


Amod G-19 Ext. Lignite Mine, Lignite Project-Rajpardi
Environmental Clearance issued by Ministry of Environment and Forest
Compliance for the period of April -2019 to September- 2019

Environment Clearance Letter no. MoEFCC No. J-11015/405/2005- I.A.II (M) dated 14th July 2006.


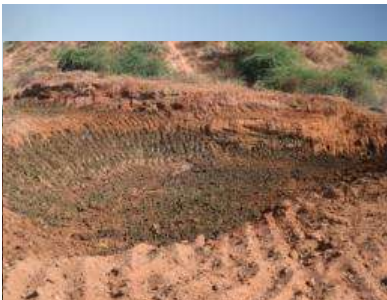

Sr. No.	E.C. Conditions	Compliance																				
A	Specific conditions																					
i	All the NOC condition shall be strictly implemented.	<u>Complied.</u> Compliance report of NOC conditions obtained vide letter no. GPCB/NOC-2312 (CCA-139(2)/9354 dated 31st March 2005 (copy enclosed) is attached herewith as Annexure-I.																				
ii	No mining of associated major minerals such as silica sand shall be under taken without prior EC as per laid down procedure.	<u>Complied.</u> No mining of associated major minerals such as silica sand is carried out. But silica sand coming out as OB during lignite mining is stacked separately. In case of mining / sale, prior EC as per laid down procedure shall be taken.																				
iii	Top soil should be stacked properly with proper slope at earmarked site(s) and should not be kept active and shall be used for reclamation and development of greenbelt.	<p><u>Complied.</u> Top soil scrapped out during mining processes is stacked properly in an earmarked area.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Sl. No.</th> <th style="text-align: center;">Location</th> <th style="text-align: center;">Storage Area (in Ha)</th> <th style="text-align: center;">Volume (in Lac m³)</th> <th style="text-align: center;">Slope</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>Western side of present mine pit (TS-1)</td> <td style="text-align: center;">1.97</td> <td style="text-align: center;">1.48</td> <td style="text-align: center;">24^o</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Near Time office/ Workshop campus (TS-2)</td> <td style="text-align: center;">11.30</td> <td style="text-align: center;">18.75</td> <td style="text-align: center;">25^o</td> </tr> <tr> <td colspan="2" style="text-align: center;">Total</td> <td style="text-align: center;">13.27</td> <td style="text-align: center;">20.23</td> <td></td> </tr> </tbody> </table> <p>In addition to the above stacked volume .0.94 Lac Cu.Mt. of top soil was removed during mining activities and it is used for Physical reclamation of 6.94 Hac area and plantation was done over this area. Photographs of top soil stack is shown below:</p> <div style="text-align: center;">  </div>	Sl. No.	Location	Storage Area (in Ha)	Volume (in Lac m ³)	Slope	1	Western side of present mine pit (TS-1)	1.97	1.48	24 ^o	2	Near Time office/ Workshop campus (TS-2)	11.30	18.75	25 ^o	Total		13.27	20.23	
Sl. No.	Location	Storage Area (in Ha)	Volume (in Lac m ³)	Slope																		
1	Western side of present mine pit (TS-1)	1.97	1.48	24 ^o																		
2	Near Time office/ Workshop campus (TS-2)	11.30	18.75	25 ^o																		
Total		13.27	20.23																			

<p>iv</p>	<p>OB should be stacked at the earmarked external OB dumpsite(s) within ML area and shall be a maximum height of 30 m only consists of benches of 10 m each. The ultimate slope of the dump shall not exceed 28°. Backfill shall begin at the end of 3rd year in the de-coaled area. Monitoring and management of existing reclaimed dumpsites should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the ministry of Environment and Forests and its regional office located at Bhopal on yearly basis.</p>	<p><u>Complied.</u></p> <p>OB has been stacked at the earmarked places and there are 2 external dumps in the present scenario, the details of which is furnished below:</p> <table border="1" data-bbox="603 353 1315 479"> <thead> <tr> <th>Sl No</th> <th>Dump</th> <th>Height</th> <th>Slope</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>South- Eastern side Dump-1</td> <td>26</td> <td>25°</td> </tr> <tr> <td>2</td> <td>Western side Dump-2</td> <td>16</td> <td>25°</td> </tr> </tbody> </table> <p>Dump height does not exceed 30 m & slope of dump does not exceed 28° as shown in table above. So far, non receipt of show cause notice from DGMS reveals compliance to the norms.</p> <p>Bench Height has been maintained within 10 meter height but due to nature of OB, continuous efforts are required to maintain the benches. So far, non receipt of show cause notice from DGMS reveals compliance to the norms.</p> <p>Backfilling has started in April 2013. 11.44 Ha of OB dump has been reclaimed and has become self-sustainable.</p> <p>Monitoring and management of existing reclaimed dumpsites is being continued until the vegetation becomes self-sustaining.</p> <p>Compliance status is submitted to the ministry of Environment and Forests and its regional office located at Bhopal on half-yearly basis</p>	Sl No	Dump	Height	Slope	1	South- Eastern side Dump-1	26	25°	2	Western side Dump-2	16	25°
Sl No	Dump	Height	Slope											
1	South- Eastern side Dump-1	26	25°											
2	Western side Dump-2	16	25°											
<p>v</p>	<p>Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The water so collected should be utilized for watering the mine area, roads, greenbelt development, etc. The drain should be regularly desilted and maintained properly.</p> <p>Garland drains (size,</p>	<p><u>Complied.</u></p> <p>Garland drains, catch drains and siltation pond have been constructed to arrest silt and sediment flows from soil, OB and mineral dumps & the water so collected is utilized for watering the mine area, roads, green belt development, etc. The rest of the water flows into the nearby nallah where it is used for irrigation purposes. De-silting and maintenance of the siltation pond and existing drains is also carried out periodically.</p> <p>Garland drains (size, gradient, length) and sump capacity are designed keeping 50% safety margin over and above peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity also provides adequate retention period to allow proper settling of silt material.</p> <p>Size and gradient of the garland drains and siltation pond in the mine area is mentioned below:</p>												



<p>gradient, length) and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material.</p>	Sl. No.	Garland Drain	Length (m)	Breadth (m)	Depth (m)	Gradient	Remarks
	1	Garland Drain no.1	1500	3	15	1 in 200	
	2	Garland Drain no.2	1547	2.5	3	1 in 133	
	3	Garland Drain no.3	425	2.5	3	1 in 200	
	4	Siltation Pond 1	380	132	10	NA	S-W Corner of mine
	5	Siltation Pond 2	20	15	2	NA	N-W Corner of mine
	6	Siltation Pond 3	6285 M ²			NA	Eastern side of mine





Photographs are shown below:



<p>vi</p>	<p>Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and siltation should be based on the rainfall data.</p>	<p><u>Complied.</u></p> <p>Dimension of the retaining wall at the toe of the dumps to check run-off and siltation is based on the rainfall data. Retaining wall has been constructed all along the toe of the dump, the dimension of which is given below:</p> <table border="1" data-bbox="603 477 1536 674"> <thead> <tr> <th>Sl. No.</th> <th>Location of the Retention Wall</th> <th>Length (in m)</th> <th>Breadth (in m)</th> <th>Height (in m)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N-E side of present mine pit against toe of the dump</td> <td>200</td> <td>2</td> <td>3</td> </tr> </tbody> </table> 	Sl. No.	Location of the Retention Wall	Length (in m)	Breadth (in m)	Height (in m)	1	N-E side of present mine pit against toe of the dump	200	2	3
Sl. No.	Location of the Retention Wall	Length (in m)	Breadth (in m)	Height (in m)								
1	N-E side of present mine pit against toe of the dump	200	2	3								
<p>vii</p>	<p>Measures shall be undertaken to ensure that no OB from the mining operations outfalls into the seasonal nallah flowing within and adjoining the mine lease.</p>	<p><u>Complied.</u></p> <p>Following measures are undertaken to ensure that no OB from the mining operations outfalls into the seasonal nallah flowing within and adjoining the mine lease</p> <ol style="list-style-type: none"> 1) Garland drains (3 nos.) all along the toe of the dumps and Siltation Pond (3 nos.) (Refer point no v for details.) 2) Retaining wall at the toe of the Dump to arrest outfall of OB material. (Refer Point no vi for details.) <p>Photographs are shown below:</p> <div style="display: flex; justify-content: space-around;">   </div>										

viii	No mineral processing shall be undertaken without prior clearance/approval from MoEF.	Not Applicable. No mineral processing is carried out at mine. If proposed in future prior clearance/approval from MoEF&CC shall be undertaken.
ix	Drills should be wet operated.	<u>Point noted with esteem</u> No drilling operation is carried out in the present scenario as the mining is carried out using excavator and dumpers combination.
X	No blasting shall be carried out.	<u>Complied.</u> Strata in Amod G-19 Ext. Lignite Mine are soft and hence no blasting is carried out here as the mining is carried out using excavator and dumpers.

<p>xi</p>	<p>Area brought under afforestation shall include reclaimed external OB dumps (38 ha.), backfilled area, along ML boundary (10 ha.), along road (2 ha.) and non mineralized /vacant undisturbed land located within the lease by planting native species in consultation with DFO/ Agriculture Dept. The density of the trees should be around 2500 plants /ha.</p>	<p>Ongoing activity, under Progress.</p> <p>Plantation activity has been started from the year 2007 and it is progressing in phased manner every year in consultation with the local Forest Department. Amod G-19 Ext. Lignite Mine has carried out plantation in 19.89 Ha. area till Sept 2019 which includes:</p> <ol style="list-style-type: none"> 1) 3.44 Ha plantation on backfilled area, 2) 2.72 along road 3) 9.5 Ha along mining lease boundary 4) 1.76 Ha in undisturbed area. 5) 0.92 Ha Fruit bearing area. 6) 1.0 Ha Plantation opp.RBL Durga(JV) camp. 7) 0.55 Ha Plantation on road parapet. 8) No afforestation is being carried out in external dumps as OB dumping is a progressive activity and there is planning to use it in backfilling of the mine void. After exhaustion of the mining activity, the plantation shall be carried out in 38 ha OB dumps of specific height as per the condition. <p>The density of the trees is around 1896 plants/Ha. Total Plantation = 37705 Total Area (in Ha) =19.89 Photographs are shown below:</p> <div style="text-align: center;">   </div>
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<p>xii</p>	<p>A progressive Mine closure plan shall be implemented by reclamation of mine out quarry area which shall be backfilled and afforested by planting native plant species in consultation with the DFO/ Agriculture Department. The density of the trees should be around 2500 plants /ha.</p>	<p><u>Under Progress.</u></p> <p>Activities as per progressive Mine closure plan are Under Progress by reclamation of mined out area which is backfilled. Till September 2019, 11.44 Ha area has been backfilled and the activities going on are mentioned below:</p> <ol style="list-style-type: none"> 1) 3.44 Ha area has been reclaimed biologically with 8590 plants with a density of 2497 plants/Ha. 2) 8 Ha area has been backfilled up to the ground level with top soil layering .The process of grass development for green manuring has been started in 2 Ha backfilled area for the purpose of developing Agricultural land as per the approved Progressive Mine Closure Plan. <p>Photographs are shown below:</p> <div style="display: flex; flex-wrap: wrap; justify-content: space-around;">     </div>
<p>xiii</p>	<p>Conservation plan for avian fauna and for the protected animal species found in and around the project area shall be formulated, in consultation with the state Forest and wild life departments. A separate fund with</p>	<p><u>Under Progress.</u></p> <p>Conservation Plan for avian fauna and flora for the protected animal species found in and around the project area has already prepared and submitted to the Gujarat Forest Department vide letter no. GMDC/ENV/630/2018-19 dated January 28, 2019 for their comments / review and the copy of letter of submission of draft report in Gujarat State Forest Department is enclosed herewith.</p>

budget for capital and recurring costs shall be earmarked for its implementation and the progress reports shall be regularly submitted at least once a year to the Regional Office of this Ministry at Bhopal.



After the receipt of approval / comments from Gujarat State Forest Department, appropriate fund shall be allocated for the implementation of conservation plan, even though GMDC is already doing their best for the development of green belt, water harvesting, landscaping and prevention and control of pollution etc.

The progress reports, after the finalization of plan, will be regularly submitted to the Regional Office of this Ministry at Bhopal along with six monthly compliance report.

xiv The company shall put up artificial ground water recharge measures for augmentation of ground water resource in consultation with the local villagers. The project authorities should meet water requirement of nearby village in case the village(s) wells go dry due to dewatering of mine.

Complied. Presently there is no such problem of water table depletion recorded in this area. This area is a heavy rainfall receiving area. The average rainfall of last five years is approximately 1300mm. However, low lying areas within the mine lease area serve as water storage and recharge of water.

