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INGENIERA CIVIL  
rosemarieballesteros@hotmail.com

*2/07/12*  
*Galo, pujan*  
*J.L*

FISC-HUANCAVILCA-0059-2012

Guayaquil, 29 de Junio del 2012.

Ingeniero  
**Jorge Gavino Ch.**  
Director de la Unidad Ejecutora de Proyectos de Interagua

Presente.-

**Asunto: Dossier de Soldadura Contratista TIMEC**

**Referencia: "PLAN REHABILITACION DE ACUEDUCTOS HUANCAVILCA FASE I"**

De mis consideraciones:

Por medio de la presente, se remite a usted la información enviada por el Contratista TIMEC, en lo cual se adjunta lo siguiente:

- WPS (Especificación de procedimientos de soldadura)
- PQR (Registro de calificación)
- WPQ (Calificación)

*Esconerai y pasar F. Costa*

Particular que informo a usted para

Atentamente

*Rose Marie Ballesteros*

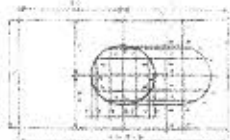
Ing. Rose Marie Ballesteros T.  
Fiscalización de obra.

CC. Ing. Galo Jaramillo, Jefe Supervisión UEP  
CC. Arq. Odille Mármol, Ingeniero de Proyecto UEP

**4 JUL 2012**

UNIDAD EJECUTORA DE PROYECTOS (UEP)  
Fecha: *Julio 3/2012*  
Hora: *15:50*  
*maury*

*Odille: revisaa. 21/2/2012*



# TIMEC S.A.

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 CUBA, Calle 11, 193078

## QW- 482 WELDING PROCEDURE SPECIFICATION (WPS)

Section IX, ASME Boiler and Pressure Vessel Code

(1/2)

### WELDING PROCEDURE SPECIFICATION (WPS)

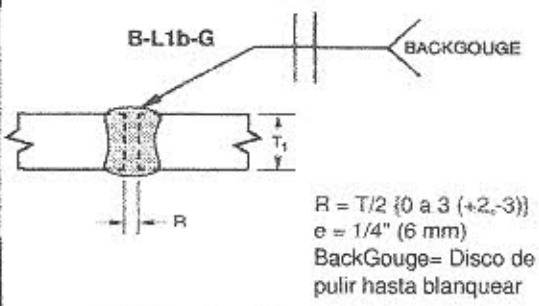
(ASME, Boiler and Pressure Vessel Code)

Company Name	<u>TIMEC S.A.</u>	By:	<u>LPAC</u>
Welding Procedure Specification No.	<u>CHT-01</u>	Date:	<u>7-Jan-12</u>
Revision No.	<u>0</u>	Supporting PQR No.	<u>Por Calificar</u>
Welding Process (es)	<u>GMAW - S</u>	type (s):	<u>Semi Automatic</u>
(Automatic, Manual, Machine, or Semi-Automatic)			

#### JOINTS (QW-402)

#### Details

Joint Desig:	<u>Butt Joint</u>
Backing (Yes):	<u>-</u> (No): <u>x</u>
Backing Material (Type):	<u>N/A</u>
(Refer to both backing and retainers)	
<u>-</u> Metal	<u>-</u> Nonfusing Metal
<u>-</u> Nonmetallic	<u>-</u> Other

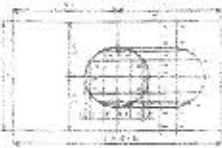


#### BASE METALS (QW-403)

P No.	<u>1</u>	Group No.	<u>1</u>	to P No.	<u>1</u>	Group No.	<u>1</u>
OR							
Specification type and grade	<u>ASTM - SA 36</u>						
to specification type and grade	<u>ASTM - SA 36</u>						
OR							
Chem. Analysis and Mech Prop.	<u>N/A</u>						
to Chem. Analysis and Mech Prop.	<u>N/A</u>						
Thickness Range:							
Base Metal:	<u>Groove</u>	<u>1/16" up to 3/8"</u>	Fillet	<u>All sizes</u>			
Pipe Dia., Range		<u>Up 24"</u>	Fillet	<u>All sizes</u>			
Other	<u>N/A</u>						

