

# Ambuja Cement

ACL/GP-IV/8/EC(Washery)/2022-23/1043

Date: 28.07.2022

To,  
Regional Office, Western Region  
Ministry of Environment, Forest & Climate Change  
Kendriya Paryavaran Bhawan, Link Road No. 3  
E-5, Ravi Shankar Nagar, Bhopal (M.P.)

Sub: Submission of six monthly EC Compliance Report for the period of January 2022 to June 2022 w.r.t. Gare Palma IV/8 Coal Mine of Ambuja Cements Limited \_ reg.

Ref: EC No. J-11015/76/2010-IA.II (M) dated: 10.06.2013

EC Transfer: J-11015/76/2010-IA.II (M) dated 01.04.2019

Dear Sir,

The MoEF&CC issued to Environmental Clearance for Pit head captive wet washery (1.8 MTPA in an area of 10.336 ha) located in Gare Palma IV/8 coal mine on 10.06.2013 in name of M/s Jaiswal Neco Ltd. (prior allottee). Later on Environmental Clearance was transferred to M/s Ambuja Cements Limited and further EC validity has been extended vide EC Extension J-11015/76/2010-IA.II (M) dated: 30.09.2020. The washery yet not established as the technology on the zero discharge to be freezed, which shall concluded based on the coal quality at the PRC level.


With reference to subject, enclosed herewith six monthly EC Compliance Report for the period of January 2022 to June 2022 w.r.t. Gare Palma IV/8 Coal Mine of Ambuja Cements Limited.

This is for your kind information please.

Thanking You

Yours Faithfully

For, Ambuja Cements Limited

  
**Sharanappa Kambalii**  
Authorized Signatory  
(Coal Block- Gare Palma IV/8)

**Encl:** Six monthly EC compliance report for pit head captive wet coal washery.

Copy To:

1. The Central Pollution Control Board, Paryavaran Parisar, E-5, Arera Colony, Bhopal, (M.P.).
2. The Scientist "C", Integrated Regional Office, MOEF&CC, Aranya Bhawan, North Block, Sector-19, Atal Nagar, Raipur (C.G.)
3. The Member Secretary, CECB, Sector-19, Atal Nagar Raipur (C.G.).
4. The Regional Office, CECB, TV Tower Road, Raigarh (C.G.)

## **AMBUJA CEMENTS LIMITED**

### **Gare Palma IV/8 Coal Mine**

**SITE OFFICE :** Village - Karwahi, Post. - Saraitola, Tahsil - Tamnar, Dist. - Raigarh (C.G.) 496 107

www.ambujacement.com, E-mail : unit-head-garepalma@ambujacement.com

**Regd. Off. :** PO. Ambujanagar, Taluka - Kodinar, Dist. Gir Somnath, Gujrat

CIN : L26942GJ1981PLC004717

**HALF – YEARLY  
ENVIRONMENT CLEARANCE COMPLIANCE REPORT**

**For the Period of  
January-2022 to June-2022**

**by**

**AMBUJA CEMENTS LTD.**

**Village- Khamaria and Karwahi, Tehsil- Ghardhoda,  
District- Raigarh, Chhattisgarh**

**W.R.T.**

**GARE PALMA IV/8 COAL BLOCK**

**EC J-11015/352/2006-IA.II(M) dated 22.12.2008**

**EC Corrigendum J-11015/352/2006-IA.II(M) dated 26.11.2010**

**EC Transfer J-11015/352/2006-IA.II(M) dated 10.06.2015**

**Six Monthly Compliance Report for Gare Palma IV/8 Coal Mine at Village-Khamaria and Karwahi, P.O- Tanmar, Dist.- Raigarh (C.G.)**  
**[Period-Jan 2022 to June 2022]**

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**1.0 INTRODUCTION**

Ministry of Coal, Govt. of India through Nominated Authority conducted 2<sup>nd</sup> phase of e-auction of coal blocks during February, 2015 in which Ambuja Cements Limited (ACL) emerged as a successful bidder for Gare Palma IV/8 Coal Block with an extractable reserves of 45.85 MT & approved Mixed (Both underground & opencast) Mine plan capacity of 1.2 MTPA was listed under schedule III of the Coal Mines (Special Provision) Act, 2015 earmarked for un-regulated sector. Subsequently Coal Mine Development & production agreement was signed between ACL and Nominated Authority on 16<sup>th</sup> March, 2015 followed by issuance of Vesting Order by Nominated Authority on 22<sup>nd</sup> April, 2015 & corrigendum no. 1 to the vesting order with co-ordinate dated 14<sup>th</sup> December, 2015. The mining lease execution and registration of the lease agreement has been completed for an area of 474.703 Ha on 31<sup>st</sup> December, 2015. We have got the **Bhu Prabesh** on 06/06/2018.

The development operations has been started in the open cast coal mine Gare Palma IV/8 (Scheduled coal production capacity 0.70 MTPA from opencast) since 2<sup>nd</sup> April, 2018, it has been intimated to the CECB – Naya Raipur vide our letter no. ACL/GP-IV\*8/Coal Mine/CTO-Develop/CECB/Raipur/01, Date: 27/03/2018. We have obtained the Consent To Operate for Coal Production vide letter no. **5670/TS/CECB/2018** dated on 15/10/ 2018 from Chhattisgarh Environment Conservation Board. We have started the Coal Production from **22nd Oct' 2018**.

