JK Cement Works, Muddapur
(Unit : J.K. Cement Ltd)
CIN : L17229UP1994PLC017199
Works : P.O. Muddapur - 587 122 Distt. Bagalkot (Karnataka) India
+91-8350-289607 factory.muddapur@jkcement.com
www.jkcement.com

No. - JKCW/ENV./CFO (Plant)/60/15 **Date: 09-09-2021**

To
The Member Secretary
Karnataka State Pollution Control Board,
"Parisar Bhavan" 4th & 5th Floor,
49, Church Street, Bangalore- 560 001

Subject- Environmental Statement Report for the financial year April-2020 to March-2021

Ref: 1- Notification no. G.S.R. 329(E), dated 13.03.92. and G.S.R. 386(E), dated 22.4.93
2- Combined Consent Order No. AWH-301684 dated 19-12-2016

Dear Sir

With reference to the above, please find herewith enclosed Environmental Statement Report (Form-V) of J.K. Cement Works, Village- Muddapur, Dist. - Bagalkot (Karnataka) for the financial year **2020-2021**.

Thanking you,

Yours faithfully,
J.K. Cement Works, Muddapur (Karnataka)

Umashankar Choudhary
(Unit Head)

Encl:

1- Environmental Statement in duly filled Form-V
2- Treated waste water of Captive Power Plant analysis report as per annexure-1
3- Treated STP waste water analysis report as per annexure-2
4- Ambient air quality monitoring report as per annexure-3
5- Stack emission monitoring report as per annexure-4
6- Fugitive emission monitoring report as per annexure-5
7- Noise monitoring report as per annexure-6

CC:

1- The Addl. Principle Chief Conservator of Forest (C), Ministry of Environment & Forests, Regional Office (South Zone), Bangalore- 560034
2- Scientist 'E' & In-charge, Central Pollution Control Board, 1st & 2nd Floors, Nisarga Bhavan, A-Block, Thimmaiah Main Road, 7th D Cross, Shivanagar, Bengaluru –560 079
3- Environment Officer, Karnataka State Pollution Control Board, Bagalkot- 587 102

FORM – V

ENVIRONMENTAL STATEMENT REPORT FOR THE FINANCIAL YEAR 2020-21

PART – A

(I)	Name & Address of the Owner / Occupier of the Industry Operation or Process	Mr. Umashankar Choudhary (Unit Head) J.K. Cement Works (Unit: J. K. Cement Limited) Village- Muddapur, Taluka- Mudhol, District- Bagalkot (Karnataka)- 587122
(II)	Industry Category Primary (STC CODE) Secondary (SIC CODE)	Large Scale Red Category
(III)	Production Capacity	2.2 Clinker, 2.5 MTPA (Blended Cement), 1.0 MTPA Slag cement, 2X25 MW CPP
(IV)	Year of Establishment	Year 2009
(V)	Date of last Environmental Statement Submitted	08-09-2020

PART – B

Water & Raw Material Consumption and Cement Production

A. Water

(i) Over All Consumption - N.A. (As plant is based on dry Process Technology)
(ii) Process - Nil
(iii)Cooling and power plant - 117529.8 KL cement plant and 93090 KL CPP
(iv) Domestic - 31506 KL

Consumption per unit of production

Name of the Product	Process Water Consumption per unit of Product Output	
	During the Previous Financial Year (2019-20)	During the Current Financial Year (2020-21)
Cement (OPC, PPC, Slag) and Tile fixer adhesive	0.0381 m3/mt. of cement	0.0581 m3/mt. of cement

B. Raw Material Consumption in Cement production

Name of the **Raw Material**	**Name of Product**	**Consumption of Raw Material per Unit Product Output (MT/MT of Cement)**	
		During the Previous Financial Year (2019-20)	During the Current Financial Year (2020-21)
Lime Stone	Cement (OPC, Blended cement, PSC)	1.153	1.110
Iron-ore		0.022	0.020
Coal/Pet coke (Cement Plant)		0.056	0.052
Gypsum		0.025	0.048
Fly ash		0.326	0.294
Slag (for PSC)		0.669	0.659

Slag (for OPC)		0.050	0.048
Slag (for blended cement)		0.0	0.0
		Consumption of Raw Material per Unit Product Output (MT/KWH of Power)	
Coal/Petcoke (CPP)	Power	0.001091	0.000946

C. Total Cement & Clinker production (MT):

During the Previous Financial Year (2019-20)		During the Current Financial Year (2020-21)	
Clinker	1607736	Clinker	1775855
OPC	865724	OPC	864385
Blended cement	829399	Blended cement	1021990
PSC	175940	PSC	134645