#### FILLER METALS (QW-404)

Spec. No. (SFA)	<u>GMAW-S</u>
AWS No. (Class)	<u>SFA 5.18</u>
F-No.	<u>ER 70S-6</u>
A-No.	<u>6</u>
Size of filler Metals	<u>1</u>
Weld Metal	<u>0.035" (0.9 mm)</u>
Thickness Range	
Groove	<u>Up to 3/8"</u>
Fillet	<u>All</u>
Electrode Flux (Class)	<u>N/A</u>
Flux Trade Name	<u>N/A</u>
Consumable Insert	<u>N/A</u>
Other	<u>N/A</u>



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 GUAYAMA, P.R. 00909

**QW- 482 (Back)**

(2/2)


POSITION (QW-405)		POSTWELD HEAT TREATMENT (QW-407)	
Position(s) of Groove	ALL	Temperature Range	According process
Welding Progression	Up YES Down -	Time Range	N/A
Position(s) of Fillet	All		

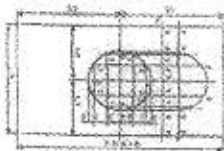
PREHEAT (QW-406)		GAS (QW-408)		
Preheat Temp.	Min. 0 °C	Percent Composition		
Interpass Temp.	Max. According process	Shielding	Gas(es)	Mixture
Preheat Maintenance	According process	Argón	-	80%
(Continuous or special heating where applicable should be recorded)		CO2	-	20%
				Flow Rate
				35 CFH

ELECTRICAL CHARACTERISTICS (QW-409)			
Current AC or DC	GMAW-S (DC)	Polarity	GMAW-S (DC-EP)
Amps (Range)	GMAW-S (105-150) Amp	Volts (Range)	GMAW-S (18.5 a 23.5 V)
Tungsteno Electrode Size and Type	N/A		
Mode of Metal Transfer for GMAW	Short Circuit		
Electrode wire feed speed range	According process		

TECHNIQUE (QW-410)	
String or Weave Bead	String or Weave Bead
Orifice or Gas Cup Size	N/A
Initial and interpass Cleaning (Brushing, Grinding, etc)	Grinding, Wire Brush, etc
Method of Back Gouging	Grinding
Oscillation	N/A
Contact Tube to Work Distance	12 +/- 6 mm
Multiple or Single Pass (per side)	Multiple
Multiple or Single Electrodes	N/A
Travel Speed (Range)	According process
Peening	N/A
Other	N/A

Weld Layer	Process	Filler Metals		Current		Volt Range	Speed Range	Other
		Class	Dia.	Type Polar.	Amp. Range			
1 Root	GMAW-S	ER 70S-6	0.035"	DCEP	105 - 135	18.5-21.5	As required	BackGougin
2,... N	GMAW-S	ER 70S-6	0.035"	DCEP	115 - 150	20.5-23.5	As required	N/A

<p><b>Ing Gustavo Moreno</b>          TIMEC S.A.          Constructor</p>	<p>Autorizado Por:</p>  <p>Luis P Ajila Camacho          CWR 08011291          QC1 EXP. 1/1/2014</p> <p><b>Ing Luis Paul Ajila Camacho</b>          ICS - CESOL Nivel 3; No 1125          CWI-AWS No. 08011291</p>
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 GUAYACIL - ECUADOR

## QW- 482 WELDING PROCEDURE SPECIFICATION (WPS)

Section IX, ASME Boiler and Pressure Vessel Code

(1/2)

### WELDING PROCEDURE SPECIFICATION (WPS)

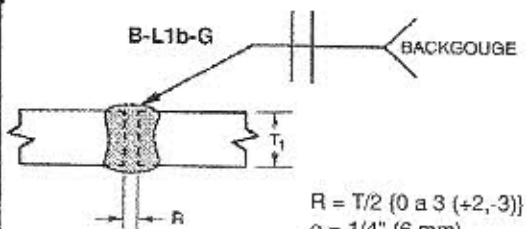
(ASME, Boiler and Pressure Vessel Code)

Company Name	<u>TIMEC S.A.</u>	By:	<u>LPAC</u>
Welding Procedure Specification No.	<u>CHT-01</u>	Date:	<u>7-Jan-12</u>
Revision No.	<u>1</u>	Date:	<u>9-Feb-12</u>
Supporting PQR No.	<u>TIMEC PQR02</u>		
Welding Process (es)	<u>GMAW - S</u>	type (s):	<u>Semi Automatic</u>
(Automatic, Manual, Machine, or Semi-Automatic)			

