

ମହାନଦୀ କୋଲଫିଲ୍ଡସ୍ ଲିମିଟେଡ୍
 महानदी कोलफील्ड्स लिमिटेड
Mahanadi Coalfields Limited
 (A subsidiary of Coal India Limited)

Office of The Project Officer,
 Siarmal OCP, Mahalaxmi Area
 AT/PO: Basundhara -770076
 District: Sundargarh (Odisha)



MCL

Ref. No.: MCL/MLA/GM/2021-22/ 132

Date: 29.01.2022

To,

The Member Secretary (IA-Coal Mining)

Ministry of Environment, Forests & Climate Change

Indira Paryavaran Bhavan, Jor Bagh Road

New Delhi - 110 003.

Subject: Submission of reply to the 11-point observations of the EAC in its last meeting with respect to Siarmal OCP, MCL

- Reference: 1. Proposal no.: IA/OR/CMIN/24164/2014
 2. F. No.: J-11015/230/2014-IA II(M)
 3. Minutes of the EAC meeting dated 17-18 August 2020

Respected Sir,

With Respect to the Environmental Clearance of Siarmal OCP (50 MTPA) of MCL, the reply to the 11-point observations of the EAC in its last meeting with respect to Siarmal OCP, is being submitted in the Parivesh portal of Ministry of Environment, Forests and Climate Change for your kind consideration.

It is requested to kindly consider the above proposal in the next EAC.

Thanking you.

Yours sincerely,

Dr. Kinshu
 29/01/2022
 Project Officer
 Siarmal OCP
 Mahanadi Coalfields Limited
 Siarmal OCP,

**POINT WISE REPLY TO THE OBSERVATION OF 1ST EAC MEETING
HELD ON 17-18TH AUG 2020 IN RESPECT OF SIARMAL OCP (50.0
MTY)**

EAC observation 1: Incomplete/incorrect details submitted on PARIVESH Portal shall be corrected by project proponent.

Action: The corrected Form 2 is hereby attached as **Annexure 1**.

EAC observation 2: Permission for Stage-I Forest Clearance for forest land of 349.705 involved in the project.

Action: Forest diversion proposal vide proposal no. FP/OR/MIN/32796/2018 has been submitted to MoEF&CC, Gol, New Delhi on 14.09.2021. EDS has been raised regarding the identification of additional CA land. The CA land has been identified under Gopalpur forest range of Sundargarh Forest Division and the DGPS survey has been completed. The DGPS Surveyed Map has been submitted to ORSAC, Bhubaneswar for vetting and authentication by the DFO Sundargarh. The reply to the EDS submitted to PCCF office on 3rd Feb 2022. The proposal is expected to be considered in the FAC meeting, to be held in the month of Feb 2022.

EAC observation 3: Project proponent shall provide year wise production and OB removal plan along with details of land reclaimed and restored. The plan shall contain the year-wise details of land disturbed on account of excavation, internal and external dumping, and land reclaimed and restored.

Reply: Year wise proposed production schedule, OB removal & backfilling details has been given in EIA/EMP chapter 2 para 2.9 is attached as **Annexure 2**.

Stage-wise Land use and reclamation Plan along with stagewise cumulative plantation is given in chapter 10 table 10.3 and 10.4 as per the table prescribed in standard ToR which is attached as **Annexure 3**.

EAC observation 4: Mine Closure plan should be as per Ministry of Coal latest guidelines of 2019.

Reply: The Mining Plan & Mine Closure Plan for Siarmal OCP (50.0 Mty) was prepared & approved on 05-02-2018 prior to issuance of Guidance of preparation of Mining Plan & Mine Closure Plan of December 2019 & May 2020 by Ministry of Coal. However, most of the stage reclamation/ mining plans & mine closure plan and land

details as required by latest guidelines have been included in the earlier approved Mining Plan & Mine Closure Plan for this project.

As per the latest guideline of May 2020 following are the observations in page 1 (**copy enclosed as Annexure 4**) for already approved Mining Plan & Mine Closure Plans:

Quote: “The Mining Plan approved prior to issue of this guideline will qualify for submission of such report/ information at least 180 (one hundred eighty) days prior to expiry of 5 (five) year from the date of notification of the Mineral Concession Amendment Rules 2020.”

EAC observation 5: Drainage map of the area shall be shown in toposheet and further zero liquid discharge with water balance should be presented.

Reply: Study area map on toposheet showing all features along with a separate Drainage map showing core and buffer has been submitted as **Plate III & V** in EIA/EMP. However as per requirement of EAC, drainage map shown on toposheet is also hereby attached as **Annexure 5**.

Water balance diagram is given in chapter 4 Fig. 4.1 in EIA/EMP. Further water usage diagram for peak demand is given in Fig. 4.4. The details regarding the same is attached herewith as **Annexure 6**.

EAC observation 6: PP shall study the impact Assessment on the proposed road route on receptors for environment parameters of PM₁₀, PM_{2.5}, SO_x and NO_x.

Reply: In proposed project there is no road transportation outside the lease area, all the coal will be dispatched through the belt conveyor from pit top. As the mine will proceed, provision of in-pit belt conveyor has been provided to further reduce the road transportation. The modelling of PM₁₀ and PM_{2.5} was also done considering the worst case scenario for 50.0 Mty coal production considering all activities e.g. loading, unloading, drilling, blasting, transportation etc.

However, as an interim arrangement for initial 5 years till the commissioning of conveyor belt and Barpalli loop, the coal will be dispatched through nearby Sardega Siding. The detail of the same is as follows:

Production Year	Coal in Mt	Mode of Dispatch	
		Road in km	Conveyor belt (in km)
1	1.50	8.20	---
2	4.00	8.20	---
3	7.00	6.60	1.6
4	10.00	6.60	1.6
5	15.00	6.60	1.6

From above table it can be observed that for initial 2 years the coal will be dispatched by road only. However, after 2 years lead distance of road will be 6.6 km and remaining 1.6 will be dispatched through belt. Accordingly, as per instruction of EAC again a modelling has been done for road transportation. The details of the same is as follows:

Scenario	Production in Mty	Coal production per day in T	Lead distance in km	Emission factor in gm/VKT with control measures*	Truck capacity in Tonne	Dust generation in kg per day	Emission rate in gm/sec
1	4	12121.21	8.2	53	17	619.75	7.17
2	15	45454.55	6.6	53	17	1870.59	21.65

* Concrete road, deployment of Fog Cannon and fixed sprinklers

Considering the above two scenario the modelling was done for 2nd year and 5th year using AERMOD software. The result of the modelling is as follows:

Modelling result of Scenario 1:

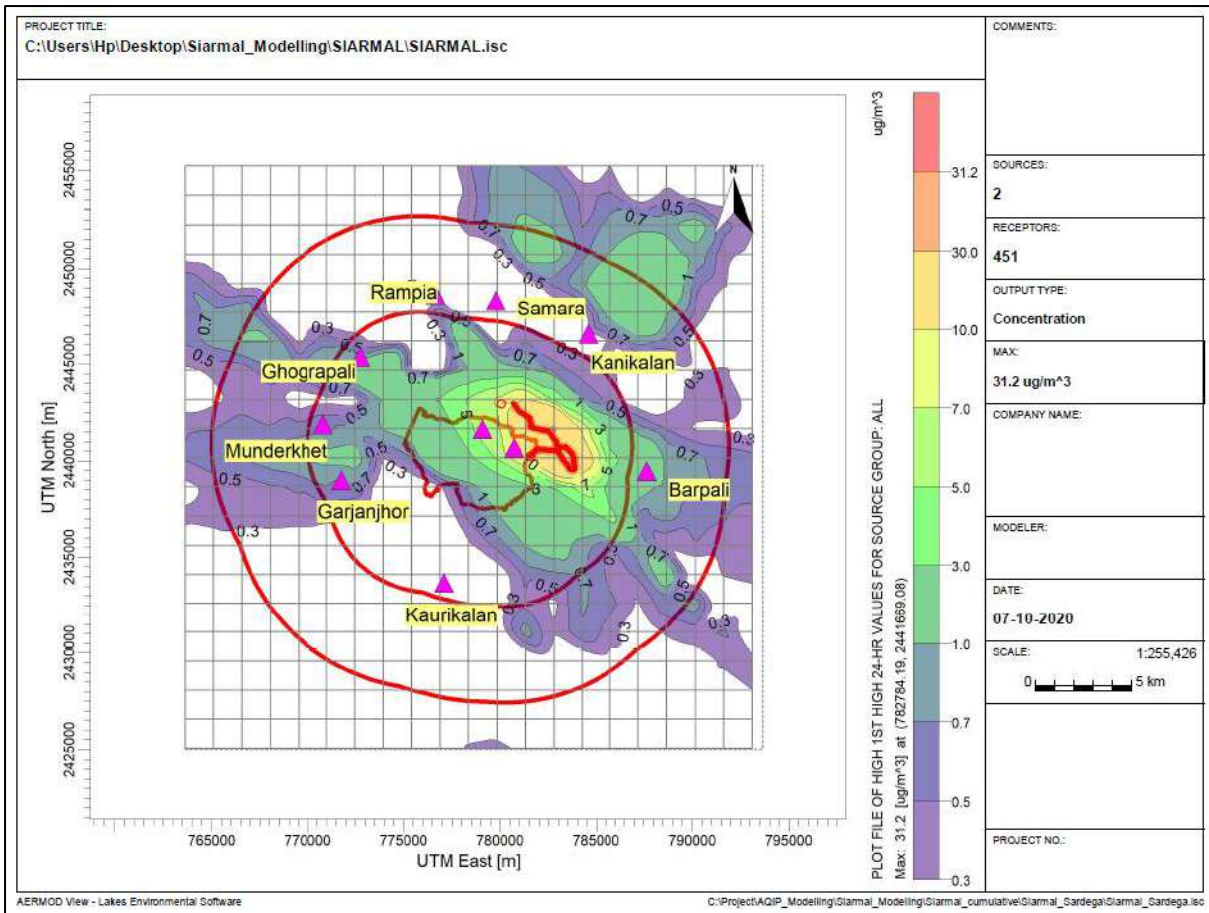


Fig: Isopleth of PM₁₀ for year 2

Table: Maximum predicted value of PM₁₀ with control measures year 2

Unit in $\mu\text{g}/\text{m}^3$

Sl. No.	Baseline Stations	Distance from ML boundary & direction from centre of Core Zone	Measured PM ₁₀ (Maximum)	Predicted Incremental PM ₁₀ With control measures	Predicted absolute PM ₁₀ With control measures	Standard
			(i)	(ii)	(i)+(ii)	
1.	Gopalpur	Core zone	90.76	6.02	96.78	250#
2.	Siarmal	Core zone	90.20	9.17	99.37	250#
3.	Rampia	6.20, N	85.40	0.18	85.58	100*
4.	Sumura	5.57, N	82.60	0.10	82.70	100*
5.	Kanikalan	6.00, NE	91.22	0.23	91.45	100*
6.	Barpali	5.60, E	89.90	1.80	91.70	100*
7.	Kaurikalan	4.30, SW	94.80	0.09	94.89	100*
8.	Garjanjore	3.50, W	93.44	0.64	94.08	100*
9.	Mundelkhet	4.30 NW	90.30	0.67	90.97	100*
10.	Ghogharpali	3.50 NW	90.70	0.78	91.48	100*