D. Total Tile fixer production (MT):

During the Current Financial Year (2019-20)	During the Current Financial Year (2020-21)
0.0	0.0

E. Raw Material Consumption in Tile fixer production

Name of the Raw Material	Name of Product	Consumption of Raw Material per Unit Product Output (MT/MT of Cement)	
		During the Previous Financial Year (2019-20)	During the Current Financial Year (2020-21)
Cement Consumption	Tile fixer adhesive	0.0	0.0
Ground stone powder		0.0	0.0
Polymer and product performance enhance		0.0	0.0

F. Total Power production from Captive Power Plant (KWH):

During the Previous Financial Year (2019-20)	During the Current Financial Year (2020-21)
111502740	126598350

G. Total Power consumption in Cement plant (KWH/Ton of Cement):

During the Previous Financial Year (2019-20)	During the Current Financial Year (2020-21)
65.7	65.57

H. Total Power consumption in Tile fixer adhesive production (KWH/Ton of Tile fixer adhesive):

During the Previous Financial Year (2019-20)	During the Current Financial Year (2020-21)
0.0	0.0

I. Total Power consumption in Captive Power Plant (KWH/ KWH of power production):

During the Previous Financial Year (2019-20)	During the Current Financial Year (2020-21)
0.0792	

PART - C

Pollutant Discharged to Environment / Unit of Output

(Parameters as specified in the consent issued)

S. No.	Pollutants	Quantity of Pollutants Discharged (Mass / day) (tonne/day)	Concentrations of Pollutants in discharged (Mass / Volume) (kg/m^3)	Percentage of variation from prescribed standard with reasons
(a)	Water	As the plant is being operated on dry process technology, no liquid effluent is generated from the cement plant process. Waste water generated from Captive power plant is treated in neutralization pit and after neutralization, it is used for dust suppression, gardening and cooling purpose. Report of treated water is attached as **Annexure-1** Domestic waste water generated from residential colony is treated in STP and treated water is used in existing cement plant for cooling purpose and gardening. Report of treated waste water of STP is attached as **Annexure-2**		
(b)	Air	Please refer **Annexure- 3** (Ambient air quality monitoring), **Annexure- 4** (Stack emission monitoring), **Annexure- 5** (Fugitive emission monitoring) and **Annexure- 6** (Noise monitoring)		

PART – D

(As specified under Hazardous waste / Management and Handling rules, 1989 as Amended -2016)

Hazardous Waste		Total Quantity (KL)	
		During the Previous Financial Year (2019-20)	During the Current Financial Year (2020-21)
(a) From Process	(a) Category 5.1- Used Oil	Generated Quantity in 2019-20 = 03.032 KL including balance qty. of 2018-19 i.e. 0.0 KL. Out of 03.032 KL, Qty. 02.122 KL Used oil used in own cement plant and stored at end of financial year 2019-20, 0.91 KL was in stock.	Generated Quantity in 2020-21 = 02.217 KL including balance qty. of 2019-20 i.e. 0.91 KL. And this total qty. 02.217 KL used oil used in own cement plant and storage at end of financial year 2020-21 was NIL.
	(b) Category 5.2- Oil soaked cotton waste	Oil Soaked Cotton Waste generation was Nil.	Oil Soaked Cotton Waste generation was 10.08 Kg and it was disposed in own cement kiln. No stock was available at end of financial year 2020-21
	(b) Category 5.2- Oil Filter	Oil filters generation- NIL	Oil filters generation- NIL
(b) From Pollution Control Facilities	Nil	Nil	Nil

