SUMMARY

M/s Jayaswal Neco Industries Limited (JNIL) obtained mining lease of 192.25 Hectares iron ore mine located at village Chhotedongar, Tehsil and District Narayanpur (Chattisgarh). The mining lease is valid for a period of 50 years, till June 2055. The entire 192.25 ha area falls under reserve forest. In-principle Forest Clearance was granted for 91 ha area (vide letter no 8-31/99-FC date 11.08.2004) and Final Forest Clearance was granted for 35.74 ha area (vide letter No.8-31/99-FC dated 18.01.2007). JNIL has paid NPV for the entire 192.25 ha forest land as per the direction of MOEF & CC vide letter No.F-11-599/2014-fc dated.01/04.2015. The mine is an operational mine.

Environment Clearance was obtained vide Letter No.J-21013/152/2005- IA II (M) dated 05.02.2007 for ROM iron ore production 0.05 MTPA (50000 tons per annum). Due to law and order / Naxalite problem in Baster area and other insurgency issues, mining could start only in 2016. Now JNIL decided to go for enhancement of iron ore production, as the state has shown his willingness to provide security for the mine.

Mining Plan has been approved by IBM vide letter dated 29.03.2019 for ROM production of 2.95 Million Tons Per Annum (MTPA) with graded ore production of 2.5 MTPA. Additional 50 to 55% graded usable iron ore will be produced through beneficiation of sub-grade ore, hence the final usable graded production of iron ore will be 2.75 MTPA. As of now since 35.74 hectares had been cleared and handed over by the forest department, and detailed exploration had been done only on 35.74 hectares, 2.75 MTPA graded iron ore is proposed to be produced within the 35.74 hectare handed over area.

The Mineral Reserve after detailed exploration on 34.74 hectares is estimated to be 34.016 Million Tonnes (MT) and Mineable Reserve (as per 111, 112 and 333 classification of UNFC) is 25.357 MT. The production planned for the year (2019-20) is 1.4 MTPA ROM and for the

conceptual period (2020-2021 to 2028-29) is 2.95 MTPA (ROM). The life of the mine of the present available 34.74 Hectare will be 9 years

Location: The mine is located at Village Chotedongar, Tehsil and District Narayanpur, Chhattisgarh. The lease area falls under Survey of India Toposheet No.65 E/7 and is bounded by Latitudes. 19º 25' 40.356" N to19º 27’ 09.423” N and Longitudes 81º15’ 37.175” E to 81º 17' 34.507” E. The area falls under the South Bastar region of Chhattisgarh.

Approach: Village Chhotedongar is situated at a distance of about 43 km from Narayanpur the District Head Quarter. Narayanpur is around 210 km from Raipur (Capital of CG). The mine is located about 300 km from Siltara, where the Steel Plant of JNIL is situated. The nearest railhead for the area is Keoti, which is at a distance of about 140 Km form the mine falls under the proposed Dalli-Rajhara - Rowghat railway line.

Physiography & Drainage: Regionally the area forms a part of the hilly terrain which extends from the Bailadila hill range in the south to Rowghat hill range in the north and from Baster plateau in the east to Gadchiroli district of Maharashtra in the west. Within this hilly terrain there are distinct hill ranges most prominent being the Bailadila hill range towards South and Rowghat hill range in the North. Within these two hill ranges there are number of smaller hill ranges having more or less N-S alignment on a regional basis. Chhote dongar hill range is lying more or less in the centre of this hilly region.

The ML area is located on Chhote dongar hill range which is one such N-S aligned hill range located aerially about 3 Km west of village Chhote dongar rising from the ground level of about 450 MRL contour level to more than 939 MRL contour level. Locally the ML area forms a part of the hill range comprising of two parallel ridges trending broadly NNW – SSE and located south of Madin river about 3 Km west and WSW of village Chhote dongar. The two parallel ridges close in the fashion of a Greek letter omega (Ω). The head of this omega

points towards NNW with one portion stretched as a broad arrow head originating from triangulation point 939 and pointing towards north. The ML area itself includes the arcuate portion of the head of this omega and comprises of five distinct ridges arranged serially in an arcade fashion, each separated from each other by a saddle.

