CLIENT : HPCL, VISHAKHAPATNAM	
TEIL JOB NO. : 6261	APPLICABLE CODE : As per PR, PS
ITEM NO. / COMMODITY : CETRIFUGAL PUMP	PO. NO. :

S. NO.	DESCRIPTION OF ACTIVITY	INSPECTION BY			RECORD
		EPCC / VENDOR	TPIA	PMC / OWNER	
01	Detailed Inspection & Test Plan after issue of PO/PR/PS including for all auxiliaries of the Pump skid like Pump driver, Lube oil console, API Plan, Instrumentation, Piping etc.	P	A	A*	X
02	Inspection & Test Procedures like NDT, Hydro test, Performance test, Mechanical run test, Painting etc.	P	A	R**	X
03	Pre inspection meeting, after issue of PO/PR/PS, agenda to be prepared by VENDOR	P	H		X
04	Summary of all supplementary requirements as specified in the PO/PR/PS	P	A		X
05	Sub order verification for Bought out items like Drivers, API Plan, LO Console, Piping etc.	P	R		X
06	Inspection of Bought out items at Sub vendor's works for Drivers, API Plan, LO Console, Piping etc.	W	H		X
07	Welding Procedure Specification & Procedure Qualification Records – Pressure retaining components of the Pump, API plan, Piping etc.	P	A		X
08	Material Test Certificate in accordance with EN10204 3.1 / ISO10474 3.1B & meeting the requirements of Material specification, PR/PS/Design code – Pump components as Casing, Stuffing box, Bearing housing, Impellers, Shaft, Shaft sleeve, Wear rings, any other pressure retaining part / part exposed to process fluid. Also, oil pumps , oil filters , oil coolers, oil tank,	A	A		X
09	Material Compliance Certificate for Gaskets, Fasteners, Gland Packing, Valves, Piping items, etc.	A	A		X
10	Mechanical Seal (Testing & certificates / reports as per API 682 including Hydro test, Air test, Material certification)	A	A		X
11	Coupling (Dynamic balancing report, Compliance certificate of Manufacturer)	A	A		X
12	Manufacturer's Test Certificate / Calibration certificate for Instruments	A	A		X
13	NDT Examination as per PR/PS/Design code				
a.	Pump components as Casing, Stuffing box, Impellers, Shaft, Wear rings etc.	P	A		X
b.	API Plan	P	A		X
c.	Auxiliary piping, Plan piping	P	A		X
S. NO.	DESCRIPTION OF ACTIVITY	INSPECTION BY			RECORD

		EPCC / VENDOR	TPIA	PMC / OWNER	
14	Hydrostatic Pressure Test				
a.	All Pressure Casing components	P	H		X
b.	Auxiliary piping	P	H		X
c.	Plan Piping	P	H		X
d.	Cooling jacket of bearing, Stuffing box	P	H		X
e	Pressure vessels.	P	H		X
f	Heat Exchangers	P	H		X
g	Filters	P	H		X
h	Other applicable items	P	H		X
15	Dynamic balancing (including for Spares)				
a.	Individual Impellers	P	H		X
b.	Rotor assembly (as per PR/PS/Design code)	P	H		X
16	Mechanical & Electrical run out of Shaft	P	R		X
17	Lube Oil Console at sub vendor place				
a.	Pressure test	W	H		X
b.	Cleanliness check	W	H		X
c.	Mechanical running for 4 hours & Operation check	W	H		X
d.	Review of Material test certificates	A	A		X
e.	Review of Manufacturer's Test certificates & Reports for Motor, Pump, Instruments etc.	A	A		X
f	Contract Drivers, & Instruments	W	A		X
g	Check changeover valves	W	A		X
h	Check Auto- Start, Running and stop of stand-by pumps	W	A		X
i	Check controls and all instrument functions	W	A		X
18	API Plan – Vessels, Coolers etc.				
a.	WPS / PQR	A	A		X
b.	NDT as per PR/PS/Design code	A	A		X
c.	Pressure test	W	H		X
d.	Visual & Dimensional check	W	H		X
e.	Review of Material test certificates	A	A		X
19	Assembled Pump :				
a.	Performance Test as per PR/PS/Design code (with Mech run test) including Spare Rotar.	P	H	H**	X
b.	NPSH Test as per PR/PS/Design code	P	H	H**	X
c.	Vibration measurement as per PR/PS/Design code	P	H		X
d.	Sound level measurement	P	H		X
e.	Mechanical running for 4 hours minimum (after stabilizing of Bearing temperature), with Bearing housing resonance test	P	H	H**	X
f.	Bearing temperature rise as per PR/PS/Design code : Bearing and lube oil.	P	H		X
g.	Strip test (Visual check & Wear ring clearance check)	P	H		X
20	Complete unit Test / String Test (can be done with Performance / Mech Run test). **Note-9** With all Job accessories **:** Motor / HPRT, coupling, seal, LO Console, Instruments, vibration/temp. probes , ~~if required~~ as per PR/PS/Design code	P	H	H**	X

