JK Cement LTD.

Phone : +91-1477-220098, 220087
Fax : +91-1477-220027, 220049
E-mail : jkc.nbh@jkcement.com
Web : www.jkcement.com

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-21/C13 Regd.AD. Date: 28.05.2019

To,
The Director,
Indira Paryavaran Bhavan,
JOR Bagh Road, Aliganj,
New Delhi-110003

Sub: Environmental Clearance Compliance report for Expansion of Clinker and Cement production, Captive power plant and WHR of **M/s J.K. Cement Works, Mangrol** at Village- Mangrol, District-Chittorgarh, Rajasthan.

Ref.: EC letter no. J-11011/267/2013-IA .II (I) dated. 08.09.2016 & amendment dated 08.03.2019

Dear Sir,
With reference to above stated Environment Clearance (EC) accorded for our Mangrol plant, Clinker (2.90 MMTPA to 5.65 MMTPA) and Cement (3.54 MMTPA to 7.05 MMTPA) Captive Power Plant from 25 MW to 60 MW, and WHRB from 10 MW to 36 MW at our J.K. Cement Works, Mangrol. Please find attached herewith six monthly compliance for the **period from October' 2018 to March' 2019**. As per MoEF & CC notification no. S.O. 5845 (E) 26.11.2018 the same soft copy has been send to email id. rocz.lko-mef@nic.in, moef@nic.in, m_env@rediffmail.com, ccb.cpcb@nic.in, member-secretary@rpcb.nic.in, cpcb.bhopal@gmail.com for your kind reference and record please. We trust you will find the same in order.
Thanking you,

Yours Faithfully
For J.K. Cement Works, Mangrol

S.K. Acharya
Head (Environment & Power Management)

Encl: a/a
Copy to:

1.The Director, Ministry of Environment and Forests,_Regional office (Central Region), Kendriya Bhawan, 5th Floor, Sector 'H' , ALIGANJ, LUCKNOW- 226020 (U.P.)
2.The Additional Principal Chief Conservator of Forest (C) Ministry of Environment, Forests & Climate Change,Regional office(CZ),Kendriya Bhawan,5th Floor,Sector'H',ALIGANJ,LUCKNOW-226020 (U.P.)
3.The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-CUM office complex, East Arjun Nagar, New Delhi 110032
4. The Chairman, Rajasthan State Pollution Control Board, 4, Institutional Area, Jhalana Doongri, JAIPUR - 302004 (RAJASTHAN)

J.K. Cement WORKS, Mangrol (RAJ)

Six monthly Compliance report of Environment Clearance for Mangrol Cement Plant for the period From October 2018 to March 2019

Reference Letter from MOEF, New Delhi - J-11015/267/2013-IA.II (I) Dated 08.09.2016

S.No.	Condition	Status
	(A) Specific Conditions	
(i)	The project proponent should install 24x7 air monitoring devices to monitor air emission, as provided by the CPCB and submit report to Ministry and its Regional Office.	We have installed the continuous emission monitoring system (CEMS) & Continuous ambient air monitoring system (CAAQMS) for our existing unit Line – 1 & line 2 and real time data obtained are being sent to CPCB & RPCB regularly. The same will be installed in proposed project after commissioning of Line–3.Photgraphs of CAAQMS & CEMS enclosed as **Annexure-1.**
(ii)	The Standard issued by the Ministry vide G.S.R. No. 612 (E) dated 25th August, 2014 and subsequent amendment dated 9th May, 2016 and 10th May,2016 regarding cement plant with respect to particulate matter, SO_2 and NO_X shall be followed.	Complied with. We are achieving the new emission standard with respect to PM, SO2 & as per G.S.R. no. 612 (E) dated 25th August, 2014 & subsequent amendment dated 9th May, 2016 and 10th May, 2016 for our existing plant Line – 1 & 2.
(iii)	Continuous stack monitoring facilities to monitor gaseous emissions from process stacks shall be provided. After expansion, limit of PM shall be controlled to meet prescribed standards by installing adequate air pollution control viz. Electrostatic precipitators to clinker cooler, bag house to raw mill/kiln and bag filter to coal mill and cement mill. Low Nox burner shall be provide to control Nox emissions. Regular calibration of the instruments must be ensured.	We have already provided in line-1 & 2 and we will be provide the continuous gaseous emission monitoring system for our proposed project Line – 3. All adequate Air Pollution Control equipment's has been provided for particulate matter viz. 1.ESP - Clinker cooler 2.Bag house – Raw mill / Kiln 3.Bag house – Coal mill 4.Bag house – Cement mill
(iv)	Efforts shall be made to achieve power consumption of 70 units/tonne for Portland Pozzolona Cement (PPC) and 95 units/tonnes for Ordinary Portland Cement (OPC) production and thermal energy consumption of 670 Kcal/Kg of clinker.	We are regularly doing efforts to achieve targets in our existing plant and will be complied the condition by installation of energy efficient equipment in our proposed project.
(v)	The National Air Quality Standards issued by the Ministry vide G.S.R. No. 826 (E) dated 16th November, 2009 shall be followed.	We have converted Kiln ESP in to Bag house and Cement mill-2 ESP into Bag house in Our Line-1 plant and provided ESP in clinker cooler & bag houses/ bag filter at all belt transfer point in our line-2 plant, & also will be installed in the proposed unit to comply the National Air Quality Standards issued by the Ministry vide G.S.R. no. 826 (E) dated 16th November, 2009. Ambient air

		quality monitoring report of period Oct-18 to Mar-19 enclosed as **Annexure-2.**
(vi)	AAQ Modelling shall be carried out based on the specific mitigative measures taken in the existing project and proposed for the expansion project to keep the emissions well below prescribed standards.	We will be carried out the AAQ modelling based on the specific mitigative measures in the existing project and proposed expansion project to keep the emission well below the prescribed standards.
(vii)	Secondary fugitive emissions shall be controlled and shall be within the prescribed limits and regularly monitored. Guidelines/Code of Practice issued by the CPCB in this regard shall be followed.	We are in practice to conduct the fugitive emission monitoring regularly in our existing plant and controlled the emission by installing bag filters on material discharge point and water spraying in coal yard & other raw material yard. Guideline / Code of practice issued by the CPCB in this regard is followed. Photographs of control measures of fugitive emission enclosed as **Annexure-3.**
(viii)	A statement on carbon budgeting including the quantum of equivalent CO_2 being emitted by the existing plant operations, the amount of carbon sequestered annually by the existing green belt and the proposed green belt and the quantum of equivalent CO2 that will be emitted due to the proposed expansion shall be prepared by the project proponent and submitted to the Ministry and the Regional Office of the Ministry. This shall be prepared within a period of 6 Months and subsequently it should be prepared every year.	Will be complied after commission of proposed project however we are continuously making efforts to reduce CO2 emissions from last 3 years. 1. In future we will increase PPC production by which less clinker will be require. 2. More Power generation through WHR. 3. Thermal Energy is continuously decreasing from last three years.
(ix)	For the employees working in high temperature zones falling in the plant operation areas, the total shift duration would be 4 hrs or less per day where the temperature is more than 50°C. Moreover, the jobs of these employees will be alternated in such a way that no employee is subjected to working in high temperature area for more than 1 hr continuously. Such employees would be invariably provided with proper protective equipments, garments and gears such as head gear, clothing, gloves eye protection etc. There should also be an arrangement for sufficient drinking water at site to prevent dehydration etc.	Being a process plant there is no any place for working where temperature is more than 50°C. However during shutdown we start working after cooling of equipment and same practice will be followed in proposed unit. Personal protective equipment are being provided to respective worker & for safety awareness instructions and slogan display at various location of plant. Some photographs enclosed as **Annexure-4.**
(x)	Arsenic and Mercury shall be monitored in emissions, ambient air and water.	Will be complied, Arsenic and mercury monitoring in emissions, ambient air & water is being carried out. Monitoring report of emission & Water enclosed as **Annexure-2.**
(xi)	The coal yard shall be lined and covered.	Coal yard of existing plant Line – 1 & line – 2 are in covered shed. Proposed Line – 3 also will be covered after installation of plant. Photograph of coal storage yard enclosed as **Annexure-5.**

(xii)	The project proponent shall prepare a report on impact of project on surrounding reserve forest within six months and will get it approved from the State Forest Department. A copy of the conservation with the State Forest and Wildlife Department. A copy of the same should be submitted to the Ministry and its Regional Office.	There is no National park, Wildlife Sanctuary and forest area within 10 kms. of project area.
(xiii)	The project proponent shall take all precautionary measures for conservation and protection of wild fauna in the study area. A Wildlife Conservation Plan specific to this project site shall be prepared in consultation with State Forest and Wildlife Department. A copy of the Conservation plan shall be submitted to the Ministry and its Regional Office.	We have made wild life conservation plan for our Mangrol plant and submitted vide letter no. MGR/PC/21/406, Dated 23.04.2019. A copy of wild life conservation plan enclosed as **Annexure-6.**
(xiv)	The project proponent will also provide the latest status of the environment compliances in respect of its existing plant.	We are regular submitting the latest status of the environment compliances in respect of its existing plant by 1st June & 1st December of every calendar year last compliance report submitted vide letter no. MGR/PC/21/3153, Dated 28.11.2018.
(xv)	Efforts shall be made to reduce impact of the transport of the raw material and end products on the surrounding environment including agricultural land by the use of conveyors/rail mode of transport wherever feasible. The company shall have separate truck parking area. Vehicular emissions shall be regularly monitored.	All raw material transportation in covered truck/ dumper and end product being transporting in covered trucks or through rail mode for existing plant. We have provided separate truck parking area in the existing plant Line 1 & 2. The same practice will be adopted after commissioning of proposed project line – 3 and Vehicular emission will be regularly monitored during project activity. Photographs of truck parking yard & covered truck enclosed as **Annexure-7**.
(xvi)	Efforts shall be made to further reduce water consumption by using air cooled condensers. All the treated waste water shall be recycled and reused in the process and/or for dust suppression and green belt development and other plant related activities etc. No process waste water shall be discharged outside the factory premises and 'zero' discharge shall be adopted.	We have already installed air cooled condensers in our captive power plant to minimize the water and treated waste water from CPP and WHR is being recycle in cement plant for machineries cooling purpose only. Our Cement plant is based on dry process cement manufacturing technology, hence there is no waste water discharge outside the factory premises and 'Zero discharge' facility adopted.
(xvii)	Efforts shall be made to make use of rain water harvested. If needed capacity of the reservoir shall be enhanced to meet the maximum water requirement. Only balance water requirement shall be met from other sources.	We are strictly adhere to use of harvested rain water from our adjacent Limestone mines pit for cement plant. Remaining balance water requirement will be fulfil by ground water/ other sources only. Photographs of rain water harvesting structure enclosed as **Annexure-8.**

(xviii)	Regular monitoring of influent and effluent surface, sub-surface and ground water shall be ensured and treated waste water shall meet the norms prescribed by the State Pollution Control Board or described under the Environment (Protection) Act, 1986.	We are regularly monitoring the Domestic effluent after treatment in STP, waste water from CPP & WHR after neutralization in neutralization pit and treated waste water achieved the norms prescribed by the State Pollution Control Board. Wastewater monitoring report is attached as **Annexure-2** Same practice will be adopted in proposed line – 3 after commissioning of plant.
(xix)	All the bag filter, raw mill dust, coal dust, clinker dust and cement dust from Pollution Control devices shall be recycled and reused in the process and used for cement manufacturing. Spent oil and batteries shall be sold to authorized recyclers/ re-processors only.	Raw mill dust, coal dust, clinker dust and cement dust from Pollution control equipment like Bag house / ESP are being 100% recycled and reused in the cement manufacturing process in our existing Line – 1 & 2. Hazardous waste i.e. Used Oil (5.1), Waste oil (5.2) are being sold to authorized recyclers & batteries return back to supplier. The same practice will be adopted in proposed line – 3 after commission of plant.
(xx)	The kiln shall be provided with a flexible fuel feeding system to enable use of hazardous wastes and other wastes including biomass, etc.	We have arrangement for flexible fuel feeding system to enable use of hazardous wastes and other wastes including biomass etc.
(xxi)	The proponent shall examine and prepare a plan for utilization of high calorific waste such as chemical waste, distillation residues, refuse derived fuels, etc as alternate fuels based on availability and composition. For this, the proponent shall identify suitable industries with such waste and enter into an MOU for long-term utilization of such waste as per the Environment (protection) Rules, 1986 and with necessary approvals.	We are having a various hazardous waste / other waste permissions from CPCB / RSPCB to use as Alternative fuel & raw materials (AFR) in our existing Mangrol Plant.
(xxii)	Efforts shall be made to use the high calorific hazardous waste in the cement kiln and necessary provision shall be made accordingly. The PP shall enter into an MOU with units with potential for generating hazardous waste and in accordance with Hazardous Waste Regulation and prior approval of the **MPPCB.**	We are having permission of various hazardous waste / other waste from CPCB / RSPCB of high calorific value to use as Alternative fuel & raw materials (AFR) in our existing Mangrol Plant and same will be adopted after commission of proposed project Line – 3.
(xxiii)	Green belt over 33% of the total project area shall be developed within plant premises with at least 10 meter wide green belt on all sides along the periphery of the project area and along road sides etc. by planting native and broad leaved species in consultation with local DFO, local community and as per the CPCB guidelines.	In existing plant we are planting saplings every year to cover at least 33% of the plant & will be developed in remaining area with prescribed as per the consultation with local DFO, and as per the CPCB guideline. We have planted 5000 trees in Existing Mangrol Plant FY 2018-19.

(xxiv)	The project proponent shall provide for solar light system for all common areas, street light, village and parking around project area and maintain the same regularly.	We have proposed 3 MW Solar power plant at own land at Bamania, Chittorgarh. The same power will be provided to our Mangrol Cement Plant.
(xxv)	The project proponent shall provide for LED light in their offices and residential areas.	We have replaced existing light in the offices and residential areas by LED light.
(xxvi)	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Cement plants shall be implemented.	We are complying all recommendations made in the Charter on Corporate responsibility for Environment protection (CREP) for the Cement plants. Complying in our existing Unit 1 & 2.
(xxvii)	At least 2.5% of the total cost of the project shall be earmarked towards the Enterprise Social Commitment based on Public Hearing issues, locals need and items-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office. Implementation of such program shall be ensured by constituting a Committee comprising of the proponent, representatives of village Panchayat and District Administration. Action taken report in this regards shall be submitted to the Ministry's Regional Office.	Agreed & will be complied with. We will submit action plan of CSR before starting the project work although we are regularly investing in around area as per local need.
(xxviii)	In addition to the above provision of ESC, the proponent shall prepare a detailed CSR Plan for the next 5 years including annual physical and financial targets for the existing-cum-expansion project, which includes village-wise, sector-wise (Health, Education, Sanitation, Skill Development and infrastructure etc) activities in consultation with the local communities and administration. The CSR Plan will include the amount of 2% retain annual profits of previous 3 years towards CSR activities for life of the project. A separate budget head shall be created and the annual capital and revenue expenditure on various activities of the CSR Plan shall also be uploaded on the company website and shall also be provided in the Annual Report of the company.	Agreed & will be complied with.
(xxix)	A risk Assessment Study and Disaster Preparedness and Management Plan along with the mitigation measures shall be prepared with a focus of Disaster Prevention and a copy submitted to the Ministry's Regional Office, SPCB and CPCB within 3 months of issue of Environment Clearance letter.	We are having the onsite emergency plan with respect to following objectives. • To overcome any emergency in its initial stage and to handle Disaster in most effective manner. • To eliminate any chance of loss to Human Life. • To minimise loss of Property in the Plant and surrounding areas. • To maintain essential supplies at the time of natural Calamities and / or Public disturbances.

(xxx)	To educate the workers, all the work places where dust may cause a hazard shall be clearly indicated as a dust exposure area through the use of display signs which identifies the hazard and the associated health effects.	We have displayed Environment health & safety slogan / messages in the existing Plant premises to spread the awareness with respect to hazard and the associated health effects & also give training for the same.
(xxxi)	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, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structure to be removed after the completion of the project.	We will take provisions for all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, safe drinking water, medical health care, crèche etc. during the construction of proposed plant.
	(B) GENERAL CONDITIONS	
(i)	The Project authorities must strictly adhere to the stipulation made by the Rajasthan Pollution Control Board and the State Government.	We are strictly adhere to stipulation made by RSPCB & State Government.
(ii)	No further expansion or modification in the plant shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change (MoEFCC).	Agreed. We will take prior approval of the Ministry of Environment, Forest & Climate Change (MoEF& CC) for expansion or modification in the plant.
(iii)	At least four ambient air quality monitoring stations should be established in the downward direction as well as where maximum ground level concentration of PM_{10}, $PM_{2.5}$, SO_2 and NOx are anticipate in consultation with the SPCB. Data on ambient air quality and stack emission shall be regularly submitted to this Ministry including its Regional Office at Lucknow and the SPCB/CPCB once in Six months.	We are already having the 4 ambient air monitoring stations for PM 10, PM 2.5, SO2 & NOx are anticipate in consultation with the State Pollution Control Board and monitoring data is being regular submitting to the Ministry and its regional office at Lucknow and the SPCB/CPCB once in six month for existing Mangrol plant Line – 1 & Line 2 & same practice will be adopted in proposed Line – 3 and also establish four ambient air quality monitoring stations in the downward direction as well as where maximum ground level concentration of PM_{10}, $PM_{2.5}$, SO_2 and NOx are anticipate in consultation with the SPCB after commissioning the plant. Monitoring report is enclosed as **Annexure-2.**
(iv)	Industrial wastewater shall 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 form time to time. The treated wastewater shall be utilized for plantation purpose.	There is no waste water discharge in the cement plant hence 'Zero discharge' facility adopted and only from CPP & WHR waste water after treatment are reuse for machineries cooling in the cement plant respectively.

(v)	The overall noise levels in and around the plant area shall be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75dBA (daytime) and 70 dBA(night time).	Installed equipment inside the building to maintain noise level within the limit in the existing plant Line 1 & line 2.
(vi)	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	Occupational health surveillance of the workers is being done on regular basis in the existing cement plant Line 1 & 2. The same practice will be adopted after commissioning of line – 3.
(vii)	The company shall develop rain water harvesting structures to harvest the rain water for utilization in the lean season besides recharging the ground watertable.	We have already developed 16 nos. of injection well and 1 recharge pond in the existing cement plant & colony.
(viii)	The project proponent shall also comply with all the environment protection measures and safeguards recommended in the EIA/EMP report. Further, the company must undertake socio-economic development activities in the surrounding villages like community development programmes, education programmes, drinking water supply and health care etc.	Environment protection measures and safeguards recommended in the EIA/EMP report is adopted. We have undertaken socio – economic development under CSR activities like community development programmes, education programmes, drinking water supply and health care etc.
(ix)	Requisite funds shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures to implement the conditions stipulated by the Ministry of Environment, Forest and Climate Change (MoEFCC) as well as the State Government. An implementation schedule for implementing all the conditions stipulated herein shall be submitted to the Regional Office of the Ministry at Lucknow. The funds so provide shall not be diverted for any other purpose.	We will be earmarked towards cost and recurring cost / annum for environment pollution control measures to implement the conditions stipulated by the Ministry of Environment, Forest and Climate change (MoEF& CC) as well as the state govt. Implementation schedule will be submit to Regional office of the Ministry at Lucknow before start of project activity.
(x)	A copy of clearance letter shall be sent by thge proponent to concerned Panchayat, ZilaParishad/Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestion/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the web site of the company by the proponent.	A copy of Environmental clearance letter has been sent to the SDM, Nimbhaera tehsil, The Sarpanch, Gram panchayat, Mangrol, DIC, Chittorgarh, Chief Executive offier Zila parishad, Chittorgarh The District Magistrate, Chitorgarh Local body on dated 19.09.2016 The clearance letter has uploaded on the website of the company i.e. www.jkcement.com
(xi)	The project proponent shall upload the status of compliance of the stipulated environment 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 MOEFCC at Lucknow. The respective zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; PM10, SO2, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated	Agreed & We are regular uploading the status of compliance of the stipulated environment clearance conditions, including result of monitoring data of the existing plant on the company website periodically. The same is regularly being sent to regional office Lucknow. The criteria pollutant level namely; PM 10, SO2, NOx (ambient levels as well as stack emissions) for existing plant Line 1

	for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	& 2 is being displayed at main gate of the company for the public domain.
(xii)	The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environment conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MOEFCC, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry at Lucknow/ CPCB/SPCB shall monitor the stipulated conditions.	We are regular submitting the six monthly compliance report of the stipulated environment conditions including result of monitored data (both in hard copies as well as by email) for existing plant to the regional office of MoEF& CC and zonal office of CPCB and the SPCB.
(xiii)	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 conditions and shall also be sent to the respective Regional Office of the MOEFCC at Lucknow by e-mail.	Complying with, The Environment Statement report of our existing cement plant of FY 2017-18 has submitted vide letter no. MGR-PC-13/2394, Date: 27.09.2018 to the State Pollution Control Board and regional office of the MoEF& CC at Lucknow and uploading the same in the company website.
(xiv)	The Project Proponent shall inform the public that the project has been accorded environment clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at website of the Ministry of Environment, Forest and Climate Change (MoEFCC) at http:/envfor.nic.in. This shall be advertised within sevendays from the date of issue of the clearance letter, at least in two local newspaper that are	We have publish the notice that the project has been accorded environmental clearance by the Ministry of environment & Forest in two newspaper namely as followed. *1.* Dainik Bhaskar dated 17.09.2016 *2.* Rajasthan Patrika dated 17.09.2016
(xv)	Widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the Regional Office at Lucknow.	Agreed & complied.
(xvi)	Project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	We will inform the Regional Office as well as Ministry the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.