The eastern most ridge is located about 3 Km WSW of Chhotedongar village between the peaks 907 MRL and 939 MRL shown in toposheet (Key Plan). It is followed in the NW direction by the hill marked as 939 MRL. The trend of the ridge changes to WSW after this hill, where after the third ridge trending WSW arises after a deep saddle. This is followed by a knee bend trend and the 4th ridge continues in the NNW - SSE trend. The first, third and fourth ridges have not been marked by any height point in the toposheet. The fifth and last ridge continues in the NNE - SSW trend and is marked by survey of India triangulation point 850. The ML area covers only the upper half portion of these ridges from about 700 MRL to their top. The portion between 700 MRL and ground level at 450 MRL is not covered by the mining lease area. The ground elevation at foot hill region is 520 MRL.

The ML area is located at the top of the hill range coming down to middle contours of the hill. The topography of the hill range is controlled by the presence of BHQ in its spine and its alignment governed by the strike of BHQ. It forms very prominent cliffs. One such cliff is seen on the NE side of the ridge, which extends towards SE from triangulation point 939. Another more prominent and spectacular cliff is seen on the SW flank of the said ridge. There is no important river or stream passing through the ML area. However, the area is drained by a system of seasonal nallas originating from the northern and southern slopes of the hill in a radial pattern. Beyond eastern lease boundary one perennial source of water locally named as Kadam nalla is originating from east side of the hill and flowing towards north and ultimately joins with river Madin located about 3 Km north of ML area. River Madin is a tributary of Gurda River, which ultimately joins with River Indravati further towards north. The general drainage pattern of this region is observed to be dendritic.

Details of Mine Area:

1	Name of the Applicant / lessee	M/s Jayaswal Neco Industries Ltd
2	Name of mine	Chhotedongar Iron Ore Mine
3	State	Chhattisgarh
4	District	Narayanpur
5	Tehsil	Narayanpur
6	Forest Circle	Kanker
7	Forest Division	Narayanpur
8	Forest Range	Chhotedongar Reserve Forest
9	Village	Chhotedongar
10	Topo sheet No	65 E/7
11	IBM Registration no	IBM/4800/2011
12	Address of Applicant	Postal Address - M/s Jayaswal Neco Industries Ltd. (Steel Plant Division) Siltara Growth Centre, Siltara, District- Raipur, State-Chhattisgarh, Pin - 493111 Phone- 07721-264241 / 264263 FAX- 07721-264279 / 264240 Email id - spd@necoindia.com
13	Mine code	30CHG01001
14	Lease area in hects.	Forest - 192.25 ha
15	Forest Diverted area	35.74 Ha (27.65 ha for mining and other purposes over ore body - I and 8.09 ha for approach road & infrastructures).
16	Name of Mineral	Iron ore
17	Lease period from - to	50 years from 21.06.2005 to 20.06.2055
18	Mineral Reserve (111&122& 333)	25.357 Million Tonnes (34.74 Hectare)
19	Mineral resources	87.044 Million Tonnes
20	Total Mineable Mineral Reserve/	77.519 Million Tonnes

	Resource	
21	Production proposal (2019-20)	1.4 MTPA ROM
22	Production proposal during conceptual period (2020-2025)	2.95 (ROM) MTPA,
23	Existing/valid EC permission in tonnes	50,000 tonnes per annum graded ore
24	Plantation proposal per year in numbers	@ 100 saplings per year
25	Plantation proposal per year in area	Over 0.1 ha area per year
26	Back filling proposal in ha	Not proposed
27	**Bank Guarantee Amount**	**Rs.15,00,000 /- + Rs.44,24,100/- = Rs.59,24,100/-**
28	Validity of BG	23.05.2022
29	Prohibitory order from any authority	No
30	Forest Diverted area	35.74 Ha (27.65 ha for mining and other purposes over ore body- I and 8.09 ha for approach road & infrastructures).
31	Date of opening and commencement of mine	11.02.2016
32	IBM Registration no	IBM/4800/2011

Geological formations & Ore Reserves over 192.25 hectares

Type of Ore	Category of Reserve	Geological Mineral Reserve (Million Tonnes	Mineable Mineral Reserve (Million Tonnes	Grade (% of Fe)
Proved Mineral Reserve	111	19.282	15.572	52 - 63
Probable Mineral Reserv	122	11.185	7.613	52 - 63
Inferred Mineral Reserve	333	5.887	4.472	52 - 63
Reconnaissance Mineral Resources	334	50.690	49.862	52 - 63
Total	--	87.044	77.519	52–63 (Avg 60 %)

