



Regd.AD.

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**J.K. Cement Works, Mangrol**  
C/o. Kailash Nagar-312617, Nimbahera  
Distt. Chittorgarh (Raj.) INDIA

CIN : L17229UP1994PLC017199

ISO 9001:2008, ISO 14001:2004 & OHSAS 18001 : 2007 CERTIFIED COMPANY

Our Ref. No.: MGR/PC-14/ **936**

Date: 01.06.2017

To,

**The Additional Director**  
Indira Paryavaran Bhavan,  
JOR Bagh Road,  
Near JOR bagh Metro station  
**New Delhi**

**Sub: Environmental Clearance Compliance report of Mangrol Limestone Mine.**

Dear Sir,

Kindly refer Environmental Clearance letter No. J-11O15/427/2008-IA.II (M) Dated 06 August 2010 of our **Mangrol Mine**.

We are enclosing herewith compliance report of Environmental Clearance conditions along with Ambient Air Quality Data (**Core zone & Buffer Zone**) from the month of **October' 2016 to March' 2017 in hard copy as well as in CD as soft copy** for your kind reference and record. We trust you will find the same in order.

Thanking you,

*(JK Gangwani)*

Yours Faithfully  
For J.K. Cement WORKS, MANGROL

S.K. Acharya  
Asth. Vice President (E & I)

Encl: a/a

Copy to:

**The Director**, Ministry of Environment and Forests, Regional office (Central Region), Kendriya Bhawan, 5th Floor, Sector 'H', ALIGANJ, **LUCKNOW- 226020 (U.P.)**

**The Chairman**, Central Pollution Control Board, Parivesh Bhawan, CBD-CUM office complex, East Arjun Nagar, Maharaja Surajmal Marg, Vishwas Nagar Extension, Viswas nagar Shahdara- Behind Karkarduma high court New Delhi 11032

**Member Secretary**, Rajasthan State Pollution Control Board, 4, Institutional Area, Jhalana Doongri, JAIPUR - 302004 (RAJASTHAN)

**Corporate & Registered Office** : Kamla Tower, Kanpur-208001, (U. P.) INDIA  
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J. K. Cement Works, Nimbahera  
J. K. Cement Works Mangrol  
J. K. Cement Works, Gotan

J. K. Power, Bamania  
J. K. Cement Works, Muddapur  
J. K. White Cement Works, Gotan



# J.K. Cement WORKS, MANGROL (RAJ)

Dated 01.06.2017

Compliance report of Environment Clearance for Mangrol Lime Stone Mine

(For the Period from October 2016 to March 2017)

Reference Letter from MOEF, New Delhi - J-11015/427/2008-1A. II (M) dated 06.08.2010

S.No	Condition	Status
	<b>(A) Specific Conditions</b>	
(i)	The project proponent shall obtain Consent to Establish and Consent to Operate from the Rajasthan State Pollution Control Board and effectively implement all the conditions stipulated therein.	Consent to establish has been obtained vide letter reference no. F(Mines)/Chittorgarh/(Nimbahera) 966(1) 2011- 12/4718-4722 dated 29.09.2011 & consent to operate has also been obtained vide letter No. F (Mines)/chittorgarh (Nimbahera)/1863(1)/2016-2017/3239-3243 dated 09.06.2016 & valid up to 31.01.2019.
(ii)	Environmental clearance is granted subject to final outcome of Hon'ble Supreme Court of India in Contempt Petition ( C ) No.412/2004 in IA No. 833 in Writ Petition ( C ) No. 202 of 1995, as may be applicable to this project.	Agreed
(iii)	The environmental clearance is subject to approval of the State Land use Department, Government of Rajasthan for diversion of agricultural land for non-agricultural use.	Agriculture land will be used after having proper conversion for use of mining from state revenue department.
(iv)	Necessary prior permission from the Competent Authority as may be applicable for use of grazing land for mining purpose shall be obtained.	Permission for use of grazing land for mining purpose is obtained from revenue deptt. Vide letter No. Revenue/2011-12 dated 12.01.2012
(v)	The project proponent shall develop fodder plots in the non-mineralized area in lieu of use of grazing land.	Agreed. We will develop fodder plots.
(vi)	The mining operations shall be restricted to above ground water table and it should not intersect the groundwater table. In case of working below the ground water table, prior approval of the Ministry of Environment and Forests and the Central Ground Water Authority shall be obtained, for which a detailed hydro-geological study shall be carried out.	Agreed, we will not work below the ground water table prescribed in the approved Mining plan. Max. Depth of working as per approved mining plan 40 mtr. For necessary correction in Environment Clearance, we had written to MoEF vide letter No. 9417 on dated 27.01.2015. Ground water table as per Ground water deptt. Govt. of Raj. Post monsoon -40 mtr, Premonsoon -60 mtr.
(vii)	The project proponent shall ensure that no natural watercourse and/or water resources are obstructed due to any mining operations.	There are practically no large channels or other sources of water in the area. The water drains out of the area following the natural slope. No natural water course will be obstructed during Mining operation & this will be strictly followed as mentioned in Approved Mining Plan.
(viii)	The top soil shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation.	The top soil generated during the mining operation will be stacked at designated places, levelled and plantation will be carried out as mentioned in approved mining plan.
(ix)	The waste generated during the mining operation shall be stacked at the earmarked site and reclaimed by the plantation. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests and its Regional Office, Lucknow on six monthly basis.	As given in approved Mining Plan, there will be no generation of waste during the mining operation except top soil which will be stacked at designated places, levelled & will be stabilized by carrying out plantation over it. Measures will be taken to get