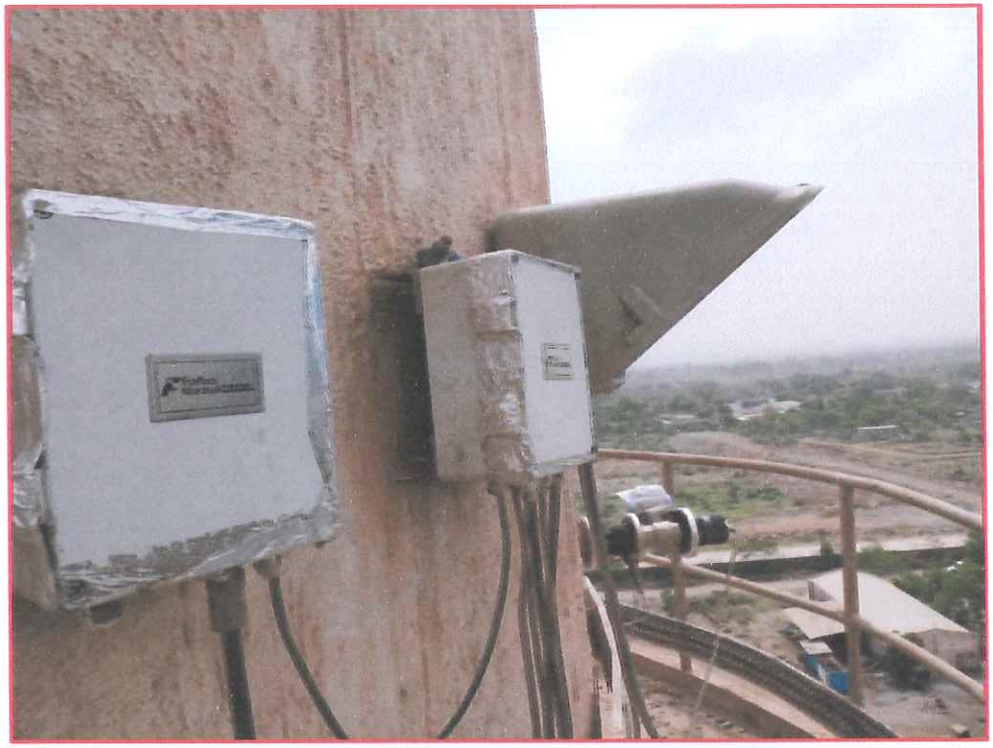
Amended EC Letter from MOEF, New Delhi – J-11011/267/2013-IA.II (I), Dated 08.03.2019

S. No.	Condition	Status
	General Conditions	
(ii)	It is mentioned that there will be no pollution load increment due to enhancement of WHRB capacity from 20 MW to 30 MW. The following measures will be implemented to increase the waste heat recovery power generation upto 10 MW: Gain of 2.5 MW and 2.9 MW power generation by enhancement of boiler inlet flue temperature (from 380 480 C) by recirculation of hot air in line-2 and line respectively, i.e., total gain will be 5.4 MW. • Installing a new boiler with efficient heat recovery, as there will be higher stream recovery with temperature of 440 degree with minimization of condensing temperature, with gain of 4.6 MW.	Agreed, The Waste Heat Recovery boiler (WHRB) is eco-friendly system & there is no increase pollution load by capacity enhancement of WHRB power generation.
(iii)	The certified EC compliance has been obtained from Regional Office (Lucknow) of MOEF&CC vide letter no. IV/ENV/R/IND167/946/2017/732 dated 09.07.2018.	Noted ,
(iv)	The proponent has mentioned that there is no court case or violation under EIA Notification to the project or related activity.	Agreed
(v)	The proposal was considered by the Expert Appraisal Committee (Industry – I) during its 34th meeting held on 6th to 7th August, 2018. After detailed deliberations, the committee recommended for the grant of amendment to the environmental clearance with the following conditions. • The power generation from waste heat recovery boiler shall be enhanced to 20 MW to 36 MW. • The PP shall under take additional greenbelt development in 5% of the total area. • The PP shall construct 5 additional rainwater recharging pits	Agreed, Proposed project is integrated with our new cement plant L-III & our green belt programme is common.
(vi)	The ministry considered the above recommendation of EAC and here by decided to amend the Environmental Clearance vide letter F. No. J-11011/267/2013-IAII (I) dated 08.09.2016 with the conditions as recommended by EAC in para 5 above.	Noted
(vii)	All other terms and conditions in the Environmental clearance vide letter F. No. J-11011/267/2013-IAII (I) dated 08.09.2016 are shall remain the same.	Noted

ANNEXURE-1

PHOTGRAPHS OF CONTINOUS AMBIENT AIR QUALITY MONITORING STATION

2. PHOTGRAPHS OF CONTINOUS STACK EMISSION MONITORING SYSTEM



Annexure-2

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

Name & Address of the Customer :

J.K. Cement Works, Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/1605
Date : 31.12.2018
Sample No. : MSKGL/ED/2018-19/12/02292
Sample Description : Ambient Air
Sampling Location : Near Time Office
Date of Sampling : 03/04.12.2018

Reference No.& Date : e-mail dtd: 07.06.2018

SL. N0.	Pollutants	Limit	Result	Method of Test Refference
1	Particulate matter (PM_{10}) in $\mu g/m^3$	100	76	IS: 5182:(Part-23)-2006
2	Particulate matter($PM_{2.5}$) in $\mu g/m^3$	60	32	USEPA CFR-40,Part-50, Appendix-L
3	Sulphur dioxide(SO2) in $\mu g/m^3$	80	7.0	IS: 5182 (Part-2)-2001
4	Nitrogen dioxide (NO2) in $\mu g/m^3$	80	23.0	IS: 5182 (Part- 6)-2006
5	Carbon monoxide(CO) in mg/m^3	2	0.33	IS 5182 :(Part-10) :1999
6	Ozone (O3) in $\mu g/m^3$	180	<19.62	Method of Air sampling, 3rd Edn. By James P. Lodge (Method-411)
7	Ammonia (NH3) in $\mu g/m^3$	400	24.8	Method of Air sampling, 3rd Edn. By James P. Lodge (Method-401)
8	Lead (Pb) in $\mu g/m^3$	1	<0.02	EPA-IO 3.2
9	Nickel (Ni) in ng/m^3	20	<4.0	EPA-IO 3.2
10	Arsenic (As) in ng/m^3	6	<1.0	APHA 22nd - 3114 C
11	Benzene (C6H6) in $\mu g/m^3$	5	<2.08	IS 5182 : Part. 11 : 2006
12	Benzo(a) pyrene (BaP) in ng/m^3	1	<0.4	IS 5182 : Part. 12 : 2004

Note : Limit as per CPCB notification, New Delhi, 18th November 2009, For Ambient air Quality

Report Prepared By

Authorized Signatory

For Mitra S.K. Pvt. Ltd.

Authorized Signatory

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

Name & Address of the Customer :

J.K. Cement Works, Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/1606
Date : 31.12.2018
Sample No. : MSKGL/ED/2018-19/12/02293
Sample Description : Ambient Air
Sampling Location : Near Thermal Power Plant
Date of Sampling : 03/04.12.2018

Reference No.& Date : e-mail dtd: 07.06.2018

SL. N0.	Pollutants	Limit	Result	Method of Test Refference
1	Particulate matter (PM_{10}) in $\mu g/m^3$	100	87	IS: 5182:(Part-23)-2006
2	Particulate matter($PM_{2.5}$) in $\mu g/m^3$	60	42	USEPA CFR-40,Part-50, Appendix-L
3	Sulphur dioxide(SO2) in $\mu g/m^3$	80	7.2	IS: 5182 (Part-2)-2001
4	Nitrogen dioxide (NO2) in $\mu g/m^3$	80	23.8	IS: 5182 (Part- 6)-2006
5	Carbon monoxide(CO) in mg/m^3	2	0.39	IS 5182 :(Part-10) :1999
6	Ozone (O3) in $\mu g/m^3$	180	<19.62	Method of Air sampling, 3rd Edn. By James P. Lodge (Method-411)
7	Ammonia (NH3) in $\mu g/m^3$	400	22.6	Method of Air sampling, 3rd Edn. By James P. Lodge (Method-401)
8	Lead (Pb) in $\mu g/m^3$	1	<0.02	EPA-IO 3.2
9	Nickel (Ni) in ng/m^3	20	<4.0	EPA-IO 3.2
10	Arsenic (As) in ng/m^3	6	<1.0	APHA 22nd - 3114 C
11	Benzene (C6H6) in $\mu g/m^3$	5	<2.08	IS 5182 : Part. 11 : 2006
12	Benzo(a) pyrene (BaP) in ng/m^3	1	<0.4	IS 5182 : Part. 12 : 2004

Note : Limit as per CPCB notification, New Delhi, 18th November 2009, For Ambient air Quality

Report Prepared By

Authorized Signatory

For Mitra S. K. Pvt. Ltd.

Authorized Signatory

Mitra S. K. Private Limited

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

Name & Address of the Customer :

J.K. Cement Works, Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/1607
Date : 31.12.2018
Sample No. : MSKGL/ED/2018-19/12/02294
Sample Description : Ambient Air
Sampling Location : Near Raw Material Gate
Date of Sampling : 03/04.12.2018

Reference No.& Date : e-mail dtd: 07.06.2018

SL. N0.	Pollutants	Limit	Result	Method of Test Refference
1	Particulate matter (PM_{10}) in $\mu g/m^3$	100	91	IS: 5182:(Part-23)-2006
2	Particulate matter($PM_{2.5}$) in $\mu g/m^3$	60	48	USEPA CFR-40,Part-50, Appendix-L
3	Sulphur dioxide(SO2) in $\mu g/m^3$	80	8.2	IS: 5182 (Part-2)-2001
4	Nitrogen dioxide (NO2) in $\mu g/m^3$	80	24.3	IS: 5182 (Part- 6)-2006
5	Carbon monoxide(CO) in mg/m^3	2	0.29	IS 5182 :(Part-10) :1999
6	Ozone (O3) in $\mu g/m^3$	180	<19.62	Method of Air sampling, 3rd Edn. By James P. Lodge (Method-411)
7	Ammonia (NH3) in $\mu g/m^3$	400	19.8	Method of Air sampling, 3rd Edn. By James P. Lodge (Method-401)
8	Lead (Pb) in $\mu g/m^3$	1	<0.02	EPA-IO 3.2
9	Nickel (Ni) in ng/m^3	20	<4.0	EPA-IO 3.2
10	Arsenic (As) in ng/m^3	6	<1.0	APHA 22nd - 3114 C
11	Benzene (C6H6) in $\mu g/m^3$	5	<2.08	IS 5182 : Part. 11 : 2006
12	Benzo(a) pyrene (BaP) in ng/m^3	1	<0.4	IS 5182 : Part. 12 : 2004

Note : Limit as per CPCB notification, New Delhi, 18th November 2009, For Ambient air Quality

Report Prepared By

Authorized Signatory

For Mitra S. K. Pvt. Ltd.

Authorized Signatory

Mitra S. K. Private Limited

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

MSK TESTING • INSPECTION

Name & Address of the Customer :

J.K. Cement Works, Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/1608
Date : 31.12.2018
Sample No. : MSKGL/ED/2018-19/12/02295
Sample Description : Ambient Air
Sampling Location : Near Packing Plant Gate
Date of Sampling : 03/04.12.2018

Reference No.& Date : e-mail dtd: 07.06.2018

SL. N0.	Pollutants	Limit	Result	Method of Test Refference
1	Particulate matter (PM_{10}) in $\mu g/m^3$	100	79	IS: 5182:(Part-23)-2006
2	Particulate matter($PM_{2.5}$) in $\mu g/m^3$	60	38	USEPA CFR-40,Part-50, Appendix-L
3	Sulphur dioxide(SO2) in $\mu g/m^3$	80	7.8	IS: 5182 (Part-2)-2001
4	Nitrogen dioxide (NO2) in $\mu g/m^3$	80	25.3	IS: 5182 (Part- 6)-2006
5	Carbon monoxide(CO) in mg/m^3	2	0.26	IS 5182 :(Part-10) :1999
6	Ozone (O3) in $\mu g/m^3$	180	<19.62	Method of Air sampling, 3rd Edn. By James P. Lodge (Method-411)
7	Ammonia (NH3) in $\mu g/m^3$	400	21.4	Method of Air sampling, 3rd Edn. By James P. Lodge (Method-401)
8	Lead (Pb) in $\mu g/m^3$	1	<0.02	EPA-IO 3.2
9	Nickel (Ni) in ng/m^3	20	<4.0	EPA-IO 3.2
10	Arsenic (As) in ng/m^3	6	<1.0	APHA 22nd - 3114 C
11	Benzene (C6H6) in $\mu g/m^3$	5	<2.08	IS 5182 : Part. 11 : 2006
12	Benzo(a) pyrene (BaP) in ng/m^3	1	<0.4	IS 5182 : Part. 12 : 2004

Note : Limit as per CPCB notification, New Delhi, 18th November 2009, For Ambient air Quality

Report Prepared By

Authorized Signatory

For Mitra S. K. Pvt. Ltd.

Authorized Signatory

Mitra S. K. Private Limited

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer :
J.K. Cement Works, Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/1609
Date : 31.12.2018
Sample No. : MSKGL/ED/2018-19/12/02296 to 02299
Sample Description : Noise Monitoring (Mangrol Plant)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

Sl. No.	Sampling Date	Sampling Location	Results Leq dB(A)	
			Day Time	Night Time
1.	03/04.12.2018	Near Packing Plant Gate	61.5	47.3
2.		Near Time Office	52.3	46.0
3.		Near Power Plant	68..6	51.3
4.		Near Raw Material gate	67.2	48.7
Limit As per CPCB (Environment Protection Rules, 1986)		in Industrial Area Leq dB(A)	75	70

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/1610
Date : 31.12.2018
Sample No. : MSKGL/ED/2018-19/12/02309
Sample Description : Stack Emission
Date & Time of Sampling: 02.12.2018 at 11.00 A.M
Sampling Location : Coal Mill (Line – 1)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Coal mill	
2.Emission due to	: Grinding of coal	
3.Material of construction of Stack	: Mild Steel	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 30 m	
2.Diameter of the Stack at sampling point	: 0.76 m	
3.Area of Stack	: 0.453 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Temperature of emission (°C)	: 70	EPA Part 2
2.Barometric pressure (mm of Hg)	: 735	EPA Part 2
3.Velocity of gas (m/sec)	: 20.2	EPA Part 2
4.Concentration of Particulate Matters (mg/Nm^3)	: 14.0	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag filter	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/1611
Date : 31.12.2018
Sample No. : MSKGL/ED/2018-19/12/02310
Sample Description : Stack Emission
Date & Time of Sampling: 05.12.2018 at 10.30 A.M
Sampling Location : Coal Mill (Line – 2)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Coal mill	
2.Emission due to	: Grinding of coal	
3.Material of construction of Stack	: Mild Steel	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 53 m	
2.Diameter of the Stack at sampling point	: 1.6 m	
3.Area of Stack	: 2.01 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Temperature of emission (°C)	: 68	EPA Part 2
2.Barometric pressure (mm of Hg)	: 735	EPA Part 2
3.Velocity of gas (m/sec)	: 20.6	EPA Part 2
4.Concentration of Particulate Matters (mg/Nm^3)	: 15.0	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag filter	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/1612
Date : 31.12.2018
Sample No. : MSKGL/ED/2018-19/12/02311
Sample Description : Stack Emission
Date & Time of Sampling: 02.12.2018 at 12.15 p.m
Sampling Location : Clinker Cooler (Line – I)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Clinker cooler	
2.Emission due to	: Clinker Hot gases	
3.Material of construction of Stack	: Mild Steel	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 35.5 m	
2.Diameter of the Stack at sampling point	: 3.0 m	
3.Area of Stack	: 7.07 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Temperature of emission (°C)	: 116	EPA Part 2
2.Barometric pressure (mm of Hg)	: 735	EPA Part 2
3.Velocity of gas (m/sec)	: 7.8	EPA Part 2
4.Concentration of Particulate Matters (mg/Nm^3)	: 24.0	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Electrostatic Precipitator	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/1613
Date : 31.12.2018
Sample No. : MSKGL/ED/2018-19/12/02312
Sample Description : Stack Emission
Date & Time of Sampling: 05.12.2018 at 11.45 a.m
Sampling Location : Clinker Cooler (Line – 2)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Clinker cooler	
2.Emission due to	: Clinker Hot gases	
3.Material of construction of Stack	: Mild Steel	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 34.1 m	
2.Diameter of the Stack at sampling point	: 3.35 m	
3.Area of Stack	: 8.81 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Temperature of emission (°C)	: 120	EPA Part 2
2.Barometric pressure (mm of Hg)	: 735	EPA Part 2
3.Velocity of gas (m/sec)	: 8.2	EPA Part 2
4.Concentration of Particulate Matters (mg/Nm^3)	: 22.0	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Electrostatic Precipitator	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/1614
Date : 31.12.2018
Sample No. : MSKGL/ED/2018-19/12/02313
Sample Description : Stack Emission
Date & Time of Sampling: 02.12.2018 at 02.30 a.m
Sampling Location : Cement Mill 2 (Line – 1)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Cement Mill	
2.Emission due to	: Grinding of Clinker & Gypsum	
3.Material of construction of Stack	: Mild Steel	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 30.0 m	
2.Diameter of the Stack at sampling point	: 0.80 m	
3.Area of Stack	: 0.502 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Temperature of emission (°C)	: 97	EPA Part 2
2.Barometric pressure (mm of Hg)	: 735	EPA Part 2
3.Velocity of gas (m/sec)	: 9.0	EPA Part 2
4.Concentration of Particulate Matters (mg/Nm^3)	: 16.0	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag filter	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/1615
Date : 31.12.2018
Sample No. : MSKGL/ED/2018-19/12/02314
Sample Description : Stack Emission
Date & Time of Sampling: 05.12.2018 at 01.30 p.m
Sampling Location : Cement Mill 3 (Line – 2)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Cement Mill	
2.Emission due to	: Grinding of Clinker & Gypsum	
3.Material of construction of Stack	: Mild Steel	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 56.0 m	
2.Diameter of the Stack at sampling point	: 2.9 m	
3.Area of Stack	: 6.60. m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Temperature of emission (°C)	: 96	EPA Part 2
2.Barometric pressure (mm of Hg)	: 735	EPA Part 2
3.Velocity of gas (m/sec)	: 12.4	EPA Part 2
4.Concentration of Particulate Matters (mg/Nm^3)	: 14.0	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag filter	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/1616
Date : 31.12.2018
Sample No. : MSKGL/ED/2018-19/12/02315
Sample Description : Stack Emission
Date & Time of Sampling: 12.12.2018 at 09.20 a.m
Sampling Location : Packer 1 (Line – 2)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Packer 1	
2.Emission due to	: NA	
3.Material of construction of Stack	: MS	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 30.0 m	
2.Diameter of the Stack at sampling point	: 1.0 m	
3.Area of Stack	: 0.7857 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Concentration of Particulate Matters (mg/Nm^3)	: 14.0	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag Filter	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/1618
Date : 31.12.2018
Sample No. : MSKGL/ED/2018-19/12/02317
Sample Description : Stack Emission
Date & Time of Sampling: 12.12.2018 at 12.45 p.m
Sampling Location : Packer 3 (Line – 2)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Packer 3	
2.Emission due to	: NA	
3.Material of construction of Stack	: MS	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 30.0 m	
2.Diameter of the Stack at sampling point	: 1.0 m	
3.Area of Stack	: 0.7857 m²	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Concentration of Particulate Matters (mg/Nm³)	:15.0	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag Filter	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/1619
Date : 31.12.2018
Sample No. : MSKGL/ED/2018-19/12/02318
Sample Description : Stack Emission
Date & Time of Sampling: 12.12.2018 at 02.00 p.m
Sampling Location : Packer 4 (Line – 2)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Packer 4	
2.Emission due to	: NA	
3.Material of construction of Stack	: MS	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 30.0 m	
2.Diameter of the Stack at sampling point	: 1.0 m	
3.Area of Stack	: 0.7857 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Concentration of Particulate Matters (mg/Nm^3)	: 14.0	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag Filter	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/1620
Date : 31.12.2018
Sample No. : MSKGL/ED/2018-19/12/02319
Sample Description : Stack Emission
Date & Time of Sampling: 02.12.2018 at 04.00 p.m
Sampling Location : Limestone Crusher (Line - 1)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Limestone Crusher	
2.Emission due to	: Limestone crushing	
3.Material of construction of Stack	: Mild Steel	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 30 m	
2.Diameter of the Stack at sampling point	: 0.7 m	
3.Area of Stack	: 0.385 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Temperature of emission (°C)	: 32	EPA Part 2
2.Barometric pressure (mm of Hg)	: 735	EPA Part 2
3.Velocity of gas (m/sec)	: 9.4	EPA Part 2
4.Concentration of Particulate Matters (mg/Nm^3)	: 17.0	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag Filter	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/1621
Date : 31.12.2018
Sample No. : MSKGL/ED/2018-19/12/02320
Sample Description : Stack Emission
Date & Time of Sampling: 05.12.2018 at 03.30p.m
Sampling Location : Limestone Crusher (Line - 2)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Limestone Crusher	
2.Emission due to	: Limestone crushing	
3.Material of construction of Stack	: Mild Steel	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 30 m	
2.Diameter of the Stack at sampling point	: 0.40 m	
3.Area of Stack	: 1.23 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Temperature of emission (°C)	: 30	EPA Part 2
2.Barometric pressure (mm of Hg)	: 735	EPA Part 2
3.Velocity of gas (m/sec)	: 9.0	EPA Part 2
4.Concentration of Particulate Matters (mg/Nm^3)	: 18.0	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag Filter	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/1622
Date : 31.12.2018
Sample No. : MSKGL/ED/2018-19/12/02304
Sample Description : Stack Emission
Date & Time of Sampling: 02.12.2018 at 09.15 a.m
Sampling Location : Kiln & Raw mill stack (Line – 1)

