

# Welding

**CONTEST DATE & LOCATION:** Refer to the Kansas State Championships Conference Packet

**PURPOSE:** To evaluate each contestant's preparation for employment and to recognize outstanding students for excellence and professionalism in the field of Welding

**ELIGIBILITY:** Open to active SkillsUSA members enrolled in programs with welding as the occupational objective

**CLOTHING REQUIREMENT:** STRICT ENFORCEMENT of PPE (Personal protective equipment) will be observed during the welding competition. All issues concerning inadequate or inappropriate PPE must be resolved during the allowed check-in time for each student. If the issue cannot be resolved during this time period, the student will not be allowed to compete. Please review the list of PPE requirements for this will be strictly enforced.

Students are required to wear the Official SkillsUSA Kansas T-shirt and blue jeans (no tears, holes, or bagginess, rolled up pant legs or frayed jeans) clean and neat with appropriate LEATHER BOOTS for contest. Students may wear the Official SkillsUSA Khaki work shirt and pants (both the shirt and pants must be 100 percent cotton); black, brown or tan leather hightop work boots (no shoes of any kind, leather or otherwise). PLEASE review the new guidelines in the Technical Standard concerning the dress code. Compliance with this dress code will be assessed in the final score for each student. Denim or FRC Pants will be permitted.

\* Safety glasses with side shields or goggles. (Prescription glasses can be used only if they are equipped with side shields. If not, they must be covered with goggles.)







NOTE: The Official Kansas State T-shirt will be mailed to schools prior to the competition.



# ATTENTION!!!!!!

**STRICT ENFORCEMENT** OF PPE (Personal protective equipment) WILL BE OBSERVED DURING THE 2018 WELDING COMPETITION.

ALL ISSUES CONCERNING INADEQUATE OR INAPPROPIATE PPE MUST BE RESOVLED DURING THE ALLOWED CHECK-IN TIME FOR EACH STUDENT. IF THE ISSUE CANNOT BE RESOLVED DURING THIS TIME PERIOD, THE STUDENT WILL NOT BE ALLOWED TO COMPETE. PLEASE REVIEW THE LIST OF PPE REQUIREMENTS FOR THIS WILL BE STRICTLY ENFORCED.

- Each student contestant is assigned a specific check-in time this is the time listed on the schedule sheet provided by Skills USA Kansas.
- Prior to the contestant's check-in time they are welcome to wait in the designated gathering area in the Ade-Wifco RCIC building.
  - O The designated gathering area will be accessed by following the signs around the back of the building. Do not enter the main entrance of the building!!! UPDATE: Due to the possibility of rain on Tuesday/Wednesday and the potential for mud on the north side of the building please use the main front entrance to the building. AW106 will be used as a gathering point before and after the contest.
- You will not check-in prior to your assigned time.
- A contest judge will come get each group of 4 contestants from the gathering area at the designated time.
- This time slot will be the only opportunity for the student to enter the competition.



- Contestants will not be able to return to the check-in area after the contest. Advisors will be allowed to join their students during check-in and take all un-needed equipment and gear back to the gathering area. After the contest contestants will be allowed to return to the gathering area to pick up their stuff.
- Once contestants leave the check-in area for the written test they are to have no further contact with their advisor.
- Contestants not having the required PPE during check-in will not be allowed to enter the contest at a later time.
- No communication devices will be allowed in the competition area.

# **Contest Format**

- 1. Check-In (25 minutes) Contest begins for the contestant (5 minute rotation time)
- 2. Written Test (25 minutes)
  - (5 minute rotation time)
- **3.** GMAW Process (25 minutes) (5 minute rotation time)
- 4. SMAW Process (25 minutes)
  - (5 minute rotation time)
- **5.** FCAW Process (25 minutes)
  - (5 minute rotation time)
- **6.** Oxy-Fuel Cutting (25 minutes)
  - (5 minute rotation time)
- **7.** GTAW Process (25 minutes)
  - (5 minute rotation time)



# PLEASE REVIEW THE NEW GUIDELINES PROVIDED BY SKILLSUSA (see skillsusastore.org ref. #101-12xx) CONCERNING THE DRESS CODE.

