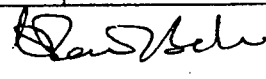
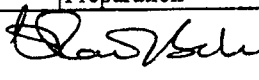
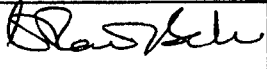
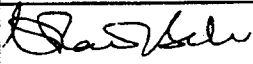


		CONTRACTOR'S NAME & ADDRESS BHEL PIPING CENTRE, CHENNAI PROCUREMENT OF MATERIAL, FABRICATION & SUPPLY BY NTPC APPROVED SUB-VENDORS		MANUFACTURING QUALITY PLAN ITEM : NON-IBR PIPING FABRICATION (with Vendor Material) SUB-SYSTEM : Piping system upto 50 kg / sq cm BHEL Customer nos. :0649,0650,0651,0489,6937,6938,6939				Q.P. No.: 6937QPC13 REV-03 DT- 18.08.09		PROJECT : Aravali-Jhajjar STPP(3x500MW) PACKAGE : SG Package CONTRACT No.: CS-0330-101-2 MAIN-SUPPLIER : BHEL, Piping Centre			
S.No	COMPONENT & OPERATIONS	CHARACTRISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS	AGENCY			REMARKS
					M	C/N				M	C	N	
1	2	3	4	5	6	7	8	9	D*	** 10			11
1.0	Material	All raw material and fittings shall be manufactured by the Vendors refered in the "List of Raw Material manufacturers-QCP 17" approved by NTPC											
1.11	C.S. pipes (SA 106 Gr. B, Gr C or as per Drg.)	Co-relation & verification of Mill TCs for a) Chemical Composition. b) Mech. Properties c) Soundness (UT / Eddy current test) d) Heat Treatment as applicable e) Surface finish f) Dimension (OD / ID & Wall Thickness)	Major	Verification	100%	100%/10%	BHEL Drawing , Material Spec.	Mill TCs	√	P	V	V	Note 1 TC - Test Certificate
1.12				Chem. Analysis	1/Heat		BHEL Drawing , Material Spec.						
1.13				Mech. Test	1/Heat/size		BHEL Drawing , Material Spec.						
1.14				UT	100%		ASTM E213/ SA106						Note 2
1.15				ECT	100%		ASTM E309						Note 3
1.16				Time/Temp.	100%		Material Spec.						
1.20	CS Plates (SA515 Gr 70 or as per drg)	Co-relation & verification of Mill TCs for a) Chemical Composition. b) Mech. Properties c) Soundness (for thk>25mm) d) Dimension & Surface finish	Major	Verification	100%	100%/10%	BHEL Drawing , Material Spec.	Mill TCs	√	P	V	V	Note 1
1.21				Chem. Analysis	1/Heat		BHEL Drawing , Material Spec.						
1.22				Mech. Test	1/Heat		BHEL Drawing , Material Spec.						
1.23				UT	100%		SA578						
1.24				Measurement & Visual	100%		BHEL Drawing , Material Spec.						
1.30	Rounds (SA105 or as per drg)	Co-relation & verification of Mill TCs for a) Chem. Properties. b) Mech. Properties c) Soundness (for dia > 50mm)	Major	Verify	100%	100%/10%	BHEL Drawing , Material Spec.	Mill TCs	√	P	V	V	Note 1
1.31				Chem. Analysis	1/Heat		BHEL Drawing , Material Spec.						
1.32				Mech. Test	1/Heat		BHEL Drawing , Material Spec.						
1.33				UT	100%		SA 388						
 G. PANNEER SELVAM Dy. General Manager/QA BHEL Piping Centre Chennai - 600 017				LEGEND: * RECORDS, IDENTIFIED WITH "TICK" () SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/SUB-SUPPLIER, C: BHEL / BHEL AUTHORISED AGENCY, N: NTPC, P: PERFORM W: WITNESS AND V: VERIFICATION CHP: NTPC SHALL IDENTIFY IN COLOUM 'N' AS 'W'				 Digitally signed by C J GUPTA Date: 2009.09.01 13:39:27 EGM NTPC USE:		DOC. NO. 0330-101-2-PC-QVM-Q-102 REV..... CAT... REV-02		REVIEWED BY APPROVED BY APPROVAL SEAL	
PAGE 01 OF 05								Reason: CAT I Location: NTPCEOC					