		more survival rate & self-sustain.
(x)	The void left unfilled in the entire excavated area of 88.55ha shall be converted into water body. The higher benches of excavated void/mining pit shall be terraced and plantation done to stabilize the slopes. The slope of higher benches shall be made gentler for easy accessibility by local people to use the water body. Peripheral fencing shall be carried out all along the excavated area.	Since there is no overburden available which is also mentioned in approved Mining Plan, hence no material is available for back-filling. The whole excavated area will be properly fenced off from all sides and will be used for collection of harvested rain water. At the end of life of the Mine, the higher benches of excavated void/mining pit will be terraced and plantation will be done to stabilize the slopes. The entire excavated area will be properly fenced along the periphery.
(xi)	<p>Catch drains and siltation ponds of appropriate size shall be constructed for the working pit, temporary soil, mineral dumps and waste dump(s) to arrest flow of silt and sediment directly into the agricultural fields, the Gambhiri dam, the Murlia reservoir, the Gambhiri river and other water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted particularly after the monsoon and maintained properly.</p> <p>Garland drains, setting tanks and check dams of appropriate size, gradient and length shall be constructed both around the mine pit and waste dump(s) to prevent run off of water and flow of sediments directly into the agricultural fields, the Gambhiri dam, the Murlia reservoir, the Gambhiri river and other water bodies and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper setting of slit material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.</p>	<p>The catch drain &amp; siltation ponds will be constructed of appropriate size around the mining pit to prevent run off water &amp; flow of sediments going directly into the agriculture fields/outside the mining limit &amp; water bodies. There will be no generation of waste as prescribed in approved mining plan, hence no overburden dump will be formed.</p> <p>Garland drain system, setting tanks &amp; check dams of appropriate size, gradient &amp; length will be constructed around the mining pit to prevent runoff water &amp; flow of sediments outside the mining limit. There will be no generation of waste as mentioned in approved mining plan; hence no overburden dump will be formed.</p>
(xii)	Dimension of the retaining wall at the toe of the waste dumps and the waste benches within the mine to check run-off and siltation should be based on the rain fall data.	Since there will be no generation of waste, only top black cotton soil is generated which is stacked, levelled at designated places & plantation is done over it.
(xiii)	Plantation shall be raised in an area of 14ha including a 7.5m wide green belt in the safety zone around the mining lease, reclaimed area, around water body, around waste dumps along the roads etc. by planting the native species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 1000 plants per ha. Greenbelt shall be developed all along the mine lease area in a phased manner and shall be completed within first five years.	Plantation done during 2016-17, 870 nos. of plants planted inside lease area, covering 0.539 hectare area & 260 nos. outside lease area, covering 0.462 hectare area. Total Planation done till date is 2944 in inside and 2280 nos. in outside lease area. Survival rate of plantation is 65.75% inside lease area and 73.95% outside lease area. Total plantation covered area till date is 1.739 hectare in inside lease area and 1.422 hectare Outside lease area and Green belt of 30.39 Ha area.
(xiv)	Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant, loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	Regular water sprinkling by deploying water sprinkler is done on the haul roads to prevent the dust becoming air borne during transport of vehicles. Wet drilling system is practiced during drilling of holes. Monitoring & measurement of ambient air quality will be done as mentioned in approved mining plan.
(xv)	The project authority should implement suitable conservation measures to augment ground water	Construction measure to augment ground water resources the area

