

1.1 SCOPE OF WORK OF MDO

The scope of work for the Selected Bidder and the facilitating works being undertaken by Vedanta shall be in accordance with the provisions of the Contract.

All the work related to mining development and operation, coal evacuation etc shall be carried out by the MDO. Vedanta shall prepare annual rolling plans and from the annual rolling plans monthly rolling plans shall be made. Before, finally releasing the monthly plans, the MDO shall also be consulted on the same. All the operational matter of the mines unless expressly excluded shall be in the scope of MDO. **Since Vedanta intends to give end to end scope to MDO from mining of coal to delivery at Vedanta's Jharsuguda plant, any work – whether capex or opex in nature- will have to be carried out by MDO even if not explicitly mentioned in this document, however, the broad scope of MDO shall inter alia include following:**

- Acquisition of balance land from the total land other than earlier acquired land in the name of Vedanta Ltd
- Physical possession of acquired land as well carry out all statutory compliances for enabling the transfer of title in favour of Vedanta
- Rehabilitation & Resettlement of the land owners'
- Evaluation of existing built up R&R colony
- Renovation of the same if found inhabitable
- Negotiation/Co-ordination with the villagers for proper facilitation of the Resettlement and Rehabilitation process and ensuring it is in adherence to the existing law in place.
- **Procuring all necessary licenses /approvals/permits as applicable in favour of Vedanta for the commencement, operation and maintenance of the Coal Mine from Statutory authorities**
- **Transfer of existing licenses/ permits / approvals in favour of Vedanta from the existing holder.**
- Commencement of mining operation for overburden removal and coal extraction within 4 months from award of Contract.
- Procure, install, operate and maintain best in class and equipped with latest technology continuous miner technology equipment for overburden removal and coal excavation
- Construction of all haulage track, weigh bridge, hauler shed, substations, canteen, office buildings, Coal storage bunkers, control tower, first aid facility centre, rescue chamber, and other structures as required by DGMS.

- Ensuring and providing for all relevant installation and ancillary and associated activities for transmission and distribution of electric power from nearest Government substation to mine substation and also to the face equipment.
- Development of road from the mining location up to railway siding for transportation of coal.
- Development of dedicated railway siding at strategic location for strain less transportation of coal till Vedanta Jharsuguda.

Bidder can also suggest other mode of transportation for efficient, safe, environment friendly and cost effective mode of transportation of coal

- Video monitoring of mining areas from higher altitude to get a 360-degree view to observe all the operations.
- Face preparation & Drilling for conducting blasting in the areas given for excavation
- Providing assistance in blasting and related works
- Excavation of Overburden and shale
- Transportation/ hauling of overburden to the designated place
- Dump management
- Production of Coal
- Transportation / hauling of coal from mines to pit-head / stock-yard.
- Loading of trucks at Coal stock-yard. The payloaders to be deployed for loading of coal should be equipped with bucket load cells for measurement of coal loaded.
- Management of haul roads as per the DGMS standards
- Technical reclamation
- Water sprinkling and prevention of dust in the working area
- Dewatering of mines and water management (including industrial water) of the mine in compliance with the EMP
- Lighting and illumination of the working area as specified by DGMS.
- Firefighting.
- Management of Diesel pump.
- Maintenance of its equipment in safe and sound condition
- Security of the coal mine

- All the hazardous materials shall be disposed off as per the conditions of EMP and relevant laws governing hazardous materials. All permits to handle hazardous waste as required under Environment Protection Act should be in place
- All the work related to monsoon preparation, drain management, garland drains
- Shall comply with all prevalent rules and regulation
- In the matters of dispute, the judgment of Mines manager shall be final
- Compliance of EC, FC and CTO in operation.
- Overburden/interburden shall be removed and transported by haul trucks to dedicated (and approved) dumping locations;
- ROM coal shall be removed by excavators and transported by haul trucks to the mobile primary crusher(s);
- Face preparation & Drilling for conducting blasting in the areas given for excavation.
- Transportation of coal from mine to Vedanta Limited, Jharsuguda by road/rail.
- Site development including access roads, water management structures
- Procurement of major mining equipment
- Staffing and recruitment of personnel including workforce
- Training of staff and workforce
- Construction of mine infrastructure
- Excavation of box cut(s)
- Construction of coal handling facilities including CHP.
- Construction of HEMM maintenance facilities
- Ground surface contouring survey (to be undertaken jointly with the Vedanta).