Co-Processing of Hazardous Waste in FY 2020-21-

Sl. No.	Name of Hazardous waste	HW. Cat.	Qty. Receipt in 2020-21 (in MT)	Qty. Consumed (in 2020-21) (in MT)	Quantity in stock at the beginning of the year (in 2020-21) (in MT)	Quantity in storage at the end of the year in 2020-21 (in MT)
1	Sludge containing residual pesticide	29.2	17.670	-	-	17.670
2	Sludge from treatment of wastewater arising out of cleaning/disposal of barrels/containers	34.2	1.600	-	-	1.600
3	Exhaust air or gas cleaning residue	35.1	15.974	-	14.695	30.669
4	Chemical sludge from waste water treatment	35.3	1,172.513	1,125.000	20.249	67.762
5	Tarry residues	1.2	-	-	-	-
6	Process waste sludge/residues containing acid, toxic metals, organic compounds	26.1	-	-	-	-
7	Dust from air filtration system	26.2	0.600	-	-	0.600
8	Process residues	22.2	-	-	-	-
9	Spent carbon	28.3	1,402.265	1,373.000	12.851	42.116
10	Process wastes, residues and sludges	21.1	51.000	70.000	27.092	8.092
11	Process residue and wastes	28.1	6,677.541	6,414.000	52.054	315.595
12	Off specification products	28.4	674.698	703.000	41.079	12.777
13	Date expired products	28.5	598.501	625.000	39.445	12.946
14	Process wastes or residue	29.1	5,424.570	5,434.000	17.600	8.170
15	Empty Barrels/liners contaminated with hazardous chemicals/wastes	33.1	324.035	345.000	43.480	22.515
16	Chemical containing residue arising from de-contamination	34.1	6.090	13.000	7.120	0.210
17	Oily Sludge emulsion	4.1	-	-	0.395	0.395
18	Wastes or residues containing oil	5.2	171.283	166.000	4.280	9.563
19	Plating metal sludge	12.8	-	-	-	-

20	Any process/ distillation residue	36.1	1,467.285	1,454.000	16.370	29.655
21	Spent carbon or filter medium	36.2	66.960	-	1.540	68.500
22	Sludge from wet scrubbers	37.1	-	-	-	-
23	Concentration or evaporation residue	37.3	20.720	-	-	20.720
24	Carbon residue	18.2	-	-	-	-
25	Decanter tank Tar sludge	13.4	-	-	-	-
26	Phosphate sludge	12.5	-	-	-	-
27	Wastes or residues/ FRP waste (Not made with vegetable or animal materials).	23.1	6.180	9.000	3.025	0.205
28	Benzol acid sludge	13.3	-	-	-	-
29	Cathode residues including pot lining wastes	11.2	-	-	-	-
30	Sludge from acid recovery unit	13.2	-	-	-	-
31	Process residues	7.2	-	-	-	-
32	Spent clay containing oil	4.5	135.140	145.000	18.720	8.860
33	Distillation residues	20.3	2,886.045	2,886.000	-	0.045
34	Organic residues from process	4.4	-	-	-	-
35	Spent catalyst	4.2	418.430	616.000	197.680	0.110
36	Used/ Spent Oil, Waste grease/ oil (In house generated)	5.1	-	-	-	-
37	Spent Solvent	21.2	-	-	-	-
38	Process Residue	22.2	-	-	-	-
39	Spent catalyst	28.2	17.420	-	-	17.420
40	Organic Spent Solvents	28.6	555.275	560.000	15.800	11.075
41	Ash from incinerator and flue gas cleaning residue	37.2	-	-	-	-
42	Oily Sludge Emulsion	1.3	0	0	0	0
43	Organic Residues	1.4	0	0	0	0
44	Spent Catalyst And Molecular Sieves	1.6	0	0	0	0
45	Sludge Containing Oil	2.2	0	0	0	0
46	Drilling Mud Containing Oil	2.3	0	0	0	0
47	Cargo Residue, Washing Water And Sludge Containing Oil	3.2	0	0	0	0

48	Sludge And Filters Contaminated With Oil	3.3	0	0	0	0
49	Waste Cutting Oils	5.3	0	0	0	0
50	Discarded Asbestos	15.2	0	0	0	0
51	Spent Catalyst	18.1	0	0	0	0
52	Contaminated Aromatic, Aliphatic Or Napthenic Solvents May Or May Not Be Fit For Use	20.1	0	0	0	0
53	Spent Solvents	20.2	0	0	0	0
54	Process Sludge	20.4	0	0	0	0
55	Corrosive Wastes Arising From Use Of Strong Acid And Bases	33.2	0	0	0	0
56	Spent Ion Exchange Resin Containing Toxic Metals	35.2	0	0	0	0
57	Waste Gypsum Arising From Chemical Industry	B2080	0	0	0	0
58	Textile Wastes	B3030	0	0	0	0
59	Rubber Wastes	B3040	0	0	0	0
60	Waste Mix Solid (Gepil/Green Gene)	NA	119.410	45.305	0.890	74.995
61	Waste Mix Solid (Hydrabad Waste Mangament)	NA	237.695	237.695	-	-
62	Waste Mix Solid (Geo Cleaner Llp)	NA	28.190	-	-	28.190
63	WASTE MIX SOILD (M/S Bharuch Enviro Infrastructure Ltd., Bharuch)	NA	-	-	-	-
64	WASTE MIX SOLID (M/S Maharashtra Environ Power Limited, Pune)	NA	-	-	-	-
65	Waste Mix Liquid (Hydrabad Waste Mangament)	NA	224.370	224.370	-	-
66	Waste Mix Liquid (Rspl)	NA	5,829.530	5,828.670	0.125	0.985
67	Waste Mix Liquid (Geo Cleaner)	NA	114.430	114.430		-
68	Waste Mix Liquid (Gepil/Green Gene)	NA	617.530	617.530	-	-
69	WASTE MIX LIQUID (M/S Bharuch Enviro Infrastructure Ltd., Bharuch)	NA	-	-	-	-
70	WASTE MIX LIQUID (M/S Maharashtra Environ Power Limited, Pune)	NA	-	-	-	-

