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J.K. Cement Works Kailash Nagar - 312617, Nimbahera Distt. Chittorgarh (Raj.) INDIA

ISO 9001:2015 I ISO 14001:2015 I ISO 45001:2018 I ISO 50001:2018 CERTIFIED COMPANY

NBH/PC/11B/C11/

Through Email

Date: 29.05.2021

To, The Director(I), Ministry of Environment, Forest & Climate Change, Indira Paryavaran Bhavan, JOR Bagh Road, Aliganj, New Delhi-110003

Sub: Compliance of Environmental Clearance for Expansion of Integrated Cement Plant (Clinker 2.8 MTPA to 5.0 MTPA) Cement 3.6 MTPA to 6.5 MTPA) CPP (22.0 MW to 47 MW) & WHRB (13.2 MW to 15.0 MW) M/s J.K. Cement Works, Nimbahera, located at Kailash Nagar Tehsil: Nimbahera, District- Chittorgarh, Rajasthan.

Ref.: EC letter no. - J-11011/243/2016-1A (II) (I) dated 23.07.2018

Dear Sir,

Kindly refer to the above subject matter and refer EC letter no., please find attached herewith compliance of EC for the period of **October'2020 to March'2021**.

As per MoEF & CC notification no. S.O. 5845 (E) 26.11.2018 the soft copy of same has been sent through email to 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 monitoring-ec@nic.in.

We hope that the compliance is in order. Thanking you.

Yours Faithfully For J.K. Cement Works, Nimbahera

Anil Kumar Jain Sr. General Manager- Environment

Enclosed: as above

Copy to:

1.The Director, Ministry of Environment, Forests & Climate Change, Regional office (Central Region), Kendriya Bhawan, 5th Floor, Sector 'H', Aliganj, lucknow-226020 (U.P.)

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

3. Member Secretary, Rajasthan State Pollution Control Board, 4, Institutional Area, Jhalana Doongri, Jaipur - 302004 (RAJASTHAN)



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J. K. Cement Works, Nimbahera

- J. K. Cement Works Mangrol
- J. K. Cement Works, Gotan
- J. K. Cement Works, Jharli

J. K. Cement Works, Muddapur

J. K. White, Katni



J. K. White Cement Works, Gotan



JKCement LTD.

HALF YEARLY COMPLIANCE REPORT

CEA

OF

ENVIRONMENTAL CLEARANCE LETTER NO.

J-11011/243/2016-IA. II (I) Dated 23/07/2018

Period: October-20 to March-21

For Integrated Cement Project: Clinker (2.80 MMTPA to 5.00 MMTPA) and Cement (3.60 MMTPA to 6.50 MMTPA), Captive Power Plant from 22 MW to 47 MW, and WHRB from 13.2 MW to 15 MW

Submitted to:

MoEF& CC, New Delhi & Central Regional Office, Lucknow (UP) Central Pollution Control Board, New Delhi & Bhopal Rajasthan State Pollution Control Board, Jaipur

> Submitted by: M/s J.K.CEMENT WORKS, NIMBAHERA, Kailash Nagar, Tehsil: Nimbahera, District: Chittorgarh (Raj)



S. No.	Condition	Status
	(A) Specific Conditions	
1	The project proponent shall implement the conservation plan for schedule-I species (Pea fowl and Leopard) in consultation with the local forest department with the fund provisions of Rs.82.80 Lakhs in addition to the existing fund provision of 8.90 Lakhs.	Complying with The Wildlife conservation plan has been prepared for six nos. of the following Schedule-I species found in the buffer area during the survey: - (a.) Pavocristatus (Indian Peafowl), (b.) Pantherapadusfusca (Indian Leopard), (c.) Prionailurusrubiginosus (Rusty-Spotted Cat), (d.) Canis lupus pallipes (Indian Wolf), (e.) Varanusbengalensis (Indian Monitor Lizard) (f.) Gyps indicus/Gyps bengalensis (Indian Vulture) Combined Wildlife Conservation Plan has been approved by the Principal Conservator of Forest, Udaipur and recommendations forwarded to Additional Chief Conservator of Forest Jaipur for formal sanction vide letter no. F 5() forest conservation/ Principal conservator of Forest/2020-21/ 5002 dated 24.09.2020 and same proposal has been forwarded to APCCF, Jaipur on 15.10.2020 by DYCF, Jaipur. After approval of APCCF, conservation plan will be implemented.
2	The project proponent shall adopt the slip power recovery system for proposed line no.4 equipped with Bag House Fan (Raw Mill, Kiln PH Fan-1, Separator Fan for Cement Mill Polycom, Separator fan for Raw Mill Polycom).	 In Cement Grinding (HRP) mill VVFD has been installed to recover the slip power. Line 4 is yet to be installed with facility of Slip Power Recovery System.
3	The project proponent shall utilize the alternate fuels to the maximum extent possible	Hazardous and non-hazardous wastes are being used as AFR & alternative raw material in cement plant. Total quantity utilized in FY 2020-21 was 39587.89 MT.
4	The treated water from the STP shall be recycled and reused to conserve the water.	STP treated water is utilized for plantation/greenbelt purposes.

В	General Conditions:					
1	An amount of Rs 4.22 Crores proposed towards Corporate Environment Responsibility (CER) shall be utilized as capital expenditure in project mode. The project shall be completed in concurrence with the implementation of the expansion and estimated on the basis of Scheduled Rates	Complied. The unit has been carried out combined CSR activities for cement plant & associated mines, on the focus area of infrastructure, health, sanitation & w women-empowerment, sports, education etc. The Expenditure occurred in FY-2020-2021 are given as below.				
		S.N.	Focus Area	Amount Expenditure (Rs.)		
		1	Art & Culture	323256		
		2	Community Welfare	3544168		
		3	Disaster Relief	3062490		
		4	Drinking Water Arrangement	1418976		
		5	Educational Charity	3712947		
		6	Environment	171630		
		7	Health	4569947		
		8	Livelihood Promotion	2370383		
		9	National Functions	502759		
		10	Rural Development	21391406		
		11	Sports Promotion	27220		
			Total Expenditure (Rs.)	41095182	ı.	

2	Green belt shall be developed in 72.77 Ha with a native tree species in accordance with CPCB guidelines. The greenbelt shall inter alia cover the entire periphery of the plant	 Total plant area = 98.07 ha. Total planation in plant area = 32.36 ha. Total plantation in plant upto 2019-20 = 87622 nos. Total plantation survived (85%) = 74470 nos, Plantation during FY 20-21= 8123 nos. Survival in FY 2020-21 is 95%, hence survived planation = 7716 nos. Total plantation as on 31st March 2021 in plant area = 82186 nos. Total plantation area in colony = 41.8 ha. Total plantation survived is 85%, hence survived planation = 96194 nos. Plantation during FY 2020-21 = 10492 nos Total survival is 95% in FY 2020-21, hence survived planation is = 9968 nos.
3	The Capital cost Rs. 36.80 Crores (21.96 Crores for Existing+14.84 Crores for expansion) and annual recurring cost Rs 4.08 Crores per annum (Rs. 2.87 Crores for existing + 1.21 Crores for expansion) towards the environmental protection measures shall be earmarked separately. The funds so provided shall not be diverted for any other purpose.	 The funds allocated towards environmental protection measures is/will not be diverted for any other purpose. The amount of Rs. 21.96 Cr had expended towards implementation of environmental protection measures in the existing plant The plant is in construction phase in phase manner, partial increase in cement production for line 4. After commissioning earmarked fund of Rs. 14.84 Cr will be utilized. Against the estimated environmental protection cost Rs. 3,39,09,247/- has been incurred towards the installation bag filter and bag filter fan for roller press with cement mill and rest of the cost will be under line-4 clinkerisation process unit.

		De	escription of Item		Ex	isting
					Capital Cost	Recurring Cost
					(In Lacs)	(In Lacs)
		Air	Air Pollution Control/ Noise		1804	180.0
		Wa	ater Pollution Control		55.0	8.0
		En	vironmental Monitoring and Management		100.0	14.04
		Gre	een Belt Development		175.0	17.5
		Oc	cupational Health		62.0	6.804
		То	tal		2196.0	226.344
		e funds allocated for the proposed line res with recurring amount of 1.21 cror ows:	e 4 w es. T	which is in prog	gress is Rs. 14.84 for the same is as	
			Description of item		Capital Cost (In Lacs)	Recurring Cost (In Lacs)
			Air Pollution Control/ Noise	128	88.65	99.5
			Water Pollution Control	20.0	о с	0.60
			Environmental Monitoring and Management	124	1.5	.2.38
			Green Belt Development	46.	5 6	5.50
			Occupational Health	5.0	2	2.5
			Total	148	34.65 1	21.48
4	The project proponent shall (Air Quality Monitoring):					
a	Install 24x7 continuous emission monitoring system at process stacks to monitor stack emission with respect to standards prescribed in Environment (Protection) Rules 1986 (G.S.R. No. 612 (E) dated 25th August, 2014 (Cement) and subsequent amendment dated 9 th May, 2016 (Cement) and 10th May	•	Continuous emission monitoring system PM, SO2 and NOx at the stack of all Kilns Opacity meters have been installed for stack of coal mill, cement mill and clinke Real time continuous monitoring system	n has s, Boi · con er coo	s been installed lers. tinuous monito pler has been conr	for monitoring of ring of PM at the
		-	itear time continuous monitoring sys	(CIII		

	2016 (Co-processing Cement); S.O. 3305 (E) dated 7th December 2015 (Thermal Power Plants) as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories.	RSP(• Stac • CEM • The	CB and CPCB onl k emission De-N S Remote calibration same practiced v	line server. Ox system has ation done by will be continu	been installed CPCB and perio	at kiln. odical calibr ation of line	ration by OEM. e -4 also.
b	Monitor fugitive emissions in the plant premises at least once in every quarter through laboratories recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories.	Followin Followin Fug Cov Clos Rai All Silo All Bag Wa unl Vac Gree Fug Ann Month/	ng measures hav gitive emissions a vered vehicle use sed containers a l along with road vehicle moveme os for the storage unloading hoppe dust collectors ter spray syste oading points. cuum sweeping i een Belt all aroun gitive dust moni nexure-1	ve been taken f are within limi ed for cement a ind bulkers for d used for raw ent area is conc e of Clinker and ers are covered have been pro em has been machines are b nd the plant pr toring results	or the control and clinker tran fly ash transpo material/finish creted. d fly ash. d and provided vided at all ma provided with peing used for remises. are given in b SPM (µg/m3)	of fugitive e nsportation ortation. hed product with bag fil terial transf h reclaimen better house below table	missions: transportation. ters. fer points. r and limestone ekeeping. and enclosed as
		Year	NEAR COAL YARD	LIMESTONE CRUSHING SITE	NEAR STACKER RECLAIMER	NEAR GYPSUM YARD	NEAR COAL YARD OF 22 MW CPP
		Oct-20	1781.9	3083.1	2544.0	3100.4	1634.3
		Nov-20	1463.3	2045.4	2212.1	1984.1	1017.9

		Dec-20	1038.8	2101.6	2192.8	2069.7	1211.3	
		Jan-21	1047.8	2442.6	2464.3	2085.3	1100.1	
		Feb-21	1044.9	2331.5	2387.3	1975.0	1171.8	
		Mar-21	1146.4	2813.0	2579.7	2306.0	1386.9	
C	Install system carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g. PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to SO2 and NOx emissions) within and outside the plant area at least at four locations (one within and three outside the plant area at an angle of 120° each), covering upwind and downwind directions;	 Ambi upwin that a Onlin withi 	ent air qualit nd and downv ll the parame e CAAQMS sy: n plant area a	y is being mo wind direction ters are within stem already in nd 24x7 conne	nitored at fou . Results of the the permissib nstalled at 4 lo cted to RPCB/	ir locations e monitorin le limits. ocations in p CPCB web p	considering o g report indica eriphery of pla ortal.	ne ate ant
d	Submit monthly summary report of continuous stack emission and air quality monitoring and results of manual stack monitoring and manual monitoring of air quality /fugitive emission to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.	Ambient a	ir quality & St	tack monitorin	g reports are e	enclosed as a	Annexure-2.	
5	The project proponent shall (Water Quality Monitoring):							

A	install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 vide G.S.R. No. 612 (E) dated 25th August, 2014 (Cement)and subsequent amendment dated 9th May, 2016 (Cement) and 10th May, 2016 (in case of Co-processing Cement) as amended from time to time; S.O. 3305 (E) dated 7th December 2015 (Thermal Power Plants)as amended from time to time) and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories.	•] • (1 }	Not applicable for cem Camera & flow meter nonitoring of treated proposed expanded ca	ent plant. are installed fo l effluent. The pacity also.	r neutralizati same practi	on pit at CPP & ce will be con	& WHR for atinued in
b	Monitor regularly ground water quality at least twice a year (pre and post monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognised under Environment (Protection) Act	Ground water quality is being monitored regularly (pre and post monsoon) through lab recognised under Environment (Protection) Act, 1986 and NABL accredited laboratories. Groun water quality report is enclosed as Annexure-3 .				hrough labs ries. Ground	
	through labs recognised under Environment (Protection) rict,	5.	Parameter		Rest	lits	
	1986 and NABL accredited laboratories; and	NO		Pre-monsoon- 13.06.2020	Monsoon- 14.08.20	Post-Monsoon- 11.11.20	Winter- 07.01.21
		01	рН	7.14	7.89	7.55	7.60
		02	Conductivity in µmhos/cm	796	728	706	632
		03	Colour in Hazen	<1.0	<1.0	<1.0	<1.0
		04	Odour	unobjectionable	Agreeable	Agreeable	Agreeable
		05	Turbidity in NTU	<1.0	<1.0	<1.0	<1.0
		06	TDS in mg/l	442	430	424	406
		07	TSS in mg/l	<2.5	<2.5	<2.5	<2.5
		08	Total hardness as CaCO3 in mg/l	292	243	239	230
		09	Calcium in mg/l	101	69	78	72
		10	Magnesium in mg/l	9.6	17	11	12
		11	Total alkalinity in mg/l	156	156	201	125
		10	Chlorido in ma/l	76	75	70	70

		13	Oil & grease in mg/l	<3.0	<1.4	<1.4	<1.4
		14	Fluoride in mg/l	0.56	0.75	0.98	0.96
		15	Iron in mg/l	0.18	<0.05	<0.05	<0.05
с 6.	Submit monthly summary report of continuous effluent monitoring and results of manual effluent testing and manual monitoring of ground water quality to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.	Point • () 1 1 1 • () • () • () • ()	noted and being com Ground water qualit nonitoring report in permissible limits as e Effluent treated water Compliance reports ar and RPCB through e-m	plied by is being n ndicate that a nclosed in Ann monitoring res e submitted pe ail.	nonitored re all the para exure-3. ults are enclo riodically to t	gularly. Result meters are w sed as Annexu he RO of the M	ts of the vithin the r e-4. OEF, CPCB
a	Provide appropriate Air Pollution Control (APC) system for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.	• I	For the existing plant, nill & Cement mill. ESI Fugitive emissions. San	Bag house has P has installed a ne measures wi	s been install at cooler stack ll be adopted	ed at raw mill, a to control emin for unit line -4.	kiln, Coal ssions and
b	Provide leakage detection and mechanised bag cleaning facilities for better maintenance of bags;	Mech provi	anized bag cleaning ided and same practice	facilities for b ed will be follov	oetter mainte ved after expa	nance of bags insion also;	has been
С	Provide pollution control system in the cement plant as per the CREP Guidelines of CPCB;	• I • I 1 f	Point noted and compl For the existing plant, nill & Cement mill. ES Fugitive emissions. San	ying Bag house has Phas installed a ne measures wi	s been install at cooler to co ll be adopted	ed at raw mill, ntrol stack emi for unit line -4.	kiln, Coal ssions and

d	Provide sufficient number of mobile or stationery vacuum	Three nos. of mobile vacuum cleaner are facilitated to clean plant roads, shop
	cleaners to clean plant roads, shop floors, roofs regularly;	floor & roofs regularly in existing plant and same practice will be maintained in
		proposed plant.
e	Recycle and reuse lime fines, coal fines and such other fines	Dust generated from raw mill dust, coal dust, clinker dust and cement dust from
	collected in the pollution control devices and vacuum cleaning	Pollution control equipment like Bag house / ESP are being recycled and reused
	devices in the process after agglomeration;	in the cement manufacturing process in our existing plant. The same practice will
		be followed for line-4 after commencement
f	Ensure covered transportation and conveying of ore, coal and	All raw material transportation in covered dumper. The separate truck parking
	other raw material to prevent spillage and dust generation; Use	area facility is provided in the existing plant. The same practice will be adopted
	closed bulkers for carrying fly ash;	for line-4 unit.
g	Provide wind shelter fence and chemical spraying on the raw	Covered shed are provided for storage of raw materials & also developed dense
	material stock piles;	plantation around the plant hence, wind shelter fence is not required.

h	Provide Low NOX burners as primary measures and SCR /NSCR technologies as secondary measure to control NOX emissions. Have separate truck parking area and monitor vehicular emissions at regular interval	 Low NOx burners have been installed in kiln -3 & SNCR system for SLC to control NOx emissions and advance technology with ILC plant for line - 4 will be install to that meet the NOX emission well within norm. Separate truck parking area has been provided and only PUC certified vehicles are allowed. The SNCR photographs is as below:
7.		
а	Adhere to 'zero liquid discharge';	Zero liquid discharge is being maintained.
b	Provide Sewage Treatment Plant for domestic wastewater; and	STP of capacity: 500KLD; based on Activated Sludge Process (ASP) technology has been provided for domestic waste water treatment and treated water is being utilised for plantation. Additionally, we has installed two reed bed

		technology based STP with the capacity of 55 KLD & 35 KLD each.
с 8.	Provide garland drains and collection pits for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off.	Raw material stored in covered shed and finished product in silo. The garland drains and collection pits for each stock pile to arrest the run-off in the event of heavy rains has been provided.
а	Practice rainwater harvesting to maximum possible extent;	18 nos. Rainwater Harvesting Structures has been constructed for ground water recharge.
В	Provide water meters at the inlet to all unit processes in the cement plants; and	Water meters at all strategic locations has been provided in the existing plant.
C	Make efforts to minimise water consumption in the cement plant complex by segregation of used water, practicing cascade use and by recycling treated water.	 Cement manufacturing process is based on dry process technology. Air cooled condensers in captive power plant is installed Treated waste water from CPP is being reused in coal yard for dust suppression WHR treated waste water is being recycle in cement plant for machineries cooling purpose only. Domestic sewage generated is being treated at STP and the treated water is used for plantation and greenbelt development. 'Zero' liquid discharge are being maintained.
9.		
a	Provide Waste heat recovery system for kiln and cooler;	Waste heat recovery system has provided in the existing kiln and cooler to generate power. The existing power generation through WHRB is 13.2 MW. Same will be explore in line -4.
b	Make efforts to achieve power consumption less than 65 units/tonne for Portland Pozzolona Cement (PPC) and 85 units/tonne for Ordinary Portland Cement (OPC) production	All suitable measures like VVFD, high efficient motors have been adopted to reduce power consumption.

	and thermal energy consumption of 670 Kcal/Kg of clinker;	
С	Provide solar power generation on roof tops of buildings, for solar light system for all common areas, street lights, parking around project area and maintain the same regularly;	Solar power is installed at JK ITI building for street light, open area, parking area and water heater etc.
d	Provide the project proponent for LED lights in their offices and residential areas;	LED lights provided in office & residential township.
e	maximize utilization of fly ash, slag and sweetener in cement blend as per BIS standards; and	Complying with, Fly ash generated from own power plant 100% utilized in manufacturing of PPC cement. Sweetener is being used in limestone to achieve desire LSF.
f	Maximize utilization of alternate fuels and Co-processing to achieve best practice norms	The details of alternate fuels are being utilised in the existing plant is given in specific condition point no -3
10	Efforts shall be made to reduce impact of the transport of the raw materials and end products on the surrounding environment including agricultural land by the use of covered conveyor belts/railways as a mode of transport	Point noted and being complied All precautions to reduce impact of transport of raw material etc. Fly ash is transported by pneumatic system and all type of materials are transported by covered truck, provide paved roads & regular sprinkling of water on roads. There are separate parking areas for trucks with green belt on the periphery and End product also transporting through rail to reduce the road transport.
11	Used refractories shall be recycled as far as possible.	Used refractories is sold and partially recycled in existing plant and same practice will be adopted in proposed plant
12	The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration including plantation.	GHG emission inventory report is attached as Annexure-5 .

13	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan are implemented.
14	The PP shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms of Factory Act	There is no any activity is carried out in high temperature work zone however during shutdown we start working after cooling of equipment and same practice will be followed in proposed unit. Personal protective equipment is being provided to respective worker.
15	The PP shall adhere to the corporate environmental policy and system of the reporting of any infringements/ non-compliance of EC conditions at least once in a year to the Board of Directors and the copy of the board resolution shall be submitted to the MoEF&CC as a part of six-monthly report.	Agreed and under our company policy.
16	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the cement plants shall be implemented.	All CREP recommendations have been implemented.
17	A dedicated environmental cell with qualified personnel shall be established. The head of the environment cell shall report directly to the head of the organization.	A separate environmental management cell with qualified personnel is already established & has sufficient monitoring equipment in environmental laboratory.
18	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, Safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Point noted and agreed All necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, Safe drinking water, medical health care, crèche etc shall be provided for construction worker within the site. The housing shall be removed after the completion of the project.
19	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State	The stipulations made by the State Pollution Control Board and the State Government are being/ will be strictly complied.