COMPLIANCE WITH THIS DRESS CODE WILL BE ASSESSED IN THE FINAL SCORE FOR EACH STUDENT. DENIM OR FRC PANTS WILL BE PERMITTED.

Welding Schedule Set:

TIME	CONTESTANT #	STUDENT	SCHOOL/COLLEGE
6:00 am			
6:30 am			
7:00 am			
7.00			
7:30 am			
:00 am :30 am			
0.00 am			
0.00 alli			
8:30 am			
0.50 4111			
9:00 am			





0.20		
9:30 am		
10:00 am		
10:30 am		
11:00 am		
11:30 am		

\*\*\*\* CONTINUED ON NEXT PAGE \*\*\*\*



# **TOOLS / SAFETY EQUIPMENT**

No communication devices will be allowed in the competition area.

No contact by teachers or coaches during the competition.

Each cont	testant will supply the following safety equipment:
□w	Velding cap/beanie
□н	earing and/or ear protection
	ye protection (must have side shields or fit over prescription lasses)
SI sl	Velding Jacket, Leather Cape Sleeves (and bib) or FR Welding hirt (Long sleeved t-shirt, flannel shirts, or "heavy" button front nirts will not be acceptable if it isn't designed for welding don't by it!!!)
□ Fu	ull length jeans without holes
□Le	eather boots
	Velding gloves—full length (gauntlet) for SMAW, GMAW, and CAW
$\square$ $\vee$	Velding gloves — appropriate for GTAW
$\square$ W	Velding helmet with appropriate filter plate/lens and protective
	over lens for tacking and welding; auto darkening filter plate/lens ermissible. Spare filter plate and cover lens
□ C	utting goggles—with shade 5 lens/cover lens for OFC/PAC;
	elmet with shade 5 capability permissible; face shield head gear with shade 5 permissible. Spare filter and cover lens
□ P	ocket calculator – Not for weld settings
☐ Fi	illet weld gauges—standard set
□ Le	ead pencil
	oap stone (with or without holder) or silver pencil
☐ SI	harpie type marker
□ Sc	cribe with or without magnet



☐ Compass
☐ Protractor
☐ Combination square set
$\square$ 10-foot (3.1 meters) minimum steel tape measure
☐ 16-ounce (.45 kilogram) ball peen hammer
☐ Center punch
☐ Cold chisel
☐ 11R or 10-inch (254 millimeters) vise grips
<ul><li>6-inch (152 millimeters) side cutting pliers or diagonal cutting pliers</li></ul>
☐ 6-inch (152 millimeters) needle nose pliers – welpers permissible ☐ Chipping hammer
☐ Stainless steel wire brush for GTAW
☐ Carbon steel wire brush for SMAW
☐ Friction lighter (striker) and tip cleaner
☐ A one-page résumé to submit in hard copy format at check-in.
Failure to do so will result in a 10-point penalty.
PPE will be strictly enforced
All tools will be placed into a bucket that is provided by the contest committee during check in.
Only the tools on the list above are allowed into the contest.
No copies of the pre-test or outside notes are allowed.
Slide-rulers with welding settings, welding guides and other information are not allowed.
Each contestant will be given a set of welding /cutting print and welding procedures before the start of each portion of the contest.
All students are required to wear the Skills T-shirts or contest official dress for the competitions.
**** CONTINUED ON NEXT PAGE ****



# **DEMONSTRATION:**

AWS SENSE WPS WILL BE USED FOR WELDING PARAMETERS. PLEASE REVIEW THESE DOCUMENTS WITH YOUR STUDENTS PRIOR TO THE WELDING COMPETITION.

Each student will be expected to demonstrate the following process:

PROCESS POSITION EQUIPMENT

**GENERAL KNOWLEDGE TEST** 

#2 Pencil

\*\*Test will include 50 multiple choice questions covering GMAW, GTAW, SMAW, FCAW, welding symbols and general welding knowledge. This will also be used as the tie breaker for the contest.

