

Annexure V B – Scope of work for contract- Works other than PM

Scope of work for routine and breakdown 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. Inspection / cleaning / replacement of ESP hopper fluidizing pad (1 set comprises of two nos. pads) Inspection / cleaning / replacement of ESP hopper fluidizing pad (1 set comprises of two nos. pads) as per SOW
 - a) Take valid safety permit and JSA
 - b) Inspect /clean /replace the ESP Hopper fluidizing pad as per the condition.
2. Flushing of all fluidizing line header-16 nos. and fluidizing line to all ESP hoppers-160 nos. as per SOW
 - a) Take valid safety permit and JSA
 - b) Flushing of all the fluidizing line headers with dummy open in coordination with AHP control room.
3. Internal inspection & rectification of defects /overhauling / Refurbishment of ESP or Silo Fluidizing Blowers including replacement of pulleys, belts, lobe ,timing gear , seals and internals, etc. with gear settings as per SOW .
 - a) Take valid safety permit dismantle ESP or Silo Fluidizing Blowers and inspect the ESP or Silo Fluidizing Blowers
 - b) Repair/Replace/Refurbish/overhaul ESP or Silo Fluidizing Blowers including replacement of pulleys, belts, lobe, timing gear, seals and internals, etc. with gear settings.
4. Inspection & rectification of defects /overhauling / Refurbishment of 200 NB Air Intake Valve as per SOW.
 - c) Take valid safety permit Remove the air intake valve and inspect the air intake valve.
 - d) Repair/Replace/Refurbish/overhaul the air intake valve.
5. Inspection & rectification of defects /overhauling / Refurbishment of 250 NB Ash Intake Valve (With fluidizing arrangement for ESP hopper no. 1 to 3) as per SOW
 - a) Take valid safety permit
 - b) Remove the ash intake valve and inspect the ash intake valve
 - c) Inspect/clean the fluidizing pad, replace if reqd.
 - d) Repair/Replace/Refurbish/overhaul the ash intake valve

6. Inspection & rectification of defects /overhauling / Refurbishment of 250 NB Ash Intake Valve (Without fluidizing arrangement for ESP hopper no. 4 to 10 and APH/Duct hoppers) as per SOW
 - a) Take valid safety permit
 - b) Remove the ash intake valve and inspect the ash intake valve
 - c) Repair/Replace/Refurbish/overhaul the ash intake valve
7. Inspection, cleaning / replacement of adaptor fluidizing pad (for ESP hopper no. 4 to 10) as per SOW
 - a) Take valid safety permit
 - b) Remove the fluidizing pad assy.
 - c) Inspect / clean the fluidizing pad, replace if reqd.
8. Inspection & rectification of defects /overhauling / Refurbishment of Branch Isolation Valve (200 NB / 250 NB) as per SOW
 - a) Take valid safety permit
 - b) Dismantle and inspect the branch isolation valve
 - c) Repair/Replace /Refurbish/overhaul the branch isolation valve
9. Inspection & rectification of defects /overhauling / Refurbishment of Vacuum Breaker as per SOW
 - a) Take valid safety permit
 - b) Dismantle and inspect the Vacuum Breaker
 - c) Replace/Repair /Refurbish/overhaul the Vacuum Breaker
10. Inspection / Replacement of Bag filter and accessories of Buffer hoppers as per SOW
 - a) Take valid PTW with JSA
 - b) Open the manholes of buffer hopper and clean air chamber.
 - c) Remove the purging header pipes
 - d) Remove the pressure plates
 - e) Remove the bags & cages
 - f) Clean and inspect the bag filter bags, replace if required.
 - g) Check purging header hose, replace if reqd.
 - h) Re install the pressure plates and purging header pipes.
11. Inspection & rectification of defects /overhauling / Replacement/Refurbishment of KGV for ALV I/L , ESP Hopper, APH/ Duct Hopper & Eco Hopper O/L as per SOW
 - a) Take valid PTW with JSA
 - b) Inspect/Repair/Replace the components of Knife gate valve
 - c) Overhauling and refurbishment of knife gate valve.

12. Inspection & rectification of defects /overhauling / Replacement/Refurbishment of 300 NB Ash Inlet Valve/ 250 NB Ash Outlet Valve as per SOW
 - a) Take valid PTW with JSA
 - b) Inspect/Repair/Replace the components of ALV Ash Inlet and Ash Outlet valve
 - c) Overhauling and refurbishment of ALV Ash Inlet and Ash Outlet valve.