Reference No. & Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Kiln & Raw mill	
2.Emission due to	: Burning of Limestone & additive	
3.Material of construction of Stack	: Mild Steel	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 88.3 m	
2.Diameter of the Stack at sampling point	: 2.58 m	
3.Area of Stack	: 5.23 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Temperature of emission (°C)	: 160	EPA Part 2
2.Barometric pressure (mm of Hg)	: 735	EPA Part 2
3.Velocity of gas (m/sec)	: 17.8	EPA Part 2
4.Concentration of Sulphur di oxide (mg/Nm^3)	: 11.8	EPA Part-6
5.Concentration of Nitrogen di oxide (mg/Nm^3)	: 794	EPA Part-7
6.Concentration of Particulate Matters (mg/Nm^3)	: 15.0	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag House	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/1623
Date : 31.12.2018
Sample No. : MSKGL/ED/2018-19/12/02305
Sample Description : Stack Emission
Date & Time of Sampling: 05.12.2018 at 09.00 a.m
Sampling Location : Kiln & Raw mill stack (Line – 2)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Kiln & Raw mill	
2.Emission due to	: Burning of Limestone & additive	
3.Material of construction of Stack	: Mild Steel	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 145.1 m	
2.Diameter of the Stack at sampling point	: 4.25 m	
3.Area of Stack	: 14.19 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Temperature of emission (°C)	: 164	EPA Part 2
2.Barometric pressure (mm of Hg)	: 735	EPA Part 2
3.Velocity of gas (m/sec)	: 17.2	EPA Part 2
4.Concentration of Sulphur di oxide (mg/Nm^3)	: 10.8	EPA Part-6
5.Concentration of Nitrogen di oxide (mg/Nm^3)	: 786	EPA Part-7
6.Concentration of Particulate Matters (mg/Nm^3)	: 16.0	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag House	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer :
Thermax Ltd.
C/o J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/1624
Date : 31.12.2018
Sample No. : MSKGL/ED/2018-19/12/02329
Sample Description : Flue Gas Monitoring
Sampling Location : Coal crusher Plant
Date & Time of Sampling : 10.12.2018 at 11.30 A.M

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Coal Crusher	
2.Emission due to	: Coal Crushing	
3.Material of construction of Stack	: Mild Steel	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 30.0 m	
2.Diameter of the Stack at sampling point	: 0.795 m	
3.Height of the sampling point from GL	: 7.0 m	
4.Area of Stack	: 0.496 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Temperature of emission (°C)	: 50	EPA Part 2
2.Barometric pressure (mm of Hg)	: 735	EPA Part 2
3.Velocity of gas (m/sec)	: 9.2	EPA Part 2
4.Concentration of Particulate Matters (mg/Nm^3)	: 15.0	EPA Part-17
E. Pollution control device		
Details of pollution control devices attached with the stack	: Bag Filter	
F. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

TEST REPORT

Name & Address of the Customer :
Thermax Ltd.
C/o J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/1625
Date : 31.12.2018
Sample No. : MSKGL/ED/2018-19/12/02330
Sample Description : Flue Gas Monitoring
Sampling Location :25 MW Thermal Power Plant
Date & Time of Sampling : 10.12.2018 at 10.00 A.M

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Boiler	
2.Emission due to	: Power Generation	
3.Material of construction of Stack	: RCC	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
6.Generation Capacity	: 25 MW	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 110.0 m	
2.Diameter of the Stack at sampling point	: 4.122 m	
3.Height of the sampling point from GL	: 38.10 m	
4.Area of Stack	: 13.34 m^2	
C. Analysis/Characteristic of stack		
1. Fuel used : Coal		
D. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Temperature of emission (°C)	: 128	EPA Part 2
2.Barometric pressure (mm of Hg)	: 735	EPA Part 2
3.Velocity of gas (m/sec)	: 8.9	EPA Part 2
4.Concentration of Oxygen (% v/v)	: 6.6	IS 13270:1992,Reaf:2014
5.Conc. of Particulate Matters (mg/Nm^3) at 6% O_2 on dry basis	: 22.0	EPA Part-17
E. Pollution control device		
Details of pollution control devices attached with the stack	: ESP	
F. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer :
Thermax Ltd.
C/o J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/1626
Date : 31.12.2018
Sample No. : MSKGL/ED/2018-19/12/01979
Sample Description : Treated Effluent Water
Sample Location : 10 MW WHR
Date of Collection : 10.12.2018

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

Sl No.	Parameter	Unit	Standard	Result
1.	pH (at 25^0 C)	---	6.5 to 8.5	7.80
2.	Total Suspended solids (TSS)	mg/l	100	10.0
3.	Oil & Grease	mg/l	10	<1.4
4.	Total Residual Chlorine	mg/l	1.0	<0.1
5.	Iron (as Fe)	mg/l	1.0	0.43
6.	Chromium (Total)	mg/l	0.2	<0.01
7.	Free Available Chlorine	mg/l	0.5	<0.1
8.	Copper (as Cu)	mg/l	1.0	<0.02
9.	Zinc (as Zn)	mg/l	1.0	<0.02
10.	Temperature	^{0} C	Shall not exceed 5^0 C above the receiving water temperature	4^0 C higher than the intake water temperature
11.	Phosphate (as PO_4)	mg/l	5.0	<0.15
12.	Chemical Oxygen Demand as COD	mg/l	250.0	12.0
13.	Biological Oxygen Demand as BOD	mg/l	30.0	2.1
14.	Chlorides (as Cl)	mg/l	1000.0	528.0
15.	Sulphate (as SO_4)	mg/l	1000.0	144.0

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

TEST REPORT

Name & Address of the Customer :
Thermax Ltd.
C/o J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/1627
Date : 31.12.2018
Sample No. : MSKGL/ED/2018-19/12/01980
Sample Description : Treated Effluent Water
Sample Location : 25 MW TPP
Date of Collection : 10.12.2018

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

Sl No.	Parameter	Unit	Standard	Result
1.	pH (at 25^0 C)	---	6.5 to 8.5	8.04
2.	Total Suspended solids (TSS)	mg/l	100	6.3
3.	Oil & Grease	mg/l	10	<1.4
4.	Total Residual Chlorine	mg/l	1.0	<0.1
5.	Iron (as Fe)	mg/l	1.0	0.12
6.	Chromium (Total)	mg/l	0.2	<0.01
7.	Free Available Chlorine	mg/l	0.5	<0.1
8.	Copper (as Cu)	mg/l	1.0	<0.02
9.	Zinc (as Zn)	mg/l	1.0	<0.02
10.	Temperature	^{0} C	Shall not exceed 5^0 C above the receiving water temperature	4^0 C higher than the intake water temperature
11.	Phosphate (as PO_4)	mg/l	5.0	0.68
12.	Chemical Oxygen Demand as COD	mg/l	250.0	43.0
13.	Biological Oxygen Demand as BOD	mg/l	30.0	9.0
14.	Chlorides (as Cl)	mg/l	1000.0	580.0
15.	Sulphate (as SO_4)	mg/l	1000.0	118.0

Report Prepared by :

For Mitra S.K. Private Limited

MITRA S.K. PVT. LTD.

Authorised Signatory

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

TEST REPORT

Name & Address of the Customer :

J.K. Cement Works, Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/2096
Date : 31.03.2019
Sample No. : MSKGL/ED/2018-19/03/01319
Sample Description : Ambient Air
Sampling Location : Near Packing Plant Gate
Date of Sampling : 14/15.03.2019

Reference No.& Date : e-mail dtd: 07.06.2018

AMBIENT AIR QUALITY MONITORING REPORT

SL. N0.	Pollutants	Limit	Result	Method of Test Refference
1	Particulate matter (PM_{10}) in $\mu g/m^3$	100	79	IS: 5182:(Part-23)-2006
2	Particulate matter($PM_{2.5}$) in $\mu g/m^3$	60	40	TPM/MSK/ENV(AP)/01/03
3	Sulphur dioxide(SO2) in $\mu g/m^3$	80	6.5	IS: 5182 (Part-2)-2001
4	Nitrogen dioxide (NO2) in $\mu g/m^3$	80	28.2	IS: 5182 (Part- 6)-2006
5	Carbon monoxide(CO) in mg/m^3	2	0.66	IS 5182 :(Part-10) :1999
6	Ozone (O3) in $\mu g/m^3$	180	24.5	TPM/MSK/ENV(AP)/01/07
7	Ammonia (NH3) in $\mu g/m^3$	400	13.7	TPM/MSK/ENV(AP)/01/08
8	Lead (Pb) in $\mu g/m^3$	1	0.01	EPA-IO 3.4
9	Nickel (Ni) in ng/m^3	20	16.76	EPA-IO 3.4
10	Arsenic (As) in ng/m^3	6	<1.0	EPA-IO 3.4
11	Benzene (C6H6) in $\mu g/m^3$	5	<4.2	IS 5182 : Part. 11 : 2006
12	Benzo(a) pyrene (BaP) in ng/m^3	1	<0.5	IS 5182 : Part. 12 : 2004

Note : Limit as per CPCB notification, New Delhi, 18th November 2009, For Ambient air Quality

Report Prepared By:

For Mitra S. K. Pvt. Ltd.

Authorized Signatory

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

TEST REPORT

Name & Address of the Customer :

J.K. Cement Works, Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/2095
Date : 31.03.2019
Sample No. : MSKGL/ED/2018-19/03/01318
Sample Description : Ambient Air
Sampling Location : Near Raw Material Gate
Date of Sampling : 14/15.03.2019

Reference No.& Date : e-mail dtd: 07.06.2018

AMBIENT AIR QUALITY MONITORING REPORT

Sl.. N0.	Pollutants	Limit	Result	Method of Test Refference
1	Particulate matter (PM_{10}) in $\mu g/m^3$	100	91	IS: 5182:(Part-23)-2006
2	Particulate matter($PM_{2.5}$) in $\mu g/m^3$	60	50	TPM/MSK/ENV(AP)/01/03
3	Sulphur dioxide(SO2) in $\mu g/m^3$	80	8.5	IS: 5182 (Part-2)-2001
4	Nitrogen dioxide (NO2) in $\mu g/m^3$	80	35.3	IS: 5182 (Part- 6)-2006
5	Carbon monoxide(CO) in mg/m^3	2	0.82	IS 5182 :(Part-10) :1999
6	Ozone (O3) in $\mu g/m^3$	180	34.8	TPM/MSK/ENV(AP)/01/07
7	Ammonia (NH3) in $\mu g/m^3$	400	22.2	TPM/MSK/ENV(AP)/01/08
8	Lead (Pb) in $\mu g/m^3$	1	0.03	EPA-IO 3.4
9	Nickel (Ni) in ng/m^3	20	10.46	EPA-IO 3.4
10	Arsenic (As) in ng/m^3	6	<1.0	EPA-IO 3.4
11	Benzene (C6H6) in $\mu g/m^3$	5	<4.2	IS 5182 : Part. 11 : 2006
12	Benzo(a) pyrene (BaP) in ng/m^3	1	<0.5	IS 5182 : Part. 12 : 2004

Note : Limit as per CPCB notification, New Delhi, 18th November 2009, For Ambient air Quality

Report Prepared By:

For Mitra S. K. Pvt. Ltd.

Authorized Signatory

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

TEST REPORT

Name & Address of the Customer :

J.K. Cement Works, Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/2094
Date : 31.03.2019
Sample No. : MSKGL/ED/2018-19/03/01317
Sample Description : Ambient Air
Sampling Location : Near Thermal Power Plant
Date of Sampling : 14/15.03.2019

Reference No.& Date : e-mail dtd: 07.06.2018

AMBIENT AIR QUALITY MONITORING REPORT

SL. N0.	Pollutants	Limit	Result	Method of Test Refference
1	Particulate matter (PM_{10}) in $\mu g/m^3$	100	85	IS: 5182:(Part-23)-2006
2	Particulate matter($PM_{2.5}$) in $\mu g/m^3$	60	43	TPM/MSK/ENV(AP)/01/03
3	Sulphur dioxide(SO2) in $\mu g/m^3$	80	11.7	IS: 5182 (Part-2)-2001
4	Nitrogen dioxide (NO2) in $\mu g/m^3$	80	45.1	IS: 5182 (Part- 6)-2006
5	Carbon monoxide(CO) in mg/m^3	2	0.96	IS 5182 :(Part-10) :1999
6	Ozone (O3) in $\mu g/m^3$	180	31.2	TPM/MSK/ENV(AP)/01/07
7	Ammonia (NH3) in $\mu g/m^3$	400	30.4	TPM/MSK/ENV(AP)/01/08
8	Lead (Pb) in $\mu g/m^3$	1	0.03	EPA-IO 3.4
9	Nickel (Ni) in ng/m^3	20	15.62	EPA-IO 3.4
10	Arsenic (As) in ng/m^3	6	<1.0	EPA-IO 3.4
11	Benzene (C6H6) in $\mu g/m^3$	5	<4.2	IS 5182 : Part. 11 : 2006
12	Benzo(a) pyrene (BaP) in ng/m^3	1	<0.5	IS 5182 : Part. 12 : 2004

Note : Limit as per CPCB notification, New Delhi, 18th November 2009, For Ambient air Quality

Report Prepared By:

For Mitra S.K. Pvt. Ltd.

Authorized Signatory

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

TEST REPORT

Name & Address of the Customer :

J.K. Cement Works, Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/2093
Date : 31.03.2019
Sample No. : MSKGL/ED/2018-19/03/01316
Sample Description : Ambient Air
Sampling Location : Near Time Office
Date of Sampling : 14/15.03.2019

Reference No.& Date : e-mail dtd: 07.06.2018

AMBIENT AIR QUALITY MONITORING REPORT

SL. N0.	Pollutants	Limit	Result	Method of Test Refference
1	Particulate matter (PM_{10}) in $\mu g/m^3$	100	76	IS: 5182:(Part-23)-2006
2	Particulate matter($PM_{2.5}$) in $\mu g/m^3$	60	41	TPM/MSK/ENV(AP)/01/03
3	Sulphur dioxide(SO2) in $\mu g/m^3$	80	7.6	IS: 5182 (Part-2)-2001
4	Nitrogen dioxide (NO2) in $\mu g/m^3$	80	23.8	IS: 5182 (Part- 6)-2006
5	Carbon monoxide(CO) in mg/m^3	2	0.46	IS 5182 :(Part-10) :1999
6	Ozone (O3) in $\mu g/m^3$	180	29.7	TPM/MSK/ENV(AP)/01/07
7	Ammonia (NH3) in $\mu g/m^3$	400	17.4	TPM/MSK/ENV(AP)/01/08
8	Lead (Pb) in $\mu g/m^3$	1	0.02	EPA-IO 3.4
9	Nickel (Ni) in ng/m^3	20	15.18	EPA-IO 3.4
10	Arsenic (As) in ng/m^3	6	<1.0	EPA-IO 3.4
11	Benzene (C6H6) in $\mu g/m^3$	5	<4.2	IS 5182 : Part. 11 : 2006
12	Benzo(a) pyrene (BaP) in ng/m^3	1	<0.5	IS 5182 : Part. 12 : 2004

Note : Limit as per CPCB notification, New Delhi, 18th November 2009, For Ambient air Quality

Report Prepared By:

For Mitra S. K. Pvt. Ltd.

