	VEDANTA LIMITED – VALUE ADDED BUSINESS	Format No.:	VL/IMS/PP2/MECH/WI/22
	INTEGRATED MANAGEMENT SYSTEM	Revision Date:	05.04.2021
	<u>Work instruction for STG overhauling</u>	Revision No.:	02
		Page No.:	1 of 3

Steam TURBINE Overhauling

Objective	Turbine overhauling
Scope	Turbine overhauling
Responsibility	Engineer in charge
PPEs to be used	Helmet, Safety shoes, safety hand gloves, ear plugs and nose mask

Aspect-Impact

Oil Spillage	Land contamination
Oil traced waste generation	Land contamination & Resource Depletion
Generation of waste oil	Generation of hazardous waste
Waste water	Resource Depletion

Hazards Identified

Mechanical Hazard	Slip, fall and trap
Physical hazard	Heat,
Human behavior	improper housekeeping, Non use of PPEs, Alcoholism

PRECHECKS:-

Get the work permit
Take electrical shut down
Overhauling report 30/5 EOT Crain.


PROCEDURE:-

A-Turbine: (Equipment specification- SIEMENS,

1. Complete overhauling, servicing & re-commissioning of the Turbine.
2. Dismantling & removal of L.P. /M.P/ H.P. governors with servomotor.
3. Dismantling & removal of upper casing with connected pipelines etc.
4. Removal of rotor & shifting at ground floor for deposits cleaning by sand blasting.
5. Dismantling & removal of L.P. /M.P/ H.P. stage diaphragms (nozzle boxes) for cleaning by sand blasting.
6. Box-up after cleaning.
7. Inspection & checking of Labyrinths & Gland sealing.
8. Inspection & checking of clearances between diaphragms & rotor nozzles.
9. Inspection & Checking of Thrust & Journal bearings with blue matching.
10. Checking of axial displacement of rotor & adjusting within normal limit.
11. Inspection & Checking of overload speed trip device.
12. Servicing of Emergency Stop valve & Strainer cleaning.
13. Servicing & checking of L.P. /M.P/ H.P. governor, replacement of gland packing, checking & setting of their lift.
14. Checking of nitrogen filled pressure compensator vessel in oil circuit and charging nitrogen, if required.
15. All related steam & oil pipelines dismantling, cleaning/ flushing & refitting
16. Dismantling of QC NRVs, inspection, cleaning and refitting
17. Servicing of all PRVs in oil circuit
18. Including all necessary overhauling, inspection & maintenance work of turbine during shut down up to re-commissioning at rated capacity.
19. Any other work which are not covered above but necessary for re-commissioning of Turbine

B-Gear Box: (FLENDER)

Prepared & Reviewed:	Approved:	Issued:
HOD – Mechanical – PP	Head – Power	MR
05.04.2021	05.04.2021	05.04.2021

	VEDANTA LIMITED – VALUE ADDED BUSINESS	Format No.:	VL/IMS/PP2/MECH/WI/22
	INTEGRATED MANAGEMENT SYSTEM	Revision Date:	05.04.2021
	<u>Work instruction for STG overhauling</u>	Revision No.:	02
		Page No.:	2 of 3

1. Reduction gear box checking
2. MOP checking
3. Bearings inspection, replacement if required
4. Inspection of turning gear
5. Related oil and water lines dismantling and cleaning/flushing & refitting
6. Including all necessary overhauling, inspection & maintenance work of gear box during shut down up to re-commissioning at rated capacity.
7. Any other work which are not covered above but necessary for re-commissioning of Turbine gear box

C-Generator: (Equipment specification: Make – TDPS)

1. Stator and rotor disassembly and inspection.
2. Generator bearing inspection
3. Re-varnishing of stator and rotor winding
3. Alternator assembly
4. Dismantling and cleaning of generator water cooler
5. Related oil and water lines dismantling and cleaning/flushing & refitting
5. Testing of generator

Following checks to be done during generator overhauling


Mechanical Checks:

1. DE & NDE Bearing –
 - Float Measurement
 - Top clearance
 - Visual inspection of bearing bushes
2. Exciter
 - Rotor & stator inspection
 - check air gap.
3. Slip ring shaft
 - Check condition of slip ring
 - Run out of slip ring shaft
 - Brush condition
4. Main rotor
 - Visual inspection & cleaning
5. Main Stator
 - Visual inspection & cleaning

Electrical Checks:

1. Resistance value of
 - Main stator
 - Main rotor
 - Exciter armature
 - Exciter stator
 - Discharge resistor
 - Space heaters
2. Insulation Resistance value of
 - Main stator
 - Main rotor
 - Exciter armature
 - Exciter stator
 - Discharge resistor
 - Space heaters

Prepared & Reviewed:	Approved:	Issued:
HOD – Mechanical – PP	Head – Power	MR
05.04.2021	05.04.2021	05.04.2021

	VEDANTA LIMITED – VALUE ADDED BUSINESS	Format No.:	VL/IMS/PP2/MECH/WI/22
	INTEGRATED MANAGEMENT SYSTEM	Revision Date:	05.04.2021
	<u>Work instruction for STG overhauling</u>	Revision No.:	02
		Page No.:	3 of 3

3. RRA diode inspection
4. Inspection of BTM, WTD etc
5. Measurement of PI
6. Including all necessary overhauling, inspection & maintenance work of turbine during shut down up to re-commissioning at rated capacity.
7. Any other work which are not covered above but necessary for re-commissioning of Turbo set

Note: Apart from above scope, if some points are missed then please include against each head which is necessarily to be done during overhauling.

General terms:

1. Turbine stop to start time should be 7-8 days
2. Jobs should be planned on 24 hrs basis including Sundays and Holidays
3. All tools/tackles and instruments required for overhauling should be arranged by vendor (Including rotor removable trolley and wooden sleepers). A list should be shared which should include all tools/tackles including special tools required for overhauling job.
4. Detailed bar chart should be submitted for completion of job along with quotation
5. All inclusions and exclusions should specified clearly in the quotation
6. One visit should be considered before going for overhauling.
7. List of preparatory work to be done at site by the client should be specified in detail.
8. Inputs required from the client should be mentioned clearly in the offer

Prepared & Reviewed:	Approved:	Issued:
HOD – Mechanical – PP	Head – Power	MR
05.04.2021	05.04.2021	05.04.2021