

CONTRACT DOCUMENT

AND

TECHNICAL SPECIFICATIONS

For

**RAILWAY OPERATIONS & MAINTENANCE**

**CONTRACT**

For

VAL Jharsuguda Complex

**AUGUST 2020**

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## 1. INTRODUCTION

Scope depicts the brief service for Railway operation and maintenance of Vedanta, Jharsuguda Complex. Along with O&M, Coordination with Indian Railway for pulling loaded rakes inside the siding and drawn out empty as soon as possible, BTAP Management & all AMC incurring Railway O&M equipment's and Statutory compliance with Railway for smooth handling of rakes.

SERVING STATION: BRUNDAMAL (BXQ).

### 1.1 IN-PLANT YARD DETAILS:

Total Sidings – 2(MAVB- 30 TKM & SEBD-26 TKM)

Handling Commodities – Coal, Alumina, CP-Coke and Finished Goods.

Type of Rakes – BOBRN, BOXN, BTAP & BLC

CP-Coke Unloading points – 2

Alumina Unloading points – 2

Finished Goods Loading points – 2

Coal Hoppers – 4

Coal tippers – 2

### 1.2 MAJOR EQUIPMENT DETAILS:

Current Company Owned Locomotives – 5 + 1 (hired locomotive, O & M of hired loco is excluded)

Total Track length – 56 ETKM

Signaling System type – RRI (Motorized points and hand points)

Track type – Both 52KG & 60KG rail used

Level Crossing Gate - 8

Railway Bridges (Major) – 4

## 2. RAILWAY YARD OPERATIONS - ALL RAKES:

No of rakes to be handled: - 15 rakes /day (Inward)

### 2.1 MAVB SIDING: SIDING HANDLES RAKES FOR CPP, PLANT 1 AND PLANT 2:

1. Average Alumina BTAP: 2.5 rakes/day which includes for both Plant1 and Plant 2.
2. Average CP-Coke: 0.5 rake/day Which includes for both Plant 1 and Plant 2.
3. Average Coal Rakes for CPP: 4 rakes/day.

### 2.2 SEBD SIDING: HANDLES RAKES FOR IPP&TPP.

1. Average Coal rakes for IPP&TPP: 8 rakes/day (including both BOBRN & BOXN).

### 2.3 ON PEAK TIMES, HANDLING RAKE INCLUDING BOTH SIDINGS MAY GO UP TO 22RAKES/DAY.

### 2.4 RAILWAY OPERATION ACTIVITIES ON BOTH SIDINGS:

Railway yard operations, which will include shunting of wagons, placements of rakes at loading/unloading points, formation of rake, signaling, operations of crossing gates and points, coupling and decoupling of wagons and any other operation which is not specified but required to place and draw out of wagons at/from unloading point. The following things are also required to be done as per specifications given below.

1. Operation of locomotives shall be done as per the requirements and directions of VAL.
2. Operation of Railway yard has to be carried out round the clock in three shifts on all the days of the year including National & Regional holidays and Sundays too. The manpower in each shift is to be deployed 20 minutes before the starting of the shift to have smooth handover & takeover process with TBT.
3. Piloting of all the rakes from Brundamal station to Plant and back.
4. Entire railway yard operations for placing the wagons for unloading / loading at various loading / unloading points located inside the plant.
5. Marshalling the wagons after loading / unloading to form a full rake for Railway loco to take over.
6. GDR-inspection for Rake drawn out and fitment of rake by attending the same with required fixings, Fabrication & Knuckle pins for the movement on IR-Main line. (Fitment Should be taken from IR-Crew & BXQ Stn)
7. Detaching of sick wagons and wagons due for ROH and POH and hauling them to loco / wagon shed and after repair / schedule, haul them back to attach them to outgoing rake.
8. Weighment of all the incoming and outgoing rakes at plant In-Motion-Weigh- Bridge has to be ensured. Contractor has to ensure that proper communication is being made with the weigh bridge personnel at the time of receipt/dispatch of rakes to/from Brundamal Station and In-plant Railway Station, however generation of wagon way bill of each and every incoming & outgoing rake, submission of release memo & all other documentation related to Rail O&M will be under the scope of contractor.
9. All type of required stationary for the entire documentation at the Val-siding to be provided by the contractor including INDIAN RAILWAYS Part related to VAL.
10. Panel operation to be carried by contractor by deploying minimum 7 years' experience in operation of panel.
11. Walkie-Talkie purchasing and maintenance under contractor scope (Minimum individual channel required per sidings)
12. Food (including breakfast, lunch, snacks and dinner) to be provided to Railway officials and crew members on daily basis under contractor scope. Food has to be delivered to crew members irrespective of their location in siding.
13. Present operating manpower in operation includes Operating crew and locomotive crew should have left the site only after proper handover with reliever.
14. Coordination with Railway administration for movement of Company's inward and outward rail traffic and supply of Test wagons for weigh bridge calibration as per requirement of Company.
15. Documentation and conducting entire commercial activities as per norms and rules of railway.

16. Watch and ward of Company owned railway track and other properties under use of this work will be the Contractors' responsibility.
17. Vehicle-4 nos
  - 17.1 Deployment of two vehicles round the clock for Railway operations, one vehicle for Railway maintenance and one vehicle of pick up type for material shifting. The driver should be provided on shift basis i.e for two operation vehicles 6 drivers + 1 reliever has to be deployed and 1 driver each in general shift for maintenance vehicle and material shifting vehicle. Both the general shift driver has to be available with vehicle after working hours, on holidays and Sundays as per requirement.
18. Close Co-ordination and Communication of Manpower deployed at LC Gate with panel operator prior to any movements and intimate after every movement (Real Time Movement Information/Any abnormalities/Latest Updates) through LC Gate will be under Contractors Scope.
19. As per requirement if company hires any locomotive for its rake operations then vendor will have to use the loco for normal rake operations (O & M of hired loco will not under vendor's scope) for company's benefit and smooth rake operations with utmost safety.
20. End to End Coordination with Railway administration for sustaining smooth goodwill gesture.
21. Skid/stopper/Clamps/safety nut bolt etc has to be ensured during every movement of rakes & shunting operation.
22. Rly. Standard Metallic Skid/Stopper Arrangement and Maintaining required numbers will be under the contractor scope. Also ensure fixing of four skids in all parked/placed wagons.
23. Preparation & Submission of shift wise duly signed report having details of present manpower, TBT to deployed manpower, Rake Movements of previous shift, daily TAT report, Handover-Takeover list of necessary operational equipment (viz. Number of Skids, Mobile, Walky Talky & Base Station availability and healthiness, Signalling Equipment {Flag-Red-Green Colour Flashing Torch}, Torch, Hooter for back pushing) under contractor scope.
24. Ensuring availability and proper functioning of mobiles (along-with monthly rent) at specified area round the clock for confirming clear communication shall be in contractor's scope.
25. (3) Yardmen (Porter): To ensure deputation of Manpower in each shifts & round the clock per day.
26. Contractor has to follow Vedanta Rail safety standards including SOP, SMP, HIRADEC etc any revision in safety standards need to follow by contractor.
27. Light Loco (Indian Railway/VAL) movement also be done with availability of points man.
28. Contractor has to ensure deputation of two points man in coupling and decoupling activities.
29. All LC need to be clean in every shift and same to be ensure by gateman.
30. Manpower PPES (uniform/safety jacket/shoe/gloves/helmet/ear plugs/goggles/nose mask/gumboots/raincoat/umbrellas/ORS/water pots/water bottle etc) has to provide by vendor.
31. Railway operation & Maintenance has to run round the clock without any restriction (summer, monsoon) by implementing all safety measures.
32. Vendor has to provide safety PPEs to Railway staffs & officials on returnable basis and accountable for the same.
33. Operation job has to be done by Authorised personal. (Panel operation/loco operation/points man/gateman/TXR). Attached as per annexure

34. Vendor has to maintain inventory stock for smooth operation of rakes. RDSO approved.
35. Skid-100 nos, clamp-100, Safety nuts bolts-200 nos, Knuckle pin stock should be minimum – 50
36. LC Gate Goomty housekeeping, maintenance includes supply and service for painting work, carpentry work (Doors, Glasses, etc), electrical and civil work, would be under vendor scope.
37. Optimal utilization of hired loco has to be done by vendor with utmost safety.

**NOTE: This contract will be for VAL complex not for individual siding (MAVB & SEBD) and manpower deputation will be on rotational basis as per requirement**

### 3. ELECTRIFIED RAILWAY TRACK MAINTENANCE:

#### 3.1 INTRODUCTION AND TECHNICAL CONDITIONS:

1. Permanent way owned by Company from Jharsuguda siding to the Company's in plant network, shall be maintained as per the Railway standard for speed of 15 Km per hour. It will be scheduled & preventive maintenance.
2. Current Track length is around 56 ETKM. If track length increases during contract period, maintenance of additional track length will be under vendor scope without any additional cost.
3. Contractor has to co-ordinate with Indian Railway TRD staff for all repairing/maintenance of OHE lines.
4. Gradient of all track lines are to be inspected by auto level machine in every 6 months and to be rectified accordingly.
5. Bond clamps has to fixed by drilling 18 mm hole in rails where ever any rail replacement activity has been carried out for safety of OHE.
6. Watch and ward of Company owned railway track and other properties under use of this work will be the Contractors' responsibility.
7. During monsoon track maintenance gang should be available in the shift basis for attending the track clearance.

#### 3.2 REGULAR INSPECTION OF THE PERMANENT WAY:

1. The track will be inspected every day on foot by key-man. If any damaged/missing fittings / fixtures are noticed, these will be rectified by the key-man by replacing the damaged / missing item. In case of emergent situation contractor will immediate report to Shift In-charge. The key-man shall also ensure cleaning of guard rails, points and crossings.
2. While key-man inspection, any miscreant activity is noticed, it will be intimated to the PWI/Track-in-Charge and immediate action will be taken for the safety of traffic.
3. Proper record will be maintained regarding the inspection and materials replaced in the track every day and have to be duly signed by the Engineer In-Charge.
4. Contractor shall operate the motor trolleys on railway track as when required as per instruction of Engineer - In -charge for inspection/Patrolling and ensure healthiness of trolley at any point of time for operation.
5. P-way In-charge should carry trolley inspection of the track on weekly and monthly basis with proper documentation of the same.

6. All track maintenance related statutory and audit compliances will be under vendor’s scope.
7. Lubrication of all points and crossings, ERC clips, fish plates, curves and bolts will be done by vendor.
8. All the lubricants required for track maintenance will be under vendor’s scope.
9. Repairing of all level crossings in terms of gauge, level, checkrails, paver blocks, ballast filling.