#### JOINTS (QW-402)

#### Details

Joint Desing:	<u>Butt Joint</u>	
Backing (Yes):	<u>-</u>	(No): <u>x</u>
Backing Material (Type):	<u>N/A</u>	
(Refer to both backing and retainers)		
- Metal	<u>-</u>	
- Nonmetallic	<u>-</u>	
- Nonfusing Metal	<u>-</u>	
- Other	<u>-</u>	



$R = T/2$  (0 a 3 (+2,-3))  
 $e = 1/4"$  (6 mm)  
 BackGouge= Disco de pulir hasta blanquear

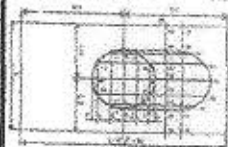
#### BASE METALS (QW-403)

P No.	<u>1</u>	Group No.	<u>1</u>	to P No.	<u>1</u>	Group No.	<u>1</u>
OR							
Specification type and grade	<u>ASTM - SA 36</u>						
to specification type and grade	<u>ASTM - SA 36</u>						
OR							
Chem. Analysis and Mech Prop.	<u>N/A</u>						
to Chem. Analysis and Mech Prop.	<u>N/A</u>						
Thickness Range:							
Base Metal:	<u>Groove</u>	<u>1/16" up to 3/8"</u>	Fillet	<u>All sizes</u>			
Pipe Dia., Range		<u>Up 24"</u>	Fillet	<u>All sizes</u>			
Other	<u>N/A</u>						

#### FILLER METALS (QW-404)

Spec. No. (SFA)	<u>GMAW-S</u>
AWS No. (Class)	<u>SFA 5.18</u>
F-No.	<u>ER 70S-6</u>
A-No.	<u>6</u>
Size of filler Metals	<u>1</u>
Weld Metal	<u>0.035" (0.9 mm)</u>
Thickness Range	
Groove	<u>Up to 3/8"</u>
Fillet	<u>All</u>
Electrode Flux (Class)	<u>N/A</u>
Flux Trade Name	<u>N/A</u>
Consumable Insert	<u>N/A</u>
Other	<u>N/A</u>

*[Handwritten signature]*



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 GUAYAS - ECUADOR

**QW- 482 (Back)**

(2/2)

### POSITION (QW-405)

Position(s) of Groove ALL  
 Welding Progreasion Up YES Down -  
 Position(s) of Fillet All

### POSTWELD HEAT TREATMENT (QW-407)

Temperature Range Acording process  
 Time Range N/A

### PREHEAT (QW-406)

Preheat Temp. Min. 0 °C  
 Interpass Temp. Max. Acording process  
 Preheat Maintenance Acording process  
 (Continuous or special heating where applicable should be recorded)

### GAS (QW-408)

Shielding	Percent Composition		
	Gas(es)	Mixture	Flow Rate
	SG AC20		35 CFH
Argón	-	80%	-
CO2	-	20%	-

### ELECTRICAL CHARACTERISTICS (QW-409)

Current AC or DC GMAW-S (DC) Polarity GMAW-S (DC-EP)  
 Amps (Range) GMAW-S (105-150) Amp Volts (Range) GMAW-S (18.5 a 23.5 V)

Tungsteno Electrode Size and Type N/A

Mode of Metal Transfer for GMAW Short Circuit

Electrode wire feed speed range Acording process

### TECHNIQUE (QW-410)

String or Weave Bead String or Weave Bead  
 Orifice or Gas Cup Size N/A  
 Initial and interpass Cleaning (Brushing, Grinding, etc) Grinding, Wire Brush, etc

Method of Back Gouging Grinding

Oscillation N/A

Contact Tube to Work Distance 12 +/- 6 mm

Multiple or Single Pass (per side) Multiple

Multiple or Single Electrodes N/A

Travel Speed (Range) Acording process

Peening N/A

Other N/A

Weld Layer	Process	Filler Metals		Current		Volt Range	Speed Range	Other
		Class	Dia.	Type Polar.	Amp. Range			
1 Root	GMAW-S	ER 70S-6	0.035"	DCEP	105 - 135	18.5-21.5	As required	BackGougin
2,... N	GMAW-S	ER 70S-6	0.035"	DCEP	115 - 150	20.5-23.5	As required	N/A