Mining Method: Open cast fully mechanized method using excavator, rock breaker, drilling and blasting, crushing, sizing and screening shall be done. The main equipment shall be crusher and screen, Excavator, Rock Breaker, Ripper Dozer, Wagon drill, Dumper Payloader, Dumper, DG sets, Workshop, Oil Shed, Water Pump, etc. Site Mixed Slurry or Cartridge type explosives shall be purchased daily from suppliers.. Considering 300 working days, the maximum material handling during the proposal period (2019-20) will be 4667 tons per day or 1556 m^3/day; comprising 0.77 MTPA sized lumps, 0.42 MTPA crushed fines and 0.21 MTPA sub-grade material. During the conceptual plan period the maximum excavation of ROM will be 2.95 MTPA or 9834 tons/day or 3278 m^3/day. (comprising 1.623 MTPA sized lumps, 0.885 MTPA crushed fines and 0.442 MTPA sub-grade material). There will be no wastes or overburden material. Daily 54 holes will be drilled for blasting. The requirement of explosives is 1051 kg/day (1946 kg x 54). NONEL (non electric delay detonators) shall be used for blasting. Water requirement for dust suppression will be 330 (150 +180 for Beneficiation plant) KL per day. 161 people will work in the mines.

It has also been envisaged to set up one beneficiation plant of 1.0 MTPA capacity within the leasehold area during conceptual period. In beneficiation circuit various modern systems will be applied to produce tailing in the form of moist waste and does not call for tailing dam management. These wastes will be dumped either on earmarked waste dump site or in the quarries for reclamation. The water, which will be generated during beneficiation process shall be recycled and reused after treatment.

The mining lease area covers the upper half portion of the ridges from 700 MRL to top. The working will start from 880 MRL and during the proposed plan period (2019-20), the hill slope will be sliced till 874 m RL. There will be bench height of 6 m and bench width of 18 m. Slope will be less than 45^o. During the conceptual plan period (2021 to 2028), the hill slope will be sliced till 808 MRL. The ground elevation is at 520 MRL. The Ultimate depth of the pit will be 54 m (288 m above ground level). No ground water is present above 520 MRL. The

ground water table present at foot hill varies from 6 m (post monsoon) to 12 m pre-monsoon. The annual rainfall of the area is 1476 mm. Therefore the annual runoff will be 28.4 lakhs cubic meter.

Waste Generation and Management: No overburden will be encountered during mining. However 0.5 ha area (on non-mineralized portion) has been earmarked as dump site (SE of working pit). However, during conceptual period about 0.640 Lakh cum waste is expected to be generated. A flat area devoid of ore covering 5 ha has been selected in the north-central part of the lease area for proposed waste dump. Part of the waste material will be utilised for maintaining haul road. The height of dump (if any required) will be kept below 6.0 m and that of sub grade dump will be kept below 7.0 m. Slopes will maintained by angle of repose, hence additional stabilization is not required. The construction of garland drain with sedimentation basins around the dump yard will be done. Plantation of the vertiber grass throughout the slope and terraces of the dump will be done at the end of conceptual period for further control of erosion and to stabilize the dump. Hence, no reclamation proposed during the conceptual plan period.

Beneficiation Plant (1.0 MTPA)

M/s Jayaswal Neco Industries Ltd. proposes to set up one beneficiation plant of 1.0 MTPA capacity within the leasehold area of Chhotedongar Iron Ore Mine to beneficiate sub grade ore generated during the process of mining, screening and crushing as per mineral conservation point of view. The proposal has been made with a view to use low grade ore Fe% below 58, generated during processing of ROM to remove clay. After beneficiation, there shall be generation of calibrated ore and waste in the ratio, which shall depend upon Fe content of the sub grade material. The calibrated ore shall be sent to end use steel plant for its usage.

The process of beneficiation shall be through close circuit, such that the total water used or say discharged after beneficiation shall be recirculated in the system, after necessary treatment. There shall be zero discharge of water. Total water requirement as makeup water shall be around 180 KL/day. Groundwater or harvested rain-water from storage pits shall be used for beneficiation. In the beneficiation circuit latest technology shall be incorporated, to produce tailing in the form of moist waste and does not call for tailing dam management. These wastes, which are in clay form shall be dumped either on earmarked waste dump site or in the quarries for reclamation for subsequent plantation. Around 2.5 MW power will be required to run the plant, which shall be drawn by State Electricity Board. DG sets of capacity 2 x 1000 KVA + 1 * 500 KVA is required for smooth running of the plant.

