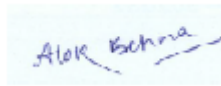
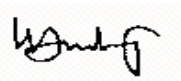


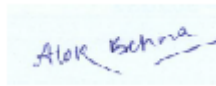
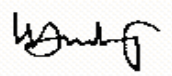
		BHEL HYDERABAD-32		STANDARD QUALITY PLAN					QP No. : HY/QA/SSSP/001 Rev. : 00 Date : 30.05.2016				
				ITEM: SS SEAMLESS PIPES (ASTM A312, TP321)									
				BHEL Spec. No. : AA 10755 Rev. 09					Page 1 of 3				
SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY			REMARKS
										S	M	C	
1.0	RAW MATERIAL INSPECTION												
1.1	MOTHER HOLLOW	IDENTIFICATION & CORRELATION OF MATERIAL WITH TCS	MAJOR	VERIFICATION	100%	BHEL SPEC.	BHEL SPEC. & P.O	TC			P	W/V	NOTE 1
2.0	IN PROCESS INSPECTION												
2.1	HEAT TREATMENT	HEAT TREATMENT	MAJOR	HEAT TREATMENT	100%	ASTM A312, TP321	ASTM A312, TP321	HT CHART	✓		P	V	
3.0	FINAL INSPECTION												
3.1	SELECTION OF TEST SAMPLES		MAJOR	IDENTIFICATION	ONE PER LOT	BHEL SPEC.	BHEL SPEC. & P.O	TC			P	W	DEFINITION OF LOT AS PER ASTM A312
3.2	TEST SAMPLES	PRODUCT ANALYSIS	MAJOR	CHEMICAL	ONE PER LOT	BHEL SPEC.	BHEL SPEC. & P.O	TC	✓		P	V	
3.3	TEST SAMPLES	MECHANICAL PROPERTIES (TENSILE, BEND TEST, FLATTENING, HARDNESS)	MAJOR	MECH.	ONE PER LOT	BHEL SPEC.	BHEL SPEC. & P.O	TC	✓		P	W	
3.4	GRAIN PROPERTIES	METALLOGRAPHY	MAJOR	GRAIN SIZE	ONE PER HEAT	ASTM E112	ASTM A312	TC	✓		P	V	
3.5	CORROSION PROPERTIES	IGC TEST	MAJOR	CORROSION TEST	ONE PER HEAT	ASTM – A 262 , PRACT.E	ASTM – A 262 , PRACT.E	TC	✓		P	V	
3.6	PIPES	VISUAL EXAMINATION	MAJOR	VISUAL	100% BY MFR.	BHEL SPEC.	NO CRACK, PIITING, CUT MARK	TC	✓		P	W	NOTE 2 *AS PER SAMPLING PLAN
3.7	PIPES	DIMENSIONAL CHECK INCLUDING STRAIGHTNESS CHECK	MAJOR	MEASRT	100% BY MFR.	BHEL SPEC. & P.O	BHEL SPEC. & P.O	TC	✓		P	W*	NOTE 2 *AS PER SAMPLING PLAN

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			ITEM: SS SEAMLESS PIPES (ASTM A312, TP321)						Page 2 of 3				
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3.8	HYDROTEST/NDE	PRESSURE TESTING/NDE	CRITICAL	HYDRO/NDE	100% BY MFR.	BHEL SPEC. & P.O	BHEL SPEC. & P.O	TC	✓		P	W	*AS PER SAMPLING PLAN
4.0	PREDISPATCH INSPECTION												
4.1	COMPLETENESS OF ALL DOCUMENTATION	VERIFICATION OF ALL TCS INCLUDING IBR TC FOR COMPLETION.	MAJOR	VERIFY	100%	PO, SPEC. & QP	PO, SPEC. & QP	INSP. RECORD	✓		P	V	NOTE 3 & 6
4.2	PMI	PMI	MAJOR	NDE	100%	PO, SPEC. & QP	PO, SPEC. & QP	INSP. RECORD	✓		P	W/V	10 % WITNESS BY BHEL TPIA
4.3	PICKLING & PASSIVATION		MAJOR	SURFACE FINISH	100 %	ASTM A380	ASTM A380	INSP. RECORD	✓		P	V	
4.4	RADIO ACTIVE CONTAMINATION	RADIOACTIVITY(SURVEY METER SHALL BE USED AT A DISTANCE OF 5CM NEAR THE SURFACE)	MAJAO	RADIOACTIVITY	2 SAMPLES/ LOT	LESS THAN .1 MR/HR OR 1 MICRO SIEVERT/HR		INSP RECORD	✓		P	V	
4.5		MARKING, PRESERVATION AND PACKING (PIEPS SHALL BE SUPPLIED WITH PROPER END CAP AT BOTH ENDS)	MAJOR	VISUAL	100%	AA 049 0001 & ASME SA312	AA 049 0001& ASME SA312	INSP. RECORD	✓		P	W/V	NOTE -11