	Government.	
20	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).	Point noted and agreed
21	The waste oil, grease and other hazardous shall be disposed of as per the Hazardous & Other waste (Management & Transboundary Movement) Rules, 2016.	 Being followed Hazardous waste generated from our existing plant i.e. Used Oil (5.1) and Waste oil (5.2) are being sold out to authorized recyclers of RPCB/CPCB. Used Batteries is sold to CPCB, RSPCB, authorized venders. Authorization has been obtained from SPCB as per the Hazardous & Other waste (Management & Transboundary Movement) Rules, 2016.
22	The storage of NH3 and other hazardous chemicals at the site shall be as per the provisions of Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 as amended from time to time	NH ₃ use in SNCR is approx. 25 % aqueous solution which is being supplied by manufacturing company. All safety measures inter locked in storage & handling of NH3 & others chemical are being followed as per provisions of Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 as amended.
23	The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.	The ambient noise levels are being regularly monitored and monitoring results indicates that the noise levels with the plant at all locations are well within the standards prescribed under E(P)A Rules, 1986 (For Monitoring results please refer Annexure-2)
24	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	All Occupational health and safety measures are being taken by the management. Health Record of the workers is being maintained. The company has dispensary and sufficient medical staff for the existing unit to monitor the health of the employees/ workers.
25	The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA/EMP report.	Agreed

26	Ventilation system shall be designed for adequate air changes as per ACGIH document for all tunnels, motor houses, Cement bagging plants.	Installed and is in operation
27	Sufficient number of colour coded waste collection bins shall be constructed at shop floors in each shop to systematically segregate and store waste materials generated at the shop floors (other than Process waste) in designated coloured bins for value addition by promoting reuse of such wastes and for good housekeeping.	Agree & Implemented. Colour coded waste collection bins at shop floor to systematically segregate and store waste materials generated at the shop floors (other than Process waste) in designated colour bins and same practice will be adopted in proposed plant.
28	Kitchen waste shall be composted or converted to biogas for further use.(to be decided on case to case basis depending on type and size of plant)	The kitchen waste after segregation & collection of dry and wet garbage is being / will be sent to Nimbahera Nagar Palika for proper disposal.
29.		
a	send a copy of environmental clearance letter to the heads of Local Bodies, Panchayat, Municipal bodies and relevant offices of the Government;	Implemented.
b	Put on the clearance letter on the web site of the company for access to the public.	Complied
С	Inform the public through advertisement within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language that the project has been accorded environmental 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, Forests and Climate Change (MoEF&CC) at http://envfor.nic.in.	Implemented & the necessary information already sent to the concerned authority.

d	Upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same periodically;	The status of compliance of the stipulated environment clearance conditions, including results of monitored data is being uploaded regularly on website.
e	Monitor the criteria pollutants level namely; PM10, SO2, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company;	Regular monitoring of PM10, SO2, NOx (ambient levels as well as stack emissions) or critical sectoral parameters are being monitored. Data on PM, SOx and NOx are continuously displayed outside the premises of plant and uploaded on the website of the company.
f	Submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MoEF&CC, the respective Zonal Office of CPCB and the SPCB;	Agreed. Six monthly reports are being regularly submitting to concern offices as given in time frame. Last Six-Monthly Monitoring report was sent on 26.11.2020 through e-mail to the Regional Office of MoEF&CC, the respective Zonal Office of CPCB and the SPCB.
g	Submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company;	Complying with, The Environment statement i.e. Form V is being submitted regularly of each financial year of existing plant. FY 2019-20 ESR cement plant, Nimbahera, 22 MW CPP and 13.2 MW WHR has submitted at RSPCB office vide letter no. NBH-PC-ESR-21- 539, 542 & 541 respectively, dated 15.09.2020
h	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.	Point noted and will be complied
30	The Ministry of Environment, Forest and Climate Change has considered the application based on the recommendations of the Expert Appraisal Committee (Industry-I) and hereby decided to grant environmental clearance for the proposed expansion of Integrated Cement Plant.	Noted

31	The ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory	Noted
32	The ministry reserves the right to stipulate additional conditions if found necessary. The company in a time bound manner shall implement these conditions	Noted
33	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report and that during their presentation of EAC. The commitment made by the project proponent to issue raised during public hearing shall be implemented by the proponent	Noted and Agreed
34	The above conditions shall be enforced, inter-alia under the provisions of the water (Prevention and control of pollution) Act 1974, the Air (Prevention & control of pollution)Act,1981, the Environment (Protection)Act ,1986, Hazardous and other waste (Management and Transboundary Movement)Rules 2016 and the Public Liability Insurance Act 1991 along with their amendments and rules	Noted and Agreed
35	Any appeal against this EC shall lie with NGT ,if preferred within a period of 30 days as prescribed under Section 16 of NGT Act ,2010	Noted and Agreed

Annexure-1

J.K. Cement Works, Nimbahera Fugitive Emission Monitoring Report October '2020 - March '2021

		SPM (μg/m3)					
S.No. Month/Year		NEAR COAL YARD CRUSHING SITE		NEAR STACKER RECLAIMER	NEAR GYPSUM YARD		
1	Oct-20	1781.9	3083.1	2544.0	3100.4		
2	Nov-20	1463.3	2045.4	2212.1	1984.1		
3	Dec-20	1038.8	2101.6	2192.8	2069.7		
4	Jan-21	1047.8	2442.6	2464.3	2085.3		
5	Feb-21	1044.9	2331.5	2387.3	1975.0		
6	Mar-21	1146.4	2813.0	2579.7	2306.0		

J.K. Cement WORKS, Nimbahera (RAJ) 22 MW CPP Fugitive Emission Monitoring Report October '2020 - March '2021 (ALL VALUES IN MICROGRAMS / CUBIC METER)

Month/Year	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21
NEAR COAL YARD OF 22 MW CPP	1634.30	1017.90	1211.30	1100.10	1171.78	1386.95

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

T: 91 33 22172249 / 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, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/1539 Date : 25.12.2020 Sample No. : MSKGL/ED/2020-21/12/00557 Sample Description : Fugitive Air Sampling Location : Near coal yard (Cement Plant) Date of Sampling : 13.11.2020

Reference No.& Date : e-mail dtd:23.04.2019

SL. N0.	Pollutants	Result	Method of Test Refference
1	Suspended Particulate matter (SPM) in $\mu g/m^3$	1710	IS: 5182:(Part-4)-1999

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

T: 91 33 22172249 / 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, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/1540 Date : 25.12.2020 Sample No. : MSKGL/ED/2020-21/12/00558 Sample Description : Fugitive Air Sampling Location : Near limestone crushing site Date of Sampling : 13.11.2020

Reference No.& Date : e-mail dtd: 23.04.2019

SL. N0.	Pollutants	Result	Method of Test Refference
1	Suspended Particulate Matter (SPM) in µg/m3	1443	IS 5182 (Part-4) - 1999



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

T: 91 33 22172249 / 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, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/1541Date: 25.12.2020Sample No. : MSKGL/ED/2020-21/12/00559Sample Description : Fugitive AirSampling Location : Near Stacker ReclaimerDate of Sampling : 13.11.2020

Reference No.& Date : e-mail dtd: 23.04.2019

SL. N0.	Pollutants	Result	Method of Test Refference
1	Suspended Particulate Matter (SPM) in µg/m3	1611	IS 5182 (Part-4) - 1999

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

T: 91 33 22172249 / 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, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/1543Date: 25.12.2020Sample No. : MSKGL/ED/2020-21/12/00561Sample Description : Fugitive AirSampling Location : Near Coal Yard (Power Plant)Date of Sampling : 13.11.2020

Reference No.& Date : e-mail dtd: 23.04.2019

SL. N0.	Pollutants	Result	Method of Test Refference
1	Suspended Particulate Matter (SPM) in µg/m3	1151	IS 5182 (Part-4) - 1999

Ltd. gnatory)

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

T: 91 33 22172249 / 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, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/1542 Date : 25.12.2020 Sample No. : MSKGL/ED/2020-21/12/00560 Sample Description : Fugitive Air Sampling Location : Near Gypsum Yard Date of Sampling : 13.11.2020

Reference No.& Date : e-mail dtd: 23.04.2019

SL. N0.	Pollutants	Result	Method of Test Refference
1	Suspended Particulate Matter (SPM) in µg/m3	1634	IS 5182 (Part-4) - 1999

For Mitra gnatory)

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

T: 91 33 22172249 / 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, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/2157 Date : 19.03.2021 Sample No. : MSKGL/ED/2020-21/03/00183 Sample Description : Fugitive Air Sampling Location : Near coal yard (Cement Plant) Date of Sampling : 01.02.2021

Reference No.& Date : e-mail dtd:23.04.2019

SL. NO.	Pollutants	Result	Method of Test Refference
1	Suspended Particulate matter (SPM) in µg/m ³	285	IS: 5182:(Part-4)-1999

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Pvt. Ltd. For Mitra (Authorized Signatory)



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

T: 91 33 22172249 / 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, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/2158Date: 19.03.2021Sample No. : MSKGL/ED/2020-21/03/00184Sample Description : Fugitive AirSampling Location : Near limestone crushing siteDate of Sampling : 01.02.2021

Reference No.& Date : e-mail dtd: 23.04.2019

SL. N0.	Pollutants	Result	Method of Test Refference
1	Suspended Particulate Matter (SPM) in µg/m3	265	IS 5182 (Part-4) - 1999

For Mitra Ltd. (Authorized Signatory)

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

T: 91 33 22172249 / 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, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/2159Date: 19.03.2021Sample No. : MSKGL/ED/2020-21/03/00185Sample Description : Fugitive AirSampling Location : Near Stacker ReclaimerDate of Sampling : 01.02.2021

Reference No.& Date : e-mail dtd: 23.04.2019

SL. N0.	Pollutants	Result	Method of Test Refference
1	Suspended Particulate Matter (SPM) in µg/m3	321	IS 5182 (Part-4) - 1999

Pvt. Ltd. For Mitra (Authorized Signatory)

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

T: 91 33 22172249 / 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, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/2160Date: 19.03.2021Sample No. : MSKGL/ED/2020-21/03/00186Sample Description : Fugitive AirSampling Location : Near Gypsum YardDate of Sampling : 01.02.2021

Reference No.& Date : e-mail dtd: 23.04.2019

SL. N0.	Pollutants	Result	Method of Test Refference
1	Suspended Particulate Matter (SPM) in µg/m3	393	IS 5182 (Part-4) - 1999

Pvt. Ltd. Fo (Authorized Signatory)

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

T: 91 33 22172249 / 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, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/2161Date: 19.03.2021Sample No. : MSKGL/ED/2020-21/03/00187Sample Description : Fugitive AirSampling Location : Near Coal Yard (Power Plant)Date of Sampling : 01.02.2021

Reference No.& Date : e-mail dtd: 23.04.2019

SL. N0.	Pollutants	Result	Method of Test Refference
1	Suspended Particulate Matter (SPM) in µg/m3	299	IS 5182 (Part-4) - 1999

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For Mitra S K. Pvt. Ltd. (Authorized Signatory)

								Annexure-2
		J.K. Cement WC)RKS, NIM	IBAHERA (RAJ)			
	DATA SHEET FOR	PARTICULATE	E MATTER	EMISSION	FROM PO	INT SOURC	CE	
	HALF YEAR	RLY REPORT F	Y-2020-21 (October' 20	20 to March	' 2021)		
	NAME OF THE	CROSS	STACK	STACK	FLOW OF	DUST	MEAN	EMISSION
	STACK / DUCT	SECTIONAL	GASES	GASES	GASES IN	CONC.	DUST	RATE
DATE	ATTACHED WITH	AREA OF	TEMP.	VELOCITY	STACK		CONC.	
	UNIT	DUCT	0		3	2	3	
		(\mathbf{M}^2)	("K)	(M / Sec.)	(NM ³ /Sec.)	(Mg/NM ³)	(Mg/NM ³)	(Ts/DAY)
08 10 2020	I S COUSIED (DE)	0.26	October 20	0 17	2.04	16.0		0.003
15.10.2020	L.S. CRUSHER (B.F.)	0.26	324	9.36	2.04	17.3	16.2	0.003
24.10.2020	L.S. CRUSHER (B.F.)	0.26	319	7.74	1.88	14.0	16.3	0.002
30.10.2020	L.S. CRUSHER (B.F.)	0.26	323	8.19	1.96	17.1		0.003
06 11 2020	I S COUSIED (DE)	0.26	November 20	Q 11	2.05	11.0		0.002
13.11.2020	L.S. CRUSHER (B.F.)	0.26	319	9.36	2.03	11.9	14.0	0.002
19.11.2020	L.S. CRUSHER (B.F.)	0.26	332	7.90	1.84	12.0	14.0	0.002
27.11.2020	L.S. CRUSHER (B.F.)	0.26	327	8.24	1.95	17.1		0.003
05.10.0000		0.26	December'20	10.00	2.14	10.4		0.004
05.12.2020	L.S. CRUSHER (B.F.)	0.26	324	9.11	2.44	18.4		0.004
18.12.2020	L.S. CRUSHER (B.F.)	0.26	323	10.18	2.44	16.3	16.8	0.003
25.12.2020	L.S. CRUSHER (B.F.)	0.26	322	9.05	2.18	15.1		0.003
			January'21	a :-				0
07.01.2021	L.S. CRUSHER (B.F.)	0.26	321	8.47	2.04	13.0		0.002
21.01.2021	L.S. CRUSHER (B.F.)	0.26	319	7.74	1.88	17.0	14.4	0.003
30.01.2021	L.S. CRUSHER (B.F.)	0.26	323	8.19	1.96	13.5		0.002
01 02 2021	I S COUSIED (DE)	0.26	February'21	5 20	1.20	12.0		0.001
08.02.2021	L.S. CRUSHER (B.F.)	0.26	329	4.95	1.30	13.0	15.0	0.001
15.02.2021	L.S. CRUSHER (B.F.)	0.26	326	6.39	1.52	11.5	15.9	0.002
23.02.2021	L.S. CRUSHER (B.F.)	0.26	324 March'21	5.96	1.43	20.8		0.003
02.03.2021	L.S. CRUSHER (B.F.)	0.26	300	6.04	1.56	17.7		0.002
11.03.2021	L.S. CRUSHER (B.F.)	0.26	297	5.71	1.49	19.4	17.4	0.002
18.03.2021	L.S. CRUSHER (B.F.)	0.26	303	6.63	1.70	17.8	1/11	0.003
23.03.2021	L.S. CRUSHER (B.F.)	0.20	October'20	0.49	1.08	14.5		0.002
09.10.2020	KILN No.1 (Bag House)	4.90	401	14.62	53.24	16.0		0.074
15.10.2020	KILN No.1 (Bag House)	4.90	408	15.98	57.19	16.1	14.1	0.080
22.10.2020	KILN No.1 (Bag House)	4.90	414	15.54	54.81	13.7	14.1	0.065
30.10.2020	KILN No.1 (Bag House)	4.90	416	15.31	53.74	10.7		0.050
03 11 2020	KILN No 1 (Bag House)	4 90	405	14 69	52.96	21.00		0.10
10.11.2020	KILN No.1 (Bag House)	4.90	401	15.84	57.68	19.40	10.0	0.10
17.11.2020	KILN No.1 (Bag House)	4.90	419	15.63	54.47	20.20	19.9	0.10
24.11.2020	KILN No.1 (Bag House)	4.90	399	15.00	54.89	18.90		0.09
		1.00	December'20	15.67	56.50	12.4		0.065
01.12.2020	KILN No.1 (Bag House)	4.90	405	15.67	56.50	15.4		0.065
07.12.2020	KILN No.1 (Bag House)	4.90	401	15.74	57.32	16.0	14.7	0.079
STOPPED	KILN No.1 (Bag House)	-		STOPPED				STOPPED
	KILM NO.1 (Dag House)		January'21					
	KILN No.1 (Bag House)							
TED	KILN No.1 (Bag House)			-				
CORY.	KILN No.1 (Bag House)			Ν	ot in operatio	n		
Ċ,	KILN No.1 (Bag House)							
			February'21					
-	KILN No.1 (Bag House)							
PED	KILN No.1 (Bag House)			N	lot in operatio	n		
arox'	KILN No.1 (Bag House)			1	or in operatio			
ک.	KILN No.1 (Bag House)							
			March'21		10			
03.03.2021	KILN No.1 (Bag House)	3.80	414	16.04	43.87	11.30		0.043
09.03.2021	KILN No.1 (Bag House)	3.80	401	16.65	47.02	13.90	12.1	0.056
16.03.2021	KILN No.1 (Bag House)	3.80	410	16.50	45.57	10.80		0.043
23.03.2021	KILN No.1 (Bag House)	3.80	407	17.00	47.30	12.30		0.050

			October'20									
05.10.2020	KILN No. 2 (Bag house)	3.80	402	16.48	46.42	13.6		0.055				
13.10.2020	KILN No. 2 (Bag house)	3.80	405	15.82	44.23	12.6		0.048				
19.10.2020	KILN No. 2 (Bag house)	3 80	411	16 99	46.81	13.3	12.8	0.054				
26.10.2020	KILN No. 2 (Bag house)	3.80	417	15.75	42.77	11.5	-	0.042				
20.10.2020	HILL TO 2 (Dug house)	5.00	November'20	15.75	12.77	11.5		0.012				
03 11 2020	KILN No. 2 (Bag house)	3 80	401	1646	46.48	15.3		0.061				
10 11 2020	KILN No. 2 (Bag house)	3.80	409	15.90	44.02	19.1	-	0.073				
17 11 2020	KILN No. 2 (Bag house)	3.80	416	17.10	46.55	18.6	18.3	0.075				
24.11.2020	KILN No. 2 (Bag house)	3.80	414	15.69	42.92	20.0	-	0.075				
211112020		5100	December'20	10107	12172	2010		01071				
	KII N No. 2 (Bag house)		Detember 20									
E.	KILN No. 2 (Bag house)											
OPPT	KILN No. 2 (Bag house)				STOPPED							
SLE	KILN No. 2 (Bag house)											
	KILN No. 2 (Dag nouse)		January'21									
	KII N No. 2 (Bag house)		oundary 21									
(a)	KII N No. 2 (Bag house)											
OPPL	KII N No. 2 (Bag house)			N	lot in operatio	n						
est.	KII N No. 2 (Bag house)											
	ISILA 190. 2 (Dag House)		February'21									
02.02.2021	KILN No. 2 (Bag house)	3.80	415	15.62	42.62	12.0		0.044				
09.02.2021	KILN No. 2 (Bag house)	3 80	411	16 49	45.43	97	1.	0.038				
16.02.2021	KILN No. 2 (Bag house)	3.80	402	17.27	48.65	75	10.8	0.030				
22.02.2021	KILN No. 2 (Bag house)	3.80	416	18.38	50.03	14.0	1	0.052				
22.02.2021	KILN No. 2 (Dag nouse)	5.60	March'21	10.50	50.05	14.0	1	0.001				
01 02 2021	KII N No. 2 (Bag bouse)	3.80	422	13.02	37 35	11.5	1	0.037				
01.03.2021	KILN No. 2 (Bag house)	3.80	422	16.03	44.17	12.8		0.037				
08.03.2021	KILN No. 2 (Bag house)	3.80	411	10.03	44.17	12.0	11.6	0.049				
15.03.2021	KILN No. 2 (Bag house)	3.80	407	14.99	41.71	11.4	_	0.041				
22.03.2021	KILN No. 2 (Bag nouse)	5.80	412	14.55	39.39	10.5		0.036				
			October'20									
06.10.2020	KILN No. 3 (Bag House)	3.80	413	17.13	46.97	12.6		0.051				
12.10.2020	KILN No. 3 (Bag House)	3.80	408	18.10	50.24	12.4		0.054				
19.10.2020	KILN No. 3 (Bag House)	3.80	421	16.77	45.11	14.7	13.2	0.057				
27.10.2020	KILN No. 3 (Bag House)	3 80	424	15.98	42.68	13.2	_	0.049				
			November'20									
05.11.2020	KILN No. 3 (Bag House)	3.80	415.00	17.17	46.85	10.60		0.043				
11.11.2020	KILN No. 3 (Bag House)	3.80	418.00	18.32	49.63	10.50	-	0.045				
19 11 2020	KILN No. 3 (Bag House)	3.80	411	16.52	45.65	9.6	10.5	0.038				
25 11 2020	KILN No. 3 (Bag House)	3.80	404	16.43	46.05	11.2	-	0.036				
201112020	Line (Dug House)	5.00	December'20	10.70	10.00	11.4	1	0.040				
04.12.2020	KILN No. 3 (Bag House)	3.80	415.00	18.12	49.44	10.90		0.047				
11.12.2020	KILN No. 3 (Bag House)	3.80	411.00	18.34	50.53	9,10	1	0.040				
18.12.2020	KILN No. 3 (Bag House)	3.80	401	16.83	47.53	10.6	9.8	0.044				
24,12,2020	KILN No. 3 (Bag House)	3.80	413	17.63	48 34	85	1	0.036				
	(Join Cong House)	5.00	January'21	11.00		0.0	1	0.000				
04.01.2021	KILN No. 3 (Bag House)	3.80	413	17.13	46.97	10.8		0.044				
11.01.2021	KILN No. 3 (Bag House)	3 80	408	18 10	50.24	12.7	1.	0.055				
18.01.2021	KILN No. 3 (Bag House)	3 80	42.1	16 77	45.11	14.9	12.9	0.058				
25.01 2021	KILN No. 3 (Bag House)	3.80	424	15.98	42.68	13.2	1	0.049				
1		5.00	February'21	10.70	12.00	10.4		0.017				
02.02.2021	KILN No. 3 (Bag House)	3.80	416	14.17	38.57	12.2		0.041				
08.02.2021	KILN No. 3 (Bag House)	3.80	410	15.77	43.56	7.4	<u> </u>	0.028				
16.02.2021	KILN No. 3 (Bag House)	3.80	415	15.14	41.31	11.5	9.7	0.041				
22.02.2021	KILN No. 3 (Bag House)	3.80	421	16.67	44.84	7.8	1	0.030				
	• • • • • • • • • • • • • • • • • • • •		March'21				-	-				
3.03.2021	KILN No. 3 (Bag House)	3.80	419	16.54	44.70	17.5		0.068				
09.03.2021	KILN No. 3 (Bag House)	3.80	413	15.31	41.98	14.8	1	0.054				
15.03.2021	KILN No. 3 (Bag House)	3.80	421	16.87	45.38	15.3	14.8	0.060				
22.03.2021	KILN No. 3 (Bag House)	3.80	418	16.71	45.27	11.5	1	0.045				
•								-				