		CONTRACTOR'S NAME & ADDRESS BHEL PIPING CENTRE, CHENNAI PROCUREMENT OF MATERIAL, FABRICATION & SUPPLY BY NTPC APPROVED SUB-VENDORS		MANUFACTURING QUALITY PLAN				PROJECT : Aravali-Jhajjar STPP(3x500MW) PACKAGE : SG Package CONTRACT No.: CS-0330-101-2 MAIN-SUPPLIER : BHEL, Piping Centre					
S.No	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS	AGENCY			REMARKS
					M	C/N				M	C	N	
1	2	3	4	5	6	7	8	9	D*	** 10			11
1.34		d) Heat Treatment (If applicable) (In case of SA105 only)		Time/temp.	100%	-	BHEL Drawing , Material Spec.						
1.35		e) Dimension & Surface finish		Measurement & Visual	100%	-	BHEL Drawing , Material Spec.						
1.40	Pipe fitting (SA 234 WPB,	Co-relation & verification of Mill TCs for	Major	Verify	100%	100%/10%	BHEL Drawing , Material Spec.	TCs	√	P	V	V	Note 4
1.41	WPC or as per drg.)	a) Chem. Composition		Chem. Analysis	1/Heat		BHEL Drawing , Material Spec.						
1.42		b) Mech. Test		Mech. Test	1/Heat		BHEL Drawing , Material Spec.						
1.43		c) Dimensions of fittings (OD & wall thickness, etc.,)		Measurement & Visual	100%		BHEL Drawing , Material Spec.						
1.44		d) Surface Defects		MPI	100%		ASTM E709						
1.45		e) Soundness (for thk > 6mm or dia > NB 200mm)		UT	100%		SA 388 / ASME Sec VIII Div II cl 3.3.4						
1.46		f) Heat Treatment if applicable		Time/Temp.	100%		SA234 WPB- as per Spec. SA234 WPC- Normalised.						
1.47		g) Hardness		Measurement	10%		Material Spec.						
1.48		h) Supplementary Tests for SA 234 WPC		(a) Product Analysis	1/Heat/ size		Material Spec.						
				(b) Tension test	1/Heat/HT Lot / size		Material Spec.						
1.49		i) Weld quality (in case of welded fitting, if any)		RT	100%		ASME Sec V / ASME Sec VIII Div-I UW 51						
2.0	IN-PROCESS INSPECTION												
2.1	Material receiving inspection	Marking & transfer of identification	Major	Visual	100%	100%/-	As per drg.	HC		P	V		Note 5
2.2	Cutting & Edge Preparation	a) Dimension	Minor	Measurement	100%	10%/-	As per drg.	HC		P	V		HC - History card
 G. PANNEER SELVAM Dy. General Manager/QA BHEL Piping Centre Chennai - 600 017		 P. Praveen Dy. General Manager/QA BHEL Piping Centre Chennai - 600 017		LEGEND: * RECORDS, IDENTIFIED WITH "TICK" () SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/SUB-SUPPLIER, C: BHEL / BHEL AUTHORISED AGENCY, N: NTPC, P: PERFORM W: WITNESS AND V: VERIFICATION CHP: NTPC SHALL IDENTIFY IN COLOUM 'N' AS 'W'				NTPC FOR NTPC USE:		DOC. NO. _____ REV..... CAT... REVIEWED BY _____ APPROVED BY _____ APPROVAL SEAL _____			
SIGNATURE		PAGE 02 OF 05											