Ing Gustavo Moreno  
 TIMEC S.A.  
 Constructor

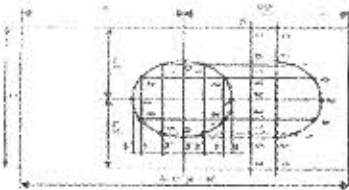
Autorizado Por:



Luis P Ajila Camacho  
 CMI 08011291  
 OC1 EXP. 1/1/2014  
 Ing Luis Paul Ajila Camacho  
 ICS - CESOL Nivel 3; No 1125  
 CWF-AWS No. 08011291

Luis Paul Ajila Camacho  
 Ing. Mecánica-C:MEG No. 04 09 943  
 Inspector Soldadura Nivel III  
 CESOL No. 1125





# TIMEC S.A.

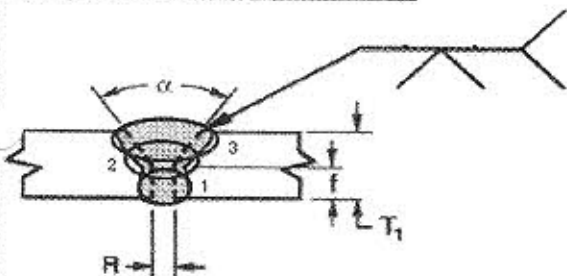
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 GUAYAQUIL - ECUADOR

## PROCEDURE QUALIFICATION RECORDS (PQR)

(Section IX, ASME, Boiler and Pressure Vessel Code)  
 Record Actual Conditions Used to Weld Test Coupon.

Company Name **TIMEC S.A.**  
 Procedure Qualification Record No. **TIMEC PQR 02** Date: **9 de Febrero, de 2012**  
 WPS No. **TIMEC-WPS 03**  
 Welding Process (es) **GMAW-S (Short Circuit Arc)**  
 Type (Manual, Automatic, Semi-Auto) **Semi-Automatic**

### JOINTS (WQ-402)



#### Valores

Ángulo	60°
R	1/8" (3.0 mm)
f	1/8" (3.0 mm)
T1	1/2" (12 mm)

### BASE METALS (QW-403)

Material Spec. **SA 36**  
 Type or Grade **N/A**  
 P-No. **1** to P-No. **1**  
 Thickness of Test Coupon **1/2" (12 mm)**  
 Diameter of Test Coupon **ALL**  
 Other **N/A**

### POSTWELD HEAT (QW-407)

Temperature **N/A**  
 Time **N/A**  
 Other **N/A**

### FILLER METALS (QW-404)

SFA Specification **SFA 5.18**  
 AWS Classification **ER 70S-6**  
 Filler Metal F-No. **6**  
 Weld Metal Analysis A-No. **1**  
 Size of filler Metals **0.035" (0.9 mm)**  
 or **N/A**  
 Weld Metal Thickness **1/2" (12 mm)**

### GAS (QW-408)

Shielding	Percent Composition		
	Gas (es)	Mixture	Flow Rate
SG AC20	80 Ar	20 CO2	35 cfh

### ELECTRICAL CHARACTERISTICS (QW-409)

Current **(GMAW-S) DC**  
 Polarity **GMAW-S DCEP**  
 Amps. **See Table** Volts **See Table**  
 Otros:

### POSITION (QW-405)

Position of Groove **3 G**  
 Weld Progression (Uphill / Downhill) **Uphill**  
 Other **N/A**

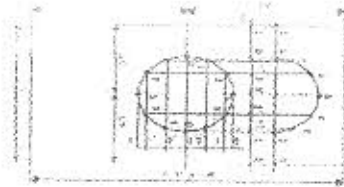
### TECHNIQUE (QW-410)

Travel Speed **See Table**  
 String or Weave Bead **String and Weave**  
 Oscillation **N/A**  
 Multipass or Single Pass (per side) **Multipass**  
 Single or Multiple Electrodes **N/A**  
 Others **Cleaning, with wire brush**  
 Grinding

### PREHEAT (QW-406)

Preheat Temp. **T Amb. > 0 °C (30 °C)**  
 Interpass Temp. **According to Process**  
 Others **N/A**