Authorized Signatory

Mitra S. K. Private Limited

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

MSK
TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer :
J.K. Cement Works, Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/2078
Date : 30.03.2019
Sample No. : MSKGL/ED/2018-19/03/01368 to 01371
Sample Description : Noise Monitoring

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

Sl. No.	Sampling Date	Sampling Location	Results Leq dB(A)	
			Day Time	Night Time
1.	14/15.03.2019	Near Colony Gate (Mangrol Plant)	51.7	39.1
2.		Near Time Office (Mangrol Plant)	62.6	46.2
3.		Near Power Plant (Mangrol Plant)	66.8	49.4
4.		Near Main gate (Mangrol Plant)	65.3	47.5
Limit As per CPCB (Environment Protection Rules, 1986)		in Industrial Area Leq dB(A)	75	70

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/2053
Date : 30.03.2019
Sample No. : MSKGL/ED/2018-19/03/01340
Sample Description : Stack Emission
Date & Time of Sampling: 15.03.2019 at 10.00 a.m
Sampling Location : Kiln & Raw mill stack (Line – 1)

Reference No. & Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Kiln & Raw mill	
2.Emission due to	: Burning of Limestone & additive	
3.Material of construction of Stack	: Mild Steel	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 88.3 m	
2.Diameter of the Stack at sampling point	: 2.58 m	
3.Area of Stack	: 5.23 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Temperature of emission (°C)	: 152	EPA Part 2
2.Barometric pressure (mm of Hg)	: 735	EPA Part 2
3.Velocity of gas (m/sec)	: 16.6	EPA Part 2
4.Concentration of Sulphur di oxide (mg/Nm^3)	: 11.6	EPA Part-6
5.Concentration of Nitrogen di oxide (mg/Nm^3)	: 768.0	EPA Part-7
6.Concentration of Particulate Matters (mg/Nm^3)	: 11	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag House	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/2054
Date : 30.03.2019
Sample No. : MSKGL/ED/2018-19/03/01341
Sample Description : Stack Emission
Date & Time of Sampling: 14.03.2019 at 10.00 a.m
Sampling Location : Kiln & Raw mill stack (Line – 2)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Kiln & Raw mill	
2.Emission due to	: Burning of Limestone & additive	
3.Material of construction of Stack	: Mild Steel	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 158.5 m	
2.Diameter of the Stack at sampling point	: 4.25 m	
3.Area of Stack	: 14.19 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Temperature of emission (°C)	: 158	EPA Part 2
2.Barometric pressure (mm of Hg)	: 735	EPA Part 2
3.Velocity of gas (m/sec)	: 17.2(13 to15)	EPA Part 2
4.Concentration of Sulphur di oxide (mg/Nm^3)	: 10.4	EPA Part-6
5.Concentration of Nitrogen di oxide (mg/Nm^3)	: 786.0	EPA Part-7
6.Concentration of Particulate Matters (mg/Nm^3)	: 13.0	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag House	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/2065
Date : 30.03.2019
Sample No. : MSKGL/ED/2018-19/03/01352
Sample Description : Stack Emission
Date & Time of Sampling: 15.03.2019 at 11.20 A.M
Sampling Location : Coal Mill (Line – 1)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Coal mill	
2.Emission due to	: Grinding of coal	
3.Material of construction of Stack	: Mild Steel	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 30 m	
2.Diameter of the Stack at sampling point	: 0.76 m	
3.Area of Stack	: 0.453 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Temperature of emission (°C)	: 70	EPA Part 2
2.Barometric pressure (mm of Hg)	: 735	EPA Part 2
3.Velocity of gas (m/sec)	: 23	EPA Part 2
4.Concentration of Particulate Matters (mg/Nm^3)	: 14.0	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag filter	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/2066
Date : 30.03.2019
Sample No. : MSKGL/ED/2018-19/03/01353
Sample Description : Stack Emission
Date & Time of Sampling: 14.03.2019 at 11.30 A.M
Sampling Location : Coal Mill (Line – 2)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Coal mill	
2.Emission due to	: Grinding of coal	
3.Material of construction of Stack	: Mild Steel	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 53 m	
2.Diameter of the Stack at sampling point	: 1.6 m	
3.Area of Stack	: 2.01 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Temperature of emission (°C)	: 66	EPA Part 2
2.Barometric pressure (mm of Hg)	: 735	EPA Part 2
3.Velocity of gas (m/sec)	: 27	EPA Part 2
4.Concentration of Particulate Matters (mg/Nm^3)	: 16.0	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag filter	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/2067
Date : 30.03.2019
Sample No. : MSKGL/ED/2018-19/03/01354
Sample Description : Stack Emission
Date & Time of Sampling: 15.03.2019 at 12.50 P.M
Sampling Location : Clinker Cooler (Line – I)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Clinker cooler	
2.Emission due to	: Clinker Hot gases	
3.Material of construction of Stack	: Mild Steel	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 35.5 m	
2.Diameter of the Stack at sampling point	: 3.0 m	
3.Area of Stack	: 7.07 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Temperature of emission (°C)	: 118	EPA Part 2
2.Barometric pressure (mm of Hg)	: 735	EPA Part 2
3.Velocity of gas (m/sec)	: 8.8	EPA Part 2
4.Concentration of Particulate Matters (mg/Nm^3)	: 24.0	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Electrostatic Precipitator	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/2068
Date : 30.03.2019
Sample No. : MSKGL/ED/2018-19/03/01355
Sample Description : Stack Emission
Date & Time of Sampling: 14.03.2019 at 01.00 P.M
Sampling Location : Clinker Cooler (Line – 2)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Clinker cooler	
2.Emission due to	: Clinker Hot gases	
3.Material of construction of Stack	: Mild Steel	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 34.6 m	
2.Diameter of the Stack at sampling point	: 3.35 m	
3.Area of Stack	: 8.81 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Temperature of emission (°C)	: 122	EPA Part 2
2.Barometric pressure (mm of Hg)	: 735	EPA Part 2
3.Velocity of gas (m/sec)	: 8.4	EPA Part 2
4.Concentration of Particulate Matters (mg/Nm^3)	: 18.6	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Electrostatic Precipitator	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/2069
Date : 30.03.2019
Sample No. : MSKGL/ED/2018-19/03/01356
Sample Description : Stack Emission
Date & Time of Sampling: 15.03.2019 at 02.30 p.m
Sampling Location : Cement Mill 2 (Line – 1)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Cement Mill	
2.Emission due to	: Grinding of Clinker & Gypsum	
3.Material of construction of Stack	: Mild Steel	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 35.0 m	
2.Diameter of the Stack at sampling point	: 0.80 m	
3.Area of Stack	: 0.502 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Temperature of emission (°C)	: 93	EPA Part 2
2.Barometric pressure (mm of Hg)	: 735	EPA Part 2
3.Velocity of gas (m/sec)	: 9.0	EPA Part 2
4.Concentration of Particulate Matters (mg/Nm^3)	: 17.0	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag filter	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/2070
Date : 30.03.2019
Sample No. : MSKGL/ED/2018-19/03/01357
Sample Description : Stack Emission
Date & Time of Sampling: 14.03.2019 at 02.30 p.m
Sampling Location : Cement Mill 3 (Line – 2)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Cement Mill	
2.Emission due to	: Grinding of Clinker & Gypsum	
3.Material of construction of Stack	: Mild Steel	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 56.0 m	
2.Diameter of the Stack at sampling point	: 2.9 m	
3.Area of Stack	: 6.60. m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Temperature of emission (°C)	: 95	EPA Part 2
2.Barometric pressure (mm of Hg)	: 735	EPA Part 2
3.Velocity of gas (m/sec)	: 12.6	EPA Part 2
4.Concentration of Particulate Matters (mg/Nm^3)	: 15.0	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag filter	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

Shrachi Centre (6th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/2071
Date : 30.03.2019
Sample No. : MSKGL/ED/2018-19/03/01358
Sample Description : Stack Emission
Date & Time of Sampling: 16.03.2019 at 10.00 a.m
Sampling Location : Packer 1 (Line – 2)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Packer 1	
2.Emission due to	: NA	
3.Material of construction of Stack	: MS	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 30.0 m	
2.Diameter of the Stack at sampling point	: 1.0 m	
3.Area of Stack	: 0.7857 m²	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Concentration of Particulate Matters (mg/Nm³)	: 16	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag Filter	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

MSK
TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/2072
Date : 30.03.2019
Sample No. : MSKGL/ED/2018-19/03/01359
Sample Description : Stack Emission
Date & Time of Sampling: 16.03.2019 at 11.00 A.M
Sampling Location : Packer 2 (Line – 2)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Packer 2	
2.Emission due to	: NA	
3.Material of construction of Stack	: MS	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 30.0 m	
2.Diameter of the Stack at sampling point	: 1.0 m	
3.Area of Stack	: 0.7857 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Concentration of Particulate Matters (mg/Nm^3)	: 17.0	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag Filter	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/2073
Date : 30.03.2019
Sample No. : MSKGL/ED/2018-19/03/01360
Sample Description : Stack Emission
Date & Time of Sampling: 16.03.2019 at 12.00 p.m
Sampling Location : Packer 3 (Line – 2)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Packer 3	
2.Emission due to	: NA	
3.Material of construction of Stack	: MS	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 30.0 m	
2.Diameter of the Stack at sampling point	: 1.0 m	
3.Area of Stack	: 0.7857 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Concentration of Particulate Matters (mg/Nm^3)	:15.0	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag Filter	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

MSK
TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/2074
Date : 30.03.2019
Sample No. : MSKGL/ED/2018-19/03/01361
Sample Description : Stack Emission
Date & Time of Sampling: 16.03.2019 at 01.00 P.M
Sampling Location : Packer 4 (Line – 2)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Packer 4	
2.Emission due to	: NA	
3.Material of construction of Stack	: MS	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 30.0 m	
2.Diameter of the Stack at sampling point	: 1.0 m	
3.Area of Stack	: 0.7857 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Concentration of Particulate Matters (mg/Nm^3)	: 18	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag Filter	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/2075
Date : 30.03.2019
Sample No. : MSKGL/ED/2018-19/03/01362
Sample Description : Stack Emission
Date & Time of Sampling: 15.03.2019 at 04.10 p.m
Sampling Location : Limestone Crusher (Line - 1)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Limestone Crusher	
2.Emission due to	: Limestone crushing	
3.Material of construction of Stack	: Mild Steel	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 30 m	
2.Diameter of the Stack at sampling point	: 0.7 m	
3.Area of Stack	: 0.385 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Temperature of emission (°C)	: 46	EPA Part 2
2.Barometric pressure (mm of Hg)	: 735	EPA Part 2
3.Velocity of gas (m/sec)	: 21	EPA Part 2
4.Concentration of Particulate Matters (mg/Nm^3)	: 17.0	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag Filter	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer :

J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/2076
Date : 30.03.2019
Sample No. : MSKGL/ED/2018-19/03/01363
Sample Description : Stack Emission
Date & Time of Sampling: 14.03.2019 at 04.00 P.M
Sampling Location : Limestone Crusher (Line - 2)

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Limestone Crusher	
2.Emission due to	: Limestone crushing	
3.Material of construction of Stack	: Mild Steel	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 30 m	
2.Diameter of the Stack at sampling point	: 0.40 m	
3.Area of Stack	: 1.23 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Temperature of emission (°C)	: 47	EPA Part 2
2.Barometric pressure (mm of Hg)	: 735	EPA Part 2
3.Velocity of gas (m/sec)	: 12.5	EPA Part 2
4.Concentration of Particulate Matters (mg/Nm^3)	: 18	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag Filter	
E. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

TEST REPORT

Name & Address of the Customer :
Thermax Ltd.
C/o J.K.Cement Works, Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/1985
Date : 23.03.2019
Sample No. : MSKGL/ED/2018-19/03/00388
Sample Description : Treated Effluent Water
Sample Location : 25 MW TPP
Date of Collection : 08.03.2019

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

Sl No.	Parameter	Unit	Standard	Result
1.	pH (at 25^0 C)	---	6.5 to 8.5	7.79
2.	Total Suspended solids (TSS)	mg/l	100	3.8
3.	Oil & Grease	mg/l	10	<1.4
4.	Total Residual Chlorine	mg/l	1.0	<0.1
5.	Iron (as Fe)	mg/l	1.0	0.65
6.	Chromium (Total)	mg/l	0.2	<0.01
7.	Free Available Chlorine	mg/l	0.5	<0.1
8.	Copper (as Cu)	mg/l	1.0	<0.02
9.	Zinc (as Zn)	mg/l	1.0	<0.02
10.	Temperature	^{0} C	Shall not exceed 5^0 C above the receiving water temperature	4^0 C higher than the intake water temperature
11.	Phosphate (as PO_4)	mg/l	5.0	4.6
12.	Chemical Oxygen Demand as COD	mg/l	250.0	24.0
13.	Biological Oxygen Demand as BOD	mg/l	30.0	3.8
14.	Chlorides (as Cl)	mg/l	1000.0	318.0
15.	Sulphate (as SO_4)	mg/l	1000.0	162.0

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

TEST REPORT

Name & Address of the Customer :
Thermax Ltd.
C/o J.K.Cement Works, Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/1986
Date : 23.03.2019
Sample No. : MSKGL/ED/2018-19/03/00389
Sample Description : Treated Effluent Water
Sample Location : 10 MW WHR
Date of Collection : 08.03.2019

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

Sl No.	Parameter	Unit	Standard	Result
1.	pH (at 25^0 C)	---	6.5 to 8.5	7.66
2.	Total Suspended solids (TSS)	mg/l	100	14.0
3.	Oil & Grease	mg/l	10	<1.4
4.	Total Residual Chlorine	mg/l	1.0	<0.1
5.	Iron (as Fe)	mg/l	1.0	0.53
6.	Chromium (Total)	mg/l	0.2	<0.01
7.	Free Available Chlorine	mg/l	0.5	<0.1
8.	Copper (as Cu)	mg/l	1.0	<0.02
9.	Zinc (as Zn)	mg/l	1.0	<0.02
10.	Temperature	^{0} C	Shall not exceed 5^0 C above the receiving water temperature	4^0 C higher than the intake water temperature
11.	Phosphate (as PO_4)	mg/l	5.0	0.56
12.	Chemical Oxygen Demand as COD	mg/l	250.0	24.0
13.	Biological Oxygen Demand as BOD	mg/l	30.0	4.2
14.	Chlorides (as Cl)	mg/l	1000.0	316.0
15.	Sulphate (as SO_4)	mg/l	1000.0	108.0

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

TEST REPORT

Name & Address of the Customer :
Thermax Ltd.
C/o J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/2079
Date : 30.03.2019
Sample No. : MSKGL/ED/2018-19/03/01908
Sample Description : Flue Gas Monitoring
Sampling Location :25MW Thermal Power Plant
Date & Time of Sampling : 08.03.2019 at 10.30 A.M

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Boiler	
2.Emission due to	: Power Generation	
3.Material of construction of Stack	: RCC	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
6.Generation Capacity	: 25 MW	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 110.0 m	
2.Diameter of the Stack at sampling point	: 4.122 m	
3.Height of the sampling point from GL	: 38.10 m	
4.Area of Stack	: 13.34 m^2	
C. Analysis/Characteristic of stack		
1. Fuel used : Coal		
D. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Temperature of emission (°C)	: 126	EPA Part 2
2.Barometric pressure (mm of Hg)	: 735	EPA Part 2
3.Velocity of gas (m/sec)	: 7.4	EPA Part 2
4.Concentration of Oxygen (% v/v)	: 6.4	IS 13270:1992,Reaf:2014
5.Conc. of Particulate Matters (mg/Nm^3) at 6% O_2 on dry basis	: 21.0	EPA Part-17
E. Pollution control device		
Details of pollution control devices attached with the stack	: ESP	
F. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

Shrachi Centre (5th Floor)
74B, Acharya Jagadish Chandra Bose Road
Kolkata - 700 016, West Bengal, India
CIN : U51909WB1956PTC023037

T : 91 33 40143000 / 22650006 / 22650007
F : 91 33 22650008
E : info@mitrask.com
W : www.mitrask.com

MSK
TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer :
Thermax Ltd.
C/o J.K.Cement Works Mangrol
Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2018-19/2080
Date : 30.03.2019
Sample No. : MSKGL/ED/2018-19/03/01909
Sample Description : Flue Gas Monitoring
Sampling Location : Coal crusher Plant
Date & Time of Sampling : 08.03.2019 at 12.00 P.M

Reference No.& Date : e-mail dtd: 07.06.2018

ANALYSIS RESULT

A. General information about stack		
1. Stack connected to	: Coal Crusher	
2.Emission due to	: Coal Crushing	
3.Material of construction of Stack	: Mild Steel	
4.Shape of Stack	: Circular	
5.Whether Stack is provided with permanent platform & ladder	: Yes	
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 30.0 m	
2.Diameter of the Stack at sampling point	: 0.795 m	
3.Height of the sampling point from GL	: 7.0 m	
4.Area of Stack	: 0.496 m^2	
C. Results of sampling & analysis of gaseous emission	**Result**	**Method**
1.Temperature of emission (°C)	: 53	EPA Part 2
2.Barometric pressure (mm of Hg)	: 735	EPA Part 2
3.Velocity of gas (m/sec)	: 9.0	EPA Part 2
4.Concentration of Particulate Matters (mg/Nm^3)	: 17.0	EPA Part-17
E. Pollution control device		
Details of pollution control devices attached with the stack	: Bag Filter	
F. Remarks : NIL		

Report Prepared by :

For Mitra S.K. Private Limited

Authorised Signatory

J.K. Cement WORKS, MANGROL (RAJ) (Unit-1)
DATA SHEET FOR PARTICULATE MATTER EMISSION FROM POINT SOURCE
October' 2018 - March' 2019

DATE	NAME OF THE STACK / DUCT ATTECHED WITH UNIT AND MONTH	CROSS SECTIONAL AREA OF DUCT (M2)	STACK GASES TEMP. (^{0} K)	STACK GASES VELOCITY (M / Sec.)	FLOW OF GASES IN STACK (NM^3/Sec.)	DUST CONC. (Mg/NM^3)	MEAN DUST CONC. (Mg/NM^3)	EMISSION RATE (Ts/DAY)	REMARK
	October'2018								
02.10.2018	KILN + RAW MILL (BH)	5.23	425	14.38	52.73	10.2	10.9	0.046	
09.10.2018	KILN + RAW MILL (BH)	5.23	420	15.18	56.33	11.0		0.054	
16.10.2018	KILN + RAW MILL (BH)	5.23	423	14.96	55.12	10.8		0.051	
23.10.2018	KILN + RAW MILL (BH)	5.23	421	15.59	57.71	11.6		0.058	
	November'2018								
05.11.2018	KILN + RAW MILL (BH)	5.23	423	13.75	50.66	11.1	11.6	0.049	
12.11.2018	KILN + RAW MILL (BH)	5.23	421	14.46	53.53	12.2		0.056	
19.11.2018	KILN + RAW MILL (BH)	5.23	425	15.21	55.78	11.0		0.053	
26.11.2018	KILN + RAW MILL (BH)	5.23	422	15.04	55.55	12.0		0.058	
	December'2018								
05.12.2018	KILN + RAW MILL (BH)	5.23	419	13.03	48.47	14.7	13.8	0.062	
12.12.2018	KILN + RAW MILL (BH)	5.23	422	13.57	50.12	12.8		0.055	
20.12.2018	KILN + RAW MILL (BH)	5.23	420	14.24	52.84	12.1		0.055	
29.12.2018	KILN + RAW MILL (BH)	5.23	418	14.79	55.15	15.5		0.074	
	January' 2019								
01.01.2019	KILN + RAW MILL (BH)	5.23	421	13.62	50.42	10.9	10.8	0.047	
08.01.2019	KILN + RAW MILL (BH)	5.23	422	14.60	53.92	10.6		0.049	
15.01.2019	KILN + RAW MILL (BH)	5.23	423	14.55	53.61	11.1		0.051	
22.01.2019	KILN + RAW MILL (BH)	5.23	424	14.71	54.07	10.4		0.049	
	February' 2019								
02.02.2019	KILN + RAW MILL (BH)	5.23	420	13.59	50.43	12.6	12.5	0.055	
09.02.2019	KILN + RAW MILL (BH)	5.23	423	14.50	53.43	12.3		0.057	
16.02.2019	KILN + RAW MILL (BH)	5.23	421	14.59	54.01	13.0		0.061	
23.02.2019	KILN + RAW MILL (BH)	5.23	422	14.80	54.66	12.0		0.057	
	March' 2019								
01.03.2019	KILN + RAW MILL (BH)	5.23	422	14.08	52.00	11.3	11.9	0.051	
07.03.2019	KILN + RAW MILL (BH)	5.23	428	15.14	55.13	11.7		0.056	
15.03.2019	KILN + RAW MILL (BH)	5.23	435	14.88	53.31	12.4		0.057	
19.03.2019	KILN + RAW MILL (BH)	5.23	439	15.52	55.10	12.1		0.058	
	October'2018								
02.10.2018	CLINKER COOLER (ESP)	7.07	440	9.51	45.54	29.5	28.6	0.116	
09.10.2018	CLINKER COOLER (ESP)	7.07	439	9.85	47.27	28.3		0.116	
16.10.2018	CLINKER COOLER (ESP)	7.07	436	9.44	45.62	28.8		0.114	
23.10.2018	CLINKER COOLER (ESP)	7.07	433	9.12	44.38	27.6		0.106	
	November'2018								
05.11.2018	CLINKER COOLER (ESP)	7.07	438	9.61	46.23	27.1	27.1	0.108	
12.11.2018	CLINKER COOLER (ESP)	7.07	436	9.47	45.76	26.8		0.106	
19.11.2018	CLINKER COOLER (ESP)	7.07	433	9.12	44.38	25.8		0.099	
26.11.2018	CLINKER COOLER (ESP)	7.07	431	8.88	43.41	28.6		0.107	
	December'2018								
05.12.2018	CLINKER COOLER (ESP)	7.07	432	8.95	43.65	25.8	25.4	0.097	
12.12.2018	CLINKER COOLER (ESP)	7.07	434	9.11	44.22	24.3		0.093	
20.12.2018	CLINKER COOLER (ESP)	7.07	430	9.22	45.17	23.9		0.093	
29.12.2018	CLINKER COOLER (ESP)	7.07	428	9.40	46.27	27.6		0.110	
	January' 2019								
01.01.2019	CLINKER COOLER (ESP)	7.07	437	9.54	45.99	25.9	25.8	0.103	
08.01.2019	CLINKER COOLER (ESP)	7.07	435	9.35	45.29	24.8		0.097	
15.01.2019	CLINKER COOLER (ESP)	7.07	431	8.91	43.55	24.8		0.093	
22.01.2019	CLINKER COOLER (ESP)	7.07	429	8.94	43.91	27.8		0.105	

	February' 2019								
02.02.2019	CLINKER COOLER (ESP)	7.07	433	9.34	45.45	22.2	**23.4**	0.087	
09.02.2019	CLINKER COOLER (ESP)	7.07	432	9.11	44.43	23.3		0.089	
16.02.2019	CLINKER COOLER (ESP)	7.07	437	8.85	42.67	23.8		0.088	
23.02.2019	CLINKER COOLER (ESP)	7.07	430	9.21	45.13	24.4		0.095	
	March' 2019								
01.03.2019	CLINKER COOLER (ESP)	7.07	435	10.38	50.27	16.8	**22.7**	0.073	
07.03.2019	CLINKER COOLER (ESP)	7.07	429	9.58	47.05	20.2		0.082	
15.03.2019	CLINKER COOLER (ESP)	7.07	436	9.87	47.69	25.6		0.105	
19.03.2019	CLINKER COOLER (ESP)	7.07	439	10.85	52.07	28.2		0.127	
	October'2018								
02.10.2018	COAL MILL (B.F.)	0.45	348	24.07	9.28	11.2	**16.5**	0.009	
09.10.2018	COAL MILL (B.F.)	0.45	347	24.55	9.49	19.1		0.016	
16.10.2018	COAL MILL (B.F.)	0.45	345	24.37	9.47	18.9		0.015	
23.10.2018	COAL MILL (B.F.)	0.45	342	24.33	9.54	16.7		0.014	
	November'2018								
05.11.2018	COAL MILL (B.F.)	0.45	346	23.91	9.27	10.4	**14.8**	0.008	
12.11.2018	COAL MILL (B.F.)	0.45	345	24.36	9.47	17.3		0.014	
19.11.2018	COAL MILL (B.F.)	0.45	342	24.34	9.54	16.3		0.013	
26.11.2018	COAL MILL (B.F.)	0.45	343	24.63	9.63	15.0		0.012	
	December'2018								
05.12.2018	COAL MILL (B.F.)	0.45	340	22.16	8.74	10.2	**12.4**	0.008	
12.12.2018	COAL MILL (B.F.)	0.45	342	22.77	8.93	12.0		0.009	
20.12.2018	COAL MILL (B.F.)	0.45	340	22.00	8.68	14.6		0.011	
29.12.2018	COAL MILL (B.F.)	0.45	341	21.78	8.57	12.8		0.009	
	January' 2019								
01.01.2019	COAL MILL (B.F.)	0.45	344	23.61	9.20	9.6	**13.6**	0.008	
08.01.2019	COAL MILL (B.F.)	0.45	343	24.38	9.53	15.8		0.013	
15.01.2019	COAL MILL (B.F.)	0.45	340	24.09	9.50	15.0		0.012	
22.01.2019	COAL MILL (B.F.)	0.45	341	24.49	9.63	13.9		0.012	
	February' 2019								
02.02.2019	COAL MILL (B.F.)	0.45	342	24.04	9.43	10.2	**11.9**	0.008	
09.02.2019	COAL MILL (B.F.)	0.45	341	24.25	9.54	12.1		0.010	
16.02.2019	COAL MILL (B.F.)	0.45	338	24.26	9.63	11.9		0.010	
23.02.2019	COAL MILL (B.F.)	0.45	343	24.48	9.57	13.3		0.011	
	March' 2019								
01.03.2019	COAL MILL (B.F.)	0.45	349	24.01	9.23	9.8	**12.3**	0.008	
07.03.2019	COAL MILL (B.F.)	0.45	348	24.32	9.37	13.6		0.011	
15.03.2019	COAL MILL (B.F.)	0.45	350	24.73	9.48	13.2		0.011	
19.03.2019	COAL MILL (B.F.)	0.45	347	24.89	9.62	12.4		0.010	
	October'2018								
02.10.2018	CEMENT MILL No.-1 (B.F.)	Mill Not in operation							
09.10.2018	CEMENT MILL No.-1 (B.F.)								
16.10.2018	CEMENT MILL No.-1 (B.F.)								
30.10.2018	CEMENT MILL No.-1 (B.F.)								