13. Inspection & rectification of defects /overhauling / Replacement/Refurbishment of 250 NB line Selection Valve (Double disc Valve) as per SOW
 - d) Take valid PTW with JSA
 - e) Inspect/Repair/Replace the components of Double disc valves
 - f) Overhauling and refurbishment of Double disc Valve

14. Inspection & rectification of defects /overhauling / Replacement/Refurbishment of 100 NB & 65 NB Vent Valve and 100 NB Equalizing Valve for ALV (Double disc Valve) as per SOW
 - g) Take valid PTW with JSA
 - h) Inspect/Repair/Replace the components of Double disc Valve
 - i) Overhauling and refurbishment of Double disc Valve

15. Inspection and Cleaning, Repair /Replacement of aeration pad for ALV as per SOW
 - a) Take valid PTW with JSA
 - b) Open the manual door.
 - c) Clean the accumulated ash.
 - d) Inspect the aeration pad and replace if required.
 - e) Close the manual door

16. Inspection & rectification of defects /overhauling / Replacement/Refurbishment of Vent Valve & vent line of ALV as per SOW
 - f) Take valid PTW with JSA
 - g) Repair /Replace the components of vent valve
 - h) Inspect and arrest leakages if any in the vent line of ALV
 - i) Overhauling and refurbishment of vent valve of ALV

17. Leakage rectification of conveying lines as per SOW
 - a) Take valid PTW with JSA
 - b) Erect scaffolding and lifeline as per requirement
 - c) Inspect the sleeve coupling and gaskets, replace if required.
 - d) Inspect the conveying line, sleeve coupling aligning ring and bends for any leakages and rectify.

18. Inspection & rectification of defects /overhauling/Refurbishment of vacuum pump including replacement of pump internals, bearings, etc. as per SOW
 - a) Take valid safety permit

- b) Decoupling of pump and removal of motor from its base.
 - c) Removal of all connecting pipelines and gauges.
 - d) Removal of pump/motor pulley.
 - e) Complete dismantling/checking /cleaning of pump parts.
 - f) If necessary special arrangements to be made for removal of parts.
 - g) Replacement of damaged parts if necessary.
 - h) Inspect the gland packings for leakages, replace if required.
 - i) Painting of parts with anticorrosive paint if necessary.
 - j) Reassembling of spare parts & fitting
 - k) Inspection and rectification of lubrication and cooling system.
 - l) Reinstallation and alignment of pump and V Belt.
 - m) Trial run and further rectification if required and condition monitoring.
19. Feed gate internal inspection & re-fitting / replacement of spares as per SOW
- a) Take valid safety permit and JSA
 - b) Replace the wear parts/liners from feed gate internals.
 - c) Operate and Check the movement of feed gate.
 - d) Rectify the alignment if required.
20. Feed gate alignment as per SOW
- a) Take valid safety permit and JSA.
 - b) Check the movement of feed gate.
 - c) Adjust the rollers and align the feed gate as per requirement.
 - d) Tighten and adjust the rollers if required
21. Internal inspection / Inspection & rectification of defects /overhauling / Refurbishment of Feed gate pneumatic cylinder and replace the spares along with seal kit if required as per SOW
- a) Take valid safety permit and JSA
 - b) Erect the scaffolding as per job requirement.
 - c) Open the barrel top and inspect the internals.
 - d) Replace the wear parts from the seal kit as per requirement.
 - e) Assemble the cylinder and take the trial run.
22. Rectification of leakages from pneumatic cylinder shaft gland housing & indicator rod gland housing and Feed gate roller assembly as per SOW
- a) Take valid safety permit and JSA.
 - b) Erect the scaffolding as per job requirement.
 - c) Attend the leakages from pneumatic cylinder shaft or gland housing or indicator rod gland housing or feed gate roller assembly as per the job requirement.
23. Inspection & rectification of defects /overhauling/Refurbishment of clinker grinder including replacement of internals ,bearing and gears as per SOW

- a) Take valid safety permit and JSA
 - b) Dismantle the drive chain, sprockets, bearings and oil seals from the grinder
 - c) Inspection/cleaning/replacement of bearings and oil seals.
 - d) Checking/flushing/repairing of seal water line piping's, nipples, unions & valves.
 - e) Replacement & installation of gland packing.
 - f) Assemble the drive chain, sprockets, bearings and oil seals of the grinder
 - g) Inspect the grinder roll and rectify if required.
 - h) Alignment of the entire clinker grinder drive assembly.
24. Inspection / Defect rectification / Replacement of Mechanical seal of clinker grinder as per SOW
- a) Take valid safety permit and JSA.
 - b) Inspection and defect/leakage rectification of mechanical seal
 - c) Replacement & installation of mechanical seal and its spares in the grinder.
25. Inspection / Replacement of bearing or bearing housing of clinker grinder as per SOW
- a) Take valid safety permit and JSA.
 - b) Inspect the bearing and the bearing housing
 - c) Replace the bearing and bearing housing if required.
26. Inspection / Replacement of liners of clinker grinder as per SOW
- a) Take valid safety permit and JSA.
 - b) Inspect the liners of clinker grinder
 - c) Repair/replace the liners of clinker grinder as per requirement
27. Inspection & defect rectification/overhauling/refurbishment / replacement of clinker grinder gearbox /fluid coupling including replacement of bearings and other spares if required as per SOW
- a) Take valid safety permit and JSA.
 - b) Decouple the clinker grinder, fluid coupling from the gearbox.
 - c) Drain the gearbox oil, inspect the gearbox with cover plate open and inspect the bearings, gearboxes and internals.
 - d) Overhaul the gearbox with new gears, bearings and internals as per the requirement.
 - e) Box up the gearbox with cover plate, root setting for gearboxes and internal clearances for bearings.
 - f) Inspect and replace the fusible plug, bearings and oil seals of fluid coupling if required.
 - g) Couple the gearbox with motor and fluid coupling.
 - h) Alignment of the entire clinker grinder drive assembly.