21	Surface preparation & painting	P	A		X
22	Final inspection of Complete Unit				
a.	Visual check for completeness & appearance	P	H		
b.	Dimensional check	P	H		X
c.	DFT check of final painting	P	H		X
23	Review of final documents, minimum as marked in the column for RECORDS	P	H	H**	X
24	Final stamping & issue of Inspection release certificate.	H	H		X

LEGEND 1) VENDOR, 2) TPAI – THIRD PARTY INSPECTION AGENCY APPOINTED BY VENDOR (LLOYDS, DNV & BVIS) 3) PMC - TOYO ENGINEERING INDIA LIMITED, 4) OWNER – HPCL, VAISAKH 5) H – HOLD (OFFER FOR WITNESS & OBTAIN CLEARANCE), 6) W - WITNESS, 7) RN - RANDOM WITNESS, 8) A – REVIEW & APPROVE, 9) R – REVIEW ONLY, 10) P – PERFORM, 11) X – REQUIREMENT OF RECORD.

NOTE 1) THIS IS ONLY A INDICATIVE ITP AND VENDOR SHALL PREPARE A DETAILED ITP IN LINE WITH ABOVE AND SPECIFIC TECHNICAL REQUIREMENTS OF APPLICABLE PR/PS/DESIGN CODE.

2) VENDOR SHALL ENSURE THAT ALL TEST AND MEASURING INSTRUMENTS ARE DULY CALIBRATED AND CALIBRATION SHALL BE VALID AT THE TIME OF INSPECTION. CALIBRATION PROCEDURE & RECORDS SHALL BE REVIEWED BY TPIA

3) SUB VENDOR FOR BOUGHT OUT ITEMS SHALL BE FROM PMC / OWNER APPROVED VENDOR LIST.

4) '*' INDICATES FOR CATEGORY A, B ONLY & '**' FOR CATEGORY A ONLY

5) PMI TEST SHALL BE PERFOMED ON ALL AS/SS PRESSURE RETAINING PUMP COMPONETS, AUXILIARY PIPING, API PLAN ETC. AT THE TIME OF PRESSURE TESTING. PMI TEST SHALL BE WITNESS BY TPIA

6) FOUNDATION TEMPLATE, GAGE PLATE FOR BASE RING & FOUNDATION BOLTS SHALL BE SUBJECT TO A FINAL INSPECTION BY TPIA INCLUDING VISUAL, DIMENSIONAL CHECK AND REVIEW OF TEST CERTIFICATES.

7) PUMP DRIVERS SHALL BE INSPECTED AT MANUFACTURERS SHOP AS PER RELEVENT INSPECTION & TEST PLAN

8) NO SHIPMENT OF GOODS MAY BE EFFECTED UNLESS AN 'INSPECTION RELEASE CERTIFICATE' HAS BEEN SUBMITTED TO SELLER.

9) PERFORMANCE TEST FOR SPARE ROTOR TO BE DONE SEPARATELY