			October'20					
06.10.2020	PRE-CALCINER (Bag House)	7.79	424	18.85	103.20	10.5		0.094
13.10.2020	PRE-CALCINER (Bag House)	7.79	421	18.08	143.74	13.6	10.7	0.169
20.10.2020	PRE-CALCINER (Bag House)	7.79	413	17.13	136.65	11.1	12.7	0.131
26.10.2020	PRE-CALCINER (Bag House)	7.79	408	15.73	124.63	15.7		0.169
			November'20					
05.11.2020	PRE-CALCINER (Bag House)	7.79	412.00	18.58	104.69	10.3		0.093
11.11.2020	PRE-CALCINER (Bag House)	7.79	416.00	17.97	142.86	11.8		0.146
19.11.2020	PRE-CALCINER (Bag House)	7.79	414.00	17.15	136.81	11.2	- 11.3	0.132
25.11.2020	PRE-CALCINER (Bag House)	7.79	399.00	16.23	128.15	11.8	_	0.131
			December'20					
04.12.2020	PRE-CALCINER (Bag House)	7.79	438	19.46	103.14	19.4		0.173
11.12.2020	PRE-CALCINER (Bag House)	7.79	434	17.61	140.00	14.5		0.175
17.12.2020	PRE-CALCINER (Bag House)	7.79	425	18.48	145.92	1.9	12.9	0.024
24.12.2020	PRE-CALCINER (Bag House)	7.79	418	17.00	134.69	15.7		0.183
		,	January'21	17100	10 1107	1017		01100
05.01.2021	PRE-CALCINER (Bag House)	7 79	424	18.85	103 20	11.4		0.102
12.01.2021	PRE-CALCINER (Bag House)	7.79	421	18.08	143.74	13.6		0.169
20.01.2021	PRE-CALCINER (Bag House)	7.79	413	17.13	136.65	14.0	13.7	0.165
27.01.2021	PRE-CALCINER (Bag House)	7 79	408	15 73	124.63	15.7	1	0.169
			February'21	10.10	121.00	10.1		0.107
02.02.2021	PRE-CALCINER (Bag House)	7 79	436	15.84	84 34	11.3		0.082
08.02.2021	PRE-CALCINER (Bag House)	7.79	438	16.29	126.47	14.2		0.155
15.02.2021	PRE-CALCINER (Bag House)	7 79	431	16 37	126.25	10.8	13.4	0.118
22.02.2021	PRE-CALCINER (Bag House)	7 79	440	16.84	130.74	17.3	-	0.195
	THE CHECK (ER (Eng House)	1.17	March'21	10.01	150.71	17.5		0.175
03 03 2021	PRE-CALCINER (Bag House)	7 79	421	14 98	113 64	10.6		0.104
09.03.2021	PRE-CALCINER (Bag House)	7 79	419	16.44	125.54	16.7		0.181
16.03.2021	PRE-CALCINER (Bag House)	7 79	418	16.76	127.98	12.6	12.3	0.139
23.03.2021	PRE-CALCINER (Bag House)	7.79	422	15.94	120.53	9.2		0.096
2010012021	The component (bug nouse)	1.17	October'20	15.91	120.55	7.2		0.070
06.10.2020	FOLAX COOLER (E.S.P)	12.56	423	14 68	188.82	23.1		0 377
13.10.2020	FOLAX COOLER (E.S.P)	12.56	425	13 31	171 79	23.2		0.344
20 10 2020	FOLAX COOLER (E.S.P)	12.56	420	14.18	180.52	16.3	20.9	0.254
26.10.2020	FOLAX COOLER (E.S.P)	12.56	424	14.87	190.60	18.5		0.305
2012012020		12.50	November'20	11.07	170.00	10.5		0.505
02.11.2020	FOLAX COOLER (E.S.P)	12.56	426	13 20	189 59	21.5		0 352
10.11.2020	FOLAX COOLER (E.S.P)	12.56	424	10.80	171.66	22.3		0.331
17.11.2020	FOLAX COOLER (E.S.P)	12.56	421	12.40	180.78	19.5	20.5	0.305
24.11.2020	FOLAX COOLER (E.S.P)	12.56	412	10.60	167.08	18.5		0.267
		12100	December'20	10100	10/100	1010		01207
04.12.2020	FOLAX COOLER (E.S.P)	12.56	428	14 54	185 11	16.9		0.270
11.12.2020	FOLAX COOLER (E.S.P)	12.56	420	11.32	143.14	21.8		0.270
17.12.2020	FOLAX COOLER (E.S.P)	12.56	426	13.20	169.20	20.6	18.7	0.301
24.12.2020	FOLAX COOLER (E.S.P)	12.56	417	13.61	175.66	15.4		0.234
	/	-200	January'21		2.0.00			
05.01.2021	FOLAX COOLER (E.S.P)	12.56	423	14.68	188.82	23.1		0.377
12.01.2021	FOLAX COOLER (E.S.P)	12.56	425	13.31	171.79	22.4		0.332
20.01.2021	FOLAX COOLER (E.S.P)	12.56	420	14.18	180.52	17.8	21.1	0.278
27.01.2021	FOLAX COOLER (E.S.P)	12.56	424	14.87	190.60	18.5	-	0.305
			February'21		,		-	
03.02.2021	FOLAX COOLER (E.S.P)	12.56	424	16.08	201.96	20.2		0.352
09.02.2021	FOLAX COOLER (E.S.P)	12.56	427	17.27	215.47	26.8		0.499
15.02.2021	FOLAX COOLER (E.S.P)	12.56	431	15.37	192.40	17.8	21.6	0.296
22.02.2021	FOLAX COOLER (E.S.P)	12.56	422	16.93	209.82	23.2	1	0.421
		12.00	March'21	- 0.70	_07.02			
03.03.2021	FOLAX COOLER (E.S.P)	12.56	421	15.56	190.32	23.5		0.386
09.03.2021	FOLAX COOLER (E.S.P)	12.56	426	16.57	204.68	20.6		0.364
16.03.2021	FOLAX COOLER (E.S.P)	12.56	422	16.10	197.57	27.7	23.9	0.473
23.03.2021	FOLAX COOLER (E.S.P)	12.56	429	17.12	212.18	25.8	1	0.473
			=/					
								-

			October'20					
10.10.2020	COAL MILL - 1 (B.F.)	0.33	348	13.51	4.53	15.3		0.006
17.10.2020	COAL MILL - 1 (B.F.)	0.33	354	14.32	4.86	16.2	15.6	0.007
23.10.2020	COAL MILL - 1 (B.F.)	0.33	358	13.34	4.48	14.6	15.6	0.006
29.10.2020	COAL MILL - 1 (B.F.)	0.33	347	12.72	4.30	16.2		0.006
	• • •		November'20)				
06 11 2020	COAL MILL - 1 (B.F.)	0.33	344	13.44	4 51	12.9		0.005
13 11 2020	COAL MILL - 1 (B.F.)	0.33	356	14.36	4.80	12.5		0.005
20 11 2020	COAL MILL - 1 (B.F.)	0.33	352	13.23	4 38	14.8	13.3	0.005
27 11 2020	COAL MILL - 1 (B.F.)	0.33	355	13.25	4.50	13.0	_	0.005
27.11.2020	COAL MILL - I (B.I.)	0.55	December'20	15.65	4.02	15.0		0.005
02 12 2020	COAL MILL 1 (BE)	0.22	245	12.00	1 69	12.0		0.005
03.12.2020	COAL MILL - 1 (B.F.)	0.55	545	13.90	4.06	12.9	_	0.003
STOPPED	COAL MILL - I (B.F.)			STODDED			12.9	STOPPED
STOFFED	COAL MILL - I (B.F.)			STOFFED				STOFFED
	COAL MILL - I (B.F.)		1101					
			January 21					
s	COAL MILL - 1 (B.F.)							
-PPt.	COAL MILL - 1 (B.F.)			1	Not in operatio	n		
ero,	COAL MILL - 1 (B.F.)				<u>^</u>			
Ŷ	COAL MILL - 1 (B.F.)							
	1		February'21					
	COAL MILL - 1 (B.F.)							
pret	COAL MILL - 1 (B.F.)			1	Not in operatio	n		
eror	COAL MILL - 1 (B.F.)				1			
Ş	COAL MILL - 1 (B.F.)							
			March'21					
02.03.2021	COAL MILL - 1 (B.F.)	0.33	340	13.26	4.91	16.3		0.007
08.03.2021	COAL MILL - 1 (B.F.)	0.33	346	13.12	4.92	10.0	12.7	0.004
16.03.2021	COAL MILL - 1 (B.F.)	0.33	352	13.34	4.95	11.8		0.005
23.03.2021	COAL MILL - 1 (B.F.)	0.33	341	13.48	5.02	12.5		0.005
			October'20					
06.10.2020	COAL MILL - 2 (B.F.)	0.38	353	14.97	5.83	16.2		0.008
13.10.2020	COAL MILL - 2 (B.F.)	0.38	345	13.46	5.18	15.5	1(2)	0.007
19.10.2020	COAL MILL - 2 (B.F.)	0.38	358	14.16	5.42	18.0	10.2	0.008
27.10.2020	COAL MILL - 2 (B.F.)	0.38	362	14.87	5.75	15.2		0.008
	•		November'20)				
07.11.2020	COAL MILL - 2 (B.F.)	0.38	351	14.92	5.81	8.9		0.004
14.11.2020	COAL MILL - 2 (B.F.)	0.38	356	13.67	5.27	9.5	0 5	0.004
20.11.2020	COAL MILL - 2 (B.F.)	0.38	342	13.84	5.29	8.5	0.5	0.004
26.11.2020	COAL MILL - 2 (B.F.)	0.38	337	14.35	5.55	7.1		0.003
			December'20)				
	COAL MILL - 2 (B.F.)							
PED	COAL MILL - 2 (B.F.)				STODDED			
JOX.	COAL MILL - 2 (B.F.)				STOFFED			
÷,	COAL MILL - 2 (B.F.)							
			January'21					
	COAL MILL - 2 (B.F.)							
RED	COAL MILL - 2 (B.F.)			1	Not in operatio	n		
NOX.	COAL MILL - 2 (B.F.)			1	Not in operatio	11		
S,	COAL MILL - 2 (B.F.)							
			February'21					
03.02.2021	COAL MILL - 2 (B.F.)	0.38	334	12.94	4.90	11.4		0.005
10.02.2021	COAL MILL - 2 (B.F.)	0.38	345	13.30	5.00	10.4	12.0	0.004
17.02.2021	COAL MILL - 2 (B.F.)	0.38	351	14.12	5.28	13.5	12.9	0.006
24.02.2021	COAL MILL - 2 (B.F.)	0.38	342	14.50	5.47	16.1		0.008
			March'21					
01.03.2021	COAL MILL - 2 (B.F.)	0.38	348	13.61	5.00	10.1		0.004
08.03.2021	COAL MILL - 2 (B.F.)	0.38	350	13.30	4.99	14.8		0.006
15.03.2021	COAL MILL - 2 (B.F.)	0.38	341	13.23	4.91	15.6	14.2	0.007
22.03.2021	COAL MILL - 2 (B.F.)	0.38	344	14.07	5.24	16.1	1	0.007

		October'20					
07.10.2020 COAL MILL - 3 (B.F.)	0.38	360	13.64	5.24	14.8		0.007
15.10.2020 COAL MILL - 3 (B.F.)	0.38	355	14.44	5.60	16.4	14.8	0.008
23.10.2020 COAL MILL - 3 (B.F.)	0.38	351	12.95	4.99	14.6	1110	0.006
30.10.2020 COAL MILL - 3 (B.F.)	0.38	357	12.90	5.02	13.4		0.006
		November'20				1	
07.11.2020 COAL MILL - 3 (B.F.)	0.38	342.00	13.30	5.11	14.5	-	0.006
14.11.2020 COAL MILL - 3 (B.F.)	0.38	334.00	14.01	5.43	16.7	15.5	0.008
21.11.2020 COAL MILL - 3 (B.F.)	0.38	352.00	12.97	5.00	16.4	-	0.007
20.11.2020 COAL WILL - 5 (B.F.)	0.38	550.00 December'20	12.65	4.99	14.5		0.000
04 12 2020 COAL MILL - 3 (B.F.)	0.38	345.00	14.93	5 77	12.8		0.006
11 12 2020 COAL MILL - 3 (B.F.)	0.38	341.00	12.01	4 66	20.2		0.008
18.12.2020 COAL MILL - 3 (B.F.)	0.38	338.00	13.07	5.03	15.1	16.8	0.007
26.12.2020 COAL MILL - 3 (B.F.)	0.38	335.00	13.93	5.33	18.9		0.009
		January'21				1	
07.01.2021 COAL MILL - 3 (B.F.)	0.38	360	13.64	5.24	13.4		0.006
14.01.2021 COAL MILL - 3 (B.F.)	0.38	355	14.44	5.60	17.4	14.1	0.007
21.01.2021 COAL MILL - 3 (B.F.)	0.38	351	12.95	4.99	14.8	1401	0.006
28.01.2021 COAL MILL - 3 (B.F.)	0.38	357	12.90	5.02	10.6		0.006
		February'21				1	
01.02.2021 COAL MILL - 3 (B.F.)	0.38	346.00	13.17	5.00	10.2		0.004
09.02.2021 COAL MILL - 3 (B.F.)	0.38	342.00	12.36	4.65	12.0	13.8	0.005
16.02.2021 COAL MILL - 3 (B.F.)	0.38	351.00	12.13	4.58	15.2		0.006
24.02.2021 COAL MILL - 5 (B.F.)	0.38	334.00 March'21	12.29	4.01	17.0		0.007
02.03.2021 COAL MILL - 3 (B.F.)	0.38	342.00	12.57	4 68	14.1		0.006
10.03.2021 COAL MILL - 3 (B.F.)	0.38	341.00	12.71	4.72	18.9		0.008
15.03.2021 COAL MILL - 3 (B.F.)	0.38	346.00	12.70	4.68	11.9	15.1	0.005
22.03.2021 COAL MILL - 3 (B.F.)	0.38	344.00	12.23	4.56	15.4		0.006
		October'20					
07.10.2020 COAL MILL - 4 (BAG FILTER)	1.13	342	14.50	16.78	20.2		0.029
15.10.2020 COAL MILL - 4 (BAG FILTER)	1.13	345	12.94	15.03	17.9	16.9	0.023
23.10.2020 COAL MILL - 4 (BAG FILTER)	1.13	351	13.42	15.42	18.5	10.5	0.025
30.10.2020 COAL MILL - 4 (BAG FILTER)	1.13	349	13.98	16.12	10.9		0.015
		November'20		1 - 00	10.5	1	
03.11.2020 COAL MILL - 4 (BAG FILTER)	1.13	346.00	14.59	16.88	13.6		0.020
10.11.2020 COAL MILL - 4 (BAG FILTER)	1.13	342.00	12.89	14.97	13.9	15.3	0.018
20.11.2020 COAL MILL - 4 (BAG FILTER)	1.13	344.00	13.28	15.26	19.5		0.026
20.11.2020 COAL MILL - 4 (BAG FILTER)	1.15	302.00	15.42	13.40	14.5		0.019
05 12 2020 COAL MILL & (PAC EILTER)	1.12	348.00	14.11	16.16	167		0.023
10 12 2020 COAL MILL - 4 (BAG FILTER)	1.13	344.00	13 64	15.68	11.1		0.023
17.12.2020 COAL MILL - 4 (BAG FILTER)	1.13	338.00	15.22	17.55	13.9	13.6	0.021
25.12.2020 COAL MILL - 4 (BAG FILTER)	1.13	342.00	14.73	16.93	12.7		0.019
		January'21					
08.01.2021 COAL MILL - 4 (BAG FILTER)	1.13	342	14.50	16.78	9.4		0.014
15.01.2021 COAL MILL - 4 (BAG FILTER)	1.13	345	12.94	15.03	16.4	13.0	0.021
22.01.2021 COAL MILL - 4 (BAG FILTER)	1.13	351	13.42	15.42	19.0	13.3	0.025
28.01.2021 COAL MILL - 4 (BAG FILTER)	1.13	349	13.98	16.12	10.9		0.015
	1.10	February'21	10.00	10.11		1	0.017
01.02.2021 COAL MILL - 4 (BAG FILTER)	1.13	352.00	12.03	13.46	14.5		0.017
08.02.2021 COAL MILL - 4 (BAG FILTER)	1.13	341.00	12.23	13.87	19.5	15.7	0.023
15.02.2021 COAL MILL - 4 (BAG FILTER)	1.13	354.00	13.32	14.80	11.9	1	0.015
22.02.2021 COAL MILL - 4 (BAG FILTEK)	1.15	343.00 March'21	15.00	14./4	10.8		0.021
04.03.2021 COAL MILL - 4 (BAG FILTER)	1 13	346.00	14 30	15.89	24 7		0.034
11.03.2021 COAL MILL - 4 (BAG FILTER)	1.13	342.00	13.09	14.45	13.2	10.0	0.016
16.03.2021 COAL MILL - 4 (BAG FILTER)	1.13	354.00	13.98	15.38	16.7	18.9	0.022
23.03.2021 COAL MILL - 4 (BAG FILTER)	1.13	349.00	13.68	15.05	20.8	1	0.027