Chhattisgarh Environment Conservation Board vide letter no. **8380/TS-CECB/2020** dated 29/12/2020 granted us Mining of Coal (by underground method) 0.50 MTPA.

Environmental Monitoring for proposed mine lease area is being performed regularly. This summarized half-yearly report presents the current environmental status in and around the proposed mine lease area regarding Ambient Air Quality, Noise Level monitoring, Fugitive Emissions, Wastewater and Dust Fall measurement. Detailed observations and respective interpretations for the period from January 2022 – June, 2022 have been explained in the report.

*Rac*

**Six Monthly Compliance Report for Gare Palma IV/8 Coal Mine at Village-  
Khamaria and Karwahi, P.O- Tanmar, Dist.- Raigarh (C.G.)**  
[Period-Jan 2022 to June 2022]

**2.0 POINT WISE COMPLIANCE REPORT FOR THE ENVIRONMENT CLEARANCE  
CONDITION**

**2.1 Transfer of EC in name of ACL vide letter no 11015/352/2006-IA -II(M) dated 10<sup>th</sup> June, 2015**

S. No	Conditions	Remarks
1.	Any change in scope of work will attract the provisions of Environment Act (EPA),1986 and Environment Impact Assessment Notification,2006 in conjunction with the subsequent amendments/circulars.	Agreed.
2.	All conditions stipulated in the EC letter no J-11015/352/2006/-IA.II(M) dated 22 <sup>nd</sup> June'2008 & corrigendum issued to EC dated 26 <sup>th</sup> November 2010 shall remain unchanged.	Agreed. Conditions and compliance status outline below.
3.	The successful bidder shall be liable, if any, for any act of violation of the EPA/1986 /EIA Notification 2006 subsequent amendments and circulars which it has inherited during the transfer.	Agreed.
4.	Successful bidder shall be liable for compliance of all court directions if any.	Agreed.

**2.2 Environment Clearance from MoEF No. J -11015/352/2006/-IA.II(M) dated 22<sup>nd</sup> December'2008**

**A. SPECIFIC CONDITIONS:**

S. No.	Conditions	Remarks
1.	No Mining operations shall be undertaken in the forestland until clearance has been obtained under the provisions of FC Act, 1980.	Requisite forest final clearance has been obtained by MoEF&CC vide letter no. F.No.8-75-2007-FC dated 01.01.2013. Copy of final forest clearance enclosed as <b>Annexure-1.</b>
2.	Maximum production by opencast mining shall not exceed 0.7 MTPA and that by underground mining shall not exceed 0.5 MTPA. The maximum combined production at any given time shall not exceed 1.2 MTPA from both opencast and underground mining	Maximum production by open cast mining will be kept within 0.7 MTPA and under 0.5 MTPA. Production is being carried out as per Consent granted by Chhattisgarh Environment Conservation Board vide 9640/TS/CECB/2022 on 31.03.2022 and valid till 31.03.2025. Copy of valid CTO enclosed as <b>Annexure-2.</b>
3.	Mining shall be carried out as per statute at a safe distance from Kelo river and the rivulets and streams flowing within the lease boundary. At the time of depillaring, protective bunds and garland drains shall be provided so that no water from the surface enters the subsidence area and the shaft	The OB removal of opencast mine is being dumped within the lease boundary at safe distance about 2 km away from Kelo River. OB soil is being used in preparation of protective bunds also.

*Ros*  
Ravi Singh Jadaun  
Sr. Env. Officer

*Ambuja*

**Six Monthly Compliance Report for Gare Palma IV/8 Coal Mine at Village-Khamaria and Karwahi, P.O- Tanmar, Dist.- Raigarh (C.G.)**

**[Period-Jan 2022 to June 2022]**

S. No.	Conditions	Remarks
		No water from the surface enters OC mine as well as in the subsidence area and the shaft.
4.	While extracting panels in the lower seam, all water bodies in the subsidence area shall be drained. Dewatering of the old goaves of the upper seam shall be continued as long as the lower seam is worked to prevent accumulation of large water bodies over working area.	Depillaring shall be under taken after 5 years.
5.	Sufficient coal pillars shall be left unextracted around the airshaft (within the subsidence influence area) to protect from any damage from subsidence, if any.	Noted and Agreed.
6.	Solid barriers shall be left below the village, roads falling within the blocks to avoid any damage to the roads	Noted and Agreed.
7.	No depillaring operation shall be carried out below the roads and habitation area found within the lease	Agreed.
8.	Regular monitoring of subsidence movement on the surface over and around the working area and impact on natural drainage pattern, water bodies, vegetation, structure, roads, and surroundings should be continued till movement ceases completely. In case of observation of any high rate of subsidence movement, appropriate effective corrective measures should be taken to avoid loss of life and material. Cracks should be effectively plugged with ballast and clayey soil/suitable material.	Regular monitoring of subsidence movement on the surface over working area and impact water bodies / vegetation / structures / surrounding shall be done once the underground mining starts. It shall continue till the Movement ceases completely.
9.	Garland drains (size, gradient and length) around the safety areas such as mine shaft and low lying areas and sump capacity should be designed keeping 50% safety margin over an above the peak sudden rainfall and maximum discharge in the area adjoining the mine sites. Sump capacity should also be provided adequate retention period to allow proper settling of silt material.	Garland drain of 5550-m (length) X 2.15-m width 2.0-m depth is made around excavation of open cast area & OB dump to navigate catch the rain water & runoff water of the dump to 3 nos. settling pond/sedimentation pond of size 120 m X 90 m X 4.5 m, 30 m X 25 m X 2 m, & 35 m X 25 m X 4.5 m 20 m X 10 m X 4.5 m, combined capacity is 55,912m <sup>3</sup> . The capacity of settling pond is adequate to arrest silt and sediment flows from soil of OB Dump. The pond water is being used in plantation, dust suppression with water sprinkler of 4 nos. Tanker capacity 18 KL each. This water is also being used in mine operation.
10.	OB should be stacked at the area earmarked for external OB dump site within ML area. The maximum height of the dump is 60m with two benches of 30m each. The ultimate slope of the	OB is being stacked at the earmarked external OB dumpsite within ML area. Height is not more than 60 meter. All the slope of external dumps are being