	November'2018								
05.11.2018	CEMENT MILL No.-1 (B.F.)	Mill Not in operation							
12.11.2018	CEMENT MILL No.-1 (B.F.)								
19.11.2018	CEMENT MILL No.-1 (B.F.)								
30.11.2018	CEMENT MILL No.-1 (B.F.)								
	December'2018								
05.12.2018	CEMENT MILL No.-1 (B.F.)	Mill Not in operation							
12.12.2018	CEMENT MILL No.-1 (B.F.)								
20.12.2018	CEMENT MILL No.-1 (B.F.)								
31.12.2018	CEMENT MILL No.-1 (B.F.)								
	January' 2019								
01.01.2019	CEMENT MILL No.-1 (B.F.)	Mill Not in operation							
08.01.2019	CEMENT MILL No.-1 (B.F.)								
15.01.2019	CEMENT MILL No.-1 (B.F.)								
31.01.2019	CEMENT MILL No.-1 (B.F.)								
	February' 2019								
02.02.2019	CEMENT MILL No.-1 (B.F.)	Mill Not in operation							
09.02.2019	CEMENT MILL No.-1 (B.F.)								
16.02.2019	CEMENT MILL No.-1 (B.F.)								
23.02.2019	CEMENT MILL No.-1 (B.F.)								
	March' 2019								
01.03.2019	CEMENT MILL No.-1 (B.F.)	Mill Not in operation							
07.03.2019	CEMENT MILL No.-1 (B.F.)								
15.03.2019	CEMENT MILL No.-1 (B.F.)								
31.03.2019	CEMENT MILL No.-1 (B.F.)								
	October'2018								
02.10.2018	CEMENT MILL No.-2 (B. H.)	0.50	383	8.21	3.19	18.4	**18.4**	0.005	
09.10.2018	CEMENT MILL No.-2 (B. H.)	0.50	386	8.15	3.15	20.4		0.006	
16.10.2018	CEMENT MILL No.-2 (B. H.)	0.50	381	7.86	3.07	19.0		0.005	
23.10.2018	CEMENT MILL No.-2 (B. H.)	0.50	388	7.46	2.86	15.6		0.004	
	November'2018								
05.11.2018	CEMENT MILL No.-2 (B. H.)	0.50	381	8.25	3.23	15.5	**16.7**	0.004	
12.11.2018	CEMENT MILL No.-2 (B. H.)	0.50	385	8.18	3.17	17.4		0.005	
19.11.2018	CEMENT MILL No.-2 (B. H.)	0.50	380	7.80	3.06	17.6		0.005	
26.11.2018	CEMENT MILL No.-2 (B. H.)	0.50	386	7.34	2.83	16.3		0.004	
	December'2018								
05.12.2018	CEMENT MILL No.-2 (B. H.)	0.50	378	8.34	3.29	14.2	**13.4**	0.004	
12.12.2018	CEMENT MILL No.-2 (B. H.)	0.50	380	8.21	3.22	15.3		0.004	
20.12.2018	CEMENT MILL No.-2 (B. H.)	0.50	375	7.93	3.15	13.0		0.004	
29.12.2018	CEMENT MILL No.-2 (B. H.)	0.50	382	7.40	2.89	11.2		0.003	
	January' 2019								
01.01.2019	CEMENT MILL No.-2 (B. H.)	0.50	379	8.16	3.21	13.9	**14.8**	0.004	
08.01.2019	CEMENT MILL No.-2 (B. H.)	0.50	381	8.04	3.14	15.2		0.004	
15.01.2019	CEMENT MILL No.-2 (B. H.)	0.50	378	7.49	2.95	15.6		0.004	
22.01.2019	CEMENT MILL No.-2 (B. H.)	0.50	382	7.38	2.88	14.3		0.004	
	February' 2019								
02.02.2019	CEMENT MILL No.-2 (B. H.)	0.50	368	7.91	3.20	14.0	**15.0**	0.004	
09.02.2019	CEMENT MILL No.-2 (B. H.)	0.50	377	7.93	3.13	14.2		0.004	
16.02.2019	CEMENT MILL No.-2 (B. H.)	0.50	380	7.54	2.96	16.9		0.004	
23.02.2019	CEMENT MILL No.-2 (B. H.)	0.50	382	7.64	2.98	14.9		0.004	

	March' 2019								
01.03.2019	CEMENT MILL No.-2 (B. H.)	0.50	384	8.38	3.25	13.4	**14.6**	0.004	
07.03.2019	CEMENT MILL No.-2 (B. H.)	0.50	387	8.32	3.20	13.9		0.004	
15.03.2019	CEMENT MILL No.-2 (B. H.)	0.50	382	7.94	3.10	15.6		0.004	
19.03.2019	CEMENT MILL No.-2 (B. H.)	0.50	386	7.56	2.92	15.4		0.004	
	October'2018								
02.10.2018	Crusher (B.F.)	0.38	326	22.73	7.90	18.1	**19.2**	0.012	
09.10.2018	Crusher (B.F.)	0.38	327	21.38	7.40	16.5		0.011	
16.10.2018	Crusher (B.F.)	0.38	323	21.11	7.40	20.4		0.013	
23.10.2018	Crusher (B.F.)	0.38	324	21.63	7.56	21.8		0.014	
	November'2018								
05.11.2018	Crusher (B.F.)	0.38	325	22.38	7.80	15.1	**17.2**	0.010	
12.11.2018	Crusher (B.F.)	0.38	328	21.67	7.48	15.3		0.010	
19.11.2018	Crusher (B.F.)	0.38	324	20.75	7.25	18.8		0.012	
26.11.2018	Crusher (B.F.)	0.38	326	21.93	7.62	19.4		0.013	
	December'2018								
07.12.2018	Crusher (B.F.)	0.38	320	24.01	8.50	15	**17.0**	0.011	
14.12.2018	Crusher (B.F.)	0.38	318	22.33	7.95	16.5		0.011	
21.12.2018	Crusher (B.F.)	0.38	314	21.50	7.75	17.5		0.012	
28.12.2018	Crusher (B.F.)	0.38	316	21.82	7.82	19.0		0.013	
	January' 2019								
01.01.2019	Crusher (B.F.)	0.38	323	22.17	7.77	13.9	**15.3**	0.009	
08.01.2019	Crusher (B.F.)	0.38	325	20.89	7.28	14.6		0.009	
15.01.2019	Crusher (B.F.)	0.38	321	20.20	7.13	17.1		0.011	
22.01.2019	Crusher (B.F.)	0.38	323	21.64	7.59	15.6		0.010	
	February' 2019								
02.02.2019	Crusher (B.F.)	0.38	320	21.73	7.69	12.8	**12.8**	0.009	
09.02.2019	Crusher (B.F.)	0.38	322	21.19	7.45	12.0		0.008	
16.02.2019	Crusher (B.F.)	0.38	319	20.65	7.33	13.5		0.009	
23.02.2019	Crusher (B.F.)	0.38	325	22.15	7.72	12.9		0.009	
	March' 2019								
01.03.2019	Crusher (B.F.)	0.38	329	23.35	8.04	11	**12.2**	0.008	
07.03.2019	Crusher (B.F.)	0.38	331	22.21	7.60	12.2		0.008	
15.03.2019	Crusher (B.F.)	0.38	334	21.85	7.41	11.9		0.008	
19.03.2019	Crusher (B.F.)	0.38	336	22.74	7.66	13.1		0.009	

J.K. Cement WORKS, MANGROL (RAJ) (Unit-2)
DATA SHEET FOR PARTICULATE MATTER EMISSION FROM POINT SOURCE
October'18 to March'19

DATE	NAME OF THE STACK / DUCT ATTECHED WITH UNIT AND MONTH	CROSS SECTIONAL AREA OF DUCT (M2)	STACK GASES TEMP. (^{0} K)	STACK GASES VELOCITY (M / Sec.)	FLOW OF GASES IN STACK (NM^3/Sec.)	DUST CONC. (Mg/NM^3)	MEAN DUST CONC. (Mg/NM^3)	EMISSION RATE (Ts/DAY)	REMARK
	October'18								
01.10.2018	KILN + RAW MILL (B.F.)	14.18	431	13.88	136.08	12.4	**11.2**	0.146	
08.10.2018	KILN + RAW MILL (B.F.)	14.18	432	14.15	138.41	11.0		0.132	
15.10.2018	KILN + RAW MILL (B.F.)	14.18	430	14.62	143.67	10.5		0.130	
22.10.2018	KILN + RAW MILL (B.F.)	14.18	433	14.54	141.90	10.8		0.132	
	November'18								
08.11.2018	KILN + RAW MILL (B.F.)	14.18	432.00	13.47	131.76	12.80	**12.6**	0.146	
15.11.2018	KILN + RAW MILL (B.F.)	14.18	430	14.03	137.87	11.7		0.139	
22.11.2018	KILN + RAW MILL (B.F.)	14.18	431	14.42	141.38	13.5		0.165	
29.11.2018	KILN + RAW MILL (B.F.)	14.18	434	14.66	142.74	12.2		0.150	
	December'18								
03.12.2018	KILN + RAW MILL (B.F.)	14.18	430	13.27	130.41	11.1	**10.8**	0.125	
10.12.2018	KILN + RAW MILL (B.F.)	14.18	428	13.30	131.31	12.1		0.137	
17.12.2018	KILN + RAW MILL (B.F.)	14.18	432	13.64	133.42	10.4		0.120	
25.12.2018	KILN + RAW MILL (B.F.)	14.18	429	13.85	136.42	9.7		0.114	
	January'19								
03.01.2019	KILN + RAW MILL (B.F.)	14.18	430	13.28	130.50	11.6	**11.1**	0.131	
10.01.2019	KILN + RAW MILL (B.F.)	14.18	429	13.86	136.52	10.7		0.126	
17.01.2019	KILN + RAW MILL (B.F.)	14.18	430	14.08	138.37	10.3		0.123	
24.01.2019	KILN + RAW MILL (B.F.)	14.18	431	14.46	141.77	11.7		0.143	
	February'19								
01.02.2019	KILN + RAW MILL (B.F.)	14.18	428.00	13.15	129.83	11.90	**12.2**	0.133	
08.02.2019	KILN + RAW MILL (B.F.)	14.18	425	13.96	138.80	11.4		0.137	
15.02.2019	KILN + RAW MILL (B.F.)	14.18	431	13.52	132.55	11.9		0.136	
22.02.2019	KILN + RAW MILL (B.F.)	14.18	434	14.15	137.77	13.5		0.161	
	March'19								
11.03.2019	KILN + RAW MILL (B.F.)	14.18	434	13.71	133.49	13.6	**13.1**	0.157	
18.03.2019	KILN + RAW MILL (B.F.)	14.18	433	14.20	138.58	12.4		0.148	
25.03.2019	KILN + RAW MILL (B.F.)	14.18	437	14.35	138.76	12.8		0.153	
30.03.2019	KILN + RAW MILL (B.F.)	14.18	442	14.88	142.26	13.5		0.166	
	October'18								
01.10.2018	CLINKER COOLER (ESP)	8.80	434	8.58	51.84	21.5	**20.4**	0.096	
08.10.2018	CLINKER COOLER (ESP)	8.80	432	8.43	51.17	18.8		0.083	
15.10.2018	CLINKER COOLER (ESP)	8.80	433	7.88	47.72	22.2		0.092	
22.10.2018	CLINKER COOLER (ESP)	8.80	436	8.84	53.17	19.1		0.088	
	November'18								
08.11.2018	CLINKER COOLER (ESP)	8.80	436.00	8.39	50.46	22.20	**22.8**	0.097	
15.11.2018	CLINKER COOLER (ESP)	8.80	431	8.13	49.47	23.2		0.099	
22.11.2018	CLINKER COOLER (ESP)	8.80	435	8.07	48.65	22.2		0.093	
29.11.2018	CLINKER COOLER (ESP)	8.80	437	8.83	52.99	23.5		0.108	
	December'18								
03.12.2018	CLINKER COOLER (ESP)	8.80	429	8.92	54.53	13.8	**15.8**	0.065	
10.12.2018	CLINKER COOLER (ESP)	8.80	432	8.47	51.42	15.0		0.067	
17.12.2018	CLINKER COOLER (ESP)	8.80	433	8.07	48.87	17.3		0.073	
25.12.2018	CLINKER COOLER (ESP)	8.80	430	8.35	50.92	16.9		0.074	

	January'19								
03.01.2019	CLINKER COOLER (ESP)	8.80	433	8.57	51.90	17.5	**18.9**	0.078	
10.01.2019	CLINKER COOLER (ESP)	8.80	428	7.86	48.16	19.9		0.083	
17.01.2019	CLINKER COOLER (ESP)	8.80	432	8.13	49.35	18.2		0.078	
24.01.2019	CLINKER COOLER (ESP)	8.80	431	8.35	50.81	19.8		0.087	
	February'19								
01.02.2019	CLINKER COOLER (ESP)	8.80	430.00	8.40	51.23	18.00	**20.7**	0.080	
08.02.2019	CLINKER COOLER (ESP)	8.80	425	8.08	49.86	20.7		0.089	
15.02.2019	CLINKER COOLER (ESP)	8.80	431	8.26	50.26	20.4		0.089	
22.02.2019	CLINKER COOLER (ESP)	8.80	429	8.35	51.04	23.5		0.104	
	March'19								
11.03.2019	CLINKER COOLER (ESP)	8.80	435	9.27	55.88	18.2	**19.8**	0.088	
18.03.2019	CLINKER COOLER (ESP)	8.80	431	8.30	50.50	19.9		0.087	
25.03.2019	CLINKER COOLER (ESP)	8.80	436	8.53	51.31	20.1		0.089	
30.03.2019	CLINKER COOLER (ESP)	8.80	437	9.16	54.97	20.8		0.099	
	October'18								
01.10.2018	COAL MILL (B.F.)	2.00	344	28.58	49.52	17.9	**18.5**	0.077	
08.10.2018	COAL MILL (B.F.)	2.00	340	27.07	47.45	19.3		0.079	
15.10.2018	COAL MILL (B.F.)	2.00	343	27.91	48.50	18.2		0.076	
22.10.2018	COAL MILL (B.F.)	2.00	349	28.73	49.06	18.7		0.079	
	November'18								
08.11.2018	COAL MILL (B.F.)	2.00	340.00	28.17	49.38	16.20	**17.1**	0.069	
15.11.2018	COAL MILL (B.F.)	2.00	339	27.35	48.08	18.4		0.076	
22.11.2018	COAL MILL (B.F.)	2.00	341	27.13	47.42	16.5		0.068	
29.11.2018	COAL MILL (B.F.)	2.00	345	28.81	49.77	17.3		0.074	
	December'18								
03.12.2018	COAL MILL (B.F.)	2.00	335	27.62	49.14	16.9	**14.6**	0.072	
10.12.2018	COAL MILL (B.F.)	2.00	336	27.13	48.12	11.9		0.049	
17.12.2018	COAL MILL (B.F.)	2.00	339	25.77	45.31	13.8		0.054	
25.12.2018	COAL MILL (B.F.)	2.00	342	28.25	49.23	15.8		0.067	
	January'19								
03.01.2019	COAL MILL (B.F.)	2.00	336	28.81	51.10	13.4	**13.4**	0.059	
10.01.2019	COAL MILL (B.F.)	2.00	335	27.72	49.32	14.8		0.063	
17.01.2019	COAL MILL (B.F.)	2.00	338	26.92	47.47	12.9		0.053	
24.01.2019	COAL MILL (B.F.)	2.00	341	28.28	49.43	12.6		0.054	
	February'19								
01.02.2019	COAL MILL (B.F.)	2.00	334.00	27.36	48.82	16.10	**16.2**	0.068	
08.02.2019	COAL MILL (B.F.)	2.00	338	28.19	49.71	15.9		0.068	
15.02.2019	COAL MILL (B.F.)	2.00	335	26.76	47.61	16.0		0.066	
22.02.2019	COAL MILL (B.F.)	2.00	339	28.35	49.84	16.7		0.072	
	March'19								
11.03.2019	COAL MILL (B.F.)	2.00	339	30.37	53.39	14.2	**15.3**	0.066	
18.03.2019	COAL MILL (B.F.)	2.00	337	28.27	50.00	16.2		0.070	
25.03.2019	COAL MILL (B.F.)	2.00	341	27.98	48.90	15.9		0.067	
30.03.2019	COAL MILL (B.F.)	2.00	345	30.03	51.88	14.7		0.066	
	October'18								
04.10.2018	CEMENT MILL (B.F.)	6.60	381	13.92	71.86	12.7	**14.9**	0.079	
11.10.2018	CEMENT MILL (B.F.)	6.60	376	13.43	70.25	16.8		0.102	
18.10.2018	CEMENT MILL (B.F.)	6.60	384	13.94	71.40	13.3		0.082	
25.10.2018	CEMENT MILL (B.F.)	6.60	379	13.92	72.24	16.8		0.105	