**3.3 MAINTENANCE OF TRACK: approx. 56 ETKM:**

1. This item includes the following activities: Alignment of Track
2. The longitudinal and cross-levels should be so adjusted that it will give a safe and comfortable movement to traffic.
3. The alignment is to be straight and free of kinks. The alignment of the track is to be checked by “Eye judgment” sighting the rail from a distance of about four rail lengths. Small error in the alignment may be corrected by slewing the track after loosening the cores at the ends and drawing out sufficient ballast at the end of sleepers. Creep, if any, will be rectified.
4. For civil/truck maintenance specify that “tracks should be maintained to ECOR standards” and it must pass ECOR inspection and zero derailment. Reconditioning of wheel burns to be done by the vendor and DP test to be done for the same.
5. Track deep screening to be done as per RDSO. Ballast as per requirement will be provided by company. (The work would be executed by different line item in PO)
6. Minimum of 2 Km of deep-screening of track to be done per month by the vendor
7. Necessary Track maintenance tools & tackles to be ensured by Contractor end
8. Fouling Marks, kilometer posts, curve details and boards painting to be done as per RDSO by contractor
9. Tree trimming and cutting to be done by contractor to avoid the OHE breakdown.
10. Minimum of two diesel motored dewatering pumps to be made available always at site
11. Gauging:

Gauge to be kept correct and uniform within following permissible tolerance limit.

SL No	Type of track	Tolerance prescribed for Gauge variation
(i)	Straight track	-6MM to +6MM
(ii)	On curves with radius of more than 350 Meters	-6 MM to 15 mm slack.
(iii)	On curves with radius of less than 350 Meters	Up to 20mm slack



12. Cross – Levels and Super elevation: Proper cross levels of the track in straight portion and required super-elevation in curves are to be maintained for smooth and safe movement of traffic.
13. Adjustment of Joint Gaps: The joint gaps should be maintained as under: The permissible value of gaps in rail joints is 6 mm with a tolerance limit of (+) or (-) 2 mm. If any deviation from the permissible tolerance limit is noticed, then it should be adjusted by pulling back the rail in the opposite direction.
14. Maintenance of points & crossings
  - 14.1 Monthly inspection of points and crossings should be done by vendor.
  - 14.2 The gauge should be uniform, except at a point just ahead of toe of the switch where it will be slightly slack (enough to house the tip of tongue rail).
  - 14.3 The clearance, at the toe, heel of switch, at check rails and wing rails must be maintained.
  - 14.4 Packing under the sleepers should be checked. It must not be loose/defective especially under the crossing and the switch. ]
  - 14.5 Reconditioning of Damaged Tongue rail, CMS crossing to be done by vendor (Separate line item for tongue rail and CMS crossing to be raised).
  - 14.6 The chairs and fastenings and all other fittings must be checked properly. The chairs/ loose/ missing fittings are to be tightened (as required) / replaced immediately, if worn out.
  - 14.7 Creep anchors must be checked regularly and creep should not be allowed.
  - 14.8 The condition of stock and tongue rails should be carefully examined. Badly worn out and damaged stock and tongue rails are to be replaced by serviceable/new ones. Lubrication of the gauge face of the tongue rail should be done to reduce wear on switches. All the bolts on switch should be kept tight except those of the heel of loose type switches, where the first two bolts in switch rail should be finger tight and the other two in the lead rail spanner tight. Cleaning and lubrication of slide chairs are to be done periodically.
  - 14.9 Gauge over the turnouts are to be maintained uniformly. Track portions on concrete sleepers shall preferably be maintained by packing the ballast. Rails found defective will be changed. Lubrication of fish plated joints and ERC as per the scheduled maintenance. Damaged sleepers have to be changed as per requirement.
15. Inspection of Curves and their maintenance: The curves are to be inspected periodically (at least once in three months), versine and super-elevation will be corrected and the same will be painted on stations of the curve.
16. Picking up slacks: Picking of slacks has to be done where the alignment is abnormal or top level is uneven to restore the track to normal condition. The lifting up of sleepers should be done as in through packing. Care is to be taken that the packing of adjacent sleepers does not get disturb Operation & Maintenance of the manned & unmanned railway crossings has to done by the contractor. Contractor has to ensure smooth operation of the railway crossings for smooth movement of the Company's Inward & Outward rake. Deployment of the adequate nos. of gate-man to ensure safe operation of this railway crossings and also any addition of railway crossings will be taken care by contractor.

17. Gate-man has to ensure cleanliness of the track between check rail and stock rail for all the railway crossings.
18. For easy visual inspection of all fittings and fixtures, the grass, weed, coal cleaning and unwanted debris in the track with a minimum of distance 5 m from railway track will be removed periodically, i.e. once in 30 days by dedicated manpower arranged by the vendor separately. Sufficient quantity of chemical has to be sprayed to restrict weed growth.
19. Contractor shall deploy enough resource for monsoon preparedness (ex, drain cleaning) for smooth operation of traffic without any additional cost. All manual drains to be made and Hume pipes are to be provided by vendor as per requirement.
20. Rain cuts has to be filled with sand bags or earthwork dressing by the contractor on Vedanta railway line to avoid washing of ballast and maintain healthiness of railway line. Sand bags and sand for avoiding washing of ballast has to be provided by vendor. Sand and bags are to be provided by the vendor.
21. All maintenance spares, fitments and fasteners and all track materials (excluding ballast) shall be supplied by Company at their stores to the Contractor. Collection and transportation of the above material from CMW or any other warehouse /site within the plant to the required site shall be Contractor's responsibility. Contractor has to help the company to provide the required spare list of the material for proper maintenance well in advance with complete IRS/RDSO specification of the material.
22. An annual maintenance program will be made out for the contract period and a monthly program will be made out by the last day of the previous month. The Contractor will intimate the progress of implementation of the monthly program by the 10<sup>th</sup> of the following month and the short fall will be carried forward. The progress of implementation of annual program will be monitored every month, so as to complete it within the year.
23. All Cleaning/Clearing the unloading lines of coke, alumina, etc. and loading lines of debris is included from this maintenance responsibility of Contractor. Cleaning entire track length/Yards, all the level crossings, drains & allied equipment are in the scope of work of the contractor.
24. Contactor has to maintain and upkeep all the captive Diesel Generator Sets which are either directly/indirectly related to either Railway Operation and Maintenance or related to weighment of rakes at our In-Motion-Weigh Bridges.
25. Fuel required to run any kind of machine related to track maintenance and re-railing kit would be under vendor's scope.
26. Critical activity inspection register needs to be maintained on daily basis by vendor and will be verified by Track Maintenance In-charge.
27. Bridge maintenance: Routing inspection and maintenance as per Indian Railway standards has to be carried out by vendor including below mentioned points (not limited to) for entire super structure.

28. Crack filling with proper procedure (or as instructed by EIC) has to be done.
29. Plaster work where existing plaster is damaged as per proper procedure has to be done.
30. Soil erosion to be back filled and pitched with boulders
31. Retaining wall erosion or cracks to be repaired.
32. Painting of bridges entire super structure once in a year.
33. Level Crossing Revamping procedure as follows.
  - 33.1 Removing of paver block and check rails whichever damaged.
  - 33.2 Lifting of running rail as per standard/level of road.
  - 33.3 Check rail maintenance and replacement should be done if required.
  - 33.4 Vendor has to provide new paver block as per requirement.
34. Manpower, tools and tackles mobilization to be done immediately for attending any breakdown of track lines and during night time required lighting arrangement (Aska lights/portable tower lights/halogen lights) to be provided by vendor.

#### 4. LOCOMOTIVE REPAIR AND MAINTENANCE – 3 SAN LOCOMOTIVES AND 2 DLW LOCOMOTIVES (COMPANY OWNED)

Current we are having 5 nos. of locomotive. If the fleet increases during contract period, maintenance of additional locomotives will be under vendor scope without any additional cost.

1. All maintenance programs including schedules from weekly to two yearly schedules. Any major breakdowns or major maintenance has to be rectified in house by Vendor. The activities of schedule are to be carried out as per Railways guidelines, procedures, standards and instructions of Engineer-in-charge. The contractor has to carry out all the schedules as per program given by Engineer -in-charge.
2. Emergency en-route break-down repairs, accident repairs and out of course repairs will be carried out at any time as necessary.
3. Attending all types of breakdown repairs / maintenances for which the M&P, special tools and tackles required has to be arranged by the contractor.
4. All operational locomotives to be made available in all the shifts. Not more than one loco will be taken up for schedule / repair at one time. (In case the above referred locomotive availability is not maintained for operations and at the same time over detention charges arises due to no availability of locos, the same shall be recovered from the contractor at half of the total detention charges).
5. In case of major breakdown maintenances/repairs of engine block, crank shaft, traction generator, traction motors and chassis etc. for which facilities are not available, the contractor

has to co-ordinate with Indian Railway and carry out such repair jobs by arranging the special tools, tackles, M&P and materials required for the job.

6. Duration of the breakdown repair / maintenances will be calculated jointly by the contractor and Vedanta depending upon the quantum of the job. Contractor has to stick to the time period; failing which LD will be charged on pro-rata basis of the schedule of quantity for the period exceeding the above on per shift basis.
7. Record keeping and maintenance of loco schedule forms, loco log books, other maintenance documents, lube oil consumption and balance sheet, fuel oil consumption, spares consumption records, on daily basis as per ISO requirements and latest railway guide lines. Collection of above documents including its printing is contractor's responsibility.
8. Providing all types of cleaning materials and washing the locomotive at least once in a month. Housekeeping on regular basis and keeping the equipment's/spares in order must be ensured all the time. The working environment must be maintained. Cotton / jute required for cleaning purposes and maintenance activities has to be provided by vendor
9. Maintenance and calibration of all the instruments / gauges / measuring equipment's either fitted or in case of new installations in locos shall be done by the contractor as per the requirement.
10. Balance items/spares required for all the maintenances of locos will be provided by company. But the contractor has to give the specific requirement of spares at least six months in advance.
11. Battery set charging as and when required for locomotive has to be done by vendor. Electrolyte for battery is under vendor scope. Locomotive Battery Charger has to be provided by Vendor.
12. All the lubricants / hydraulic oil / fuel oil required for locomotives shall be provided by Vedanta. However, used oil /lubricants removed from equipment is to be collected and stored sincerely and it is to be returned to company Central store along with the containers periodically. Lubricants balance sheet is to be submitted monthly by the contractor.
13. Demineralized water used, as locomotive engine coolant, has to be provided by Vendor. Contractor has to submit the materials reconciliation statements in every month before processing the RA bills.
14. Requirement of Spares has to be provided by contractor in advance of 6 months. Stocking of rotational and unit exchange spares will be planned in such a manner that the availability of locos is not affected and kept in a serviceable condition at all times. All assemblies of locomotives have to be repaired and kept ready for installation in Locos when required.
15. The cleanliness of the Loco shed, yard master cabin and the Contractor's offices & toilets is the responsibility of the Contractor.
16. Proper upkeep & maintenance of the infrastructure like compressors, welding machines, washing machines, bottle jacks, Re-railing Equipment's, ASKA make Tower Lights, bench wise, Grinder, Grease Pump, diesel filling equipment's etc. to be done in a smooth & efficient way.