28. Inspection / Repair / Replacement work of Clinker grinder drive arrangement (Including spur gear , chain / chain sprocket , multi disc units and other associated spares) with alignment as per SOW
- Take valid safety permit and JSA.
 - Removal of drive chain and sprocket from the grinder.
 - Inspect and repair/replace chain and accessories if required.
 - Fitting of sprocket and chain to the grinder.
 - Lubricate the chain.
 - Alignment of the entire clinker grinder drive assembly.
29. Internal inspection/Defect rectification, and replacement of Jet Pump internal spares (Nozzle, etc.), if reqd. as per SOW
- Take valid safety permit and JSA.
 - Inspect the jet pump nozzle and body
 - Replace the jet pump nozzle if required
 - Repair/replace the jet pump body if required
 - Assemble the jet pump.
30. BAH Internal inspection and inspection/cleaning / replacement of Flushing Nozzles as per SOW
- Take valid safety permit and JSA
 - Open the feed gate and lock the feed gate at full open position.
 - Erect the scaffolding in both the hoppers of bottom ash
 - Inspect and clean the flushing nozzles of bottom ash hoppers.
 - Remove the scaffolding after job completion.
 - Remove the feed gate locking arrangement
31. Inspection/Cleaning /Repair/Replacement if required of all flushing nozzles of seal trough as per SOW
- Take valid safety permit and JSA
 - Inspect the flushing nozzles of seal trough.
 - Clean the flushing nozzles of seal trough
 - Replace the flushing nozzles of seal trough if reqd.
32. De choking/removal of foreign materials from Clinker Grinder/Feed Sump/Jet Pump as per SOW
- Take valid safety permit and JSA
 - Close the feed gate, inspect the clinker grinder
 - Check the feed sump and jet pump.
 - Identify the presence of foreign material inside the feed sump and jet pump remove the foreign material and do the final assembly.
33. De-choking / Leakage rectification of flushing apparatus or ash slurry conveying line from flushing apparatus to BAH as per SOW

- a) Take valid safety permit and JSA.
 - b) Inspect the flushing apparatus nozzles, check the nozzles and replace the wear nozzles.
 - c) De-choking of slurry discharge line from flushing apparatus to Bottom ash hopper.
34. Inspection /Cleaning/replacement of Eco hopper flushing nozzle & its line as per SOW
- a) Take valid safety permit and JSA
 - b) Remove the flushing nozzle from flushing apparatus.
 - c) Inspect and clean the flushing nozzle, replace if required.
 - d) Reinstall the flushing nozzle.
35. Inspection & rectification of defects /overhauling/Refurbishment of multistage water pumps including replacement of shaft, impeller, bearings and internals if reqd. as per SOW
- a) Take valid PTW and JSA.
 - b) Decouple the pump, lift the motor, replace the shaft, impeller, bearings and internals as per the job requirement.
 - c) Inspect the seal water line and attend leakages if any.
 - d) Any requirement of pullers, scaffolding, heating arrangement for the job shall be in scope of vendor only.
 - e) Inspect the mechanical seal and rectify/replace as if required.
 - f) Final assembly and coupling with alignment.
36. Inspection & rectification of defects /overhauling/Refurbishment of centrifugal water pumps including replacement of shaft, impeller, bearings and internals as per SOW
- a) Take valid PTW and JSA.
 - b) Decouple the pump, remove the motor replace the shaft, impeller, bearings and internals as per the job requirement.
 - c) Any requirement of pullers, scaffolding, heating arrangement for the job shall be in scope of vendor only.
 - d) Inspect the mechanical seal and rectify/replace as if required.
 - e) Final assembly and coupling with alignment.
37. Inspection & rectification of defects /overhauling/Refurbishment of ash slurry pumps including replacement of shaft, impeller, gland packings, bearings and internals as per SOW
- a) Take valid PTW and JSA
 - b) Decouple the pump, remove the motor, replace the shaft, impeller, gland packings, bearings and internals as per the job requirement.
 - c) Inspect the seal water line and attend leakages if any.
 - d) Any requirement of pullers, scaffolding, heating arrangement for the job shall be in scope of vendor only.