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S. No.	Conditions	Remarks
	dump shall not exceed 28°. 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 & Forests and its Regional office located at Bhopal on a yearly basis. No external dumping of OB shall be undertaken after 10 <sup>th</sup> year of mining operation	maintained at a maximum of 28 degrees. The ultimate slope of dumps does not exceed 28 degree. Agreed, not to take up external OB dump after 10 <sup>th</sup> Year. IIT BHU was engaged for scientific study they have submitted the report & the recommendations are being implemented.
11.	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 utilised for watering the mine area, roads, green belt development, etc. The drains should be regularly desilted and maintained properly. Garland drains (size, gradient and length) and sump capacity should be designed keeping 50% safety margin over and above the 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.	The catch drains and de-silting chamber of appropriate size has been constructed to arrest silt and sediment flows from soil of OB dump and this water will be stored in rain water harvesting ponds.
12.	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.	Retaining wall of OB dump is made on the external perimeter of the Garland drain which is made to arrest the run of from dumps & surface run off from the mining area, soil dumps, waste dump etc. Garland drain with proper gradient & sumo has been constructed all along the periphery of the mine. Sedimentation pits have also been constructed.
13.	Crushers at the CHP should be operated with high efficiency bag filters/water sprinkling system should be provided to check fugitive emissions from crushing operations, conveyor system which shall be closed, haulage roads, transfer points, etc	Noted. So far CHP has not been constructed.
14.	Drills should be wet operated only	Wet Drilling and control blasting are being done as per DGMS approval.
15.	No coal washery shall be established within the ML without prior environmental clearance from the MOEF	Noted & Agreed. EC for coal washery has been transferred from prior allottee. We have for extension of validity of EC with the proposal no. <b>IA/CG/CMIN/153935/2020</b> on 22.05.2020 to MoEF&CC, New Delhi & obtained the same on 30.09.2020 with the validity for 3 years. Refer to <b>Annexure-3</b> .
16.	Controlled blasting should be practiced with use of delay detonators and only during daytime. The	Implemented. Control blasting is being done as per

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*[Signature]*



**Six Monthly Compliance Report for Gare Palma IV/8 Coal Mine at Village-Khamaria and Karwahi, P.O- Tanmar, Dist.- Raigarh (C.G.)**

**[Period-Jan 2022 to June 2022]**

S. No.	Conditions	Remarks
	mitigative measures for control of ground vibrations and to arrest the fly rocks and boulders should be implemented	DGMS approval.
17.	NO mineral processing unit such as a coal washery shall be installed in the ML without prior approval of this ministry.	Agreed.
18.	A progressive afforestation plan covering an area not less than 133.53 ha shall be implemented, which includes reclaimed external OB dump (39 ha), backfilled area (80 ha), along ML boundary, barrier zone (6 ha), along roads (4.5 ha) and infrastructure (4 ha), undisturbed/vacant land by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500 plants per ha.	We are agreed to undertake the progressive aforestration of 133.53 ha, Currently OB dumps not being reclaimed & dumps have not reached the maximum height and backfilling also not started in FY 21-22. Total 17,720 nos. of local native species has been planted till date. Photographs of green belt enclosed as <b>Annexure-4.</b>
19.	Backfilling shall start by the 4 <sup>th</sup> year of operations and concurrent backfilling form the 8 <sup>th</sup> year. Of the total excavated area of 84.33 ha, an area of 80 ha shall be backfilled and reclaimed with plantation/afforestation by planting native plant species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500 plants per ha. The balance area of 4 ha of the decoaled area left as void and being converted into a water reservoir shall be of a max. Depth of 35 m and shall be gently sloped and the upper benches of the reservoir shall be stabilised with plantation and the periphery of the reservoir fenced.	Agreed. Shall be complied during underground mining.
20.	A Programme for conservation of the wildlife particularly the rare and endangered species/Schedule-I fauna such as the Sloth Bear and Leopard and endangered flora and species of medicinal importance shall be formulated and implemented in consultation with the Forest and Wildlife Departments in the State Government. Separate funds shall be earmarked for implementation of the various activities there under and the status thereof shall be regularly reported to this Ministry and the MOEF Regional Office, Bhopal. The project authorities shall participate in a Regional Action Plan of the State Government for conservation of flora and fauna found within the study area.	Noted and agreed to participate in the plan prepared by Government.
20.	The company shall obtain prior approval of CGWA/CGWB Regional Office for use of groundwater, if any, for mining operations. Further requirement of water, if any, will be from rainwater harvesting measures.	Agreed and being complied.
21.	Regular monitoring of groundwater level and quality should be carried out by establishing a network of existing wells and construction of new	Regular monitoring of ground water level and quality is being carried out by establishing a network of existing wells.