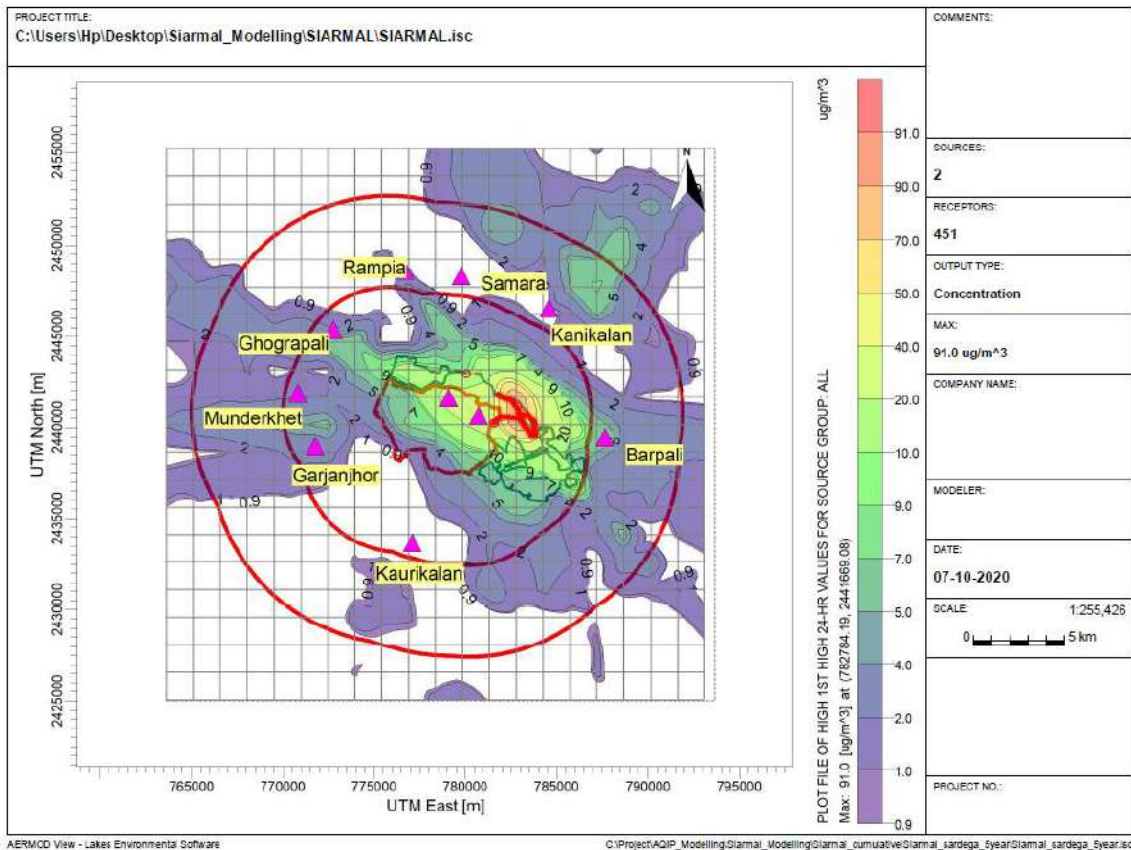


Fig: Isoleth of PM₁₀ for year 5

Modelling result of Scenario 2:

Fig: Isoleth of PM₁₀ for year 5

Table: Maximum predicted value of PM₁₀ with control measures year 5

Unit in $\mu\text{g}/\text{m}^3$

Sl. No.	Baseline Stations	Distance from ML boundary & direction from centre of Core Zone	Measured PM ₁₀ (Maximum)	Predicted Incremental PM ₁₀ With control measures	Predicted absolute PM ₁₀ With control measures	Standard
			(i)	(ii)	(i)+(ii)	
1.	Gopalpur	Core zone	90.76	25.95	116.71	250#
2.	Siarmal	Core zone	90.20	34.97	125.17	250#
3.	Rampia	6.20, N	85.40	1.08	86.48	100*
4.	Sumura	5.57, N	82.60	0.29	82.89	100*
5.	Kanikalan	6.00, NE	91.22	0.67	91.89	100*
6.	Barpali	5.60, E	89.90	6.18	96.08	100*
7.	Kaurikalan	4.30, SW	94.80	0.38	95.18	100*
8.	Garjanjore	3.50, W	93.44	2.55	95.99	100*
9.	Mundelkhet	4.30 NW	90.30	1.77	92.07	100*
10.	Ghogharpali	3.50 NW	90.70	2.20	92.90	100*

As per coal mine standard

* As per NAAQS 2009

From above tables it can be observed that in both scenarios the absolute values of PM₁₀ will remain under prescribed limits. From this it can be inferred that in the above two scenarios, scenario 2 has more impact. Therefore, PM_{2.5} modelling has been done only for scenario 2 considering the particle size distribution (by mass) the result of the same is as follows:

Table: Maximum predicted value of PM_{2.5} with control measures year 5

Unit in µg/m³

Sl. No.	Baseline Stations	Distance from ML boundary & direction from centre of Core Zone	Measured PM _{2.5} (Maximum)	Predicted Incremental PM _{2.5} With control measures	Predicted absolute PM _{2.5} With control measures	Standard
			(i)	(ii)	(i)+(ii)	
1.	Gopalpur	Core zone	54.54	7.79	62.33	---
2.	Siarmal	Core zone	56.80	10.49	67.29	---
3.	Rampia	6.20, N	50.65	0.32	50.97	60*
4.	Sumura	5.57, N	44.78	0.09	44.87	60*
5.	Kanikalan	6.00, NE	56.74	0.20	56.94	60*
6.	Barpali	5.60, E	53.50	1.85	55.35	60*
7.	Kaurikalan	4.30, SW	57.87	0.11	57.98	60*
8.	Garjanjore	3.50, W	57.87	0.76	58.63	60*
9.	Mundelkhet	4.30 NW	55.90	0.53	56.43	60*
10.	Ghogharpali	3.50 NW	52.65	0.66	53.31	60*

* As per NAAQS 2009

Accordingly modelling of SO_x and NO_x has been done for scenario 2. The details of the same is as follows:

Modelling of SO_x and NO_x:

Emission Factor:

Emission Factor for SO_x is taken as 1.7gm/l of diesel consumption (As per US EPA), however emission factor for NO_x has been taken as 9.3 g/VKT (As per ARAI).

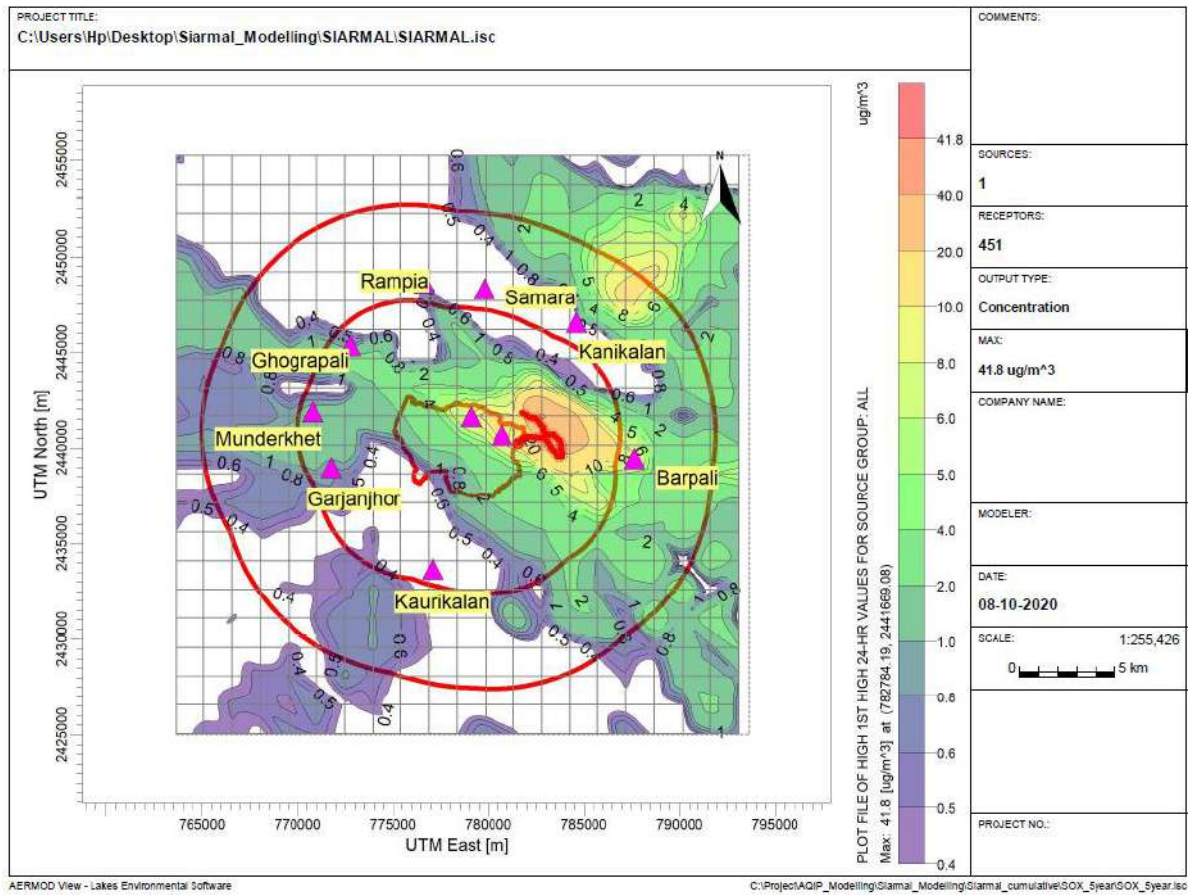


Fig: Isopleth of SOx

Table: Maximum predicted value of SOx

Unit in $\mu\text{g}/\text{m}^3$

Sl. No.	Baseline Stations	Distance from ML boundary & direction from centre of Core Zone	Measured SOx (Maximum)	Predicted Incremental SOx With control measures	Predicted absolute SOx With control measures	Standard
			(i)	(ii)	(i)+(ii)	
1.	Gopalpur	Core zone	23.60	8.79	32.39	120#
2.	Siarmal	Core zone	23.40	11.28	34.68	120#
3.	Rampia	6.20, N	21.70	0.38	22.08	80*
4.	Sumura	5.57, N	17.09	0.06	17.15	80*
5.	Kanikalan	6.00, NE	21.10	0.19	21.29	80*
6.	Barpali	5.60, E	21.33	8.36	29.69	80*
7.	Kaurikalan	4.30, SW	20.30	0.12	20.42	80*
8.	Garjanjore	3.50, W	14.98	0.76	15.74	80*
9.	Mundelkhet	4.30 NW	21.71	1.27	22.98	80*
10.	Ghogharpali	3.50 NW	17.99	0.82	18.81	80*

