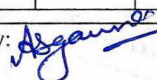
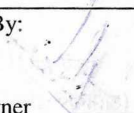


SAMPLE QAP

		PROJECT: ARUN 3 HEP (4x225 MW)		MANUFACTURING QUALITY ASSURANCE PLAN				MANUFACTURER: Bharat Heavy Electricals Limited, Bhopal			
		ITEM DESCRIPTION		SUB-ITEM		QAP & REV		ISSUE DATE			
		VERTICAL FRANCIS TURBINE		Turbine Shaft		QA/HT/1071 Rev - 02		17.05.2019			
SR. NO.	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK M/C S		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY M C S	REMARKS
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	AA19342		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-	Chart	P	V	V	
1.3	Hardness	Hardness Test	MA	Test	Sample	Sample	-do-	-do-	TC	P	V	V	
1.3	NDT of Rough machined forging	DPT/ MPI /UT, Boroscopic examination	MA	NDT	100%	100%	ASME Section-III, AA19342		IR	P	W	W	CHP at vendor's works
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-Convexity	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	MA	VIS	100%	100%	DRG	DRG	IR	P	W	W	

Prepared By: 	Reviewed By: 	Approved By: 
Amit Khare (आमिit खारे) / Manager (Design) DEPTT बी.एच.ई.एल., भोपाल/BHEL, BHOPAL		

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