- e) Inspect the V pulley and V belt, replace/rectify if required.
 - f) Inspect the mechanical seal and rectify/replace as if required.
 - g) Final box up and coupling with alignment.
38. Inspection & rectification of defects /overhauling/Refurbishment of slurry pump gearbox/fluid coupling/oil cooler as per SOW
- a) Take valid PTW and JSA
 - b) Decouple the slurry pump gearbox/fluid coupling /oil cooler. Replace /repair/overhaul the shaft, impeller, gland packings, bearings and internals.
 - c) Inspect and rectify/replace the fluid coupling multidisc if required.
 - d) Inspect and rectify /replace the cooler coupling spider if required.
 - e) Final assembly and coupling with alignment.
39. Inspection & rectification of defects /overhauling/Refurbishment of drain sump pumps including replacement of bearings & internal spares if reqd. as per SOW
- a) Take valid PTW and JSA
 - b) Decouple the drain pump motor and remove the pump from pit.
 - c) Inspect the pump internals and repair/replace/overhaul the shaft, impeller, bearings and internals as per requirement.
 - d) Inspect the seal water line and attend leakages if any.
 - e) Final assembly and coupling with alignment.
40. Inspection & rectification of defects of TAC as per SOW
- a) Take valid PTW and JSA
 - b) Decouple the motor and remove all the piping's, fittings, tubing's and coupling.
 - c) Check the condition of the air filter, oil filter and water strainers.
 - d) Clean the external radiators.
 - e) Check the NRV condition and rectify if required
 - f) Check and rectify for any leakages in lines.
 - g) Check the condition of the coupling
 - h) Alignment of TAC assembly.
 - i) Check for any leakages from valves.
41. Overhauling of TAC as per SOW
- a) Take valid PTW and JSA
 - b) Decouple the motor and remove all the piping's, fittings, tubing's and coupling.
 - c) Check the condition of the air filter, oil filter and water strainers.
 - d) Clean the external radiators.
 - e) Check the NRV condition and rectify if required
 - f) Check and rectify for any leakages in lines.
 - g) Check the condition of the coupling
 - h) Alignment of TAC assembly.
 - i) Check for any leakages from valves.

- j) Remove the compressor, inspect the compressor, and replace the internals, gears, bearings and auxiliary parts as per the requirement.
 - k) Fix the coupling, align the compressor with motor and fix all the piping's, fittings and tubing.
42. Inspection & rectification of defects 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) Inspect the condition of the desiccant, replace if required.
 - f) Inspect and rectify leakages if any from the piping, cooler and heat exchanger.
 - g) Replace related Pre & Post Line Filtration Elements.
 - h) Check and clean the cooling water supply line strainers.
43. Inspection & rectification of defects of IAC as per SOW.
- a) Take valid PTW and JSA
 - b) Decouple the motor and remove all the piping's, fittings, tubing's and coupling.
 - c) Check the condition of the air filter, oil filter and water strainers.
 - d) Check and rectify for any leakages in lines.
 - e) Check the condition of the coupling
 - f) Check for any leakages from valves.
44. Overhauling of IAC as per SOW
- a) Take valid PTW and JSA
 - b) Decouple the motor and remove all the piping's, fittings, tubing's and coupling.
 - c) Remove the compressor, inspect the compressor, and replace the internals, gears, bearings and auxiliary parts as per the requirement.
 - d) Check the condition of the air filter, oil filter and water strainers.
 - e) Clean the external radiators.
 - f) Check the condition of the silencer.
 - g) Fix the coupling, align the compressor with motor and fix all the piping's, fittings and tubing.
45. Inspection & rectification of defects 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) Check/rectify the four way valves.
 - f) Clean the equipment

46. Inspection & rectification of defects /overhauling/Refurbishment of dust conditioners / paddle feeder as per SOW

- a) Take valid PTW and JSA
- b) Decouple the motor, remove all the fittings, couplings, piping's and internals.
- c) Replace the gears, bearings, paddle as per the requirement.
- d) Greasing of the bearings.
- e) Alignment of the entire dust conditioner/paddle feeder drive.
- f) Inspection of seal water station and valves.
- g) Inspection of the water spray nozzles.
- h) Final assembly and coupling with alignment as per EIC.

47. Inspection & rectification of defects /overhauling/Refurbishment of screw feeder as per SOW

- a) Take valid PTW and JSA
- b) Decouple the motor, remove all the fittings, couplings, piping's and internals.
- c) Inspect/Replace the sprockets, bearings, etc. as per the requirement.
- d) Greasing of the bearings and chain.
- e) Alignment of the entire screw feeder drive.
- f) Final assembly and coupling with alignment.

48. Inspection & rectification of defects /overhauling/Refurbishment of Rotary Vane Feeder as per SOW

- a) Take valid PTW and JSA
- b) Decouple the motor, remove all the fittings, couplings, piping's and internals.
- c) Replace the bearings and RVF liners as per the requirement.
- d) Check the condition of the coupling and bush, replace if required.
- e) Final assembly and coupling with alignment as per EIC.

49. Inspection & rectification of defects /overhauling/Refurbishment of Unloading Telescopic Spout as per SOW

- a) Take valid PTW and JSA
- b) Decouple the motor, remove all the fittings, couplings and internals.
- c) Replace the bearings as per the requirement.
- d) Inspect the condition of the bellow & wire rope and replace if required
- e) Check the condition of the filter and replace if required.
- f) Check the purging header for any leakages
- g) Final assembly and coupling with alignment.

50. Inspection / Cleaning/defect and leakage rectification of Bag filters & purging system of Silo Vent Filter as per SOW

- a) Take valid PTW and JSA.
- b) Open the manhole /inspection hole and check the condition of clean air chamber and bag filters.

