

## Annexure V A – Scope of work for contract- PM work

### Scope of work for Preventive maintenance work of unit 3&4 of 2\*660 MW Ash handling plant including AWRS, Silo, MRS and associated system of ITPS, Jharsuguda on job rate basis only

1. Preventive maintenance of ESP / Silo Fluidizing Blowers as per SOW
  - a) Take valid safety permit
  - b) Clean Air filter
  - c) Inspect the condition of NRV.
  - d) Inspect V-Belt for any wear & tightness, replace if required
  - e) Inspect V-Belt Pulley and replace if required
  - f) Tighten the base bolt
  - g) Attend minor oil leakage.
  - h) Check the machine guarding condition and repair if any abnormality found.
  
2. Preventive maintenance Buffer Hopper & corresponding two ALV's as per SOW
  - a) Take valid PTW with JSA.
  - b) Open the manholes of Buffer hopper and clean air chamber.
  - c) Inspect the buffer hopper, clean the bag filters with air pressure, replace the bag filters if required and clean the ash inside the buffer hopper chamber.
  - d) Inspection & Clean the Clean Air Chamber as per SOW
  - e) Check the tightness of purging header pipes and pressure plates.
  - f) Check for any leakages from purging header and rectify if required.
  - g) Open the manholes/fluidizing arrangement of Airlock vessels and Buffer hoppers.
  - h) Check for any accumulated ash inside the air lock vessels & clean if required and check the fluidizing arrangement & rectify the defects if any.
  
3. Preventive maintenance of vacuum pump as per SOW
  - a) Take valid PTW with JSA
  - b) Open the coupling guard of vacuum pump and check the belt tightness
  - c) Clean the strainer in water line.
  - d) Back wash the vacuum pump
  - e) Check healthiness of seal water station
  - f) Weld the silencer leakage if any
  - g) Grease the drive and non-drive end bearings with rotation
  
4. Preventive maintenance of Feed Gate as per SOW
  - a) Take valid safety permit and JSA
  - b) Inspect and replace the glands of feed gate & indicator rod.
  - c) Check for any leakages from power cylinder and feed gate indicator rod.
  - d) Check for any leakages from rollers assy. of feed gates.
  - e) Clean the view glass.
  - f) Tighten the bolts of feed gate.

5. Preventive maintenance of Clinker Grinder along with drive arrangement as per SOW
  - a) Take valid safety permit and JSA
  - b) Inspect mech. seals for any leakages.
  - c) Inspect/ grease the bearings, stuffing box & chain.
  - d) Check the oil level, fill and top up the oil level in gearbox.
  - e) Check healthiness of seal water station
  - f) Tighten the base bolt and check the coupling guard.
  - g) Check healthiness of Gear Box.
  - h) Check healthiness of Fluid Coupling.
  - i) Check healthiness of Multi disc.
  
6. Preventive maintenance of Jet Pump as per SOW
  - a) Take valid safety permit and JSA
  - b) Open the jet nozzles, inspect the Jet nozzles and replace the internals.
  - c) Box up the jet nozzle assembly.
  
7. Preventive maintenance of multistage water pumps as per SOW
  - a) Take valid PTW and JSA
  - b) Inspect the pump coupling.
  - c) Check the condition of the sealing line.
  - d) Check the condition of the mechanical seal.
  - e) Check and secure pump mountings.
  - f) Inspect & grease the bearings.
  
8. Preventive maintenance of centrifugal water pumps as per SOW
  - a) Take valid PTW and JSA
  - b) Inspect the pump coupling.
  - c) Check the condition of the sealing line.
  - d) Check the condition of the mechanical seal.
  - e) Check and secure pump mountings.
  - f) Inspect & grease the bearings.
  
9. Preventive maintenance of Ash Slurry Disposal Pumps & BA Overflow Pumps as per SOW
  - a) Take valid PTW and JSA
  - b) Inspect the pump coupling.
  - c) Check condition of gland packing, replace if reqd.
  - d) Check and fill the oil in bearing assembly.
  - e) Check the pulley for wear and crack.
  - f) Check the belt, replace if found damage.
  - g) Check the condition of the sealing line.
  - h) Tighten the base bolt and check the foundation grouting
  - i) Check condition of belt guard.
  