17. The items / materials like O rings, diaphragms, oil seals, rubber kits for air brake valves, gaskets, rubber/rubber bonded materials (except rubber rollers), victolic and other gaskets for water, fuel, air and lube oil circuit etc and hardware items (nuts and bolts upto size M22 allen key type upto 17 mm and inch thread size upto 1-3/8 inch) , fasteners, pipe fittings such as nipples, elbows, Tees, adopters etc , will be supplied by the contractor as and when required for the maintenance / repair of locomotive.
18. Locomotive overhauling kits of any kind and headlight bulbs of Locomotives are under vendor scope. Any material which is required for Loco as per Vendor's scope has to be made available at site within given timelines or else Vedanta would purchase the same and deduct 1.5 times value from vendor's monthly bill.
19. Contractor will have to provide all paints and painting materials, battery electrolyte and varnish, epoxy gel coat red/grey, cleaning / washing materials, non-fluffy clean cloth for cleaning electrical equipment's, orien-77/CRC lectra clean, electrical-88, safety solvents, Teflon/insulation tapes, araldite, holdtite, Ana bond, thread lock, M-seal, emery paper, emery paste, hand tools/special tools and all maintenance aids, PPEs and instruments etc to execute all above jobs in locomotive maintenances. Wooden Comb has to be provided for cleaning/straightening of fins in heat exchanger assemblies such as Radiators, After coolers, Intercoolers etc.
20. Issuing of material/spares/lubricants required for loco maintenance from Vedanta store would be in vendor's scope. Loco maintenance scrap has to be transferred from Loco shed to Vedanta scrap yard area is under vendor's scope.
21. Provision of three phase welding machine, consumables required for welding and a certified welder with all necessary safety requirements has to be provided by vendor at loco shed.
22. Provision of gas cutting set with certified operator and all necessary safety requirements has to be provided by vendor at loco shed. Availability of Dissolved Acetylene and Oxygen cylinders has to be maintained at Loco shed
23. Arrangement/fabrication of all necessary fixtures required to carry out effective and fast maintenance of locomotives or its assemblies has to be done by the vendor. Any machining / fabrication activity required for smooth continuous operation of Locomotives or its assemblies has to be done by vendor with in specified timeline or would directly affect availability of locomotives
24. Arrangement of any expert if required for guidance regarding loco maintenance work has to be done by the vendor.
25. Provision of sand as per railway norms to arrest wheel slip of locomotives has to be done by vendor.
26. Maintenance of utilities such as compressor, loco washing machine, EOT crane (as and when incorporated) and other machines which are added has to be done by vendor. Vendor has to perform overhauling work of Air dryer of Locomotives in plant premises.

27. One bolero camper required for loco maintenance work has to be arranged by vendor for minimum 12 hours a day and at night as per requirement. The vehicle would be used to bring maintenance staff to plant at the time of any breakdown or emergency. Vehicle has to be provided for daily checking of Locomotives at site.
28. Tools list provide herewith is minimum requirement, but vendor has to arrange all the tools/special tools, tackles and measuring instruments required for loco maintenance. All necessary tools and tackles, ropes, chains, D shackles, or any other Lifting tool material required has to be arranged by vendor including its safety testing as per plant requirements.
29. Housekeeping and all items required to carry out housekeeping of loco shed including toilet would be under vendor's scope. Housekeeping includes cleaning of shed, pit cleaning after maintenance and draining of pit. Monthly disposal of used waste oil and used filters are under Vendor scope. Documentation of Waste management forms and registers are also under Vendor scope.
30. Issue of diesel in barrels from Vedanta diesel bunk as per operational requirement and transportation of empty/filled barrels from/to loco shed would be under vendor's scope. Ramp has to be fabricated for safe unloading of barrels from vehicles to enhance safety at workplace. Filling of diesel in loco as per requirement is also under vendor's scope including tools and equipment's to fill diesel in locomotives. Mono block pump of 1 HP or more is required to fill diesel in Locomotives. If in due course to time diesel browser is inducted, then licensed driver has to be provided with helper/cleaner and diesel filling in locos at respective locations has to be done. Any kind of maintenance/repair of browser and diesel filling system has to be executed by vendor.
31. Record keeping and maintenance of loco schedule forms, loco log books, other maintenance documents, lube oil consumption and balance sheet, fuel oil consumption, spares consumption records, on daily basis as per ISO requirements and latest railway guide lines. Collection of above documents including its printing is contractor's responsibility. Stationaries has to be provided by vendor.
32. Daily checking of Locomotives has to be carried out, necessary actions has to initiated and has to be documented. It is completely under Vendor scope.
33. Overhauling of all assemblies of Locomotives such as Fuel pumps and injectors, Alternators, Self-starting motors, Filler pumps, Radiators, SAN Turbochargers, Cylinder heads etc will be under vendor's scope. If any Locomotive assembly is missed in the list and if requested by company has to be done by Vendor with in specified time lines. All Annual Maintenance Contracts (AMCs) will be under vendor scope. AMC Representative has to be deputed only after authorized from Engineer in-charge.
34. Preventive Maintenance Hours and Breakdown hours would be calculated under non availability of Locomotives. Example: In a particular month, if a Locomotive is under preventive maintenance for 30 hours and is under breakdown maintenance for 10 hours, total non-available hours of the Locomotive under consideration would be 40 hours (30 hours + 10 hours). Locomotive availability would be calculated as described above. In SAN Locomotives,



non-availability hours would be calculated based on the average of non-availability hours of both engines.

35. One Walkie talkie has to be provided at Loco shed to communicate with Loco pilots during shift hours
36. Condition based monitoring tools and equipment's has to be provided by vendors. Predictive Maintenance of locomotives has to be carried out on a monthly basis. Oil analysis has to be carried out for transmission oil, engine lubrication oil and compressor lubrication oil.
37. Oil spillage kit has to be provided by vendor for cleaning oil spillages in oil storage area. A separate register has to be maintained mentioning on hand inventory of consumables of Loco Shed.
38. Locomotive hourly running data, diesel consumption of all locomotives, PM details, and attendance details has to be provided by vendor on a daily basis.
39. Maintenance registers, spare registers and maintenance checklists has to be submitted by vendors on weekly basis.
40. Contractor has to attend breakdowns round the clock basis. Vehicle arrangement has to be done by vendors.
41. Repairing of wind shield glass and window/door glass of locomotive including required glass, its gaskets or seals with fitting in loco would be under vendor's scope.

## 5. RAIL SIGNALING AND TELECOM SYSTEM – REPAIR AND MAINTENANCE:

1. All the regular maintenance activities, repairing activities including Signal & Telecommunication system of Company's Rail Siding, Tie road, connecting wires, Battery Room, IPS systems, Battery Bank, DG sets, Relays, Vedanta Siding's Panel Board with all interlocking points, Magneto-telephone of Station Manager BXQ and Vedanta siding's, Walkie-talkie, all the motor points, related track circuits, location box, axle counter, both electrically operated and manually operated LC Gates, Signal lamp post, shunt signals, all signals and allied equipment's, all glued and block joints, earth pits has to maintained properly and has to ensure no failure of the S & T system during operations.
2. Provision of walkie-talkie, repeater and base station will be under vendor's scope. Maintenance of complete walkie talky system has to be done by vendor. Vendor will have to provide licenced walky talkies system for railway O & M and will have to abide by government rules and norms from time to time.
3. Arrangement of experts and AMC through OEM for the maintenance of IPS, DG set has to be carried out by vendor with proper documentation of the same.
4. Arrangement of Railway experts if required for guidance regarding maintenance work and to ensure no failure has to be carried out by the vendor.

5. Lay down of cable & trenching for replacement of the damaged cables and wherever required for Railway O&M is in the scope of the contractor. Also rerouting of cables, if required is to be carried out by the contractor.
6. Repair, Maintenance and painting of the location box, motor point machines, JB box of Vedanta's yard are in the scope of the contractor.
7. Joint Inspection of all S&T related equipment's at every 3 months shall be carried out by the contractor with Railway signalling officials.
8. Lubricants, Demineralized/ Battery Water, Chemical, Battery Acid & other Consumables required for the signalling systems are in the scope of contractor.
9. Tools & tackles with measuring equipment required for maintenance of the system shall be provided by the contractor.
10. Analysing the failures from the inspection report and taking remedial measures to eliminate recurrence of failures shall be done by vendor.
11. AC maintenance of all relay rooms, IPS rooms, exhaust fan maintenance of battery rooms will be under the scope of vendors.
12. Installation of glued joints will be under the scope of vendor.
13. Periodical inspection of all Signalling and Telecommunication installations are to be done as per OEM recommendation.
14. All statutory and audit compliance are to be carried out by vendor.
15. Power supply for maintenance purpose as well as illumination purpose will be carried out by vendor.
16. Spare requirement details required for S&T for next year has to be submitted by vendor before the end of current financial year. If not, vendor needs to arrange the spares on their account.
17. The Contractor shall submit the reconciliation statement for every month by 10th of the following month along with consumption statement for S&T. In case of shortage of material, cost of material shall be recovered from the RA bill of the Contractor of the concerned month. This is full and final reconciliation for spares, for the concerned month.
18. Proper records of various inspection tests report, various preventive maintenance schedules and all day to day maintenance activity undertaken including breakdown reports mentioning equipment's availability for the month has to be maintained by the contractor and has to be certified by the Engineer In-Charge/Company authority at the end of the day.
19. All AMC related to S&T systems such as DG & IPS should be carried out by vendor with competent manpower from OEM. AMC Representative should be deputed only after authorized by VAL In-charge.

## **6. IN-MOTION WEIGHBRIDGES & HIGH MASTS:**

1. Co-ordination with Railway for up-gradation of weighbridge and for Annual stamping, certification including re-verification (required after attending breakdown or replacement of



- any legal sealed equipment) all weighbridge for statutory compliance. Hospitality, Fooding and conveyance arrangements for Railway and Legal Metrology departments officials has to be done by vendor during any visit/inspection.
2. 100% availability of weighbridge for weighment of rakes and immediate rectification has to be done in case of breakdown.
  3. Ensuring 24X7 power supply for all In-Motion weighbridges & 5S of the area/surroundings (total area covered with fencing) including de-vegetation and beautification.
  4. Ensure healthiness of UPS, batteries and earth pits. Also to carry out maintenance as per standards and schedule.
  5. Supply for spare parts and service for AC (excluding compressor), Tube lights, Bulbs, Fan, Aqua guard, Water cooler, Motor pump, all the electrical equipment maintenance & Admin activities including Mechanical, Plumbing, Soak pit cleaning, Civil works, peripheral drain cleaning, Carpentry, painting (in a year) & Housekeeping in all three INMW.
  6. Earth work Digging/Trenching for replacement of existing cable will be under the party's scope.

## 7. BUILDING MAINTENANCE:

For MAVB Railway Building, SEBD Railway Building and Loco Shed:

1. Supply for spare parts and service for AC (excluding compressor), Tube lights, Bulbs, Fan, Aqua guard, Water cooler, Motor pump, all the electrical equipment maintenance & Admin activities including Mechanical, Plumbing, Civil works, Carpentry, painting (in a year) & Housekeeping.
2. Earth work Digging/Trenching for replacement of existing cable will be under the party's scope.
3. Maintenance of Earth Pits (resistance checking and necessary actions to regain its required value), painting as per safety standards for entire railway location including yards (signalling & OHE), MAVB railway building, SEBD railway building, Loco shed
4. Soak pit cleaning
5. Repairing and painting of fencing provided along with track line has to be carried out by vendor as per requirement.