GMAW-S 2F, 3F, 4F, 1G, 2G, 3G Millermatic 252

\*\*SHORT-CIRCUIT WITH AR/CO2 75/25

SMAW 2F, 3F, 4F, 1G, 2G, 3G Lincoln Invertec 275S

\*\* E6010 AND 7018 WILL BE USED ON THIS EXAM

FCAW 2F, 3F, 1G, 2G, 3G Millermatic 252

\*\*E71T-1 WITH AR/CO2 75/25

OXY-FUEL CUTTING FLAT Victor Performer Cutting Torch with

\*\*Acetylene Fuel Gas Edge style Regulators

GTAW 2F, 3F, 1G, 2G Lincoln Square-wave 200

\*\*All consumables will be provided

All projects will have blueprint provided with a tolerance of +/-1/16" unless otherwise noted on the individual blueprint or feature.

#### **IMPORTANT:**

WHILE WELDING, BASE PLATE DESIGNATED "A" MUST REMAIN IN THE HORIZONTAL AND IN FULL CONTACT WITH WELDING TABLE. ONE WARNING WILL BE GIVEN BEFORE THE LOSS OF POINTS.

CONTESTANTS DEMONSTRATING UNSAFE BEHAVIOR WILL BE STOPPED BY THE FLOOR JUDGE AND PREVENTED FROM MOVING FORWARD IN THAT INDIVIDUAL PORTION OF THE CONTEST. THIS WILL BE DOCUMENTED ON THE SCORE SHEET AS TO WHY THE CONTESTANT WAS STOPPED.



TEACHERS, ADVISORS, ADMINISTRATORS OR COACHES WILL NOT HAVE ANY CONTACT WITH THE COMPETITORS DURING THE COMPETITION AFTER THEY MOVE FROM CHECK-IN AND ONTO THE WRITTEN TEST.

THERE WILL BE NO COMMUNICATION DEVICES ALLOWED AFTER THE STUDENT CHECKS IN. SIMPLY PUT, IF CAUGHT – YOU ARE DISQUALIFIED.

NOTE: Any questions concerning the operation of the equipment used during this competition should be direct to:

#### Miller – www.millerwelds.com

Byron Nield <a href="mailto:byron.nield@millerwelds.com">byron.nield@millerwelds.com</a> 316-665-2439

Millermatic 252 - https://www.millerwelds.com/files/owners-manuals/O230693L\_MIL.pdf

# <u>Lincoln Electric</u> – <u>www.lincolnelectric.com</u>

Andrew Lochotzki - andrew lochotzki@lincolnelectric.com 913.302.2107

Invertec 275S – <a href="http://www.lincolnelectric.com/assets/servicenavigator-public/lincoln3/im802.pdf">http://www.lincolnelectric.com/assets/servicenavigator-public/lincoln3/im802.pdf</a>

Squarewave 200 - <a href="http://www.lincolnelectric.com/assets/servicenavigator-public/lincoln3/imt10296.pdf">http://www.lincolnelectric.com/assets/servicenavigator-public/lincoln3/imt10296.pdf</a>

# <u>ESAB/Victor</u> – <u>www.esabna.com</u>

 $\begin{array}{l} \text{Mike Cook} \\ \underline{\text{mike.cook@esab.com}} \\ 405\text{-}740\text{-}1210 \end{array}$ 

Victor Oxy-Fuel Torches W/Edge Regulators - <a href="http://www.esabna.com/shared/documents/litdownloads/56-3260.pdf">http://www.esabna.com/shared/documents/litdownloads/56-3260.pdf</a>

AWS SENSE WPS WILL BE USED FOR WELDING PARAMETERS. PLEASE REVIEW THESE DOCUMENTS WITH YOUR STUDENTS PRIOR TO THE WELDING COMPETITION.