			October'20									
	CEMENT MILL - 1 (BAG FILTER)											
PED	CEMENT MILL - 1 (BAG FILTER)				STOPPED							
TOK	CEMENT MILL - 1 (BAG FILTER)											
Ó.	CEMENT MILL - 1 (BAG FILTER)											
			November'20									
06.11.2020	CEMENT MILL - 1 (BAG FILTER)	0.28	362.00	13.31	3.79	11.6		0.004				
11.11.2020	CEMENT MILL - 1 (BAG FILTER)	0.28	357.00	12.40	3.50	10.3	11.0	0.003				
STOPPED	CEMENT MILL - 1 (BAG FILTER)			STOPPED			11.0	STOPPED				
5101122	CEMENT MILL - 1 (BAG FILTER)			DIGITED				STOTTED				
			December'20					1				
STOPPED	CEMENT MILL - 2 (BAG FILTER)	0.61	_	STC	PPED			STOPPED				
00 10 0000	CEMENT MILL - 2 (BAG FILTER)	0.61	251.00	10.47	0.22	16.0	15.1	0.012				
09.10.2020	CEMENT MILL - 2 (BAG FILTER)	0.61	351.00	13.47	8.33	16.8	-	0.012				
14.10.2020	CEMENT MILL - 2 (BAG FILTER)	0.01	555.00 January'21	14.50	8.95	13.4		0.010				
	CEMENT MILL, 1 (BAC FILTER)		Sandary 21									
E.	CEMENT MILL - 1 (BAG FILTER)											
ORV	CEMENT MILL - 1 (BAG FILTER)			N	lot in operation	n						
et.	CEMENT MILL - 1 (BAG FILTER)											
		-	February'21									
STOPPED	CEMENT MILL - 1 (BAG FILTER)		Mill -	at in Onarati	on			STOPPED				
STOFFED	CEMENT MILL - 1 (BAG FILTER)			or in Operation			181	STOFFED				
17.02.2021	CEMENT MILL - 1 (BAG FILTER)	0.28	354.00	13.32	14.80	18.1	10.1	0.023				
STOPPED	CEMENT MILL - 1 (BAG FILTER)		Mill n	ot in Operati	on			STOPPED				
			March'21									
6.03.2021	CEMENT MILL - 1 (BAG FILTER)	0.28	350.00	13.60	3.73	17.4	1	0.006				
12.03.2021	CEMENT MILL - 1 (BAG FILTER)	0.28	343.00	13.66	3.74	14.4	17.1	0.005				
19.03.2021	CEMENT MILL - 1 (BAG FILTER)	0.28	354.00	13.98	3.82	21.0	-	0.007				
STOPPED	CEMENT MILL - 1 (BAG FILTER)	0.28	349.00	13.68	3.//	15.6		0.005				
			October'20									
	CEMENT MILL - 2 (BAG FILTER)	0.61	October 20									
STOPPED	CEMENT MILL - 2 (BAG FILTER)	0.61	-	STC	PPED			STOPPED				
09.10.2020	CEMENT MILL - 2 (BAG FILTER)	0.61	351.00	13.47	8.33	16.8	15.1	0.012				
14.10.2020	CEMENT MILL - 2 (BAG FILTER)	0.61	355.00	14 30	8.93	13.4		0.010				
1 11 10 20 20		0101	November'20	1 1100	0170	1011		0.010				
04.11.2020	CEMENT MILL - 2 (BAG FILTER)	0.61	351.00	13 47	8 4 1	167		0.012				
10.11.2020	CEMENT MILL - 2 (BAG FILTER)	0.61	365.00	14.50	9.03	16.1		0.012				
17.11.2020	CEMENT MILL - 2 (BAG FILTER)	0.61	357.00	13.59	8.43	17.7	17.3	0.013				
23.11.2020	CEMENT MILL - 2 (BAG FILTER)	0.61	369.00	14.58	9.11	18.7		0.015				
			December'20									
01.12.2020	CEMENT MILL - 2 (BAG FILTER)	0.61	368.00	15.42	9.67	14.8		0.012				
12.12.2020	CEMENT MILL - 2 (BAG FILTER)	0.61	366.00	13.33	8.30	13.6	14.9	0.010				
18.12.2020	CEMENT MILL - 2 (BAG FILTER)	0.61	375.00	16.17	10.00	16.5		0.014				
23.12.2020	CEMENT MILL - 2 (BAG FILTER)	0.61	3/8.00	15.49	9.68	14.5		0.012				
05 01 2021	CEMENT MILL 2 (DAC EU TED)	0 41	354.00	12.52	8 27	197	I	0.014				
12 01 2021	CEMENT MILL - 2 (BAG FILTEK)	0.01	355.00	13.33	0.37	10./	1	0.014				
19 01 2021	CEMENT MILL - 2 (BAG FILTER)	0.01	351.00	14.50	833	17.5	16.6	0.013				
27.01.2021	CEMENT MILL - 2 (BAG FILTER)	0.61	355.00	14 30	8.93	13.4	1	0.012				
		5.01	February'21	1.100	0.75	1011						
05.02.2021	CEMENT MILL - 2 (BAG FILTER)	0.61	366.00	15.10	9.27	22.1		0.018				
11.02.2021	CEMENT MILL - 2 (BAG FILTER)	0.61	358.00	15.21	9.28	13.3	17.1	0.011				
17.02.2021	CEMENT MILL - 2 (BAG FILTER)	0.61	350.00	14.20	8.66	17.0	17.1	0.013				
22.02.2021	CEMENT MILL - 2 (BAG FILTER)	0.61	354.00	14.23	8.77	16.1	<u> </u>	0.012				
			March'21									
		0.61	354.00	14.75	8.94	17.5		0.014				
02.03.2021	CEMENT MILL - 2 (BAG FILTER)	0.61	354.00									
02.03.2021 STOPPED	CEMENT MILL - 2 (BAG FILTER) CEMENT MILL - 2 (BAG FILTER)	0.61	359.00	14.71	8.74	14.2	16.9	0.011				
02.03.2021 STOPPED 18.03.2021	CEMENT MILL - 2 (BAG FILTER) CEMENT MILL - 2 (BAG FILTER) CEMENT MILL - 2 (BAG FILTER)	0.61 0.61 0.61	359.00 351.00	14.71 15.55	8.74 9.27	14.2 20.7	16.9	0.011 0.017				
	October'20											
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05.10.2020	CEMENT MILL - 3 (BAG FILTER)	0.50	370	14.64	7.43	16.9		0.011				
13.10.2020	CEMENT MILL - 3 (BAG FILTER)	0.50	364	13.19	6.79	17.1	16.8	0.010				
21.10.2020	CEMENT MILL - 3 (BAG FILTER)	0.50	360	14.59	7.43	16.4	10.0	0.011				
28.10.2020	CEMENT MILL - 3 (BAG FILTER)	0.50	366	15.29	7.84	16.6		0.011				
			November'20									
02.11.2020	CEMENT MILL - 3 (BAG FILTER)	0.50	371	14.86	7.59	11.0		0.007				
09.11.2020	CEMENT MILL - 3 (BAG FILTER)	0.50	364	14.03	7.19	12.5	11.9	0.008				
STOPPED	CEMENT MILL - 3 (BAG FILTER)			STOPPED			11.0	STOPPED				
STOTTED	CEMENT MILL - 3 (BAG FILTER)			STOLLED				STOLLED				
			December'20									
a)	CEMENT MILL - 3 (BAG FILTER)											
OPPT	CEMENT MILL - 3 (BAG FILTER)			STOPPED			15.5	STOPPED				
STU	CEMENT MILL - 3 (BAG FILTER)						15.5					
28.12.2020	CEMENT MILL - 3 (BAG FILTER)	0.50	379.00	15.12	7.72	15.5		0.010				
		_	January'21					_				
06.01.2021	CEMENT MILL - 3 (BAG FILTER)	0.50	370	14.64	7.43	22.2		0.013				
13.01.2021	CEMENT MILL - 3 (BAG FILTER)	0.50	364	13.19	6.79	17.9	17.9	0.011				
20.01.2021	CEMENT MILL - 3 (BAG FILTER)	0.50	360	14.59	7.43	14.9	110	0.011				
27.01.2021	CEMENT MILL - 3 (BAG FILTER)	0.50	366	15.29	7.84	16.6		0.011				
L			February'21	n	1							
01.02.2021	CEMENT MILL - 3 (BAG FILTER)	0.50	356.00	14.56	7.27	20.3		0.013				
08.02.2021	CEMENT MILL - 3 (BAG FILTER)	0.50	364.00	15.06	7.62	15.3	19.2	0.010				
16.02.2021	CEMENT MILL - 3 (BAG FILTER)	0.50	352.00	15.22	7.67	17.3		0.011				
23.02.2021	CEMENT MILL - 3 (BAG FILTER)	0.50	359.00	14.86	7.47	23.8		0.015				
			March'21	n		n						
01.03.2021	CEMENT MILL - 3 (BAG FILTER)	0.50	358.00	15.07	7.35	23.4	_	0.015				
08.03.2021	CEMENT MILL - 3 (BAG FILTER)	0.50	351.00	14.69	7.21	19.9	20.2	0.012				
15.03.2021	CEMENT MILL - 3 (BAG FILTER)	0.50	362.00	15.11	7.47	21.1	4	0.014				
22.03.2021	CEMENT MILL - 3 (BAG FILTER)	0.50	364.00	15.52	7.62	16.4		0.011				
		0.52	October'20	15.05	0.04	15.5		0.012				
07.10.2020	CEMENT MILL - 4 (BAG FILTER)	0.63	352	15.35	9.84	15.7	4	0.013				
14.10.2020	CEMENT MILL - 4 (BAG FILTER)	0.63	357	14.29	9.19	14.3	14.4	0.011				
23.10.2020	CEMENT MILL - 4 (BAG FILTER)	0.63	364	13.30	8.46	12.1	-	0.009				
30.10.2020	CEMENT MILL - 4 (BAG FILTER)	0.63	370 November!20	14.84	9.41	15.3		0.012				
04 11 2020	CEMENT MILL (DAC EU TED)	0.62	November 20	15.25	0.94	12.9		0.011				
04.11.2020 STOPPED	CEMENT MILL - 4 (BAG FILTER)	0.05	332.00	13.33 STOPPED	9.84	12.8	-	0.011 STOPPED				
510FFED	CEMENT MILL - 4 (BAG FILTER)	0.62	256.00	12 15	0 27	11.4	12.5	STOPPED 0.008				
24 11 2020	CEMENT MILL - 4 (DAG FILTER)	0.03	330.00	14.86	0.13	11.4	-	0.008				
24.11.2020	CEMENT MILL - 4 (BAG FILTER)	0.05	December'20	14.00	7.43	15.4		0.011				
05 12 2020	CEMENT MILL - 4 (BAC FILTER)	0.63	362.00	15.25	9.87	15.9		0.014				
12.12.2020	CEMENT MILL - 4 (BAG FILTER)	0.63	363.00	13.38	8.60	11.2		0.014				
18 12 2020	CEMENT MILL - 4 (BAG FILTER)	0.63	368.00	12.48	7.97	13.4	13.7	0.009				
26.12.2020	CEMENT MILL - 4 (BAG FILTER)	0.63	374.00	14.87	9.59	14.4		0.002				
2011212020		0.05	January'21	11.07	7.57	1		0.012				
06.01.2021	CEMENT MILL - 4 (BAG FILTER)	0.63	352	15 35	9.84	18.2	1	0.015				
11.01.2021	CEMENT MILL - 4 (BAG FILTER)	0.63	357	14.29	9.19	15.1		0.012				
19.01.2021	CEMENT MILL - 4 (BAG FILTER)	0.63	364	13.30	8.46	14.7	15.8	0.011				
26.01.2021	CEMENT MILL - 4 (BAG FILTER)	0.63	370	14.84	9.41	15.3		0.012				
	. , , , , , , , , , , , , , , , , , , ,		February'21									
02.02.2021	CEMENT MILL - 4 (BAG FILTER)	0.63	361.00	14.37	9.11	17.8		0.014				
09.02.2021	CEMENT MILL - 4 (BAG FILTER)	0.63	359.00	14.86	9.33	9.4	1/1 @	0.008				
15.02.2021	CEMENT MILL - 4 (BAG FILTER)	0.63	364.00	14.67	9.18	12.4	14.8	0.010				
22.02.2021	CEMENT MILL - 4 (BAG FILTER)	0.63	364.00	14.23	8.91	19.6		0.015				
			March'21									
04.03.2021	CEMENT MILL - 4 (BAG FILTER)	0.63	346.00	15.04	9.35	20.5]	0.017				
10.03.2021	CEMENT MILL - 4 (BAG FILTER)	0.63	350.00	14.48	8.94	18.8	17.8	0.015				
17.03.2021	CEMENT MILL - 4 (BAG FILTER)	0.63	341.00	14.71	9.05	13.9		0.011				
24.03.2021	CEMENT MILL - 4 (BAG FILTER)	0.63	354.00	14.47	8.88	17.8		0.014				

<u>J.K. Cement WORKS, Nimbahera (RAJ)</u> <u>22 MW THERMAL POWER PLANT</u> Stack monitoring results (October '2020 - March '2021)

S No	Location/Month	SPM (Mg/Nm3)						
5.110.		Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	
1	Stack attached with Boiler	24.0	22.9	27.0	24.0	29.5	27.0	
2	Stack attached with Coal Handling system	17.7	19.5	13.4	12.8	17.7	15.5	
3	Stack attached with Coal transfer point	20.5	16.8	15.9	12.9	11.7	14.3	

J.K. Cement Works, Nimbahera (RAJ) <u>AMBIENT AIR QUALITY AVERAGE SPM RESULTS</u> (ALL VALUES IN MICROGRAMS / CUBIC METER) SIX MONTHLY AMBIENT AIR QUALITY MONITORING REPORT October'2020 to March'2021

RESULTS : (ALL VALUES IN µg/M3)

Sample duration: 24 hours (monthly average basis)

S.No.	LOCATION	Month	PM10	PM2.5	SO2	NOx	СО
1		Oct-20	33.4	22.8	10.6	21.7	665.9
2	NEAR MAIN	Nov-20	35.0	28.0	11.0	23.0	458.2
3		Dec-20	44.5	35.2	12.0	21.7	724.6
4	SECURITY GATE	Jan-21	51.3	44.3	10.6	21.7	666
5		Feb-21	47.9	37.0	11.5	21.2	760
6		Mar-21	56.1	43.4	10.9	22.3	685
	Half Yearly Averag	e	44.7	35.1	11.1	21.9	660
1		Oct-20	39.2	30.3	10.2	19.9	683.1
2		Nov-20	39.0	30.0	12.0	22.0	687.4
3	NEAR NEW J.K.	Dec-20	54.0	42.5	11.5	22.8	820.5
4	FACTORY GATE	Jan-21	66.9	48.1	10.2	19.9	683
5	-	Feb-21	57.2	36.5	13.5	20.4	769
6		Mar-21	68.3	49.4	12.1	22.4	719
	Half Yearly Averag	e	54.1	39.5	11.6	21.2	727
1		Oct-20	31.1	26.2	10.5	22.6	536.6
2		Nov-20	44.0	32.0	14.0	20.0	458.2
3	NEAD MINE CATE	Dec-20	58.0	43.2	11.9	23.8	774.7
4	NEAK MINE GATE	Jan-21	71.0	51.0	10.5	22.6	537
5		Feb-21	64.0	40.7	13.0	23.2	713
6		Mar-21	66.3	51.5	11.4	24.3	552
	Half Yearly Averag	e	55.7	40.8	11.9	22.8	595
1		Oct-20	45.2	34.3	12.8	24.3	654.4
2		Nov-20	48.0	35.0	13.0	24.0	572.8
3	NEAR THERMAL	Dec-20	65.9	45.0	13.1	26.7	823.4
4	POWER PLANT GATE	Jan-21	75.7	54.7	12.8	24.3	654
5		Feb-21	77.5	41.4	13.4	23.9	730
6		Mar-21	74.8	57.1	14.2	25.4	713
	Half Yearly Average	e	64.5	44.6	13.2	24.8	691

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

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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/2182 Date : 19.03.2021 Sample No. : MSKGL/ED/2020-21/03/00225 Sample Description : Stack Emission Date & Time of Sampling: 03.02.2021 at 12.30 P.M Sampling Location : Cement Mill No. 04

Reference No.& Date : e-mail dtd: 23.04.2019

A. General information about stack		
1. Stack connected to	: Cement Mill	
2.Emission due to	: Grinding of clinker	
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	: 0.90 m	
3.Area of Stack	: 0.63 m ²	
C. Results of sampling & analysis of gaseous emission	Result	Method
1.Temperature of emission (°C)	: 82	EPA Part 2
2.Barometric pressure (mm of Hg)	: 731	EPA Part 2
3. Velocity of gas (m/sec)	: 10.62	EPA Part 2
4. Concentration of Particulate Matters (mg/Nm ³)	: 16.0	EPA Part-5
D. Pollution control device	<i>v</i>	
Details of pollution control devices attached with the stack	: Bag Filter	
E. Remarks : NIL		

eport Prepared by :





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

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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera

Distt. Chittorgarh (Raj.)

Report No. : MSK/UDR/2020-21/2183 Date : 19.03.2021 Sample No. : MSKGL/ED/2020-21/03/00226 Sample Description : Stack Emission Date & Time of Sampling: 03.02.2021 at 02.00 P.M Sampling Location : Crusher

Reference No.& Date : e-mail dtd: 23.04.2019

A. General information about stack		
1. Stack connected to	: Crusher	
2.Emission due to	: 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	: 0.57 m	
3. Area of Stack	: 0.2553 m ²	
C. Results of sampling & analysis of gaseous emission	Result	Method
1.Temperature of emission (°C)	: 45	EPA Part 2
2.Barometric pressure (mm of Hg)	: 730	EPA Part 2
3. Velocity of gas (m/sec)	: 6.77	EPA Part 2
4. Concentration of Particulate Matters (mg/Nm3)	: 19.1	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag Filter	
E. Remarks : NIL		

eport Freeared by :





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TEST REPORT

Name & Address of the Customer :

J.K. Cement Works Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/2184 Date : 19.03.2021 Sample No. : MSKGL/ED/2020-21/03/00227 Sample Description : Stack Emission Date & Time of Sampling: 03.02.2021 at 03.00 P.M Sampling Location : Roller Press with Ball mill

Reference No.& Date : e-mail dtd: 23.04.2019

A. General information about stack		
1. Stack connected to : Roller Press with Ball 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	:58.0 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)	: 81	EPA Part 2
2.Barometric pressure (mm of Hg)	: 732	EPA Part 2
3. Velocity of gas (m/sec)	: 10.69	EPA Part 2
4. Concentration of Particulate Matters (mg/Nm ³)	: 17.6	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag House	
E. Remarks : NIL		

eport Propared by :







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

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TEST REPORT

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

Report No. : MSK/UDR/2020-21/2185 Date : 19.03.2021 Sample No. : MSKGL/ED/2020-21/03/00228 Sample Description : Flue Gas Monitoring Sampling Location :22 MW Thermal Power Plant Date & Time of Sampling : 04.02.2021 at 02.00 P.M.

Reference No.& Date : e-mail dtd: 23.04.2019

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	: 22 MW	
B. Physical characteristics of stack		1
1.Height of the stack from ground level	:96.0 m	
2. Diameter of the Stack at sampling point	: 3.88 m	
3.Area of Stack	: 11.82 m ²	
C. Analysis/Characteristic of stack		a
1. Fuel used : Coal		
D. Results of sampling & analysis of gaseous emission	Result	Method
1.Temperature of emission (°C)	: 138	EPA Part 2
2.Barometric pressure (mm of Hg)	: 733	EPA Part 2
3. Velocity of gas (m/sec)	: 10.76	EPA Part 2
4.Concentration of Oxygen (% v/v)	: 12.4	IS 13270:1992,Reaf:2014
5.Conc. of Particulate Matters (mg/Nm3) at 6% O2 on dry basis	: 29.5	EPA Part-17
E. Pollution control device		
Details of pollution control devices attached with the stack	: Electrostatic precipit	ator
F. Remarks : NIL		

Report Pro ed by :



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

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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/2169 Date : 19.03.2021 Sample No. : MSKGL/ED/2020-21/03/00212 Sample Description : Stack Emission Date & Time of Sampling: 01.02.2021 at 01.25 P.M Sampling Location : Kiln- 02

Reference No.& Date : e-mail dtd: 23.04.2019

A. General information about stack		
1. Stack connected to	: Kiln-02	
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		E
1.Height of the stack from ground level	: 60.15 m	
2. Diameter of the Stack at sampling point	: 2.20 m	
3.Area of Stack	: 3.80 m ²	
C. Results of sampling & analysis of gaseous emission	Result	Method
1.Temperature of emission (°C)	: 139	EPA Part 2
2.Barometric pressure (mm of Hg)	: 734	EPA Part 2
3. Velocity of gas (m/sec)	: 15.30	EPA Part 2
4. Concentration of Sulphur di oxide (mg/Nm ³)	: 22.6	EPA Part-6
5. Concentration of Nitrogen di oxide (mg/Nm3)	: 681.0	EPA Part-7
6.Concentration of Particulate Matters (mg/Nm3)	: 12.8	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag House	
E. Remarks · NIL		

Report Prepared by :

S.K. Private Limited

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

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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/2170 Date : 19.03.2021 Sample No. : MSKGL/ED/2020-21/03/00213 Sample Description : Stack Emission Date & Time of Sampling: 01.02.2021 at 02.40 P.M Sampling Location : Kiln- 03

Reference No.& Date : e-mail dtd: 23.04.2019

ANALYSIS RESULT

A. General information about stack			
1. Stack connected to	: Kiln-03		
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	: 65.00 m		
2. Diameter of the Stack at sampling point	: 2.20 m		
3.Area of Stack	: 3.80 m ²		
C. Results of sampling & analysis of gaseous emission	Result	Method	
1.Temperature of emission (°C)	: 145	EPA Part 2	
2.Barometric pressure (mm of Hg)	: 734	EPA Part 2	
3. Velocity of gas (m/sec)	: 14.80	EPA Part 2	
4. Concentration of Sulphur di oxide (mg/Nm3)	: 13.0	EPA Part-6	
5. Concentration of Nitrogen di oxide (mg/Nm3)	: 786.0	EPA Part-7	
6.Concentration of Particulate Matters (mg/Nm3)	: 16.5	EPA Part-5	
D. Pollution control device			
Details of pollution control devices attached with the stack	: Bag House		
E. Remarks : NIL			

Report Prepared by :



ate Limited



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



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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/2171 Date : 19.03.2021 Sample No. : MSKGL/ED/2020-21/03/00214 Sample Description : Stack Emission Date & Time of Sampling: 01.02.2021 at 03.35 P.M Sampling Location : Pre-calciner

Reference No.& Date : e-mail dtd: 23.04.2019

A. General information about stack			
1. Stack connected to	: Pre-calciner		
2.Emission due to	: Pre-calcination of lime Stone & additives		
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	: 87.00 m		
2. Diameter of the Stack at sampling point	: 3.15 m		
3.Area of Stack	: 7.79 m ²		
C. Results of sampling & analysis of gaseous emission	Result	Method	
1.Temperature of emission (°C)	: 94	EPA Part 2	
2.Barometric pressure (mm of Hg)	: 734	EPA Part 2	
3. Velocity of gas (m/sec)	: 13.28	EPA Part 2	
4. Concentration of Sulphur di oxide (mg/Nm3)	: 16.4	EPA Part-6	
5. Concentration of Nitrogen di oxide (mg/Nm3)	: 795.2	EPA Part-7	
6.Concentration of Particulate Matters (mg/Nm3)	: 18.1	EPA Part-5	
D. Pollution control device			
Details of pollution control devices attached with the stack	: Bag House		
E. Remarks : NIL			

repared by : port



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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/2175 Date : 19.03.2021 Sample No. : MSKGL/ED/2020-21/03/00218 Sample Description : Stack Emission Date & Time of Sampling: 01.02.2021 at 04.40 P.M Sampling Location : Clinker Cooler

Reference No.& Date : e-mail dtd: 23.04.2019

A. General information about stack		
1. Stack connected to	: Clinker cooler	
2.Emission due to	: Clinker cooler	
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	: 40.90 m	
2. Diameter of the Stack at sampling point	: 4.0 m	
3.Area of Stack	: 12.57 m ²	
C. Results of sampling & analysis of gaseous emission	Result	Method
1.Temperature of emission (°C)	: 98	EPA Part 2
2.Barometric pressure (mm of Hg)	: 733	EPA Part 2
3. Velocity of gas (m/sec)	: 10.73	EPA Part 2
4. Concentration of Particulate Matters (mg/Nm3)	: 22.1	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Electrostatic Precip	itator
E. Remarks : NIL		

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TEST REPORT

Name & Address of the Customer :

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

Report No. : MSK/UDR/2020-21/2176 Date : 19.03.2021 Sample No. : MSKGL/ED/2020-21/03/00219 Sample Description : Stack Emission Date & Time of Sampling: 02.02.2021 at 11.30 A.M Sampling Location : Coal Mill - 02

Reference No.& Date : e-mail dtd: 23.04.2019

A. General information about stack		3
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	: 31.00 m	
2. Diameter of the Stack at sampling point	: 0.70 m	
3.Area of Stack	: 0.38 m ²	
C. Results of sampling & analysis of gaseous emission	Result	Method
1.Temperature of emission (°C)	: 71	EPA Part 2
2.Barometric pressure (mm of Hg)	: 732	EPA Part 2
3. Velocity of gas (m/sec)	: 11.01	EPA Part 2
4. Concentration of Particulate Matters (mg/Nm3)	: 12.0	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag filter	
E. Remarks : NIL		







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TEST REPORT

Name & Address of the Customer :

J.K. Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/2177 Date : 19.03.2021 Sample No. : MSKGL/ED/2020-21/03/00220 Sample Description : Stack Emission Date & Time of Sampling: 02.02.2021 at 12.35 P.M Sampling Location : Coal Mill - 3

Reference No.& Date : e-mail dtd: 23.04.2019

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	
		A
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 43.94 m	
2. Diameter of the Stack at sampling point	: 0.70 m	
3.Area of Stack	: 0.385 m ²	
C. Results of sampling & analysis of gaseous emission	Result	Method
1.Temperature of emission (°C)	: 69	EPA Part 2
2.Barometric pressure (mm of Hg)	: 732	EPA Part 2
3. Velocity of gas (m/sec)	: 12.20	EPA Part 2
4. Concentration of Particulate Matters (mg/Nm ³)	: 13.4	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag filter	
E. Remarks : NIL	-	

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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/2178 Date : 19.03.2021 Sample No. : MSKGL/ED/2020-21/03/00221 Sample Description : Stack Emission Date & Time of Sampling: 02.02.2021 at 01.50 P.M Sampling Location : Coal Mill - 4

Reference No.& Date : e-mail dtd: 23.04.2019

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	: 31.59 m	· · ·
2. Diameter of the Stack at sampling point	: 1.20 m	
3.Area of Stack	: 1.13 m ²	
C. Results of sampling & analysis of gaseous emission	Result	Method
1.Temperature of emission (°C)	: 73	EPA Part 2
2.Barometric pressure (mm of Hg)	: 732	EPA Part 2
3. Velocity of gas (m/sec)	: 12.91	EPA Part 2
4. Concentration of Particulate Matters (mg/Nm3)	: 16.1	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag filter	
E. Remarks : NIL		