Further, fund of Rs 3.50 Lakh Rupees had been given to develop Bharuch Matariya Dam and deepening of 03 ponds has been undertaken in three villages for augmentation of ground water, the details are as below:

Details of Water Recharge Measures along with Expenditure


Sl. No.	Location	Work Description	Year of Completion	Expenditure (in Rs)
1	Bharuch	Fund provided for development of Bharuch Matariya Dam	2013	3,50,000
2	Bhuri Village	Construction of Dam of size 144*63*3 m ³	2017	3,10,128

3	Amod Village	Construction of Dam of size 33*17*2 m ³	2017	1,91,061
4	Bhimpor Village	Construction of Dam of size 55*50*2 m ³	2017	1,10,760
5	Near Adm office & Bhuri Village	Construction of 02 Nos of Borewell for Artificial Ground water Recharge	2019	6,45,000



GMDC has hereby agreed to cater water requirement of nearby village in case the village(s) wells go dry due to dewatering of mine. We have received one request from Bhuri village to provide ETP treated water for Agricultural purpose. After receiving the request we have got the water analysed in College of Agriculture, Bharuch and found fit for agricultural purpose. Afterwards we have supported the villagers by providing a pipeline upto the Bhuri Pond from where the villagers draw water as per their requirement for agricultural purpose. The photographs are given below:



		<p>GMDC has constructed 02 Nos of borewell for artificial ground water recharge purpose for augmentation of ground water resource in consultation with the local villagers.</p> 
<p>xv</p>	<p>The company shall obtain approval of CGWA/CGWB, Regional office for use of additional ground water if any, for mining operations.</p>	<p><u>Point noted with esteem.</u> No groundwater is being used for Mining operations as well as no additional ground water is required.</p> <p>As per the new public notice of CGWA, Amod G-19 Ext. Lignite Mine has applied for the CGWA NOC through online portal on 8th July 2017 with application number 21-4/2581/GJ/MIN/2017 for dewatering of mine pit water occur due to mining operation.</p> <p>A query through mail was received on 30th January 2019 from CGWA against which reply was furnished to them vide letter no. GMDC/JLP/2573/18-19 dated 13th February 2019.</p>



GUJARAT MINERAL DEVELOPMENT CORPORATION LTD
 [A Government of Gujarat Enterprise]
Lignite Project - Rajpardi-393115, Tal-Jhagadia, Dist-Bharuch
 Phone No-02645 -240185, Mail :rajpardi@gmdcltd.com

GMDC/JLP/ 2573 /18-19

Date: 13.02.19

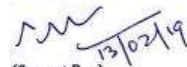
To
 The Regional Director
 Central Ground Water Board, West Central Region
 Swami Narayan College Building, Shah Alam Tolnaka
 Ahmedabad -38022, Gujarat

Sub: Reply of mail dated 30th January 2019 with reference to the application no. 21-4/2581/GJ/MIN/2017 filed for New NOC from CGWA.

Dear Sir

With reference to the above said subject, we had received a mail regarding submission of documents which are enclosed hereby with this letter for your reference and record please.
 Thanking you.

For GMDCLtd


 (Swagat Ray)

General Manager (P)
 Amod G-19 Ext. Lignite Mine, Rajpardi

Encl:

- 1) CC&A of Mines
- 2) Site Plan with location map
- 3) Flowchart showing water balance diagram
- 4) Certificate from Panchayat regarding non supply of water
- 5) Proposal of water harvesting well
- 6) Ground water quality report from NABL approved lab.
- 7) Authorization letter from firm
- 8) Industry Profile from GPCB
- 9) Water demand calculation.

Corporate Identity Number (CIN): L14100GJ1963SGC001206
 Corporate Office: GMDCLtd, "Khanij Bhavan", 132 Ft Ring Road, Near University Ground, Vastrapur, Ahmedabad-380052
 Phone No-079-27913501/3200

xvi Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and construction of new peizometers. The monitoring for quantity should be done four times a year in pre-monsoon (in May), monsoon

Complied.

Regular monitoring of ground water level is carried out departmentally through construction of Piezometer. The piezometer monitoring data are as under

Month	Water Level
May-19	37.44
Aug-19	37.33

The monitoring for assessing the quality of groundwater is carried out by the agency Go Green Mechanisms.

(August), Post monsoon (November) and winter (January) seasons and for quality in May. Data thus collected should be submitted to the MoEF & CPCB quarterly within one month of monitoring..

Report of May 2019 is shown in table below:

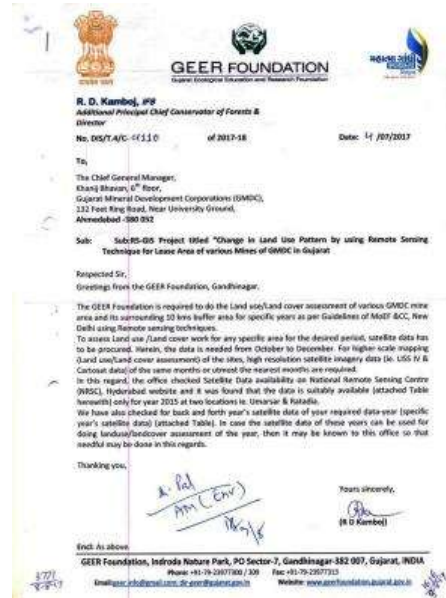
Sl. No.	Parameters	Permissible Limit	Unit	GW 6	GW 11A
1	pH	No Relaxation	-	7.28	7.35
2	TDS	2000	mg/l	422	386
3	Total hardness	600	mg/l	86	98
4	Calcium	200	mg/l	22.4	25.7
5	Magnesium	100	mg/l	7.29	8.3
6	Chloride	1000	mg/l	55	98
7	Sulphate	400	mg/l	49.2	72.3
8	Nitrate	No Relaxation	mg/l	2.6	0.65
9	Iron	No Relaxation	mg/l	1.1	1.73
10	Flouride	1.5	mg/l	0.94	0.91
11	Arsenic	0.05	mg/l	BQL (Q=0.01)	BQL (Q=0.01)
12	Cadmium	No Relaxation	mg/l	BQL (Q=0.4)	BQL (Q=0.4)
13	TSS	Not Specified	mg/l	BQL (QL=5)	BQL (QL=5)
14	Alkalinity	600	mg/l	52	25
15	Acidity	Not Specified	mg/l	28	18
16	Phosphorus	Not Specified	mg/l	0.82	0.69
17	Barium	No Relaxation	mg/l	BQL (Q=0.001)	BQL (Q=0.001)
18	Cobalt	Not Specified	mg/l	BQL (Q=0.001)	BQL (Q=0.001)
19	Nickel	No Relaxation	mg/l	BQL (Q=0.5)	BQL (Q=0.5)
20	Beryllium	Not Specified	mg/l	BQL (Q=0.001)	BQL (Q=0.001)
21	Chromium	No Relaxation	mg/l	BQL (Q=0.1)	BQL (Q=0.1)
22	Lead	No Relaxation	mg/l	BQL (Q=0.22)	BQL (Q=0.22)
23	Manganese	0.3	mg/l	BQL	BQL

