

## **PROJECT NOTE**

Penganga Opencast Mine is located south of existing Mungoli OC/ Kolgaon OC block in the Korpana Tahsil of Chandrapur district of Maharashtra State. The area is bounded by Latitude  $19^{\circ} 48' 19''$  and  $19^{\circ} 49' 27''$  and Longitude  $79^{\circ} 13' 48''$  and  $79^{\circ} 15' 36''$ . The block is covered in the survey of India Topo sheet No-56 M/1 and as per national grid the coordinates of the area is Latitude N- 1060992.510 & 1063065.889 and Departure E - 3024069.419 & 3027212.719. The Chandrapur district township is located at the distance of about 55 km from the block via Ballarshah. Ballarshah is located in the eastern part of the block at a distance of about 35 km. The existing approach to the area is from Ballarshah via Pauni and Gadegaon. Nearest railway station and railway siding is at Ballarshah. The project can also be accessible from Ghughus OC/ Mungoli OC side but at present there is no bridge for crossing Penganga River. A bridge will connect the project from Ghugus siding, which is at about 20 km distance.

The entire area of the block is covered by agriculture land with black cotton soil and exhibits a gently undulating topography with general slope from south to north direction. The altitude of the area ranges between 176.60 m and 189.73 m. The HFL of the area is 185 m and about whole quarry falls below HFL. The main drainage of the area is controlled by the Penganga river, which is flowing northerly and is also demarcating the western limit of the block. Few small seasonal nallahs are passing through the area and joins easterly flowing Penganga river which ultimately joins Wardha River.

Penganga Opencast Mine will be supplying coal mainly to power plants of Maharashtra State, which caters to the need of power supply in Vidarbha and other parts of the State. To run the power plants and to meet the growing demand of power, it is very essential to start Penganga Opencast Mine by diverting 46.04 Ha forest land for opencast mining.

Project Report of Penganga Opencast Mine of Wani Area is prepared by CMPDIL Nagpur and duly approved by the WCL Board vide letter No WCL/BD/SECTT/BM-257/2014/1601 dated 02.10.2014. The total Mineable

reserve of coal is 44.06 Mt with 163.77 Mm<sup>3</sup> OB at an average stripping ratio of 3.67 and life of the project is about 14 years at normal production capacity. In partial hiring option, the notified selling price is yielding >12% IRR at 85% production capacity.

### **Justification for locating the Project in the Forest Area**

The location of the site for coal mining operation fully depends upon nature's deposit of minerals and geological structure of the coal seams. Hence question of exploring alternative site for the purpose does not arise.

### **Environment Management Plan**

Penganga Opencast Project was accorded Environmental Clearance by Ministry of Environment & Forests New Delhi vide letter No J-11015/46/2009-IA.II (M) dated 31.01.2013 with the production capacity of 3.0 MTPA (Normative) to 4.50 MTPA (peak) in an area of 743.83 Ha by opencast method of mining for coal production.

### **Employment likely to be generated**

The total manpower requirement in Penganga Opencast Project in partial hiring option is 307. In addition to the permanent employment of 307 persons, additional employment potential will be available by way of growth of ancillary industries.

### **Manpower Productivity**

The annual capacity of this mine has been rated as 4.00 MTPA of coal. In the partial hiring option the manpower employed would be 307 and the overall OMS works out to be 49.353.

### **Details of displacement of people due to the project, if any**

1. **Number of families:** R&R committee has finalized 363 No of families to be rehabilitated in Wirur village. But no family resides over the forest land proposed to be diverted.

2. **Rehabilitation plan:** As per company policy, rehabilitation action plan is prepared by CMPDIL, RI-IV, Nagpur and enclosed in Mining Plan.

## **Land**

The total requirement of the land for Penganga OC Project would be 763.06 ha. Out of this land, the proposed land required for the project comprises of surrounding villages namely Wirur, Gadegaon, Borgaon and Sonarli. Land of these villages is mostly used for cultivation purpose. Cash crops like cotton, chilies, etc are also grown apart from standard agricultural product like rice, wheat & jawar. The break up of the type of land required for Penganga OC Project is as follows :

<b>Sl. No.</b>	<b>Particulars</b>	<b>Total Land (ha)</b>
1	Tenancy land to be acquired for mine	612.10
2	Government Land	131.73
3	Village rehabilitation (Tenancy land)	15.00
4	Land for Bridge (Tenancy Land)	4.23
	<b>Total</b>	<b>763.06</b>

The land use pattern of land to be acquired for Penganga Opencast project is as follows:

<b>Sl. No.</b>	<b>Particulars</b>	<b>Land (in ha)</b>
a)	Total Excavation area	240.10
b)	Proposed External OB Dump	253.60
c)	Infrastructure & Bridge	26.23
d)	Village rehabilitation	15.00
e)	Approach roads / Embankment	95.30
f)	For rationalization of boundary/Blasting zone	132.83
	<b>Total</b>	<b>763.06</b>

## **METHOD OF MINING**

The working is proposed by opencast method of mining and due to thick seams & coal conservation point of view Underground mining option has been ruled out. Considering flat gradient of seam which falls in the range of 1 in 7.5 to 1 in 14, surface miner is proposed for extraction of coal in Penganga Opencast Mine. Since gradient is flat, combined seam thickness is ranging from 17.5m to 20.5 m and strike length is ranging from 550m to 1550m, hence the target capacity of the proposed Quarry is kept at 4.0Mty.