Bead	Class	Diam	Type Polar.	Stick OUT	Amp	Volt	T Speed	Obs.
1	ER 70S-6	0.035"	DC EP	1/2"	121	18.8	6.50 IPM	Raiz
2	ER 70S-6	0.035"	DC EP	1/2"	128	20.0	3.75 IPM	Relleno, Osci
3	ER 70S-6	0.035"	DC EP	1/2"	137	20.5	3.52 IPM	Relleno, Osci



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 GUAYAQUIL - ECUADOR

**QW - 483 (Back)**

**PQR No: TIMEC PQR-02**

**Tensile Test (QW - 150)**

**ESPOL No. 12 - 035**

Specimen No No	Wide in	Thickness in	Area in 2	Ultimate Total Load lb	Ultimate Unit Stress psi	Type of Failure & Location
12-1609	0.742	0.470	0.349	21088	60482	M B
12-1610	0.744	0.470	0.350	20966	59890	M B

**Resultado :** Aprobado, rotura fuera de la soldadura dentro del rango del Esfuerzo ultimo del ASTM A36

**Guided- Bend Tests (QW - 160)**

**ESPOL No. 10 - 076**

Type and Figure No.	Probeta	Result
Side Bend (QW-462.2)	12-1611	ok
Side Bend (QW-462.2)	12-1612	ok
Side Bend (QW-462.2)	12-1613	ok
Side Bend (QW-462.2)	12-1614	ok

**Resultado :** Aprobado, no se presentan fisuras ni discontinuidades

**Others Test**

Visual examination of Completed Weld (QW- 144)

Okay, 7 Enero de 2012

Welder's Name José Parrales  
 Test Conducted by: Ing Luis P. Ajila

Clock No. \_\_\_\_\_ Stamp No. W JP 00  
 Laboratory Test No. Espol No. 12-035  
CWI 08011291

We certify that the statements in this record correct and that the test welds were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME Code.

Manufacturer TIMEC S.A.  
Ing Gustavo Moreno.



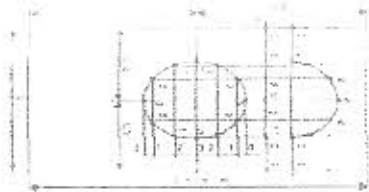
Luis P. Ajila Camacho  
CWI 08011291  
QC1 EXP. 1/1/2014

Date: 09 Febrero de 2012

By: Luis Paúl Ajila Camacho  
ICS-CESOL No 1125 / CWI-AWS No 08011291

Detail of test are illustrative only may be modified to conform to the type and number of test required by the Code.

**Luis Paúl Ajila Camacho**  
**Ing. Mecánica-C:MEG No. 01 09 943**  
 Inspector Soldadura Nivel III  
 CESOL No. 1123



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 GUAYACIL - EQUADOR

## QW - 484A WELDER PERFORMANCE QUALIFICATIONS (WPQ)

(See QW - 301, Section IX, ASME Boiler and Pressure Vessel Code)

Welder's name Julio Angulo M.  
 Identification No. 0 91536084-6  
 Stamp, (Welder) W-03



### Test Description

Identification of WPS CHT-01 Test coupon x Production weld  
 Specification of base metal(s) SA 36 Thickness 1/4" (6,4 mm)

### Testing Conditions and Qualification Limits

Welding Variables (QW-350)	Actual Values		Range Qualified	
	GMAW-S		GMAW-S	
Welding Process	Semi-auto		Semi-auto	
Type (ie: manual, semi-auto) used	backing Weld		BackingWeld	
Backing (metal, weld metal, double-welded, etc)	1/4" (6 mm)		1/4" up to 1/2", and pipe over 24"	
Plate <u>X</u> Pipe _____ (enter diameter if pipe or tube)	P.No 1		P No. 1 Trough P No. 11	
Base metal: P or S-Number <u>to</u> P or S-Number	SFA 5.18			
Filler metal or electrode specification(s) (SFA) (info only)	ER70S-6			
Filler metal or electrode classification(s) (info only)	F No. 6		F No 6	
Filler metal F-Number (s)	1/4" (6 mm)		To Up 1/2" (12 mm)	
Deposit thickness for each process	1G		1G, Plate and Pipe over 24"	
Position qualified (2G, 6G, 3F, etc.)	UP		Up	
Vertical progression (uphill or downhill)	Short circuit		Short Circuit	
Mode Transfer, for GMAW	DC EP		DCEP	
Current type/polarity (AC, DCEP, DCEN)				

### RESULTS

Visual Examination of Completed weld (QW-302.4) Okay  
 Transverse face and root bends [QW-462.3(a)]

ID	Type	Result
JA-F	FACE	OK
JA-R	ROOT	OK

Welding supervised by Ing Paúl Ajila C.