As per coal mine standard

* As per NAAQS 2009

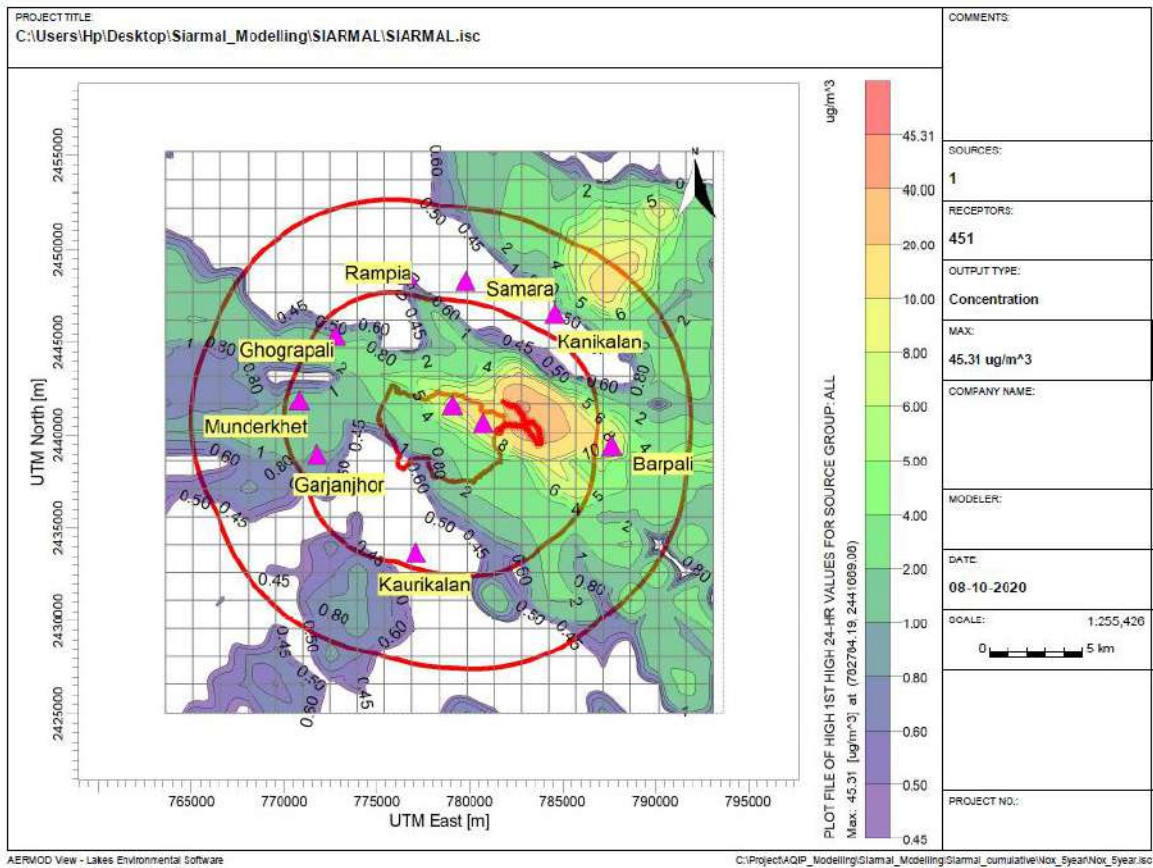


Fig: Isopleth of NOx

Table: Maximum predicted value of NOx

Unit in $\mu\text{g}/\text{m}^3$

Sl. No.	Baseline Stations	Distance from ML boundary & direction from centre of Core Zone	Measured NOx (Maximum)	Predicted Incremental NOx With control measures	Predicted absolute NOx With control measures	Standard
			(i)	(ii)	(i)+(ii)	
1.	Gopalpur	Core zone	32.70	9.53	42.23	120#
2.	Siarmal	Core zone	34.50	12.23	46.73	120#
3.	Rampia	6.20, N	30.90	0.41	31.31	80*
4.	Sumura	5.57, N	27.86	0.07	27.93	80*
5.	Kanikalan	6.00, NE	29.33	0.21	29.54	80*
6.	Barpali	5.60, E	32.41	9.06	41.47	80*
7.	Kaurikalan	4.30, SW	30.60	0.14	30.74	80*
8.	Garjanjore	3.50, W	23.80	0.82	24.62	80*
9.	Mundelkhet	4.30 NW	30.22	1.38	31.60	80*
10.	Ghogharpali	3.50 NW	34.89	0.89	35.78	80*

As per coal mine standard

* As per NAAQS 2009

From above tables it can be observed that values of PM₁₀, PM_{2.5}, SO_x and NO_x will remain under permissible limits with proper control measures.

EAC observation 7: Permission of extraction of ground water from Central Ground Water Authority.

Action: Permission for extraction of ground water from Central Ground Water Authority has been obtained vide CGWA/NOC/MIN/ORIG/2020/9246 dated 09.12.2020. Copy enclosed as **Annexure-7**.

EAC observation 8: Clarification from District Forest Officer (DFO) regarding no presence of schedule I species in the project area and buffer zone shall be submitted. Distance from Wildlife/National Sanctuary should be substantiated by DFO.

Action: DFO, Sundergarh has vide letter no. 864/ 4F(Misc.)/ 2020 dt:23/02/2021 (Copy enclosed as **Annexure-8**) has clarified that there is no presence of schedule I species in the project area and buffer zone and the distance of Nearest National Park i.e Guru Ghasidas National Park, which is in Chhattisgarh, is about 178 km from the project area.

EAC observation 9: Provision of alternate grazing land shall be proposed by project proponent.

Action: Letter vide no. 490 and 756 dated 16.03.2021 and 23.03.2021 respectively received from Tahsildar Hemgir and Lephripada identifying 57.356 Ac (23.21 Ha) of land in sarangi Jharia, 54.97 Ac (22.24 Ha) in Badkhalia and 39.81 Ac (16.11 Ha) in Chatenpali for gochar land. In addition to that the following land have also been identified for grazing purpose. (Copy attached as **Annexure 9**)

Sl. No.	R&R Site	Grazing Land Allocated	Remarks
01.	Chhatenpali R&R Site	4812.738 Sq Mtr	—
02.	Badhkalia R&R Site	3000 Sq Mtr	—
03.	Sarangi Jharia R&R Site	3000 Sq Mtr	21.9 Acre Additional land also provided

Total Grazing land: (9.94 +23.21+22.24+16.11) i.e.,71.9 Ha

EAC observation 10: Quantitative Conclusion / Impact / Mitigation measures should be clearly presented of Carrying capacity study.

Reply: Revised carrying capacity report presenting Quantitative Conclusion / Impact /Mitigation measures is attached as **Annexure 10**.

EAC observation 11: Heavy metals shall be analysed in surface water.

Reply: Heavy metals in surface water e.g. Cd, Se, Cu, Pb, As, Zn, Cr⁺⁶, Fe has already been analysed and submitted in EIA/EMP chapter 3 Table 3.20: Surface water quality data. (Copy attached as **Annexure 11**).

FORM 2- APPLICATION FOR PRIOR ENVIRONMENTAL CLEARANCE

Sl no.	Item	Details																		
1	Whether it is a violation case and application is being submitted under Notification No. S.O.804(E) dated 14.03.2017? Details of Project: (a)Name of the project(s) (b)Name of the Company / Organisation A (c)Registered Address (d)Legal Status of the Company (e)Joint Venture	No Siarmal Opencast Project Mahanadi Coalfields Limited PO: Jagruti Vihar, Burla, Sambalpur, 768020 Central PSU No																		
2	a) Name of the Applicant (b)Designation (Owner/ Partner/ CEO) (c)Address (d)Pin code (e)E-mail (f)STD Code. -Telephone No. (g)Fax No. (h)Copy of documents in support of the competence/authority of the person making this application to make application on behalf of the User Agency.	A.K Singh Project Officer, Mahalaxmi Area, MCL 770076 gmenvt_mcl@yahoo.co.in 0663-2542084 0663-2542257 The project proponent itself is making the application.																		
3	Category of the Project/Activity as per Schedule of EIA Notification,2006: (a)Project/Activity (b)Category (c)Proposal Number (d)Master Proposal Number (Single Window) (e)EAC concerned (for category A Projects only) (f)Project Type	1(a) Mining of minerals A IA/OR/CMIN/24164/2014 SW/94547/2019 Coal Mining Fresh EC																		
4	Location of the Project: (a)Plot/Survey/Khasra No. (b)Pin code (c)Bounded Latitudes (North) (d)Bounded Longitudes (East) (e)Survey of India Topo Sheet No. (f)Uploaded Topo Sheet File (g)Maximum Elevation Above Means Sea Level (AMSL) in meters (h)Uploaded (kml) File (i)Distance of Nearest HFL from the project boundary within the study area in meters (j)Seismic Zone	Siarmal 770076 FROM 220119 To 220359.99 FROM 833709 To 834249.58 64N/12 (RF 1:50000) Copy of Topo Sheet File (Annexure A) 311 Copy of Kml File 95 2																		
5	(a)Number of States in which Project will be Executed. (b)Main State of the project	1 Orissa																		
Details of State of the																				
	<table border="1"> <thead> <tr> <th>S. No.</th> <th>State Name</th> <th>District Name</th> <th>Tehsil Name</th> <th>Village Name</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Orissa</td> <td>Sundargarh</td> <td>Hemgir</td> <td>Siarmal</td> </tr> </tbody> </table>	S. No.	State Name	District Name	Tehsil Name	Village Name	1	Orissa	Sundargarh	Hemgir	Siarmal									
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6	Details of Terms of Reference (ToR): (a) MoEF&CC / SEIAA File Number (b) Date of Apply of TOR (c) Date of Issue of TOR / Standard ToR (d) Previous TOR Letter	J-1105/230/2014-IA-II(M) 21 Feb 2018 09 July 2018 Copy of Previous TOR letter(Annexure B)																		
7	Details of Public Consultation: (a)Whether the Project Exempted from Public Hearing? (b)Whether details of Public Hearing available? (c)Whether Public hearing was presided over by an officer of the rank of Additional District Magistrate or above Yes	No Yes Yes																		
7.1	<table border="1"> <thead> <tr> <th>S. No.</th> <th>Details of Advertisement</th> <th>Details of Public Hearing</th> <th>Venue</th> <th>Location Details</th> <th>No. of People Attended</th> <th>Issues Raised</th> <th>Designation of Presiding Officer</th> <th>Other Designation of Presiding Officer</th> </tr> </thead> <tbody> <tr> <td></td> <td>Date of Advertisement: 30 Nov 2018 Copy of Advertisement (Annexure C)</td> <td>Copy of Public Hearing (Annexure D) Date: 03 Jan 2019 Distance of the proposed public hearing venue from the project: 4km</td> <td>Kundren Play Ground</td> <td>State: Orissa District: Sundargarh Tehsil: Hemgir Village: Siarmal</td> <td>245</td> <td>Regarding employment, Resettlement, Land Compensation, dust suppression and blasting</td> <td>Others</td> <td>Additional District Magistrate</td> </tr> </tbody> </table>	S. No.	Details of Advertisement	Details of Public Hearing	Venue	Location Details	No. of People Attended	Issues Raised	Designation of Presiding Officer	Other Designation of Presiding Officer		Date of Advertisement: 30 Nov 2018 Copy of Advertisement (Annexure C)	Copy of Public Hearing (Annexure D) Date: 03 Jan 2019 Distance of the proposed public hearing venue from the project: 4km	Kundren Play Ground	State: Orissa District: Sundargarh Tehsil: Hemgir Village: Siarmal	245	Regarding employment, Resettlement, Land Compensation, dust suppression and blasting	Others	Additional District Magistrate	
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8	Details of Project Configuration/Product:																			
	8.1. Project Configuration																			
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Open Cast Coal Mining through surface Miner	50 MTPA	Surface Miner with capacity of 800-1000 HP.																		
	8.2. Product																			