						(Q=0.5)	(Q=0.5)	
		24	Mercury	No Relaxation	mg/l	BQL (Q=0.01)	BQL (Q=0.01)	
		25	Selenium	No Relaxation	mg/l	BQL (Q=0.001)	BQL (Q=0.001)	
		26	Zinc	15	mg/l	BQL (Q=0.2)	BQL (Q=0.2)	
xvii	Beside carrying out regular periodic health check up of their workers, 10% of the workers identified from workforce engaged in active mining operations shall be subjected to health check up for occupational disease and hearing impairment, if any through an agency such as NIOH, Ahmedabad within a period of one year and results reported to the Ministry and DGMS.	<p><u>Complied.</u></p> <p>Health check up of all the employees in accordance with the provision of Rule 29-B of Mines rules,1955 and recommendations of the 10th and 11th Conference on Safety in mines for Occupational diseases including hearing impairment is being carried out in every 3 years (for the employees above 45 years age) and 5 years interval (for the employees below 45 years age) by National Institute of Miners' Health (NIMH), Nagpur (An Autonomous Institute under Ministry of Mines, GoI)</p> <p>Following medical tests are being carried out:</p> <ol style="list-style-type: none"> 1) General Physical Examination 2) Height 3) Weight 4) Eyes (Visual acuity, Night Blindness, Colour Blindness, Squint, Any Organic disease) 5) Ears (Audimetry, Any Organic Disease, Hearing) 6)Respiratory System: (chest measurement and Spirometry test) 7)Circulatory System (Blood Pressure, Pulse, Cardiology assessment) 8)Abdomen (Tenderness, Liver, Spleen, Tumour, Other) 9)Nervous System (reflexes, peripheral Circulation,Vibrational syndromes etc) 10) Skiagram of chest (ILO classification of chest radiograph) 11)Hematological Test 9 Haemoglobin, TLC,DLC – Neutrophils, Lymphocytes, Monocytes, Eosinophils, Basophils, ESR, Platelets) 12)Report on Biochemistry (Blood Sugar, Blood Urea, Serum Creatinine, Total Cholesterol, Triglyceride, HDL, VLDL, LDL, Ratio CHOL/HDL) <p>Medical examination of 28 employees were carried out in the month of July 2019.</p> <p>Copies of medical reports are being submitted to DGMS in Form "O" (supporting copies enclosed) as per The Mines Rules 1955. Outcome of health reports is also being submitted in MOEFCC, Regional Office along with 6 monthly compliance reports.(Anneure -II)</p>						
xviii	Digital processing of the entire lease using remote sensing technique should be done (pre & during Mining Operation)	<p><u>Under Progress.</u></p> <p>Satellite imagery interpretation has been completed by Geer foundation, Gandhinagar (An autonomous body set up by Forest and Environment Department, Govt. of Gujarat) for the year 2006, 2009 and 2012 in November 2016 and their report was submitted to MoEF Regional office, Bhopal along with EC Compliance report vide No. GMDC/JLP/346/17-18</p>						

regularly once in 3 years for monitoring land use pattern and assess the impact of mining and restoration of land post closure and report submitted to MoEF Regional Office, Bhopal.

dated 18.05.2017.

Thereafter for the land use for the year 2015, GMDC again approached GEER Foundation Gandhinagar to do land use study as per requirement of EC but vide letter no. DIS/T.4/C-9110 Dated 04/07/2017 (copy enclosed), GEER Foundation states that all type of satellite data, essential for the study, for the desired period as well as desired years is not available with National Remote Sensing Centre, Hyderabad, therefore, project become delayed.



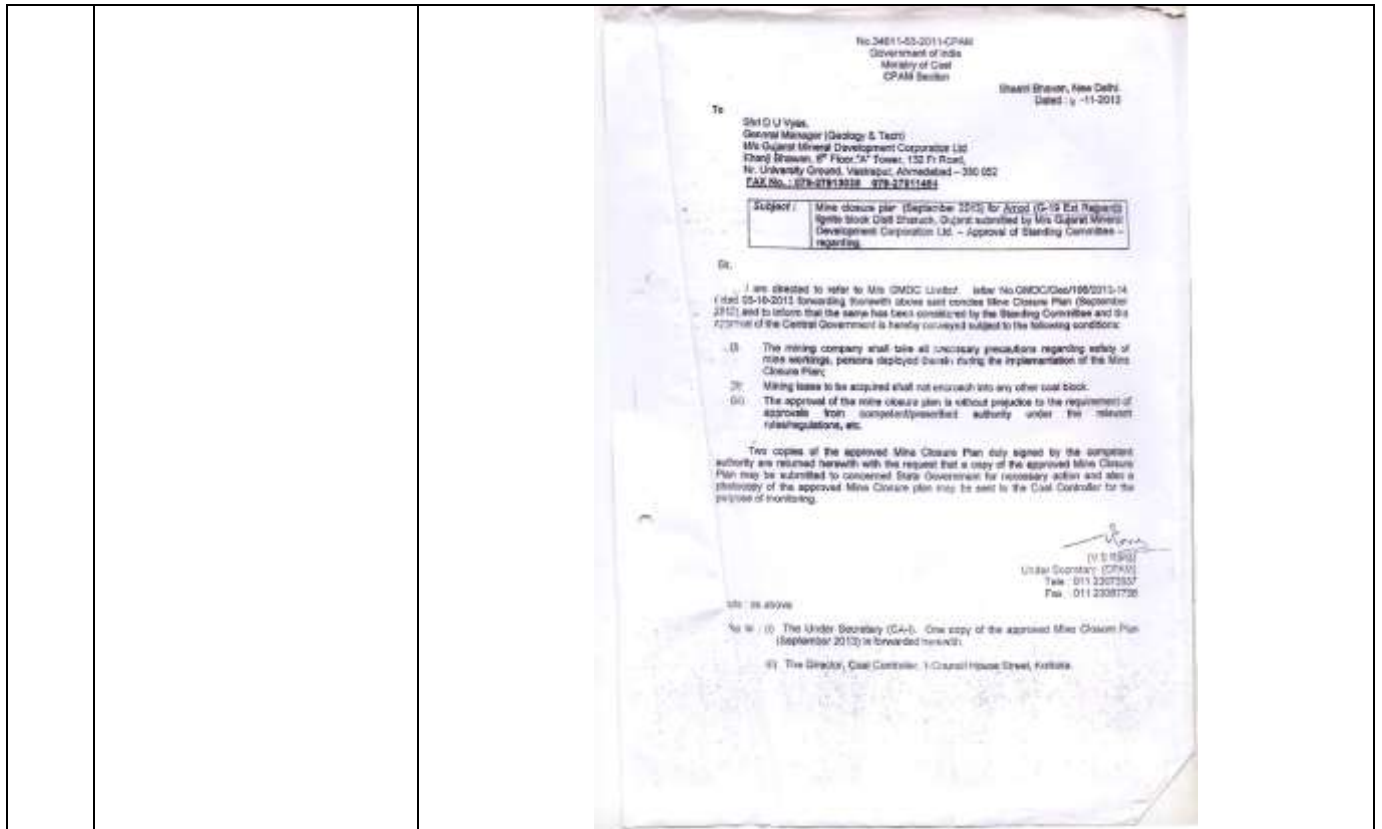
Details of Satellite data for Landuse/Land cover for GMDC's 6 sites:

Sr.no.	Site name	Required Year No. Landsat	Satellite Data Year					
			NC - Area Not Covered, N.A. - Data Not Available, A - Data Available					
1	Amod (Jajpardi)	2015	2011	2011	2011	2011	2011	2011
			Cartosat	Lisa-FV	Cartosat	Lisa-FV	Cartosat	Lisa-FV
2	Talikhetwar	2016	2015	2015	2015	2015	2015	2015
			Cartosat	Lisa-FV	Cartosat	Lisa-FV	Cartosat	Lisa-FV
3	Pataola	2015	2011	2011	2011	2011	2011	2011
			Cartosat	Lisa-FV	Cartosat	Lisa-FV	Cartosat	Lisa-FV
4	Mata no Madh	2010	2011	2011	2011	2011	2011	2011
			Cartosat	Lisa-FV	Cartosat	Lisa-FV	Cartosat	Lisa-FV
5	Bhovanagar	2007	2007	2007	2007	2007	2007	2007
			Cartosat	Lisa-FV	Cartosat	Lisa-FV	Cartosat	Lisa-FV
6	Unwar	2015	2011	2011	2011	2011	2011	2011
			Cartosat	Lisa-FV	Cartosat	Lisa-FV	Cartosat	Lisa-FV

GMDC has published an on line tender on its website to invite parties for Digital processing of the entire lease using remote sensing technique.

xix A final mine closure plan along with details of corpus fund should be submitted to the MoEF 5 years in advance of final mine closure for approval.

Point Noted with esteem . Progressive Mine Closure Plan for Amod G-19 Ext. Lignite Mine is approved in the September 2013. Approval letter is attached below:



The copy of above said letter is also submitted in MOEFCC Regional Office, Bhopal along with 6 monthly compliance report vide letter no. GMDC/JLP/2023/18-19 dated 17.10.2018.

xx	<p>Details of R&R package involving the village Amod Tarsali shall be prepared and implemented in consultation with the District Administration and Local Body, the package shall not be inferior to the national R&R Policy and of the State Government.</p>	<p>Details of R&R package involving the village Amod Tarsali had prepared and implemented in consultation with the District Administration and Local Body, the package was not inferior to the national R&R Policy and of the State Government. Detail of R & R is given as below:</p>
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Details of R& R related actions and Expenditue:

In total lease area of 384.9618 ha, Amod-Tarsali village was present over the lignite bearing area. The village had two settlements- one which was muslim dominated called as Tarsali and the other tribals staying at Vasahat area. On order to start mining, this village was to be displaced.

After due deliberation with the villagers and with their agreement and in coordination with the district authority, the displaces have been settled within the mine lease area on the non-lignite bearing area in the eastern part.

The implementation has been completed in May-June 2008. The salient features of the R&R scheme was as follows:

- 1) Project affected persons (PAPs): The scheme included the entire population who has been residing within the proposed mining lease area as per the Census Report of 2001.
- 2) Family: A family shall include husband, wife, minor children and any other person who is directly dependent on the head of the family e.g. widow-mother. Every major married son has been treated as separate family.
- 3) Agricultural land: The private revenue land, falling within the proposed mining lease area, whether belonging to the persons residing in the area or outside, needed acquisition.
- 4) Land allotment: GMDC has acquired land for rehabilitation within the mine lease itself and each PAP families have been allotted a plot admeasuring minimum 150 sq.m. for human settlement and another 150 sq.m. for their cattle.
- 5) School & anganwadi: In resettlement area, facility of a primary school and anganwadi has been provided as per the norms of education department.
- 6) Drinking water: GMDC is providing facility of drinking water through bore well, open well and pipeline from own borewell
- 7) Electricity: Corporation has provided electricity to resettlement site through transformer and poles in streets. Each family has obtained connection through meters.
- 8) Roads: GMDC has constructed CC approach road as well as internal streets at resettlement sites at its cost
- 9) Community hall: a community hall of approximate size with a plate from, electricity and water connections has been provided at resettlement site.
- 10) Panchayat Ghar: GMDC has constructed a Panchayat Ghar as per Govt. standard drawing & designs.
- 11) Religious places: GMDC has upgraded or constructed place of worship at the resettlement sites as per the religion of the resettled population.
- 12) Resettlement Grant: Resettlement grant as per the prevailing Govt. Rules has been paid to each PA family. The 50% of grant has been provided before resettlement & another 50% grant has been provided after resettlement.
- 13) Employment & self-employment: PAP's are getting employment and self employment from this project.

Expenditure incurred on rehabilitation and resettlement of Amod Villages is given in below Table:

S. NO.	DESCRIPTION	EXPENDITURE
AMOD VASAHAH REHABILITATION:		
1	House compensation	11,126,801
2	15%incentive	1,669,020
3	Tree compensation	664,872
4	Food	910,500
5	Barbed wire fencing at village Amod	192,519
6	CC Road	3,649,606
7	Power Supply	491,987
8	Community hall, Anganwadi, OH Tank / UG Tank	950,778
9	School building with compound wall	1,197,554
10	Water pipeline	300,000
11	Hawada	27,300
12	Temple	431,352

13	Shamskar Shades	45,440
14	Utensils	33,696
15	Gram Panchayat Chair / Reloving Chair, Tables, Books etc.	16,250
16	Tents	294,800
17	Plants	45,250
18	School Books	90,000
	SUB TOTAL - A	22,137,725

S. NO.	DESCRIPTION	EXPENDITURE
AMOD TARSALI REHABILITATION:		
1	House compensation	6,551,060
2	15%incentive	982,659
3	Tree compensation	191,290
4	Plot compensation	4,491,020
5	Plot compensation for each 21 year old	3,304,000
	SUB TOTAL - B	15,520,029
GRAND TOTAL		37,657,754

The impacts of the project in terms of the following have been positive:

- Better economic status of the community.
- Faster industrial development of the area.
- Higher inputs in the area towards infrastructural facilities provided for better access to markets, health care, education, communication etc.

The service sector has raised some employment of local people by ancillary activities like transportation of lignite and supply of consumer goods to the mine. The facilities created for the project benefits for the local population.

Mostly from each family of the core zone villages at least one member is working in the existing mine of GMDC. About 300 local people have been provided appointment in the mine as permanent employee. Corporation is providing drinking water in the villages Amod, Bhuri, Maljipura, Bhimpur, Gundecha regularly through water tankers. Children are given school bus facilities.