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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/2179 Date : 19.03.2021 Sample No. : MSKGL/ED/2020-21/03/00222 Sample Description : Stack Emission Date & Time of Sampling: 02.02.2021 at 03.00 P.M Sampling Location : Cement Mill No. 1

Reference No.& Date : e-mail dtd: 23.04.2019

A. General information about stack			
1. Stack connected to	: Cement Mill		
2.Emission due to	: Grinding of clinker		
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	: 0.63 m		
3. Area of Stack	: 0.31 m ²		
C. Results of sampling & analysis of gaseous emission	Result	Method	
1.Temperature of emission (°C)	: 84	EPA Part 2	
2.Barometric pressure (mm of Hg)	: 732	EPA Part 2	
3. Velocity of gas (m/sec)	: 11.15	EPA Part 2	
4. Concentration of Particulate Matters (mg/Nm3)	: 14.7	EPA Part-5	
D. Pollution control device			
Details of pollution control devices attached with the stack	: Bag Filter		2,
E. Remarks : NIL			

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TEST REPORT

Name & Address of the Customer :

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

Report No. : MSK/UDR/2020-21/2180 Date : 19.03.2021 Sample No. : MSKGL/ED/2020-21/03/00223 Sample Description : Stack Emission Date & Time of Sampling: 03.02.2021 at 10.00 A.M Sampling Location : Cement Mill No. 2

Reference No.& Date : e-mail dtd: 23.04.2019

A. General information about stack		
1. Stack connected to	: Cement Mill	
2.Emission due to	: Grinding of clinker	
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	14 (A)
2. Diameter of the Stack at sampling point	: 0.65 m	
3.Area of Stack	: 0.33 m ²	
C. Results of sampling & analysis of gaseous emission	Result	Method
1.Temperature of emission (°C)	: 85	EPA Part 2
2.Barometric pressure (mm of Hg)	: 731	EPA Part 2
3. Velocity of gas (m/sec)	: 12.06	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 :





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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/2181 Date : 19.03.2021 Sample No. : MSKGL/ED/2020-21/03/00224 Sample Description : Stack Emission Date & Time of Sampling: 03.02.2021 at 11.10 A.M Sampling Location : Cement Mill No. 3

Reference No.& Date : e-mail dtd: 23.04.2019

A. General information about stack			
1. Stack connected to	: Cement Mill		
2.Emission due to	: Grinding of clinker		
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	: 0.60 m		
3.Area of Stack	: 0.282 m ²		
C. Results of sampling & analysis of gaseous emission	Result	Method	
1.Temperature of emission (°C)	: 83	EPA Part 2	
2.Barometric pressure (mm of Hg)	: 731	EPA Part 2	
3.Velocity of gas (m/sec)	: 11.17	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			

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TEST REPORT

Name & Address of the Customer :

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



Reference No.& Date : e-mail dtd: 23.04.2019

A. General information about stack			
1. Stack connected to	: Kiln-01		
2.Emission due to	: Burning of Lime	: Burning of Limestone & additive : Mild Steel : Circular	
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	: 52.00 m		
2.Diameter of the Stack at sampling point	: 2.5 m		
3.Area of Stack	: 4.9 m ²		
C. Results of sampling & analysis of gaseous emission	Result	Method	
1.Temperature of emission (°C)	: 137	EPA Part 2	
2.Barometric pressure (mm of Hg)	; 731	EPA Part 2	
3. Velocity of gas (m/sec)	: 15.05	EPA Part 2	
4.Concentration of Sulphur di oxide (mg/Nm3)	: 25.1	EPA Part-6	
5. Concentration of Nitrogen di oxide (mg/Nm3)	: 599.5	EPA Part-7	
6.Concentration of Particulate Matters (mg/Nm3)	: 16.8	EPA Part-5	
D. Pollution control device			
Details of pollution control devices attached with the stack	: Bag House		
E. Remarks : NIL			

ANALYSIS RESULT







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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/1548 Date : 25.12.2020 Sample No. : MSKGL/ED/2020-21/12/00527 Sample Description : Stack Emission Date & Time of Sampling: 10.11.2020 at 01.30P.M Sampling Location : Kiln- 02

Reference No.& Date : e-mail dtd: 23.04.2019

A. General information about stack		
1. Stack connected to	: Kiln-02	
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		
I.Height of the stack from ground level	: 60,15 m	
2. Diameter of the Stack at sampling point	: 2.20 m	
3.Area of Stack	: 3.80 m ²	
C. Results of sampling & analysis of gaseous emission	Result	Method
1. Temperature of emission (°C)	: 135	EPA Part 2
2.Barometric pressure (mm of Hg)	: 731	EPA Part 2
3.Velocity of gas (m/sec)	: 16.0	EPA Part 2
4.Concentration of Sulphur di oxide (mg/Nm3)	: 23.5	EPA Part-6
5 Concentration of Nitrogen di oxide (mg/Nm3)	: 657.3	EPA Part-7
6.Concentration of Particulate Matters (mg/Nm3)	: 19.5	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag House	
E. Remarks : NIL	-	





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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/1549 Date : 25.12.2020 Sample No. : MSKGL/ED/2020-21/12/00528 Sample Description : Stack Emission Date & Time of Sampling: 11.11.2020 at 03.50 P.M Sampling Location : Kiln- 03

Reference No.& Date : e-mail dtd: 23.04.2019



 A. <u>General information about stack</u> 1. Stack connected to 2.Emission due to 3.Material of construction of Stack 4.Shape of Stack 5.Whether Stack is provided with permanent platform & ladder 	: Kiln-03 : Burning of Limes : Mild Steel : Circular : Yes	atone & additive	
 B. <u>Physical characteristics of stack</u> 1. Height of the stack from ground level 2. Diameter of the Stack at sampling point 	: 65.00 m : 2.20 m		
3.Area of Stack	: 3.80 m ²		
 C. <u>Results of sampling & analysis of gaseous emission</u> 1. Temperature of emission (°C) 2. Barometric pressure (mm of Hg) 3. Velocity of gas (m/sec) 4. Concentration of Sulphur di oxide (mg/Nm³) 5. Concentration of Nitrogen di oxide (mg/Nm³) 6. Concentration of Particulate Matters (mg/Nm³) 	Result : 139 : 732 : 14.61 : 22.4 : 624.1 : 14.2	Method EPA Part 2 EPA Part 2 EPA Part 2 EPA Part-6 EPA Part-7 EPA Part-5	
D. <u>Pollution control device</u> Details of pollution control devices attached with the stack E. Remarks : NIL	: Bag House		

ANALYSIS RESULT







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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/1550 Date : 25.12.2020 Sample No. : MSKGL/ED/2020-21/12/00529 Sample Description : Stack Emission Date & Time of Sampling: 11.11.2020 at 04.50 P.M Sampling Location : Pre-calciner

Reference No.& Date : e-mail dtd: 23.04.2019

A. General information about stack		
 Stack connected to Emission due to Material of construction of Stack Shape of Stack Whether Stack is provided with permanent platform & ladder 	: Pre-calciner : Pre-calcination of : Mild Steel : Circular : Yes	of lime Stone & additives
B. Physical characteristics of stack		
1.Height of the stack from ground level	· 87.00 m	
2.Diameter of the Stack at sampling point	: 3 15 m	
3.Area of Stack	: 7.79 m ²	
C. Results of sampling & analysis of gaseous emission	Result	Method
LTemperature of emission (°C)	: 92	FPA Part 2
2.Barometric pressure (mm of Hg)	: 731	EPA Part 2
3. Velocity of gas (m/sec)	: 13.17	EPA Part 2
4. Concentration of Sulphur di oxide (mg/Nm ³)	: 22.09	EPA Part-6
5. Concentration of Nitrogen di oxide (mg/Nm3)	: 529.6	EPA Part-7
6.Concentration of Particulate Matters (mg/Nm3)	: 13.12	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag House	
E. Remarks : NIL		





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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/1576 Date : 25.12.2020 Sample No. : MSKGL/ED/2020-21/12/00555 Sample Description : Stack Emission Date & Time of Sampling: 13.11.2020 at 04.10 P.M Sampling Location : Crusher

Reference No.& Date : e-mail dtd: 23.04.2019

A. General information about stack		
1. Stack connected to	: Crusher	
2.Emission due to	: 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	: 0.57 m	
3.Area of Stack	: 0.2553 m ²	
C. Results of sampling & analysis of gaseous emission	Result	Method
1.Temperature of emission (°C)	: 43	EPA Part 2
2.Barometric pressure (mm of Hg)	: 733	EPA Part 2
3. Velocity of gas (m/sec)	: 6.73	EPA Part 2
4. Concentration of Particulate Matters (mg/Nm3)	: 16.2	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag Filter	
E. Remarks : NIL	-	

ed by :





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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/1567 Date : 25.12.2020 Sample No. : MSKGL/ED/2020-21/12/00546 Sample Description : Stack Emission Date & Time of Sampling: 11.11.2020 at 01.35 P.M Sampling Location : Clinker Cooler

Reference No.& Date : e-mail dtd: 23.04.2019

A. General information about stack		3
1. Stack connected to	: Clinker cooler	
2.Emission due to	: Clinker cooler	
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	: 40.90 m	
2. Diameter of the Stack at sampling point	: 4.0 m	
3.Area of Stack	: 12.57 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)	: 731	EPA Part 2
3. Velocity of gas (m/sec)	: 10.81	EPA Part 2
4. Concentration of Particulate Matters (mg/Nm ³)	: 9.2	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Electrostatic Precip	oitator
E. Remarks : NIL		

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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/1572 Date : 25.12.2020 Sample No. : MSKGL/ED/2020-21/12/00551 Sample Description : Stack Emission Date & Time of Sampling: 12.11.2020 at 12.40 P.M Sampling Location : Cement Mill No. 1

Reference No.& Date : e-mail dtd: 23.04.2019

A. General information about stack			
1. Stack connected to	: Cement Mill		
2.Emission due to	: Grinding of clinker		
3.Material of construction of Stack	: Mild Steel	1.	
4.Shape of Stack	: Circular		
5. Whether Stack is provided with permanent platform & ladder	: Yes		
		an in an <mark>en</mark> de la f	
B. Physical characteristics of stack			
1.Height of the stack from ground level	: 30.0 m		
2. Diameter of the Stack at sampling point	: 0.63 m		
3.Area of Stack	: 0.31 m ²		
C. Results of sampling & analysis of gaseous emission	Result	Method	
1.Temperature of emission (°C)	: 82	EPA Part 2	
2.Barometric pressure (mm of Hg)	: 730	EPA Part 2	
3. Velocity of gas (m/sec)	: 11.25	EPA Part 2	
4. Concentration of Particulate Matters (mg/Nm3)	: 11.6	EPA Part-5	
D. Pollution control device			
Details of pollution control devices attached with the stack	: Bag Filter		
E. Remarks : NIL			





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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/1573 Date : 25.12.2020 Sample No. : MSKGL/ED/2020-21/12/00552 Sample Description : Stack Emission Date & Time of Sampling: 12.11.2020 at 11.40 A.M Sampling Location : Cement Mill No. 2

Reference No.& Date : e-mail dtd: 23.04.2019

A. General information about stack		
1. Stack connected to	: Cement Mill	
2.Emission due to	: Grinding of clinker	
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		endiner (* 1796) (* 1796) N
1.Height of the stack from ground level	: 30.0 m	
2. Diameter of the Stack at sampling point	: 0.65 m	
3.Area of Stack	: 0.33 m ²	
C. Results of sampling & analysis of gaseous emission	Result	Method
1.Temperature of emission (°C)	: 87	EPA Part 2
2.Barometric pressure (mm of Hg)	: 730	EPA Part 2
3. Velocity of gas (m/sec)	: 12.08	EPA Part 2
4. Concentration of Particulate Matters (mg/Nm ³)	: 15.4	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag Filter	
E. Remarks : NIL		







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TEST REPORT

Name & Address of the Customer :

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



Report No. : MSK/UDR/2020-21/1574 Date : 25.12.2020 Sample No. : MSKGL/ED/2020-21/12/00553 Sample Description : Stack Emission Date & Time of Sampling: 13.11.2020 at 03.05 P.M Sampling Location : Cement Mill No. 3

Reference No.& Date : e-mail dtd: 23.04.2019

A. General information about stack		
1. Stack connected to	: Cement Mill	
2.Emission due to	: Grinding of clinker	
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	: 0.60 m	
3.Area of Stack	: 0.282 m ²	
C. Results of sampling & analysis of gaseous emission	Result	Method
1.Temperature of emission (°C)	: 85	EPA Part 2
2.Barometric pressure (mm of Hg)	: 733	EPA Part 2
3. Velocity of gas (m/sec)	: 11.17	EPA Part 2
4. Concentration of Particulate Matters (mg/Nm3)	: 17.5	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag Filter	
E. Remarks : NIL		





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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/1575 Date : 25.12.2020 Sample No. : MSKGL/ED/2020-21/12/00554 Sample Description : Stack Emission Date & Time of Sampling: 13.11.2020 at 12.10 P.M Sampling Location : Cement Mill No. 04

Reference No.& Date : e-mail dtd: 23.04.2019

A. General information about stack		
1. Stack connected to	: Cement Mill	No. p. A. L
2.Emission due to	: Grinding of clinker	E la
3.Material of construction of Stack	: Mild Steel	s z n <mark>ene sent</mark> i ne ga ne
4.Shape of Stack	: Circular	
5. Whether Stack is provided with permanent platform & ladder	: Yes	11 J
B. Physical characteristics of stack		
1.Height of the stack from ground level	: 30.0 m	i i <mark>le subart parte</mark> n el
2. Diameter of the Stack at sampling point	: 0.90 m	
3.Area of Stack	: 0.63 m ²	
C. Results of sampling & analysis of gaseous emission	Result	Method
1.Temperature of emission (°C)	: 80	EPA Part 2
2.Barometric pressure (mm of Hg)	: 732	EPA Part 2
3.Velocity of gas (m/sec)	: 10.48	EPA Part 2
4. Concentration of Particulate Matters (mg/Nm3)	: 17.6	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag Filter	
E. Remarks : NIL		





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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/1568 Date : 25.12.2020 Sample No. : MSKGL/ED/2020-21/12/00547 Sample Description : Stack Emission Date & Time of Sampling: 10.11.2020 at 04.00 P.M Sampling Location : Coal Mill - 01

Reference No.& Date : e-mail dtd: 23.04.2019

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	: 30.00 m		
2. Diameter of the Stack at sampling point	: 0.65 m		
3.Area of Stack	: 0.33 m ²		
C. Results of sampling & analysis of gaseous emission	Result	Method	
1.Temperature of emission (°C)	: 72	EPA Part 2	
2.Barometric pressure (mm of Hg)	: 730	EPA Part 2	^ _ i i
3. Velocity of gas (m/sec)	: 12.4	EPA Part 2	
4. Concentration of Particulate Matters (mg/Nm3)	: 20.0	EPA Part-5	
D. Pollution control device			
Details of pollution control devices attached with the stack	: Bag filter		
E. Remarks : NIL			1.2.5







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TEST REPORT

Name & Address of the Customer :

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



Report No. : MSK/UDR/2020-21/1569 Date : 25.12.2020 Sample No. : MSKGL/ED/2020-21/12/00548 Sample Description : Stack Emission Date & Time of Sampling: 10.11.2020 at 02.45 P.M Sampling Location : Coal Mill - 02

Reference No.& Date : e-mail dtd: 23.04.2019

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	: 31.00 m	
2. Diameter of the Stack at sampling point	: 0.70 m	in the second second
3.Area of Stack	: 0.38 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)	: 730	EPA Part 2
3. Velocity of gas (m/sec)	: 11.7	EPA Part 2
4. Concentration of Particulate Matters (mg/Nm3)	: 21.6	EPA Part-5
D. Pollution control device	A 11	
Details of pollution control devices attached with the stack	: Bag filter	_
E. Remarks : NIL		

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TEST REPORT

Name & Address of the Customer :

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



Report No. : MSK/UDR/2020-21/1570 Date : 25.12.2020 Sample No. : MSKGL/ED/2020-21/12/00549 Sample Description : Stack Emission Date & Time of Sampling: 11.11.2020 at 12.30 P.M Sampling Location : Coal Mill - 3

Reference No.& Date : e-mail dtd: 23.04.2019

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	: 43.94 m	
2. Diameter of the Stack at sampling point	: 0.70 m	
3.Area of Stack	: 0.385 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)	: 732	EPA Part 2
3. Velocity of gas (m/sec)	: 12.45	EPA Part 2
4. Concentration of Particulate Matters (mg/Nm3)	: 14.5	EPA Part-5
D. Pollution control device		_
Details of pollution control devices attached with the stack	: Bag filter	
E. Remarks : NIL		

d by :



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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/1571 Date : 25.12.2020 Sample No. : MSKGL/ED/2020-21/12/00550 Sample Description : Stack Emission Date & Time of Sampling: 11.11.2020 at 02.45 P.M Sampling Location : Coal Mill - 4

Reference No.& Date : e-mail dtd: 23.04.2019

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	: 31.59 m	
2. Diameter of the Stack at sampling point	: 1.20 m	
3.Area of Stack	: 1.13 m ²	
C. Results of sampling & analysis of gaseous emission	Result	Method
1.Temperature of emission (°C)	: 71	EPA Part 2
2.Barometric pressure (mm of Hg)	: 732	EPA Part 2
3. Velocity of gas (m/sec)	: 12.95	EPA Part 2
4. Concentration of Particulate Matters (mg/Nm ³)	: 18.4	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag filter	
E. Remarks : NIL		







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TEST REPORT

Name & Address of the Customer :

J.K. Cement Works Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/1577 Date : 25.12.2020 Sample No. : MSKGL/ED/2020-21/12/00556 Sample Description : Stack Emission Date & Time of Sampling: 13.11.2020 at 01.30 P.M Sampling Location : Roller Press with Ball mill

Reference No.& Date : e-mail dtd: 23.04.2019

A. General information about stack		
1. Stack connected to	: Roller Press with	Ball mill
2.Emission due to	: Grinding of Clinke	r & 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	:58.0 m	
2. Diameter of the Stack at sampling point	: 3.0 m	e
3.Area of Stack	: 7.07 m ²	
C. Results of sampling & analysis of gaseous emission	Result	Method
1.Temperature of emission (°C)	: 82	EPA Part 2
2.Barometric pressure (mm of Hg)	: 733	EPA Part 2
3. Velocity of gas (m/sec)	: 10.27	EPA Part 2
4. Concentration of Particulate Matters (mg/Nm ³)	: 14.21	EPA Part-5
D. Pollution control device		
Details of pollution control devices attached with the stack	: Bag House	
E. Remarks : NIL		

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TEST REPORT

Name & Address of the Customer : Thermax Ltd. C/o J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/1704 Date : 06.01.2020 Sample No. : MSKGL/ED/2020-21/12/01636 Sample Description : Flue Gas Monitoring Sampling Location :22 MW Thermal Power Plant Date & Time of Sampling : 11.11.2020 at 2.10 p.m.