FORM 2- APPLICATION FOR PRIOR ENVIRONMENTAL CLEARANCE

S. No.	Product/Activity (Capacity/Area)	Quantity	Unit	Other Unit	Mode of Transport / Transmission of Product	Other Mode of Transport / Transmission of Product						
(1.)	Coal	50	Others	Million Tons Per Annum	Rail							
(2.)	Total Mine lease Area	2290.45	Hectares									
(3.)	Total Project Area	2580.45	Hectares									
9.	In case of Expansion / Modernization / One Time Capacity Expansion (only for Coal Mining) / Expansion under Clause 7(ii) / Modernization under Clause 7(ii) / Change of Product Mix under Clause 7(ii): Details Not Applicable											
9.1	Details of Consent to Operate											
	(i) Whether Consent to operate obtained?				NA							
	(ii) Copies of all Consent to operate obtained since inception				NA							
	(iii) Date of Issue				NA							
	(iv) Valid Upto				NA							
	(v) File No.				NA							
	(vi) Application No.				NA							
	(vii) Copy of Consent to operate valid as on date				NA							
10	Project Cost:											
	(a) Total Cost of the Project at current price level (in Crores)				3756.36							
	(b) Funds Allocated for Environment Management (Capital) (in Crores)				738.26							
	(c) Funds Allocated Towards CER (Corporate Environment Responsibility) (in Crores)				10.30							
	(d) Funds Allocated for Environment Management Plan (EMP) (Recurring per Annum) (in Crores)				120.52							
11	Whether project attracts the General Condition specified in the Schedule of EIA Notification?				No							
12	Whether project attract the Specific Condition specified in the Schedule of EIA Notification?				No							
13	Raw Material / Fuel Requirement:											
	(a) Proposed quantity of raw material/fuel.				367.6 Kilo Litre per day							
	(b) Existing quantity of raw material/fuel				N/A							
	(c) Total quantity of raw material/fuel				367.6 Kilo Litre per day							
13.1	S. No.	Raw Material / Fuel	Quantity	Unit	Other Unit	Source (in case of Import, please specify country, and Name of the port from which Raw Material / Fuel is. Received)	Mode of Transport	Other Mode of Transport	Distance of Source from Project Site (in Kilometers)	Type of Linkage	Other Type of Linkage	Uploaded Copy of Linkage
	(1.)	Diesel	367.6	Kilo Litre per Day		Local	Road		0	Fuel Supply Agreement		Copy of Linkage Annexure E
14	Baseline Data:						FROM 04 Nov 2017 to 03 Feb 2018					
	(a) Period of Base Line Data Collection						Winter					
	(b) Season											
14.1	14.1. No. of ambient Air Quality (AAQ) monitoring locations: 10											
	S. No.	Criteria Pollutants	Other Criteria Pollutants	Unit	Maximum Value	Minimum Value	98 Percentile Value	Prescribed Standard				
	(1.)	SO2		Micro Gram per Meter Cube	23.60	8.50	23.30	80				
	(2.)	PM2.5		Micro Gram per Meter Cube	57.87	20.99	57.71	60				
	(3.)	PM10		Micro Gram per Meter Cube	94.80	60.65	92.73	100				
	(4.)	NOx		Micro Gram per Meter Cube	34.89	20.20	33.56	80				
14.2	No. of Ground Water monitoring locations: 4											

FORM 2- APPLICATION FOR PRIOR ENVIRONMENTAL CLEARANCE

S. No.	Criteria Pollutants	Other Criteria Pollutants	Heavy Metal	Unit	Other Unit	Maximum Value	Minimum Value	Desirable Limit	Maximum Permissible Limit
(1.)	pH			NA		7.39	7.14	6.5	8.5
(2.)	Heavy Metals		Cadmium	mg/l		0.0005	0.0005	0.003	0.003
(3.)	Total Hardness			mg/l		340	124	200	600
(4.)	TSS			mg/l		19.2	14.3	100	100
(5.)	Chlorides			mg/l		118	28	250	1000
(6.)	Others	Phenolics		mg/l		0.001	0.001	0.001	0.002
(7.)	TDS			mg/l		490	152	500	2000
(8.)	Fluoride			mg/l		0.46	0.24	1	1.5

14.3	No. of Surface Water monitoring locations: 4								
	S. No.	Criteria Pollutants	Other Criteria Pollutants	Unit	Other Unit	Maximum Value	Minimum Value	Classification of inland water body	
	(1.)	pH		NA		7.67	7.12	C	
	(2.)	BOD		mg/l		2	2	C	
	(3.)	Others	Total Dissolved Solids	mg/l		140.0	84.0	C	
	(4.)	COD		mg/l		14.0	6.5	C	
(5.)	DO		mg/l		5.7	5.0	C		

14.4	No. of Ambient Noise monitoring locations: 10					
	S. No.	Parameter	Unit	Maximum Value	Minimum Value	Prescribed Standard
	(1.)	Leq (Day)	A-weighted decibels(dB(A))	54.7	44.8	55
(2.)	Leq (Night)	A-weighted decibels(dB(A))	51.5	42.0	45	

14.5	No. of Soil Sample Monitored locations: 4					
	S. No.	Parameter	Unit	Other Unit	Maximum Value	Minimum Value
	(1.)	N(Nitrogen)	Milligram Per Kilogram		167.0	116.0
	(2.)	P(Phosphorus)	Others	mgP2O5/Kg	13.4	4.5
	(3.)	Electric Conductivity	Others	microS/cm	161.0	101.0
	(4.)	pH	NA		7.63	6.98
(5.)	K(Potassium)	Milligram Per Kilogram		188.0	63.3	

14.6	Details of Ground Water Table:			From 2.90 To 7.4		
	(a)Range of Water Table Pre-Monsoon Season (Meters Below Ground Level (m bgl))					
	(b)Range of Water Table Post-Monsoon Season (Meters Below Ground Level (m bgl))			From 1.34 To 2.4		
	(c)Whether Ground Water Intersection will be there?			Yes		
	(d)Upload Copy of Central Ground Water Authority Letter			Copy of Central Ground Water Authority Letter(Annexure F)		
	(e)Letter No.			CGWA/NOC/MIN/ORIG/2020/9246		
(f)Date of Issue			09.12.2020			

15	Details of Water Requirement (During Operation)												
	S. No.	Source	Source Other	Required Quantity (Kiloliter per Day (Kld))	Distance from Source	Copy of Permission from Competent Authority	Mode of Transport	Other Mode of Transport	Method of Water Withdrawal	Other Method of Water Withdrawal	Letter No.	Date of Issue	Permitted Quantity
	(1.)	Surface		2204	3 Km	Permission letter copy (Annexure G)	Pipeline		Others	Pumping	35298	30 Sep 2009	3000
(2.)	Others	Mine Water	8500	0.5 Km	Permission letter copy (Annexure F)	Pipeline		Others	Pumping	9246	09 Dec 2020	2622.08	

15.1.	(a)Whether Desalination is proposed	No
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16	Wastewater Management (During Operation)											
----	---	--	--	--	--	--	--	--	--	--	--	--

FORM 2- APPLICATION FOR PRIOR ENVIRONMENTAL CLEARANCE

S. No.	Type/Source	Quantity of Wastewater Generated (Kilolitre per Day)	Treatment Capacity (Kilolitre per Day)	Treatment Method	Mode of Disposal	Other Mode of Disposal	Quantity of Treated Water Used in Recycling/Reuse (Kiloliter per Day)	Quantity of Discharged Water (Kiloliter per Day)
(1.)	Workshop	1750	2000	ETP	Reuse within the Plant & Recycling	Infiltration Losses & Storage in tanks.	1750	

16.1	(a)Total Wastewater Generation (Kiloliter per Day)	1750
	(b)Total Discharged Water (Kiloliter per Day)	0
	(c)Total Reused Water (Kiloliter per Day)	1400

17 Solid Waste Generation/Management											
S. No.	Name of Waste	Item	Other Item	Quantity per Annum	Unit	Distance from Site (KM)	Mode of Transport	Other Mode of Transport	Mode of Disposal	Other Mode of Disposal	
(1.)	STP/ETP Sludge	Industrial Waste		1212	Tons	0	Road		Others	Landfill/Farmyard Manure	
(2.)	Overburden (Lump & Fine)	Industrial Waste		95565888	Tons	0	Road		Others	Dumping & Back-filling	
(3.)	Oily Sludge	Industrial Waste		900	Tons	0	Road		Others	Landfilling	

18.1 Air Quality Impact Prediction									
S. No.	Criteria Pollutants	Other Criteria Pollutants	Unit	Baseline Concentration	Distance GLC	Incremental Concentration	Total GLC	Prescribed Standard	
(1.)	PM10		Microgram per Meter Cube	94.80	5.2	1.45	96.25	100	
(2.)	SO2		Microgram per Meter Cube	23.60	0	28.32	51.92	120	
(3.)	NOx		Microgram per Meter Cube	34.89	4.22	10.25	45.14	80	
(4.)	Others (Specify)	NA	NA	0	0	0	0	0	
(5.)	PM2.5		Microgram per Meter Cube	57.87	3.83	1.38	59.25	60	

18.2. Stack Details							
S.	Source	Fuel	Stack Height(m)	Stack	Pollutants	Other Pollutants	Emission (GLS)
(1.)	Nil	Nil	0	0	Others	NA	0

19 Power Requirement:	
(a)Quantity (Kilo Volt Amps (kVA))	36604.1817
(b)Source	220/33kV, Garjanbahal Substation
(c)Uploaded Copy of Agreement	Copy of Agreement. (Annexure H)
(d)Standby Arrangement (Details of DG Sets)	NA
(e)Stack Height (in m)	0

20 Land Ownership Pattern:	
(a)Forest Land (ha)	349.71
(b)Private Land (ha)	1466.95
(c)Government Land (ha)	473.95
(d)Revenue Land(ha)	0
(e)Other Land (ha)- Residential, R&R site etc.	290.00
Total Land (ha.)	2580.45

21 Present Land Use Breakup of the Study Area in Ha:	
(a) Agriculture Area (ha.)	1382.41
(b) Waste/Barren Land (ha.)	126.21
(c) Grazing/ Community Land (ha.)	131.79
(d) Surface Water Bodies (ha.)	48.23
(e) Settlements (ha.)	44.97
(f) Industrial (ha.)	0
(g) Forest (ha.)	349.71
(h) Mangroves (ha.)	0
(i) Marine Area (ha.)	0
(j) Others (ha.): Others	497.13
Total (ha.)	2580.45

22	Land requirement for various activities
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FORM 2- APPLICATION FOR PRIOR ENVIRONMENTAL CLEARANCE

S. No.	Description of Activity / Facility / Plant / Others	Others	Land Requirement (ha.)	Remarks
(1.)	Quarry Area		1546.32	--
(2.)	OB Dump Area		386.08	
(3.)	Others	Embankment, Residential area, R&R site etc.	318.30	
(4.)	Safety Zone		18.59	
(5.)	Built Up Area		311.16	
	Total (ha.)		2580.45	

23	23.	<u>Ecological and Environmental Sensitivity (Within 10 Km): - WLS-Wild Life Species; NPA-Notified Protected Area; ESAs-Eco Sensitive Areas; ESZs-Eco Sensitive Zones:</u>					
	23.1.	Details of Ecological Sensitivity:					
		S. No.	Details of Ecological Sensitivity	Name	Distance from the Project (Km)	Remarks	
	(1.)	Critically Polluted Area	NA	0	NA		
	(2.)	WLS	NA	0	NA		
	(3.)	NPA	NA	0	NA		
	(4.)	Corridors	NA	0	NA		
	(5.)	Wildlife Corridors	NA	0	NA		
	(6.)	ESAs	NA	0	NA		
	(7.)	ESZs	NA	0	NA		
	23.2.	Details of Environmental Sensitivity:					
		S. No.	Details of Environmental Sensitivity	Other Details of Environmental Sensitivity	Name	Distance from the Project (Km)	Remarks
(1.)	Forest		Garjanpahar RF	0	Adjacent to the Project		
(2.)	Defense Installations		NA	0	NA		
(3.)	Others	NA	NA	0	NA		
(4.)	Archaeological Sites		NA	0	NA		
	23.3.	(a) Whether NoC / Permission from the competent authority is required?	No				
		(b) Whether NBWL recommendation is required?	No				

24	Forest Land: Whether any Forest Land involved? (a) Forests Clearance Status (b) Legal Status of Forest Land	Yes Under Process (Stage-I) MoEF File no. FP/OR/MIN/32796/2018, Area-349.709 ha Revenue
25	Tree Cutting: (a) No. of Trees Cut for the Project (if Forest Land not Involved) (b) Details of Tree Cutting and Planting of Trees	0 Not Applicable
26	Land Acquisition Status: (a) Acquired Land (Ha) (b) Land yet to be acquired (Ha) (c) Status of Land acquisition if not acquired	2290.45 0 0
27	Rehabilitation and Resettlement (R&R): (a) No. of Villages (b) No. of Households (c) No. of PDFs (Project Displaced Families) (d) No. of PAFs (Project Affected Families) (e) Funds Allocated for R&R (in INR) (in Lacs) (f) Status of R&R	6 2342 2342 2427 68053 In-Progress
28	Details of Presence of Schedule-I Species: (a) Whether there is Presence of Schedule-I Species? (b) Whether conservation plan for Schedule-I Species has been prepared (c) Whether conservation plan for Schedule-I Species has been approved by competent authority?	No No No
29	Details of Presence of Water Bodies in Core Area:	