We certify that the statements in this record are correct and that the test coupons were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME Code.

Organization TIMEC S.A.



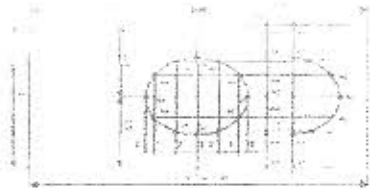
Luis P Ajila Camacho  
 CWI 08011291  
 QC1 EXP. 1/1/2014

Date Enero 10, 2012

By Ing. Luis P. Ajila C.

ICS-CESOL NO. 1125 / CWI-AWS No 08011291





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 GUAYAS, ECUADOR

## QW - 484A WELDER PERFORMANCE QUALIFICATIONS (WPQ)

(See QW - 301, Section IX, ASME Boiler and Pressure Vessel Code)

Welder's name Edison Arriaga Ch  
 Identification No. 0 92095702-4  
 Stamp, (Welder) W-01



### Test Description

Identification of WPS CHT-01 Test coupon x Production weld  
 Specification of base metal(s) SA 36 Thickness 1/4" (6,4 mm)

### Testing Conditions and Qualification Limits

#### Welding Variables (QW-350)

Welding Process  
 Type (ie: manual, semi-auto) used  
 Backing (metal, weld metal, double-welded, etc)  
 Plate X Pipe \_\_\_\_\_ (enter diameter if pipe or tube)  
 Base metal: P or S-Number to P or S-Number  
 Filler metal or electrode specification(s) (SFA) (info only)  
 Filler metal or electrode classification(s) (info only)  
 Filler metal F-Number (s)  
 Deposit thickness for each process  
 Position qualified (2G, 6G, 3F, etc.)  
 Vertical progression (uphill or downhill)  
 Mode Transfer, for GMAW  
 Current type/polarity (AC, DCEP, DCEN)

Actual Values	Range Qualified
GMAW-S	GMAW-S
Semi-auto	Semi-auto
backing Weld	BackingWeld
1/4" (6 mm)	1/4" up to 1/2", and pipe over 24"
P.No 1	P No. 1 Trough P No. 11
SFA 5.18	
ER70S-6	
F No. 6	F No 6
1/4" (6 mm)	To Up 1/2" (12 mm)
1G	1G, Plate and Pipe over 24"
UP	Up
Short circuit	Short Circuit
DC EP	DCEP

### RESULTS

Visual Examination of Completed weld (QW-302.4) Okay  
 Reverse face and root bends [QW-462.3(a)]

ID	Type	Result
EA-F	FACE	OK
EA-R	ROOT	OK

Welding supervised by Ing Paúl Ajila C.

We certify that the statements in this record are correct and that the test coupons were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME Code.

Organization TIMEC S.A.



Luis P Ajila Camacho  
 CWI 08011291  
 QC1 EXP. 1/1/2014

Date Enero 10, 2012

By

Ing. Luis P. Ajila C.

ICS-CESOL NO. 1125 / CWI-AWS No 08011291



# TIMEC S.A.

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 GUAYAS, ECUADOR

## QW - 484A WELDER PERFORMANCE QUALIFICATIONS (WPQ)

(See QW - 301, Section IX, ASME Boiler and Pressure Vessel Code)

Welder's name Segundo Rivera  
 Identification No. 171747267-2  
 Stamp, (Welder) W-06



### Test Description

Identification of WPS CHT-01 Test coupon x Production weld  
 Specification of base metal(s) SA 36 Thickness 1/4" (6,4 mm)

