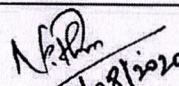
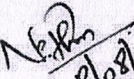


Supplier's LOGO	Supplier's Name and Address	Quality Plan for 16Mo3 Pipes						QP No:16Mo3Pipe-01 Rev 01 Project: GHAVP 1& 2 W.O : D157 to D160-001-1-93-171			
		Item : 16Mo3 Pipes Material: DIN EN 10216-2/1.5415 Sub-system: Steam Generator	QP No.: To be filled by Supplier Rev.No.: To be filled by Supplier Date: To be filled by Supplier Page No:1 of 3								
Sl. No	Component & Operations	Characteristics	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Agency			Remarks
								M	B	N	
1.	2.	3.	4.	5.	6.	7.	8.	D*	9. **		10.
1.0	Raw Material :										
1.1	Steel Melting : :Method to be filled by Supplier	Steel melting	Record Verification	100%	DIN EN 10216-2/1.5415 MPP: To be submitted	TC	√	P	---	--	Steel shall be fully killed
1.2	Ladle Analysis	Chemistry	Chemical analysis	1/Melt	DIN EN 10216-2/1.5415 MPP: To be submitted	TC	√	P	R	R	----
1.3	Ingot/Billet Casting	Free from defects	Visual/Record verification	100%	MPP: To be submitted	RD	--	P	--	--	----
2.0	In process Controls :										
2.1	Operations from Ingot/Billet to Pipe : To be elaborated by Supplier	Process parameters	Record Verification	100%	DIN EN 10216-2/1.5415 MPP: To be submitted Drg :To be filled(applicable)	RD	---	P	---	--	--
2.2	Visual & Identification of Pipes	Visual & Identification	Verification and Visual	100%	DIN EN 10216-2/1.5415	---	--	P	W	R	--
2.3	Heat Treatment (Normalization)	R.O.H , Soaking Temp & Time, R.O.C	Review of HT Chart	100%	DIN EN 10216-2/1.5415 HT Plan: To be submitted	TC	√	P	R	R	Note-3

				LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: SUPPLIER B: BHEL, N: NPCIL/TPI P: PERFORM R: REVIEW W: WITNESS AND H: HOLD TC: TEST CERTIFICATE RD: RECORD
Prepared	Reviewed & Approved	Reviewed & Approved	Reviewed & Approved	
SUPPLIER'S NAME: To be filled		BHEL	NPCIL	


 08/08/2020
 [INITIALS - O.R / QA]

Supplier's LOGO	Supplier's Name and Address		Quality Plan for 16Mo3 Pipes						QP No:16Mo3Pipe-01 Rev 01 Project: GHAVP 1& 2 W.O : D157 to D160-001-1-93-171			
			Item : 16Mo3 Pipes Material: DIN EN 10216-2/1.5415 Sub-system: Steam Generator		QP No.: To be filled by Supplier Rev.No.: To be filled by Supplier Date: To be filled by Supplier Page No: 2 of 3							
2.4	Identification of Test coupon	Identification (location , orientation stamping)	Visual , marking and dimension	100%	TDC-D157-001 EN IS 377 MSTP: To be submitted	RD	√	P	H	H	---	
2.5	Ultrasonic Inspection	Internal soundness	Ultrasonic Test	100%	DIN EN 10216-2/1.5415 UT Procedure: To be submitted TDC-D157-001	TC	√	P	H	H	---	
2.6	Leak Tightness Check	Hydro	Hydro	100%	DIN EN 10216-2/1.5415 TDC-D157-001 Procedure: To be submitted.	TC	√	P	H	H	---	
2.7 Mechanical and Metallurgical Tests :												
2.8	Product analysis	Chemistry	Chemical analysis	1 / melt	TDC-D157-001	TC	√	P	H	H	---	
2.9	Tensile at RT (EN ISO 6892-1)	Tensile Strength, Yield Strength (0.2% offset), % Elongation	Destructive Test	As per TDC-D157-001		TC	√	P	H	H	One sample Tube if the total number of tubes is less than 20 , otherwise 2 Number of samples to be taken.	
2.10	Tensile at 350° C (EN ISO 6892-2)	0.2% proof strength	Destructive Test			TC	√	P	H	H		
2.11	Flattening Test/Ring Tensile Test	Flattening Test/ Ring Tensile Test	Destructive Test			TC	√	P	H	H		
2.12	Drift Expanding Test/ Ring Expanding Test	Drift Expanding Test/ Ring Expanding Test	Destructive Test			TC	√	P	H	H		
3.0 Final Inspection												
3.1	Final Dimensional check of Pipes	Dimensions	Measurement	100%	Drg No/P.O No: To be filled TDC-D157-001	TC	√	P	H	H		
						LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: SUPPLIER B: BHEL, N: NPCIL/TPi P: PERFORM R: REVIEW W: WITNESS AND H: HOLD TC: TEST CERTIFICATE RD: RECORD						
Prepared		Reviewed & Approved		Reviewed & Approved		Reviewed & Approved						
SUPPLIER'S NAME: To be filled				BHEL		NPCIL						