Co-Processing of Non-Hazardous Waste in 2020-21-

Sl No.	Non-Hazardous waste	Quantity (in MT) in stock at the beginning of the year 2020-21	Quantity (in MT) of waste received during the year 2020-21	Quantity (in MT) co-processed or used during the year 2020-21	Quantity (in MT) in storage at the end of the year 2020-21
1	Coal Dust	0.91	1223.80	1175.69	49.02

2	Char Dust	49.14	0.00	0.00	49.14
3	Dolochar AFR	294.88	11117.70	11294.25	118.32
4	Carbon Black Crumb Powder	0.00	0.00	0.00	0.00
5	Non Hazardous Liquid Waste	0.38	1039.04	1039.00	0.42
6	Low CV PPF Oil	0.88	327.67	328.00	0.55
7	BBD LIQUID	0.00	506.64	506.00	0.63
7	Boiler Ash(Non Hazardous Waste)	14.60	14.14	14.00	14.74
8	BBD-COCA COLA AFR	717.72	971.47	1263.00	426.19
10	In-house Collection	302.65	1230.45	1094.00	439.10
11	Non Hazardous MSW	2254.39	22810.26	23232.00	1832.65
12	Non Hazardous Solid Mix Waste	73.66	477.21	537.00	13.87
13	Non Hazardous Solid Waste	76.74	779.75	838.00	18.48
14	Other Plastic Waste	1718.97	12803.19	12960.00	1562.16
15	RDF	2144.83	4287.34	5896.00	536.17
16	Reject POP Material	50.80	0.00	0.00	50.80
17	Shreds Tyre Chips Size 100	0.00	0.00	0.00	0.00
18	Rice Husk	0.00	10666.50	10657.62	8.88
19	Ground Nut Husk	15.12	0.00	0.00	15.12

Quantity of e-waste under E-Waste (Management) Rules, 2016- We have disposed following quantity of e-waste to authorized recycler in 2020-21:

S. No.	E Waste Name	E waste quantity in stock at the beginning of the year 2020-21	E waste quantity generated during the year 2020-21	E waste quantity sold out to recycler during the year 2020-21	E waste quantity in storage at the end of the year 2020-21
1	E-SCRAP	3240 kg	384 kg	3240 kg	384 kg

Batteries (Management and Handling) Rules, 2001 – We have purchased 47nos. battery and disposed 118 Nos. used batteries to authorized dismantler in FY. 2020-21.

PART – E
Solid Wastes

Solid Waste	Total Quantity	
	During the Previous Financial Year (2019-20)	During the Current Financial Year (2020-21)

I (a)	From Process (Fly ash from Captive Thermal Power plant)	➢ NIL from Cement Plant ➢ Ash generated at our CPP (in MT)- 23948.0 Out of 23948.0 MT, 21798 MT was used in own cement plant for Cement manufacturing and remaining 2150 MT was used for In-house civil flooring work.	➢ NIL from Cement Plant ➢ Ash generated at our CPP (in MT)- 32022 MT Out of 32022 MT, 28477 MT was used in own cement plant for Cement manufacturing and remaining 3545 MT was used for In-house civil flooring work.
1 (b)	Fly ash from other Thermal Power plant/KPCL	Ash procured from NTPC, RTPS /BTPS or M/s JSW source (in MT)-137206.0	Ash procured from NTPC, RTPS /BTPS or M/s JSW source (in MT)-153797.0
2	From Pollution Control facilities	Dust collected in ESP, Bag House and Bag Filters are recycled back into the process.	Dust collected in ESP, Bag House and Bag Filters are recycled back into the process.
3	(i) Qty. recycled or reused within the unit. (ii) Sold (iii) Disposed	Fly ash generated in Captive power plant sent to own cement plant for cement manufacturing and dust collected in APCD were re-used 100% in cement manufacturing. Nil Nil	Fly ash generated in Captive power plant sent to own cement plant for cement manufacturing and dust collected in APCD were re-used 100% in cement manufacturing. Nil Nil