	resources in the area in consultation with the Regional Director, Central Ground Water Board.	will be implemented in consultation with the Regional Director, Central ground water board.
(xvi)	Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and installing new piezometers during the mining operation. The periodic monitoring [(at least four times in a year – pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January); once in each season)] shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office, Lucknow, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity, necessary corrective measures shall be carried out.	Regular monitoring of ground water level & quality is being carried out in and around the Mining lease area as per the Environment Management Plan of approved Mining plan by establishing a network of existing wells. We have drilled 4 Nos. of piezometric holes for periodic monitoring which is carried out 4 times in a year for different season in consultation with State Ground water Board/Central Ground Water Authority & data thus collected is submitted regularly to the Ministry of Environment and Forests and its Regional Office, Lucknow, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. We have submitted water quality report of Pre-Monsoon season (April-May 2017) vide letter no. MGR/PC/14/830 on dated 22.05.2017.
(xvii)	Appropriate mitigative measures shall be taken to prevent pollution of the Gambhiri River and Murlia dam in consultation with the State Pollution Control Board.	No working will be carried out in submergence area of the dam & upto 15 mtr. from the boundary of the catchment area of the Gambhiri & Murlia Dam. There will be no disturbance & obstruction due to mining activity.
(xviii)	The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of ground water required for the project.	Obtained permission from CGWA vide letter no. 21 – 4 (532)/WR/CGWA/2012 – 994 dated 22.06.2015.
(xix)	Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board.	Rain water harvesting measures on long term basis will be implemented in consultation with the Regional Director, Central ground board.
(xx)	Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.	Tippers engaged in the mine are regularly checked once in six months for vehicle emissions & are kept under permissible limits as per the guidelines issued by the Authorities. The tippers will not be loaded above the rated capacity.
(xxi)	Controlled blasting shall be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.	Controlled blasting is being carried out by use of delay detonator, non-electric detonator. Regular monitoring of ground vibration is being practiced. Rock breaker is used to minimize secondary blasting.
(xxii)	The project proponent shall take all mitigative measures during the mining operation to ensure that the buildings/structures in the nearby areas shall not be affected due to blasting.	We have taken all mitigative measures during the mining operation to ensure that the buildings/structures in the nearby areas shall not be affected due to blasting.
(xxiii)	Drills shall either be operated with dust extractors or equipped with waster injection system.	Water injection system on wagon drill is provided to suppress dust at its source of generation & only wet drilling is permitted as committed in Environment management plan of approved mining plan.

(xxiv)	Mineral handling area shall be provided with the adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.	Adequate air pollution control measures are installed.
(xxv)	Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the workshop and waste water generated during the mining operation.	Sewage treatment Plant is already installed in the colony for Nimbahera plant & mines. No industrial waste water is generating during mine operation and workshop waste water collected in pit and use in dust suppression in coal yard.
(xxvi)	Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.	Pre placement Initial medical examination of the workers engaged is carried out during 2016-17 is 10 no. & record is maintained. Schedule of health examination will be drawn in such a manner that every workman will be examined once in five years.
(xxvii)	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	No construction labour will be engaged.
(xxviii)	The critical parameters such as RSPM (Particulate matter with size less than 10 micron i.e. PM10) and NOx in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored [(TDS, DO, PH and Total Suspended Solids (TSS)]. The monitored data shall be uploaded on the website of the company as well as displayed on the display board at the project site at a suitable location near the main gate of the Company in public domain. The Circular No. J-20012/1/2006-IA.II(M) dated 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry <a href="http://www.envfor.nic.in">www.envfor.nic.in</a> shall also be referred in this regard for its compliance.	Agreed, these critical parameters are regular measured periodically during ambient air monitoring and report is enclosed as annexure-I. No waste water is generating during mining operation.
(xxix)	A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment and Forests 5 years in advance of final mine closure for approval.	Progressive Mine closure plan is prepared along with approved Mining plan. There is no plan of final Mine closure in First five year of Mining Plan.
	<b>( B ) GENERAL CONDITIONS</b>	
(i)	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment and Forests.	Agreed, Without prior approval of the Ministry of Environment & Forest there will be no change in mining technology & Scope of working.
(ii)	No change in the calendar plan including excavation, quantum of mineral limestone and waste should be made.	Agreed, There will be no change in the calendar plan including excavation, quantum of mineral lime stone & waste.
(iii)	Conservation measures for protection of flora and fauna in the core and buffer zone should be drawn up in consultation with the local forest and wildlife department and effectively implemented.	Agreed
(iv)	Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10 micron i.e., PM10) and NOx monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of	Agreed, We have established Ambient Air Quality Monitoring stations in consultation with the State Pollution Control Board vide letter no. MGR/PC/28/1600 on dated 4/10/2013.