- c) Replace/Clean the bag filters.
- d) Inspect the bag filter purging system and attend leakages if any.
- e) Close the manhole/inspection door.

51. Inspection & defect rectification of Silo vent fan as per SOW

- a) Take valid PTW and JSA.
- b) Check the condition of belt and replace if required.
- c) Check the bearings if required replace the bearings.
- d) Check the impeller, if required replace the impeller.
- e) Check the condition of the damper.

52. Inspection & rectification of defects /overhauling/Refurbishment of Agitator retention tank agitator with gearbox as per SOW.

- a) Take valid PTW and JSA
- b) Decouple the motor, remove all the fittings, couplings, piping's and internals.
- c) Replace the gears, bearings, Agitator blades as per the requirement.
- d) Final assembly and coupling with alignment.

53. Inspection & defect rectification with replacement of spares if reqd. /
/overhauling/Refurbishment of Charge Pump as per SOW.

- a) Take valid PTW and JSA.
- b) Decouple the motor, remove all the fitting, couplings, piping s and internals.
- c) Replace the impeller, internals, volutes, casing and others as per the job requirement.
- d) Check the condition of the V pulley and V Belts, replace if required.
- e) Final assembly and coupling with alignment.
- f) Check the condition of the seal water station and its valves.

54. Inspection & rectification of defects /overhauling of HCSD GEHO gearbox as per SOW

- a) Take valid PTW and JSA.
- b) Decouple the motor, remove all the fitting, couplings, piping and internals.
- c) Replace the Gears, bearings and internals as per the job requirement.
- d) Check the oil level and top up/replace if required.
- e) Final assembly and coupling with alignment.

55. Inspection & rectification of defects /overhauling of HCSD GEHO Pump as per SOW

- a) Take valid PTW and JSA
- b) Decouple the motor, remove all the fitting, couplings, piping and internals.
- c) Replace the internals, bearings and others as per the job requirement.
- d) Check the condition of the pulsation dampener and replace if required
- e) Check the condition of the NRV housing and internals and replace if required
- f) Check the condition of the 2/2 way valves and replace the internals if required.
- g) Check the condition of the couplings.
- h) Check the condition of the Main diaphragm and replace if required.

- i) Check the condition of the internal gears of the GEHO pump.
 - j) Inspect and attend the oil leakages in tubing if any.
 - k) Any requirement of pullers, scaffolding, heating arrangement for the job shall be in vendor scope only.
 - l) Final assembly and coupling with alignment.
56. Inspection & rectification of defects /overhauling of HCSD GEHO Pump NRV's as per SOW
- a) Take valid PTW and JSA
 - b) Check the condition of the NRV housing and internals and replace if required.
 - c) Inspect and attend the oil leakages if any.
 - d) Final assembly of NRV Housing with internals.
57. Oil top up in lube oil tanks, equipment housing, bearing housing and others as per SOW
- a) Take valid PTW and JSA
 - b) Oil top up in the lube oil tanks, equipment housing, bearing housing as per requirement.
58. Oil replacement with cleaning in lube oil tanks, equipment, bearings and others as per SOW
- a) Take valid PTW and JSA
 - b) Remove all the oil from the tank in empty barrel.
 - c) Flush the oil with flushing oil and clean the tank properly with drying arrangement.
 - d) Fill the clean oil in the system.
59. Inspection & rectification of defects /overhauling/Refurbishment of Emergency Flushing Pump including replacement of shaft, piston, seals, bearings and internals as per SOW
- a) Take valid PTW and JSA
 - b) Decouple the motor, remove all the fitting, couplings, piping and internals.
 - c) Check the condition of the Piston, seals, bearings and internals, replace if required.
 - d) Inspect and attend the oil leakages in tubing if any.
 - e) Check the oil level, top up the oil.
 - f) Tighten the base bolt and check the footings.
 - g) Check the alignment of the pump and motor.
 - h) Grease and lubricate the bearings.
 - i) Check condition of coupling.
 - j) Check & clean the strainer.
 - k) Check the condition of gear box.
 - l) Check the condition of safety valve.
 - m) Attend the leakages if any
 - n) Final assembly and coupling with alignment.