PART – F

PLEASE SPECIFY THE CHARACTERISATIONS (IN TERMS OF COMPOSITION AND QUANTUM) OF HAZARDOUS AS WELL AS SOLID WASTES AND INDICATE DISPOSAL PRACTICE ADOPTED FOR BOTH THE CATEGORIES OF WASTES.

Hazardous waste: Only used oil/waste oil, oil soaked cotton waste and oil filters are generated from plan as hazardous wastes. Hazardous waste i.e. used oil is drained from Machineries / Equipments of the different sections of plant. It is collected in empty drums and barrels and stored at hazardous waste storage site. We have obtained permission from KSPCB for Co-processing above said hazardous wastes. Besides these, we are coprocessing other hazardous and non-hazardous waste after obtaining the permission from KSPCB.

Solid waste: Dust collected in pollution control equipment is recycled back in cement manufacturing process and fly ash generated in Captive Thermal Power Plant is used in

cement manufacturing in own cement plant. Besides it, Sewage Treatment Plant's Sludge is used as manure in gardening. Hence, there is no solid waste generated during the process of cement manufacturing and others.

PART – G

IMPACT OF THE POLLUTION ABATEMENT MEASURES TAKEN ON CONSERVATION OF NATURAL RESOURCES AND ON THE COST OF PRODUCTION.

Following measures have been adopted for abatement of pollution, conservation of natural resources:-

Conservation of limestone-

Limestone is being used for the manufacturing of cement by the proper blending of different grade of limestone for preparation of proper raw mix design which can be produced a good quality of cement. The raw mix design has been prepared in such a way that it reduces the limestone stone saturation factor by which substantial quality of limestone has been conserved. In the same manner as per the Regulation of Bureau of Indian Standard we are also using the fly ash in grinding of cement manufacturing up to 30% of the total cement manufactured which ultimately reduces the raising of limestone from mines. By reduction of consumption of limestone in cement manufacturing process it also leads to the reduce the consumption of fossil fuel and it ultimately reduce the quantity of generation of different pollutant like suspended particulate matter, emission of SO_2 and NO_x, fugitive emission from various stages of handling of limestone (Drilling to Grinding stages). Substantial quantity of electrical and thermal energy has been also saved.

Utilization of fly ash for the manufacturing of cement-

We have a Captive Power Plant having capacity of 25 MW X 2. The fly ash generated from it, is stored in hopper and from there, it is conveyed to cement plant through completely covered truck. In cement plant, it is being stored in closed silos. From Truck to Silo, Fly ash is conveyed through pneumatic system and from silo, it is directly fed in cement mill for the cement grinding process.

Use of STP treated water for the gardening purpose-

We have latest and advance technology based Sewage Treatment Plant. A sewage treatment plant has been envisaged on the basis of flow rate- 75 KL per day. The total quantity of treated water is being used in gardening and dust suppression.

Extensive plantation in and around the plant-

We have a horticulture officer for the forestation and greenery development program at our plant and mines under the supervision of senior experienced person.

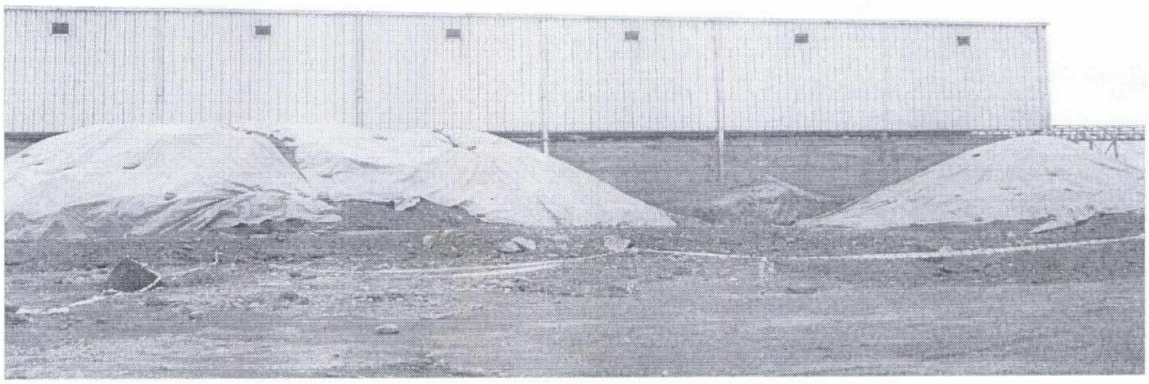
Financial Year	No. of Plantation in Cement plant and Colony area
2007-2008	500
2008-2009	2242
2009-10	2317
2010-11	5040
2011-12	5483
2012-13	26687