#### **SkillsUSA**

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Skill	sUSA.		Welding Procedure Specification WPS 10									
WPS No.	WPS 10	1	Revision	3	Date <u>4/2</u>	1/2013	Ву <b>NP</b>					
Authorize	ed By <b>GH</b>			Date	5/15/2011		Prequalified					
Welding F	Process(es)	SMAW			Type:	Manual 🛚	Machine  Semi	i-Auto 🗌 Auto 🗌				
Supportin	ng PQR(s)	Prequalified										
JOINT												
Туре	Butt / T-Joir	nt										
Backing	Yes 🔣 N	lo 🗌 Single Wel	d 📓 Do	uble Weld [								
Backing	Material	A-36				45° +						
Root Op	pening 1/8" ±	:1/16" Root Face D	imension	0" - 1/8"	l [							
Groove	Angle 45 D	eg. Radius (J	-U) <b>N/A</b>									
Back Go	ouge Ye	es 🗆 No 🔳				1/8" ±1/1	6" —					
1	ethod <b>N</b> /											
BASE M	ETALS				POSITIO	N						
Material	Spec. A-	36 to	A-36		Position	of Groove	<b>1G,2G,3G,4G</b> Fi	llet 1F,2F,3F,4F				
Type or	Grade	to	)		Vertical	Progression	Up 🗌	Down				
Thickne	ss: Groove	(in ) <u>1/8</u>	- 3/4		ELECTRI	ICAL CHARA	ACTERISTICS					
	Fillet	( )Unlimited			Transfe	r Mode (GMA	AW):					
Diamete	er (Pipe, in	4	- Unlir	nited	Sh	Short-Circuiting ☐ Globular ☐ Spray ☐						
FILLER N	METALS				Current	Current: AC ☐ DCEP ■ DCEN ☐ Pulsed ☐						
AWS Sp	pecification	A5.1			Other							
AWS CI	assification	E-7018				Tungsten Electrode (GTAW):						
					Size	Size N/A Type N/A						
SHIELDIN	NG				TECHNIC							
Flux		Gas N/A			_	Stringer or Weave Bead Both						
N/A		Composition I	N/A			Multi-pass or Single Pass (per side)  Single / Multiple						
	le-Flux (Clas	· -	N/A			Number of Electrodes 1  Electrode Spacing: Longitudinal N/A						
N/A		Gas Cup Size	N/A		Electrod	Electrode Spacing: Longitudinal N/A  Lateral N/A						
PREHEAT						Angle N/A						
	Temp., Min.				Contact	Contact Tube to Work Distance N/A						
		/4" Temperature	N/A			Peening N/A						
	er 3/4" to 1-1		N/A		Interpas	Interpass Cleaning Chip slag and wire brush						
Over	1-1/2" to 2-1		N/A		POSTWE	LD HEAT TE	PEATMENT DIAM	IT Poquired				
I-4	Over 2-1		N/A					IT Required □				
Interpas	s Temp., Min	I. N/A IVIE	x. <u>N/A</u>	WELDI	Temp.		Time N/	A				
		1		Harten en en	NG PROCEDUI							
Layer/Pass	Process	Filler Metal Class		r Cur. Type		Volts	Travel Speed	Other Notes				
All	SMAW	E-7018	3/32	DCEP	70-110	N/A	4-10 ipm					
			OR									
All	SMAW	E-7018	1/8	DCEP	90-150	N/A	4-10 ipm					