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**[Period-Jan 2022 to June 2022]**

S. No.	Conditions	Remarks
	piezometers. The monitoring for quantity should be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality in May. Data thus collected should be submitted to the Ministry of Environment & Forests and to the Central Pollution Control Board quarterly within one month of monitoring.	We have constructed a new bore well of depth 400 feet from 50 meter distance of the existing bore well for installation of Piezometer. The Piezometer has already been installed with telemetry systems. Ground Water monitoring is carried out by Environ Techno Consultants and reports submitted accordingly. Ground water monitoring is carried out by M/s Environ Techno Consultants as per CGWA NOC. Photograph of Piezometer enclosed as <b>Annexure-5.</b>
22.	The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource in case monitoring of groundwater levels indicate decline of water table. Any additional water requirement for mining operation shall be met from rainwater use only. The project authorities should meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine. It shall be ensured that if the river/nala discharge of mine water takes place, it shall be treated to conform to prescribed standards before discharge.	Agreed to comply.
23.	ETP should also be provided for treatment of effluents from workshop, CHP. There shall be zero discharge from the coal washery.	Waste water from workshop is being treated with ETP and treated water is being used for vehicle wash, plantation and dust suppression. At present there is no coal washery, in future if coal washery will be established by us after obtaining clearance from concerned environment department we will maintain zero discharge.
24.	Besides 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 diseases and hearing impairment, if any, through an agency such as NIOH, Ahmadabad within a period of one year and the results reported to this Ministry and to DGMS	As per DGMS initial medical examination in form-O has been complied for all employees. Health check-up for occupational diseases from NIOH, shall be complied.
25.	For monitoring land use pattern and for post mining land use, a time series of land use maps, based on satellite imagery (on a scale of 1: 5000) of the core zone and buffer zone, from the start of the project until end of mine life shall be prepared once in 3 years (for any one particular season which is consistent in the time series), and	Agreed.

*R. S.*

*Ambuja*



**Six Monthly Compliance Report for Gare Palma IV/8 Coal Mine at Village-Khamaria and Karwahi, P.O- Tanmar, Dist.- Raigarh (C.G.)**

**[Period-Jan 2022 to June 2022]**

S. No.	Conditions	Remarks
	the report submitted to MOEF and its Regional office at Bhopal.	
26.	A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests five year before mine closure for approval	Mine Closure Plan has been approved by Ministry of Coal vide letter no. 34011/19/2016 CPAM dtd on 15 <sup>th</sup> May, 2017. <b>Attached in Annexure-6</b>

**B. GENERAL CONDITIONS:**

Sl. no	General condition	Compliance
1.	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment and Forests.	Agreed.
2.	No change in the calendar plan including excavation, quantum of mineral coal and waste should be made	Agreed.
3.	Four ambient air quality monitoring stations should be established in the core zone as well as in the buffer zone for monitoring SPM, RSPM, SO <sub>2</sub> and NO <sub>x</sub> . and heavy metals such as Hg, Pb, Cr, As, etc. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board.	One Nos. of CAAQMS has been installed within premises. Photograph of CAAQMS station is enclosed as <b>Annexure-7</b> . Acknowledgement copy regarding CAAQMS installation and connection to CECB server is enclosed as <b>Annexure-8</b> . Except this regular monitoring is being carried out at four location by NABL accredited laboratory M/s Gyan Enviro Ltd.
4.	Data on ambient air quality (SPM, RSPM, SO <sub>2</sub> , NO <sub>x</sub> and heavy metals such as Hg, Pb, Cr, As, etc) should be regularly submitted to the Ministry including its Regional Office and to the State Pollution Control Board and the Central Pollution Control Board once in six months	Ambient Air Quality is being regular monitoring by NABL accredited laboratory M/s Gyan Enviro Ltd. Data of AAQ is being submitted with six monthly EC compliance report.
5.	Fugitive dust emissions (SPM, RSPM, and heavy metals such as Hg, Pb, Cr, As, etc) from all the sources should be controlled regularly monitored and data recorded properly. Water spraying arrangement on haul roads, wagon loading, dump trucks (loading and unloading) points should be provided and properly maintained.	Fugitive emission is being regular monitoring by NABL accredited laboratory M/s Gyan Enviro Ltd. Regular water sprinkling is being carried on roads engaged for transportation, water sprinkling arrangements has been made at loading and unloading area. Plantation has been carried out to arrest fugitive dust within mine lease area.
6.	Adequate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc should be provided with ear plugs/muffs.	Regular maintenance is being carried of moving equipments engaged in mining operation. We are monitored noise levels on monthly basis and data recorded. We have provided ear plugs/muffs to the workers for engaging in blasting