	monitoring should be undertaken in consultation with the State Pollution Control Board.	
(v)	Data on ambient air quality RSPM (Particulate matter with size less than 10 micron i.e., PM10) & NOx should be regularly submitted to the Ministry of Environment and Forests including its Regional Office located at Lucknow and the State Pollution Control Board/Central Pollution Control Board once in six months.	Monitoring data is regularly submitting to the concerned offices. Latest report of air monitoring is enclosed as annexure (I).
(vi)	Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.	Agreed, Water spraying arrangement on haul roads, loading & unloading points is provided to control fugitive dust emission.
(vii)	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.	We have provided ear plugs/muffle to workers engaged in operation of HEMM,etc.
(viii)	Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	Agreed. No industrial waste water is generating during mine operation and workshop waste water collected in pit and use in dust suppression in coal yard. Trapped oil and grease is sold to authorized recycler.
(ix)	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 undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	Agreed, Protective respiratory devices are provided to every personal working in dusty area. Adequate training & information on safety & health aspects is imparted. Occupational health surveillance program of the workers is being undertaken periodically.
(x)	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 Organization.	Agreed, We have already well equipped Environment Laboratory with suitable qualified personnel. Organisation chart is enclosed as annexure - II
(xi)	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 the Ministry of Environment and Forests and its Regional Office located at Lucknow.	A separate fund is kept for environment protection measures and report is being sent regularly to the concerned authority. Environment budget 2017-18 and expenditure 2016-17 detail is attached as annexure-(III).
(xii)	The project authorities should be inform to the Regional Office located at Lucknow regarding data of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	Agreed
(xiii)	The Regional Office of this Ministry located at Lucknow shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data/information/monitoring reports.	Agreed
(xiv)	The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Office located at Lucknow, the respective Zonal Office of Central Pollution Control Board the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional office of the Ministry	We are regular submitting six monthly compliance report along with monitoring data to all respective agencies. Last compliance report send vide letter no. MGR/PC/14/4783 on dated 01.12.2016.

	of Environment and Forests, Lucknow, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board.	
(xv)	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad, Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	Implemented
(xvi)	The State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Centre and the Collector's Office/Tehsildar's Office for 30 days.	--
(xvii)	The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the Regional Office of the Ministry of Environment and Forests, Lucknow by e-mail.	Agreed
(xviii)	The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue 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 also at website of the Ministry of Environment and Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a> and a copy of the same should be forwarded to the Regional Office of this Ministry located at Lucknow.	Implemented & the necessary information already sent to the concerned authority.

**J.K. Cement WORKS, MANGROL (RAJ)**

**ENVIRONMENTAL QUALITY DATA**

**MANGROL LIME STONE MINE ( Core zone )**

**( MG1 ) Location :- Near Towards Factory Gate**

S.No.	MONTH	SPM	RSPM	SO2	NOx	CO	Remarks
1	October'16	309.0	41.6	11.9	24.6	572.5	
2	November '16	342.0	46.6	14.6	28.6	744.3	
3	December'16	324.0	42.2	12.3	22.4	515.3	
4	January'17	314.0	40.2	10.4	21.6	400.8	
5	Feburary'17	338.0	44.0	12.0	24.0	343.5	
6	March'17	320.0	43.0	13.7	26.4	629.8	