10. Preventive maintenance of slurry pump gearbox.
  - a) Take valid PTW and JSA

- b) Inspect the gearbox coupling.
  - c) Check oil level in slurry pump gearbox.
  - d) Attend the leakages in gearbox if any.
  - e) Tighten the base bolt and check the foundation grouting.
11. Preventive maintenance of Ash slurry pump (stage-1) Fluid coupling
- a) Take valid PTW and JSA
  - b) Inspect the fluid coupling.
  - c) Check oil level in slurry pump fluid coupling.
  - d) Check condition of fusible plug.
  - e) Check condition of multi disc.
  - f) Attend the leakages in fluid coupling if any.
12. Preventive maintenance of Ash slurry pump (stage-1) Oil cooler.
- a) Take valid PTW and JSA
  - b) Inspect the oil cooler.
  - c) Check for oil and water leakages if any.
  - d) Check the condition of the coupling & spider.
  - e) Tighten the base bolt and check the foundation grouting.
13. PM of Drain Sump Pumps (Bottom Ash Hopper Area, Vacuum Pump Area, Ash slurry pump house area, Silo area and HCSD Pump house area)
- a) Take valid PTW and JSA
  - b) Check the pump coupling.
  - c) Check the condition of the sealing line.
  - d) Tighten the base bolts and check the foundations.
14. Preventive maintenance of TAC as per SOW.
- a) Take valid PTW and JSA
  - b) Clean the air filter and external radiator.
  - c) Check the oil leakage and attend if any, top up the oil
  - d) Clean the return line oil filter and cooling water line strainers.
  - e) Check the vibration isolating dampers.
  - f) Clean the equipment
15. Preventive maintenance of TAC air dryers as per SOW.
- a) Take valid PTW and JSA
  - b) Test drain valve(s) and clean strainer(s).
  - c) Check suction pressure.
  - d) Blow out condenser coil(s).
  - e) Replace related Pre & Post Line Filtration Elements.
16. Preventive maintenance of IAC as per SOW.
- a) Take valid PTW and JSA
  - b) Clean the air filter and external radiator.
  - c) Check the oil leakage and attend if any, top up the oil
  - d) Clean the return line oil filter and cooling water line strainers.

- e) Check the vibration isolating dampers.
- f) Clean the equipment

17. Preventive maintenance of IAC air dryers as per SOW.

- a) Take valid PTW and JSA
- b) Check the condition of the desiccant.
- c) Check and attend any leakages.
- d) Clean the cooling water line strainers.
- e) Clean the equipment

18. Preventive maintenance of Dust conditioners / Paddle feeder along with Gear Box as per SOW

- a) Take valid PTW and JSA
- b) Check gearbox oil level, top up the oil level.
- c) Grease and lubricate the bearings.
- d) Check the condition of paddles.
- e) Check the condition of nozzles and clean if required.
- f) Check the condition of the gear and couplings
- g) Check for any leakages from body.
- h) Check for any leakages from discharge chute.
- i) Tighten the base bolt and check the footings.

19. Preventive maintenance of screw feeders as per SOW

- a) Take valid PTW and JSA
- b) Check gearbox oil level, top up the oil level.
- c) Grease and lubricate the bearings and drive chain.
- d) Check the condition of the couplings
- e) Check the condition of the drive chain
- f) Tighten the base bolt and check the footings.

20. Preventive maintenance of Rotary Vane Feeder as per SOW

- a) Take valid PTW and JSA
- b) Check the gearbox oil level and top up the oil level if required(for HCSD stream)
- c) Check the gearbox condition and greasing to be done if required(for open truck unloading, closed unloading and closed wagon unloading stream)
- d) Tighten the base bolt and check the footings.
- e) Grease and lubricate the bearings.

21. Preventive maintenance of Unloading Telescopic Spout as per SOW

- a) Take valid PTW and JSA
- b) Check the gearbox oil level and top up if required
- c) Tighten the base bolt and check the footings.
- d) Grease and lubricate the bearings.
- e) Check the condition of the wire rope.
- f) Lubricate the wire rope
- g) Check the condition of the bellow.