		CONTRACTOR'S NAME & ADDRESS		MANUFACTURING QUALITY PLAN				PROJECT : Aravali-Jhajjar STPP(3x500MW)							
		BHEL PIPING CENTRE, CHENNAI PROCUREMENT OF MATERIAL, FABRICATION & SUPPLY BY NTPC APPROVED SUB-VENDORS		ITEM : NON-IBR PIPING FABRICATION (with Vendor Material) SUB-SYSTEM : Piping system upto 50 kg / sq cm BHEL Customer nos. :0649,0650,0651,0489,6937,6938,6939			Q.P. No.: 6937QPC13 REV-03 DT- 18.08.09		PACKAGE : SG Package CONTRACT No.: CS-0330-101-2 MAIN-SUPPLIER : BHEL, Piping Centre						
S.No	COMPONENT & OPERATIONS	CHARACTRISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS		AGENCY			REMARKS	
					M	C/N				D*	M	C	N		
1	2	3	4	5		6	7	8	9		** 10			11	
2.3	Bending	b) NDT for Edge preperation	Minor	LPI	100%	10%/-	ASME Sec V / ASME B31.1 cl 136.4.4		Report	√	P	V		IR - Inspection Report @ If rejections are observed in 10% sampling, another lot of 20% shall be taken. If there are rejections in 20% lot also, complete 100% lot shall be tested for respective NDE. RT films review by NTPC is CHP	
		a) Dimension	Major	Measurement	100%	100%/10%	As per drg.		HC		P	V	V		
		b) Ovality	Major	Measurement	100%	-do-	BHEL drg. / 10% (max)		HC		P	V	V		
		c) Thinning	Major	Measurement	100%	-do-	Max. 12.5%		HC		P	V	V		
		d) Surface defects (On bend portion only)	-do-	LPI	100%	10%/-	ASME Sec V / ASME B31.1 cl 136.4.4		I.R.	√	P	W			
2.4	Welding	e) Bend radius /angle of bend	-do-	Measurement	100%	10%/-	BHEL drg & ASME B 31.1		I.R.	√	P	W			
		a) Procedure & Performance Qualification details	Major	Verify	100%	100%/Random	ASME Sec. IX		WPS , PQR		P	V	V	WPS, PQR shall be approved by BHEL	
		b) NDT for Edge preperation	Minor	LPI	100%	10%	ASME Sec V / ASME B31.1 cl 136.4.4		Report	√	P	V	V		
		c) Fit-up	Major	Dimension, Root gap	100%	-/-	As per drg.		HC		P	-	-		
		d) NDE for Butt joints	Major	RT	10% @	100%/100%	ASME SecV / ASME B31.1 cl 136.4.5		NDT Report	√	P	V*	V*	V*- Review of RT Films	
		e) NDE for Fillet welds	Major	LPI	10% @	100%/-	ASME SecV / ASME B31.1 cl 136.4.4		do	√	P	W			
		 G. PANNEER SELVAM Dy. General Manager/QA BHEL Piping Centre Chennai - 600 017		 B. Pan MAIN-SUPPLIER		LEGEND: * RECORDS, IDENTIFIED WITH "TICK" () SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/SUB-SUPPLIER, C: BHEL / BHEL AUTHORISED AGENCY, N: NTPC, P: PERFORM W: WITNESS AND V: VERIFICATION CHP: NTPC SHALL IDENTIFY IN COLOUM N AS 'W'			 NTPC		DOC. NO.		REV..... CAT...		
		SIGNATURE		PAGE 03 OF 05		FOR NTPC USE:			REVIEWED BY		APPROVED BY		APPROVAL SEAL		