## 8. REPAIRS ARISING OUT OF ACCIDENT AND DERAILMENT:

1. Contractor will be responsible for the safety of Company's Rail system. Contractor has to ensure that all the points-men, gate man, gang men has safety PPE with them and wear them. All people including the office staff should wear safety shoe in the plant premises. All

- the points-men, gang men, gate man should always have safety helmet on their head and should wear 360 reflective jacket during duty hours.
2. The Contractor will take all possible steps to restore normalcy including repair of track, loco and wagons at the earliest in case of accident / derailment.
  3. Re-railing kit would be provided by the company to contractor for carrying out re-railing of Loco/wagon.
  4. Special tools and tackles to execute the job will be in Contractor scope.
  5. The Contractor should ensure manpower deployment at site immediately along with necessary equipment's & tools.
  6. If any requirement of power shutdown of OHE line, the contractor should coordinate with Railway authorities and follow required railway procedures to perform the breakdown job and amount to be debited from Contractor.
  7. Requisitioning of Railway crane (ART, if required) has to be done by contractor and will have to be paid by contractor as per the guidance of company including the lodging, boarding of Railway staff.
  8. However, the Contractor will not be paid anything extra for re-railing as it is the part & parcel of the contract
  9. Contractor will ensure monthly maintenance of re-railing equipment and ensure 100 % availability of re-railing equipment. If rerailing kit is not available during derailment then vendor will have to arrange required resources for rerailment or the cost incurred would be borne by vendor
  10. AMC through OEM of re-railing equipment's quarterly will be under vendor's scope.
  11. Any type of derailment within Vedanta's siding has to be re-railed immediately irrespective of the cause of derailment.
  12. All demurrages including cascading effect loss and other costs incurred against derailment due to workmanship, delay in availability of resources and manpower will be recovered from Vendor.
  13. Contractor will have to bear damage and deficiency amount against damage of any OHE equipment caused due to derailment.

## 9. CONSULTANCY SERVICES

1. Contractor shall provide expert technical advice and consultancy services for the following, to Company:
  - 1.1 Operation, Maintenance and Management of Company's Rail system.
  - 1.2 Identifying defects in construction, design and manufacture and suggestions / recommendations for their modifications / rectifications.
  - 1.3 Assessment, specifications and source of supply of all spares to be supplied by Company initially with the tender and thereafter 6 (six) months in advance for indigenous items and 12 (twelve) months in advance for imported materials.

1.4 Additional safety measures required, if any.

1.5 Liaison for evacuation of wagons damaged for any reason whatsoever during the operation by East Coast Railway to Company; location. Actual cost of recovery, loading, transportation and unloading will be directly paid by Company.

2. Contractor may be called upon to assist in the supervision of any work related to Company's Rail system carried out by any other contractors.

#### **9.1 END TO END COORDINATION WITH RAILWAY OFFICIALS IN ALL DIVISIONS FOR RAKES MOVEMENTS:**

1. Service provider to co-ordinate with Indian Railway officials in Vijayawada, Waltair and Sambalpur Divisions for our BTAP Management services.
2. Service provider to co-ordinate with Indian Railway officials in Vijayawada, Waltair, Sambalpur & SECR Divisions for our Rail Management services which includes the following (BTAP/COAL/BLC/CPC)
3. To follow up with all divisions to move our load BTAP's and Other rakes from Kakinada Port, Lanjigarh and GPL & empty drawn out from Jharsuguda MAVB AND SEBD Sidings to co-ordinate for locomotive/traction power arrangement on time.
4. To follow up for double diamond movement from plant.
5. Your representative also co-ordinate with railway commercial & pass on Railway communications received on real time basis to Vedanta Jharsuguda Team
6. To Coordinate with respective railway divisions for timely maintenance activities (TXR, ROH & POH) as per Vedanta's agreement with Railways.

#### **10. COLLECTION, ACCOUNTING AND RETURN OF STORES ISSUED BY COMPANY:**

1. All materials, spares and consumables etc. (under the scope of Company) shall be issued, normally once a month during the first week of the month at Company's store. Transportation of material to the Contractor's work place including preservation and safe custody shall be the responsibility of Contractor.
2. Contractor will place demand for the above items at least by 25<sup>th</sup> of the previous month.
3. The Contractor shall submit the reconciliation statement for every month by 10<sup>th</sup> of the following month along with consumption statement, separately for Loco and Track. In case of shortage of material, cost of material shall be recovered from the RA bill of the Contractor of the concerned month. This is full and final reconciliation for spares, for the concerned month.
4. The new lubricant and grease barrels must be inspected before their use and certified jointly by the representatives of Company and Contractors that the seal is intact.

5. The Contractor has to return all the used engine oil, unserviceable materials/spares and scrap and drained out lubricants with their containers to the Central Store once in every month at his cost.
6. Contractor will maintain a stock ledger separately category wise, for all items issued by Company.

## 11. INSPECTION, TESTING & MANAGEMENT OF RECORDS

1. The Contractor shall carry out the various preventive maintenance schedules and tests as given in the Manufacturer's Manuals of Locos.
2. Proper records of various inspection tests report, various maintenance schedules and all day to day maintenance activity undertaken has to be maintained the contractor and has to be certified by the Engineer In-Charge/Company authority at the end of the day.
3. The work is subject to inspection at all times by Company. The Contractor shall carry out all the instructions given during such inspections.
4. Any work not conforming to the Instruction Manuals or Railway norms & codes shall be rejected and the Contractor shall carry out the rectification at his cost.
5. The Contractor shall maintain all the Loco log books, shift log registers details of every rake/loco movement in each shift, points-men allocation at various siding along with the name and all the operational details has to be properly recorded by the contractor and should be readily available at the time of requirement.

## 12. EXECUTION OF WORK

1. The Contractor shall be responsible for executing the work as mentioned in a proper and expeditious manner as per time schedule agreed between the parties from time to time. The specifications enumerated in the manufacturer's manuals to be followed for guidance and directions.
2. The Contractor will deploy the stipulated supervisory personnel, skilled, semi-skilled and unskilled labour such that the operation, maintenance and management of Rail Transport System is smooth and meets Company's requirements and schedules. The names and addresses of the persons deployed by the contractor will be intimated by him to the authorized officer of Company in writing and a separate record thereof will be maintained by him regarding this and which will be open for inspection at any time by the authorized officer of the company.
3. Contractor has to ensure 100 % compliances of Vedanta railway safety standard.
4. Contractor has to follow Vedanta SOP/SMP/SWP while execution of works.
5. Contractor has to ensure inspection of all the critical activities and maintain critical

inspection registers on daily basis.

6. All the equipment like crane/hydra/JCB/forklift required for operation and maintenance to be provided by the contractor.
7. All the requirements for Contractors office/panel rooms/rest rooms/store rooms like racks, cupboards, fans and tables are in contractor's scope. Rest rooms are to be maintained such that at least 10 Indian railway crew can take rest at any time.
8. Contractor has to provide competent manpower and regular trainings are to be conducted on railway Operation and P way, S & T & LOCO maintenance by Railway experts.
9. Contractor has to provide the spares required 6 months in advance. Ballast shifting to desired location to be carried out by vendor as per deep-screening requirement. Track corridor mud cutting, coal and debris cleaning to be done as per requirement
10. Repairing of 25 KV OHE height barrier and boom barrier fitted at all level crossings of siding by using required resources within specified timelines irrespective of cause of damage. All necessary resources required for repairing has to be arranged by vendor.
11. Painting of height barrier, boom barrier, locomotives, location boxes and any equipment wrt railway O & M including all materials and resources required to carry out painting as per schedule or as informed by EIC.
12. Fabrication activity if required upto 100 tons/year including painting, material handling and erection has to be done by vendor.
13. Civil work if required per year has to be done upto 1000 foot<sup>2</sup> and upto 25 m<sup>3</sup>.
14. Civil work and Fabrication work if requested by Engineer in-charge has to be carried on immediate effect without any delay and Cost should be calculated as per commercial contract, the same would be processed separately or along with O&M bill.
15. House-keeping: -The contractor shall ensure that its employees while on Company premises or while carrying out their obligations under contract, observe the standards of cleanliness, decorum and general discipline laid down by Company shall be sole judge as to whether or not, the Contractor and / or its employees have observed the same. Contractor has to ensure that railway building, TXR building, loco shed, In-Motion Weigh Bridges Office, Level Crossing Buildings or any new office/building related to Railway Operation and Maintenance in due course of time along their nearby surrounding areas are kept clean. All the buildings have to be boomed at least once in a day or as per the requirement of the area. All the laboratories, rest room, sink, wash basin and all the allied areas has to be cleaned on day basis and should be kept hygienic. The site (MAVB & SEBD Siding) should be clean at all time for which painting, grass cutting, cutting of tree branches & any other miscellaneous work is to be carried out of regular basis.
16. Manpower to be provided during monsoon to protect weighbridge operation from damage due to lightning & heavy rain or high voltage etc.
17. AMC or any other work which is under vendor's scope and if the vendor is unable to carry

out the work or provide required items then company would execute the job on vendor's risk and cost and deduct 1.5 times the cost incurred to execute the job.

18. Sitting, dining, recreation room facility for staff including office room/furniture, desktop, printer/Xerox, AC and whatever required to set up office at site has to be arranged by vendor.
19. There would be separate manpower for grass cutting and drain cleaning work so as to ensure smooth maintenance work through the year.
20. Below mentioned items would be under vendor's scope and different line item would be given for its execution and payment would be done on actual execution basis. (Approx. quantities mentioned) AMC's has to be executed through OEM's only.

- 1.1 Deep screening of track. (1125 meterz/month considering 8 months/year)**
- 1.2 SAN loco AMC (3 locos and visit required quarterly or during breakdowns)**
- 1.3 DLW loco MEDHA AMC (2 locos and visit required quarterly or during breakdowns)**
- 1.4 DG Set AMC (3 nos. 15 KVA of KOEL make)**
- 1.5 AMC for 3 nos. railway in-motion weighbridges of capacity 140 MT each of Avery make.**
- 1.6 AMC of Integrated Power System (IPS) used for Signalling & Telecommunication system. (1 no. make Amaraja and 1 no. make Statcon)**
- 1.7 Fabrication, material handling & erection (approx. 100 tons/year)**
- 1.8 Civil work per year 1000 ft<sup>2</sup> and 25 m<sup>3</sup>.**
- 1.9 Tongue Rail and crossing body reconditioning work (60 kg & 52 kg).**
- 1.10 Drain cleaning and work near and between railway lines.**
- 1.11 Provision of crane of 140 tons for 15 days/year.**

21. Fitting of GPS and removing GPS from BTAP rake/wagons on daily basis. Also ensure proper charging of GPS equipment for proper working.

22. Any breakdowns has to attended immediately for smooth & safe rake movements.

### **13. COMPANY'S RESPONSIBILITY:**

1. Company shall provide the following items to the Contractor for the above work:
  - 1.1 Provision of loco & wagon shed with pit.
  - 1.2 Spares for Locomotives, track and S&T provided by Company and transportation of spares from stores to respective location would be under vendor scope.
  - 1.3 Provision of diesel to locomotives at least twice a day or as per the requirement.
  - 1.4 Supply of Water and power as necessary in the Loco / Wagon Shed.
  - 1.5 Storage provided for materials in Loco / Wagon Shed and at Marshalling yard.
  - 1.6 Provision of maintenance manuals supplied by OEM
  - 1.7 Any repairs / replacements which are the obligation of the manufacturer under the warranty clause. Contractor shall notify such defects promptly to Company, if noticed

within the warranty period.