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Skills	sUSA.		Weld	ling Pro	cedure Specification WPS							
WPS No.	WPS 10	3 1	Revision	2	Date <b>04/20</b> /	2013	By <b>NP</b>					
Authorized	d By <b>GH</b>			Date	5/15/2011	15/2011 Prequalified						
Welding P	rocess(es)	GTAW			Type: Ma	oe: Manual ■ Machine □ Semi-Auto □ Au						
Supporting	g PQR(s)	Prequalified										
JOINT												
Type 7	Γ-Joint / Cor	ner / Groove										
Backing	Yes 🗌 N	o Single Weld	d 📕 Dou	uble Weld [		1/8	" ±1/16" —  -					
Backing	Material N	N/A										
Root Op	ening 0 Gro	ove Root Face D	imension	0		(11)	^					
Angle 3	0-90	Radius (J	-U) <b>N/A</b>			XK						
Back Go	ouge Ye	s 🗆 No 🖪					( ) [T	0.00				
Me	thod N/				~			MA SANA SANA MARIA				
BASE ME	TALS				POSITION							
Material	Spec. 308	3 to	308		Position of			let All				
Type or 0		to			Vertical Pr	ogression:	■ Up □	Down				
Thicknes	ss: Groove (		- N/A		1750 CODE 1790		CTERISTICS					
Diamete	2010/09/09/09/09	(in )Unlimited	- N/A		Transfer M							
Diamete	r (Pipe, )	N/A	- N/A			Short-Circuiting Globular Spray						
FILLER M	IETALS				200000000000000000000000000000000000000	Current: DCEN ■ DCEP ☐ AC ☐ Pulsed ☐						
	ecification				1,000,000,000,000	Other N/A Tungsten Electrode (GTAW):						
AWS Cla	assification	ER308	-			Size 3/32" Type EWCe2						
	89				TECHNIQUE							
SHIELDIN	IG						ead Stringer					
Flux <b>N/A</b>		Gas 100%Ai Composition 1				Multi-pass or Single Pass (per side) Multiple/Single						
	e-Flux (Class		15-25 CFI		Number of	Number of Electrodes 1						
N/A		Gas Cup Size			Electrode S	Electrode Spacing: Longitudinal N/A						
PREHEAT				2007 1 1000		Lateral N/A						
	Temp., Min.	60 Deg.F					Angle N/A	Α				
Thickne	ess Up to 3	/4" Temperature	N/A		Contact Tu		k Distance N/A					
Ove	er 3/4" to 1-1	/2"	N/A			Peening N/A Interpass Cleaning						
Over	1-1/2" to 2-1	/2"	N/A		***********	Interpass cleaning						
	Over 2-1	/2"	N/A		POSTWELD	HEAT TR	REATMENT PWH	T Required				
Interpass	s Temp., Min	. <b>N/A</b> Ma	ax. <u>N/A</u>		Temp. N/A		Time N/A	4				
	Isaa sa sa sa			( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )	NG PROCEDURE							
Layer/Pass	Process	Filler Metal Class	Diamete	r Cur. Type	Amps	Volts	Travel Speed	Other Notes				
All	GTAW	ER308	1/16	DCEN	70 - 110	N/A	4-8 ipm					
All	GTAW	ER308	3/32" DCEN		110-125	N/A	4-8 ipm					
	1											