		CONTRACTOR'S NAME & ADDRESS BHEL PIPING CENTRE, CHENNAI PROCUREMENT OF MATERIAL, FABRICATION & SUPPLY BY NTPC APPROVED SUB-VENDORS		MANUFACTURING QUALITY PLAN				PROJECT : Aravali-Jhajjar STPP(3x500MW)						
				ITEM : NON-IBR PIPING FABRICATION (with Vendor Material)		Q.P. No.: 6937QPC13 REV-03 DT- 18.08.09		PACKAGE : SG Package CONTRACT No.: CS-0330-101-2 MAIN-SUPPLIER : BHEL, Piping Centre						
S.No	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS		AGENCY			REMARKS
					M	C/N				D*	M	C	N	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2.5	Heat Treatment (if applicable)	Time & Temp	Major	Review of HT chart	100%	100%/100%	ASME B31.1		HT chart	√	P	V\$	V\$	V\$- Review of HT Chart
3.0	FINAL INSPECTION													
	a) Visual examination		Major	Visual	100%	10%/Random	BHEL Drawing		-		P	V	V	
	b) Dimensions		-do-	Measurement	100%	10%/10%	BHEL Drawing		I.R.	√	P	W	W	
	c) Surface preparation & Painting		-do-	Visual & Measurement	100%	100% / Random	Painting specification shall be as approved by NTPC Engg.		IR	√	P	V	V	
	d) Identification ,Marking & Colour coding		-do-	Visual	100%	100% / Random	BHEL Drawing, PO		-		P	V	V	Note 11
	e) End protection		-do-	-do-	100%	100% / Random	BHEL Drawing, PO		-		P	V	V	Note 12
4.0	DOCUMENTATION													
4.1	Inspection clearance	Documentation	Critical	Verification	100%	100% / -	All reports as required in this QP				P	V		
4.2	Despatch Clearance	Despatch Clearance	Critical	Verification	100%	100% / -		MDCC			P	V	CHP	Note 9
NOTES: 1) If the raw materials are received directly from RM Manufacturer's work, the material shall be accepted based on (a)correlation of Heat number on material with TC and (b)verification of TCs. If the materials are received from Dealers place, check test (Chemical and Mechanical tests on one sample per Heat/ size) shall be done in addition to the above for accepting the material BHEL shall identify and witness the sample for check test														
 G. PANNEER SELVAM Dy. General Manager/QA BHEL Piping Centre		 MAIN-SUPPLIER		LEGEND: * RECORDS, IDENTIFIED WITH "TICK" () SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/SUB-SUPPLIER, C: BHEL / BHEL AUTHORISED AGENCY, N: NTPC, P: PERFORM W: WITNESS AND V: VERIFICATION CHP: NTPC SHALL IDENTIFY IN COLOUM 'N' AS 'W'				 NTPC		DOC. NO.		REV..... CAT...		
Chennai - 600 017 SIGNATURE		PAGE 04 OF 05						FOR NTPC USE:		REVIEWED BY		APPROVED BY		APPROVAL SEAL