NOTES:

- 1) TPIA SHALL REVIEW THE SOURCE OF RAW MATERIAL, IF MENTIONED IN P.O, BHEL TPIA SHALL CHECK RANDOM SAMPLES WITH TCS FROM EACH LOT FOR CORELATION.
- 2) PIPES THICKNESS AND OD SHALL BE AS SPECIFIED IN P.O. UNLESS OTHERWISE SPECIFIED, PIPES SHALL BE SUPPLIED IN SINGLE RANDOM LENGTHS OF 4.8 TO 6.7 METRES.THE PIPES SHALL NOT DEVIATE FROM STRAIGHTNESS BY 1MM IN ANY ONE METER AND SHALL NOT BE MORE THAN 6MM OVER THE ENTIRE LENGTH.A SHARP BEND AT THE END OR KIND AND TWIST ARE NOT ACCEPTABLE. THESE LIMITATIONS ARE APPLICABLE FOR ANY GIVEN PLANE.
- 3) IBR FORM III-A ALONG WITH FORM XVI-G (FOR WELL-KNOWN PIPE MAKER) SHALL BE FURNISHED TO BHEL FOR RECORDS IF APPLICABLE AS PER PO.
- 4) CORRELATION OF FINISHED PRODUCTS WITH RAW MATERIAL AND MANUFACTURER TCS IS TO BE ENSURED.
- 5) THIS QAP IS STRICTLY APPLICABLE FOR THE BHEL NOMINATED INSPECTION AGENCIES.
- 6) SCOPE OF INSPECTION BY IBR SHALL BE AS PER IBR CODE REQUIREMENTS.
- 7) THIS QAP IS NOT APPLICABLE TO FIRST TIME SUPPLIES BY A NEW VENDOR, FOR WHICH THE VENDOR WILL BE REQUIRED TO SUBMIT A SEPARATE QAP.
- 8) IN CASE OF ANY INCONSISTENCY BETWEEN THE REQUIREMENTS OF BHEL SPEC./PO & QAP, BHEL SPEC./PO SHALL PREVAIL.
- 9) VENDOR TO PERFORM ROOT CAUSE ANALYSISI AND SUBMIT RCA REPORT TO BHEL FOR REVIEW IN CASE REJECTION OF PIPES DUE TO HYDROTEST/NDE FAILURE.
- 10) TEST CERTIFICATE SHALL BE AS PER ASTM A999.
- 11) EACH PIPE SHALL BE STAMPED WITH TPIA STAMP IN ADDITION TO MARKINGS AS PER AA0490001& SA 335 & GRADE RANDOM PIPES SHALL BE CHECKED FOR PROPER MARKING & COLOUR CODING.

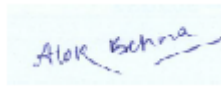
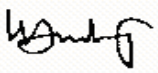
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SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY			REMARKS
										S	M	C	

SAMPLING PLAN FOR HYDROTEST, DIMENSIONAL CHECK TO BE WITNESSED BY BHEL/ BHEL NOMINATED INSPECTION AGENCY:

LOT SIZE (OFFERED QUANTITY IN NUMBERS)	SAMPLE SIZE (NUMBERS)	ACCEPTANCE NUMBER (MAX. NO. OF PERMISSIBLE DEFECTIVES)
2 - 8	2	0
8 - 15	3	0
16 - 25	5	0
26 - 50	8	0
51 - 90	13	0
91 - 150	20	0
151 - 280	32	0
281 - 500	50	0
501 - 1200	80	0

- IN CASE OF ANY REJECTION OF SAMPLE, 100% WITNESS BY BHEL/ BHEL NOMINATED INSPECTION AGENCY.

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