<u></u>		WELDING PROCEDURE							
LOS Alal NATIONAL LABO	DRATORY		SPECIFI	CATION					
WPS: 7000-xxxx-HDPE			REV. NO	: 0	C	DATE: 2/28/2011	**APP	LICABILITY**	
	F - and TF -		CODE	: ASME IX	от	HER: ANSI B31.3 C	h. VII		
SUPPORTING PQR: 7	200-HDPE Butt w	reld							
JOINT: This WPS shall I sections and cri	pe used in conju teria for joint det	nction witl ails, repair	n the General We s, NDE, inspectio	Iding Standards	s (GWS) and Welding Fabric	cation Proc	edure (WFP)	
Weld Joint Type: Butt			· · ·	Class:	N/A				
See GWS 1-06 and WFP'	s for joint details	5.		Preparation:	Cutpip	e and rough bonding	surfaces		
Root Opening: N/A	-			Backing:	N/A				
Backgrind Root: N/A				Backing Mat.:	N/A				
Bkgrd Method: N/A				GTAW Flux:	N/A		Backing R	etainer: N/A	
FILLER METALS:				(Class:	N/A and N/A			
A No: N/A		SFA Class	: N/A and N/A		F No:	N/A and N/A	Siz	e: 0 0 0 0	
Insert: N/A	li	nsert Type	N/A			Weld Metal Thickr	ess Range	s:	
Flux: Type: N/A		Size	: N/A			AWS Root Pas	ss: 0 thru	0	
Filler Material Note: N/	A					AWS Baland	ce: 0 thru	0	
						ASME Root Pas	ss: 0 thru	0	
						ASME Balance	ce: 0 thru	0	
BASE MATERIAL:									
		P No:	N/A	Gr No.:	N/A	to P No.:	N/A	Gr No.: N/A	
Spec.: ASME PE 3408		Grade:	N/A	to Spec.:	ASME	PE 3408		Grade: N/A	
Qualified Pipe Dia. Rang	e: >=	AWS:	0	ASME:	4				
Qualified Thickness Ran	ge:	AWS:	0 thru 0	ASME:					
QUALIFIED POSITIONS:		AWS:	N/A	ASME:	N/A	Vert. Prog.:	N/A		
Preheat Min. Temp.:	400			GAS:	Shieldi	ng: N/A or	N/A		
nterpass Max. Temp.:	450 ° F			Gas Cor	npositi	on: 0 / 0 / 0 %	0 /	0/0%	
Preheat Maintenance:	N/A °F			Gas Flow	Rate c	:fh: 0 to 0	0 to	0	
PWHT: Time @ °F Temp	: 0			Backing G	as/Cor	np: N/A	0 %		
Temperature Range:	N/A °F to N	/A °F		Backing Gas	Flow o	:fh: 0 to 0			
				Trailing G	as/Cor	np: N/A	0 %		
WELDING CHARACTER	ISTICS:								
urrent: N/A and N/A		Tungsten Type: N/A		Transfer Mode: N/A					
Ranges: Amps: 0 to 0			Tungsten Dia.: 0			Pulsing Cycle: N/A to N/A			
Volts	0 to 0					Background C	urrent: N/A	L Contraction of the second seco	
Fuel Gas: N/A					Braze Temp °F: N/A to N/A				

WELDING TECHNIQUE: For fabrication specific requirements such as fitup, cleaning, grinding, PWHT and inspection criteria, refer to Volume 2, Welding Fabrication Procedures.

Technique:

Thermal fusion

Cleaning Method: Scrap to remove surface film

Single or Multi Pass:	N/A	Stringer or Weave Bead (S/W): N/A or N/A	Oscillation: N/A		
GMAW Gun Angle:	0° to 0°	Forehand or Backhand for GMAW: N/A			
No Pass > 1/2":	N/A	GMAW/FCAW Tube to Work Distance (in): N/A			
Maximum K/J Heat Input: N/A KJ/in		Travel Speed: N/A	Gas Cup Size: N/A		
PROCEDURE QUALIFI	ED FOR:				

Charpy	"V" N	otch:	N/A
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Nil-Ductile Transition Temperature: N/A

Dynamic Tear: N/A

Comments: This procedure will be used following LANL Large Diameter HDPE Butt Fusion Procedure and piping manufacturer heating and joining equipment or a manufacturer approved equivalent. This procedure may be used only for single wall pipe materials with maximum pipe diameter of 48". Material Handing, storage, heating, pressure, holding, and time @ temperature shall be in accordance with manufacturers and consensus standards, (ANSI/ASME/ASTM, etc.) WPS Data Sheets will be added for each type of plastic pipe, (i.e. PP/PE/PPE/PVDF/HDPE/etc.) that fall within the jurisdiction of ANSI/ASME B31.3 Chap. VII and are performed within the manufacturers instructions/requirements.

Weld Layer	Manual Process	Filler Metals	Size	Amp Range	Volt Range	Travel/ipm	Nozzle Angle	Other
1	TF -	N/A	0	0 to 0	0 to 0	0 to 0	0 to 0	
2	TF -	N/A	0	0 to 0	0 to 0	0 to 0		
3	TF -	N/A	0	0 to 0	0 to 0	0 to 0		
4	TF -	N/A	0	0 to 0	0 to 0	0 to 0		

REM. * Weld layers are representative only - actual number pf passes and layer sequence may vary.

ML-1/2 projects or jobs must determine if the supporting documentation for this WPS complies with quality requirements of the project/job.

Use of LANL Welding Procedures and Welder Qualifications for non-LANL work shall be at the sole risk and responsibility of the Subcontractor, and the Subcontractor shall indemnify and save LANL and the Government harmless from any and all claims, demands, actions or causes of action, and for any expense or loss by the reason of Subcontractor's and their employees posession and use of LANL procedures and qualifications.

APPROVAL: Signatures on file at ES-DE

DATE: 2/28/2011