## **GEO-MINING CHARACTERISTICS**

The general strike of the coal seam is north-south in the major part of the area with minor swing in central part of the area. The dip of the strata ranges from  $4^{\circ}$  to  $7.5^{\circ}$  (gradient 1 in 7.5 to 1 in 14.0) and dipping towards west and southwest direction. The eastern part of the area is generally having less gradient (1 in 14) as compare to remaining part of the block.

The area of the block is traversed by total 6 Nos of faults. Most of the faults are oblique faults, cutting across the strike of the strata. The major faults i.e. F6-F6, F7-F7 & F8-F8 are continuing from the northern adjoining block i.e. Kolgaon Sawangi Block. The Composite Seam, which is about 21 m to 26 m thick including all dirt bands and parting in the present area occurs in 4 sections viz. Composite-A Section, Composite-B Section, Composite-C Section and Composite-D Section.

## **MINE PARAMETERS**

The seam characteristics and the profile of the quarry are as given below:

<b>Sl. No.</b>	<b>PARTICULARS</b>	
1	Area of the Quarry	
(a)	On floor (ha)	174.95
(b)	On surface (ha)	240.10
2	Average strike length (m)	1050
(a)	Maximum	1550
(b)	Minimum	550
3	Average width (m)	
(a)	At floor	700
(b)	At surface	850
4	Depth (m)	
(a)	Initial	20
(b)	Final	170
5	Gradient of seam	1 in 7.5 to 1 in 14
6	Average thickness of seam /partings (m)	
(a)	Section A	1.50
(b)	Parting P1	1.0
(c)	Section B	3.0
(d)	Parting P2	1.2
(e)	Section C	2.75
(f)	Parting P3	5.25

(g)	Section D	10.30
(h)	Total Av. Thickness considered (A+B+C+D)	17 m (approx.)
7	Average parting between sections (m) (between C & D)	3.0
8	Mineable reserves (Mt)	44.06
9	Total OB (Mm <sup>3</sup> )	161.77
(a)	Top OB (Mm <sup>3</sup> )	152.17
(b)	Parting (Mm <sup>3</sup> )	9.60
10	Average SR (m <sup>3</sup> /t)	3.67
11	Grade & GCV	'G'10(4551)

## **MINING SCHEDULE**

The proposed Penganga Opencast Mine is planned for a target capacity of 4.0Mt/ annum. Moreover, with proposed target of 4.0Mt/y the rate of deepening works out to about 15 m per year, which is close to prevailing rate of deepening in existing mines of WCL. Calendar Programme has been prepared on the basis of estimation of coal and overburden in box cut and various cuts drawn on different floor levels and volume of overburden in access trench of the quarry. Calender Programme showing yearwise coal production and overburden removal is as follows:

Yr	COAL Mt		NATURAL OB (Mm <sup>3</sup> )		PROGRAMMED TOP OB (Mm <sup>3</sup> )		PARTING(M m <sup>3</sup> )		Total OB (Mm <sup>3</sup> )	
	Annual	Cum	Annual	Cum	Annual	Cum	Annual	Cum	Annual	Cum
1	LAND ACQUISITION									
2	1.00	1.00	3.62	3.62	7.10	7.10		0.00	7.10	7.10
3	2.00	3.00	5.48	9.10	7.77	14.88	0.45	0.45	8.22	15.32
4	3.00	6.00	8.22	17.32	11.37	26.25	0.67	1.11	12.04	27.36
5	4.00	10.00	12.04	29.36	11.35	37.60	0.89	2.00	12.24	39.60
6	4.00	14.00	12.24	41.60	12.56	50.16	0.89	2.90	13.45	53.05
7	4.00	18.00	13.45	55.05	15.00	65.16	0.89	3.79	15.89	68.95
8	4.00	22.00	15.89	70.95	15.00	80.17	0.89	4.68	15.89	84.84
9	4.00	26.00	15.89	86.84	15.92	96.09	0.89	5.57	16.81	101.66
10	4.00	30.00	16.81	103.66	15.95	112.04	0.89	6.46	16.84	118.50
11	4.00	34.00	16.84	120.50	11.27	123.32	0.89	7.35	12.17	130.67
12	3.00	37.00	12.17	132.67	11.50	134.81	0.67	8.02	12.17	142.83
13	3.00	40.00	12.17	144.83	9.88	144.70	0.67	8.69	10.55	153.38
14	2.50	42.50	10.55	155.38	4.44	149.14	0.56	9.24	5.00	158.38
15	1.56	44.06	6.39	161.77	3.03	152.17	0.36	9.60	3.39	161.77
TOTAL		44.06		161.77		152.17		9.60		

