

		PROJECT: ARUN 3 HEP (4x225 MW)				MANUFACTURING QUALITY ASSURANCE PLAN				MANUFACTURER: Bharat Heavy Electricals Limited, Bhopal		
SR NO.	COMPONENT & OPERATION	CLASS	TYPE OF CHECK	QTY/AMOUNT CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY		REMARKS	
				MTC	S				MT	C		S
1	2	3	4	5	6	7	8	9	10	11		

J. Turbine Shaft													
1.0 In-Coming Material – Shaft Forging													
1.1	Material Testing	Chemical Composition (melt & product analysis)	MA	Test	Sample	Sample	Relevant material standard as per approved Drg			TC	P	V	V
		Mechanical Properties	MA	Test	Sample	Sample				TC	P	V	V
1.2	Heat Treatment	Review of T-T charts	MA	Review	100%	100%	-do-	-do-	-do-	Chart	P	V	V
1.3	Hardness	Hardness Test	MA	Test	Sample	Sample	-do-	-do-	-do-	TC	P	V	V
1.4	NDT of Rough machined forging	UT & MPI/DPT, Boroscopic examination	MA	NDT	100%	100%	ASME Section-III, AA19342			IR	P	W	W
2.0 In-Process and Final inspection													
2.1	Dialling of Shaft	Run-out check	MA	ME	100%	100%	DRG/ Relevant Standard		IR	P	W	W	
2.2	Concavity-Concavity	Check of coupling faces	MA	ME	100%	100%	-do-		-do-	IR	P	W	W
2.3	Surface finish	Check for super finished surfaces	MA	ME	Random		-do-		-do-	IR	P	W	W
2.4	NDT after finish machining	MPI, DPT	MA	NDT	As specified in drawing		DRG		DRG	IR	P	W	W
2.5	Dimension & Visual check	Final main dimensions	MA	ME	100%	100%	DRG		DRG	IR	P	W	W
2.6	Surface Protection	Paint & preservation	MN	Vis	Random		DRG		DRG	TC	P	V	V
2.7	Assembly	• Assembly of Runner & Turbine shaft • Assembly of Turbine shaft & generator shaft	MA	VIS	100%	100%	DRG		DRG	IR	P	W	W
Mechanical properties shall comprise of YS, UTS, % Elongation, Hardness & Charpy Impact Test in accordance with applicable standard.													
Prepared By:			Reviewed By:			Approved By:							
													
													