TESTING + INSPECTION

Reference No.& Date : e-mail dtd: 23.04.2019

ANALYSIS RESULT

A Conoral information about stack		
1. Stack connected to	· Boiler	
2. Stack connected to	, Donici	
2. Entrission 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	: 22 MW	
B. Physical characteristics of stack		
1 Height of the stack from ground level	:96.0 m	
2.Diameter of the Stack at sampling point	: 3.88 m	
3. Area of Stack	: 11.82 m²	
C. Analysis/Characteristic of stack		
I, Fuel used : Coal		
D. Results of sampling & analysis of gaseous emission	Result	Method
L Temperature of emission (°C)	: 125	EPA Part 2
2. Barometric pressure (mm of Hg)	: 735	EPA Part 2
3. Velocity of gas (m/sec)	: 12.79	EPA Part 2
4. Concentration of Oxygen (% v/v)	: 6.8	IS 13270:1992,Reaf:2014
5 Cone of Particulate Matters (mg/Nm3) at 6% O2 on dry basis	: 26.0	EPA Part-17
F. Pollution control device		
Details of pollution control devices attached with the stack	: Electrostatic precipi	tator
F. Remarks : NIL		





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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/1533Date: 25.12.2020Sample No. : MSKGL/ED/2020-21/12/00511Sample Description : Ambient AirSampling Location : Near Main Security GateDate of Sampling : 10/11.11.2020

Reference No.& Date : e-mail dtd: 23.04.2019

AMBIENT AIR QUALITY MONITORING REPORT

SL. NO.	Pollutants	Limit	Result	Method of Test Refference
1	Particulate matter (PM 10) in µg/m ³	100	71 .	IS: 5182:(Part-23)-2006
2	Particulate matter(PM 2.5) in µg/m ³	60	49	TPM/MSK/ENV(AP)/01/03
3	Sulphur dioxide(SO2) in µg/m ³	80	12.6	IS: 5182 (Part-2)-2001
4	Nitrogen dioxide (NO2) in µg/m ³	80	26.4	IS: 5182 (Part- 6)-2006
5	Carbon monoxide(CO) in mg/m ³	2	0.71	IS 5182 :(Part-10) :1999

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

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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/1536Date: 25.12.2020Sample No. : MSKGL/ED/2020-21/12/00514Sample Description : Ambient AirSampling Location : Near Mine GateDate of Sampling : 10/11.11.2020

Reference No.& Date : e-mail dtd: 23.04.2019

AMBIENT AIR QUALITY MONITORING REPORT

SL. N0.	Pollutants	Limit	Result	Method of Test Refference
1	Particulate matter (PM 10) in µg/m ³	100	58	IS: 5182:(Part-23)-2006
2	Particulate matter(PM 2.5) in µg/m ³	60	40.0	TPM/MSK/ENV(AP)/01/03
3	Sulphur dioxide(SO2) in µg/m ³	80	11.2	IS: 5182 (Part-2)-2001
4	Nitrogen dioxide (NO2) in µg/m ³	80	33.1	IS: 5182 (Part- 6)-2006
5	Carbon monoxide(CO) in mg/m ³	2	0.49	IS 5182 :(Part-10) :1999

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

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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.)
 Report No.
 : MSK/UDR/2020-21/1535

 Date
 : 25.12.2020

 Sample No.
 : MSKGL/ED/2020-21/12/00513

Sample Description : Ambient Air Sampling Location : Near New J.K.Factory Gate Date of Sampling : 12/13.08.2020

Reference No.& Date : e-mail dtd: 23.04.2019

AMBIENT AIR QUALITY MONITORING REPORT

SL. N0.	Pollutants	Limit	Result	Method of Test Refference
1	Particulate matter (PM 10) in µg/m ³	100	50	IS: 5182:(Part-23)-2006
2	Particulate matter(PM 2.5) in µg/m ³	60	29	TPM/MSK/ENV(AP)/01/03
3	Sulphur dioxide(SO2) in µg/m ³	80	8.1	IS: 5182 (Part-2)-2001
4	Nitrogen dioxide (NO2) in µg/m ³	80	30.4	IS: 5182 (Part- 6)-2006
5	Carbon monoxide(CO) in mg/m ³	2	0.41	IS 5182 :(Part-10) :1999

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

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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.)
 Report No.
 : MSK/UDR/2020-21/1534

 Date
 : 25.12.2020

 Sample No.
 : MSKGL/ED/2020-21/12/00512

Sample Description : Ambient Air Sampling Location : Near Thermal Power Plant Date of Sampling : 10/11.11.2020

Reference No.& Date : e-mail dtd: 23.04.2019

AMBIENT AIR QUALITY MONITORING REPORT

SL. N0.	Pollutants	Limit	Result	Method of Test Refference
1	Particulate matter (PM 10) in µg/m ³	100	62.0	IS: 5182:(Part-23)-2006
2	Particulate matter(PM 2.5) in µg/m ³	60	38	TPM/MSK/ENV(AP)/01/03
3	Sulphur dioxide(SO2) in µg/m ³		9.7	IS: 5182 (Part-2)-2001
4	4 Nitrogen dioxide (NO2) in μg/m ³		31.1	IS: 5182 (Part- 6)-2006
5	Carbon monoxide(CO) in mg/m ³	2	0.67	IS 5182 :(Part-10) :1999

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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/2130 Date : 19.03.2021 Sample No. : MSKGL/ED/2020-21/03/00124 Sample Description : Ambient Air Sampling Location :Near Thermal Power Plant,Nimbahera Date of Sampling : 02/03.02.2021

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 µg/m ³	100	79.0	IS: 5182:(Part-23)-2006
2	Particulate matter(PM 2.5) in µg/m ³	60	50.1	TPM/MSK/ENV(AP)/01/03
3	Sulphur dioxide(SO2) in µg/m ³	80	6.9	IS: 5182 (Part-2)-2001
4	Nitrogen dioxide (NO2) in µg/m ³	80	20.0	IS: 5182 (Part- 6)-2006
5	Carbon monoxide(CO) in mg/m ³	2	0.97	IS 5182 :(Part-10) :1999
6	Ozone (O3) in µg/m ³	180	<20.0	TPM/MSK/ENV(AP)/01/07
7	Ammonia (NH3) in µg/m ³	400	12.0	TPM/MSK/ENV(AP)/01/08
8	Lead (Pb) in µg/m ³	1 ·	0.03	EPA-IO 3.4
9	Nickel (Ni) in ng/m ³	20	<5.0	EPA-IO 3.4
10	Arsenic (As) in ng/m ³	6	<1.0	EPA-IO 3.4
11	Benzene (C6H6) in µg/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

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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/2131 Date : 19.03.2021 Sample No. : MSKGL/ED/2020-21/03/00125 Sample Description : Ambient Air Sampling Location : New J.K.Factory Gate, Nimbahera Date of Sampling : 02/03.02.2021

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 µg/m ³	100	72.0	IS: 5182:(Part-23)-2006
2	Particulate matter(PM 2.5) in µg/m ³	60	43.1	TPM/MSK/ENV(AP)/01/03
3	Sulphur dioxide(SO2) in µg/m ³	80	7.4	IS: 5182 (Part-2)-2001
4	Nitrogen dioxide (NO2) in µg/m ³	80	30.0	IS: 5182 (Part- 6)-2006
5	Carbon monoxide(CO) in mg/m ³	2	1.17	IS 5182 :(Part-10) :1999
6	Ozone (O3) in µg/m ³	180	<20.0	TPM/MSK/ENV(AP)/01/07
7	Ammonia (NH3) in µg/m ³	400	10.0	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	<5.0	EPA-IO 3.4
10	Arsenic (As) in ng/m ³	6	<1.0	EPA-IO 3.4
11	Benzene (C6H6) in µg/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

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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/2132Date: 19.03.2021Sample No. : MSKGL/ED/2020-21/03/00126Sample Description : Ambient AirSampling Location : Near Mine Gate, NimbaheraDate of Sampling : 02/03.02.2021

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 µg/m ³	100	68.4	IS: 5182:(Part-23)-2006
2	Particulate matter(PM 2.5) in µg/m ³	60	39.1	TPM/MSK/ENV(AP)/01/03
3	Sulphur dioxide(SO2) in µg/m ³	80	6.9	IS: 5182 (Part-2)-2001
4	Nitrogen dioxide (NO2) in µg/m ³	80	25.0	IS: 5182 (Part- 6)-2006
5	Carbon monoxide(CO) in mg/m ³	2	0.89	IS 5182 :(Part-10) :1999
6	Ozone (O3) in µg/m ³	180	<20.0	TPM/MSK/ENV(AP)/01/07
7	Ammonia (NH3) in μg/m ³	400	14.0	TPM/MSK/ENV(AP)/01/08
8	Lead (Pb) in µg/m ³	1	< 0.01	EPA-IO 3.4
9	Nickel (Ni) in ng/m ³	20	<5.0	EPA-IO 3.4
10	Arsenic (As) in ng/m ³	6	<1.0	EPA-IO 3.4
11	Benzene (C6H6) in µg/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

Report repared By:





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TEST REPORT

Name & Address of the Customer :

J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/2129 Date : 19.03.2021 Sample No. : MSKGL/ED/2020-21/03/00123 Sample Description : Ambient Air Sampling Location : Near Main SecurityGate) Nimbahera Date of Sampling : 02/03.02.2021

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 µg/m ³	100	65.8	IS: 5182:(Part-23)-2006
2	Particulate matter(PM 2.5) in µg/m ³	60	35.2	TPM/MSK/ENV(AP)/01/03
3	Sulphur dioxide(SO2) in µg/m ³	80	6.4	IS: 5182 (Part-2)-2001
4	Nitrogen dioxide (NO2) in µg/m ³	80	22.0	IS: 5182 (Part- 6)-2006
5	Carbon monoxide(CO) in mg/m ³	2	0.73	IS 5182 :(Part-10) :1999
6	Ozone (O3) in µg/m ³	180	<20.0	TPM/MSK/ENV(AP)/01/07
7	Ammonia (NH3) in µg/m ³	400	<10.0	TPM/MSK/ENV(AP)/01/08
8	Lead (Pb) in µg/m ³	1	< 0.01	EPA-IO 3.4
9	Nickel (Ni) in ng/m ³	20	<5.0	EPA-IO 3.4
10	Arsenic (As) in ng/m ³	6	<1.0	EPA-IO 3.4
11	Benzene (C6H6) in µg/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

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	(All Values in dB)										
		HALF YEARLY REPORT (October'20 to March'21)									
Month	Main Security		Thermal Power		New JK Factory		Mines Office				
	Day	Night	Day	Night	Day	Night	Day	Night			
Oct-20	65.3	52.9	67.1	55.1	67.1	56.2	63.8	52.4			
Nov-20	66.4	54.8	65.0	55.0	69.0	61.0	68.0	58.0			
Dec-20	65.6	52.1	67.2	55.8	65.2	53.7	64.9	53.1			
Jan-21	69.7	53.8	64.8	53.1	66.8	54.9	65.8	53.9			
Feb-21	68.4	54.1	65.9	54.7	68.9	56.3	67.1	55.2			
Mar-21	67.6	55.7	66.8	57.3	64.9	59.8	68.6	57.5			
Average	67.2	53.9	66.1	55.2	67.0	57.0	66.4	55.0			

J.K. Cement WORKS, Nimbahera (RAJ) Noise Monitoring Report

J.K. Cement WORKS, Nimbahera (RAJ) Noise Monitoring Report (October-20 to March-21) (ALL VALUES IN dB)

,,							
Month	22 M	<i>N</i> СРР	13.2 MW WHR				
	Day	Night	Day	Night			
Oct-20	68.4	61.7	69.8	65.4			
Nov-20	70.1	64.6	68.4	65.1			
Dec-20	69.9	65.8	70.2	64.7			
Jan-21	71.5	68.9	69.4	65.8			
Feb-21	72.6	65.5	65.6	63.3			
Mar-21	70.5	63.5	68.6	67.5			

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

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TEST REPORT

Name & Address of the Customer : J.K. Cement Works, Nimbahera Kailash Nagar – 312617

Nimbahera - Distt. Chittorgarh (Raj.)

 Report No.
 : MSK/UDR/2020-21/1538

 Date
 : 25.12.2020

 Sample No.
 : MSKGL/ED/2020-21/12/00519 to 00522

 Sample Description : Noise Monitoring

Reference No.& Date : e-mail dtd: 23.04.2019

ANALYSIS RESULT

Sl. No.	Sampling Date	Sampling Location	Results Leq dB(A)		
			Day Time	Night Time	
1.		Near Main Security Gate (Nimbahera Plant)	68.1	46.4	
2.	. 10.11.2020	Near Thermal Power Plant (Nimbahera Plant)	72.6	56.2	
3.	10.11.2020	Near New J.K. Factory Gate (Nimbahera Plant)	70.4	53.5	
4.		Near Mine Gate (Nimbahera Plant)	69.4	52.8	
Limit As per CPCB (Environment Protection Rules, 1986)		in Industrial Area Leq dB(A)	75	70	

Report Prepared by :





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TEST REPORT

Name & Address of the Customer : J.K.Cement Works, Nimbahera

Distt. Chittorgarh (Raj.)

 Report No.
 : MSK/UDR/2020-21/2162

 Date
 : 19.03.2021

 Sample No.
 :MSKGL/ED/2020-21/03/00188 to 00191

 Sample Description : Noise Monitoring

Reference No.& Date : e-mail dtd: 23.04.2019

ANALYSIS RESULT

SI. No.	Sampling Date	Sampling Location	Results Leq dB(A)		
	1 0		Day Time	Night Time	
l.	02/04 02 2021	Near Main Security Gate (Nimbahera)	61.7	41.1	
2.	03/04.02.2021	Near Thermal Power Plant (Nimbahera)	62.6	40.5	
3.	02/04 02 2021	Near New J.K Factory Gate (Nimbahera)	59.8	38.9	
4.	03/04.02.2021	Near Mine Gate (Nimbahera)	58.3	39.7	
Lim (Envir	nit As per CPCB ronment Protection Rules, 1986)	in Industrial Area Leq dB(A)	75	70	

port Prepared by :





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

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TEST REPORT

Name & Address of the Customer : J.K. Cement Works, Nimbahera

C/o Kailash Nagar – 312617 Nimbahera – Distt. Chittorgarh (Raj.)

Reference No.& Date : e-mail dtd: 23.04.2019

Report No. : MSK/UDR/2020-21/294Date: 16.07.2020Sample No. : MSKGL/ED/2020-21/06/01200Sample Description : Ground Water from Tube wellSample Mark: Nimbahera PlantDate of Sampling: 13.06.2020

ANALYSIS RESULT OF WATER AS PER IS : 10500 - 2012

SI No.	Parameter	Desirable Limit	Permissible Limit	Method	Result
1.	pH at 25°C	6.5-8.5	No Relaxation	IS 3025 (Part 11)-1983; Rffin: 2012	7.14
2.	Conductivity at 25°C in µmhos/cm			IS 3025 (Part 14)- 2013	796.0
3.	Colour in Hazen	5	15	IS 3025 (Part 4)-1983; Rffm:2002	<1.0
4.	Odour	Agreeable	Agreeable	IS 3025 (Part 5)-1983 Rffm:2012	Unobjectionable
5.	Turbidity in N.T.U	1	5	IS 3025 (Part 10)-1984 Rffm: 2012	<1.0
6.	Total Dissolved Solids in mg/l	500	2000	IS 3025 (Part 16)-1984; Rffm:2002	442.0
7.	Total Suspended Solids in mg/l			IS 3025 (Part 24)-1986; Rffm:2009	<2.5
8.	Total Hardness as CaCO3 in mg/l	200	600	IS 3025 (Part 21)-2013	292.0
9.	Calcium as Ca in mg/l	75	200	IS 3025 (Part 40)- 1991 Rffm: 2009	101.0
10.	Magnesium as Mg in mg/l	30	100	IS 3025 (Part 46)-1994 Rffm: 2009	9.6
11.	Total Alkalinity as CaCO3 in mg/l	200	600	IS 3025 (Part 23)- 1986 Rffm: 2009	156.0
12.	Chloride as Cl in mg/l	250	1000	IS 3025 (Part 32)-1988 Rffm: 2009	76.0
13.	Oil & Grease in mg/l			IS 3025(Part 39)-Rffm 2009	<3.0
14.	Fluoride as F in mg/l	1.0	1.5	IS 3025 (Part 60)- 2008 Rffm: 2013	0.56
15.	Iron as Fe in mg/l	0.3	No relaxation	IS 3025 (Part 53)-1988 Rffm: 2009	0.18

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TEST REPORT

Name & Address of the Customer : J.K. Cement Works, Nimbahera C/o Kailash Nagar – 312617 Nimbahera – Distt. Chittorgarh (Raj.)

Reference No.& Date : e-mail dtd: 23.04.2019

Report No. : MSK/UDR/2020-21/711Date: 23.09.2020Sample No. : MSKGL/ED/2020-21/09/00004Sample Description : Ground Water from Tube wellSample Mark: Nimbahera PlantDate of Sampling: 14.08.2020

ANALYSIS RESULT OF WATER AS PER IS : 10500 - 2012

SI No.	Parameter	Desirable Limit	Permissible Limit	Method	Result
1.	pH at 25°C	6.5-8.5	No Relaxation	IS 3025 (Part 11)-1983; Rffm: 2012	7.89
2.	Conductivity at 25°C in µmhos/cm			IS 3025 (Part 14)- 2013	728.0
3.	Colour in Hazen	5	15	IS 3025 (Part 4)-1983; Rffm:2002	<1.0
4.	Odour	Agreeable	Agreeable	IS 3025 (Part 5)-1983 Rffm:2012	Agreeable
5.	Turbidity in N.T.U	1	5	1S 3025 (Part 10)-1984 Rffm: 2012	<1.0
6.	Total Dissolved Solids in mg/l	500	2000	IS 3025 (Part 16)-1984; Rffm:2002	430.0
7.	Total Suspended Solids in mg/l			1S 3025 (Part 24)-1986; Rffm:2009	<2.5
8.	Total Hardness as CaCO3 in mg/l	200	600	IS 3025 (Part 21)-2013	243.0
9.	Calcium as Ca in mg/l	75	200	IS 3025 (Part 40)- 1991 Rffm: 2009	69.0
10.	Magnesium as Mg in mg/l	30	100	IS 3025 (Part 46)-1994 Rffm: 2009	17.0
11.	Total Alkalinity as CaCO3 in mg/l	200	600	IS 3025 (Part 23)- 1986 Rffm: 2009	156.0
12.	Chloride as Cl in mg/l	250	1000	IS 3025 (Part 32)-1988 Rffm: 2009	75.0
13.	Oil & Grease in mg/l			IS 3025(Part 39)-Rffm 2009	<1.4
14.	Fluoride as F in mg/l	1.0	1.5	IS 3025 (Part 60)- 2008 Rffm: 2013	0.75
15.	Iron as Fe in mg/l	0.3	No relaxation	IS 3025 (Part 53)-1988 Rffm: 2009	< 0.05

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TEST REPORT

Name & Address of the Customer : J.K. Cement Works, Nimbahera C/o Kailash Nagar – 312617 Nimbahera – Distt. Chittorgarh (Raj.)

Reference No.& Date : e-mail dtd: 23.04.2019

Report No. : MSK/UDR/2020-21/1893Date: 31.01.2021Sample No. : MSKGL/ED/2020-21/01/00597Sample Description : Ground Water from Tube wellSample Mark: Nimbahera PlantDate of Sampling: 07/01/2021

ANALYSIS RESULT OF WATER AS PER IS : 10500 - 2012

SI No.	Parameter	Desirable Limit	Permissible Limit	Method	Result
1.	pH at 25°C	6.5-8.5	No Relaxation	IS 3025 (Part 11)-1983; Rffm: 2012	7.60
2.	Conductivity at 25°C in µmhos/cm			IS 3025 (Part 14)- 2013	632
3.	Colour in Hazen	5	15	IS 3025 (Part 4)-1983; Rffm:2002	<1.0
4.	Odour	Agreeable	Agreeable	IS 3025 (Part 5)-1983 Rffm:2012	Agreeable
5.	Turbidity in N.T.U	1	5	IS 3025 (Part 10)-1984 Rffm: 2012	<1.0
6.	Total Dissolved Solids in mg/l	500	2000	IS 3025 (Part 16)-1984; Rffm:2002	406
7.	Total Suspended Solids in mg/l			IS 3025 (Part 24)-1986; Rffm:2009	<2.5
8.	Total Hardness as CaCO3 in mg/l	200	600	IS 3025 (Part 21)-2013	230
9.	Calcium as Ca in mg/l	75	200	IS 3025 (Part 40)- 1991 Rffm: 2009	72
10.	Magnesium as Mg in mg/l	30	100	IS 3025 (Part 46)-1994 Rffm: 2009	12
11.	Total Alkalinity as CaCO3 in mg/l	200	600	IS 3025 (Part 23)- 1986 Rffm: 2009	125
12.	Chloride as Cl in mg/l	250	1000	IS 3025 (Part 32)-1988 Rffm: 2009	73
13.	Oil & Grease in mg/l			IS 3025(Part 39)-Rffm 2009	<1.4
14.	Fluoride as F in mg/l	1.0	1.5	IS 3025 (Part 60)- 2008 Rffm: 2013	0.96
15.	Iron as Fe in mg/l	0.3	No relaxation	IS 3025 (Part 53)-1988 Rffm: 2009	< 0.05

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TEST REPORT

Name & Address of the Customer : J.K. Cement Works, Nimbahera C/o Kailash Nagar – 312617 Nimbahera – Distt. Chittorgarh (Raj.)

Reference No.& Date : e-mail dtd: 23.04.2019

Report No. : MSK/UDR/2020-21/1395Date: 04.12.2020Sample No. : MSKGL/ED/2020-21/11/00616Sample Description : Ground Water from Tube wellSample Mark: Nimbahera PlantDate of Sampling: 11.11.2020

ANALYSIS RESULT OF WATER AS PER IS : 10500 - 2012

SI No.	Parameter	Desirable Limit	Permissible Limit	Method	Result
1.	pH at 25°C	6.5-8.5	No Relaxation	IS 3025 (Part 11)-1983; Rffm: 2012	7.55
2.	Conductivity at 25°C in µmhos/cm			IS 3025 (Part 14)- 2013	706
3.	Colour in Hazen	5	15	IS 3025 (Part 4)-1983; Rffm:2002	<1.0
4,	Odour	Agreeable	Agreeable	IS 3025 (Part 5)-1983 Rffm:2012	Agreeable
5.	Turbidity in N.T.U	1	5	IS 3025 (Part 10)-1984 Rffm: 2012	<1.0
6.	Total Dissolved Solids in mg/l	500	2000	IS 3025 (Part 16)-1984; Rffm:2002	424
7.	Total Suspended Solids in mg/l			IS 3025 (Part 24)-1986; Rffm:2009	<2.5
8.	Total Hardness as CaCO3 in mg/l	200	600	IS 3025 (Part 21)-2013	239
9.	Calcium as Ca in mg/l	75	200	IS 3025 (Part 40)- 1991 Rffm: 2009	78
10.	Magnesium as Mg in mg/l	30	100	IS 3025 (Part 46)-1994 Rffm: 2009	11
11.	Total Alkalinity as CaCO3 in mg/l	- 200	600	IS 3025 (Part 23)- 1986 Rffm: 2009	201
12.	Chloride as Cl in mg/l	250	1000	IS 3025 (Part 32)-1988 Rffm: 2009	79
13.	Oil & Grease in mg/l			IS 3025(Part 39)-Rffm 2009	<1.4
14.	Fluoride as F in mg/l	1.0	1.5	1S 3025 (Part 60)- 2008 Rffm: 2013	0.98
15.	Iron as Fe in mg/l	0.3	No relaxation	IS 3025 (Part 53)-1988 Rffm: 2009	< 0.05

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	Annexure-4							(ure-4
		<u>J.K. Cement</u> WORI	KS, Nimba	ahera (RAJ)			
	Treated Domestic Effluent Analysis Report							
	Т	HAIEVEARIV REP(DRT (Oct	$\frac{1}{20}$ to Ma	rch ¹ 21)			
	<u>1</u>	IALI ILAKLI KLI		20 to 101	<u>ICII 21)</u>			
S.No.	PARAMETER	Standards	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21
1	рН	Between 5.5 to 9.0	7.35	8.54	7.60	7.35	7.85	7.60
2	Total Suspended solids	Not to exceed 100 mg/l	12.1	<2.5	15.0	17.0	14.00	21.0
3	Chemical Oxygen Demand	Not to exceed 250 mg/l	31.0	<4.0	28.0	32.0	28.00	36.0
Л	Biological Oxygen Demand	Not to avceed 20 mg/l	7 15	<2.0	630	6.90	6.40	7 75
t	(3 days at 27 Degree C)	Not to exceed 30 mg/1	7.15	<2.0	0.50	0.90	0.40	1.15
5	Oil & Grease	Not to exceed 10 mg/l	<2.0	<1.4	<2.00	<2.0	<1.4	<2.00
6	Ammonical Nitrogen (as N)	Not to exceed 50 mg/l	< 0.10	< 0.1	< 0.20	< 0.15	< 0.1	< 0.25
7	Sulphide (as S)	Not to exceed 2.0 mg/l	< 0.10	< 0.1	< 0.25	< 0.30	< 0.1	< 0.40
8	Chlorides	Not to exceed 1000 mg/l	126.0	519.00	120.0	108.0	165.00	112.0
9	Total Kjeldahl Nitrogen (as N)	Not to exceed 100 mg/l	0.76	< 0.3	0.85	0.75	< 0.3	0.90
10	Residual Chlorine	Not to exceed 1.0 mg/l	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
11	Faecal Coliform	MPN/100 ml	<1.6	<1.8	<1.4	<1.2	<1.8	<1.0

