



NTPC LTD.
(ENGINEERING DIVISION)
ENGINEERING OFFICE COMPLEX
A-8A, SEC-24, NOIDA, U.P. 201301
PH.: 0120-4946298 FAX 0120-2410208

TRANSMITTAL FOR DOCUMENTS

FROM : HOD (QA-SPL)

REF. : 01/CQA/0000-SPL/2015

DATE : 16/10/2015

TO : : M/s BHEL, Piping Centre,
No. 80, GN Chetty Road,
T Nagar - 6000 017

RIO: CHENNAI

Please find enclosed following documents for necessary action at your end as indicated in purpose code

	Item	RQP No	Rev No	No. of Copies	Purpose code	Remarks
01	Non-IBR Piping Fabrication(With Vendor Material)	0000-999-QVM-P-306	01	1	11	

- 1.Approved in CAT-1
- 2.Approved in CAT-II With comments resubmit
- 3.Not APPROVED- CAT-III
- 4.Approved in CAT-IV(For information only)
- 5Released for Fabrication/Construction

- 6.for your comments
- 7.Revised as per your comments
8. For your approval
- 9.for your information
- 10.As-built
- 11.Approved for Reference subject to approval of Endorsement sheet

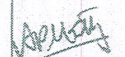
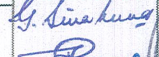
SIGNATURE :

NAME :


for **B.C.ROY**

FORMAT NO. : QS-01-DIV-P-02/F2-

ENGINEERING DIVISION

		MANUFACTURER'S NAME & ADDRESS		REFERENCE QUALITY PLAN							TO BE FILLED BY NTPC					
		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 (Refer note 12)			Q.P. No.: PC-PVM-RQP-04 Rev: 01 Dt.: 12.06.2015		SIGN. OF MGFR  A.P. Mathavan Kutty AGM / Q		Q.P. No.: 0000-999-QVM-P-306 Rev: 01 Dt.: 19.10.2015 Valid upto : 18.10.2018		REVIEWED BY  Dt.: 19.10.2015		APPROVED BY  Dt.: 19.10.2015	
S.No	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS	D*	AGENCY			REMARKS		
					M	C/N					M	C	N			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
1.0	<u>Material</u>	All raw material and fittings shall be manufactured by the Vendors referred in the "List of Raw Material manufacturers-QCP 17" approved by NTPC														
	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		
1.11				Chem Analysis	1/Heat		BHEL Drawing , Material Spec.									
1.12				Mech. Test	1/Heat/size		BHEL Drawing , Material Spec.									
1.13				UT	100%		ASTM E213/ SA106							Note 2		
1.14				ECT	100%		ASTM E309							Note 3		
1.15				Time/Temp.	100%		Material Spec.									
1.16				Visual	100%		BHEL Drawing , 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	Verification	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									
LEGEND: * RECORDS IDENTIFIED WITH "TICK " (√) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION ** M: MANUFACTURER / SUB - SUPPLIER C: MAIN SUPPLIER. N: NTPC "P": PERFORM "W": WITNESS "R"RANDOM AND " V": VERIFICATION. AS APPROPRIATE, CHP : NTPC SHALL IDENTIFY IN COLUMN AS "W"								NOTE : # NTPC Inspection Engineer to check, approval date/ revision no. of reference documents at the time of Inspection .								