1.2 MINING METHOD

- (a) Brief scope of work:- The work involves excavation of various types of soil, shale, sand, stone, rocks and coal. The process of excavation involves levelling the site, scrapping loose soil, drilling, assisting in blasting, shovelling and loading of blasted material, transportation of excavated materials in dumpers, unloading at the dump side/stockyard, levelling the dump and loading of coal to dispatch trucks by pay-loader at stockyard, etc. Sizing of blasted overburden by rock-breaker in such cases where desired fragmentation is not achieved by blasting. The water pumping from the face up to the sump shall be done by

MDO. The shale band removal & dumping at designated places will be done by MDO at no extra charge. The weight of OB/Shale/dirt bands so measured and deducted from coal quantity will be considered as OB and payment for the same will be done as per applicable lead from face up to stock yard and specific gravity of OB will be considered for volumetric conversion based on its measurement as per applicable norms.

Prior to excavation, following activities to be carried out

- Site investigation-soil type, angle of repose, ground water table, density of soil, degree of saturation,
 - Site record
 - Effect of excavations on nearby structures and mitigation measures,
 - Risk of flooding
 - side protection from slopping shoring shielding,
 - fencing/barriers
 - Safe disposal of excavated material,
 - Prevention from accumulation of toxic and flammable gases,
 - Adequate illumination.
 - The dewatering (including the initial dewatering before commencement of mining operation, if any) shall be done by the MDO. The shale bands removal & dumping at designated places will be done by the MDO.
- (b) However, in case the Bidder intends to operate the Site through an alternate technology the same shall have to be approved by Vedanta and Vedanta reserves the right to prescribe suitable sizes of the equipment prescribed thereof. In case it involves change in the approved Mine Plan, the Bidder shall be responsible for its approval from the concerned Authority (ies).

1.3 MINING EQUIPMENT

- (a) Bidder shall employ appropriate mining equipment and procure adequate after sales support and shall comply with the original equipment manufacturer recommendations for use.
- (b) The equipment configuration proposed by the Bidder shall comply with Applicable Laws including those related to environment, as imposed by the Ministry of Environment and Forests (MOEF), or any other applicable law in place during the Term of the Contract. Any cost implication with respect to the Mining Equipment arising on account of MOEF stipulations shall be incurred by the Bidder without any recourse for compensation of any kind by Vedanta.

1.4 MINE PLANNING FOR BID PREPARATION

- (a) For the purpose of bidding, Bidder is required to prepare its own geological model and Mine Plan using the geological report and other data directly provided by Vedanta or otherwise provided for the purposes of review by Vedanta to MOD
- (b) All mine planning should be based on the "selective mining" technique which should include the following ensuring maximum coal recovery and minimum quality dilution:
- (i) All waste bands greater or equal to 50cm in thickness within the coal seam/horizon shall be removed separately and discarded as waste material;
 - (ii) All coal bands greater or equal to 50cm in thickness shall be removed separately and sent to the coal crusher; and
 - (iii) All coal bands less than 50cm in thickness shall be discarded as waste material.
- (c) Vedanta wishes to emphasize that the above-referenced mine plan document and associated maps are only indicative in nature. The Bidders Mine Plan may be different in certain aspects from the Vedanta mine plan. The Bidder is encouraged to evaluate alternative mining systems from the point of view of time required before backfilling, coal quality control, and in-pit water management etc which shall be subject to assessment by Vedanta. Bidder may note that current approved mine plan, approvals, evacuation scheme etc are for the capacity 2.6 MTPA as envisaged by prior allottee, However, Vedanta aims to mine and evacuate coal at its maximum possible level- 10 MTPA. Hence, Vedanta encourages bidders to come out with all possible, innovative solutions to reach the objective of mining and transporting of 10 MTPA coal from Jamkhani coal block

1.5 REQUIRED COAL PRODUCTION AND RAMP-UP RATE

- (a) The minimum coal production rate on an annual basis from the Coal Production Start Date shall be as specified in the table below:

Operating Year	Coal production rate, MTPA
1	2.6
2	4
3	5
4	8
5	10.00
6	10.00
7	10.00
8	10.00
9	10.00
10	10.00

- (b) The Bidder shall provide its yearly coal production rate for the Term Agreement, which shall become the "Annual Contracted Quantity".
- (c) The Bidders should note that in case the Coal Production Start Date does not fall at 1st April of the relevant year, then annual coal production quantities shall be adjusted pro rata.

1.6 COAL QUALITY:-

The coal extraction should be planned so as to meet quantity and quality obligations. **The coal grade declared by Nominated Authority for Jamkhani Coal block is G-11, we also encourage bidder to do their study based on borehole data provided by Vedanta, local features & assessment and apply best mining method/ technology to recover best coal quality.**

Bidder to declare year wise quality assurance (ARB GCV in Kcal/kg) to Vedanta as measured in 3rd party lab at mine. Assured GCV will become an integral part of evaluation criteria for the bidder

1.7 Environmental

Bidder shall comply with the requirements of the approved Environmental Management Plan (EMP) as well as all Applicable Laws. Bidder has to comply with all the requirements of the Environment Clearance and Forest Clearance at any point of time during the term of the Agreement.

