



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE CHENNAI – 17
QUALITY DEPARTMENT.

QA 03

STANDARD QUALITY PLAN FOR PIPING FABRICATION (NON – IBR)

QP NO : QPG : 02

REV. NO : 02

DATE : 11.06.2007

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SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY		REMARKS
									M	B	
1	2	3	4	5	6	7	8	9	10		11

1.0	MATERIAL										
1.1	Pipes as per BHEL Drawing.	Correctness of material specn.	Major	Verification of material specn.	100%	Material Specification as per Col.2	HC*	P	V		
1.2	Fittings (Elbows, Reducers, Tees, Mitre Bends Etc) as per BHEL Drawing.	Correctness of material specn.	Major	Verification of material specn.	100%	Material Specification as per Col.2	HC*	P	V		HC*- History Card/ Register
1.3	Plates as per BHEL Drawing.	Correctness of material specn.	Major	Verification of material specn.	100%	Material Specification as per Col.2	HC*	P	V		@Review of WPS /PQR, if the welder is already qualified by BHEL. Other wise the welder has to be qualified by BHEL.
1.4	Branch Connections Pipes/Tubes//forgings as per BHEL Drawing.	Correctness of material specn.	Major	Verification of material specn.	100%	Material Specification as per Col.2	HC*	P	V		
2.0	IN PROCESS CONTROL.										
2.1	Welding.	Procedure & Performance Qualification	Major	Review of WPS and PQR @	Each Welder	As per ASME SEC.IX	Report	P	V		
2.2	Weld Profiles and Surface Defects.	Finish	Minor	Visual	100%	PFI ES 27 & ASME B 31.1 Cl : 136.4.2	Report	P	W		
2.3	NDE. a) Edge Preparation.	Liquid Penetrant Test	Minor	NDE	100%	ASME Sec.V & ASME B 31.1 Cl:136.4.4	NDT Report	P	V		

Prepared By G.PANNEER SELVAM.

LEGEND:

M : BHEL/BHEL Approved Vendor
B : BHEL/BHEL Authorized Inspection Agency
WPS – Welding procedure Specification
PQR – Procedure Qualification Report

P: Perform
V : Verification
W: Witness
IR – Inspection Report

Reviewed and Approved By P.ELANGO VAN.

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2.3	b) Butt welds.	Radiograph Test	Major	RT Film Evaluation	# 10%	ASME Sec.V& ASME B 31.1 CI:136.4.5	NDT Report	P	V	
	c) Branch Welds and Attachmment welds.	Liquid Penetrant Test/ Magnetic Particle Test	Minor	NDE	10% for CS 100% for AS/SS	ASME B31.1 CL 136.4.4 / CI ; 136.4.3	-do-	P	W	CS :Carbon steel. AS : Alloy steel. SS : Stainless steel
2.4	Bends.	Dimension, Angle of Bend, Arm length, Ovality, flatness, Radius of Bend, Thickness on tension axis	Major	Measurement	100%	BHEL Drawing.	HC*	P	W	
2.5	HEAT TREATMENT as applicable for final. Product.	Time & Temperature Control	Major	H.T. Charts Review	100%	ASME B31.1 CL 132	HC*	P	V	NDE:Non destructive examination: # - Where rejection are observed in 10% lot ,another lot of 20%shall be taken, if there are rejection in 20% lot also, complete 100% lot shall be tested for respective NDE
3.0	FINAL INSPECTION.									
3.1	Dimensional Control.	Length, Thickness, Weld end diameter, Positions of attachments.	Major	Measurements & Visual	100%	AS PER BHEL DRAWING.	HC*	P	W	
3.2	Painting.	Painting	Minor	Measurements & Visual	100%	AS PER BHEL STANDARD	HC* / Final I.R	P	V	
3.3	Identification.	Stenciling & hard stamping.	Minor	Visual	100%	AS PER BHEL STANDARD		P	V	
3.4	Documentation Review	Verification of Reports	Major	Visual	100%	QP NO: QPG : 02	IR, Report , HC*	P	V	

 Prepared By G.PANNEER SELVAM.	LEGEND: M : BHEL/BHEL Approved Vendor B : BHEL/BHEL Authorized Inspection Agency WPS – Welding procedure Specification PQR – Procedure Qualification Report P: Perform V : Verification W: Witness IR – Inspection Report	 Reviewed and Approved By P.ELANGO VAN.
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