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Sl. no	General condition	Compliance
		and drilling operations during mining operation. Company has provided appropriate noise barriers. Workers engaged in blasting and drilling operations, operations of heavy earth moving machinery (HEMM) etc. have been provided with ear plugs/muffs. Plantation has been developed.
7.	Industrial wastewater (workshop and wastewater from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19 <sup>th</sup> May 1993 and 31 <sup>st</sup> June 1993 or as amended from time to time before discharge. Oil and grease trap should be installed before discharge of workshop effluents	Waste water from workshop is being treated with Effluent Treatment Plant and treated water is being utilized in dust suppression and green belt development.
8.	Vehicular emissions should be kept under control and regularly monitored. Vehicles used for transporting the mineral should be covered with tarpaulins and optimally loaded.	PUC certified vehicles are engaged for mining operation. It is strictly ensured by logistic safety team that vehicles engaged for transportation of coal is fully covered with tarpaulin.
9.	Environmental laboratory should be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board	NABL accredited laboratory M/s Gyan Enviro Ltd. is being monitoring on regular basis. Monitoring Photos enclosed as <b>Annexure-9.</b>
10.	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 programme of the workers should be undertaken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed.	Agreed. The Personnel working in mine area are wearing protective respiratory device mask. They have been provided with adequate training and information on safety and health aspects through our Occupational health & safety department.
11.	A separate environmental management cell with suitable qualified personnel should be set up under the control of a Senior Executive, who will report directly to the Head of the company	Environment management cell has been established under supervision of competent and senior executive technical personnel.  <div style="text-align: center;"> Senior Vice President  ↑  Mine Manager  ↑  Senior Officer Environment </div>
12.	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 this Ministry and its Regional Office at Bhopal	Agreed, Statutory fund have been provided by Company. The funds earmarked for environmental protection measures are being used for Environmental conservation works only.

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**[Period-Jan 2022 to June 2022]**

Sl. no	General condition	Compliance
13.	The Regional Office of this Ministry located at Bhopal shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/information/monitoring reports	Agreed.



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Khamaria and Karwahi, P.O- Tanmar, Dist.- Raigarh (C.G.)  
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Sl.no	General condition	Compliance
14.	A copy of the will be marked to concerned Panchayat/ local NGO, if any, from whom any suggestion/representation has been received while processing the proposal.	Condition already complied by the prior allottee.
15.	State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Centre and Collector's Office/Tehsildar's Office for 30 days	State Pollution Board has been intimated about the letter of transfer of EC dated 10 <sup>th</sup> June 2015 issued from MoEF&CC.
16.	The Project authorities should advertise at least in two local newspapers widely circulated around the project, one of which shall be in the 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 & Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a> . The compliance status shall also be uploaded by the project authorities in their website so as to bring the same in the public domain	Newspaper advertising was done by prior allottee M/s Jaiswal Neco Limited.  The compliance status shall also be uploaded in ACL website so as to bring the same in public domain.

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### **3.0 AMBIENT AIR QUALITY**

#### **3.1 GENERAL**

To assess the ambient air quality in & around Gare Palma IV/8 Coal mine lease of M/s Ambuja Cements Ltd at village-Khamaria, Dist. Raigarh (C.G.), total five number of ambient air quality monitoring locations were selected. Different air pollution parameters like PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO and heavy metals were identified as related to the mining activities. All the sampling stations were identified in & around the mine. Descriptive listing of the air quality monitoring stations is given in **Table – 3.1** and **Figure 4**.

**TABLE – 3.1: DESCRIPTION OF AMBIENT AIR QUALITY (AAQ) MONITORING STATIONS**

<b>S.N</b>	<b>Sampling Stations</b>	<b>Station Code</b>	<b>Distance from Mine Lease</b>	<b>Direction from Mine Lease</b>
1.	At Site Office	AAQ-1	Within	Within
2.	At Banjari Temple	AAQ-2	0.3 km	North
3.	Khamaria village	AAQ-3	0.5 km	NW
4.	Nr School, Rampura village	AAQ-4	0.4 km	East
5.	At Durga House	AAQ-5	0.3 km	South

#### **3.2 OBSERVATIONS**

The results of Ambient Air Quality monitoring with regard to the parameters are given below in **Table – 3.2, 3.3, 3.4, 3.5 and 3.6**. The **National Ambient Air Quality Standards** are given in **Table – 3.7**.