Regular help is extended in education and medical facilities by the Corporation. Corporation has also constructed water tanks and permanent cement concrete roads in the villages.

Maljipura and Amod villagers have been rehabilitated under a package covering alternate residential accommodation, schooling, electricity & water supply facilities by the Corporation. The employee's colony is located at about 6 km from the mine site having all the facilities like dispensary, club, water and power supply. Transport and communication facilities are also provided by the corporation.

xxi	Consent to operate shall be obtained before starting mining operations.	Complied. Consent to operate has been taken from GPCB and the first CCA was taken in the year 2008 vide No. 615 dated 17.07.2008 (Copy enclosed). Current Consent No. AWH-86174 is valid up to 16/05/2022 (Copy enclosed).
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		Annexure -III.																																												
B		General Conditions																																												
i	No change in mining technology and scope of working should be made without prior approval of the MoEF.	<u>Complied.</u> No change in mining technology and scope of work is done and if any such change is proposed in future shall be made after prior approval of the MoEF &CC.																																												
ii	No change in the calendar plan including excavation, quantum of mineral lignite and waste should be made.	<u>Complied.</u>																																												
		Year	OB Planning (Lac m³)	OB excavated (Lac m³) Up to Sept-2019	Lignite Planning (Lac MT)	Lignite Dispatch (MT) Up to Sept-19																																								
		2019-20	170.00	48.40	10.00	6.07																																								
iii	Four ambient air quality monitoring stations should be established in the core zone as well as in the buffer zone for SPM, RPM, SO ₂ and NO _x monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the SPCB.	<u>Complied.</u> Five ambient air quality monitoring stations have been established based on the meteorological data, topographical features and environmentally and ecologically sensitive targets which are given below: <ol style="list-style-type: none"> 1. Near ADM 2. Near Silica Weigh Bridge 3. Near Electrical Substation 4. Near Lignite Weigh Bridge 5. Near Guest House. <p>Third Party monitoring is carried out by Go Green Mechanisms Pvt. Ltd which is approved by MOEFCC (Certificate valid till 05.04.2022), NABL (Certificate valid till 08.12.2020) and GPCB (Certificate valid till 31.12.2019). Copy of six monthly EC Compliance is also submitted to Regional office, Ankleshwar- GPCB.</p> <p>Summary of results for last six months is as below :</p> <p>Station 1 (Near ADM)</p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Max</th> <th>Min</th> <th>Ave</th> <th>Prescribed Limit</th> </tr> </thead> <tbody> <tr> <td>PM 10</td> <td>73.6</td> <td>46.9</td> <td>60.3</td> <td>100</td> </tr> <tr> <td>PM2.5</td> <td>37.1</td> <td>25.1</td> <td>31.1</td> <td>60</td> </tr> <tr> <td>SO₂</td> <td>29.3</td> <td>14.2</td> <td>21.8</td> <td>80</td> </tr> <tr> <td>NO₂</td> <td>21.6</td> <td>10.2</td> <td>15.9</td> <td>80</td> </tr> <tr> <td>CO</td> <td>-</td> <td>-</td> <td>-</td> <td>2</td> </tr> </tbody> </table> <p>Station 2 (Near Silica Weigh -Bridge)</p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Max</th> <th>Min</th> <th>Ave</th> <th>Prescribed Limit</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					Parameter	Max	Min	Ave	Prescribed Limit	PM 10	73.6	46.9	60.3	100	PM2.5	37.1	25.1	31.1	60	SO ₂	29.3	14.2	21.8	80	NO ₂	21.6	10.2	15.9	80	CO	-	-	-	2	Parameter	Max	Min	Ave	Prescribed Limit					
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PM 10	80.4	40.4	60.4	100
PM2.5	41.1	18.3	29.7	60
SO ₂	39.4	13.2	26.3	80
NO ₂	24.2	10.3	17.3	80
CO	-	-	-	2

Station 3 (Near Electrical Substation)

Parameter	Max	Min	Ave	Prescribed Limit
PM 10	72.1	43.9	58.0	100
PM2.5	33.4	19.3	26.4	60
SO ₂	19.6	16.6	18.1	80
NO ₂	15.7	10.2	13.0	80
CO	-	-	-	2

Station 4 (Near Lignite Weigh Bridge)

Parameter	Max	Min	Ave	Prescribed Limit
PM 10	91.7	38.9	65.3	100
PM2.5	48.8	18.6	33.7	60
SO ₂	32.2	14.2	23.2	80
NO ₂	29.1	12.0	20.6	80
CO	-	-	-	2

Station 5 (Near Guest House)

Parameter	Max	Min	Ave	Prescribed Limit
PM 10	71.1	39.4	55.3	100
PM2.5	33.6	20.7	27.2	60
SO ₂	24.3	8.4	16.4	80
NO ₂	16.6	9.3	13.0	80
CO	-	-	-	2

This monitoring data is being submitted to all the regulatory bodies including MoEFCC, RO, Bhopal, GPCB and CPCB along with 6 monthly compliance reports. Copies of test reports **(Annexure -IV)** as analyzed by MOEFCC (Certificate valid till 05.04.2022), NABL (Certificate valid till 08.12.2020) and GPCB (Certificate valid till 31.12.2019) approved agency are enclosed herewith.**(Annexure -V)**

iv Fugitive dust emission (SPM and RSPM) from all the sources should be controlled, regularly monitored and data recorded properly. Water spraying arrangement on haul roads, wagon loading, and dump trucks (loading and unloading) points should be provided and properly maintained.

Complied.

Fugitive emission is monitored in the ambient environment in the form of ambient air quality as per NAAQS 2009.

Monthly monitoring of ambient air quality with respect to SPM and RSPM (As per NAAQS 2009, it is now PM10 and PM 2.5) is being carried out. Fugitive dust emission is controlled through water sprinkling which is carried out by:

1. Four Numbers of 20 KL capacity tankers
2. Fixed Sprinklers in Truck haul road
3. Rain gun in Lignite loading area.

Apart from sprinkling, green belt development all along the mining lease is also done in phased manner to control movement of fugitive dust. Photographs are shown below:



Five stations for ambient air quality monitoring has been established in the mine:

1. Near ADM
2. Near Silica Weigh Bridge
3. Near Electrical Substation
4. Near Lignite Weigh Bridge
5. Near Guest House.

Third Party monitoring is carried out by Go Green Mechanisms Pvt. Ltd. Summary of results for last six months is as below:

Station 1

Parameter	Max	Min	Ave	Permissible Limit
SPM	73.6	46.9	60.3	100
RSPM	37.1	25.1	31.1	60