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

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TEST REPORT

Name & Address of the Customer : J.K. Cement Works, Nimbahera

Kailash Nagar – 312617 Nimbahera – Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/1407Date: 04.12.2020Sample No. : MSKGL/ED/2020-21/11/00632Sample Description : Domestic Waste WaterSample Location : STP outlet Water (Nimbahera)Date of Collection : 11.11.2020

Reference No.& Date : e-mail dtd: 23.04.2019

ANALYSIS RESULT

SI No.	Parameter	Unit	Result
1.	pH (at 25 [°] C)		8.54
2.	Total Suspended solids (TSS)	mg/I	<2.5
3.	Chemical Oxygen Demand (COD)	mg/l	<4.0
4.	Bio-Chemical Oxygen Demand (3 days at 27 ^o C)	mg/l	<2.0
5.	Oil & Grease	mg/l	<1.4
5.	Ammonical Nitrogen (as N)	mg/l	<0.1
7.	Sulphide (as S)	mg/l	<0.1
8.	Chloride	mg/l	519
).	Total Kjeldahl Nitrogen (as N)	mg/l	<0.3
10.	Total Residual Chlorine	mg/l	<0.1
11.	Faecal Coliform	MPN/100 ml	<].8

Sound Report Prepared by:



TESTING . INSPECTION

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

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TEST REPORT

Name & Address of the Customer : J.K. Cement Works, Nimbahera Kailash Nagar – 312617 Nimbahera – Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/2203 Date : 19.03.2021 Sample No. : MSKGL/ED/2020-21/03/00246 Sample Description : Domestic Waste Water Sample Location : STP outlet Water (Nimbahera) Date of Collection : 03.02.2021

Reference No.& Date : e-mail dtd: 23.04.2019

SI No.	Parameter	Unit	Result
1.	pH (at 25° C)		7.85
2.	Total Suspended solids (TSS)	mg/l	14.0
3.	Chemical Oxygen Demand (COD)	mg/l	28.0
4.	Bio-Chemical Oxygen Demand (3 days at 27 ^o C)	mg/l	6.4
5.	Oil & Grease	mg/l	<1.4
6.	Ammonical Nitrogen (as N)	mg/l	<0.1
7.	Sulphide (as S)	mg/l	<0.1
8.	Chloride	mg/l	165
9.	Total Kjeldahl Nitrogen (as N)	mg/l	< 0.3
10.	Total Residual Chlorine	mg/l	<0.1
11.	Faecal Coliform	MPN/100 ml	<1.8

ANALYSIS RESULT







	LK. Compart WORKS Nirebahara (DAD)								
	$\frac{J.K. \ Centent \ w \ OKKS, Ninducia \ (KAJ)}{12.2 \ MW \ WA \ STE \ HE \ AT \ DECOVEDV \ DI \ ANT}$								
	Outlet of Waste heat recovery plant								
	October' 2020 - March' 2021								
S. No.	MONTH/ PARAMETRS	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21		
1	pH	7.10	7.28	7.25	7.40	8.13	7.65		
2	Total Suspended Solids (TSS)	40.00	32.00	44.00	38.00	53.00	42.00		
3	Oil & Grease	<1.6	<1.4	<1.2	<1.4	<1.4	<1.1		
4	Bio-Chemical Oxygen Demand (BOD) (3 Days at 270C)	7.60	24.00	8.20	7.40	7.00	8.10		
5	Chemical Oxygen Demand (COD)	66.00	120.00	61.00	52.00	28.00	55.00		
6	Chlorides (as Cl)	112.00	329.00	106.00	112.00	180.00	119.00		
7	Sulphates (as SO4)	167.00	235.00	151.00	138.00	310.00	128.00		
8	Phosphate	1.40	0.26	1.10	1.00	3.00	0.90		
9	Iron (as Fe)	0.04	1.40	0.02	0.02	3.80	0.03		
10	Total Chromium (as Cr)	0.05	< 0.01	< 0.03	< 0.06	< 0.01	0.04		
11	Free Available chlorine	< 0.1	< 0.1	< 0.01	< 0.01	< 0.1	< 0.01		
12	Copper as (Cu)	< 0.02	< 0.02	< 0.02	< 0.03	< 0.02	< 0.02		
13	Zinc (Zn)	< 0.02	0.08	< 0.01	< 0.02	< 0.02	< 0.01		
14	Total Residual Chlorine	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1		
		4°C higher							
15	Temperature	than the							
		intake water							

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TEST REPORT

Thermax Ltd. C/o J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.)

Name & Address of the Customer :

Report No. : MSK/UDR/2020-21/1412 Date : 04.12.2020 Sample No. : MSKGL/ED/2020-21/11/00637 Sample Description : Treated Effluent Water Sample Location : 13.2 MW WHR ETP (Nimbahera) Date of Collection : 11.11.2020

Reference No.& Date : e-mail dtd: 23.04.2019

SI No.	Parameter	Unit	Standard	Result
1.	pH (at 27 ⁰ C)		6.5 to 8.5	7.28
2.	Total Suspended solids (TSS)	mg/l	100.0	32
3.	Oil & Grease	mg/l	10.0	<1.4
4.	Total Residual Chlorine	mg/l	1.0	<0.1
5.	Iron (as Fe)	mg/l	- 1.0	1.4
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	0.08
10.	Temperature	⁰ C	Shall not exceed 5° C above the receiving water temperature	4° C higher than the intake water temperature
11.	Phosphate (as PO_4)	mg/l	5.0	0.26
12.	Chemical Oxygen Demand (as COD)	mg/l	250.0	120
13.	Biological Oxygen Demand (as BOD)	mg/l	. 30.0	24
14.	Chlorides (as Cl)	mg/l	1000.0	329
15.	Sulphate (as SO _{4)}	mg/l	1000.0	235

ANALYSIS RESULT

Report Prepared by :

For Mit nited



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

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TEST REPORT

Name & Address of the Customer : Thermax Ltd. C/o J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/2205 Date : 19.03.2021 Sample No. : MSKGL/ED/2020-21/03/00248 Sample Description : Treated Effluent Water Sample Location : 13.2 MW WHR ETP (Nimbahera) Date of Collection : 04.02.2021

Reference No.& Date : e-mail dtd: 23.04.2019

SI No.	Parameter	Unit	Standard	Result
1.	pH (at 27 ⁰ C)		6.5 to 8.5	8.13
2.	Total Suspended solids (TSS)	mg/l	100.0	53
3.	Oil & Grease	mg/l	10.0	<1.4
4.	Total Residual Chlorine	mg/l	1.0	<0.1
5.	Iron (as Fe)	mg/l	1.0	3.8
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 ^o C above the receiving water temperature	4 [°] C higher than the intake water temperature
11.	Phosphate (as PO ₄)	mg/l	5.0	3.0
12.	Chemical Oxygen Demand (as COD)	mg/l	250.0	28.0
13.	Biological Oxygen Demand (as BOD)	mg/l	30.0	7.0
14.	Chlorides (as Cl)	mg/l	1000.0	180
15.	Sulphate (as SO ₄)	mg/l	1000.0	310

ANALYSIS RESULT

Report Prepared by

For Muta S.K. Private Dimited

J.K. Cement WORKS, Nimbahera (RAJ) 22 MW THERMAL POWER PLANT

Outlet of Power Plant

	(October '2020 - March '2021)						
S. No.	Parameters	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21
1	pH	7.60	5.96	7.35	7.20	7.07	7.45
2	Total Suspended Solids (TSS)	11.20	26.00	13.00	15.00	30.00	19.00
3	Bio-Chemical Oxygen Demand (BOD) (3 Days at 27 deg C)	8.10	9.20	7.80	6.90	9.90	7.70
4	Chemical Oxygen Demand (COD)	54.00	36.00	48.00	42.00	40.00	45.00
5	Oil & Grease	<1.3	<1.4	<1.6	<1.4	<1.4	<1.2
6	Chlorides	120.00	245.00	116.00	109.00	414.00	115.00
7	Sulphate	92.00	557.00	80.00	74.00	157.00	71.00
8	Temperature	4°C higher than the intake water					
9	Iron (Total)	0.02	1.40	0.01	0.02	1.30	0.03
10	Copper (total)	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.01
11	Phosphate (as PO ₄)	0.80	0.50	0.90	0.70	0.81	0.85
12	Zinc (as Zn)	< 0.02	0.50	< 0.02	< 0.01	< 0.02	< 0.02
13	Chromium (total)	< 0.01	< 0.01	< 0.06	< 0.04	< 0.01	< 0.05
14	Total Residual Chlorine	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
15	Free available chlorine	< 0.01	< 0.1	< 0.01	< 0.01	< 0.1	< 0.01

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TEST REPORT

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

Report No. : MSK/UDR/2020-21/1413 Date : 04.12.2020 Sample No. : MSKGL/ED/2020-21/11/00638 Sample Description : Treated Effluent Water Sample Location : 22 MW CPP ETP (Nimbahera) Date of Collection : 11.11.2020

Reference No.& Date : e-mail dtd: 23.04.2019

SI No.	Parameter	Unit	Standard	Result
1.	pH (at 27 [°] C)		6.5 to 8.5	5.96
2.	Total Suspended solids (TSS)	mg/l	100.0	. 26
3.	Oil & Grease	mg/l	10.0	<1.4
4.	Total Residual Chlorine	mg/l	1.0	<0.1
5.	Iron (as Fe)	mg/l	1.0	1.4
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	0.5
10.	Temperature	⁰ C	Shall not exceed 5 [°] C above the receiving water temperature	4 ⁰ C higher than the intake water temperature
11.	Phosphate (as PO ₄)	mg/l	5.0	0.50
12.	Chemical Oxygen Demand (as COD)	mg/l	250.0	36
13.	Biological Oxygen Demand (as BOD)	mg/l	30.0	9.2
14.	Chlorides (as Cl)	mg/l	1000.0	245
15.	Sulphate (as SO ₄)	mg/l	1000.0	557

ANALYSIS RESULT

Report Prepared by :





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TEST REPORT

Name & Address of the Customer : Thermax Ltd. C/o J.K.Cement Works, Nimbahera Distt. Chittorgarh (Raj.) Report No. : MSK/UDR/2020-21/2204 Date : 19.03.2021 Sample No. : MSKGL/ED/2020-21/03/00247 Sample Description : Treated Effluent Water Sample Location : 22 MW CPP ETP (Nimbahera) Date of Collection : 04.02.2021

Reference No.& Date : e-mail dtd: 23.04.2019

Sl No.	Parameter	Unit	Standard	Result
1.	pH (at 27 ⁰ C)		6.5 to 8.5	7.07
2.	Total Suspended solids (TSS)	mg/l	100.0	30.0
3.	Oil & Grease	mg/l	10.0	<1.4
4.	Total Residual Chlorine	mg/l	1.0	<0.1
5.	Iron (as Fe)	mg/l	1.0	1.3
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	° C	Shall not exceed 5 ^o C above the receiving water temperature	4 ⁰ C higher than the intake water temperature
11.	Phosphate (as PO ₄)	mg/l	5.0	0.81
12.	Chemical Oxygen Demand (as COD)	mg/l	250.0	40.0
13.	Biological Oxygen Demand (as BOD)	mg/l	30.0	9.9
14.	Chlorides (as Cl)	mg/l	1000.0	414
15.	Sulphate (as SO4)	mg/l	1000.0	157

ANALYSIS RESULT

Report Prepared by :

Private Limited For Mitra S.K whorised Signatory





REPORT ON GREEN HOUSE GAS (GHG) EMISSION INVENTORY

(Period April 2020 - March 2021)

OF

M/s J. K. CEMENT WORKS

NIMBAHERA, DIST: CHITTORGARH (RAJASTHAN)

Prepared by:

Environment Department

DECLARATION BY J. K. WORKS

J. K. Cement Works (hereafter referred as JKCW) has undertaken Greenhouse Gas (GHG) accounting study for its integrated cement plant situated at

JKCW , Nimbahera , Dist Chittorgarh (Rajasthan) with 2.8 MMTPA Clinker & 4.9 MMTPA Cement

The study was undertaken by industry to evaluate the greenhouse gas (GHG) emission of it integrated cement unit for the above mentioned unit for the period April 2020 to March 2021. The following methodologies and standards were used for assessment of the GHG inventory from the operations of the unit of JKCW:

1. "Greenhouse Gases – Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals" International Standard ISO 14064 Part-I, 2006

2. "GHG Protocol Corporate Accounting and Reporting Standard" - Greenhouse Gas Protocol

3. "CO2 Accounting & Reporting

- WBCSD Cement Sustainability Initiative Cement CO2and Energy Protocol Version 3.1, Emissions and Energy Inventory

The entire accounting exercise has been carried out and the GHG inventory report has been prepared in line with the ISO 14064-1:2006 and WBCSI Cement Sustainability Initiative Cement CO₂ and Energy Protocol Version 3.1, Emissions and Energy Inventory standard as mentioned above. The ISO 14064-1:2006 requires that:

"The organization should prepare a GHG report to facilitate GHG inventory verification, participation in a GHG programme, or to inform external or internal users."

Accordingly, this report has been prepared to facilitate GHG verification of the emission inventory and to enhance transparency of stakeholder communication. The compliance to ISO14064-1:2006 in the inventory estimation and reporting exercise has been objectively demonstrated in different sections of the report. Various assumptions, inclusions and exclusions of data; and deviations from methodologies/standards, wherever applicable, have been appropriately documented with explanations in the report.

This report covers direct and indirect Carbon Dioxide (CO₂) emissions. Other GHG's i.e. Methane (CH₄), Nitrous Oxide (N₂O), Sulphur Hexafluoride (SF₆), Perfluorocarbon (PFCs), Nitrogen Trifluoride (NF₃) and Hydrofluorocarbon (HFCs) emissions have not been accounted for since the emissions of these gases do not have any material impact on the overall emissions from the operations of the above mentioned unit and are hence not considered relevant for the present study. The scope covers emissions under "Direct" and "Energy Indirect" (i.e. scope 1 & scope 2 respectively as defined in GHG protocol) categories.

Foreword

Environmental, Health and Safety Policy of J. K. Cement

We at J.K. Cement Ltd. (Grey Cement) are committed to Manufacturing and Supply of cements and cement derivative products to the satisfaction of our customers with due consideration to legal and other requirements by;

- Continually improve the effectiveness of Integrated Management System, which includes Quality Management System (QMS), Environmental Management System (EMS), Energy management System (EnMS) and Occupational Health & Safety Management System (OHSMS).
- Minimise and / or control environmental impacts, significant energy use and emphasis on elimination of hazards associated with its operations.
- Continuous Prevention and reduce pollution, resources wastage and probability of injury and ill health of Employees & interested parties.
- Inculcate a working culture with emphasis on prevention of pollution, minimizing and controlling waste generation, Safe work practices and optimize consumption of resources/energy.
- Provide necessary resources and information to achieve objectives and targets.
- Support purchase of environment friendly & energy efficient products, services & design.
- Provide effective facilities for consultation between management and worker' representatives.

The policy is made available to all employees and interested parties.

Energy Policy of J. K. Cement

We, at JK Cement Works are committed to demonstrate the excellence in Energy management in all our activities of cement manufacturing on continual basis as to make our operations environmentally sustainable.

We are improving energy efficiency & conservation by:

- We have implemented IS 9001: 50001, Energy Management System in our organization.
- Establishing a framework for setting energy objectives and targets through effective energy management cell with certified energy managers.
- Reviewing, monitoring and analyzing energy consumption and bench marking performances and set new targets.
- Conducting audits for improvement of overall energy efficiency of the plant.
- Purchasing equipment and appliances with consideration of the Bureau of Energy Efficiency Star Rating and Energy Efficiency.
- Using alternative fuels which helps the environment also directly/ indirectly to protect natural resources.
- Ensuring energy conservation, Management and Awareness throughout the organization.
- Always complying with relevant and applicable laws and regulations.
- Maximizing generation of Waste Heat Recovery Power & Solar Power in our organization.
- We have collaborated with EESL (Energy Efficiency Service Limited), Govt. of India improving energy efficiency in our organization.

To promote energy conservation & energy saving propagate awareness amongst all employee and stakeholders.

Water Management Policy of J. K. Cement

JK Cement committed toward water management & conservation that water is a key resource for continuing its business operations and the value attached to it for all its stakeholders as an integral part of business philosophy. We recognize that good quality water has strong sustainability and ecosystem service values. Protecting and conserving water resources through excellent water management practices and governance systems. Water management is not only a business imperative but also provide it with a competitive advantage in the long run.

We shall endeavor to:

- Complying with all legal and applicable rule, law, regulation and other requirement to water related.
- Minimize our impact on water resources from operations by measuring and understanding water use, management and wastewater generation
- Reduce water consumption (freshwater, groundwater) by re-use, recycling water and implementing more sustainable use of water sources.
- Implementation of rain water harvesting measure to increase water table.
- Implement a water monitoring system for water usage & consumption.
- Implementation of latest technology to reduce water consumption and ensure zero water leakages.
- Involve our employees and contract workers in water conservation initiatives.
- Engage with our stakeholders and communities to increase their awareness on the responsible use of water and involve them in protection of water resources.
- Communicate on the progress and performance of water conservation and water management efforts to stakeholders

Intended Use and Intended Users of the report

This report will further serve as the launching pad for more detailed and inclusive studies for the installations and operations of JKCW. Since GHG emission and energy /fuel costs have a direct correlation, this may serve as an ideal platform to identify GHG hotspots for any future GHG emission/fuel consumption reduction program. This report will also be the reference point for any verification of GHG inventory to be estimated in future.

Overall and specific responsibilities for preparing and producing the report:

JKCW owns the overall responsibility for preparing and producing this report, by data collection & calculation of GHG emissions as per applicable standards. The responsibility of ascertaining calculation methods in line with ISO 14064-1:2006 was entrusted by JKCW.

Frequency and base year selection

JKCW envisages assessing its GHG performance on an annual basis. Hence Inventorization of GHG emissions will be taken up on an annual frequency. The present study period includes data from 1st April 2020 to 31st March 2021, both days inclusive. As this is the first year of evaluation, hence the base year for the present GHG Inventorization Study has been selected as 2020-21.

Format & Contents

The report is organized in 3 chapters excluding the Executive Summary. The first section provides the background & scope of the GHG estimation study including the corporate EHS, Energy policy and Water management Policy of JKCW and relevance of the study, Objectives and Scope of the exercise. The second chapter deals with the approach for calculation of emissions including description of operational boundary and quantification methodology. The third and final section provides the detailed organization-wise, unit-wise and GHG-wise break-up of the emissions and results.

Executive Summary

Statement of Intent

As a responsible corporate citizen JKCW aims to own and manage the greenhouse gas emission inventory due to its operation. Through this exercise, the site of JKCW intends to

- Volunteer its resources to adopt sustainability as a core business value and thereby showcase its commitment towards clean and green future to its stakeholders.
- To monitor, inventorize, report and own the Greenhouse Gas emissions due to its operation.
- > Lay the foundation for future roll up of the inventory to arrive at inventory for JKCW.

Emission Summary

The overall emission inventory has been calculated as aggregated emissions from the operation of JKCW site. The table below presents the emission inventory for the year 2020-21:

Emissions	Classification	Nimbahera
Divert Enviroime	Total CO2 from Raw Materials	812438
Direct Emissions	Total CO2 from fossil based kiln fuels	363303
(Scope 1)	Total Direct Emissions	1355617
Indirect Emissions		
(Scope 2)	CO2 from External Power Generation	31738

Table 1 : Absolute GHG emissions in tCO2e for the unit of JKCW

* Both direct emission and indirect emission figures have been rounded-up to the nearest integer. The total figure reported is the sum of the rounded-up figures. The emission figures reported

The emission sources for JKCW (Nimbahera unit) have been tabulated below: *Table 2: Explanation of Direct Emission Sources*

Emission Type	Direct Emissions
CO2 Emissions from Raw	Emissions from Calcination of raw materials consumed for clinker production
Materials	Emissions from organic carbon content of raw meal
CO2 Emissions from Kiln Fuels	Emissions from fossil fuel consumption (conventional)
(Incl. of Drying of Fuels &Raw Materials)	Emissions from alternative fossil fuel consumption
	Emissions from fossil fuel consumption
CO2 Emissions from Non- Kiln Fuels	Emissions from fossil fuel consumption for onsite vehicles and equipment's
	Emissions from fossil fuel consumption in onsite power generation

Table 3: Explanation of Indirect Emission Sources

Emission Type	Indirect Emissions		
Main Sources	Emissions from External Power Generation		
The emission sources have been referenced rom WBCSI Cement Sustainability Initiative Version 3.1			

Background and Scope

A leading cement manufacturer in the country, JK Cement Ltd is an affiliate in an multi-disciplinary industry conglomerate JK Organization which was founded by Lala Kamlapat Singhania. For over four decade, JK Cement has partnered India multi-sectoral infrastructure needs on the strength of product excellence, its customer orientation and technology leadership. The Company has over four decades of experience in cement manufacturing. Our operations commenced with commercial production at our first grey cement plant at Nimbahera, Rajasthan in May 1975. Subsequently, the company also set up 2 more units in Rajasthan at Mangrol and Gotan. In the year 2009, the company extended its footprint by setting up a green-field unit in Muddapur, Karnataka giving it access to the markets of south-west India. In the year 2014, the company further expanded its capacity in the north with brownfield expansion of 1.5 MnTPA integrated unit at Mangrol and split grinding unit of 1.5 MnTPA at Jhajjar. Today, JK Cement has an installed grey cement capacity of 14 MnTPA, making it one of the top cement manufacturers in the country.