*Rosh*

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**TABLE – 3.2: RESULTS OF AMBIENT AIR QUALITY MONITORING**

**FOR PARTICULATE MATTER (<10 µm)**

Code	Stations	JAN-22	FEB-22	MAR-22	APRIL-22	MAY-22	JUNE-22	NAAQM STANDARD
AAQ-1	At Site Office	57.9	59.1	69.5	90.8	92.7	88.4	100
AAQ-2	At Banjari Temple	56.5	57.8	60.3	78.8	81.6	75.4	100
AAQ-3	Khamaria village	55.9	57.1	66.7	76.9	78.2	72.0	100
AAQ-4	Nr School, Rampura village	57.3	55.6	62.6	81.4	83.7	78.7	100
AAQ-5	At Durga House	56.1	58.4	59.1	70.0	72.7	71.9	100

\*Values are in µg/m<sup>3</sup>

**TABLE – 3.3: RESULTS OF AMBIENT AIR QUALITY MONITORING**

**FOR PARTICULATE MATTER (<2.5 µm)**

Code	Stations	JAN-22	FEB-22	MAR-22	APRIL-22	MAY-22	JUNE-22	NAAQM STANDARD
AAQ-1	At Site Office	17.2	18.8	34.5	38.0	39.8	35.7	60
AAQ-2	At Banjari Temple	17.6	16.7	27.4	34.0	37.3	31.4	60
AAQ-3	Khamaria village	16.4	17.3	30.5	39.1	40.3	34.8	60
AAQ-4	Nr School, Rampura village	13.9	17.2	30.8	36.7	37.5	33.2	60
AAQ-5	At Durga House	13.2	17.7	16.5	30.6	33.0	30.5	60

\*Values are in µg/m<sup>3</sup>

**TABLE – 3.4: RESULTS OF AMBIENT AIR QUALITY MONITORING**

**FOR SULPHUR DIOXIDE (SO<sub>2</sub>)**

Code	Stations	JAN-22	FEB-22	MAR-22	APRIL-22	MAY-22	JUNE-22	NAAQM STANDARD
AAQ-1	At Site Office	15.3	13.0	24.0	20.0	22.8	18.5	80
AAQ-2	At Banjari Temple	14.3	12.2	14.8	17.2	19.2	16.5	80
AAQ-3	Khamaria village	14.1	12.9	16.7	17.8	18.4	15.4	80
AAQ-4	Nr School, Rampura village	13.9	12.1	19.9	16.5	16.8	15.2	80
AAQ-5	At Durga House	13.2	12.6	17.8	18.0	19.1	17.8	80

\*Values are in µg/m<sup>3</sup>

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**TABLE – 3.5: RESULTS OF AMBIENT AIR QUALITY MONITORING**

**FOR OXIDES OF NITROGEN (NO<sub>x</sub>)**

Code	Stations	JAN-22	FEB-22	MAR-22	APRIL-22	MAY-22	JUNE-22	NAAQM STANDARD
AAQ-1	At Site Office	19.0	16.6	20.4	26.5	28.1	22.0	80
AAQ-2	At Banjari Temple	18.6	16.0	19.0	22.5	23.4	20.0	80
AAQ-3	Khamaria village	20.5	17.8	19.4	24.2	26.5	19.0	80
AAQ-4	Nr School, Rampura village	18.5	15.8	23.4	22.9	23.9	19.9	80
AAQ-5	At Durga House	20.8	15.5	17.2	22.9	23.8	20.4	80

\*Values are in µg/m<sup>3</sup>

**TABLE – 3.6: RESULTS OF AMBIENT AIR QUALITY MONITORING**

**FOR CARBON MONOXIDE (CO)**

Code	Stations	JAN-22	FEB-22	MAR-22	APRIL-22	MAY-22	JUNE-22	NAAQM STANDARD
AAQ-1	At Site Office	450.0	475.0	560.0	610.0	584.3	550.0	4000
AAQ-2	At Banjari Temple	440.0	480.0	504.0	555.0	563.1	590.0	4000
AAQ-3	Khamaria village	478.0	455.0	515.0	560.0	571.6	580.2	4000
AAQ-4	Nr School, Rampura village	480.0	492.0	603.0	595.0	607.1	614.0	4000
AAQ-5	At Durga House	455.0	460.0	548.0	610.0	617.5	620.0	4000

\*Values are in µg/m<sup>3</sup>

**HEAVY METALS-**

Heavy metals (i.e. Pb, As, Ni, Hg) have been monitored & analyzed simultaneously, however, every time concentrations of heavy metals are observed as BDL (below detectable level).

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**TABLE – 3.7: NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQMS) (REVISED-2009)**

S.N.	Pollutant	Unit	Area	Concentration in Ambient Air	
				Annual Average	24 Hours
1.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	Industrial	50.0	80.0
2.	Nitrogen Dioxide (NO <sub>x</sub> )	µg/m <sup>3</sup>	Industrial	40.0	80.0
3.	Particulate Matter PM <sub>10</sub>	µg/m <sup>3</sup>	Industrial	60.0	100.0
4.	Particulate Matter PM <sub>2.5</sub>	µg/m <sup>3</sup>	Industrial	40.0	60.0
5.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	Industrial	100.0	180.0
6.	Lead (Pb)	µg/m <sup>3</sup>	Industrial	0.50	1.2
7.	Carbon Monoxide(CO) mg/m <sup>3</sup>	mg/m <sup>3</sup>	Industrial	2.0	4.0
8.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	Industrial	100.0	400.0
9.	Benzene (C <sub>6</sub> H <sub>6</sub> ) µg/m <sup>3</sup>	µg/m <sup>3</sup>	Industrial	05.0	05.0
10.	Benzo(α) Pyrene,	µg/m <sup>3</sup>	Industrial	01.0	01.0
11.	Arsenic (As) µg/m <sup>3</sup>	µg/m <sup>3</sup>	Industrial	6.0	6.0
12.	Nickel (Ni) µg/m <sup>3</sup>	µg/m <sup>3</sup>	Industrial	20.0	20.0

- Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice in a week 24 hourly at uniform intervals.
- 24 hourly or 08 hourly or 01 hourly monitored values as applicable shall be complied with 98% of the time in a year 2% of the time, then may exceed the limits but not on two consecutive days of monitoring.