Station 2

Parameter	Max	Min	Ave	Permissible Limit
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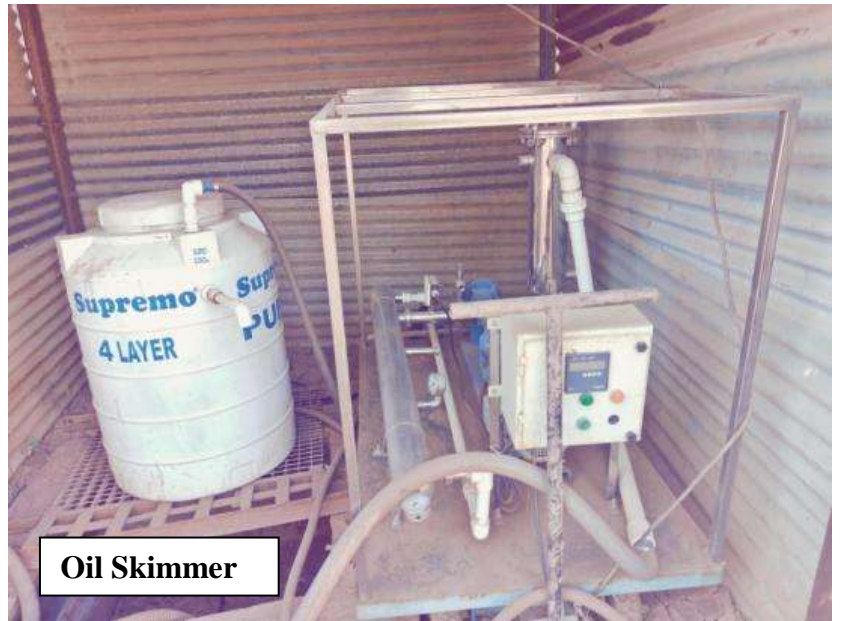
		SPM	80.4	40.4	60.4	100
		RSPM	41.1	18.3	29.7	60
		Station 3				
		Parameter	Max	Min	Ave	Permissible Limit
		SPM	72.1	43.9	58.0	100
		RSPM	33.4	19.3	26.4	60
		Station 4				
		Parameter	Max	Min	Ave	Permissible Limit
		SPM	91.7	38.9	65.3	100
		RSPM	48.8	18.6	33.7	60
		Station 5				
		Parameter	Max	Min	Ave	Permissible Limit
		SPM	71.1	39.4	55.3	100
		RSPM	33.6	20.7	27.2	60
		Further, respirable dust in workplace area is also being monitored for workers working in dust prone areas as per Coal Mines Regulation using personal dust sampler and the average values of same for the period from April 2019 to September 2019 are given as below:				
		Parameter/Month	Min Value mg/m³	Max Value mg/m³	Avg. mg/m³	Permissible Limit (mg/m³)
		Apr 2019				
		RSPM	0.80	1.09	0.95	2.0
		May 2019				
		RSPM	0.95	1.33	1.14	2.0
		June 2019				
		RSPM	1.33	1.75	1.54	2.0
		July 2019				
		RSPM	1.33	1.75	1.54	2.0
		Aug 2019				
		RSPM	1.04	1.13	1.09	2.0
		Sept 2019				
		RSPM	1.18	1.84	1.51	2.0
v	Data on ambient air quality (SPM, RPM, SO ₂)	Complied. Data on ambient air quality is submitted to MoEF&CC Bhopal, CPCB and				

	& NO _x) should be regularly submitted to Ministry including its Regional Office at Bhopal and to State Pollution Control Board and CPCB once in six months.	Regional Office of GPCB in every six months with the environmental compliance report. Last three submission reference and dates are as below : 1) GMDC/JLP/330/19-20 dated 23 th May 2019 2) GMDC/JLP/2023/18-19 dated 17 th October 2018 3) GMDC/JLP/408/18-19 dated 9 th June 2018																				
vi	Adequate measures should be taken for control of noise level below 85 dB(A) in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM etc. should be provided with ear plugs/ muffs.	<p><u>Complied.</u></p> <p>Preventive measures are taken to control the noise pollution below 85 dB(A) through regular maintenance of the vehicles, machineries etc. The mining operations do not include drilling and blasting in Amod G-19 Ext. Lignite Mine, Rajpardi.</p> <p>Apart from that:</p> <ul style="list-style-type: none"> • Ear plugs and ear muffs are provided to the employees engaged in mining operation. • The cabins of machineries are AC cabins which reduces the exposure of operators to the noise. • periodic maintenance of machineries is planned and carried out. • Periodic medical checkup of the employees is carried out by NIMH, Nagpur which includes audiometry. <p>Summary of noise measurement reports is as below and the copies of test reports for noise monitoring conducted by MOEFCC (Certificate valid till 05.04.2022), NABL (Certificate valid till 08.12.2020) and GPCB (Certificate valid till 31.12.2019) approved agency is enclosed herewith.</p> <table border="1"> <thead> <tr> <th>Location</th> <th>Max</th> <th>Min</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>Near ADM</td> <td>64.5</td> <td>58.7</td> <td rowspan="5">Noise level is well within the prescribed limit.</td> </tr> <tr> <td>Near Silica Weigh Bridge</td> <td>70.2</td> <td>64.9</td> </tr> <tr> <td>Near Electrical Substation</td> <td>65.3</td> <td>62.2</td> </tr> <tr> <td>Near Lignite Weigh-Bridge</td> <td>71.5</td> <td>60.1</td> </tr> <tr> <td>Near Guest House</td> <td>59.2</td> <td>55.1</td> </tr> </tbody> </table>	Location	Max	Min	Remarks	Near ADM	64.5	58.7	Noise level is well within the prescribed limit.	Near Silica Weigh Bridge	70.2	64.9	Near Electrical Substation	65.3	62.2	Near Lignite Weigh-Bridge	71.5	60.1	Near Guest House	59.2	55.1
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vii	Industrial waste water should be properly collected, treated so as to conform to the standards prescribed under GSR 422(E) or as amended from time to time before discharged. Oil and grease trap should be installed before discharged of work shop effluents.	<p><u>Complied.</u></p> <p>No industrial wastewater is generated. The seepage water generated during mining process is found acidic and neutralized in Primary Effluent Treatment Plant (PETP) and further used in sprinkling purpose as well as irrigating plantation in the adjoining area.</p>																				





Primary Effluent Treatment Plant (PETP)

Oil skimmer has been installed at workshop and the water is reused for the purpose of vehicle washing. No effluent is discharged from workshop.



Oil Skimmer

Sewage Treatment Plant also has established and in operation for the treatment of domestic waste water.