**( MG2 ) Location :- Ravana Office**

S.No.	MONTH	SPM	RSPM	SO2	NOx	CO	Remarks
1	October'16	354.0	46.2	15.2	28.7	515.3	
2	November '16	384.0	49.6	17.4	33.6	801.5	
3	December'16	368.0	47.2	14.7	25.0	744.3	
4	January'17	352.0	45.2	12.4	24.5	858.8	
5	Feburary'17	372.0	53.0	14.0	28.0	629.8	
6	March'17	365.0	46.6	16.6	31.4	687.0	

**( MG3 ) Location :- 3 to 10 Meter Distance From Drilling Operation**

S.No.	MONTH	SPM	RSPM	SO <sub>2</sub>	NO <sub>x</sub>	CO	Remarks
1	October'16	398.0	52.3	18.6	33.4	687.0	
2	November '16	442.0	54.6	20.4	38.2	629.8	
3	December'16	411.0	51	18.4	36.2	858.8	
4	January'17	390.0	49.0	17.4	32.4	744.3	
5	Feburary'17	425.0	50.0	16.0	35.0	801.5	
6	March'17	401.0	53.3	19.4	39.2	973.3	

**( MG8 ) Location :- Near Loading Point**

S.No.	MONTH	SPM	RSPM	SO <sub>2</sub>	NO <sub>x</sub>	CO	Remarks
1	October'16	335.0	43.0	13.7	26.8	458.0	
2	November '16	356.0	42.6	15.8	30.1	687.0	
3	December'16	344.0	44.2	13.3	27.6	629.8	
4	January'17	337.00	43.7	14.7	29.6	515.3	
5	Feburary'17	350.0	48.0	13.0	32.0	629.8	
6	March'17	348.0	40.6	12.3	25.4	458.0	

Note : ALL VALUES IN MICROGRAMS / CUBIC METER (µg/M3 )

**J.K. Cement WORKS, MANGROL (RAJ)**

**ENVIRONMENTAL QUALITY DATA**

**MANGROL LIME STONE MINE ( Buffer Zone )**

**( MG4 ) Location :- Near Mine Office of Tilakhara Mine**

S.No.	MONTH	SPM	RSPM	SO2	NOx	CO	Remarks
1	October'16	326.0	44.2	10.5	21.6	572.5	
2	November '16	332.0	45.3	11.6	23.4	515.3	
3	December'16	317.0	42.0	10.6	26.2	629.8	
4	January'17	320.0	41.8	9.7	19.6	629.8	
5	Feburary'17	335.0	40.3	12.5	23.0	687.0	
6	March'17	315.0	43.6	12.7	24.6	744.3	

**(MG5 ) Location :- Near Stacker Transfer point of JKCW Nimbahera**

S.No.	MONTH	SPM	RSPM	SO2	NOx	CO	Remarks
1	October'16	353.8	45.6	14.4	30.1	725.2	
2	November '16	360.7	47.4	14.1	29.3	644.1	
3	December'16	375.3	50.3	16.1	31.3	763.3	
4	January'17	370	47.2	14.4	29.1	796.7	
5	Feburary'17	362.0	48.9	16.4	33.6	729.9	
6	March'17	390.2	51.9	17.7	32.4	715.6	

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**(MG6 ) Location :- Near Ravana Office of Karunda Mine**

S.No.	MONTH	SPM	RSPM	SO <sub>2</sub>	NO <sub>x</sub>	CO	Remarks
1	October'16	344.0	42.0	13.6	26.4	629.8	
2	November '16	371.0	45.0	16.4	32.3	687.0	
3	December'16	387.0	50.0	17.8	35.2	515.3	
4	January'17	376.0	52.0	19.4	37.3	744.3	
5	Feburary'17	356.0	51.0	15.0	33.0	629.8	
6	March'17	381.0	49.7	18.7	36.2	687.0	

**( MG7 ) Location :- Near Mine Office of Maliakhera Mine**

S.No.	MONTH	SPM	RSPM	SO <sub>2</sub>	NO <sub>x</sub>	CO	Remarks
1	October'16	330.0	42.0	12.2	24.6	515.3	
2	November '16	328.0	40.0	11.7	22.2	629.8	
3	December'16	342.0	45.0	14.6	27.8	400.8	
4	January'17	317.0	43.0	10.7	20.2	401	
5	Feburary'17	332.0	44.0	12.2	23.0	744.0	
6	March'17	322.0	41.0	13.7	26.3	687.0	

Note : ALL VALUES IN MICROGRAMS / CUBIC METER (µg/M3 )