	November'18								
09.11.2018	CEMENT MILL (B.F.)	6.60	378	13.94	72.53	17.5	**16.9**	0.110	
16.11.2018	CEMENT MILL (B.F.)	6.60	374	13.52	71.10	16.0		0.098	
23.11.2018	CEMENT MILL (B.F.)	6.60	380	13.80	71.43	15.4		0.095	
30.11.2018	CEMENT MILL (B.F.)	6.60	375	14.03	73.58	18.8		0.120	
	December'18								
07.12.2018	CEMENT MILL (B.F.)	6.60	369	13.35	71.16	10.8	**10.5**	0.066	
14.12.2018	CEMENT MILL (B.F.)	6.60	370	13.26	70.49	8.8		0.054	
21.12.2018	CEMENT MILL (B.F.)	6.60	375	13.77	72.22	9.8		0.061	
29.12.2018	CEMENT MILL (B.F.)	6.60	378	13.88	72.22	12.6		0.079	
	January'19								
05.01.2019	CEMENT MILL (B.F.)	6.60	376	13.65	71.40	15.2	**14.5**	0.094	
14.01.2019	CEMENT MILL (B.F.)	6.60	371	13.83	73.32	14.6		0.092	
21.01.2019	CEMENT MILL (B.F.)	6.60	377	13.52	70.53	13.3		0.081	
28.02.2019	CEMENT MILL (B.F.)	6.60	373	14.07	74.19	14.7		0.094	
	February'19								
04.02.2019	CEMENT MILL (B.F.)	6.60	374	13.65	71.78	13.3	**13.6**	0.082	
11.02.2019	CEMENT MILL (B.F.)	6.60	368	13.66	73.01	13.7		0.086	
19.02.2019	CEMENT MILL (B.F.)	6.60	375	13.58	71.22	12.9		0.079	
27.02.2019	CEMENT MILL (B.F.)	6.60	370	13.91	73.94	14.3		0.091	
	March'19								
02.03.2019	CEMENT MILL (B.F.)	6.60	381	13.88	71.65	14.9	**14.2**	0.092	
08.03.2019	CEMENT MILL (B.F.)	6.60	375	14.22	74.58	14.3		0.092	
15.03.2019	CEMENT MILL (B.F.)	6.60	379	14.02	72.76	12.9		0.081	
25.03.2019	CEMENT MILL (B.F.)	6.60	377	14.56	75.96	14.5		0.095	
	October'18								
04.10.2018	CRUSHER BAG FILTER	1.23	329	11.15	12.38	17.6	**19.6**	0.019	
11.10.2018	CRUSHER BAG FILTER	1.23	325	11.88	13.35	21.8		0.025	
18.10.2018	CRUSHER BAG FILTER	1.23	321	11.30	12.86	17.7		0.020	
25.10.2018	CRUSHER BAG FILTER	1.23	322	11.46	13.00	21.1		0.024	
	November'18								
09.11.2018	CRUSHER BAG FILTER	1.23	329.00	11.54	12.81	19.30	**22.3**	0.021	
16.11.2018	CRUSHER BAG FILTER	1.23	325	11.70	13.15	25.4		0.029	
23.11.2018	CRUSHER BAG FILTER	1.23	320	11.82	13.50	22.4		0.026	
30.11.2018	CRUSHER BAG FILTER	1.23	321	11.82	13.45	21.9		0.025	
	December'18								
03.12.2018	CRUSHER BAG FILTER	1.23	325	11.24	12.64	18.6	**19.4**	0.020	
10.12.2018	CRUSHER BAG FILTER	1.23	328	11.56	12.88	21.6		0.024	
17.12.2018	CRUSHER BAG FILTER	1.23	327	11.64	13.01	19.9		0.022	
29.12.2018	CRUSHER BAG FILTER	1.23	324	11.07	12.48	17.5		0.019	
	January'19								
04.01.2019	CRUSHER BAG FILTER	1.23	327	11.57	12.93	19.5	**19.8**	0.022	
11.01.2019	CRUSHER BAG FILTER	1.23	322	11.77	13.35	19.8		0.023	
18.01.2019	CRUSHER BAG FILTER	1.23	317	11.72	13.51	19.7		0.023	
26.01.2019	CRUSHER BAG FILTER	1.23	319	11.96	13.70	20.0		0.024	

	February'19								
01.02.2019	CRUSHER BAG FILTER	1.23	325.00	11.41	12.83	19.00	**18.2**	0.021	
08.02.2019	CRUSHER BAG FILTER	1.23	323	11.64	13.17	18.0		0.020	
15.02.2019	CRUSHER BAG FILTER	1.23	320	11.81	13.48	17.7		0.021	
22.02.2019	CRUSHER BAG FILTER	1.23	321	11.90	13.54	17.9		0.021	
	March'19								
11.03.2019	CRUSHER BAG FILTER	1.23	329	11.86	13.17	15.0	**17.9**	0.017	
18.03.2019	CRUSHER BAG FILTER	1.23	325	12.11	13.61	16.8		0.020	
25.03.2019	CRUSHER BAG FILTER	1.23	319	12.22	14.00	18.1		0.022	
30.03.2019	CRUSHER BAG FILTER	1.23	321	12.60	14.34	21.5		0.027	
	October'18								
06.10.2018	PACKER -1 BAG FILTER	0.785	326	11.96	8.58	17.9	**15.9**	0.013	
13.10.2018	PACKER -1 BAG FILTER	0.785	321	11.63	8.48	14.3		0.010	
20.10.2018	PACKER -1 BAG FILTER	0.785	324	11.45	8.27	15.9		0.011	
27.10.2018	PACKER -1 BAG FILTER	0.785	329	11.20	7.96	15.5		0.011	
	November'18								
09.11.2018	PACKER -1 BAG FILTER	0.785	324	12.02	8.68	19.3	**17.3**	0.014	
16.11.2018	PACKER -1 BAG FILTER	0.785	318	11.64	8.56	16.9		0.013	
23.11.2018	PACKER -1 BAG FILTER	0.785	321	11.55	8.42	17.0		0.012	
30.11.2018	PACKER -1 BAG FILTER	0.785	325	11.47	8.26	16.1		0.011	
	December'18								
01.12.2018	PACKER -1 BAG FILTER	0.785	320	11.86	8.67	14.4	**16.4**	0.011	
08.12.2018	PACKER -1 BAG FILTER	0.785	317	11.46	8.46	16.6		0.012	
15.12.2018	PACKER -1 BAG FILTER	0.785	322	11.80	8.57	15.8		0.012	
24.12.2018	PACKER -1 BAG FILTER	0.785	323	11.67	8.45	18.6		0.014	
	January'19								
02.01.2019	PACKER -1 BAG FILTER	0.785	322	12.04	8.75	20.2	**18.8**	0.015	
09.01.2019	PACKER -1 BAG FILTER	0.785	316	11.52	8.53	18.1		0.013	
16.01.2019	PACKER -1 BAG FILTER	0.785	320	11.63	8.50	18.7		0.014	
23.01.2019	PACKER -1 BAG FILTER	0.785	321	11.43	8.33	18.3		0.013	
	February'19								
04.02.2019	PACKER -1 BAG FILTER	0.785	320	11.99	8.77	14.0	**14.5**	0.011	
11.02.2019	PACKER -1 BAG FILTER	0.785	318	11.34	8.34	15.2		0.011	
19.02.2019	PACKER -1 BAG FILTER	0.785	322	11.92	8.66	13.6		0.010	
27.02.2019	PACKER -1 BAG FILTER	0.785	323	11.51	8.34	15.3		0.011	
	March'19								
05.03.2019	PACKER -1 BAG FILTER	0.785	325	11.98	8.62	15.9	**13.8**	0.012	
12.03.2019	PACKER -1 BAG FILTER	0.785	328	11.84	8.44	14.2		0.010	
19.03.2019	PACKER -1 BAG FILTER	0.785	330	12.23	8.67	11.9		0.009	
26.03.2019	PACKER -1 BAG FILTER	0.785	333	12.21	8.58	13.2		0.010	
	October'18								
06.10.2018	PACKER -2 BAG FILTER	0.785	319	11.53	8.46	13.6	**13.4**	0.010	
13.10.2018	PACKER -2 BAG FILTER	0.785	315	11.79	8.76	12.6		0.010	
20.10.2018	PACKER -2 BAG FILTER	0.785	314	11.26	8.39	13.3		0.010	
27.10.2018	PACKER -2 BAG FILTER	0.785	318	11.40	8.39	14.0		0.010	
	November'18								
09.11.2018	PACKER -2 BAG FILTER	0.785	320	11.81	8.63	13.9	**14.7**	0.010	
16.11.2018	PACKER -2 BAG FILTER	0.785	313	11.31	8.45	14.4		0.011	
23.11.2018	PACKER -2 BAG FILTER	0.785	312	11.40	8.55	14.6		0.011	
30.11.2018	PACKER -2 BAG FILTER	0.785	316	11.56	8.56	15.7		0.012	

	December'18								
01.12.2018	PACKER -2 BAG FILTER	0.785	315	11.57	8.59	15.0	**15.6**	0.011	
08.12.2018	PACKER -2 BAG FILTER	0.785	318	11.53	8.48	15.8		0.012	
15.12.2018	PACKER -2 BAG FILTER	0.785	317	11.71	8.64	17.5		0.013	
24.12.2018	PACKER -2 BAG FILTER	0.785	319	11.69	8.57	14.0		0.010	
	January'19								
02.01.2019	PACKER -2 BAG FILTER	0.785	317	11.99	8.85	16.4	**17.2**	0.013	
09.01.2019	PACKER -2 BAG FILTER	0.785	310	11.45	8.64	16.5		0.012	
16.01.2019	PACKER -2 BAG FILTER	0.785	311	11.23	8.45	18.3		0.013	
23.01.2019	PACKER -2 BAG FILTER	0.785	314	11.35	8.46	17.4		0.013	
	February'19								
04.02.2019	PACKER -2 BAG FILTER	0.785	315	11.60	8.61	16.2	**16.3**	0.012	
11.02.2019	PACKER -2 BAG FILTER	0.785	312	11.72	8.79	16.0		0.012	
19.02.2019	PACKER -2 BAG FILTER	0.785	317	11.42	8.43	17.6		0.013	
27.02.2019	PACKER -2 BAG FILTER	0.785	319	11.39	8.35	15.5		0.011	
	March'19								
05.03.2019	PACKER -2 BAG FILTER	0.785	320	12.17	8.9	16.8	**15.7**	0.013	
12.03.2019	PACKER -2 BAG FILTER	0.785	322	11.86	8.62	16.4		0.012	
19.03.2019	PACKER -2 BAG FILTER	0.785	328	11.89	8.48	14.6		0.011	
26.03.2019	PACKER -2 BAG FILTER	0.785	331	12.13	8.57	14.9		0.011	
	October'18								
06.10.2018	PACKER -3 BAG FILTER	0.785	325	11.15	8.03	21.3	**17.8**	0.008	
13.10.2018	PACKER -3 BAG FILTER	0.785	321	11.77	8.58	15.2		0.011	
20.10.2018	PACKER -3 BAG FILTER	0.785	314	11.18	8.33	19.3		0.009	
27.10.2018	PACKER -3 BAG FILTER	0.785	318	12.02	8.84	15.3		0.011	
	November'18								
09.11.2018	PACKER -3 BAG FILTER	0.785	322	11.27	8.19	21.5	**19.1**	0.008	
16.11.2018	PACKER -3 BAG FILTER	0.785	319	11.84	8.68	18.6		0.011	
23.11.2018	PACKER -3 BAG FILTER	0.785	312	11.54	8.65	19.7		0.009	
30.11.2018	PACKER -3 BAG FILTER	0.785	315	12.04	8.94	16.7		0.011	
	December'18								
01.12.2018	PACKER -3 BAG FILTER	0.785	320	10.63	7.77	16.6	**16.4**	0.008	
08.12.2018	PACKER -3 BAG FILTER	0.785	318	10.97	8.07	16.5		0.011	
15.12.2018	PACKER -3 BAG FILTER	0.785	315	11.27	8.37	14.6		0.009	
24.12.2018	PACKER -3 BAG FILTER	0.785	316	11.59	8.58	17.9		0.011	
	January'19								
02.01.2019	PACKER -3 BAG FILTER	0.785	320	11.07	8.09	21.7	**18.7**	0.008	
09.01.2019	PACKER -3 BAG FILTER	0.785	316	11.95	8.85	17.7		0.011	
16.01.2019	PACKER -3 BAG FILTER	0.785	310	11.41	8.61	18.7		0.009	
23.01.2019	PACKER -3 BAG FILTER	0.785	312	11.60	8.7	16.5		0.011	
	February'19								
04.02.2019	PACKER -3 BAG FILTER	0.785	318	11.50	8.46	15.5	**15.9**	0.008	
11.02.2019	PACKER -3 BAG FILTER	0.785	320	11.85	8.66	17.0		0.011	
19.02.2019	PACKER -3 BAG FILTER	0.785	315	11.40	8.47	16.0		0.009	
27.02.2019	PACKER -3 BAG FILTER	0.785	313	11.53	8.62	14.9		0.011	
	March'19								
05.03.2019	PACKER -3 BAG FILTER	0.785	322	11.90	8.65	16.8	**16.3**	0.008	
12.03.2019	PACKER -3 BAG FILTER	0.785	325	12.59	9.06	15.8		0.011	
19.03.2019	PACKER -3 BAG FILTER	0.785	328	12.38	8.83	17.2		0.009	
26.03.2019	PACKER -3 BAG FILTER	0.785	334	12.81	8.97	15.2		0.011	

	October'18								
06.10.2018	PACKER -4 BAG FILTER	0.785	324	11.46	8.27	14.4	**13.8**	0.010	
13.10.2018	PACKER -4 BAG FILTER	0.785	320	11.70	8.55	13.0		0.010	
20.10.2018	PACKER -4 BAG FILTER	0.785	318	11.16	8.21	16.2		0.011	
27.10.2018	PACKER -4 BAG FILTER	0.785	321	11.42	8.32	11.7		0.008	
	November'18								
09.11.2018	PACKER -4 BAG FILTER	0.785	322	11.48	8.34	16.4	15.7	0.012	
16.11.2018	PACKER -4 BAG FILTER	0.785	318	11.84	8.71	14.6		0.011	
23.11.2018	PACKER -4 BAG FILTER	0.785	319	11.32	8.30	16.9		0.012	
30.11.2018	PACKER -4 BAG FILTER	0.785	320	11.52	8.42	14.8		0.011	
	December'18								
01.12.2018	PACKER -4 BAG FILTER	0.785	319	11.24	8.24	19.9	**17.5**	0.014	
08.12.2018	PACKER -4 BAG FILTER	0.785	320	11.16	8.16	17.7		0.012	
15.12.2018	PACKER -4 BAG FILTER	0.785	317	11.05	8.15	15.7		0.011	
24.12.2018	PACKER -4 BAG FILTER	0.785	318	11.48	8.45	16.7		0.012	
	January'19								
02.01.2019	PACKER -4 BAG FILTER	0.785	320	11.65	8.52	18.2	**17.3**	0.013	
09.01.2019	PACKER -4 BAG FILTER	0.785	316	11.79	8.73	16.4		0.012	
16.01.2019	PACKER -4 BAG FILTER	0.785	317	11.94	8.81	17.5		0.013	
23.01.2019	PACKER -4 BAG FILTER	0.785	318	11.55	8.50	16.9		0.012	
	February'19								
04.02.2019	PACKER -4 BAG FILTER	0.785	318	11.50	8.46	17.1	16.1	0.013	
11.02.2019	PACKER -4 BAG FILTER	0.785	320	12.19	8.91	15.0		0.012	
19.02.2019	PACKER -4 BAG FILTER	0.785	323	12.35	8.94	16.1		0.012	
27.02.2019	PACKER -4 BAG FILTER	0.785	321	11.99	8.74	16.3		0.012	
	March'19								
05.03.2019	PACKER -4 BAG FILTER	0.785	320	11.93	8.72	15.1	**15.6**	0.011	
12.03.2019	PACKER -4 BAG FILTER	0.785	322	12.08	8.78	14.1		0.011	
19.03.2019	PACKER -4 BAG FILTER	0.785	325	12.38	8.91	17.2		0.013	
26.03.2019	PACKER -4 BAG FILTER	0.785	329	12.26	8.72	16.0		0.012	

J.K. Cement WORKS, MANGROL (RAJ)
AMBIENT AIR QUALITY AVERAGE RESULTS (SPM) COMMON
FOR UNIT-1 & UNIT-2
(ALL VALUES IN MICROGRAMS / CUBIC METER)
(October' 2018 - March' 2019)

S.No. & Month	LOCATION / PERAMETER	NEAR TIME OFFICE	NEAR THERMAL POWER PLANT	NEAR RAW MATERIAL GATE	NEAR PACKING PLANT GATE	Remarks
October'2018						
1	SPM	239.8	273.4	335.0	368.8	
2	PM10	40.8	43.2	46.1	52.9	
3	SO2	12.3	11.8	13.8	11.2	
4	NOX	19.6	22.3	24.0	20.6	
5	CO	754.3	801.3	708.5	744.3	
November'2018						
1	SPM	249.2	276.7	337.2	369.1	
2	PM10	40.8	44.0	44.0	53.0	
3	SO2	12.8	13.1	15.2	13.1	
4	NOX	20.0	21.8	24.9	21.1	
5	CO	758.6	815.8	744.3	758.6	
December'2018						
1	SPM	233.8	238.5	279.7	235.0	
2	PM10	26.6	30.4	34.0	30.0	
3	SO2	8.1	9.3	10.4	9.3	
4	NOX	18.8	20.0	22.9	20.8	
5	CO	787.2	844.4	873.1	916.0	
January'2018						
1	SPM	258.7	256.2	304.5	258.0	
2	PM10	29.1	32.6	36.4	32.2	
3	SO2	9.9	11.1	12.6	11.4	
4	NOX	20.8	22.0	24.9	22.7	
5	CO	777.6	854.0	801.5	844.4	
February'2018						
1	SPM	285.2	296.7	317.5	301.3	
2	PM10	37.0	39.5	40.7	39.8	
3	SO2	11.2	14.2	12.2	12.3	
4	NOX	21.5	22.2	23.9	22.6	
5	CO	844.4	815.8	830.1	873.1	
March'2018						
1	SPM	296.5	304.8	325.0	311.5	
2	PM10	38.4	40.7	41.6	41.2	
3	SO2	11.7	15.0	12.9	13.1	
4	NOX	22.3	23.0	25.0	23.6	
5	CO	802	758.6	830.1	687.0	
Six monthly Average						
1	**SPM**	**260.5**	**274.4**	**316.5**	**307.3**	
2	**PM10**	**35.5**	**38.4**	**40.5**	**41.5**	
3	**SO2**	**11.0**	**12.4**	**12.9**	**11.7**	
4	**NOX**	**20.5**	**21.9**	**24.3**	**21.9**	
5	**CO**	**787.3**	**815.0**	**797.9**	**803.9**	

J.K. Cement Works, Mangrol (Unit-1)
Fugitive Emission Monitoring Report
October' 2018 - March' 2019

S.No.	Month/Year	SPM (µg/m3)			
		NEAR COAL YARD-1	NEAR LIMESTONE CRUSHING SITE-1	NEAR STACKER RECLAIMER-1	NEAR GYPSUM YARD-1
1	Oct-18	1488.1	2510.4	2358.8	2034.7
2	Nov-18	1712.6	2357.7	2771.9	2307.4
3	Dec-18	1399.3	2223.4	2185.8	2024.8
4	Jan-19	1659.7	2402.8	2389.8	1978.3
5	Feb-19	1570.2	2444.9	2177.9	2052.1
6	Mar-19	1723.2	2444.9	2507.1	2117.5

J.K. Cement Works, Mangrol (Unit-2)
Fugitive Emission Monitoring Report
(October' 2018 -March' 2019)

S.No.	Month/Year	SPM (µg/m3)			
		NEAR COAL YARD-2	NEAR LIMESTONE CRUSHING SITE-2	NEAR STACKER RECLAIMER-2	NEAR GYPSUM YARD-2
1	Oct-18	1256.8	1582.6	1407.1	1697.9
2	Nov-18	1327.3	1649.3	1566.8	1861.6
3	Dec-18	1075.8	1876.7	1430.6	1575.2
4	Jan-19	1343.8	1734.4	1588.1	1645.8
5	Feb-19	1527.8	1579.9	1411.8	1512.6
6	Mar-19	1659.7	1832.0	1809.0	2069.6

J.K. Cement WORKS, Mangrol (RAJ)

Treated Domestic Effluent Analysis Report

October' 2018 - March' 2019

S.No.	PARAMETER	Standards	October-18	November-18	December-18	January-19	February-19	March-19
1	pH	Between 5.5 to 9.0	7.62	7.18	7.45	7.1	7.6	7.39
2	Chlorides as Cl	Not to exceed 1000 mg/l	118	105	116	106.0	94.0	86
3	Total Suspended solids	Not to exceed 100 mg/l	9	22	4.4	18.0	8.0	7.4
4	Biological Oxygen Demand (3 days at 27 Degree C)	Not to exceed 30 mg/l	16	24	5.2	8.6	2.8	2.2
5	Chemical Oxygen Demand	Not to exceed 250 mg/l	54	98	29	51.0	16.0	12
6	Oil & Grease	Not to exceed 10 mg/l	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
7	Ammonical Nitrogen (as N)	Not to exceed 50 mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
8	Sulphide (as S)	Not to exceed 2.0 mg/l	0.38	<0.1	<0.1	<0.1	<0.1	<0.1
9	Total Residual Chlorine	Not to exceed 1.0 mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