FORM 2- APPLICATION FOR PRIOR ENVIRONMENTAL CLEARANCE

	(a)Whether there is Presence of Water Bodies in Core Area?	Yes														
	(i)Details of Water Bodies in Core Area	Chattarjhor Nalla														
	(b) Whether there is Diversion Required?	No														
	(i)Details of Diversion Required	Straightening is required.														
	(ii)Details of Study Conducted	NA														
	(c)Whether permission has been obtained from competent authority?	No														
30	Details of Presence of Water Bodies in Buffer Area: (a)Whether there is Presence of Water Bodies in Buffer Area?	Yes														
	(i)Details of Water Bodies in Buffer Area	Basundhara River														
	(ii) Direction of Water Bodies in Buffer Area	North														
	(iii)Distance of Water Bodies in Buffer Area	0.05 Km														
31	Manpower Requirement: (a)Permanent Employment-During Construction	2995														
	(b)Permanent Employment-During Operation	778														
	(c)Temporary Employment- During Construction	0														
	(d)Temporary Employment- During Operation	0														
	(e)No. of working days	330														
	(f)Total Manpower	3773														
32	Green Belt in Ha: (a)Total Area of Green Belt	580.99														
	(b)Percentage of Total Project Area	25.37														
	(c)No. of Plants to be Planted.	1450675														
	(d)Funds Allocated for Plantation	601555000														
	(e)Uploaded Green Belt plan	Copy of Green Belt Plan (Annexure I)														
33	<table border="1"> <tr> <th colspan="3">33. Project Benefits</th> </tr> <tr> <th>S. No.</th> <th>Type of Project Benefits</th> <th>Details of Project Benefits</th> </tr> <tr> <td>(1.)</td> <td>Social</td> <td>Improvement in Physical & Social infrastructure like roads, school building, provision of drinking water, community hall, plantation etc. Increase in employment potential & improvement in electrical power generation in rural areas. Overall economic growth of the country.</td> </tr> <tr> <td>(2.)</td> <td>Financial</td> <td>Contribution to the Exchequer (both State & Central Govt).</td> </tr> </table>		33. Project Benefits			S. No.	Type of Project Benefits	Details of Project Benefits	(1.)	Social	Improvement in Physical & Social infrastructure like roads, school building, provision of drinking water, community hall, plantation etc. Increase in employment potential & improvement in electrical power generation in rural areas. Overall economic growth of the country.	(2.)	Financial	Contribution to the Exchequer (both State & Central Govt).		
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34	CRZ Specific Details: Not Applicable															
35	Sector Specific Details for Coal Mining															
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(1.)	Coal	Major														
2	Mine Capacity in ROM (Run of Mine)	50 MTPA														
3	Uploaded 500 meters Cluster Certificate from State Mines and Geology in case of minor minerals	Not Applicable														
4	<table border="1"> <tr> <th colspan="2">Mining Plan:</th> </tr> <tr> <td>(a)Approval Letter No.</td> <td>MCL/SBP/CS/BD-198/Exct/2018/198</td> </tr> <tr> <td>(b)Date of Approval</td> <td>05 Feb 2018</td> </tr> <tr> <td>(c)Approved Letter</td> <td>Copy of Approved Letter (Annexure J)</td> </tr> <tr> <td>(d)Approved by State Mining and Geology Department</td> <td>MCL Board</td> </tr> <tr> <td>(e)Approved Mining Lease Area</td> <td>2290.45</td> </tr> <tr> <td>(f)Approved Capacity</td> <td>50</td> </tr> </table>	Mining Plan:		(a)Approval Letter No.	MCL/SBP/CS/BD-198/Exct/2018/198	(b)Date of Approval	05 Feb 2018	(c)Approved Letter	Copy of Approved Letter (Annexure J)	(d)Approved by State Mining and Geology Department	MCL Board	(e)Approved Mining Lease Area	2290.45	(f)Approved Capacity	50	
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6	<p>Details of Beneficiations:</p> <p>(a) Whether it is proposed to install beneficiation plant/Coal washery within the mining lease area</p> <p>(b) Whether it is proposed to install crusher within the mining lease area</p>	<p>No</p> <p>No</p>																																					
7	<p>Details of Seams:</p> <p>(a)Whether details of seam applicable</p> <p>(b)No. of seams</p> <p>(c)Thickness of seams to be worked on</p> <p>(d)Maximum Thickness of Seams (meters)</p>	<table border="1"> <tr><td>Yes</td></tr> <tr><td>16</td></tr> <tr><td>11.28</td></tr> <tr><td>27</td></tr> </table>	Yes	16	11.28	27																																	
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8	<p>Details of Mining Lease:</p> <p>(a)Mining Lease Area (in Hectare)</p> <p>(b)Whether obtained Letter of Intent (LOI) from the state government?</p> <p>(i)Reason thereof</p> <p>(c)Whether Lease Deed Executed?</p> <p>(i)Reason thereof</p> <p>(d)Whether Lease Deed Renewed?</p> <p>(i)Reason thereof</p>	<table border="1"> <tr><td>2290.45</td></tr> <tr><td>No</td></tr> <tr><td>Acquired under CBA (A&D) act 1957</td></tr> <tr><td>No</td></tr> <tr><td>Acquired under CBA (A&D) act 1957</td></tr> <tr><td>No</td></tr> <tr><td>Acquired under CBA (A&D) act 1957</td></tr> </table>	2290.45	No	Acquired under CBA (A&D) act 1957	No	Acquired under CBA (A&D) act 1957	No	Acquired under CBA (A&D) act 1957																														
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11	<p>Details of Final Mine Void:</p> <p>(a) Area (in Hectare)</p> <p>(b) Depth (in meter)</p> <p>(c)Volume (in Million Cubic meter)</p>	<table border="1"> <tr><td>549.69</td></tr> <tr><td>155</td></tr> <tr><td>828</td></tr> </table>	549.69	155	828																																		
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FORM 2- APPLICATION FOR PRIOR ENVIRONMENTAL CLEARANCE

(6.)	OTHERS(Specify)	OTHERS	207.131	290.0	497.131
(7.)	AGRICULTURE LAND		1382.408	0	1382.408
TOTAL			2290.45	290.0	2580.45

15. Details of Land Usage (Post-Mining)						
LAND USE	Other LAND USE	Plantation (ha)	Water Body (ha)	Public Use (ha)	Undisturbed (ha)	Total
GREEN BELT		93.00	0	0	193.93	286.93
EXTERNAL OB DUMPS		386.08	0	0	0	386.08
EXCAVATION/QUARRY		409.99	549.69	586.64	0	1546.32
TOPSOIL STORAGE		0	0	0	0	0
Other	Embankment	18.0	0	10.3	0	28.3
BUILT UP AREA (COLONY/OFFICE)		60.0	0	272.82	0	332.82
VIRGIN AREA		0	0	0	0	0
INTERNAL OB DUMPS		0	0	0	0	0
ROADS		0	0	0	0	0
TOTAL		967.07	549.69	869.76	193.93	2580.45

16	Details of Reclamation: Total Afforestation Plan shall be Implemented Covering of Mining. This will Include:	
	(a) External OB Dump (in hectare)	386.08
	(b) Internal Dump (in hectare)	409.99
	(c) Quarry (in hectare)	1546.32
	(d) Safety Zone (in hectare)	18.59
	(e) Final Void of 549.69 (hectare) at a Depth of 155 meter which is Proposed to be Converted into a Water Body.	549.69
	(f) Density of Tree Plantation per ha (in no.)	2500
	(g) Others in ha (such as Excavation Area along ML Boundary, along Roads and Infrastructure, Embankment Area and in Township Located Outside the Lease etc.	152.41
	(h) Total afforestation plant (in hectare)	967.07

17	Status of progressive Mining Closure Plan: Details Not Applicable
-----------	--

18. Details of Actual Coal/ ORE Production vis-a-vis Sanctioned Capacity since the Inception:						
S. No.	Financial Year	Sanctioned Capacity as per EC (MTPA)	Sanctioned Capacity as per CTO	Sanctioned Capacity as per approved mining plan	Actual Production	Excess Production Beyond the EC / CTO/ Mining Plan Sanctioned Capacity (MTPA)
(1.)	2019	0	0	50	0	0
(2.)	2020	0	0	50	0	0
(3.)	2021	0	0	50	0	0

36	Details of Court Cases: (a) Whether there is any Court Cases pending against the project and/or land in which the project is proposed to be set up?	No
37	Details of Direction Issued under Environment (Protection) Act / Air (Prevention & Control of Pollution) Act / Water (Prevention & Control of Pollution) Act: (a) Whether any Direction issued under EPA Act/Air Act/Water Act?	No

38	Details of EIA Consultant: (a) Have you hired Consultant for preparing document?	Yes
	(i) Accreditation No.	NABET/EIA/1720/RA 0092
	(ii) Name of the EIA Consultant	Central Mine Planning and Design Institute
	(iii) Address	Gondwana Palace, Kanke Road, Ranchi, Jharkhand
	(iv) Mobile No.	8987788797
	(v) Landline No.	0651223005
	(vi) Email Id	gmenv.cmpdi@coalindia.in
	(vii) Category of Accreditation	A
	(viii) Sector of Accreditation	Coal Mining
	(ix) Validity of Accreditation	14 Feb 2022
	(x) Uploaded Certificate of Accreditation certified by QCI/NABET	Copy of Certificate of Accreditation (Annexure K)

FORM 2- APPLICATION FOR PRIOR ENVIRONMENTAL CLEARANCE

39	(a) Uploaded Copy of EIA/EMP Report	Copy of EIA/EMP Copy of EIA/EMP (Annexures) Copy of EIA/EMP(Plans/Figures)	(Annexure L)	
	(b) Uploaded Copy of Risk Assessment Report	Copy of Risk Assessment (Annexure M)		
	(c) Uploaded Copy of Feasibility Report/ Detailed Project Report (DPR) /Detailed Engineering Report /Detailed Conceptual Plan /Approved Mining Plan	Copy of Feasibility Report/ Detailed Project Report (DPR) /Detailed Engineering Report/Detailed Conceptual Plan /Approved Mining Plan (Annexure N)		
	(d) Uploaded Copy of Final Layout Plan	Copy of Final Layout Plan (Annexure O)		
	(e) Uploaded Cover Letter	Copy of Cover Letter (Annexure P)		
	(f) Uploaded Copy of documents in support of the competence/authority of the person making this application. to make application on behalf of the User Agency	Copy of documents in support of the competence/authority of the person making this application to make application on behalf of the User Agency (Annexure Q)		
	(g) Uploaded Additional File			
	Additional Detail Sought:			
	Sno.	ADS Letter	Remarks	Date of ADS
	1.	NA	<i>The EAC, after deliberations and especially in view of the project site in Ib Valley (having CEPI score 66.35) covered under the said orders of NGT, preferred not to take the proposal forward for the present, but to seek advice of the Ministry for appropriate course of action in such cases. The Committee also opined that in case, such proposals are to be considered on merits, environmental conditions and other stringent measures would have to be investigated comprehensively in complete perspective and in consultation with</i>	23 Sep 2019
	2.	ADS Letter Annexure R	The reply to the Additional Details Sought (ADS) by the Member Secretary on 23/09/2019 is hereby attached.	10 Jul 2020
<p>I hereby give undertaking that the data and information given in the application and enclosures are true to be best of my knowledge and belief. And I am aware that if any part of the data and information found to be false or misleading at any stage, the project will be rejected and clearance given, if any to the project will be revoked at our risk and cost. In addition to above, I hereby give undertaking that no activity/ construction/ expansion has since been taken up.</p>				
	Name of Applicant Designation Name of Company (Applicant Name should not be given here) Address		A.K. Singh Project Officer, Mahanadi coalfields Limited Basundhara-Garjanbahal Area, MCL	