 08/09/2020

Supplier's LOGO	Supplier's Name and Address		Quality Plan for 16Mo3 Pipes						QP No:16Mo3Pipe-01 Rev 01 Project: GHAVP 1& 2 W.O : D157 to D160-001-1-93-171			
			Item : 16Mo3 Pipes Material: DIN EN 10216-2/1.5415 Sub-system: Steam Generator			QP No.: To be filled by Supplier Rev.No.: To be filled by Supplier Date: To be filled by Supplier Page No:3 of 3						
3.2	Visual Inspection of Pipes , Surface Finish	Free from visual defects	Verification and Visual , Surface Finish	100%	TDC-D157-001	TC	√	P	H	H		
3.3	Marking	SI No, Heat Number, Material designation, , Supply condition, Inspectors Seal, Manufactures name , P.O Number.	Verification and Visual	100%	TDC-D157-001	TC	√	P	R	R	---	
3.4	Mix up Test	Positive Material Identification	PMI Test	100%	DIN EN 10216-2/1.5415	TC	√	P	H	H		
3.5	Certification and Documentation Control	Order compliance	Certificate compilation	100%	TDC-D157-001 DIN EN 10216-2/1.5415	TC	√	P	R	R	---	
3.6	Documents (Test Certificates) shall be sent to BHEL/Trichy prior to dispatch. Dispatch clearance will be given after Acceptance of Test Certificates by BHEL&NPCIL)					---	--	P	H	H	---	
3.7	Packing & Shipment	Packing	Visual	100%	TDC-D157-001 DIN EN 10216-2/1.5415	---	--	P	--	--	---	

Note:

- 1., MPP(Manufacturing Process plan), Heat Treatment Plan, NDE Procedures , Hydro Test procedure , MSTP(Material Sampling and Testing Plan) etc. shall be submitted by Supplier and the same will be subjected to both BHEL&NPCIL approval.
2. This Quality Plan is applicable for following items (Actual Size & Item list will be as per Enquiry/P.O)
 - a) PDHRS-Thermal Sleeve- Size: OD114.3X8.56 thick, b) Feed Pipe-Thermal Sleeve- OD273.1x12.7 thick. c) Ring Pipe-1 - Size: OD273.1x 9.3 thick
 - d) Ring Pipe-2 - Size: OD273.1x 9.3 thick e) Connecting Pipe- Size: OD273.1x 9.3 thick. f) Pipe-1-Size: OD273.1x 9.3 thick.
 - g) Half Cylinder-Size: OD273.1x 9.3 thick h) Pipe for 90° Elbow & 180° Bend. OD273.1x 9.3 thick (If applicable as per enquiry/P. O)
3. Chart shall be signed & submitted along with TC. Also calibration records of furnace, thermocouples & recorders shall be submitted for review.

				LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: SUPPLIER B: BHEL, N: NPCIL/TPI P: PERFORM R: REVIEW W: WITNESS AND H: HOLD TC: TEST CERTIFICATE RD: RECORD
Prepared	Reviewed & Approved	Reviewed & Approved	Reviewed & Approved	
SUPPLIER'S NAME: To be filled		BHEL	NPCIL	

N.P.
08/08/2020