		
<p>viii</p>	<p>Vehicular emissions should be kept under control and regularly monitored. Vehicle used for transporting the mineral should be covered with tarpaulins and optimally loaded.</p>	<p><u>Complied.</u> Vehicular emission is being controlled and monitored. Regular maintenance is being carried out and inspection of dumpers is carried out in every shift. PUC certificate is obtained for all the dumpers running in the mines premises. Trucks are covered with tarpaulin and optimally loaded as per RTO rules during transportation. Photographs of covered trucks are furnished below:</p> 
<p>ix</p>	<p>Environmental laboratory should be established with adequate number and type of pollution monitoring and analysis equipment in consultation with SPCB.</p>	<p><u>Complied.</u> Environmental Laboratory is established but the monitoring is carried out by external agency on monthly basis. Apart from that annual environment audit is also done by GPCB recognized auditors assigned by GPCB, Ankleshwar. Photographs of some of environment equipment are shown below:</p>



x Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.

Occupational health surveillance program of the workers should be taken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed.

Complied.
 PPEs are provided to the employees based on type of work processes they perform and it is ensured in Amod G-19 Ext. that they wear it also during the time of working. Year wise record is maintained for issuance of PPEs.

For the year 2018-19

Description	Safety Shoes	Helmet	Fluorescent Jacket	Goggles
Departmental Employees	358	100	130	50
Contractual Employees	450	90	75	-

In house training is being imparted to all workers in batches. We are having GVTC in Rajpardi which has its training module based on the guideline issued by DGMS for each category of employees working in the mines premises.

Occupational health checkup is done as per the rules and regulations of DGMS applicable to our mine workers and their health check up is being

doing as per mine rules as well as dust monitoring considering personal dust sampler is also being conducting.

Photographs of training, PPE use, health check are shown below:



xi A separate environmental management cell with suitable qualified personnel should be set up under the control of a senior executive.

Complied.

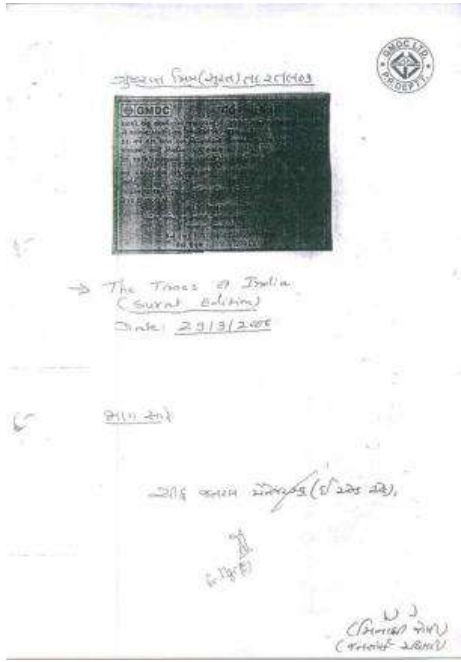
A well established environmental cell is active with suitable qualified candidates comprising Chemist and Assistant Manager directly reporting to General Manager (P) at the Project level. The department is headed by GM (Environment) at Corporate Office who is directly reporting to the Managing Director of the corporation.

Sl no	Name of the Person	Designation	Qualification	Experience
1	Shri Shailesh Jagani	DGM(safety)/ Environment I/C	B.E (Mining)	22 years
2	Shri Meghnad zala	Lab Asst	B.sc (Chemisty)	10 years

Both the above officers qualified and experienced in Environment are reporting the General Manager (Project) – Amod (G-19 Extension), who is having a vast experience in mining as per below:

		3	Shri Swagat Ray	GM (Project)	B.Tech from Institution of Engineers (India) in Mining Engineering	19 years																																										
xii	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to MOEF & its Regional Office.	<p><u>Complied.</u></p> <p>Amod G-19 Ext. Lignite Mine is concerned towards the environment and a sufficient budget is allocated for the implementation of best practices in the field of environment. The year wise expenditure is mentioned below in the tabular form:</p> <table border="1"> <thead> <tr> <th>Sl. No.</th> <th>Year</th> <th>Expenditure (in Rs)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>2006-07</td> <td>1,59,989</td> </tr> <tr> <td>2</td> <td>2007-08</td> <td>1,76,124</td> </tr> <tr> <td>3</td> <td>2008-09</td> <td>1,19,505</td> </tr> <tr> <td>4</td> <td>2009-10</td> <td>6,54,060</td> </tr> <tr> <td>5</td> <td>2010-11</td> <td>5,80,060</td> </tr> <tr> <td>6</td> <td>2011-12</td> <td>76,910</td> </tr> <tr> <td>7</td> <td>2012-13</td> <td>17,47,802</td> </tr> <tr> <td>8</td> <td>2013-14</td> <td>3,19,447</td> </tr> <tr> <td>9</td> <td>2014-15</td> <td>3,07,646</td> </tr> <tr> <td>10</td> <td>2015-16</td> <td>10,88,101</td> </tr> <tr> <td>11</td> <td>2016-17</td> <td>16,54,217</td> </tr> <tr> <td>12</td> <td>2017-18</td> <td>2,72,90,808</td> </tr> <tr> <td>13</td> <td>2018-19</td> <td>1,01,73,366</td> </tr> </tbody> </table> <p>Year wise expenditure details are submitted to MOEF & its Regional Office with six monthly EC compliance report.</p>					Sl. No.	Year	Expenditure (in Rs)	1	2006-07	1,59,989	2	2007-08	1,76,124	3	2008-09	1,19,505	4	2009-10	6,54,060	5	2010-11	5,80,060	6	2011-12	76,910	7	2012-13	17,47,802	8	2013-14	3,19,447	9	2014-15	3,07,646	10	2015-16	10,88,101	11	2016-17	16,54,217	12	2017-18	2,72,90,808	13	2018-19	1,01,73,366
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xiii	The Regional Office, Bhopal shall be monitoring compliance of the stipulated conditions.	<u>Noted for compliance.</u>																																														
xiv	A copy of EC will be marked to panchayat/ local NGO if any from whom any suggestion/ representation has been received while processing the proposal.	Copy of the EC was provided to the local Gram panchayat and no suggestion was received from any NGO.																																														

<p>xv</p>	<p>SPCB should display a copy of the clearance letter at the Regional Office, District Industry Centre and Collector's Office/ Tehsildar Office for 30 days.</p>	<p>This was being followed.</p>

<p>xvi</p>	<p>The Project authorities should advertise at least in two local newspapers widely circulated around the project, one of which shall be in vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and may also be seen at the website of the Ministry of environment & Forest at http://envfor.nic.in.</p>	<p><u>Complied.</u> It was published within seven days after the receipt of physical copy of EC at our office. One in vernacular language and the other in English. Published dt.28/09/06 Gujarat Mitra (Guj) And dt. 29/09/06 The Times of India (Eng.)</p> 
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Env (I/C)


General Manager (P)