The beneficiation plant will be compactly established on 4 hectares in non mineralized area inside the mining lease area. Total mining lease area is 192.25 hectares, where Mineralized area is only 112.10 hac. The Latitude and Longitude of the beneficiation plant site is $19^0$26'34.24" to $19^0$26'53.03" N and $81^0$17'11.86" to $81^0$17'22.43"E. No rehabilitation or resettlement issues are involved. Greenery and greenbelt development will be done as per the requirement in lease area.

Project benefits: On production of 2.75 MTPA of sized ore and dispatch the State Government will generate a revenue of around Rs.90 crores per annum by way of royalty and Rs 30 crores per annum as contribution to DM Fund. With this fund the area development will be prioritized by the State Government.

The company had already installed the facility for production of 1.20 MTPA of finished Steel along with 1.20 MTPA pellets and 0.275 MTPA of Sponge Iron as well as 0.650 MTPA capacity blast furnace. On start of the mining operation and production of ore to the tune of 2.75 MTPA, a large portion of Iron ore requirement of the Steel Plant Division situated at Raipur will be met through the captive source. The company will have a continuous supply

of graded ore at a production cost which will be comparatively less than the market price and through this it will always attain a long term sustainability and better growth prospective.

Total requirement of Iron ore of the company

The requièrent of iron. ore for the lessee's Steel plant is 3.0 million tonnes /Annam. The spécification of the iron. ore required by the plant is as under :

Name of the Unit	Fe%	Quantity(MTPA
Blast Furnace	58-65%	1.17
DRI(Sponge Iron Plant	60-66%	0.48
Sinter Plant (Independent)	58 -65%	0.60
Pellet Plant	60 - 66%	1.38
Total	58 - 66%	3.627

Note :- Siliceous ore/ BHQ can be used around 20 to 30 % of total Iron ore requièrent in Blast Furnace. Fe contents of such types of silicieous ore may range from 45 to 50%.

Project Cost : The total cost of the Project for enhancement of the production capacity will be Rs.39 Crores (excluding CA, NPV payments & Bank Guarantee, etc). The basic infrastructure preparation along with facilities like loading, weighing etc. needs to be done for the enhanced production of 2.95 MTPA (ROM) with 1.0 MTPA beneficiation unit. The entire transportation will be outsourced through private transport contracts who will be entrusted with the transportation work with strict monitoring conditions.

ENVIRONMENT MANAGEMENT PLAN

Air Pollution Management :

α) Haulage roads will be frequently sprinkled with water for which truck mounted water tankers with sprinkler arrangement have been provided.

β) Ore will be covered by tarpaulins to prevent spread of dust from it during transportation.

χ) Regular maintenance of vehicles and machineries will be carried out in order to control emissions.

δ) Green belt development will be taken up at backfilled area and all along the roads.

ε) The dust respirators will be provided to all the workers in dusty atmosphere; and

φ) Good housekeeping and proper maintenance will be practiced which will help in controlling the pollution.

Water Pollution Management:

There may be runoff from the mining area during monsoon. The runoff will contain silt. This will be treated in settling tanks followed by de-silting tanks and the treated water (overflow) will be let into the natural nallah. Runoff water will be stored and used for dust suppression and plantation during non-monsoon season.

Noise & Vibration Management

- Noise is best abated at source by choosing machinery and equipment suitably, by proper mounting of equipment & ventilation systems and by providing noise insulating enclosures or padding where practicable.
- The equipment's to be procured is new and as such as the noise emission will be optimal for their design/operation. Proper maintenance / working will be done which keeps the noise level within limits.
- At the boundary of mining lease green belt of local trees will be planted which will act as acoustic barriers. Planting of bushy trees of rich canopy in and around the mine area to intercept noise transmission. A 7.5 m wide belt of trees of different heights will be useful to attenuate noise in the mining areas.

Land Reclamation Measures:

The ML area is having topography of hilly nature and elevation is about 489 mtr from the ground level ie 450 MRL to 939 MRL. Presently mining will be done over diverted block of ore body adopting slicing method by forming slice of 6 m height from hill top at 880 to 874 MRL till end of proposal period. Due to restriction of boundary of working block, mining will be done by forming benches of 6 m height and 9 m width from 862 to 808 MRL till complete exhaust of ore over ore body during conceptual period. After the entire iron ore is mined out, there will be a quarry covering an area of 17.58 ha. At the end of conceptual period quarry will be allowed to store rain-water.

Plantation:

It is proposed to select the local tree species with the help of forest department all along the mining lease in order to control dispersion of fugitive dust from the mining lease. Mining site in the present case is located at remote area which can be categorized as under developed.