### 3.3 RESULTS AND DISCUSSION

On the basis of above observations, the parameter-wise results have been discussed below.

#### 3.3.1 PARTICULATE MATTER<10 µ (PM<sub>10</sub>)

All monitored stations have PM<sub>10</sub> concentrations well within stipulated 24 hour limit, 100 µg/m<sup>3</sup> as prescribed for residential, rural and other areas in longstanding NAAQ Standards of CPCB.

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**3.3.2 PARTICULATE MATTER<2.5  $\mu$  (PM<sub>2.5</sub>)**

All monitored stations have PM<sub>2.5</sub> concentrations well within stipulated 24 hour limit, 60 $\mu$ g/m<sup>3</sup> prescribed for industrial, residential, rural and other areas in revised NAAQ Standards from CPCB.

**3.3.3 SULPHUR DIOXIDE (SO<sub>2</sub>)**

Average Sulphur Dioxide (SO<sub>2</sub>) concentrations at all five sampling stations are  $\mu$ g/m<sup>3</sup> respectively and well within the stipulated 24 hour limit, 80  $\mu$ g/m<sup>3</sup> recommended for industrial, residential, rural and other areas in revised NAAQ Standards of CPCB.

**OXIDES OF NITROGEN (NO<sub>x</sub>)**

Average Oxides of Nitrogen (NO<sub>x</sub>) concentrations at all sampling stations are also well within the stipulated 24 hour limit, 80  $\mu$ g/m<sup>3</sup> recommended for industrial, residential, rural and other areas in revised NAAQ Standards of CPCB.

**3.3.4 CARBON MONOXIDE (CO)**

Average Carbon Monoxide (CO) concentrations at all sampling stations are well within stipulated 8 hours limit, 2000  $\mu$ g/m<sup>3</sup> recommended for industrial, residential, rural and other areas in revised NAAQ Standards.

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#### **4.0 AMBIENT NOISE LEVEL**

##### **4.1 LOCATIONS OF NOISE LEVEL MEASUREMENT**

Noise Levels have measured at following **Eight Stations** coded as NL – 1, NL – 2, NL – 3, NL – 4, NL – 5, NL – 6, NL – 7 and NL – 8. Details of Noise level measurement stations have described below in **Table – 4.1** and **Figure -10**.

**TABLE – 4.1: DETAILS OF NOISE LEVEL MEASUREMENT STATIONS**

S.N	Sampling Stations	Station Code	Zone	Stations
1.	Nr Main Gate	NL – 1	Core zone	Ambient
2.	At Site Office	NL – 2	Core zone	Ambient
3.	Nr Weigh Bridge	NL – 3	Core zone	Ambient
4.	Nr Parking	NL – 4	Core zone	Ambient
5.	Nr Khamaria village	NL – 5	Buffer zone	Ambient
6.	Nr School, Rampura village	NL – 6	Buffer zone	Ambient
7.	At Durga House	NL – 7	Buffer zone	Ambient
8.	At Banjari Temple	NL – 8	Buffer zone	Ambient

##### **4.3 OBSERVATIONS**

The observations for noise level measurement were taken randomly in day and night hours. Measured noise levels are given below in **Table – 4.2** and Graphical presentation in **Figure 12**.

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**TABLE – 4.2: RESULTS OF AMBIENT NOISE LEVEL MEASUREMENT**

**NOISE LEVEL (DAY HOURS)**

Code	Stations	Unit	Jan -22	Feb-22	Mar-22	April-22	May-22	June-22	MIN	MAX	AVG
NL-1	Nr Main Gate	dB(A)	57.3	58.0	55.2	52.6	55.2	52.8	52.6	58.0	55.18
NL-2	At Site Office		55.0	57.2	59.5	54.3	54.5	55.0	54.3	59.5	55.92
NL-3	Nr Weigh Bridge		66.2	67.9	62.3	64.4	63.9	64.0	62.3	67.9	64.78
NL-4	Nr Parking		58.6	59.5	60.1	59.3	60.7	62.0	58.6	62.0	60.03
NL-5	Nr Khamaria village		55.4	57.0	59.9	55.1	55.7	59.3	55.1	59.3	57.07
NL-6	Nr School, Rampura village		57.3	58.8	60.3	51.2	52.1	56.8	51.2	60.3	56.08
NL-7	At Durga House		60.2	59.2	53.7	62.7	63.3	60.2	53.7	63.3	59.88
NL-8	At Banjari Temple		48.6	50.4	52.9	62.8	63.8	61.9	48.6	63.8	56.73