1.8 VEDANTA will supply ballast for packing of sleepers. Contractor will ensure loading & shifting of ballast wagons.

2. **Note:**

2.1 All the tools & tackles for railway O & M will be under the scope of contractor.

2.2 Load test and calibration certificate for all lifting tools and tackles to be arranged as per standard under contractor scope

#### 14. LIQUIDITY DAMAGE:

1. Any delay in rake placement & release on account of loco operation & maintenance, track maintenance, Signal & Telecommunication system of Company sidings will be accountable. Contractor has to ensure best efforts to place & release the rake at the earliest possible time. Financial implication like demurrage, EDC, loss on railway freight discount on account of delay will be deducted from contractor's bill.
2. Deviation in Deployment (as per attached annexure) and any Behavioural attitude for work LD (max Rs. 10,000) and action will be applicable as per the VAL.
3. Re-railment – The contractor shall be responsible for re-railment of the derailed wagons/locomotives, at the earliest time possible. In case derailment takes place due to fault on part of contractor, cost of railways assistance in railment of Wagons/Locos will also be borne by the contractor. Company's decision on levying any LD on the matter will be final & binding to the contractor.
4. LD for Non-Performance & Non-Deployment as per KPI attached in Annexure.
5. VEDANTA has represented to the contractor that timely performance and quality of work is essence of this contract. The contractor is under an obligation to arrange and keep ready equipment. The contractor is aware that in case of non-availability of equipment/Manpower and/or non-performance by the contractor, VEDANTA will suffer production loss and will have serious financial implications. The contractor shall assure VEDANTA that the work facility to be provided by the contractor under this agreement shall be available to VEDANTA on round the clock basis. Failure on part of the contractor to provide the equipment and other work facilities and/or non-satisfactory performance under this agreement at the required time and period shall make the contractor liable for LD as decide by VEDANTA.
6. Any repeated HIPO safety related issues addressed a maximum deduction of Rs 100000/-



## 15. VEDANTA SAFETY REQUIREMENTS:

1. Minimum 1 safety officer for 100manpower. Number of safety personnel can be increased with respect to the criticality of the activities involved in Railway.
2. Railway safety expert is mandatory.
3. A Safety person who will be able to maintain the VSAP requirements documentation, Risk register, MIS tracking, Safety reporting, etc.
4. An Experienced person who can manage the work at height jobs, Vehicle standard guidelines, Railway standard practices, Electrical & LOTO-V implementation, Lifting plans, Oil storage system etc...
5. All critical/Non-Critical activities should be executed with standard/genuine tools tackles along with an experienced personnel for handling the activity safely.
6. Strong communication protocol digital system apart from the regular walkie talkie handled system
7. Safety supervisors able to handle the Points men, gateman, TXR, SNT, Loco operators etc.
8. Sustainable & sufficient safety PPE's stock all time availability at site
9. Proper skilled persons fitted in the designated & desired positions.
10. PPE's compliance & sustain including The Indian Railway staff in entire Vedanta- Railway complex
11. Supply and service for Installation of safety signage's boards in visible area at all railroads (Path ways), overhead electrical equipment and Railway Level crossings.
12. Identify approved tools and equipment to be placed (Flags, Signal lights, Wheel skids and C-clamps) and RDSO approved certification to be maintained.
13. Ensure Two-way radios communicate with the loco operators and points men
14. Monthly Self audit for respective area regarding Hygiene facilities
15. Ensure a yearly survey of track gradient and based upon this, completion of lifting & packing track lines accordingly (most preferable after monsoon period) and necessary records & documents to be maintained as per RDSO
16. Providing appropriate PPE's and clothing with 360 degrees retro-reflective 50 mm strips on chest, back, arms and legs of BP employees in a Rail yard.
17. Any repeated HIPO safety related issues addressed a maximum deduction of Rs 100000/-
18. Locomotive operators should undergo a defensive driving training with respect to railway guideline
19. Skill mapping and competency assessment to be done by VL yearly.
20. New joiners should undergo a safety induction training of a week before deployment to any work
21. No mobile phones should be with the locomotive operators while running the locomotive
22. Ensure 100% adherence of basic PPE's by all the staffs including the government railway professional entering our plant premises.
23. No spitting at the work places except at the desired locations only
24. Any LMV/Buses belonging to the vendors should be equipped with 100% seat belt facility for all passengers
25. LMV/Bus drivers entering our plant premises should be properly trained of Defensive



driving training and follow all our road safety policy inside the plant premises.

26. No cooking is allowed inside the plant premises

27. Alcohol checks meter should be a part of the contract and vendor should deploy persons on random basis for alcohol checking for the manpower as per VL instruction

28. A Comprehensive safety report submission with a presentation by the safety officer of the vendor is a mandatory requirement at every month end.

## **ANNEXURE A – TOOLS LIST AND ITS SPECIFICATION FOR O&M ACTIVITIES:**

**T & P List to be provided by contractor (but not limited to mentioned list). Safety test/calibration of tools and tackles as per company norms has to be carried out by vendor.**

### i) Tools for Rake Operations

Sl. No	Tool Description	Specification	Quantity
1	Walky talky (with proper license)	RDSO Approved	50
2	Tricolor torch		30
3	Red & Green hand flag		40 each
4	Wheel skid		60
5	Bolt with Check nut for Hand point safety lock		32
6	Banner flag for LC gate		24
7	Mobile for communication		As per req.
8	“C “ Clamp for motor points & hand points	RDSO Approved	100

### ii) Tools for Loco Maintenance

Sl. No.	Tools Description	Size	Quantity	Make/Model
1	Open Spanner Set	6 - 32 mm	1	Taparia
2	Ring Spanner Set	6 - 32 mm	1	DEP 12
3	Adjustable Spanner	205 mm	1	18010
4	Adjustable Spanner	255 mm	1	1171-8/1171N-8
5	Pliers	210 mm	2	1172-10/1172N-10
6	Nose Pliers	170 mm	2	1621-8
7	Cutting Pliers	165 mm	2	Long Nose 1430-6
8	Circlip Plier	195 mm	1	1121-6
9	Circlip Plier	180 mm	1	Straight 1441-7
10	Insulated Screw Driver	286 mm	2	Bent 1442-7
11	Small Screw Driver	185 mm	2	937 I
12	Line Tester	180 mm	2	P5 861 100
13	Screw Driver Set		2	815
14	Bi Hexagonal Socket Set (Bigger size sockets)		1	821
15	Bi Hexagonal Socket Set (Smaller size sockets)		1	S 3/4 BH
16	Pipe Wrench	300 mm	1	S-14M X L
17	Pipe Wrench	450 mm	1	1273
18	Hammer with handle	1.6 kg	2	1275
19	Hammer without handle	3.6 kg	2	GH 1500
20	Soft Faced Hammer with Handle	0.8 kg	1	SHH 3600
21	Tubular Spanners Set		1	SFH 40
22	Octagonal Chisels	200 mm	4	TS 08
23	Leather hole punch set		2	105
24	Center Punch	100 mm	2	
25	Tin Cutter with Spring	250 mm	1	1884
26	Gear Puller	250 mm	1	TCS 10
27	Allen Key Set	Mm	1	BP 310-3 Legs
28	Allen Key Set	Inch	1	KM-9V

29	Hack Saw and blades	12 inch	2	TWR 400
30	Steel Scale	30 inch	1	
31	Multimeter		2	
32	Wooden Saw		2	Motwane
33	Oil Can		2	
34	Crow Bars (Badi)		2	
35	Tomy Bars		2	
36	Consumables			
37	Filler Gauge		2	
38	Benjo Bolt Spanner 1-1/3		1	
39	File Flat, round, half round fine and rough		2 each	
40	Megger		1	
41	Pneumatic grease gun (with all fittings for greasing of axle box)	25 kg		
42	Grease gun (with all fittings)	5 kg		
43	Hydrometer		5 no	
44	Impact Hand drill machine		01	
45	Angle grinder		01	

### iii) Tools for Track Maintenance

Sl. No	Tool Description	Specification	Quantity
1	Crow Bar		30 Nos
2	Rack Ballast		30 Nos
3	Spade	1.8 Kg	18 Nos
4	Fish Bolt Spanner	42 mm	12 Nos
5	Box Spanner	24 mm	18 Nos
6	Drill bit with socket	18, 22, 28 and 32 mm	12 Nos
7	Rail Dolly		04 Nos
8	Rail Tongs		06 Nos
9	Diplorry		03 Nos
10	Rail Lifting Jack	15 tons	10 Nos
11	Gauge cum level	Model ST-2	04 Nos
12	Pin Cut Bari		10 Nos
13	Spirit Level 6"	Model SL-2	06 Nos
14	Rail Cutting Machine (Disc type) with all safety machine guards		02 Nos
15	Rail Drilling Machine		02 Nos
16	Generator		01 Nos
17	Rail Grinder		02 Nos
18	Motor trolley		01 nos
19	Material/ballast shifting trolley		2
20	Ballast shifting trolley		1
21	Grass cutting machine		4

22	Gamla (Tagadi)		30
23	Kulhadi		10
24	Phavda		15 Nos
25	Hand Panja		30
26	Hand Panji		30
27	Hammer		6
28	Banner flag (red, Green )		12
29	Permanent way measuring kit	TK-1	02 Nos
30	Jim Crow		04 Nos

#### iv) Tools for S&T Maintenance

Sl.No.	Tool Name	Reqd.Qnty
1	Digital Clamp Multimeter with provision of measuring AC/DC voltage, Current, Resistance & frequency.	2
2	Earth Resistance Meter kit :	2
	1)Earth Resistance meter 2) 04Nos of testing Probes 3)4x10mtrs connecting wires	
3	Screw drivers sets	2
4	Nose pliers	2
5	Flat Nose pliers	2
6	Wire strippers with multiple provision for stripping different wire sizes.	2
7	Soldering Iron 25Watts	2
8	Soldering Iron 75watts	2
9	Solder wire normal (22 swg)	2x500gms
10	Solder wire heavy (35 swg)	2x500gms
11	Cable meggering meter	2
12	Handheld electric drill machine	1
13	Track drilling machine manual cycle type for channel bonding pin drilling	2
14	Electric Arc Welding Set portable type	1
15	Battery Hydrometers range-1.100 -1.300	5
16	Point Gauge 1.62/3.25/5.00mm	5
17	Cable fault detector & locator kit	1
18	Spanner open no. 30 -32 , 16 -17 , 36-41, 20-22	2 each
19	Spanner ring no. 16 -17	2
20	Open Spanner no. 50	2
21	Adjustable spanner 16"	2
22	Box Spanner 12- 13	4

**Note: All the special tools & fixtures apart from mentioned above required for maintenance of railway equipment's has to be arranged by contractor.**