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Skills	sUSA.		Weld	ing Pro	cedure Speci	edure Specification w					
WPS No.	WPS 10	41	Revision	2000 30	Date 06/20/2		NP	_			
Authorized	,	CMAW S		Date	6/20/2015		equalified			A	
2700 DODGO - JULIERO	rocess(es)	GMAW-S	_		_ Type: Ma	nuai 🔲 Ma	achine	Semi-A	Auto 🔤	Auto 🗌	
Supporting	y Puk(s)	Prequalified		8							
JOINT Type 1	Γ-Joint				_						
Backing	Yes 🗌 N	o Single Weld	Dou	ıble Weld		11.			- A		
Backing	Material N	I/A					===		***		
Root Op	ening N/A	Root Face D	imension	N/A							
Groove /	Angle N/A	Radius (J	-U) <b>N/A</b>				_	4		}	
Back Go	ouge Ye	s  No 🔳									
Me	thod N/										
BASE ME	TALS				POSITION						
Material	Spec. A 3	6 to	A 36		Position of	Groove A	1	Fille	t All		
Type or 0	Grade	to	\		Vertical Pro	ogression:	☐ Up		Down		
Thicknes	ss: Groove (	) N/A	- N/A	15	ELECTRICA	L CHARAC	TERISTICS				
	Fillet (	in )Unlimited	-		Transfer M	Transfer Mode (GMAW):					
Diamete	r (Pipe, )	N/A	- N/A		Short-	Short-Circuiting ■ Globular □ Spray □					
FILLER M	IETAI S				Current:	Current: AC ☐ DCEP ■ DCEN ☐ Pulsed ☐					
	ecification	A5.18			Other N/	Other N/A					
	assification		-		Tungsten E	Tungsten Electrode (GTAW):					
					Size N	Size N/A Type N/A					
					TECHNIQUE						
SHIELDIN	IG	Gas			Stringer or	Weave Bead	Stringer				
N/A		Composition	75%Ara	on/25%CO	Multi-pass	Multi-pass or Single Pass (per side) Single					
	e-Flux (Class		5-45 CFH			Number of Electrodes 1					
N/A		Gas Cup Size	1/2" - 3/4	1"	Electrode S	Electrode Spacing: Longitudinal N/A					
PREHEAT	•	, , , , , , , , , , , , , , , , , , , ,				Lateral N/A					
	Temp., Min.	60 Deg.F					Angle				
		4" Temperature	N/A		Contact Tu	Contact Tube to Work Distance 1/4" to 3/8"					
	er 3/4" to 1-1		N/A	*		V/A					
Over	1-1/2" to 2-1	/2"	N/A		Interpass C	leaning C	hip slag ar	nd wire	brush		
	Over 2-1	2"	N/A		POSTWELD	HEAT TREA	TMENT	PWHT	Require	d 🗌	
Interpass	Temp., Min	. <u>N/A</u> Ma	x. N/A		Temp. N/A		Tim	ne N/A			
	<b>■</b> ************************************	120 mary and and a soules	l de la companya de	40	NG PROCEDURE			or (322000.534	V0.1 10.1 10.1 10.1		
Layer/Pass	Process	Filler Metal Class	Diamete	r Cur. Type	Amps	Volts	Travel S	peed	Other N	otes	
All	GMAW	ER70S-6	0.035"	DCEP	90-150	16-20	6-8	ipm	WFS 14	0-35 0 ipm	



			SkillsUSA						Page 1 of 1		
Skills	SkillsUSA . Welding Proce					fication			WPS 10		
WPS No.	WPS 108	В	Revision	1	Date 4/19/20	16 By	NP				
Authorized By EN				Date 4	1/19/2016	Pre	qualified				
Welding P	rocess(es)	FCAW-G		200000	Type: Mar	nual 🗌 Ma	chine  Semi	i-Auto 🔳	Auto 🗌		
Supporting	g PQR(s)	Prequalified									
JOINT											
Type 1	ال-Joint, Butt	, Flanged									
Backing	Yes 🗌 N	o Single Weld	d Dou	ble Weld							
Backing	Material N	I/A					SAAT	45°			
Root Op	ening <b>0-3/16</b>	in. Root Face D	imension	N/A	1 1	Į					
11.50	Angle N/A	Radius (J									
Back Go			-/				1/8" ±1/16" —				
	thod N/A	s □ No 📓 Δ					1/0 1/1/0 4/				
BASE ME					POSITION						
Material		6 to	A-36		Position of	Groove All	l Fi	llet All			
Type or 0		to	-		Vertical Pro	gression:	■ Up □	Down			
Thicknes	ss: Groove (	) Unlimited	- N/A		ELECTRICA	L CHARACT	ERISTICS				
	Fillet (	in )Unlimited			Transfer Mo	ode (GMAW)	o tenta faso describación de la • ; • i				
Diamete	r (Pipe, )	N/A	- N/A		Short-Circuiting ☐ Globular ☐ Spray ☐						
FILLER M	IETAI Q				Current:	AC DC	EP DCEN [	Pulsed			
	ecification A	A5.20			Other N/	Α	828 R				
magandretaskostos	ssification I	Contract to the contract of th			Tungsten Electrode (GTAW):						
	and the second second second				Size N/	A	Type N/A				
SHIELDIN	IG.				TECHNIQUE						
Flux		Gas			Stringer or \	Neave Bead	Both				
N/A		Composition 7	5%Argon	/25%CO2	Multi-pass o	or Single Pas	s (per side)	Multiple/Si	ngle		
Electrode	e-Flux (Class	s) Flow Rate	85-45 CFH		Number of Electrodes 1  Electrode Spacing: Longitudinal N/A  Lateral N/A						
N/A		Gas Cup Size	1/2" - 3/4	"							
PREHEAT											
Preheat 1	Temp., Min.	60 Deg.F			Contact Tut	e to Work D		o 3/4"			
Thickne	ess Up to 3/	4" Temperature	N/A		Peening N			0 0.4			
Ove	er 3/4" to 1-1/	/2"	N/A		Interpass C	1599 NOV	hip slag and wi	re brush			
Over	1-1/2" to 2-1/		N/A								
	Over 2-1/		N/A		POSTWELD			IT Required			
Interpass	Temp., Min	. N/A Ma	ax. <u>N/A</u>		Temp. N/A		Time N/	A			
Lewer/Dese	D	Filler Metal Class	Diamoto		PROCEDURE	Volts	Traval Speed	Other Ne	to a		
Layer/Pass				Cur. Type			Travel Speed	Other No			
All	FCAW-G	E71T-1M	0.045	DCEP	200-260	24-26	5-12	VVFS.	340-500ipm		
RECOMI	MENDED SE	TTINGS:									
1F&2F	FCAW-G	E71T-1M	0. 045	DCEP	260	26	5-12	WES	S:500ipm		
4F	FCAW-G	E71T-1M	0.045	DCEP	220	24	5-12		S:380ipm		
3F	FCAW-G	E71T-1M	0.045	DCEP	200	24	5-12		5:340ipm		
3F	FCAW-G	E71T-1M	0.045	DCEP	200	24	5-12	WFS	5:340ipm		



