.	C45	C04 Code	C02 Dir	C40 T. Type	B05 Heat Treat.	C41 Width	C09 Unit	C03 T °C	C42 Energy Val	K1	K2	K3	C43 Ave	C44 D1	C45 D2	C46 D3	C43 Ave	C46 En.	S.A
001133	S TW	surface	PdC	T	KV 332		10	FT-LB	0	138	119	125	127	100	100	100	100	30	1	
001133	S TW	surface	PdC	T	KV 332		10	FT-LB	0	67	63	60	63					20		
001133	S TW	surface	PdC	T	KV 332		10	FT-LB	0	102	94	91	96					20		

C00 Sample ID	C01 Ldc.	C04 Code	C30 Method	C33 Load (Kg)	C31 min	WM max	ave	HAZ min	max	ave	EM min	max	ave
001133	S TW	PdC	VICKERS	10	228	236	231	212	218	215	198	205	200

C00 Sample ID	C01 Ldc.	C04 Code	C02 Dir	C53 Kind of Test	C51 Angle	C52 Male	C50 Result
001068	S TW	PLC1	T	Face-Root API 5L	180°	157,5	OK

C04 Frequency code PdC = Heat PLC1 = Lot 1 of heat PLC2 = Lot 2 of heat PPI = Prod. lot 1 PP2 = Prod. lot 2 PD = Per Day PS = Per Shift PW = Per Week	C10 Shape of the test piece P = Prismatic C = Round bar  * = Mill No. F = Reject R = Retest	C01 Sample location N = North end S = South end  Skt 782036	203 Inspection Body Stamp
205 Management System Certification "O&HSE Management System certified by IGQ according to			202.2 QC Validation