## ANNEXURE B – KPI PARAMETERS FOR RAILWAY O&M:

S.No	Location	PARAMETER	UOM	REMARKS
1	SAN 1 Availability & PM Adherence	Availability – 95 PM Adherence - 100	%	Loco availability of 95%. LD of Rs.5000/- would be deducted for reduction of per percentage <95%. (Avg. of both engines) Separate LD of Rs.5000/- would be deducted for reduction of per percentage for PM Adherence <100%
2	SAN 2 Availability & PM Adherence	Availability – 95 PM Adherence - 100	%	Loco availability of 95%. LD of Rs.5000/- would be deducted for reduction of per percentage <95%. (Avg. of both engines) Separate LD of Rs.5000/- would be deducted for reduction of per percentage for PM Adherence <100%
3	SAN 3 Availability & PM Adherence	Availability – 95 PM Adherence – 100	%	Loco availability of 95%. LD of Rs.5000/- would be deducted for reduction of per percentage <95%. (Avg. of both engines) Separate LD of Rs.5000/- would be deducted for reduction of per percentage for PM Adherence <100%
4	DLW Chetak Availability & PM Adherence	Availability – 95 PM Adherence – 100	%	Loco availability of 95%. LD of Rs.5000/- would be deducted for reduction of per percentage <95%. Separate LD of Rs.5000/- would be deducted for reduction of per percentage for PM Adherence <100%
5	DLW Pushpak Availability & PM Adherence	Availability – 95 PM Adherence - 100	%	Loco availability of 95%. LD of Rs.5000/- would be deducted for reduction of per percentage <95%. Separate LD of Rs.5000/- would be deducted for reduction of per percentage for PM Adherence <100%
6	Locomotive pilots & maintenance manpower availability	100%	%	LD of Rs.1000/- would be deducted for reduction of per person of manpower availability < 100%.
7	Plant-1 & CPP- S&T Equipment availability	98.5	%	Availability of S&T equipment 98.5%. LD of Rs.5000/- would be deducted for reduction of per percentage <98.5%.
8	IPP-S&T Equipment availability	98.5	%	Availability of S&T equipment 98.5%. LD of Rs.5000/- would be deducted for reduction of per percentage <98.5%.
9	SEZ-S&T Equipment availability	98.5	%	Availability of S&T equipment 98.5%. LD of Rs.5000/- would be deducted for reduction of per percentage <98.5%.
10	S&T Equipment's PM adherence	100	%	LD of Rs.5000/- would be deducted for reduction of per percentage for PM Adherence <100%
11	Track Maintenance manpower availability	100	%	LD of Rs.700/- would be deducted for reduction of per person of manpower availability < 100%.

12	Plant-1 & CPP-P WAY Track Maintenance	99.5	%	Availability of P-WAY equipment 99.5%. LD of Rs.5000/- would be deducted for reduction of per percentage <99.5%.
13	IPP-P.WAY Track Maintenance	99.5	%	Availability of P-WAY equipment 99.5%. LD of Rs.5000/- would be deducted for reduction of per percentage <99.5%.
14	SEZ-P.WAY Track Maintenance	99.5	%	Availability of P-WAY equipment 99.5%. LD of Rs.5000/- would be deducted for reduction of per percentage <99.5%.
15	Track related Equipment's PM adherence	100	%	LD of Rs.5000/- would be deducted for reduction of per percentage for PM Adherence <100%
16	Deep Screening of Track	Carry out deep screening of 55 Kms of track length once a year	Kms	Deep screening of 1125 meters per month or else LD of Rs 20000/- will be deducted per month
17	Coordination with Railway Authorities for smooth movement of traffic	Coordination with Railway administration for movement of Company's inward and outward rail traffic and supply of wagons as per requirement of Company. Documentation and conducting entire commercial activities as per norms and rules of railway.	LS	Subjective so no LD can be imposed.
18	Site In charge	VAL/SEBD/MAVB	1/Site	Over all in charge with siding in charge to manage the sites
19	Operation Manpower punctual at work place, shift relieving time should be in time (before 20 mins.). Manpower deployment for 8 hours in each shift basis to be ensured. Late reporting of manpower will not be counted in the shift manning. Availability Details in Annexure-D of manpower	Shift In Charge	100%	Availability of manpower 100% in each shift. LD of Rs 1500/- if availability is <100% per shift
		Panel In Charge	100%	Availability of manpower 100% in each shift. LD of Rs 1500/- if availability is <100% per shift
		Points men	100%	Availability of manpower 100% in each shift. LD of Rs.1200/ absent.
		Gate Men	100%	Availability of manpower 100% in each shift. LD of Rs.1000/ absent person.
		TXR	100%	Availability of manpower 100% in each shift. LD of Rs.1000/ absent person.
		S&T	100%	Availability of manpower 100% in each shift. LD of Rs.1000/ absent person.
		Safety Officer	1 safety officer / 100 working manpower	Availability of manpower 100%.

		Safety Expert (Related to O&M)	1	Availability of manpower 100%.
20	LMV for railway O & M	Vehicles required for MAVB/SEBD/Maintenance	2+2 (2 Opr. + 1 Maint + 1 material shift)	Deployment of LMV 24 x 7 with fully availability of vehicle & driver. Suitable LD will be imposed.
21	Rake Formation	Release rake formation to railway power EOT	within 1 hour	Equivalent damage occurred to Vedanta would be imposed or recovered from Vendor.
22	Rake Placement	Shunting time	within 30 minutes	Equivalent damage occurred to Vedanta would be imposed or recovered from Vendor.
23	Rake Placement	Placement time	30 minutes	Equivalent damage occurred to Vedanta would be imposed or recovered from Vendor.
24	Rake Placement	Shunting time	within 10 minutes	Equivalent damage occurred to Vedanta would be imposed or recovered from Vendor.
25	Grass cutting machine requirement 04 nos.			Rs. 500/- would be deducted per day per machine against unavailability of the grass cutting machine.

## ANNEXURE C – RAKE HANDLING BRIEF DESCRIPTION:

### SEBD INTRODUCTION:

- SEBD is the intermittent serving station for MAVB (Plant-1 & CPP) and officially Plant-2 is the part of MAVB as per IR but the same is controlled through SEBD.
- Rakes for VAL sidings (MAVB & SEBD) are controlled through a single panel at SEBD.
- Communication to BXQ station is through magneto phone and all the programs will be recorded over a private number exchange book by repeating the confidential PINs to each other.

### Coal Rakes for (600\*4=2400 MW) Power Plant TPP

Coal Handling facility at TPP through Rakes

1. Track Hopper
  - 1.1 Track hopper-1
  - 1.2 Track hopper-2
2. Wagon Tippler
  - 2.1 Wagon Tippler-1
  - 2.2 Wagon Tippler-2

### Rakes handled at plant-2

1. BTAP for Alumina
2. BOX-N for CP-Coke
3. BLC for FG

## 1. IPP RAKE HANDLING IN SEBD:

### i) TRACK HOPPER (BOBRN):

- 1) Line Clearance is given to the BXQ serving station by providing a slot through shunt signal. A confidential two-digit pin is exchanged for this clearance.
- 2) Rake is routed through the shunt signals to the desired Track hopper (1 or 2), meanwhile CHP will be intimated to charge the OHE of the respective hopper in case of electric engine. Diesel engine doesn't need OHE charging.
- 3) Meanwhile weigh bridge will be intimated about the load rake arrival and its route for the weighment of the rake.
- 4) Rake is placed in the hopper directly and Rear engines panto will be asked to shut down as OHE has to be discharged for unloading clearance. Once this is done, the clearance for unloading first 22 Wagons (As per the design of Track hopper) is given to CHP and that will be termed as **first placement**. The same time has to be repeated to BXQ station & CGS and this will be termed as **Rake Arrival time**.
- 5) Once after completion of first placement and clearance from CHP, the front engine will pull the Rake for the second placement (second set of 22 Wagons will be placed on the



hopper) and the clearance for unloading is given to CHP. This will be termed as **Second Placement**.

- 6) Once after completion of second placement and clearance from CHP, the Rake is pulled to place the remaining set of wagons and the clearance for unloading is given to CHP. This will be termed as **Third Placement**. Which means Rake unloading is completed. Once the unloading is completed, the time has to be repeated to BXQ station and CGS. This will be termed as **Rake Release time**.
- 7) Now the Rake is pulled to the post hopper area and engine will be decoupled and Break Van marshalling will be done.
- 8) Now once after EOT is done, GDR process begins. BP TXR staff will attend all the issues with the rake and will make the rake fit for run on the IR main line by completing GDR process. The equipment's and tools will be provided by BP.
- 9) Once the Rake is ready for Drawn out, BXQ station will be intimated about the same and Line clearance for Drawn out will be asked.
- 10) Line clearance for drawn out will be given through slot by BXQ station using shunt signal. The same program will be recorded by means of confidential PIN exchange from BXQ station.
- 11) Simultaneously weighbridge will intimate about the empty rake drawn out for the weighment of the entire rake.
- 12) Now the rake will be routed according to the slot provided by BXQ station through shunt signal.

ii) **WAGON TIPPLER(BOXN):**

- 1) Line Clearance is given to the BXQ serving station by providing a slot through shunt signal. A confidential two-digit pin is exchanged and recorded for this clearance. Meanwhile internal loco has to be made ready for coupling and feeding the N-box rake to the tippler.
- 2) Rake is routed through the shunt signals to the desired wagon tippler (1 or 2). Confirmation of tippler should be taken from CHP before giving the line clearance.
- 3) Meanwhile weigh bridge will be intimated about the load rake arrival and its route for the weighment of the rake.
- 4) Once the Rake reaches desired tippler, Indian Railways Engine will be decoupled from the rake and will be routed as per the program given by BXQ station. But it has to be removed from wagon tipplers working lines for unloading of the rake which the same has brought. Once the Engine is decoupled **arrival time** has to be repeated to BXQ station and CGS.
- 5) Our loco which is already ready has to be coupled from the rear end and pressure is built-up. Then the rake is back pushed for feeding SAC (Side Arm Charger) of tippler. Immediately after the rake is fed to SAC, pressure of all the wagons is released manually and break pressure pipe and any other additional pipes in the wagon to wagon will be decoupled. Once this is done, then unloading clearance can be given to CHP and this will be termed as **Placement time**, subsequently **pressure release time** is also evaluated for unloading clearance. Unloading clearance will be given only when the post tippler line is vacated for fresh wagons unloading. Post completion of all the mentioned activities unloading clearance will be given to CHP.

- 6) Number of wagons to be fed to the SAC in one placement will be decided by CHP accordingly number of required placements will be given and simultaneously post tippler path will be vacated considering the existing INFRA (L.C-18).
- 7) If required split placement will be given as per the instruction of VAL SIC considering process requirement.
- 8) Internal loco is kept ready at the dead of post tipping lines for the formation of empty wagons and break van marshalling.
- 9) Once unloading is completed, CHP will intimate us. Hence the empty wagons will be evacuated from the post tipping line and will be shifted to Tippler Escape line or holding line. Break van will be coupled from rear end for completing formation.
- 10) As per the instruction of BXQ serving station, Railway engine will be coupled to the empty formed rake and the time will be noted as EOT. Accordingly Rake Release time will be given to BXQ station and CGS after confirmation from VAL SIC.
- 11) Line clearance for empty drawn out will be given through slot by BXQ station using shunt signal. The same program will be recorded by means of confidential PIN exchange from BXQ station.
- 12) Simultaneously weighbridge will have intimated about the empty rake drawn out for the weighment of the entire rake.
- 13) Now the rake will be routed according to the slot provided by BXQ station through shunt signal.