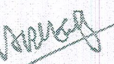
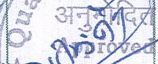
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						M	C/N				M	C	N	
1		2	3	4	5	6		7 #	8	9	D*			11
1.34			d) Heat Treatment (If applicable) (In case of SA105 only)		Time/temp.	100%	-	BHEL Drawing , Material Spec.						
1.35			e) Dimension & Surface finish		Measurement & Visual	100%	-	BHEL Drawing , Material Spec.						
1.40	Pipe fitting (SA 234 WPB, WPC or as per drg.)	Co-relation & verification of Mill TCs for	Major	Verification	100%	100%/10%		BHEL Drawing , Material Spec.		TCs	√	P	V	V
1.41		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 (b) Tension test	1/Heat/ size 1/Heat/HT Lot / size			Material Spec. 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	-
2.2	Cutting & Edge Preparation	a) Dimension	Minor	Measurement	100%	10%/-		As per drg.		HC		P	V	-
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						M	C/N					M	C	N	
1	2	3	4	5	6	7 #	8	9	D*	** 10	11				
2.3	Bending	b) NDT for Edge preparation	Minor	LPI	100%	10%/-	ASME Sec V / ASME B31.1 cl 136.4.4	Report	√	P	V	-	IR - Inspection Report		
		a) Dimension	Major	Measurement	100%	100%/10%	As per drg.	HC		P	V	V	@ 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		
		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	LR.	√	P	W	-			
	e) Bend radius / angle of bend	-do-	Measurement	100%	10%/-	BHEL drg & ASME B 31.1	LR.	√	P	W	-				
	2.4	Welding	a) Procedure & Performance Qualification details	Major	Verify	100%	100% / 100%	ASME Sec. IX	WPS,PQR		P	V	V	WPS, PQR shall be approved by BHEL	
			b) NDT for Edge preparation	Minor	LPI	100%	10%	ASME SecV / 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	-			

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						M	C/N				REVIEWED BY		APPROVED BY	
											AGENCY		REMARKS	
											M	C	N	
											** 10		11	
1	2	3	4	5	6	7 #	8	9	D*		P	VS	VS	
2.5	Heat Treatment (if applicable)	Time & Temp	Major	Review of HT chart	100%	100%/100%	ASME B31.1	HT chart	√					
3.0	FINAL INSPECTION													
	a) Visual examination	Major	Visual	100%	10% / 100%	BHEL Drawing					P	V	V	
	b) Dimensions	-do-	Measurement	100%	10%/10%	BHEL Drawing	IR.	√			P	W	W	
	c) Surface preparation & Painting	-do-	Visual & Measurement	100%	100% / 100%	Painting specification shall be as approved by NTPC Engg.	IR	√			P	V	V	
	d) Identification, Marking & Colour coding	-do-	Visual	100%	100% / 100%	BHEL Drawing, PO					P	V	V	
	e) End protection	-do-	-do-	100%	100 / 100	BHEL Drawing, PO					P	V	V	
4.0	DOCUMENTATION										P	V	-	
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 / 100		MDCC			P	V	CHP	
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.														
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		MANUFACTURER'S NAME & ADDRESS BHEL PIPING CENTRE, CHENNAI PROCUREMENT OF MATERIAL, FABRICATION & SUPPLY BY NTPC APPROVED SUB-VENDORS		REFERENCE QUALITY PLAN						TO BE FILLED BY NTPC			
				ITEM : NON - IBR PIPING FABRICATION (With Vendor Material) SUB-SYSTEM : Piping system upto 50 kg / sq.cm (Refer note 12)	Q.P. No.: PC-PVM-RQP-04 Rev: 01 Dt.: 12.06.2015	SIGN. OF MGFR  AP Madhavan Kutty AGM / Q	Q.P. No.: 0000-999-QVM-P-306 Rev: 01 Dt.: 19.10.2015 Valid upto : 18.10.2018	REVIEWED BY 	APPROVED BY 				
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1	2	3	4	5		6	7 #	8	9	D*	**	10	11
	2) UT notch shall be (a) 12.5 % (max 1.5mm) for pipe thk. Upto 12.7mm (b) 5% (max 1.5mm) 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 PGMAs identified as Cat I in PGMA categorisation list approved by NTPC. 9) The Sub-Vendor shall co-ordinate with NTPC and obtain MDCC before despatch of finished material. Loose items like Fasteners,Pins,Clips,Gaskets, etc.. covered in category I PGMAs shall be considered as cat III items. MDCC for these items shall also be obtained by sub vendor based on COC issued by BHEL from NTPC-RIO who is issuing MDCC for cat I items of that PGMA. 10) The finished components shall be punched with DU code (14 digit work order du 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. 12) Upto Pressure 55 Kg/Sq.cm for the following Piping. HP Heater Drains(PGMA-80447)												
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