60. Inspection & Leakage rectification from 200NB /350 NB Sleeve coupling / Pipe of ash slurry disposal line inside the plant as per SOW
- a) Take valid PTW and JSA
 - b) Mobilize the manpower, tools, DG set, dewatering pumps, welding machine, cutting set, tractor, illumination and other accessories at site.
 - c) Open the coupling remove the gasket, repair the pipeline by welding if required.
61. Inspection & Leakage rectification from 350NB Sleeve coupling / Pipe of ash slurry disposal line and HCSD line outside the plant as per SOW
- a) Take valid PTW and JSA
 - b) Mobilize the manpower, tools, DG set, dewatering pumps, welding machine, cutting set, tractor, illumination and other accessories at site.
 - c) Open the coupling remove the gasket and replace the gasket/sleeve drum/coupling ring, repair the pipeline by welding if required.
62. Inspection & Leakage rectification from 350NB Sleeve coupling / Pipe of ash slurry disposal line and HCSD line over water body outside the plant as per SOW
- d) Take valid PTW and JSA
 - e) Mobilize the manpower, tools, DG set, dewatering pumps, welding machine, cutting set, tractor, illumination and other accessories at site.
 - f) Open the coupling remove the gasket and replace the gasket/sleeve drum/coupling ring, repair the pipeline by welding if required.
63. Ash slurry disposal line / HCSD Line down point changeover as per SOW
- a) Take valid PTW and JSA
 - b) Mobilize the manpower, tools, DG set, dewatering pumps, welding machine, cutting set, tractor, illumination and other accessories at site.
 - c) Rotate the spectacle flange and Changeover the HCSD /Ash slurry disposal line point.
64. Carriage Drive including gearbox inspection/defect rectification/overhauling as per SOW
- a) Take valid PTW and JSA
 - b) Decouple the motor, remove all the fitting, couplings, piping's and internals.
 - c) Replace the Gears, bearings and internals as per the job requirement.
 - d) Check the condition of the lubricant, replace/top up if required
 - e) Final assembly and coupling with alignment.
65. Flocculator including gearbox inspection/defect rectification/overhauling as per SOW
- a) Take valid PTW and JSA
 - b) Decouple the motor, remove all the fitting, piping and internals.
 - c) Check the condition of the V pulley and V belt, replace if required.
 - d) Replace the Gears, bearings and internals as per the job requirement.
 - e) Check the condition of the lubricant, replace/top up if required.

- f) Final assembly and coupling with alignment.
66. Flash mixer agitator including gearbox inspection/defect rectification/overhauling as per SOW
- a) Take valid PTW and JSA
 - b) Decouple the motor, remove all the fitting, couplings, piping and internals.
 - c) Replace the Gears, bearings and internals as per the job requirement.
 - d) Check the condition of the gearbox lubricant, replace/top up if required.
 - e) Check the condition of the agitator blades, replace if required.
 - f) Final assembly and coupling with alignment.
67. Flocculator Paddles inspection/defect rectification/replacement as per SOW
- a) Take valid PTW and JSA
 - b) Decouple the motor, remove all the fitting, couplings, piping s and internals.
 - c) Replace the Gears, bearings and internals as per the job requirement.
 - d) Check the condition of the flocculator paddles, replace if required.
 - e) Check the condition of the gearbox lubricant, replace/top up if required.
 - f) Final assembly and coupling with alignment.
68. Inspection & rectification of defects /overhauling/Refurbishment of Lime Recirculation cum feed pump as per SOW
- a) Take valid PTW and JSA
 - b) Decouple the motor, remove all the fitting, couplings, piping and internals.
 - c) Check the condition of the pump internals, replace if required.
 - d) Check the condition of the mechanical seal, replace if required
 - e) Final assembly and coupling with alignment.
69. Inspection & rectification of defects /overhauling/Refurbishment of Dosing pumps as per SOW
- a) Take valid PTW and JSA
 - b) Decouple the motor, remove all the fittings, couplings, piping and internals.
 - c) Check the condition of the diaphragm, replace if required
 - d) Check the condition of the breather, replace if required.
 - e) Check for any leakages from the hydraulic chamber and rectify.
 - f) Check the condition of the cover plate, sliding arm, sliding pin, cam, connecting bush, breather, etc. and replace if required.
 - g) Check the condition of the coupling and spider, replace if required.
 - h) Final assembly and coupling with alignment.
70. Inspection & rectification of defects /overhauling/Refurbishment of Agitator along with gearbox as per SOW
- a) Take valid PTW and JSA
 - b) Decouple the motor, remove all the fitting, couplings, piping and internals.
 - c) Replace the Gears, bearings and internals as per the job requirement.

- d) Check the condition of the gearbox lubricant, replace/top up if required.
- e) Check the condition of the agitator blades, replace if required.
- f) Final assembly and coupling with alignment.

71. Inspection & rectification of defects /overhauling/Refurbishment of Sludge pump as per SOW

- a) Take valid PTW and JSA
- b) Decouple the motor, remove all the fitting, couplings, piping s and internals.
- c) Check the condition of the screw rotor, stator, bearings and internals, replace if required.
- d) Check the condition of the gland packing, replace if required.
- e) Final assembly and coupling with alignment.

72. Inspection & rectification of defects /overhauling/Refurbishment of AWRS Recycle Ash Water Pump including replacement of shaft, impeller, mechanical seals/gland packing, bearings and internals as per SOW

- a) Take valid PTW and JSA.
- b) Decouple the pump, remove the motor replace the shaft, impeller, bearings and internals as per the job requirement.
- c) Inspect the mechanical seal and rectify/replace as if required.
- d) Final assembly and coupling with alignment as per the EIC.
- e) Decouple the motor, remove all the fitting, couplings, piping and internals.
- f) Replace the impellers, bearings and internals as per the job requirement.
- g) Any requirement of pullers, scaffolding, heating arrangement for the job shall be in vendor scope only.
- h) Final assembly and coupling with alignment.