## **Dumping plan for Overburden**

The area of external dumping is in rise side Non Coal bearing area of the block . Since the gradient of seam is flat, mining cuts are proposed such that substantial internal backfilling of OB upto surface and heightening of OB

dump over quarry area and merging it with proposed external OB dump can take place. This heightening of OB dump over internal backfilled and merging it with external OB dump will optimize acquisition of land for dumping. About 22 Mm<sup>3</sup> of OB is of Soft OB and soil in the proposed quarry and rest about 139.77Mm<sup>3</sup> is hard strata. To provide stability of dumps and prevent slope failures, it is proposed to have separate dumps for Soft OB, Black cotton soil and hard OB. 90m, 45m and 10m height has been proposed for hard OB, Soft OB and Black cotton soil respectively. ***It is also proposed to excavate 120 m channel of entire BC soil (upto 3m depth) in the circumference of proposed rise side hard OB and soft OB dumps to ensure safety and stability of dump.*** Therefore additional 2.0 Mm<sup>3</sup> of BC soil from the place of proposed hard OB dump and soft OB dumps is excavated and dumped in the BC soil dump (2.0 Mm<sup>3</sup>).

#### YEAR-WISE EXTERNAL AND INTERNAL DUMPING AND STAGE PLAN

YEAR	Top OB & Parting removal(Mm <sup>3</sup> ) (as per PH Option)(Including BC soil below the external dump )	Volume of External Dump (Mm <sup>3</sup> )	Volume of Internal Dump (Mm <sup>3</sup> )	Reclamation Plan (Approx. Nos. of trees to be Planted @2500 Plants/Ha)
1	-	LAND ACQUISITION		
2	7.10+2.0*	7.10+2.0*=9.10	-	2000
3	8.22	8.22	-	2000
4	12.04	12.04	-	2000
5	12.24	12.24	-	2000
6	13.45	12.56	0.89	5000
7	15.89	15.00	0.89	5000
8	15.89	13.46	2.43	5000
9	16.81	13.92	2.89	5000
10	16.84	13.95	2.89	5000
11	12.17	-	12.17	5000
12	12.17	-	12.17	5000
13	10.55	-	10.55	5000
14	5.00	-	5.00	5000
15	3.39	-	3.39	5000
Total	163.77 (161.77+2.0*)	110.51	53.27	58000
Percentage of Dump		67%	33%	

Total External dumping = 103.00Mm<sup>3</sup> + 7.50 Mm<sup>3</sup> of Embankment

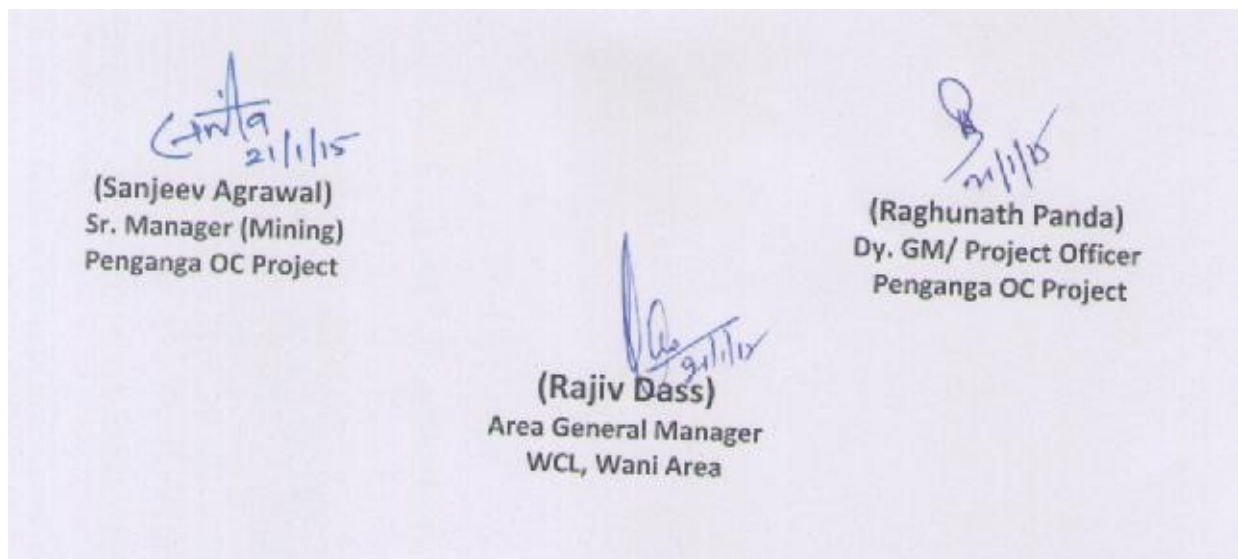
= 110.50 Mm<sup>3</sup>

Total Internal dumping = 53.27 Mm<sup>3</sup>,

**Therefore, percentage of Internal backfilling is about 33 % of total OB to be removed.**

Place: Urjagram, Tadali

Date:



The image shows three handwritten signatures and dates on a white background. The signatures are in blue ink. The first signature is on the left, the second is in the center, and the third is on the right. Each signature is followed by a date and a printed name and title.

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