## 2. COMMODITY/FG RAKES FOR PLANT 2 IN SEBD:

### i) ALUMINA RAKE HANDLING(BTAP):

- 1) Line Clearance is given to the BXQ serving station by providing a slot through shunt signal. A confidential two-digit pin is exchanged for this clearance.
- 2) Simultaneously line clearance is taken from MAVB by receiving slot through a shunt signal. A confidential two-digit pin is exchanged for this clearance from MAVB also.
- 3) Meanwhile weigh bridge will be intimated about the load rake arrival and its route for the weighment of the rake.
- 4) Rake is directly routed to the MAVB's R&D Yard and the Railway loco is decoupled. Arrival time is repeated to BXQ station and CGS.
- 5) Immediately after decoupling, our internal loco will be coupled and the rake will be either back pushed or pulled to the Y-Curve and from there it will be again routed to Plant-2s alumina unloading line either by pulling or pushing.
- 6) Placement will be given at plant-2 by adjusting the rakes alignment with the hose pipes of silos.
- 7) Alumina unloading team will intimate about the status of unloading start and completion.
- 8) Once the unloading team confirms about the completion of unloading, if required the rake/wagons will be taken for maintenance by the same team and till then rake will not be removed from the location.
- 9) Once the unloading team will give the clearance for removing the rake before 45 Minutes of completion. So that internal loco will be readied and the same will be coupled and marshalled if required for again internal shifting to MAVB.

- 10) At times rake is directly received and dispatched from SEBD or Plant-2 to minimize the TAT and unnecessary movements. This happens only when Indian Railways Crew has the LR to do so.
- 11) The empty rake placed at plant-1 will then be readied by doing EOT and GDR.
- 12) BP TXR will attend the entire rake and will make it fit for run on main line.
- 13) Line clearance for empty drawn out will be given through slot by BXQ station using shunt signal. The same program will be recorded by means of confidential PIN exchange from BXQ station by SEBD and MAVB will take the same from SEBD.
- 14) Simultaneously weighbridge will intimate about the empty rake drawn out for the weighing of the entire rake.

**ii) CP-COKE RAKE HANDLING(BOXN):**

- 1) Line Clearance is given to the BXQ serving station by providing a slot through shunt signal. A confidential two-digit pin is exchanged for this clearance.
- 2) Simultaneously line clearance is taken from MAVB by receiving slot through a shunt signal. A confidential two-digit pin is exchanged for this clearance from MAVB also.
- 3) Meanwhile weigh bridge will be intimated about the load rake arrival and its route for the weighing of the rake.
- 4) Rake is directly routed to the MAVB's R&D Yard and the Railway loco is decoupled. Arrival time is repeated to BXQ station and CGS.
- 5) Immediately after decoupling, our internal loco will be coupled and the rake will be either back pushed or pulled to the Y-Curve and from there it will be again routed to SEBD/Plant-2s lead lines (Post Track Hopper-2 line) either by pulling or pushing.
- 6) From there again rake is back pushed to CP-Coke unloading line and once 26 wagons are placed in the unloading shed, the rest wagons will be decoupled and will be placed in CP-Coke escape line. **(1<sup>st</sup> Placement)**.
- 7) Cp-coke unloading team will intimate 45 minutes prior to the unloading completion time, meanwhile loco will be arranged for empty removal from unloading line and same rake will be coupled to the rest load wagons and pushed back for the second placement (26 Wagons) in the unloading line. **(2<sup>nd</sup> Placement)**
- 8) The process is repeated for the rest of the load wagons placement and removal. **(3<sup>rd</sup> Placement)**
- 9) Once the entire rake is unloaded, the empty rakes break van is marshalled and the same will be shifted to MAVB for Empty drawn by pushing or pulling through Y-curve using internal loco.
- 10) At times rake is directly received and dispatched from SEBD or Plant-2 to minimize the TAT and unnecessary movements. This happens only when Indian Railways Crew has the LR to do so.
- 11) The empty rake placed at plant-1 will then be readied by doing EOT and GDR.
- 12) Line clearance for empty drawn out will be given through slot by BXQ station using shunt signal. The same program will be recorded by means of confidential PIN exchange from BXQ station by SEBD and MAVB will take the same from SEBD.
- 13) Simultaneously intimate about the empty rake drawn out to Weighbridge team for the weighing of the entire rake.

**iii) FG RAKE HANDLING(BLC):**

- 1) Line Clearance is given to the BXQ serving station by providing a slot through shunt signal. A confidential two-digit pin is exchanged for this clearance.
- 2) Simultaneously line clearance is taken from MAVB by receiving slot through a shunt signal. A confidential two-digit pin is exchanged for this clearance from MAVB also.
- 3) Meanwhile weigh bridge will be intimated about the load rake arrival and its route for the weighment of the rake.
- 4) Rake is directly routed to the MAVB's R&D Yard and the Railway loco is decoupled. Arrival time is repeated to BXQ station and CGS.
- 5) Immediately after decoupling, our internal loco will be coupled and the rake will be either back pushed or pulled to the Y-Curve and from there it will be again routed to Plant-2s main line either by pulling or pushing.
- 6) Once the rake is placed, FG team will remove the empty containers from the rake and loaded containers will be placed back on the same rake with the help of reach stacker.
- 7) Multiple placements, coupling and decoupling are provided for both loading and unloading of containers as per the requirement of FG Team with prior intimation.
- 8) Once the loaded containers are placed over the rake, security gate-pass will be issued post inspection of the entire rake by security personal.
- 9) Once the gate pass is issued, security team will be intimated by us to open the SEZ security gate so that our loco will enter the plant-2 premises and will be coupled with the said rake.
- 10) Once the rake is ready, it will be removed from plant-2 and will be back pushed or pulled to Y-curve and from there it is routed to MAVB. Break Van will be marshalled accordingly.
- 11) Once the rake is received at R&D, Indian Railways loco will be coupled (EOT) as per the program given by BXQ station and Rake is made fit for run by performing GDR and attending the same if there is any issue.
- 12) At times rake is directly received and dispatched from SEBD or Plant-2 to minimize the TAT and unnecessary movements. This happens only when Indian Railways Crew has the LR to do so.
- 13) Line clearance for the loaded BLC drawn out will be given through slot by BXQ station using shunt signal. The same program will be recorded by means of confidential PIN exchange from BXQ station by SEBD and MAVB will take the same from SEBD.
- 14) Simultaneously weighbridge will have intimated about the loaded BLC rake drawn out for the weighment of the entire rake.

**POINTS TO BE NOTED:**

- 1) All the shunting activities inside and outside the plant will be executed by BP employees with presence of 2 points man.
- 2) TXR will fix all the issues and makes the rake ready for drawn out. All the tools, materials, equipment and resources for fixing any issue in the rake ready process (GDR) will be arranged by BP.
- 3) All the documentation required at the siding will be addressed by BP on behalf of VAL with thorough approval from Val In-charge.
- 4) Any delay on account of rake handling which in-turn resulting in DC, EDC and opportunity loss will have debited from the BP

## MAVB INTRODUCTION:

- MAVB is the serving station for Plant-1 & CPP.
- All the communication between BXQ Station and MAVB siding done through SEBD.
- Communication to SEBD is through magneto phone and all the programs will be recorded over a private number exchange book by repeating the confidential Private Nos to each other.

## **Coal Rakes for (135\*9=1215 MW) Power Plant CPP**

Coal Handling facility at CPP through Rakes.

Track Hopper

- Track hopper-1
- Track hopper-2

## **Rakes handled at Plant-1**

1. BTAP for Alumina
2. BOX-N for CP-Coke
3. BLC for FG

## 3. CPP RAKE HANDLING IN MAVB:

### i) Track Hopper (BOBRN)

- 1) Line Clearance is given to the SEBD by providing a slot through shunt signal. A confidential two-digit pin is exchanged for this clearance.
- 2) Rake will be received at R&D through shunt signal. Railway guard will be sent to Front engine from Brake van. Brake Van will be decoupled in R&D before moving to hopper. (2 Points Men will go for further placement at Hopper & release).
- 3) Rake is routed through the shunt signals and manual points to the desired Track hopper (1 or 2), meanwhile CHP will be intimated to charge the OHE of the respective hopper in case of electric engine. Diesel engine doesn't need OHE charging.
- 4) Rake is placed in the hopper directly and Rear engines panto will be asked to shut down as OHE has to be discharged for unloading clearance. Once this is done, the clearance for unloading first 22 Wagons (As per the design of Track hopper) is given to CHP and that will be termed as **first placement**. The same time has to be repeated to SEBD & CGS and this will be termed as **Rake Arrival time**.
- 5) Once after completion of first placement, clearance from CHP and after ensuring track clearance by the Points Men the front engine will pull the Rake for the second placement (second set of 22 Wagons will be placed on the hopper) and the clearance for unloading is given to CHP. This will be termed as **Second Placement**.
- 6) Once after completion of second placement, clearance from CHP and after ensuring track clearance by the Points Men the Rake is pulled to place the remaining set of wagons and the clearance for unloading is given to CHP. This will be termed as **Third Placement**. (Fourth Placement will be given in case of requirement) Once the unloading is completed, the time has to be repeated to SEBD and CGS. This will be termed as **Rake Release time**.
- 7) Now Rake will be back pushed to clear folding mark so that Railway Engine can be reversed. After reversal and EOT, the rake will be pulled to R&D where Break Van will be coupled and rake formation will be done.

- 8) Now GDR process begins. BP TXR staff will attend all the issues with the rake and will make the rake fit for run on the IR main line by completing GDR process. The equipment's and tools will be provided by BP.
- 9) Once the Rake is ready for Drawn out, SEBD will be intimated about the same and Line clearance for Drawn out will be asked.
- 10) Line clearance for drawn out will be given through slot by SEBD using shunt signal. The same program will be recorded by means of confidential PIN exchange from SEBD.
- 11) Simultaneously intimate about the empty rake drawn out to weighbridge for the weighment of the entire rake.
- 12) Now the rake will be routed according to the slot provided by SEBD through shunt signal.