2.9 PROPOSED PRODUCTION SCHEDULE, OB REMOVAL & BACKFILLING

Table 2.16: Calendar Programme

Year	COAL (in Mt)			OB (in M.cum)			Stripping Ratio (in cum/t)
	Q1	Q2	TOTAL	Q1	Q2	TOTAL	
1	1.50		1.50	3.73		3.73	2.49
2	4.00		4.00	4.78		4.78	1.20
3	7.00		7.00	4.78		4.78	0.68
4	10.00		10.00	12.03		12.03	1.20
5	15.00		15.00	23.87		23.87	1.59
6	22.00		22.00	26.92		26.92	1.22
7	30.00		30.00	37.22		37.22	1.24
8	40.00		40.00	49.67		49.67	1.24
9	50.00		50.00	60.00		60.00	1.20
10	50.00		50.00	66.56		66.56	1.33
11	50.00		50.00	66.56		66.56	1.33
12	50.00		50.00	66.56		66.56	1.33
13	50.00		50.00	65.59		65.59	1.31
14	50.00		50.00	65.59		65.59	1.31
15	50.00		50.00	66.56		66.56	1.33
16	50.00		50.00	72.03		72.03	1.44
17	50.00		50.00	77.50		77.50	1.55
18	50.00		50.00	77.74		77.74	1.55
19	50.00		50.00	77.74		77.74	1.55
20	50.00		50.00	76.90	2.45	79.35	1.59
21	49.00	1.00	50.00	49.55	2.21	51.76	1.04
22	46.00	4.00	50.00	44.08	7.68	51.76	1.04
23	42.00	8.00	50.00	40.51	18.05	58.56	1.17
24	18.26	31.74	50.00	11.09	45.65	56.74	1.13
25		50.00	50.00	0.00	89.60	89.60	1.79
26		50.00	50.00	0.00	89.16	89.16	1.78
27		50.00	50.00	0.00	94.62	94.62	1.89
28		50.00	50.00	0.00	94.94	94.94	1.90
29		50.00	50.00	0.00	89.45	89.45	1.79
30		50.00	50.00		93.31	93.31	1.87
31		50.00	50.00		93.29	93.29	1.87
32		50.00	50.00		93.30	93.30	1.87
33		50.00	50.00		87.08	87.08	1.74
34		50.00	50.00		70.15	70.15	1.40
35		50.00	50.00		67.95	67.95	1.36
36		30.00	30.00		43.15	43.15	1.44
37		20.00	20.00		35.26	35.26	1.76
38		18.32	18.32		4.83	4.83	0.26
TOTAL	884.76	663.06	1547.82	1147.56	1122.13	2269.69	1.47

Q1: Quarry 1 (Eastern Quarry)
 Q2: Quarry 2 (Western Quarry)

DUMPING DETAILS:

Table 2.17: Dumping details

Particulars	Quantity (in Mcum)	Top reduced level (in m)
Backfilling in own quarry	2007.79	350
Backfilling in Basundhara West OCP	77.18	310
External dump	184.72	
External dump 1	89.25	390
External dump 2	93.96	380
Embankment	1.51	

Table 10.3: Stage-wise Land use and reclamation Plan

(Area in Ha)

Sl. No.	Land use category	1 st year	5 th year	10 th year	15 th year	25 th year	30 th year	34-38 th year	Total
1	Backfilled area (Reclaimed with Plantation)	0.00	0.00	0.00	80.00	174.00	55.00	100.99	409.99
1(a)	Backfilled area (Reclaimed with grass carpeting)	586.64 ↔							586.64
2	Excavated area (not reclaimed)/ void	549.69 ↔							549.69
3	External OB dump (Reclaimed with grass carpeting)*	0.00	0.00	192.00	20.00	18.00	70.00	86.08	386.08
4	Reclaimed Top Soil dump	← Concurrently Reclaimed in Backfilled & External Dump Area →							0.00
5	Green Belt area (Safety zone)	24.00	46.50	22.50	0.00	0.00	0.00	0.00	93.00
6	Undisturbed area (Brought under Plantation) (Rationalisation of project boundary)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	Roads (Avenue Plantation)	6.00	6.00	6.00	0.00	0.00	0.00	0.00	18.00
8	Area around buildings (R&R site and Residential Colony) and Infrastructure	20.00	20.00	20.00	0.00	0.00	0.00	0.00	60.00
	Total	50.00	72.50	240.50	100.00	192.00	125.00	1323.4	2103.4

At the time of closure 239.05 Ha land will remain as undisturbed builtup area within Mine lease and 238.0 Ha outside lease area.

Table 10.4: Stagewise Cumulative plantation

Year	Green Belt		External Dump		Backfilled		Others (Undisturbed area)		Total		
	Area in Ha	No. of Trees	Area in Ha	No. of Trees	Area in Ha	No. of Trees	Area in Ha	No. of Trees	Area in Ha	No. of Trees	
1	24.0	60,000	---		---		26.00	64400	50	1,24,400	
3	24.0	60,000	---		---		13.00	32200	37	92,200	
5	22.5	56,250	---		---		13.00	32200	35.5	88,450	
10	22.5	56,250	386.08*		Grass carpeting will be done		---	26.00	64400	48.5	1,20,650
15	---			80.00		200000	---	80.00	200000		
20	---			100.00		250000	---	100.00	250000		
25	---			74.00		185000	---	74.00	185000		
30	---			55.00		137500	---	55.00	137500		
34	---			55.00		137500	---	55.00	137500		
35-38	---			45.99		114975	---	45.99	114975		
Total	93.0			2,32,500		386.08	---	409.99	1024975	78	193200

*External OB dump area 386.08 Ha not included in cumulative plantation.

F. No. 34011/28/2019-CPAM
Government of India
Ministry of Coal

Shastri Bhawan, New Delhi
Dated, the 29th May 2020

Office Memorandum

Subject: Guidelines for Preparation, Formulation, Submission, Processing, Scrutiny, Approval and Revision of Mining plan for the coal and lignite blocks.

Undersigned is directed to state that the guidelines for formulation of Mining plan and Mine Closure Plan has been amended. It has been decided by the Government that all coal (including lignite) mining operations in India shall henceforth be governed as per modified guidelines enumerated below.

1. **Mining Plan:** All coal (including Lignite) mining operation in India shall henceforth be governed as per these modified guidelines listed below and henceforth, the Mine Closure Plan and Final Mine Closure Plan shall be integral part of Mining Plan. Separate approval of Mine Closure Plan/ Final Closure Plan has been done away with. The Guideline/format for formulation of Mining plan is enumerated at **Appendix – I**.
- 1.1. **Implementation of the approved Mining Plans shall be sole responsibility of the mine owner.** Mining operations shall be undertaken in accordance with the duly approved mining plan. The mining plan once approved shall be valid for the balance life of the Mine, provided that any modification(s) of the mining plan is approved by the competent authority and such approval of the modified mining plan shall remain valid for the estimate balance life of the mining plan. Modification of the approved mining plan during the operation of a mining lease also requires prior approval.
- 1.2. The mining plan shall cover prescription for different phases of life of the mine as stage plan. The Stage plan for 1st year, 3rd year, 5th year, year of achieving rated capacity of the mine, Final year (i.e. at the end of mine life) and post closure shall be submitted at the time of initial submission of mining plan. The project proponent shall submit a **report/information** consisting **a.** compliance status with respect to approval condition of mining plan and grounds specified at para 1.3A; **b.** stage plan for next five years; **c.** revised balance life of the mine; and **d.** revised calculation of ESCROW amount with respect to revised balance life, to Coal Controller, CCO, Kolkata with a copy of the same to Administrative Section dealing with the allocation/allotment of the block and section dealing with approval of mining plan at MoC/CCO, **for information**. Such report/information must be submitted at least 180(one hundred eighty) days before the expiry of 5 (five) year, starting from the commencement of the Mineral Concession (Amendment) Rules, 2020 or the date of execution of the duly executed mining lease deed, whichever is later. Information desired above must bear certificate of **Qualified Person/ Accredited Mining Plan preparing Agency** and have approval of the respective company board. Non submission of such information during the stipulated time may result in withdrawal of mine opening permission or cancellation of the approved mining plan, as may be decided by CCO.

The Mining Plan approved prior to issue of this Guideline will qualify for submission of such report/information at least 180(one hundred eighty) days prior to expiry of 5 (five) year from the date of notification of the Mineral Concession Amendment Rules 2020.
- 1.3.(A) The mining plan may be modified for **a.** for change in method of mining; **b.** for facilitating increase in sanctioned peak capacity that is in excess of one hundred and fifty per cent of the