**NOISE LEVEL (NIGHT HOURS)**

Code	Stations	Unit	Jan -22	Feb-22	Mar-22	April-22	May-22	June-22	MIN	MAX	AVG
NL-1	Nr Main Gate	dB(A)	39.9	38.6	35.1	33.0	34.2	36.0	33.0	39.9	36.13
NL-2	At Site Office		36.7	37.7	38.3	34.8	35.1	37.2	34.8	38.3	36.63
NL-3	Nr Weigh Bridge		43.4	41.0	43.4	42.0	39.8	40.4	39.8	43.4	41.67
NL-4	Nr Parking		40.8	39.3	40.0	39.8	39.6	42.5	39.3	42.5	40.33
NL-5	Nr Khamaria village		36.7	37.3	37.9	36.0	36.3	34.2	34.2	37.3	36.40
NL-6	Nr School, Rampura village		34.2	35.6	36.6	32.5	32.9	34.0	32.5	36.6	34.30
NL-7	At Durga House		40.2	38.9	32.4	39.0	38.7	38.7	32.4	40.2	37.98
NL-8	At Banjari Temple		30.1	36.0	35.5	40.1	39.5	39.9	30.1	40.1	36.85

*Note: All values are in dB(A)*

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#### 4.4 AMBIENT NOISE LEVEL STANDARDS

Ambient Air Quality standards in respect of noise have been notified by the Ministry of Environment & Forests vide **Gazette Notification Dated 26<sup>th</sup> June 1989**. It is based on a weighted equivalent noise level (Leq). National Ambient Noise Level Standards are given below in **Table – 4.3**.

**TABLE –4.3: NATIONAL AMBIENT NOISE LEVEL STANDARDS**

Area Code	Category of Area	Limits in dB(A) Leq	
		Day time	Night time
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone**	50	40

\*\* Silence zone is defined as area up to 100 meters around premises of hospitals, educational institutions and courts. Use of vehicle horns, loud speakers and bursting of crackers are banned in these zones.

#### 4.5.1 RESULTS AND DISCUSSION

Recorded Noise Levels in & around the mine lease, well within the prescribed standards.

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## **5.0 FUGITIVE EMISSION**

### **5.1 GENERAL**

To assess the fugitive emission quality, total two number of sampling sites have been selected. To check the detailed emissions, PM10 and PM2.5 along with heavy metals (i.e. Pb, As, Ni, Hg) were identified as related to the lease activities. Descriptive listing of the Fugitive Emissions monitoring stations are given in Table -5.1.

**TABLE – 5.1: DESCRIPTION OF FUGITIVE EMISSION MONITORING STATIONS**

S.N	Sampling Stations	Station Code
1.	Near Parking	FE – 1
2.	Near Weigh Bridge/Near Cap Lamp Area	FE – 2

### **5.2 OBSERVATIONS**

The results of Fugitive emissions monitoring with regard to the parameters are given in Table – 5.2.

**TABLE – 5 .2: RESULTS OF FUGITIVE EMISSION MONITORING**

Code	Sampling Stations	Unit	Jan - 22	Feb- 22	Mar- 22	April- 22	May- 22	June- 22
FE- 1	PM <sub>10</sub>	µg/m <sup>3</sup>	76.7	84.5	76.4	88.5	87.6	76.0
	PM <sub>2.5</sub>		22.1	25.4	30.5	39.1	38.4	32.5
FE- 2	PM <sub>10</sub>		81.5	88.4	65.5	78.2	79.5	88.4
	PM <sub>2.5</sub>		24.4	26.1	24.9	30.5	32.3	45.1

Heavy metals (i.e. Pb, As, Ni, Hg) have been monitored & analyzed simultaneously, however, every time concentrations of heavy metals are observed as below detectable level.

### **5.3 RESULTS AND DISCUSSION**

From the above result the given parameter are found to be well within the conditions mentioned in the Environment Clearance.

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## 6.0 WATER QUALITY ANALYSIS

Sr. No.	Parameters	Ref. Method	January_2022		Feb_2022		March_2022		April_2022		May_2022		June	
			Mine Water	ETP Outlet	Well Water Khamhriya	Mine Water	Well Water Khamhriya	Mine Seepage Water	Undergro und Mine Water	Mine Discharge Water	Undergro und Mine Water	Borewell Water	Mine Pit Water	Mine Discharge Water
1	pH at 25OC	IS:3025 (part 11)-1983	7.51	7.73	7.13	7.56	7.26	8.08	7.1	8.11	7.58	6.53	7.22	8.04
2	TDS	IS:3025 (part 16)-1984	214	186	528	348	188	211	320	244	337	194	345	232
3	TSS	IS:3025 (part 16)-1984	12	6	-	35	-	21	40.6	34	29.3	-	75	30
4	Chloride as Cl	IS:3025 (part 32)-1988	10.5	12	115	27.4	16.1	17.1	75	89	84	28.9	80.1	66
5	Sulphate as SO4	IS:3025 (part 24)-1986	42	92	-	47.1	-	20.2	65	75.4	63	28.7	72.7	55.3
6	COD	IS:3025 (part 58)-2006	8	28	12	984	8	104	108	52	104	-	112	64
7	BOD	IS:3025 (part 44)-1993	<3.0	7	<3.0	32	<3.0	24	36	18	32	-	22	10
8	Oil & Grease	IS:3025 (part 39)-1991	<1.0	0.3	-	0.25	-	0.38	0.4	0.25	0.38	-	0.36	0.16

## 6.2 OBSERVATIONS

The observed values for waste water are within the permissible limits prescribed by CPCB.

R.O.D.

*[Signature]*