73. Inspection & rectification of defects /overhauling/Refurbishment of Ash Water Recovery Pump including replacement of shaft, impeller, mechanical seals/gland packing, bearings and internals as per SOW

- a) Take valid PTW and JSA
- b) Decouple the motor, remove all the fitting, couplings, piping s and internals.
- c) Replace the impellers, bearings and internals as per the job requirement.
- d) Final assembly and coupling with alignment.

74. Inspection & rectification of defects /overhauling/Refurbishment of AWRS Recirculation Pump including replacement of shaft, impeller, mechanical seals/gland packing, bearings and internals as per SOW.

- a) Take valid PTW and JSA
- b) Decouple the motor, remove all the fitting, couplings, piping and internals.
- c) Replace the impellers, bearings and internals as per the job requirement.

- d) Final assembly and coupling with alignment.
75. Inspection & rectification of defects /overhauling/Refurbishment of AWRS Sludge Pump including replacement of shaft, impeller, mechanical seals/gland packing, bearings and internals as per SOW.
- a) Take valid PTW and JSA
 - b) Decouple the motor, remove all the fitting, couplings, piping s and internals.
 - c) Replace the impellers, bearings and internals as per the job requirement.
 - d) Final assembly and coupling with alignment.
76. Inspection & rectification of defects /overhauling/Refurbishment of AWRS Portable Pump including replacement of shaft, impeller, mechanical seals/gland packing, bearings and internals as per SOW.
- a) Take valid PTW and JSA
 - b) Decouple the motor, remove all the fitting, couplings, piping and internals.
 - c) Replace the impellers, bearings and internals as per the job requirement.
 - d) Final assembly and coupling with alignment.
77. Inspection & rectification of defects /overhauling/Refurbishment of AWRS Borewell Pump including replacement of shaft, impeller, mechanical seals/gland packing, bearings and internals as per SOW.
- a) Take valid PTW and JSA
 - b) Decouple the motor, remove all the fitting, couplings, piping and internals.
 - c) Replace the impellers, bearings and internals as per the job requirement.
 - d) Final assembly and coupling with alignment.
78. Inspection & rectification of defects /overhauling/Refurbishment of AWRS RO Reject Transfer Pump including replacement of shaft ,impeller ,mechanical seals/gland packing ,bearings and internals as per SOW.
- a) Take valid PTW and JSA
 - b) Decouple the motor, remove all the fitting, couplings, piping and internals.
 - c) Replace the impellers, bearings and internals as per the job requirement.
 - d) Final assembly and coupling with alignment.
79. Inspection & rectification of defects of MRS Compressors per SOW.
- a) Take valid PTW and JSA
 - b) Decouple the motor and remove all the piping's, fittings, tubing's and coupling.
 - c) Check the condition of the air filter, oil filter and water strainers.
 - d) Check and rectify for any leakages in lines.
 - e) Check the condition of the coupling

- f) Check for any leakages from valves.
- g) Decouple the motor and remove all the piping's, fittings, tubing's and coupling.
- h) Check the condition of the air filter, oil filter and water strainers.
- i) Check and rectify for any leakages in lines.
- j) Check the condition of the coupling
- k) Check for any leakages from valves.

80. Overhauling of MRS Compressor as per SOW

- a) Take valid PTW and JSA.
- b) Decouple the motor and remove all the piping's, fittings, tubing's and coupling.
- c) Remove the compressor, inspect the compressor, and replace the internals, gears, bearings and auxiliary parts as per the requirement.
- d) Check the condition of the air filter, oil filter and water strainers.
- e) Clean the external radiators.
- f) Check the condition of the silencer.
- g) Fix the coupling, align the compressor with motor and fix all the piping's, fittings and tubing.

81. Inspection / Replacement of Bag filter and accessories of MRS vent filter as per SOW

- a) Take valid PTW with JSA
- b) Open the manholes of buffer hopper and clean air chamber.
- c) Remove the purging header pipes
- d) Remove the pressure plates
- e) Remove the bags & cages
- f) Clean and inspect the bag filter bags, replace if required.
- g) Check purging header hose, replace if reqd.
- h) Re install the pressure plates and purging header pipes.

82. Thickness survey of Ash evacuation lines (unit wise) as per SOW

- a) Take valid safety permit and JSA
- b) Approach and accessibility for the thickness survey shall be in scope of vendor only.
- c) Check the thickness of ash evacuation lines at designated.

83. Rotation of Ash extraction/conveying lines as per thickness survey (per 100 mtrs. on pro rata basis) as per SOW

- d) Take valid safety permit and JSA
- e) Rotation of Ash extraction/conveying lines either by decoupling or cutting the lines as per EIC and thickness survey.
- f) Approach and accessibility for pipe rotation shall be in scope of vendor only.

84. Thickness survey of Ash conveying lines(unit wise) as per SOW

- a) Take valid safety permit and JSA
- b) Approach and accessibility for the thickness survey shall be in scope of vendor only.