1.8 Safety

Bidder shall comply with the requirements of the DGMS as well as all Applicable Laws

- 1.9 Operation will be carried out in three shifts. Proper illumination will be established and maintained by MDO on site as per DGMS standards by portable light masts

- 1.10 The haul roads, ramps etc. Will have to be maintained by the MDO with the help of motor grader and dozers etc as per DGMS standards. All the vehicles to be equipped with DGMS safety standards prior to deployment at mines and periodically checked as per checklist before safety clearances and renewals and records to be maintained. Wherever required, effective machine guarding aligned with the Vedanta HSE guidance to be implemented. The OB and coal may be required to be carried up to dump yard and levelled at the dumping areas with the help of dozers. Proposed lead & corresponding quantity of OB may change /vary subject to mine working conditions, formation of benches, and gradient of place of working, geo-mining conditions & also progress of dumping area .site of dumping may change upon the availability of created space (de-coaled area) for dumping

- 1.11** Movable mist canon to be deployed for prevention of dust in the working area.
- 1.12** The top soil shall be stored separately and same will be spread on profiled Dump as part of technical reclamation
- 1.13** Dewatering of mines and water management (including industrial water) of the mine in compliance with the EMP
- 1.14** The MDO shall prepare Blast holes by drilling in overburden/parting and coal as per the blasting pattern defined by Vedanta and also assist in the blasting operation to be carried out at these mines. The MDO shall, provide requisite persons for assistance in Blasting. Adequate warning boards and safety signage to be provided. Every blaster should be aware about blasting tools and hazards and their safety measures and should be sufficiently trained to prevent any accident.
- 1.15** The backfilling/dumping on excavated areas and dumps for reclamation purposes and to bring back to the state of normal ground/altered ground shall be done by the MDO in accordance with the approved Environmental Management Plan. Re-contouring and rehabilitation shall continue concurrent with the mining operations. The MDO shall profile the overburden/parting dump areas in accordance to regulatory norms and statute. This shall include the shaping of any bounding, berms, slopes and the inclusion of drainage channels, spreading of topsoil over the profiled dump areas
- 1.16** All equipment operating in the mine and at workshop must be provided with adequate number of fire extinguishers as per the requirement of law. A fire station with adequate number of fire extinguishers shall be maintained at suitable locations within the work area. The firefighting equipment so provided should be periodically inspected and maintained in working order. A bound-paged book should be maintained giving details and location of all fire extinguishers, fire hydrant, Fire trucks etc., along with dates of inspections and condition of equipment. Spontaneous heating at Coal face, Coal Stockyard and waste dumps shall be controlled by regular water spraying at such spots. Any open spots of heating detected shall be immediately tackled by excavating that area with the support of continuous water drowsing. The total activity shall be carried out by the MDO under direct supervision of over man. MDO shall not uncover and keep the Coal faces exposed for a long time to prevent spontaneous heating of Coal. A thin layer of OB/IB shall be left over the exposed Coal benches. This OB/IB layer shall be removed immediately prior to extraction and loading of Coal. Spontaneous heating and fires in Coal Faces/Dumps/Coal Stockyards should be controlled by the MDO by properly stacking and compacting the same. Hot spots and fire sites should be watered regularly/continuously as necessary.
- 1.17** The MDO shall have to make his own independent arrangement at its cost, the Mist canon with adequate quantity of water in the mines and roads so as to make the condition dust free, to the satisfaction of the engineer-in-charge. He

shall have to maintain adequate number of water tankers with the pressurized sprinkling system as directed by the Mines manager for the purpose

- 1.18** As per the Environment (Protection) Act, 1986, used oil drained from HEMM and other mobile equipment and unusable/waste Batteries constitute hazardous waste and have to be disposed off as per the provision of the law. The MDO will have to make suitable arrangements and follow the procedure specified by the law for disposal of the same.

1.19 DEVELOPMENT OF FIXED INFRASTRUCTURE FACILITIES

The Mine operator shall be responsible for all activities required for development of Fixed Infrastructure facilities. There will not be any additional payment for development of fixed infrastructure, land acquisition, approvals etc. **It is be further clarified that Vedanta will make payment of coal received at plant confirming to assured quality on Rs/ton basis only.**

- 1.20 Evaluation Parameter: - Detailed evaluation parameter for quantity, quality and methodology for measurement to be finalized during discussion. Following will be the parameter.**

- **ARB GCV in Kcal/kg**
- Coal production commencement time line (Time)
- Full Scale Production (MTPA)
- Mining Fee including delivery at VLJ on FOR basis. (INR/Ton)
- Ram up plan time line (Time)