		CONTRACTOR'S NAME & ADDRESS BHEL PIPING CENTRE, CHENNAI PROCUREMENT OF MATERIAL, FABRICATION & SUPPLY BY NTPC APPROVED SUB-VENDORS		MANUFACTURING QUALITY PLAN				PROJECT : Aravali-Jhajjar STPP(3x500MW) PACKAGE : SG Package CONTRACT No.: CS-0330-101-2 MAIN-SUPPLIER : BHEL, Piping Centre						
				ITEM : NON-IBR PIPING FABRICATION (with Vendor Material) SUB-SYSTEM : Piping system upto 50 kg / sq cm BHEL Customer nos. :0649,0650,0651,0489,6937,6938,6939		Q.P. No.: 6937QPC13 REV-03 DT- 18.08.09								
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					M	C/N				D*	M	C	N	
1	2	3	4	5		6	7	8	9		**	10	11	
2) UT notch shall be (a) 12.5 % (max1.5mm) for pipe thk. Upto 12.7mm (b) 5% (max1.5mm) for pipe thk. above 12.7mm 3) ECT applicable for pipe dia < NB 100 mm and thk. < 6mm for vents and drain piping. 4) Fittings shall be procured only from BHEL & NTPC approved Manufacturers . All the requirements covered in slno 1.40 to 1.49 shall be taken care by Sub-vendor while ordering fittings on the manufacturer. 5) Heat number transfer to cut piece (raw material) shall be done by Sub-Vendor in the presence of BHEL / BHEL Authorised Inspecting Agency. 6) The items shall be manufactured as per BHEL drawing . 7) Welding Electrodes and Paints used shall be of BHEL approved make 8) All items shall be inspected and cleared by BHEL / BHEL Authorised Inspecting Agency. NTPC inspection is applicable only for those PGMA's identified as Cat I in PGMA categorisation list ref. 6937:PGMA:02 approved by NTPC. 9) The Sub-Vendor shall co-ordinate with NTPC and obtain MDCC before despatch of finished material 10) The finished components shall be punched with DU code (14 digit work order details), Heat number, material specification, maker's emblem and Inspector's seal. In addition, the DU code, Heat no. and Material specification shall also be paint stencilled. Colour coding : Red for SA106 Gr B ; Blue for SA106 GrC 11) Machined ends shall be well protected using end caps and fittings shall be suitably packed in box / crate to avoid transit & other damages.														
 G. PANNEER SELVAM Dy. General Manager/QA BHEL Piping Centre Chennai - 600 017		 MAIN-SUPPLIER PAGE 05 OF 05		LEGEND: * RECORDS, IDENTIFIED WITH "TICK" () SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/SUB-SUPPLIER, C: BHEL / BHEL AUTHORISED AGENCY, N: NTPC, P: PERFORM W: WITNESS AND V: VERIFICATION CHP: NTPC SHALL IDENTIFY IN COLOUM 'N' AS 'W'				NTPC FOR NTPC USE:		DOC. NO. REV..... CAT...		REVIEWED BY APPROVED BY APPROVAL SEAL		



एनटीपीसी लिमिटेड

(भारत सरकार का उद्यम)

NTPC Limited

(A Govt. of India Enterprise)

(Formerly National Thermal Power Corporation Ltd.)

केन्द्रीय कार्यालय नोएडा

Corporate Centre NOIDA

Reference: CC:PE-JHAJJAR:101:16628

Date:01-09-09

From:	ATUL SRIVASTAVA CTF (JHAJJAR ENNORE TASK FORCE)	To:	BHEL-PC Kind Att. Sh. K.S.Devanathan,DGM(COM M.)
		CC:	Sh. R.G.Mittal null null
SUBJECT : JAJJAR, STEAM GENERATOR WITH ESP Please find enclosed following drawings/documents for necessary action at your end as indicated in purpose code.			
VENDOR DRG NO:	null		
NTPC DRG NO:	0330-101-2-PC-QVM-Q-102		
REVISION NO:	02		
DRG TITLE:	MQP- CARBON STEEL PIPING FAB (NON IBR)		
APP CATEGORY:	I		
RELEASE DATE:	01-09-09		
COMMENTS:	Reviewed for approval in Cat-I.		



Engineering Division
ISO 9001:2008 Certified

अभियान्त्रिकी कार्यालय परिसर, प्लॉट नं.- ए 8ए, सेक्टर-24, पोस्ट बाक्स नं.- 13, नोएडा (उ प्र) पिन-201 307

टेलिफोन नं.- 0120-2410333, 2410116 फैक्स-0120-2410136, 2410137

पंजीकृत कार्यालय: एनटीपीसी भवन, स्कोप कॉम्प्लेक्स, 7 इन्स्टीट्यूशनल एरिया, लोधी रोड, नई दिल्ली-110 003

टेलिफोन नं.- 011-24361018 फैक्स-011-24361018, वेबसाइट: www.ntpc.co.in

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Telephone No: 0120-2410333, 2410116 Fax-0120-2410136, 2410137

Registered Office: NTPC Bhawan, Scope Complex, 7 Institutional Area, Lodhi Road, New Delhi-110 003

Telephone No: 011-24360100 Fax-011-24361018, Website: www.ntpc.co.in