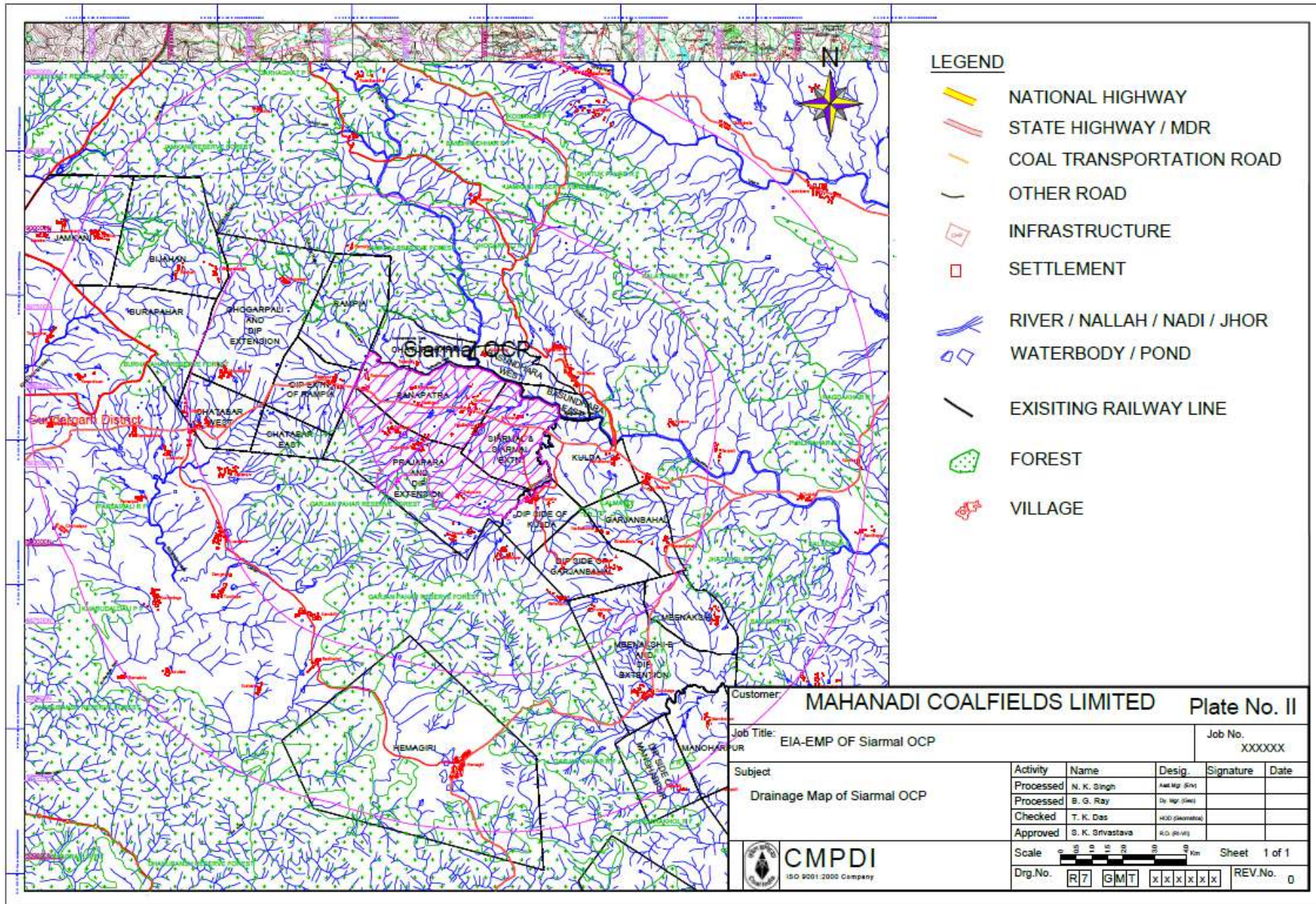


Figure 4.1: Water balance flowchart on peak demand of Siarmal OCP

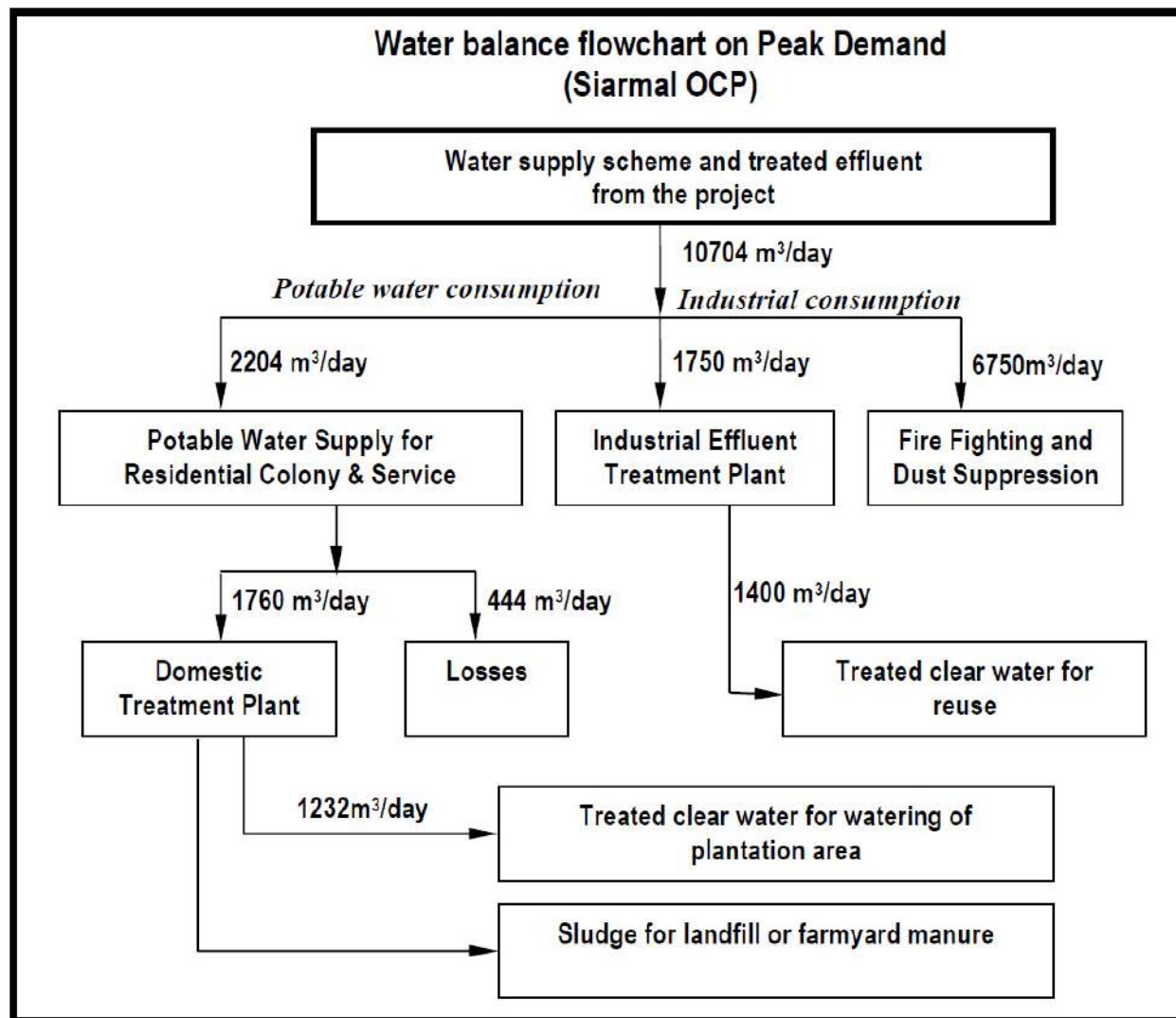
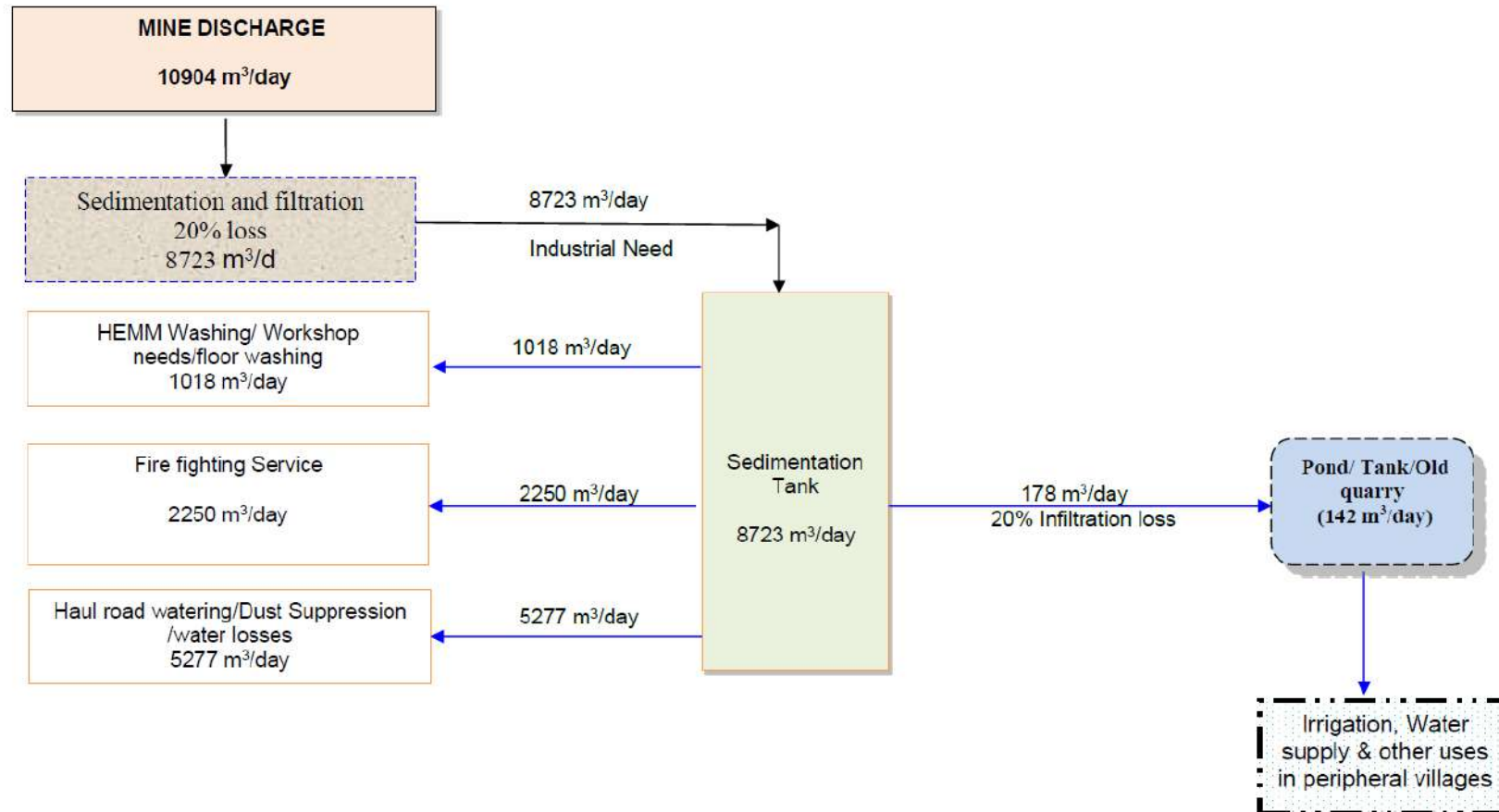


Figure 4.4: Water usage diagram of Siarmal OCP

(All Values are in m³ / day)





भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन, नदी विकास
और गंगा संरक्षण विभाग
केन्द्रीय भूमि जल प्राधिकरण
Government of India
Ministry of Jal Shakti
Department of Water Resources,
River Development & Ganga Rejuvenation
Central Ground Water Authority

(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र)
NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION

Project Name:	Siarmal Open Cast Project		
Project Address:	Basundhara Area, Mcl		
Village:	Siamal	Block:	Sundargarh
District:	Sundargarh	State:	Odisha
Pin Code:			
Communication Address:	O/o The General Manager, Mcl Basundhara Area, Hemgir, Sundargarh, Odisha - 770076		
Address of CGWB Regional Office :	Central Ground Water Board South Eastern Region, Bhujal Bhawan, Khandagiri Square, Nh-5, Bhubaneshwar, Khordha, Odisha - 750001		

1. NOC No.:	CGWA/NOC/MIN/ORIG/2020/9246										
2. Application No.:	21-4/2256/OR/MIN/2019			3. Category: (GWRE 2017)	Safe						
4. Project Status:	New Project			5. NOC Type:	New						
6. Valid from:	09/12/2020			7. Valid up to:	08/12/2022						
8. Ground Water Abstraction Permitted:											
	Fresh Water		Saline Water		Dewatering		Total				
	m ³ /day	m ³ /year	m ³ /day	m ³ /year	m ³ /day	m ³ /year	m ³ /day m ³ /year				
					2622.08	957059.20					
9. Details of ground water abstraction /Dewatering structures											
	Total Existing No.:0					Total Proposed No.:2					
	DW	DCB	BW	TW	MP	DW	DCB	BW	TW	MP	
Dewatering Structure*	0	0	0	0	0	0	0	0	0	2	
*DW- Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mine Pit											
10. Ground Water Abstraction/Restoration Charges paid (Rs.):								4785296.00			
11. Number of Piezometers(Observation wells) to be constructed/ monitored & Monitoring mechanism.	No. of Piezometers					Monitoring Mechanism					
						Manual	DWLR**	DWLR With Telemetry			
**DWLR - Digital Water Level Recorder	2					0	1	1			

(Compliance Conditions given overleaf)

This is an auto generated document & need not to be signed.

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011

Phone: (011) 23383561 Fax: 23382051, 23386743

Website: cgwa-noc.gov.in

पानी बचाये - जीवन बचाये
SAVE WATER - SAVE LIFE

Validity of this NOC shall be subject to compliance of the following conditions:

Mandatory conditions:

- 1) Installation of digital water flow meter (conforming to BIS/ IS standards) having telemetry system in the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate through the web-portal.
- 2) Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year.
- 3) Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines . Water level data shall be made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II.
- 4) Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analysed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.
- 5) In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.
- 6) In case of mining project the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL accredited lab.
- 7) The firm shall report compliance of the NOC conditions online in the website (www.cgwa-noc.gov.in) within one year from the date of issue of this NOC.
- 8) The firm shall submit the water audit report in case of water requirement is in excess of 100 m3/day through certified auditors within three months of completion of the same to CGWA.
- 9) Application for renewal can be submitted online from 90 days before the expiry of NOC. Ground water withdrawal, if any, after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act, 1986.
- 10) This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure/discharge of effluents or any such matter as applicable.