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

Noise Monitoring Report

Month	Mangrol Plant FY 2018-19 (Unit - 1 & 2)							
	Near Time office		Near Thermal Power Plant		Near Raw material Gate		Near Packing Plant Gate	
	Day	Night	Day	Night	Day	Night	Day	Night
Oct-18	65.8	56.2	67.5	57.6	69.1	56.7	70.1	60.3
Nov-18	66.1	57.6	69.2	56.7	70	58.9	68.8	59.8
Dec-18	68.4	58.7	66.8	58	69.3	57.1	67.2	60.8
Jan-19	69.1	56.3	68.1	57.5	67.8	58.4	70	59.5
Feb-19	67.4	59.1	69.3	59.2	68.7	56.2	69.0	60.2
Mar-19	66.5	57.9	67.8	60.2	70.6	59.9	68.7	57.8

J.K. Cement WORKS, Mangrol (RAJ)

10 MW WASTE HEAT RECOVERY PLANT

Outlet of Waste heat recovery plant

(October' 2018 - March' 2019)

MONTH/ PARAMETRS	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19
Total Suspended Solids (TSS) (Mg/l)	46	49	10	52	49	14
Oil & Grease (Mg/l)	<1.6	<1.2	<1.4	<1.5	<1.2	<1.4
Total Residual Chlorine (Mg/l)	NIL	NIL	<0.1	NIL	NIL	<0.1
Phosphate (Mg/l)	3.60	3.85	<0.15	3.95	3.85	0.56
Free available chlorine (Mg/l)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
pH Value	7.45	7.75	7.8	7.55	7.75	7.66
Temperature	4°c Higher then the intake water	4°c Higher then the intake water	4°c Higher then the intake water	4°c Higher then the intake water	4°c Higher then the intake water	4°c Higher then the intake water
Copper as (Cu) (Mg/l)	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02
Zinc (as Zn) (Mg/l)	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02
Iron (Total) (Mg/l)	0.2	0.2	0.43	0.2	0.2	0.53
Chromium (total) (Mg/l)	0.006	0.003	<0.01	0.005	0.003	<0.01
BOD (Mg/l)	10.1	10.4	2.1	11.1	10.4	4.2
COD (Mg/l)	54	57	12	53	57	24

J.K. Cement WORKS, Mangrol (RAJ)
25 MW THERMAL POWER PLANT
Outlet of Power Plant
(October' 2018 - March' 2019)

PARAMETERS/MONTH	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19
Total Suspended Solids (TSS)	44	47	6.3	49	53	3.8
Oil & Grease	<1.3	<1.6	<1.4	<1.2	<1.4	<1.4
Total Residual Chlorine	NIL	NIL	<0.1	NIL	NIL	<0.1
Free available chlorine	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
pH Value	7.35	7.50	8.04	7.26	7.35	7.79
Temperature	4°c higher than the intake water temperature	4°c higher than the intake water temperature	4°c higher than the intake water temperature	4°c higher than the intake water temperature	4°c higher than the intake water temperature	4°c higher than the intake water temperature
Copper as (Cu)	<0.01	<0.02	<0.02	<0.002	<0.02	<0.02
Zinc (as Zn)	<0.02	<0.01	<0.02	<0.02	<0.01	<0.02
Iron (Total)	0.20	0.10	0.12	0.10	0.20	0.65
Chromium (total)	0.002	0.005	<0.01	0.002	0.004	<0.01
BOD	9.20	9.70	9	10.30	9.60	3.8
COD	50.0	53.0	43	50.0	53.0	24
Phosphate	3.90	3.75	0.68	3.60	3.80	4.6

J.K. Cement WORKS, Mangrol (RAJ)
25 MW THERMAL POWER PLANT
Stack monitoring results (April 2018 - September 2018)

Location/Month	SPM (Mg/Nm3)					
	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19
Stack attached with Boiler	15.0	13.0	19.4	16.0	14.0	18.7
Stack attached with Coal Crusher	10.0	11.0	13.9	13.0	11.0	16.0

J.K. Cement WORKS, MANGROL (RAJ)

Noise Monitoring Report

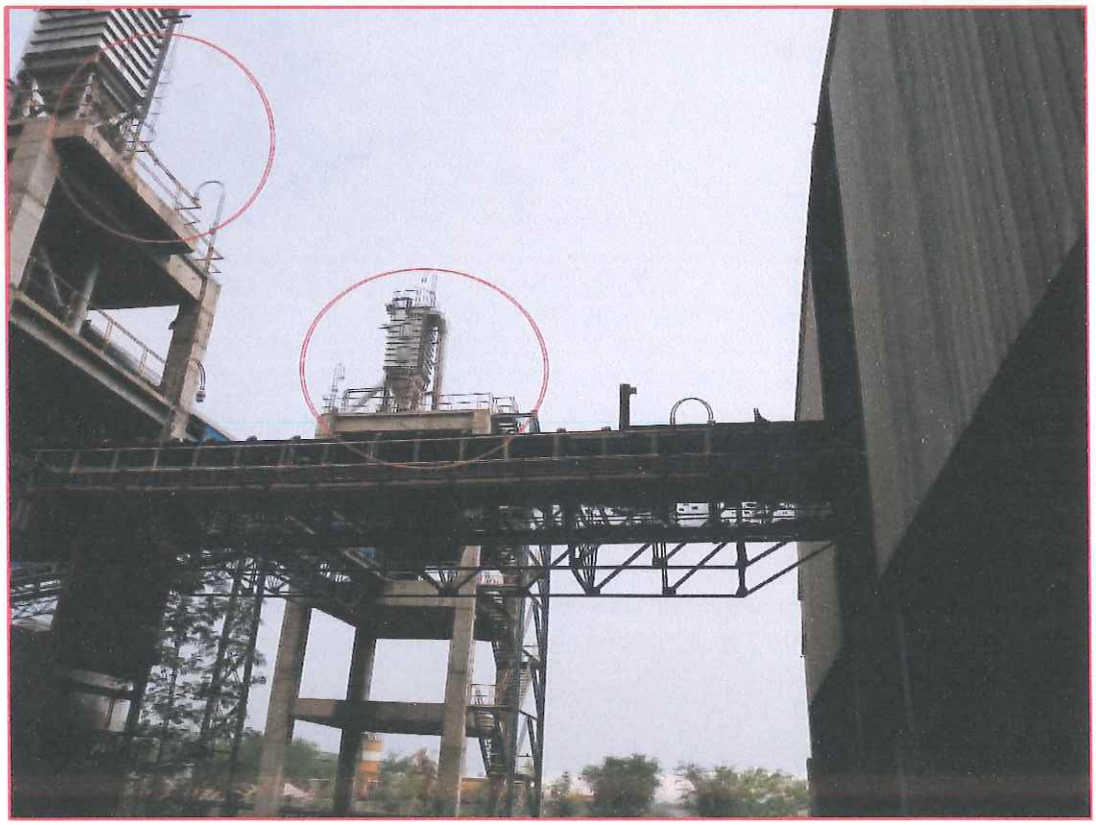
(October 2018 - March 2019)

(ALL VALUES IN dB)

Month	25 MW CPP		10 MW WHR	
	Day	Night	Day	Night
Oct-18	65.4	57.2	65.4	56.1
Nov-18	68.2	59.3	67.5	57
Dec-18	69.7	58.2	68.3	56.4
Jan-19	67.8	56.1	65.8	55.9
Feb-19	68.4	57.6	67.0	56.4
Mar-19	66.8	55.7	68.0	58.1

PHOTGRAPHS OF COVERED BELT CONVEYOR BY GI SHEET

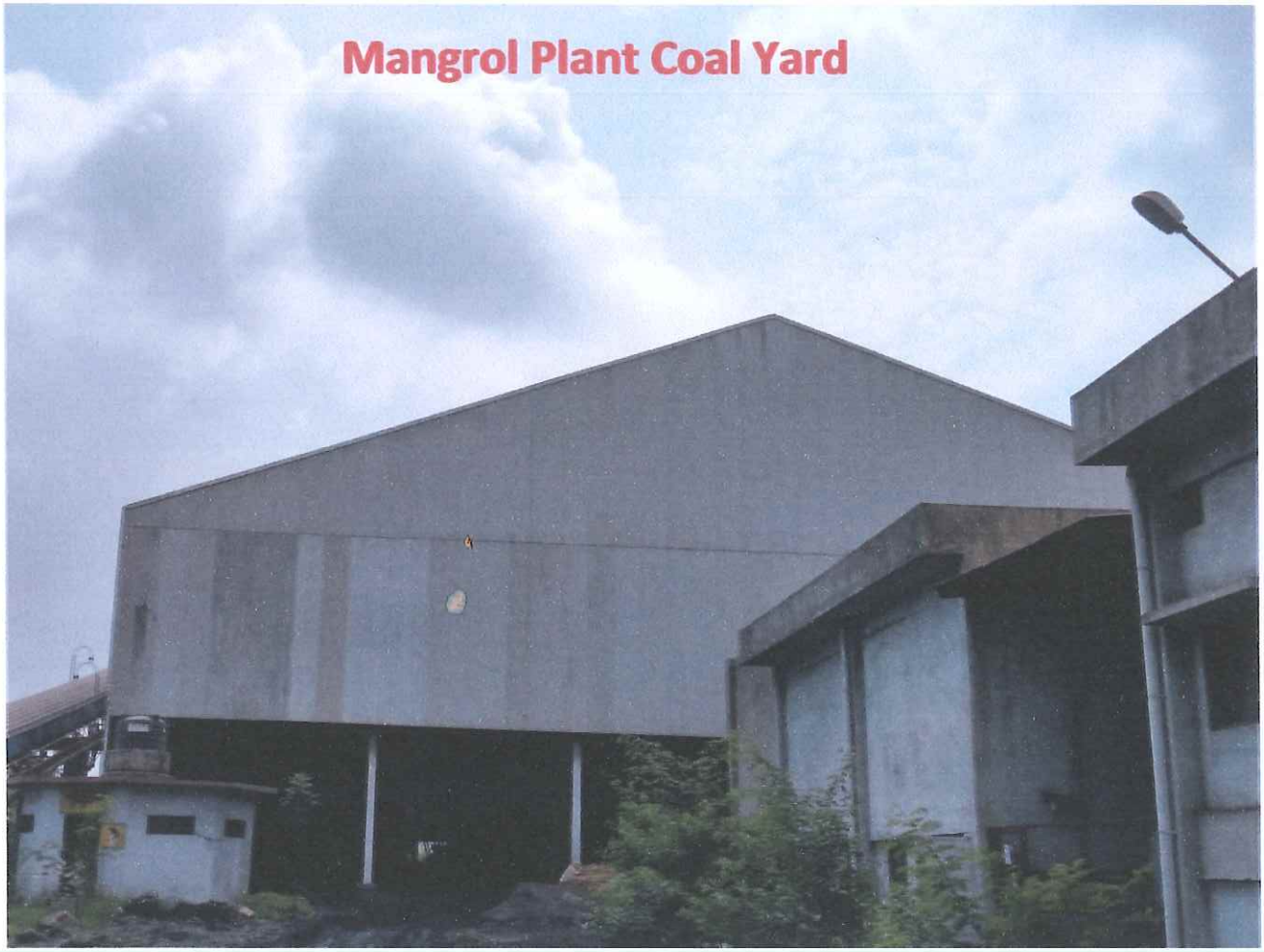
PHOTGRAPHS OF BAG FILTERS INSTALLED AT TRANSFER POINT



Raw materials storage in covered storage yard

PHOTOGRAPHS OF SAFETY INSTRACTIONS/SOLOGEN DISPLAY

Coal storage in covered storage yard



Annexure- 6

JK Cement LTD.

Phone : +91-1477-220098, 220087
Fax : +91-1477-220027, 220049
E-mail : jkc.nbh@jkcement.com
Web : www.jkcement.com

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

Ref.: MGR/PC/21 No 6

Date: 23.04.2019

To,
The Deputy Conservator of Forest
Department of forest (Govt. of Rajasthan)
Chittorgarh (Raj.)

Sub: - Regarding Authentication of conservation plan for Peacock within 10 km radius of our proposed expansion of J.K. Cement Works situated at Mangrol, Tehsil Nimbahera , District- Chittorgarh (Raj.) for an area of 149.42 Ha.

Ref. No. Environment clearance of Mangrol Plant line-3 vide letter no. J-11015/267/2013-IA.II (I) Dated 08.09.2016

Respected Sir,

Please find attached herewith conservation plan for peacock as per specific condition stipulated in Environmental Clearance as referred above letter. We request you to kindly authenticate the same and acknowledge the receipt.

Thanking You,

Yours Faithfully,
For J.K. Cement Works, Mangrol

S.K. Rathore
(Unit Head)

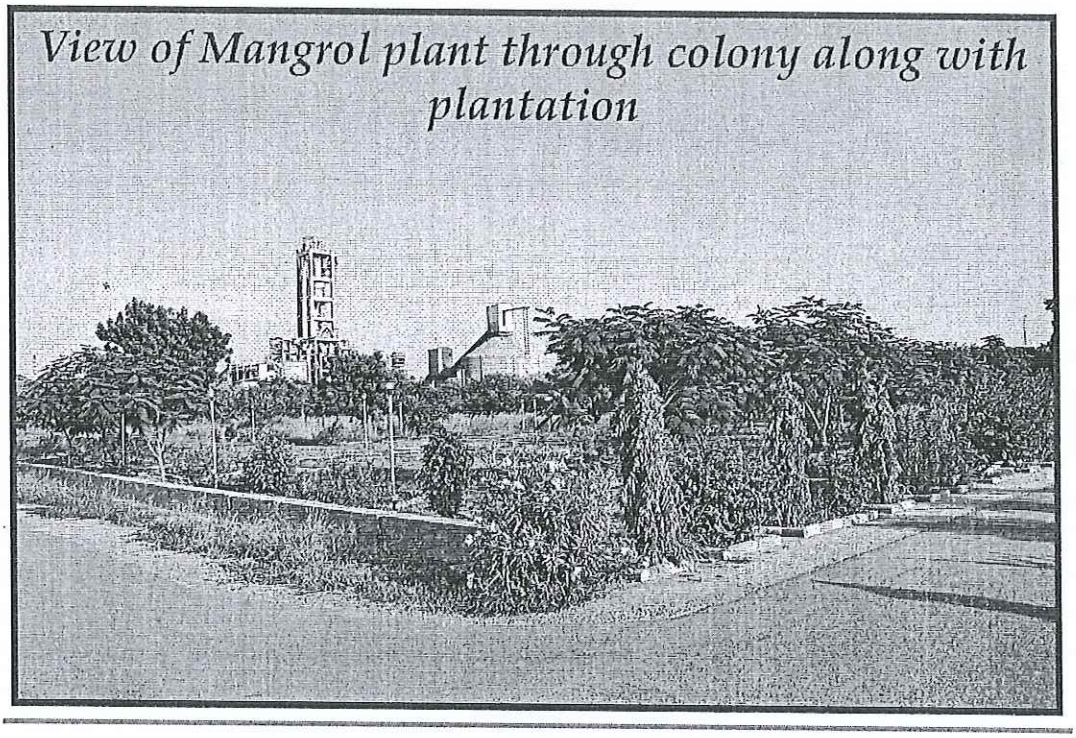
Enclosure:-
1. Conservation plan of peacock
2. Copy of Environment Clearance

CONSERVATION PLAN

OF

INDIAN PEAFOWL

(Pavo Cristatus)



J.K. CEMENT WORKS, MANGROL

Tehsil : Nimbahera,
District : Chittorgarh (Rajasthan)

CONSERVATION PLAN FOR INDIAN PEAFOWL

(Pavo cristatus)

1.0 INTRODUCTION

This conservation plan is a planning document that ensures that the anticipated take of the listed species Peacock will be minimized or mitigated by conserving the habitat upon which the species depend, thereby contributing to the recovery of the species as a whole. The purpose of this plan is not only to protect this specie that have been listed as threatened or endangered, but also to conserve the ecosystems upon which these depends.

The proposed expansion project is situated within premises of J.K. Cement Works, Mangrol, Tehsil – Nimbahera, District – Chittorgarh, Rajasthan. The project site falls within the Survey of India Top sheet no. -45 L/ 10. A detailed biological survey of the core zone (cement plant & colony) and buffer zone (10 km radius of periphery of the project) was carried out Peacock which belongs to Schedule I of the Wildlife (Protection) Act 1972 is the species of fauna found in the core zone and villages of the study area. This conservation plan for peacock has been formulated in consultation of the respective Forest Department of Chittorgarh (Raj).

CLASSIFICATION	
Kingdom	Animalia
Scientific Name	*Pavo cristatus*
Phylum	Chordata
Class	Ave
Order	Galliformes
Family	Phasianidae
Genus	***Pavo***
Species	***cristatus***

1.1 STUDY APPROACH

Core and Buffer zone of the study area has been reported as a habitat of Schedule-I species *Pavo cristatus* commonly known as peacock, more effort was made to assess their status in term of movements and habitat use in and around the study area. At first, a detailed biological survey of the core zone and buffer zone (10 Km radius from periphery of the proposed expansion project) was carried out to understand the status distribution of the species in the study area. Also, questionnaire survey was carried out to understand the recent status of peacock sightings and their movements. Overall, 20 people from core zone (staff and

residential people in colony) also seven villages were interviewed randomly. The conclusion of the survey discussed the potential sightings & habitat use, and movement and food habits of peacock in the study area.

1.2 HABITAT, LIFE CYCLE AND DIET

SIZE & HABITAT	
Body length	180 – 230 cm
Weight	2,750 – 6,000 gm
Habitat	In the undergrowth in deciduous forests near streams. Tall/ medium size trees for roosting Semi-feral in villages and fields.

Size of the male tail feathers, its coloration, and numbers of "eyes" present, determine the dominance of the male in peacock hierarchy. The females are believed to be attracted towards the male with longest and most colorful tail feathers.

1.3 BEHAVIOR

Peacocks are gregarious by nature. In the breeding season they are usually seen in small parties of one male with three to five females, whereas in the non-breeding season they remain in separate parties of adult males and females with juveniles. **Peacocks roost in tall trees** and emerge from the dense thickets to feed in fields and openings in forests and fields.

Reproduction & life cycle	
Call	kee-ow, kee-ow, kee-ow, ka-an, ka-an, ka-an, kok-kok, kok-kok, cain-kok
Breeding	July-September
Nest site	On ground in undergrowth (wild) On buildings by semi-feral birds in villages
Clutch size	4 to 6
Incubation	28 days.

1.4 DIET

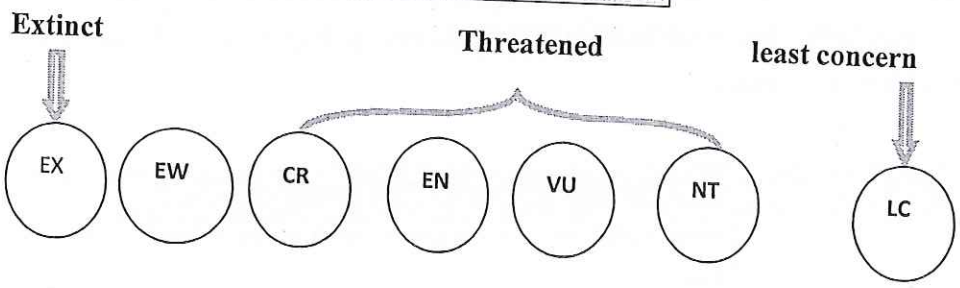
Peacocks are ground-feeders. Indian Peafowl do most of their foraging early in the morning, and shortly before sunset. They retreat to the shade and security of the trees for the hottest portion of the day. Peacocks are omnivorous and eat not only creatures like ticks, termites, ants, locusts, mice, scorpions, reptiles, worms and frogs, but also the green shoots of plants, flower petals, seed heads, vegetables, grass, wheat, cracked corn, rice, etc. In fact they will eat almost anything reasonable that they can get their beaks.

2.0 CONSERVATION AND RELATIONSHIP WITH MAN

The great beauty and popularity of the Indian Peafowl has ensured its protection throughout most of its native ranges. It is the national bird of India. The peafowl is prominent in the mythology and folklore of the Indian people. The Hindus consider the bird to be sacred because of its association with Lord **Krishna** who used to wear its feather as crown (Mormukut). It is also associated with the God **Kartikeya**, son of the Lord Shiva and Parvati and brother of Lord Ganesh. It is "vaahan" (transport) of Lord Kartikeya. This long and close association with humans has proven the peafowl's adaptability to human-altered landscapes. In villages where it is protected it becomes quite tame, but is very shy and secretive where hunted. In the core zone J. K. Cement Works conserve the *Pavo cristatus* with developed habitation and in the nearby villages in buffer area of project peacock is generally protected by the local people.