C1 411 3				Skil	illsUSA					
Skills	USA.		Weld	ing Proc	cedure Specification					WPS 1
WPS No. Authorized Welding Pr	ocess(es)	SMAW Prequalified	Revision		Date <u>4/20/2</u> <u>5/15/2011</u> Type: Ma		By <u>NP</u> Prequalified   Machine		Auto 🗌	Auto
Backing Backing I Root Ope Groove A Back Gou Met	Material Name N/A  Angle N/A  uge Ye  thod N/A	Single Weld  I/A  Root Face D  Radius (J	imension	ESTIMATE	1/8" ±	45	•	} {		<b>†</b>
Material S Type or G	Spec. A-3	6 to	A-36		POSITION Position of Vertical Presented		All Up		et <b>All</b> Down	
Thickness: Groove (in ) N/A - N/A  Fillet ( ) Unlimited -  Diameter (Pipe, in ) N/A - N/A  FILLER METALS  AWS Specification A5.1  AWS Classification E-6010					ELECTRICAL CHARACTERISTICS  Transfer Mode (GMAW):  Short-Circuiting Globular Spray Current: AC DCEP DCEN Pulsed Cother N/A  Tungsten Electrode (GTAW):  Size N/A Type N/A					
N/A PREHEAT Preheat T Thickness	e-Flux (Class	Gas Cup Size  60 Deg.F  4" Temperature	N/A		Number of Electrode S  Contact Tu	Weave Be or Single   Electrode Spacing: L be to Wor	Pass (per side s <u>1</u> Longitudinal Latera Angle k Distance	N/A N/A N/A		Single
Over 1	I-1/2" to 2-1/ Over 2-1/ Temp., Min	/2" /2"	N/A N/A ax. N/A		POSTWELD Temp. N/A	HEAT TR			Require	ed 🗆
			V6 30 30 10 10 10 10 10 10 10 10 10 10 10 10 10	B. 35 . 32 . 33	IG PROCEDURE				T. S. S.	
Layer/Pass	Process	Filler Metal Class	Diamete	Cur, Type	Amps	Volts	Travel 8	Speed	Other N	lotes
All	SMAW	E-6010	1/8	DCEP	90-115	N/A	4-10 ipr	m		
			1	İ		1			<u> </u>	