#### 4. COMMODITY/FG RAKES FOR PLANT 1:

##### i) ALUMINA RAKE HANDLING(BTAP):

- 1) Line Clearance is given to the SEBD by providing a slot through shunt signal. A confidential two-digit pin is exchanged for this clearance.
- 2) Rake is directly routed to the R&D Yard and the Railway loco is decoupled. Arrival time is repeated to SEBD and CGS.
- 3) After decoupling, our internal loco will be coupled and after getting confirmation regarding Plant for which BTAP is loaded, the rake will be either back pushed for Placement in Plant 1 Alumina unloading area or pulled to the Y-Curve for placement in Plant-2 alumina unloading area.
- 4) BTAP will be back pushed to Plant 1 Alumina Yard through Shunt signal and manual points.
- 5) Placement will be given at Plant-1 in two sets of 13 wagons in both silos i.e. Silo 1 & Silo 2 as per the requirement of user. This will be termed as 1<sup>st</sup> Placement. (3 Points Men required for Placement)
- 6) Alumina unloading team will intimate about the status of unloading start and completion.
- 7) After completion of 1<sup>st</sup> Placement empty wagons need to be removed and remaining 2 sets of load wagons will be placed for unloading in both Silos. This will be termed as 2<sup>nd</sup> Placement. In case of any replacement, required wagon need to be placed as per the user. If required, wagon need to be detached/attached. (If required 3<sup>rd</sup> Placement will be given)
- 8) Once the unloading team confirms about the completion of unloading, rake will be released and release time will be repeated to SEBD & CGS.
- 9) Once the unloading team will give the clearance for removing the rake. Internal loco will be coupled for formation and parking of rake in suitable line.
- 10) Once power allotted for Empty BTAP, both Plant 1 & Plant 2 empty rake formation will be done at R&D. Then EOT of Railway Engine will be done after decoupling internal loco.
- 11) BP TXR will attend the entire rake and will make it fit for run on main line.
- 12) Line clearance for empty drawn out will be given through slot by SEBD using shunt signal. The same program will be recorded by means of confidential PIN exchange from SEBD.
- 13) Simultaneously weighbridge will intimate about the empty rake drawn out for the weighment of the entire rake.

##### ii) CP-COKE RAKE HANDLING(BOXN):

- 1) Line Clearance is given to the SEBD by providing a slot through shunt signal. A confidential two-digit pin is exchanged for this clearance.



- 2) Rake is directly received at R&D Yard and the Railway loco is decoupled. Arrival time is repeated to SEBD and CGS.
- 3) After decoupling, our internal loco will be coupled and after getting confirmation regarding Plant for which CP Coke NBOX is loaded, the rake will be Placement in Plant 1 CP Coke Shed or pulled to the Y-Curve for placement in Plant-2 CP Coke Shed. (2 Points Men required for Placement)
- 4) After giving intimation to user for gate opening and other formalities, rake will be placed in CP Coke Yard. In 1<sup>st</sup> Placement 20 to 24 Wagons will be unloaded by the user. Unloading start and completion time will be intimated by user. **(1<sup>st</sup> Placement)**.
- 5) CP Coke unloading team will intimate 45 minutes prior to the unloading completion time, meanwhile loco will be arranged for 2<sup>nd</sup> Placement as per the user's requirement and empty wagons will be removed from unloading line and parked in another suitable line after Brake Van marshalling. **(2<sup>nd</sup> Placement)**.
- 6) The process is repeated for the rest of the load wagons placement and removal.
- 7) Once the entire rake is unloaded, the empty rakes formation will be done in suitable line by internal loco.
- 8) Once power allotted for Empty CPC NBOX, both Plant 1 & Plant 2 empty rake formation will be done at R&D. Then EOT of Railway Engine will be done after decoupling internal loco.
- 9) BP TXR will attend the entire rake and will make it fit for run on main line.
- 10) Line clearance for empty drawn out will be given through slot by SEBD using shunt signal. The same program will be recorded by means of confidential PIN exchange from SEBD.
- 11) Simultaneously weighbridge will intimate about the empty rake drawn out for the weightment of the entire rake.

**i) FG RAKE HANDLING(BLC):**

- 1) Line Clearance is given to the SEBD by providing a slot through shunt signal. A confidential two-digit pin is exchanged for this clearance.
- 2) Rake is directly received at R&D Yard and the Railway loco is decoupled. Arrival time is repeated to SEBD and CGS.
- 3) After decoupling, our internal loco will be coupled, as per the placement plan the rake will be placed at respective plant i.e. Plant 1 & Plant 2 or it will be parked in suitable line through shunt signal and manual point. (2 Points Men required for Placement)
- 4) Multiple placements, coupling and decoupling are provided for both loading and unloading of containers as per the requirement of FG Team with prior intimation.
- 5) Once the loaded containers are placed over the rake, security gate-pass will be issued post inspection of the entire rake by security personal.
- 6) After getting confirmation from FG Team regarding removal of existing. Rake will be removed and formation will be done or parked after Brake Van marshalling in a suitable line.
- 7) Once power allotted for BLC rake, both Plant 1 & Plant 2 rake formation will be done at R&D. Then EOT of Railway Engine will be done after decoupling internal loco.
- 8) BP TXR will attend the entire rake and will make it fit for run on main line.
- 9) Line clearance for rake drawn out will be given through slot by SEBD using shunt signal. The same program will be recorded by means of confidential PIN exchange from SEBD.

- 10) Simultaneously weighbridge will intimate about the empty rake drawn out for the weighment of the entire rake.

#### POINTS TO BE NOTED:

- 1) All the shunting activities inside and outside the plant will be executed by BP employees.
- 2) TXR will fix all the issues and makes the rake ready for drawn out. All the tools, materials, equipment and resources for fixing any issue in the rake ready process (GDR) will be arranged by BP.
- 3) All the documentation required at the siding will be addressed by BP on behalf of VAL with thorough approval from Val In-charge.
- 4) Any delay on account of rake handling which in-turn resulting in DC, EDC and opportunity loss will have debited from the BP.
- 5) All type of movement of Locos will be accompanied by Points Men.
- 6) Coupling, Decoupling, Skid application, Manual Point Operation, GDR, Railway LC Gate Operation, Back Pushing etc critical activities will be involved and need to done strictly as per SOP.
- 7) In general, 7 BLC Rakes, 5 BTAP Rakes, 2 CP Coke Rakes and 3 BOBRN Rakes will be handled inside Siding.
- 8) Apart from above Double Diamond rakes, Test Wagons for In-motion Weigh Bridge Calibration and NWJC Mix rakes are also handled in siding



## ANNEXURE D – O&M MANPOWER DETAILS:

### i) Locomotive Maintenance Manpower:

Sl. No.	Description	Per shift	Total	Total	Skill Matrix	Competency
A	Expert - SAN locomotive	1 (G)+ 1X3+R	4	4	Skilled	Diploma + 6 yrs Relevent Experience
B	Expert - DLW locomotive	1 (G)+ 1X3+R	4	4	Skilled	Diploma + 8 yrs Relevent Experience
C	Helper	1 (G)+ 1X3+R	4	4	Semi - skilled	ITI + Experience
D	In-charge	1 (G)	1	1	High skilled	B.E. + Experience 10 years
E	Gas cutter cum welder	1 (G)	1	1	Skilled	ITI + Experience
<b>TOTAL</b>			<b>14</b>			

**Remarks: Extra manpower required for loco rectification work in other shifts**

### ii) S&T Maintenance Manpower:

Sl. No.	S&T Maintenance	Per shift	SEBD	MAVB	Total	Skill Matrix	Competency
A	Expert	1 (G)	1		1	Skilled	B.Tech(E&T) + 3 yrs Experience
B	Technician	2 (G)	1	1	2		Diploma +3 yrs Experience
C	Technician	(1X3+R) X 2	4	4	9	Semi-Skilled	Diploma +3 yrs Experience
D	Helper	(1X3+R) X 2	4	4	9	Un skilled	ITI + 2yrs Experience
E	In-charge	1 (G)	0	0	1	High Skilled	B.Tech. (E&T) + 5 yrs Experience
<b>TOTAL</b>			<b>9</b>	<b>9</b>	<b>22</b>		

### iii) Track Maintenance Manpower:

Sl. No.	Track Maintenance	Per shift	SEBD	MAVB	Total	Skill Matrix	Competency
A	Gang man	63 (G)	33	30	63	Un-skilled	10th pass + 2 year experience
B	Trolley Mans	(1X3+R) X 2	2	2	4	Un-skilled	10th pass + 2 year experience
C	Supervisor	2 (G)	2	1	3	Skilled	ITI + 5 yrs Experience
d	PW In charge	2 (G)	1	1	2	High Skilled	Diploma + 8 yrs Experience
e	Key Man	5 (G)	2	3	5		ITI + 3 yrs Experience
<b>TOTAL</b>			<b>40</b>	<b>37</b>	<b>77</b>		

**Remarks: For 55 KM distance track lines to Maintenance as per RDSO.**

iv) Locomotive operators:

Sl. No.	Loco Operator	Per shift	No. of person	Total	Skill Matrix	Competency
a	SAN loco	3 X 3 + R	12	11	High Skilled	Diploma+ 8 yrs Experience
b	DLW loco	3 X 3 + R	8	11	High Skilled	Diploma+ 8 yrs Experience
<b>TOTAL</b>				<b>22</b>		

**Remarks: One SAN operator and two DLW operators are required for smooth operation.**

v) Operation Team Manpower:

MAVB OPERATION TEAM		Per shift	MAVB	Total	Skill Matrix	Competency
A	SHIFT INCHARGE OVER ALL	1X3+R	4	4	High skilled	Diploma + 5 yrs Experience in yard management
B	PANNEL OPT	1X3+R	4	4	High skilled	Diploma + 3 yrs Experience in panel operation related to railway
D	POINTSMAN	12 X 3 + R	46	46	skilled	Higher Secondary + 5 yrs Experience in railway work
E	GATE MAN	3 X 3 + R	12	12	semi-skilled	Higher Secondary + 3 yrs Experience in gate operation
F	TXR	2 X 3 + R	8	8	skilled	ITI + 5 years' experience in Railway
G	HOUSE KEEPING	2 (G)	2	2	unskilled	Unskilled labour
<b>TOTAL</b>				<b>76</b>		

SEBD OPERATION TEAM		Per shift	SEBD	Total	Skill Matrix	Competency
a	SHIFT INCHARGE OVER ALL	1X3+R	4	4	High skilled	Diploma + 5 yrs Experience in yard management
b	PANNEL OPT	1X3+R	5	5	High skilled	Diploma + 3 yrs Experience in panel operation related to railway
d	POINTSMAN	17 X 3 + R	65	65	skilled	Higher Secondary + 5 yrs Experience in railway work
e	GATE MAN	3 X 3 + R	12	12	semi-skilled	Higher Secondary + 3 yrs Experience in gate operation
F	TXR	2 X 3 + R	8	8	skilled	ITI + 5 years' experience in Railway
G	HOUSE KEEPING	3 (G)	3	3	unskilled	Unskilled labour
<b>TOTAL</b>				<b>94</b>		

vi) Management Manpower:

Non-technical Manpower		Per shift	MAVB	SEBD	Total	Skill Matrix	Competency
a	SITE INCHARGE	1G	1	0	1	High skilled	20 yrs experience in Railway O&M with leadership quality
b	SAFETY INCHARGE	2 G	1	1	2	High skilled	Diploma in Safety + 3 yrs Experience in Railway
c	SIDING INCHARGE	2 G	1	1	2	High skilled	B.tech + 10 yrs experience in railway O&M with Managerial skills
d	SAFETY EXPERT	1G			1	High skilled	Railway retired in safety department
e	HR EXECUTIVE G SHIFT	2 G	1	1	1	Skilled	Graduate +3 yrs Experience
<b>TOTAL</b>			<b>4</b>	<b>3</b>	<b>7</b>		

**Total Manpower of Railway O&M = 313**