## MANGROL MINES

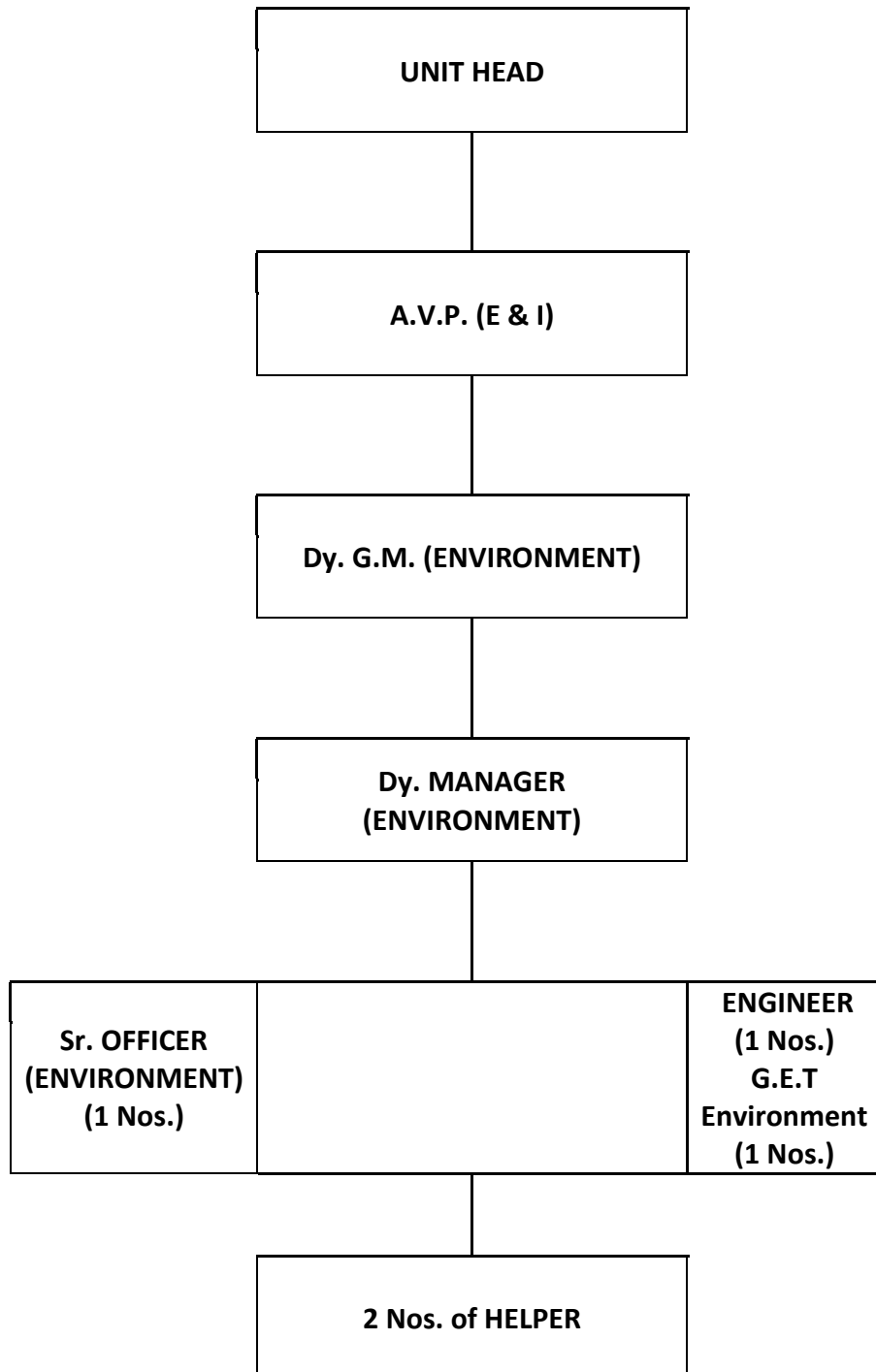
### Blast Ground Vibration Details

*Duraton:October-2016 To March-2017*

Sr. No.	Date	Locaton of Blasting		Vibration measured from blasting face(Distance in Mtrs.)	No. of Holes	Total charge(Kg.)	Charge/Hole(Kg.)	Charge/Delay(Kg.)	Peak vector sum(mm/sec.)	Accessories used in blasting
		Bench	B.Id.							
1	03.10.2016	I-North	4-33	200 m , Back side of blast	20	716.66	35.83	35.83	3.78	DTH & TLD
2	07.11.2016	I-East	7-24	300 m , Back side of blast	10	375	37.5	37.5	1.05	DTH & TLD
3	21.11.2016	I-South	4-48	275 m , Back side of blast	19	700	35	35	2.93	DTH & TLD
4	27.11.2016	II-South	6-14	250 m , Back side of blast	17	658.34	36.57	36.57	3.89	DTH & TLD
5	05.12.2016	I-East	7-27	300 m , Back side of blast	14	516.68	34.44	34.44	2.79	DTH & TLD
6	08.12.2016	I-West	3-41	275 m , Back side of blast	15	566.68	37.77	37.77	2.43	DTH & TLD
7	09.12.2016	II-West	6-15	300 m , Back side of blast	17	580.56	34.15	34.15	2.04	DTH & TLD
8	16.12.2016	II-South	6-16	275 m , Back side of blast	20	811.12	40.55	40.55	2.09	DTH & TLD
9	29.12.2016	II-South	6-18	250 m , Back side of blast	12	441.68	36.8	36.8	2.94	DTH & TLD
10	09.01.2017	II-South	4-51	225 m , Back side of blast	14	566.68	37.77	37.77	1.88	DTH & TLD
11	13.01.2017	I-East	7-29	300 m , Back side of blast	9	368.9	40.98	40.98	3.45	DTH & TLD
12	22.01.2017	I-South	4-52	300 m , Back side of blast	10	375	37.5	37.5	2.38	DTH & TLD
13	28.01.2017	I-South	4-54	300 m , Back side of blast	10	375	37.5	37.5	1.51	DTH & TLD
14	02.02.2017	II-South	4-55	300 m , Back side of blast	17	617.37	36.31	36.31	2.58	DTH & TLD