- h) Check the condition of the filters in compact filtering arrangement.
22. PM of Silo vent filter (Including Bag filters, Purging System & Vent Fan) of Silo Vent Filter as per SOW
- a) Take valid PTW with JSA.
  - b) Open the manholes of silo vent filter and clean air chamber.
  - c) Inspect the vent filter, clean the bag filters with air pressure, replace the bag filters if required and clean the ash inside the vent filter chamber.
  - d) Inspection & Clean the Clean Air Chamber as per SOW
  - e) Check the tightness of purging header pipes and pressure plates.
  - f) Check for any leakages from purging header and rectify if required.
  - g) Grease and lubricate the bearings of vent fan.
  - h) Open the coupling guard of silo vent fan and check the belt tightness
23. Preventive maintenance of ART Agitator & Gearbox as per SOW.
- a) Take valid PTW and JSA
  - b) Check the gearbox oil level and top up the oil if required.
  - c) Tighten the base bolt and check the footings.
  - d) Check the alignment of the ART Agitator & Gearbox with gearbox and motor.
  - e) Grease and lubricate the bearings.
  - f) Check the condition of the coupling
  - g) Check the tightness of the shaft coupling bolts.
24. Preventive maintenance of Charge pump as per SOW.
- a) Take valid PTW and JSA
  - b) Check the oil level and top up the oil if required.
  - c) Tighten the base bolt and check the footing's.
  - d) Check the alignment of the charge pump with gearbox and motor.
  - e) Grease and lubricate the bearings.
  - f) Check the condition of the sealing lines.
  - g) Check the condition of V-belt, replace if reqd.
  - h) Attend the leakages if any.
25. Preventive maintenance of HCSD GEHO pump as per SOW.
- a) Take valid PTW and JSA
  - b) Tighten the base bolt and check the foundations.
  - c) Check the oil level in gearbox, power end, propelling liquid end and coupling, top up the oil if required.
  - d) Grease and lubricate the bearings.
  - e) Check the condition of the filters and breathers.
  - f) Check the condition of the 2/2 way valves
  - g) Check for any leakages in the oil lines
  - h) Check the condition of the suction strainer mesh and strainer
  - i) Check the condition of the suction air vessel
  - j) Check the pulsation dampener nitrogen pressure, top up if required.

- k) Check the condition of the NRV housing, suction header, discharge header, pulsation dampener housing.

26. Preventive maintenance of Emergency Flushing Water Pump as per SOW

- a) Take valid PTW and JSA
- b) Check the oil level, top up the oil.
- c) Tighten the base bolt and check the footings.
- d) Check the alignment of the pump and motor.
- e) Grease and lubricate the bearings.
- f) Check condition of coupling.
- g) Check & clean the strainer.
- h) Check the condition of gear box.
- i) Check the condition of safety valve.
- j) Attend the leakages if any

27. PM of Clariflocculator including Carriage Drive, Flocculators & Flash Mixer agitator

- a) Check the rotation of clariflocculator, carriage drive flocculators and flash mixer agitators rotation one day before the PM.
- b) Take valid PTW and JSA.
- c) Tighten the base bolt and check the foundations.
- d) Check the oil level in gearbox and coupling, top up the oil if required.
- e) Check the condition of V-belt, replace if reqd.
- f) Perform the corrective maintenance as per previous day observation.
- g) Grease and lubricate the bearings.

28. Preventive maintenance of Lime Recirculation cum feed Pump as per SOW

- k) Take valid PTW and JSA
- l) Check the oil level, top up the oil.
- m) Tighten the base bolt and check the footings.
- n) Check the alignment of the pump and motor.
- o) Grease and lubricate the bearings.
- p) Attend the leakages if any

29. Preventive maintenance of Dosing Pump (Alum & Polyelectrolyte) as per SOW

- a) Take valid PTW and JSA
- b) Check the oil level, top up the oil.
- c) Tighten the base bolt and check the footings.
- d) Check the alignment of the pump and motor.
- e) Grease and lubricate the bearings.
- f) Attend the leakages if any

30. Preventive Maintenance of Dosing Tank agitator (Lime, Alum & Polyelectrolyte)

- a) Take valid PTW and JSA
- b) Check the oil level, top up the oil.
- c) Tighten the base bolt and check the footings.
- d) Check the alignment of agitator and motor.
- e) Grease and lubricate the bearings.

f) Attend the leakages if any

31. Preventive Maintenance of Sludge Pump (Clariflocculator)

- a) Take valid PTW and JSA
- b) Check the oil level, top up the oil.
- c) Tighten the base bolt and check the footings.
- d) Check the alignment of the pump and motor.
- e) Check the condition of gland packing, replace if reqd.
- f) Grease and lubricate the bearings.
- g) Attend the leakages if any