CONSERVATION STATUS

IUCN	Others
WL(P)Act	Schedule I
CITES	Not listed



3.0 PERCEIVED THREATS

Threats to the peacocks in the area are:-

- Habitat loss, specially the shortage of tall trees in and around the project for roosting and for providing shade during hot summer months
- Shortage of drinking water for the birds, during the hot summer days
- Casualties caused by eating chemically treated agricultural crop seeds.
- Illegal hunting by some persons.

Peacock conservation plan has to address these threats.

4.0 CONSERVATION MEASURES NEEDED

In view of the above threats to the peacocks in the area the measures needed for their conservation in the area were discussed with the officers of Forest and Wildlife Department. Written suggestions of the Forests and Wildlife Department for conservation of the peacocks in the buffer areas were also obtained.

Accordingly it is proposed to take the following conservation measures in the buffer area of the project.

i **Increase in tree cover**

Increasing the tree cover in the buffer area for shelter and roosting of peacocks. This will be achieved by planting of tree groves (a group of trees that grow close together, generally without many bushes or other plants) in core zone and in buffer area. Some local species such as Neem, Amaltash, Ardu, Sheesham, Dhak, Ber, Peepal tree etc. will be planted. Planting of tree groves in school compounds in the villages of buffers area will be planted as per the plantation programme. In the premises (core zone) company also developed the habitation for peafowl with tree, grass and shrubs between the trees to attract the peafowl.

ii **Publicity**

For generating public awareness for conservation of Peacocks in the area

a) Amongst cultivators to avoid using chemically treated crop seeds.

b) Generating awareness in school children by organizing competitions during Wildlife Week and Van Mahotsavas celebrations.

iii **Strengthening of anti-poaching measures.**

Giving cash rewards to the people/ informers who provide information about the poaching of peacocks and get the poachers arrested.

5.0 DETAILS OF THE PROPOSED CONSERVATION MEASURES

For increasing the tree cover it is proposed to:-

A. The farmers in the buffer area will be motivated to plant fruit and local species of trees on the boundaries of their agricultural fields and near their homes etc. Benefits of planting these trees would be explained to them by distribution of printed pamphlets or posters designed for the purpose. Cash awards of Rs. 1,000/- is proposed to be given to those farmers who are able to maintain and grow at least eight out of ten plants supplied to them for five years, provided these plants have attained a height of ten feet and have a proportionately developed girth and crown. Twenty such farmers will be rewarded each year. Selection of the farmers for cash awards each year will be done jointly by the project proponent and money for the awards will be provided by project proponent.

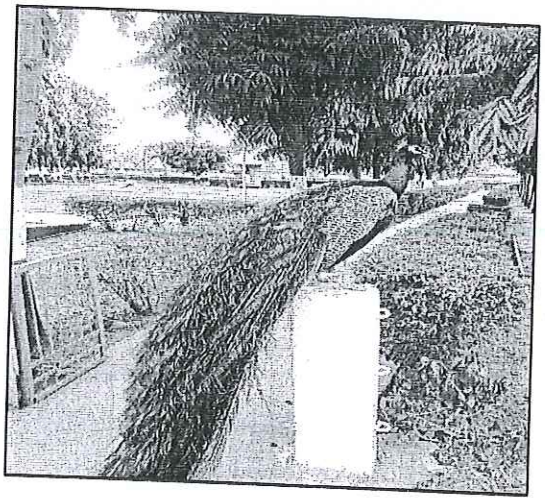
B. The school campuses existing in the buffer zone are proposed to be developed as roosting places for peacocks by planting trees. 150 plants will be planted each year in the selected schools of the buffer area. The planting work will be done by the active participation of school children during Van Mahotsava, national festivals. The estimated cost of planting including the transport of plants, digging of pits, planting of seedlings, watering etc. will be around Rs. 300/- per sapling. The children of the schools will be motivated to look after the plants later on. To induce a spirit of competition in protection and development of these plants, the

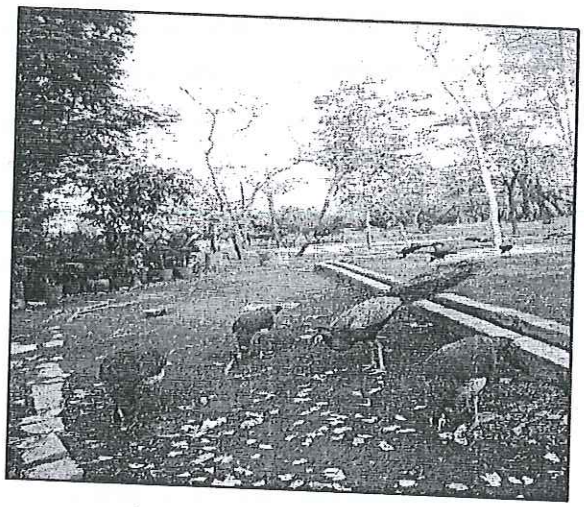
school having the best maintained plants/trees in the third year of the planting would be given a trophy and a cash prize of Rs 2,500/- by the Company.

C. Wide publicity for the conservation of peacocks would be done in the surrounding villages and schools of the area. This would include distribution of pamphlets and posters for peacock protection, and generating awareness in masses for making drinking water available to peacocks and other birds by hanging earthen pots under trees and filling them with water. Following further activities are proposed to be undertaken for publicity purposes:-

- As suggested by the Forest Department the Wildlife Week and "Van Mahotsavas" would be annually organised in the schools of the buffer area. These will be organised by the school teachers in respective schools. Programmes like debate competitions, essay writing, and painting competitions, etc. could be organised. Prizes worth Rs. 2,500/- will be distributed to the students in each school. These prizes will be distributed in the schools for five years.
- Publishing and distributing posters/ pamphlets in the buffer area, urging the cultivators to protect their fields from peacocks feeding on their chemically treated seeds.
- Occasionally some people indulge in poaching of peacocks for its meat and feathers. To curb this occasional poaching it is proposed to give a cash reward of Rs. 5,000/- to anyone who would help the forest department in apprehending and prosecution such poacher. With the objective of effectively protecting the wild life and to control poaching, smuggling and illegal trade in wildlife and its derivatives the government of India enacted Wild Life (Protection) Act 1972. The act was amended in January 2003 and punishment for offences under the Act has been made more stringent.

J.K.Cement works, Sushila Nagar ,Mangrol (Nimbahera) continuously positively trying for conserve the Indian peafowl :

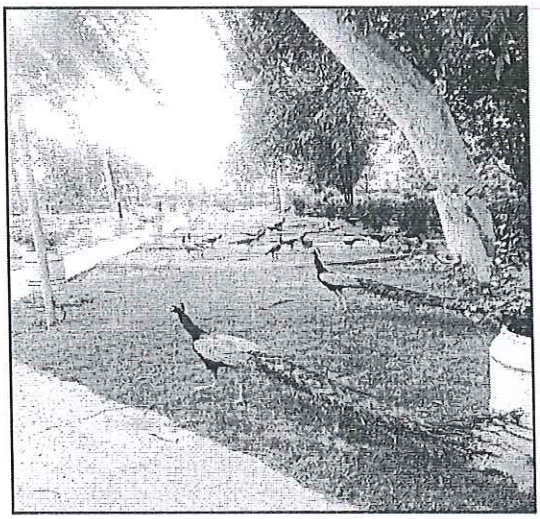




- Peacocks roam freely in the wild, taking cover up in the trees at night to sleep and avoid predators. A peacock that has access to water, food and shelter will not leave its immediate area. For the same company constructed open tanks for them so peacocks roaming freely around the plant premises of

Sushila Nagar colony without flying away. Peafowl are familiar with residential peoples of J.K. Cement staff and their family members.

- These birds are sometimes kept as companion animals. The males are brightly colored and the females are monotone. Peacocks like peace and harmony, and can become stressed if they don't have it. They also need companionship, and can become depressed – even heartbroken – if obliged to live alone. Therefore since company conserving the *Pavo cristatus* their population are increasing per year now approximately 20 peafowl are present in colony and all around the ground of J.K. cement works Sushila Nagar mangrol .



(Peahen and Peacock recorded in buffer zone)

6.0 BUDGET

In addition to development, following activities will be also implemented. Budget for the conservation of peacock is given below:-

S.No	Activity	Year wise budgetary provision in Lakhs										
		1	2	3	4	5	6	7	8	9	10	Total
1	Construction of five small tree groves in in a different habitation area with planting of 200 sapling of Neem, Siris, Ardu,Bad, Pipal and suitable shady trees in each grove and creation of meadows(Grass land) @Rs.300 per plant(one grove per year for five years)	0.40	0.40	0.40	0.40	0.40	---	---	---	---	---	2.0
2	Construction of small water holes, creation of salt licks in each grove	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	3.00

	and watering facilities & maintaining the water quality in each grove. (Rs. 50,000/- per year for 10 years)											
3	Maintenance of 200 Plants including causality replacement(20% of total plants species) @Rs.100 per plant per year	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	2.00
4	Awareness programme (Minimum 2 camps per year for organizing play, Posters and question competitions, brochures for conservation of peafowl.(Rs. 30,000 per year for 10 years)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	3.00
5	The farmers in the buffer area will be motivated to plant fruit and local species of trees on the boundaries of their agriculture fields and near by their houses	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	1.00
6	Providing of rescue vehicle for needful wildlife (First year 1.0 lakh for purchasing and next rest 9 years company will provide maintenance for the same	1.0	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	2.80
7	Help for making Rescue Centre @3.0 lakhs first year with veterinary medicine, required equipment. Also provide fund for the veterinary essential required medicine for 10 years	3.0	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	5.70
	Total	**Rs. Thirty Six Lakhs only**										**19.50**

7.0 SUGGESTED PLANT SPECIES FOR DEVELOPING HABITATION

Some plant species should be prorogate for attract the bird and developing of habitation in the study area as follows:-

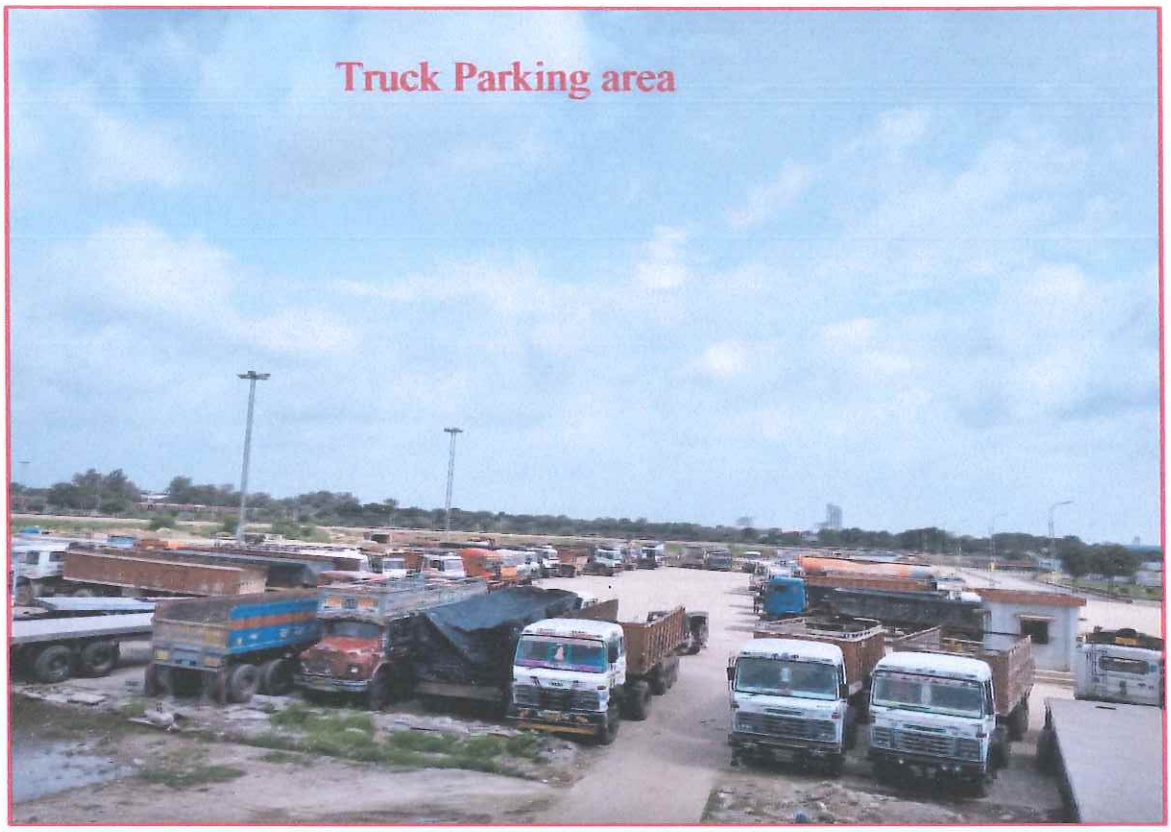
Trees suggested for Peacock and other birds			
S. No.	**Common Name**	**Binominal Name**	**Family**
1	Gulmohar	*Delonix regia*	Fabaceae
2	Aam	*Mangifera indica*	Anacardiaceae

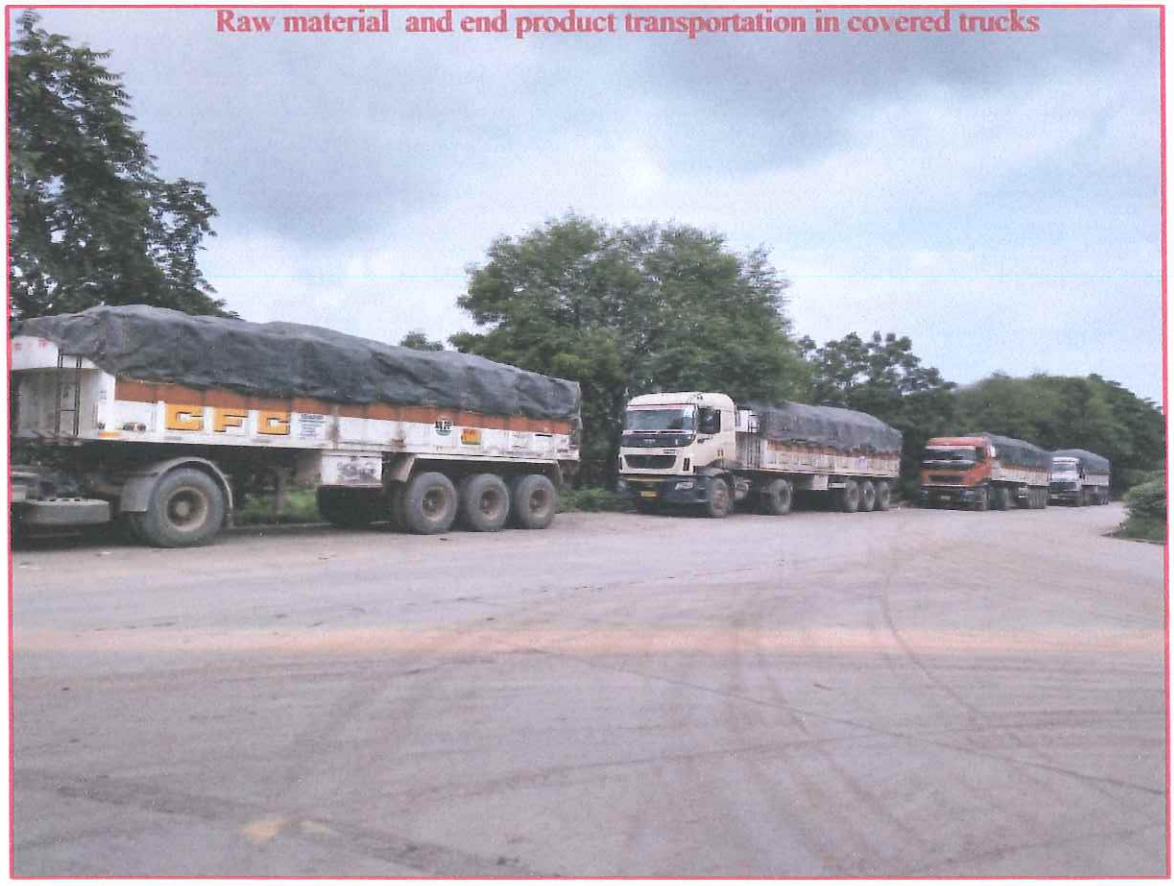
3	Jamun	*Syzygium cumini*	Myrtaceae
4	Neem	*Azadirachta indica*	Meliaceae
5	Karanj	*Pongamia pinnata*	Fabaceae
6	Kadam	*Anthocephalus cadamba*	Rubiaceae
7	Aanvla Indian goosberry	*Phyllanthus emblica*	Phyllanthaceae
8	Peacock flower	*caesalpinia pulcherrima*	Fabaceae
9	peacock plant	*Calathea makoyana*	Marantaceae
10	Arjun	*Terminalia arjuna*	Combretaceae
11	Sitaphal	*Annona squamosa*	Annonaceae
12	Amaltas	*Cassia fistula*	Fabaceae
13	Banyan tree	*Ficus benghalensis*	Moraceae
14	Pipal	*ficus religiosa*	Moraceae
15	Ashok	*Polyalthia longifolia*	Fabaceae
Shrubs and Creepers			
1	Bougainvillea	*Bougainvillea glabra*	Nyctaginaceae
2	Ber	*Ziziphus sppecies*	Rhamnaceae
3	Marigold	*Tagetes erecta*	Asteraceae
4	Gudhal	*Hibiscus rosasinesis*	Malvaceae
5	Fire brush	*Hamelia patens*	Rubiaceae
6	Kaner	*Nerium oleander*	Apocynaceae
7	Tulip heart	*Tradescantia pallida*	Commelianaceae
8	Champa/Frangipani	*Plumeria,magnolia champa*	Apocynaceae
9	Morning glories	*Ipomea spp.*	Convolvulaceae
10	Raimuniya/Lantana bush	*Lantana camara*	Verbenaceae
11	Curry tree/ Kaddipatta	*Murraya koenigii*	Rutaceae

Out of above species Some are already planted in the J.K. Cement plant premises i.e. sushila Nagar Colony & around..

****

Photograph of separate truck parking yard





Annexure-8

Rain Water Harvesting Structure

RWH no. 1

RWH no. 2

RWH no. 3

RWH no. 4

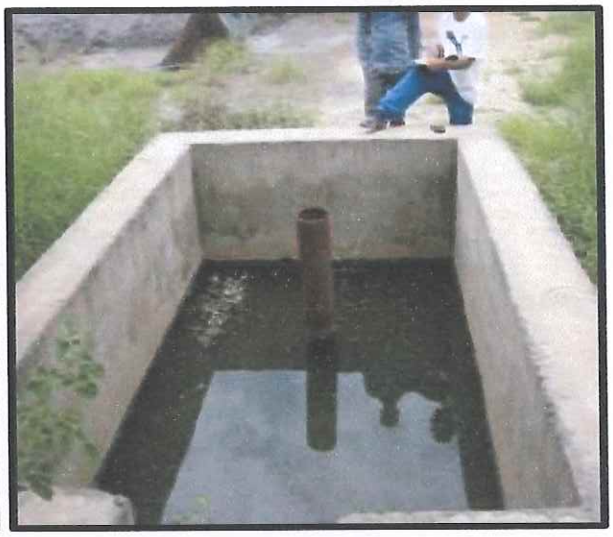
RWH no. 5

RWH no. 6

RWH no. 7

RWH no. 8

RWH no. 9

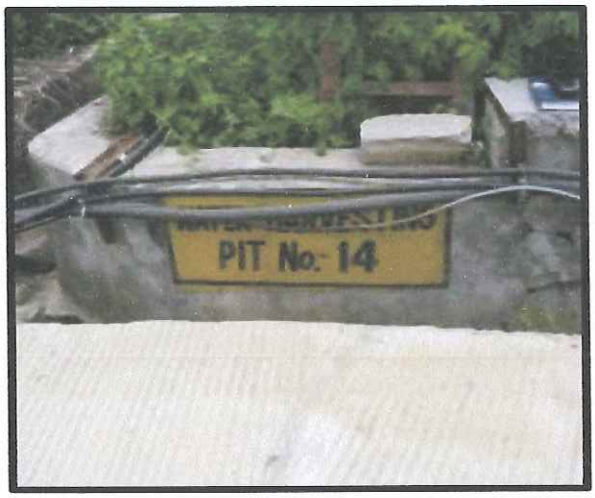


RWH no. 10

RWH no. 11

RWH no. 12

RWH no. 13



RWH no. 14

Rain Water Harvesting Structure in Mine Area