JK White Cement, a division of JK Cement Ltd., enjoys a PAN India presence and the Company is the leading producer of Wall Putty in the Country. The Company is the second largest manufacturer of white cement in India, with an annual capacity of 600,000 tonnes. Having established a strong presence in India, the Company made its first international foray with the setting up of a green-field dual process White Cement-cum-Grey Cement plant in the free trade zone at Fujairah, U.A.E to cater to the GCC and African markets. JK White Cement is sold across 43 countries around the globe. With the commissioning of this plant, JK Cement became one of largest producers of White Cement in the world, with a total white cement capacity of 1.20 MnTPA and wall putty capacity of 0.9 MnTPA.

JK Cement was the first company to install a captive power plant in the year 1987 at Bamania, Rajasthan and the first cement company to install a waste heat recovery power plant to take care of the need of green power. Today at its different locations, the Company has captive power generation capacity of over 125.7 MWs which includes 23.2 MW of waste heat recovery power plants.

We are steadily enhancing our capacity, diversifying our range of products, ushering in advanced technology and quality assurance, and above all, expanding our presence nationally and internationally. Our brands continue to enjoy the trust of millions of consumers for the high quality and innovation benchmarks that we have attained.

Superior products and a strong Brand name, an extensive marketing and distribution network and the technical know-how represent JK Cement's abiding strengths.

About the Unit:

J. K. Cement Works, Nimbahera is situated at Nimbahera tehsil in Chittorgarh district, Rajasthan. Near Railway station is Nimbahera (2 km), NH - (1.5 km), airport Udaipur (120 km). Production Capacity: Clinker - 2.80 MMTPA, Cement – 4.90 MMTPA, CPP – 22 MW, WHRS 13.2 MW and Total Area: 170.72 Hectare Our plant is also ISO 9001:2015 & ISO 14001:2015 certified and our laboratory is accredited with the NABL-National Accreditation Board for Testing and Calibration Laboratories. Plant is also certified with ISO 5001: 2011 & ISO 45001: 2018

Our Products & Informations





PPC



Weather Sheild

Ordinary Portland cement (OPC)

OPC

Company also produces Ordinary Portland cement (OPC) which is much in demand for its extra strength and fineness. It is ideal for all kinds of construction jobs and concrete components production. OPC has three grade that we produce, that are differentiated by their compressive strengths expressed in Mega Pascals (MPa) as specified by BIS. These grades are 53 grade OPC, 43 grade OPC, 33 grade OPC, 53 grade OPC having the highest compressive strength. The customer selects the grade of OPC based on the intended application. Our most popular cement is 43 grade cement, with 53 grade cement being used in application which require high strength characteristics.

JK Super Cement (PPC)

JK Super Cement is one of the premium gray cement brands in the country, available as application friendly Portland Pozzolona Cement (PPC). The product complies with quality standards specified by the Bureau of Indian Standard (BIS) and is much in demand by both the retail and the institutional segment.

JK Super strong Weather Shield Cement

JK Super strong Weather Shield Cement is a water repellent cement having and integral water repellent property at the cement particle level manufactured through а technology developed in-house called PWRT (Particle Level Water Repellent Technology). Cement manufactured with PWRT exhibits resistance to penetration of water in mortar, plaster & concrete. This property is incorporated by modifying particle size the distribution and fineness of through cement an innovative technique. It significantly reduces water permeation to concrete or mortar, which results in dry walls and healthy indoor climate. This cement can be used all applications such as foundations, masonry & concrete work.

JK Cement: Environment, Health & Safety (EHS) Policy

JK Cement actively promotes environment, health & safety responsibility as one of its core business values and is committed towards environmental protection and providing healthy & safe work environment by way of

- Compliance with all applicable legal, social and other requirements.
- Improvement in environmental performance and resource efficiency
- Reviewing objectives and targets for continual improvement in environment, workplace, health and safety
- Engaging and training human capital to enhance their skills and augment resources for effective EHS performance.
- Controlling Pollution
- Prevention of occupational injuries and health hazards

JK Cement: Energy Policy

JK Cement is also committed towards improvement of Energy Efficiency and performance by using alternative fuels and by identification and reduction of energy losses by:

- Establishing framework for setting energy objectives and targets
- * Reviewing, monitoring and analysing Energy Consumption
- ◆ Conducting audits for improvement of overall Energy Efficiency of the plant
- Purchasing equipment and appliances with consideration of the Bureau of Energy Efficiency Star Ratings and energy efficiency.
- Ensuring Energy conservation, management and awareness throughout the organization
- ✤ Always complying with relevant and applicable Laws and Regulations

JKCW has initiated estimation of Greenhouse Gas inventory from cement manufacturing unit in the same spirit. JKCW management has already reported the GHG emissions as a key performance indicator in its annual Sustainability Report.

GHG Footprint Assessment: Drivers and Benefits

Greenhouse gas emissions being one of the key concerns of "cost to environment" for modern businesses, JKCW wishes to embark on a low carbon growth trajectory in its operations. Managing GHG emissions is only possible with effective monitoring set-up and practices to measure, record, calculate and report emissions over a period of time. Hence, JKCW has decided to calculate the GHG inventory of its installation at Nimbahera. The initial study will help to fulfil the following objectives:

- 1. Review its monitoring set-up and improve it to enable a corporate level replication for future.
- 2. Increase know-how of the employees for future repetitions of the exercise.
- 3. Capitalize on the benefits of GHG inventory estimation.

Various business goals that may be served by GHG footprint estimation include:

(I) Managing GHG risks and identifying reduction opportunities – By becoming cognizant to the current emission status of the organization a company can:

(a) Evaluate its position with respect to industry leaders

(b) Identify risks associated with GHG constraints in the future - Identification and quantification of the carbon assets and liabilities of an organization which are the two essential components for understanding climate change risk-return perspective of the organization.

(c) Identify cost effective reduction opportunities - Identification of potential opportunities of GHG emission reduction (Energy optimization, Process modifications and improvements, adoption of clean technologies etc.). JK Cement has already implemented CDM projects off set RPO obligation of RE power (Solar + Wind) by WHRS power plant.

(d) Set GHG targets, measuring and reporting progress

- (II) Public reporting and participation in voluntary GHG programs Voluntary GHG abatement initiatives are globally acknowledged. It requires:
- (a) Voluntary stakeholder reporting of GHG emissions and progress towards GHG targets.
- (b) Reporting to Government and NGO reporting programs, including GHG registries.
- (c) Eco-labelling, benchmarking and GHG Certification

(III) Recognition for early action and associated intangible benefits, which include:

(a) Recognition for early accounting and taking ownership of its emission inventory leading to enhancement of brand image and pan industry recognition.

(b) Greater preparedness to effectively align present and future business policies in line with the GHG risk exposure.

(c) Optimum utilisation of the carbon market to avail financial incentives and credits for GHG abatement measures, as applicable presently.

(d) Align with Indian government climate policy

Approach and Methodology

Approach

The GHG Inventorization was carried out in the below mentioned way:

- Training Programs on GHG Inventorization were conducted.
- ✤ An understanding of the cement manufacturing process.
- Determination of operational boundary and emission sources.
- This was followed by data collection and subsequent analysis
- Determination of GHG Inventory and Submission of Results

Methodology

The methodology for GHG Footprint Estimation has been designed in line with ISO 14064-1:2006 Guidelines. The key steps followed in the determination of the GHG Footprint are as follows:

- Confirmation of Organizational Boundary
- Determination of Operational Boundary
- Quantification of GHG emission and removal
- Quantification of directed actions in the organization
- Reporting of GHG emissions and removals

Determination of Organizational Boundary

The organization may comprise one or more facilities. Facility-level GHG emissions or removals may be produced from one or more GHG sources or sinks. The organization shall consolidate its facility-level GHG emissions and removals by one of the following approaches:

(a) Control: the organization accounts for all quantified GHG emissions and/or removals from facilities over which it has financial or operational control; or

(b) Equity share: the organization accounts for its portion of GHG emissions and/or removals from respective facilities.

It is imperative from the above guidance that if the reporting company wholly own operation, its organizational boundary will be the same, whichever approach is used. The unit of JKCW covered under this study is operationally directly controlled by JK Cement Limited and hence the **Operational Control** approach for setting the organizational boundaries has been selected.

Determination of Operational Boundary

The establishment of operational boundaries includes identifying GHG emissions and removals associated with the organization's operation, categorizing GHG emissions and removals into direct emissions, energy indirect emissions and other indirect emissions. It includes choosing which of the other indirect emissions will be quantified and reported." In line with the above guidance, the operational boundary for JKCW has been determined. The boundary encompasses the process operation at the following location:

Integrated Cement Unit at Kailash Nagar, PO-Nimbahera, Chittorgarh District, Rajasthan

This includes the cement manufacturing operations in the above mentioned sites. The following operations/activities are included in the operational boundary of JKCW:

- > Calcination of raw materials consumed for clinker production
- Kiln Fuel Consumption
- Non-Kiln Fuel Consumption
- Alternative Fuel Consumption
- > Fossil fuel consumption in onsite vehicles and equipments
- Purchased Electricity
- > Electricity Generated by own thermal power plant

The standard ISO 14064-1:2006

- mandates quantification of Direct GHG emissions in the boundary
- recommends quantification of Direct GHG removals in the operational boundary
- mandates quantification of energy indirect GHG emissions from the generation of imported electricity, heat or steam consumed
- provides for the choice to (or not to) quantify other indirect GHG emissions.

Accordingly, JKCW has chosen to quantify and report **direct GHG emissions (scope 1) and energy indirect GHG emissions (scope 2)** from all sources within the chosen operational boundary.

Direct emissions accounts for all operations related emissions due to Raw Material consumption for clinker production, Kiln and Non Kiln Fuel Consumption, Alternative Fuel Consumption, Fossil Fuel consumption in onsite vehicles and equipments, the Kiln related emissions for the unit location.

Energy Indirect emissions accounts for emissions due to electricity purchased from the grid.

JKCW has decided not to report Scope 3 (**Other Indirect**) emissions due to non-availability of data.

Quantification of GHG emissions and removals

Quantification of GHG emissions have been carried out as per the steps outlined in ISO14064-1:2006 and WBCSI Cement Sustainability Initiative (Cement CO2 and Energy Protocol, Version 3.1, CO2 Emissions Energy Inventory). GHG removals in the operational boundary have not been quantified due to absence of verifiable data. The steps of calculation are as presented in the list below:



Identification of GHG Sources and sinks

An activity wise or process wise approach was considered for evaluating the GHG emissions. The following sources were identified and accordingly data collection templates were prepared and circulated.

Table 4 : Direct and Indirect Emission Sources	for	JKCW
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	GHG	Unit				
	Scope 1 (Direct Emissions)					
	Raw Material Consumption for clinker production	CO2	tCO2e			
Kiln operations	Organic Carbon Content of Raw Material	CO2	tCO2e			
	Consumption of Fossil based kiln fuels	CO2	tCO2e			
Non-kiln Operations	Consumption of non-kiln fossil fuels	CO2	tCO2e			
	Fossil Fuel Consumption usage in onsite vehicles and					
Mobile Emissions	equipment's	CO2	tCO2e			
On-site power						
generation	Consumption of Fossil based fuels	CO2	tCO2e			
	Scope 2 (Energy Indirect Emissions)		-			
Consumption of						
purchased electricity	Emissions associated with power generation in the					
from grid	power plants connected to the regional grid	CO2	tCO2e			
Memo Item:						

Table 5: Memo Item representing Biomass consumption

Source			Unit
Direct CO2 from Biomass			
Biomass Consumption	Combustion of Biomass (kiln fuel)	CO2	tCO2e

The only GHG sink relevant is due to afforestation within the physical boundaries. However, quantification of these being extremely difficult due to requirement of tree species specific data which is unavailable, GHG sinks have not been reported in this study. Further, JKCW would like to focus on reducing emission at source for mitigating their GHG inventory.

Selection and Collection of GHG activity data

The different emission sources, activity data required and algorithm for determination of emissions is presented below:

I. Direct Emissions:

The following sources were considered while computing the direct emissions:

- Emissions from calcination of raw materials consumed for clinker production
- Emissions from organic carbon content of raw meal
- Emissions from consumption of fossil based kiln fuel
- Emissions from consumption of fossil based non-kiln fuel
- Emissions from consumption of fossil fuel in onsite power generation

The computation for direct GHG Emissions have been done based on WBCSI Cement Sustainability Initiative (Cement CO2 and Energy Protocol, Version 3.1, CO2 Emissions and Energy Inventory) GNR database.

II. Indirect Emissions

The following sources were considered while computing the indirect emissions:

• Emissions from external power generation

The computation for indirect GHG Emissions have been done based on GHG Protocol (Scope 2 Guidanc on how corporations measure emissions from purchased or acquired electricity, steam, heat, and cooling)

Selection or development of GHG emission factors

JKCW has selected GHG emission factors as per recognized sources such as 2006 IPCC Guidelines for National Greenhouse Gas Inventories, IPCC Fourth Assessment Report, CSI default and CEA. The following emission factors have been used in the calculations:

Туре	Category		IPCC default kg CO2/GJ	CSI default kg CO2/GJ	CSI default % biomass
Fossil	fuels				
1		coal + anthracite + waste coal	96		
2		petrol coke		92.8	
3		(ultra) heavy fuel	77.4		
4		diesel oil	74.1		
5		natural gas (dry)	56.1		
6		oil shale	107		
6, a		lignite	101		
7		gasoline	69.3		
Altern	ative fossil	fuels			
8		waste oil		74	
9		tyres		85	27.00%
10		plastics		75	
11		solvents		74	
12		impregnated saw dust		75	
12,a		mixed industrial waste		83	
13		other fossil based wastes		80	
Bioma	ss fuels				
14		dried sewage sludge		110	
15		wood, non-impregnated saw dust		110	
16		paper, carton		110	
17		animal meal		89	
18		animal bone meal		89	
19		animal fat		89	
20		agricultural, organic, diaper waste, charcoal		110	
21		other biomass		110	

The values have been sourced from IPCC Guidelines for National Greenhouse Gas Inventories, Prepared by the National Greenhouse Gas Invento ies Programme, and WBCSI Cement Sustainability Initiative Cement CO2 and Energy Protocol, Version 3.1, CO2 Emissions and Energy Inventory

Table 7: Grid Emission Factor

Parameter	Unit	Value
Grid Emission Factor	tCO2/MWh	0.82
Grid Emission Factor	tCO2/MWh	0.82

This may be noted that the CEA Data base version 10 has been used to compute the GHG emissions from external power generation.

Calculation of GHG emissions and removals

Using the activity data collected as explained above and the emission factors selected in previous section, emissions due to different processes / activities are calculated. The next chapter provides the result of the calculations for FY 2020-21 for JKCW.

GHG Emissions & Performance Indicators

This section provides the specific activity wise details on data and information that has been collated, verified and used as per the computation methodology described in the previous sections of this report, to estimate the greenhouse gas emissions due to the operations of JKCW. This chapter includes the following:

I. Total GHG emission (Direct & Energy Indirect) for Nimbahera

- II. CO₂ Specific Performance Indicators
- III. Other Performance Indicators

Total GHG Emissions (Direct & Indirect for Nimbahera)

Table 8: Source wise Direct GHG Emissions for JKCW (Nimbahera Unit) (all units in tCO2e)

				Total
Location	Latitude	Longitude	Source	Emissions
JK Cement Works,	24º38"18.46 to	74º41"5.93 to	Calcination of Raw Materials consumed for Clinker Production	812438
Nimbanera	24º38,41.50 N	74º41:1.84 E	Consumption of Fossil based Kiln Fuels	338304
Total Direct Emission	s (Scope 1)			1150742

*Total figures rounded-up to the nearest integer

Table 9: Source wise Energy Indirect GHG Emissions for JKCW (Nimbahera Unit) (all units in tCO2e)

Location	Latitude	Longitude	Source	Total Emissions
	24º38"18.46	74º41"5.93		
JK Cement Works,	to	to		
Nimbahera	24º38,41.50	74º41:1.84		
	Ν	Е	External Power Generation	31738

Energy Indirect Emissions (Scope 2)

*Total figures rounded-up to the nearest integer

CO2 specific Performance Indicators

Following performance indicators have been shown for Nimbahera:

- Specific Gross CO₂ per tonne of cementitious product
- Specific Gross CO₂ per tonne of calcination component
- Specific Gross CO₂ per tonne of fuel component
- Specific Net CO₂ per tonne of cementitious product

Table 10: CO₂ specific performance indicators (all units in tCO₂e)

	Specific Gross CO2 per tonne of	Specific Gross CO2 per tonne of calcination
Location	cementitious product	component
	Kg CO2/t cem. prod	Kg CO2/t cem. prod
Nimbahera	587	402

Other performance parameters

Apart from the CO₂ specific parameters, other general performance indicators have been identified for Nimbahera Unit:

- Specific heat consumption of clinker production
- Biomass fuel rate
- Specific total power consumption
- Specific power consumption of clinker production
- Specific power consumption of cement production

Performance indicators and relevant values for Nimbahera Unit have been provided below:

Table 11: Other Performance Indicators -Nimbahera (all units in tCO2e)

Performance Indicator	Unit	Value
Specific heat consumption of clinker production	MJ/t clinker	2577
Specific total power consumption	kWh/t cem. Prod.	106.7
Specific power consumption of clinker production	kWh/t clinker	74.1
Specific power consumption of cement production	kWh/t cem. Prod.	105.9
Total alternative fuel rate at plant level	AFR %	5.2
Total conventional fossil fuel rate at plant level	Coal %	94.6

Table 12: Key performance Indicator –Nimbahera (all units in tCO₂e)

Performance Indicator	Unit	Value
Specific Net CO2 per tonne of cementitious		
product	Kg CO2/t cem. Prod.	575
Energy Efficiency Measures

Cement is a highly energy intensive industry. The energy cost accounts to almost 50% of the total operational cost, hence reduction in the energy cost is JKCW prime target. BEE in this PAT cycle has given targets and 24 energy intensive sectors to reduce their specific energy consumption. JKCW Nimbahera unit has been a designated consumer under PAT is in the process of reducing its specific energy consumption. Thus JKCW gives priority to fulfilling regulatory obligations arising out of the climate change policies of the government. The company also prioritizes and identifies improvement opportunities based on return on investment and effect on the organization on a mid to long term basis which reduces the input costs and increases operational efficiency.

Energy Efficiency Measures Taken by JKCW during 2020-21

As a part of the improvement opportunities, JKCW has identified and implemented the following improvement measures:

With emission reduction and energy efficiency improvement measures in place, it is anticipated that JK Cement Works would take realistic and achievable GHG reduction targets which not only reduces the GHG emissions from present level but also increases the resource efficiency.

S. No.	Project Type	Description	Electricity Saved (kWh)
1	Process Optimisation	One dryer removed from circuit which is running idle	14400
		Power saving from blaster operation timing optimization	26400
		Kiln-3 DBC Tunnel ventilation fan running optimization	77400
		Reduce idle running of Coal mill -3 & 4 auxiliary by group start of equipments	104000
		Kiln-3 Cooler Fan Silencer Removing from 3 nos fans	356200
		water pump running optimization stopping of L-1 & 2 water flow	98000
		Saving through Dust transport system 1 & 2 start stop time optimization.	54000
		Optimization of ESP 3rd field current power saving will achieved	91200
		Reciprocating compressor for CM-1 and CM-2 stopped and air supplied from comman compressor	23600

Table 13: Energy Efficiency Measures taken at Nimbahera unit

	-		
		Raw Mills Auxiliary tripping changing from 15 min to 5 min	28000
		Reducing idle running of cement mill auxiliary drives	32000
		Cement mill section running planned in night shift to consume low cost power, saving	137200
		Cooler dust conveyor & tube dust extractor time optimization.	8000
		Through Separator sealing work completed in RM-4(Oct'20).	458000
2	Kizen	Compressor power saving through reduction in pressure for dust filters,cf silo and preheater air	291200
		Power utilization in night shift, Incremental Consumption benefit & power factor incentive (Dec'20).	205800
		Power utilization in night shift, Incremental Consumption benefit & power factor incentive (Dec'20).	86000
		C.F. silo top bag filter 15% RPM reduction by pulley replacement.	28000
		LS crusher implementing single start logic	86000
		Reclaimer-1 & 2 rbc sequence interlocking with pile-1 & 2 indication with surge hopper level.	10000
		Reclaimer-1 & 2 rbc sequence interlocking with pile-1 & 2 indication with RM-4 hopper level.	14200
		L02 RBC (Below main crusher) old motor replaced by new energy efficient motor.	18400
		P3P10 dust Filter fan Power Reducing By fan impeller pulley replacement	29600
		Kiln-3 Dust transport equipment idle time reductions	34000
		Kiln-3 WHR screw conveyor idle running optimization P87 & P88	52400
		Power Saving due to Crusher TPH Increased, (Looping done with belt load and Apron speed)	55000
		Maliyakhera Crusher , Transportation Group Interlock with timer & Made bag filters Dp mode	495000
		power utilization in night shift, IEX power purchase, Incremental Consumption benefit.	1318800
		Packing Plant S/C P3J06 Motor replacement (3.2 KW to 2.2 KW)	6200
		ON/OFF time optimization of cooler ESP conveyor W3P16 & W3P17.	20800

	Total		6617200
		Cooler fan 09 & 10 replacement.	276000
4	Downsizing the equipments	Packing Plant S/C P3J02 Motor replacement (110 KW to 55 KW)	147600
		VFD installation in compressor P3X04 of packing plant	160000
		Centrifugal water pump 40 hp replaced by 25 hp at hrp	75000
3	Others	VFD installation in 20 HP water pump at compressor house no.4	74000
		Power utilization in night shift, Incremental Consumption benefit & power factor incentive (Oct'20).	686800
		Crusher RBC A3L09 Motor replacement (55 KW to 37 KW)	31600
		Crusher Dust filter Motor replacement (132 KW to 90 KW)	21600
		Power utilization in night shift, Incremental Consumption benefit & & power factor incentive (Aug'20).	515000
		Packing Plant S/C P1J01 Motor replacement (110 KW to 55 KW)	195200
		HRP Bag filter FN188 and FN183 VFD installation done	86400
		Maliakhera Crusher bag filter damper removing saving.	63400
		Kiln-2 Dust transport equipment idle time reductions	24800