32. Preventive maintenance of AWRS Recycle Ash Water Pump

- a) Take valid PTW and JSA
- b) Check the oil level, top up the oil .
- c) Tighten the base bolt and check the footings.
- d) Check the alignment of the pump and motor.
- e) Grease and lubricate the bearings.
- f) Attend the leakages if any

33. Preventive maintenance of AWRS Recirculation Pump

- a) Take valid PTW and JSA
- b) Check the oil level, top up the oil.
- c) Tighten the base bolt and check the footings.
- d) Check the alignment of the pump and motor.
- e) Grease and lubricate the bearings.
- f) Attend the leakages if any

34. Preventive maintenance of AWRS Sludge Pump

- a) Take valid PTW and JSA
- b) Check the oil level, top up the oil.
- c) Tighten the base bolt and check the footings.
- d) Check the alignment of the pump and motor.
- e) Grease and lubricate the bearings.
- f) Attend the leakages if any

35. Preventive maintenance of AWRS Portable Pump

- a) Take valid PTW and JSA
- b) Check the oil level, top up the oil.
- c) Tighten the base bolt and check the footings.
- d) Check the alignment of the pump and motor.
- e) Grease and lubricate the bearings.
- f) Attend the leakages if any

36. Preventive maintenance of AWRS Potable water Pump

- a) Take valid PTW and JSA

- b) Check the oil level, top up the oil.
- c) Tighten the base bolt and check the footings.
- d) Check the alignment of the pump and motor.
- e) Grease and lubricate the bearings.
- f) Attend the leakages if any

37. Preventive maintenance of AWRS RO Reject Transfer Pump

- a) Take valid PTW and JSA
- b) Check the oil level, top up the oil.
- c) Tighten the base bolt and check the footings.
- d) Check the alignment of the pump and motor.
- e) Grease and lubricate the bearings.
- f) Attend the leakages if any

38. Preventive maintenance of AWRS Alum/Lime/Polyelectrolyte Dosing Pump

- a) Take valid PTW and JSA
- b) Check the oil level, top up the oil.
- c) Tighten the base bolt and check the footings.
- d) Check the alignment of the pump and motor.
- e) Grease and lubricate the bearings.
- f) Attend the leakages if any

39. Preventive maintenance of MRS Compressor as per SOW.

- a) Take valid PTW and JSA
- b) Clean the air filter and external radiator.
- c) Check the oil leakage and attend if any, top up the oil
- d) Clean the return line oil filter and cooling water line strainers.
- e) Check the vibration isolating dampers.
- f) Clean the equipment

40. Preventive Maintenance of MRS vent filter

- a) Take valid PTW with JSA.
- b) Open the manholes of MRS vent filter and clean air chamber.
- c) Inspect the vent filter, clean the bag filters with air pressure, replace the bag filters if required and clean the ash inside the vent filter chamber.
- d) Check the tightness of purging header pipes and pressure plates.
- e) Check for any leakages from purging header and rectify if required.
- f) Align the vent fan motor with fan.

41. PM of under slung crane

- a) Take valid PTW and JSA
- b) Carry out external cleaning of equipment.



- c) Greasing of bearings, Check the oil level of thruster brake, if low top-up with oil.
- d) Lubrication of rope with cadmium compound.
- e) Check the brake adjustment / liner condition.
- f) Check the oil level in gearbox if level is low top-up.
- g) Take trial run for smooth operation.
- h) Motor decoupling and coupling to be carried out as per requirement
- i) Equipment external and internal cleaning to be done during every PM.
- j) Equipment painting to be done during every overhauling.

42. PM of Electric hoist

- a) Take valid PTW and JSA
- b) Carry out external cleaning of equipment.
- c) Greasing of bearings, Check the oil level of thruster brake, if low top-up with oil.
- d) Lubrication of rope with rope lubricant
- e) Check the brake adjustment / liner condition.
- f) Check the oil level in gearbox if level is low top-up.
- g) Take trial run for smooth operation.
- h) Motor decoupling and coupling to be carried out as per requirement
- i) Equipment external and internal cleaning to be done during every PM.

NOTE – The bidder/contractor shall ensure completeness in maintenance of the entire plant system for workability. Any item not specified mentioned in this scope of work , but required for completeness & smooth performances of the plant O&M , shall be part of the scope of work