15	05.02.2017	II-West	3-45	275 m , Back side of blast	16	570	35.62	35.62	1.75	DTH & TLD
16	11.02.2017	II-East	4-59	300 m , Back side of blast	13	466.25	35.86	35.86	2.55	DTH & TLD
17	14.02.2017	I-West	6-21	275 m , Back side of blast	15	566	37.73	37.73	2.76	DTH & TLD
18	23.02.2017	II-East	4-62	250 m , Back side of blast	15	566.68	37.77	37.77	3.64	DTH & TLD
19	03.03.2017	II-West	4-65	300 m , Back side of blast	18	638.9	35.49	35.49	1.26	DTH & TLD
20	11.03.2017	II-North	3-47	300 m , Back side of blast	19	694.46	36.55	36.55	3.59	DTH & TLD
21	19.03.2017	I-South	5-8	300 m , Back side of blast	17	630.56	37.09	37.09	2.71	DTH & TLD
22	23.03.2017	II-South	6-32	300 m , Back side of blast	16	575	35.93	35.93	3.57	DTH & TLD

**J.K. Cement WORKS, MANGROL ( RAJ )**

**ORGANISATION CHART OF POLLUTION CONTROL DEPARTMENT**



**J.K. Cement WORKS, MANGROL (RAJ)**  
**MANGROL MINE**

**Financial Budget for Environmental Management**  
**FY 2017-18**

S. No.	Activity	Recurring Cost per Annum (Rs. in Lacs)
		Proposed
1.	Pollution control expenses (Others)	3.020
2.	Pollution control expenses (Statutory)	3.030
3.	Gardening Expenses	2.300
4.	CSR Expenses	30.0
Total (Rs. in Lacs)		38.35

**J.K. *Cement* WORKS, MANGROL (RAJ)**  
**MANGROL MINE**

**EXPENDITURE INCURRED ON ENVIRONMENTAL PROTECTION**  
**MEASURES DURING YEAR 2016-2017**

<b>S. No.</b>	<b>Activity</b>	<b>Recurring Cost per Annum (Rs.)</b>
1.	Pollution control expenses (Others)	<b>206010</b>
2.	Pollution control expenses (Statutory)	-
3.	Gardening Expenses	<b>35617</b>
4.	CSR Expenses	<b>2322409</b>
<b>Total (Rs.)</b>		<b>2564036/-</b>