- c) Check the thickness of ash conveying lines at designated locations.
85. Thickness survey of Bottom ash evacuation lines(unit wise) as per SOW
- a) Take valid safety permit and JSA
 - b) Approach and accessibility for the thickness survey shall be in scope of vendor only.
 - c) Check the thickness of Bottom ash evacuation lines at designated locations.
86. Rotation of Bottom ash evacuation lines as per thickness survey (per 100 mtrs on pro rata basis) as per SOW
- a) Take valid safety permit and JSA
 - b) Rotation of Bottom ash evacuation lines either by decoupling or cutting the lines as per EIC and thickness survey.
 - c) Approach and accessibility for pipe rotation shall be in scope of vendor only.
87. Thickness survey of Ash slurry lines/HCS D Lines(Line wise) as per SOW
- a) Take valid safety permit and JSA
 - b) Approach and accessibility for the thickness survey shall be in scope of vendor only.
 - c) Check the thickness of Ash Slurry/HCS D lines at designated locations.
88. Rotation of Ash slurry lines/HCS D Lines as per thickness survey (per 100 mtrs on pro rata basis) as per SOW
- a) Take valid safety permit and JSA
 - b) Rotation of Ash slurry lines/HCS D Lines either by decoupling or cutting the lines as per EIC and thickness survey.
 - c) Approach and accessibility for pipe rotation shall be in scope of vendor only.
89. Fabrication and erection of steel structure on Metric ton basis as per SOW
- a) Take valid safety permit and JSA
 - b) Fabrication and erection of steel structure.
 - c) Welding electrodes, gas and consumables shall be in scope of vendor.
 - d) Fabrication material shall be in scope of owner.
 - e) Scaffolding and erection of scaffolding shall be in scope of vendor only.
 - f) Final measurement shall be approved by EIC only.
90. Erection of scaffolding in cubic meter basis as per SOW
- a) Take valid safety permit and JSA
 - b) Scaffolding to be erected and removal as per requirement.
91. Rectification of gland leakages (BAOF Pump, Vacuum Pump, Slurry Pump, Charge Pump, etc.) as per SOW.
- a) Take valid safety permit and JSA

- b) Attend the gland leakages of pumps.
92. Inspection / defect rectification / Replacement of all type of water valves(gate/globe), plug valves, NRV, Butterfly valve up to 80 NB as per SOW
- a) Take valid safety permit and JSA
 - b) Inspect the water valves
 - c) Rectify /replace the valve internals as per requirement.
93. Inspection / defect rectification / Replacement of all type of water valves(gate/globe), plug valves, NRV, Butterfly valve 100 NB to 350 NB as per SOW
- a) Take valid safety permit and JSA
 - b) Inspect the water valves
 - c) Rectify /replace the valve internals as per requirement.
94. Ash Dyke Patrolling as per SOW
- a) Inspection of Bottom ash slurry discharge line and HCSD pump discharge lines from plant to ash pond discharge point for leakage or any abnormalities on daily basis.
 - b) Report submission of the inspection details on daily basis.
95. Bearing Inspection / Replacement of equipment's except Gearbox & fluid couplings as per SOW
- a) Take valid safety permit and JSA
 - b) Line item shall be valid for all the equipment's not covered in above list of preventive maintenance and maintenance perform by rate contract manpower.
 - c) Job scope include removal of bearing and installation of new bearing.
96. Inspection/Defect Rectification/Replacement of Mechanical seals as per SOW
- a) Take valid safety permit and JSA
 - b) Line item shall be valid for all the equipment's not covered in the work list of PM.
 - c) Job scope include removal of mechanical seal and installation of new mechanical seal.
97. Inspection/Defect Rectification/Replacement of Couplings as per SOW
- a) Take valid safety permit and JSA
 - b) Inspect coupling bolt and bush for any wear, replace if required.
 - c) Job scope include removal of coupling and installation of new coupling.
98. Alignment of equipment's with couplings as SOW
- a) Take valid safety permit and JSA
 - b) Job scope shall be alignment of motor and driven equipment with couplings.
99. Alignment of equipment's with Belt drive as per SOW
- a) Take valid safety permit and JSA

- b) Job scope shall be alignment of two element alignment of motor and driven equipment with belt drives.
100. Alignment of multi drive elements equipment's except HCSD System as per SOW
- a) Take valid safety permit and JSA
 - b) Job scope shall be alignment of three element alignment of motor, gearbox, driven equipment with multi drives.

NOTE –

- 1) 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 performance of the plant O&M, shall be part of the scope of work.
- 2) The Routine Maintenance team will be involved in day to day maintenance activities.
For e.g.
 - a) Feed gate gland leakage arresting work.
 - b) Vacuum Pump water separator and header leakage arresting work.
 - c) Eco hopper flushing nozzle cleaning work.
 - d) Drain Sump pit cleaning work.
 - e) RVF/Paddle Feeder/Dust conditioner/Screw Feeder Dechoking work.
 - f) ART inspection & cleaning work.
 - g) HCSD strainer & Mesh replacement work.
 - h) Routine tightness of coupling & base bolts.
 - i) HCSD line De-choking work.

and other maintenance works as per instruction of EIC.

- 3) Rectification of minor leakages from ESP hopper ALI installation point and ESP hopper fluidizing pad assembly.

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.