General conditions:

- 11) No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).
- 12) The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).
- 13) Proponents shall install roof top rain water harvesting in the premise as per the existing building bye laws in the premise.
- 14) The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereupon.
- 15) In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the firm.
- 16) Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated waste water.
- 17) Wherever the NOC is for abstraction of saline water and the existing wells (s) is /are yielding fresh water, the same shall be sealed and new tubewell(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.
- 18) Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.
- 19) In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 16 of Guidelines.
- 20) This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.
- 21) The issue of this NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and take decisions independently of the NOC.
- 22) In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.
- 23) This NOC is being issued without any prejudice to the directions of the Hon'ble NGT/court orders in cases related to ground water or any other related matters.
- 24) In case, Impact Assessment Report is required as per criteria mentioned in the guidelines , the firm shall submit it in the prescribed format before 31st December 2020 (applicable for Semi-Critical and Critical Category) failing which this NOC will be treated as cancelled/invalid and Penalty/EC shall be imposed as per the guidelines.
- 25) In case, Hydro geological report is required as per criteria mentioned in the guidelines, the firm shall submit it in the prescribed format 31st December 2020 (In case of Mining) failing which this NOC will be treated as cancelled/invalid and Penalty/EC shall be imposed as per the guidelines.

(Non-compliance of the conditions mentioned above is likely to result in the cancellation of NOC and legal action against the proponent.)



ବନଖଣ୍ଡ ଅଧିକାରୀଙ୍କ କାର୍ଯ୍ୟାଳୟ ସୁନ୍ଦରଗଡ଼ : ସୁନ୍ଦରଗଡ଼ ବନଖଣ୍ଡ

OFFICE OF THE DIVISIONAL FOREST OFFICER, SUNDARGARH FOREST DIVISION.
(Phone-06622-272243, FAX-06622-274987, email- dfosngdvn@yahoo.co.in)

No. 864 /4F (Misc)/2020 Dated: - 23 /02/2021.

To

The General Manager,
Mahalaxmi Area, MCL

Sub:-

Clarification regarding no presence of schedule-I species in the project area and Buffer zone of Siarmal OCP and distance from Wildlife/National Sanctuary .


Ref:-

Letter No. 727 dt. 16.09.2020 of GM, Mahalaxmi Area ,MCL .

Sir

With reference to the letter cited above, as per copy of summary record of the Expert Appraisal Committee (EAC) for Environmental Appraisal of Coal Mining project constituted under the EIA notification, 2006, and issue raised in the meeting held on 17-18 August, 2020 vide (Agenda No. 1.2.4, item No. 8), this is to inform you that there is no presence of Schedule I species in the project area and buffer zone of Siarmal OCP, Mahalaxmi Area of M/s Mahanadi Coalfields Limited and the distance from nearest National Park is about 178 km from the project area.

Yours faithfully


Divisional Forest Officer,
Sundargarh Forest Division.

OFFICE OF THE TAHASILDAR, LEPHRIPARA, DIST-SUNDARGARH

(Revenue & Disaster Management Deptt., Govt. Of Odisha)

E-mail: tah.lephri-od@nic.in, Phone No.06621-284529

Letter No. 756

Date: 23.3.21

To

The Project Officer,
Siarmal OCP
At/Po-Basundhara, Dist-Sundargarh
(Odisha), PIN-770076

Sub:- Information regarding quantum of Grazing land (Gochar Kissam) Plot wise
in respect of Villages Chattenpalli and Badkhalia.

Ref:- Your Letter No. MCL/GM/MLA/2020-21/37 Dt:08/03/2021

Sir,

With reference to the letter on the subject cited above, I to enclose herewith the list of plots having Grazing Land (Gochar Kissam)of village Chattenpalli and Badkhalia Village for your information and necessary action.

Yours Faithfully

TAHASILDAR
LEFRIPADA

TAHSILDAR
LEPHRIPARA

LAND SCHEDULE

Gochar Land(Grazing Land)

VIII-CHHATENPALI

DISTRICT SUNDARGARH
TAHASIL LEPHRIPARA
MOUZA CHHATENPALI

SL NO.	KHATA NO.	PLOT NO.	TYPE OF LAND	AREA(In Acre.)
1	137	390	GOCHAR	0.45
2	137	526	GOCHAR	0.11
3	137	528	GOCHAR	0.35
4	137	529	GOCHAR	0.10
5	137	533	GOCHAR	0.09
6	137	118	GOCHAR	2.01
7	137	129	GOCHAR	0.04
8	137	158	GOCHAR	0.15
9	137	159	GOCHAR	0.17
10	137	160	GOCHAR	1.47
11	137	161	GOCHAR	0.25
12	137	162	GOCHAR	13.57
13	137	217	GOCHAR	0.72
14	137	220	GOCHAR	0.06
15	137	258	GOCHAR	0.41
16	137	259	GOCHAR	0.05
17	137	260	GOCHAR	0.25
18	137	261	GOCHAR	0.04
19	137	268	GOCHAR	0.55
20	137	270	GOCHAR	0.21
21	137	272	GOCHAR	0.13
22	137	273	GOCHAR	5.40
23	137	274	GOCHAR	0.50
24	137	275	GOCHAR	0.87
25	137	276	GOCHAR	2.44
26	137	277	GOCHAR	2.93
27	137	1160	GOCHAR	0.72
28	137	158/1275	GOCHAR	0.13
29	137	158/1276	GOCHAR	0.12
30	137	204/1313	GOCHAR	0.67
31	137	258/1198	GOCHAR	2.97
32	137	153/1222	GOCHAR	0.03
33	137	265/1230	GOCHAR	0.23
34	137	1156/1370	GOCHAR	1.62

TOTAL

39.81


TAHSILDAR
LEPHRIPARA

LAND SCHEDULE

Gochar Land(Grazing Land)

Vill-BADKHALIA

DISTRICT
TAHASIL
MOUZA

SUNDARGARH
HEMGIR
BADKHALIA

SL NO.	KHATA NO.	PLOT NO.	TYPE OF LAND	AREA(in Acre)
1	113	107	Gochar	0.35
2	113	108	Gochar	0.46
3	113	109	Gochar	0.06
4	113	111	Gochar	0.20
5	113	112	Gochar	0.71
6	113	286	Gochar	0.46
7	113	287	Gochar	23.08
8	113	297	Gochar	28.52
9	113	300	Gochar	0.06
10	113	302	Gochar	0.07
11	113	303	Gochar	0.10
12	113	318	Gochar	0.14
13	113	319	Gochar	0.65
14	113	320	Gochar	0.11
TOTAL				54.97



TAHSILDAR
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OFFICE OF THE TAHASILDAR, HEMGIR

ଓଡ଼ିଶା କାର୍ଯ୍ୟାଳୟ, ହେମଗିର

At/PO- Hemgir, District- Sundargarh (Odisha), PIN- 770013
e-Mail ID: tah.hemgiri-od@nic.in

Letter No. 490 /

Date 16.03.2021

To

The Project Officer,
Siarmal OCP
At/PO- Basundhara, Dist- Sundargarh
(Odisha), PIN- 770076


Sub:- Information regarding quantum of Grazing land (Gochar Kisam) Plot wise in respect of village Sarangijharia, Sundargarh.

Ref:- Your Letter No.MCL/GM/MLA/2020-21/38 Dated 08.03.2021

Sir,

With reference to the letter on the subject cited above, I to enclose herewith the list of Plots having Gochar Kisam (Grazing Land) of Village Sarangijharia for your information and necessary action.

Yours faithfully


16/3/21
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List of Plots having Gochar kisam (Grazing Land) of Vill- Sarangijharia

Khata No	Plot No	Kissam	Area in(Acre)
27	185	Gochar	0.14
27	186	Gochar	0.14
27	210	Gochar	0.08
27	214	Gochar	0.08
27	217	Gochar	0.22
27	229	Gochar	0.06
27	230	Gochar	0.24
27	231	Gochar	0.13
27	232	Gochar	0.016
27	233	Gochar	2.62
27	234	Gochar	0.06
27	236	Gochar	0.06
27	253	Gochar	0.72
27	254	Gochar	2.14
27	255	Gochar	0.18
27	256	Gochar	0.11
27	257	Gochar	1.75
27	258	Gochar	0.7
27	259	Gochar	0.7
27	260	Gochar	2.6
27	264	Gochar	0.9
27	265	Gochar	7.06
27	266	Gochar	0.15
27	267	Gochar	0.02
27	268	Gochar	0.06
27	269	Gochar	0.1
27	270	Gochar	0.33
27	271	Gochar	0.11
27	272	Gochar	0.26
27	273	Gochar	0.6
27	274	Gochar	0.23
27	275	Gochar	1.66
27	282	Gochar	0.38
27	285	Gochar	3.74
27	286	Gochar	0.07
27	287	Gochar	0.18
27	290	Gochar	0.25
27	324	Gochar	1.7
27	327	Gochar	0.27
27	376	Gochar	0.2
27	379	Gochar	0.09
27	383	Gochar	0.28
27	384	Gochar	0.02
27	385	Gochar	0.13
27	390	Gochar	0.14
27	393	Gochar	0.68
27	394	Gochar	0.16
27	395	Gochar	0.06
27	396	Gochar	3.84
27	397	Gochar	0.34
27	398	Gochar	1.24
27	399	Gochar	0.23
27	400	Gochar	18.97
27	387/725	Gochar	0.16
Total			57.356



 16/3/21
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Carrying Capacity Study Report

The carrying capacity study report in respect of Siarmal OCP (50 Mty) of MCL, is attached as link provided below. The whole report could not be compressed well below 10 MB for which the other documents shown discrepancy. Hence, it is kindly requested to view and download the report from the link below:

<https://drive.google.com/file/d/11KzjrcenhxWwsyX5UT9FrYunow5LEj5a/view?usp=sharing>

Submitted for kind consideration.

Table-3.20

SURFACE WATER QUALITY DATA

Project/OCP	Siarmal			
NAME OF STATIONS	Gadwar pond	Tikaripara Pond	Telendih Nallah	Basundhara Nallah
Date of sampling	11/1/2018	11/1/2018	11/1/2018	11/1/2018
pH	7.12	7.67	7.19	7.20
Dissolved Oxygen(mg/L)	5.2	5.7	5.0	5.1
BOD (3 days 27°C)(mg/L)	<2	<2	<2	<2
Colour (Hazen unit)	<5	<5	10	<5
Total dissolved solids (mg/L)	124	140	84	107
TSS (mg/L)	14.1	20.3	17.4	11.6
Total Hardness(mg/L)	88	132	40	92
Copper(mg/L)	<0.05	<0.05	<0.05	<0.05
Iron(mg/L)	0.42	0.30	0.19	0.27
Chlorides(mg/L)	14	16	10	20
Sulphate(mg/L)	12.7	8.60	6.24	5.20
Nitrate(mg/L)	1.40	3.60	2.10	1.74
Fluoride(mg/L)	0.18	0.85	0.12	0.17
Cadmium(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005
Selenium(mg/L)	<0.01	<0.01	<0.01	<0.01
Arsenic(mg/L)	<0.1	<0.1	<0.1	<0.1
Lead(mg/L)	<0.008	<0.008	<0.008	<0.008
Zinc(mg/L)	0.08	0.11	0.09	0.13
Hexavalent Chromium(mg/L)	<0.04	<0.04	<0.04	<0.04
Oil & Grease	<0.1	<0.1	<0.1	<0.1