### Testing Conditions and Qualification Limits

Welding Variables (QW-350)	Actual Values		Range Qualified	
	Welding Process	Type (ie: manual, semi-auto) used	Backing (metal, weld metal, double-welded, etc)	Plate <input checked="" type="checkbox"/> Pipe <input type="checkbox"/> (enter diameter if pipe or tube)
Welding Process	GMAW-S	Semi-auto	GMAW-S	Semi-auto
Type (ie: manual, semi-auto) used	backing Weld	1/4" (6 mm)	BackingWeld	1/4" up to 1/2", and pipe over 24"
Backing (metal, weld metal, double-welded, etc)	P.No 1	P.No 1	P No. 1 Trough P No. 11	
Plate <input checked="" type="checkbox"/> Pipe <input type="checkbox"/> (enter diameter if pipe or tube)	SFA 5.18			
Base metal: P or S-Number to P or S-Number	ER70S-6			
Filler metal or electrode specification(s) (SFA) (info only)	F No. 6		F No 6	
Filler metal or electrode classification(s) (info only)	1/4" (6 mm)		To Up 1/2" (12 mm)	
Filler metal F-Number (s)	1G		1G, Plate and Pipe over 24"	
Deposit thickness for each process	UP		Up	
Position qualified (2G, 6G, 3F, etc.)	Short circuit		Short Circuit	
Vertical progression (uphill or downhill)	DC EP		DCEP	
Mode Transfer, for GMAW				
Current type/polarity (AC, DCEP, DCEN)				

### RESULTS

Visual Examination of Completed weld (QW-302.4) Okay  
 Transverse face and root bends [QW-462.3(a)]

ID	Type	Result
SR-F	FACE	OK
SR-R	ROOT	OK

Welding supervised by Ing Paúl Ajila C.

We certify that the statements in this record are correct and that the test coupons were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME Code.

Organization TIMEC S.A.

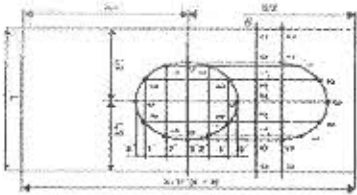


Luis P Ajila Camecho  
 CWI 08011291  
 QC1 EXP. 1/1/2014

Date Enero 19, 2012

By Ing. Luis P. Ajila C.

ICS-CESOL NO. 1125 / CWI-AWS No 08011291



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 GUAYAQUIL - ECUADOR

## QW - 484A WELDER PERFORMANCE QUALIFICATIONS (WPQ)

(See QW - 301, Section IX, ASME Boiler and Pressure Vessel Code)

Welder's name ROBERTO BONE MINA  
 Identification No. 080044063-8  
 Stamp, (Welder) W-03



### Test Description

Identification of WPS 01 Test coupon x Production weld  
 Specification of base metal(s) SA 36 Thickness 5/16" (8,0 mm)

### Testing Conditions and Qualification Limits

Welding Variables (QW-350)	Actual Values		Range Qualified	
	SMAW		SMAW	
Welding Process	Manual		Manual	
Type (ie: manual, semi-auto) used	No		No	
Backing (metal, weld metal, double-welded, etc)	5/16" (8 mm)		5/16" up to 5/8", and pipe over 24"	
Plate ___ Pipe <u>X</u> (enter diameter if pipe or tube)	P.No 1		P No. 1 Trough P No. 11	
<b>Base metal:</b> P or S-Number <u>to</u> P or S-Number	SFA 5.1			
Filler metal or electrode specification(s) (SFA) (info only)	E6011			
Filler metal or electrode classification(s) (info only)	F No. 3		F No 3	
Filler metal F-Number (s)	5/16"		To Up 5/8" (16 mm)	
Deposit thickness for each process	2G, 3G y 4G		All Groove and Fillet	
Position qualified (2G, 6G, 3F, etc.)	Down		Down	
Vertical progression (uphill or downhill)	N/A		N/A	
Mode Transfer, for GMAW	DC EP		DCEP	
Current type/polarity (AC, DCEP, DCEN)				

### RESULTS

Visual Examination of Completed weld (QW-302.4) Okay  
 Alternative radiographic examination results (QW-191) Okay

Films or specimens evaluated by Carlos Almeida Company Report No. SENOCORP S.A.

Welding supervised by Ing Paúl Ajila C.

We certify that the statements in this record are correct and that the test coupons were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME Code.

Organization TIMEC S.A.

Date Mayo 30, 2012

By Ing. Luis P. Ajila C.

ICS-CESOL NO. 1125 / CWI-AWS No 08011291