2013-14	41808
2014-15	10104
2015-16	11739
2016-17	1394
2017-18	9456
2018-19	6359
2019-20	15275
2020-21	9654

Total area covered from plantation up to 31 March 2021 = 111.3 Acres which is 43.85% of total land area (258.37 Acre).

Covering of raw materials-

i- All the raw material is being stored in the covered yards if in case any raw material stored in ground that time it is covered by tarpaulin. For example, please see picture. 1.



Picture 1- Raw material stored in covered manner

ii- The conveyor belts are fully covered. For example, please see picture. 2.

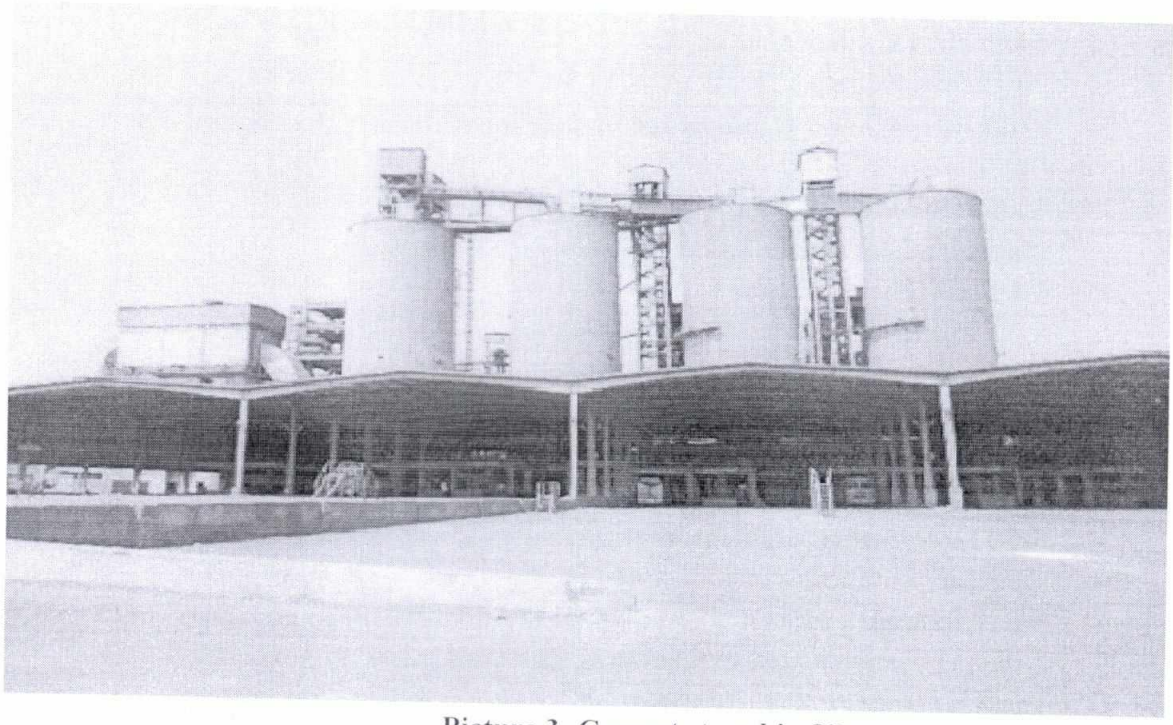
Picture 2- Covered raw material belt conveyor

iii- Clinker and cement is being stored in the covered silos. For example, please see picture. 3.

iv- CPPs treated water is being utilized for the regular road water spraying.

Concreting of Kachcha roads/floor-

Maximum roads of plant and colony are being concreted / paved as well as flowers and plantation is being done side by the roads for the beautification. Development of plantation and greenery along the road and unused areas. Cemented flooring work is being done in kiln and raw mill section.



Picture 3- Cement stored in Silos

Scheduled maintenance and monitoring of Pollution Control Devices-

All the Pollution Control Devices have been maintained as per scheduled maintenance by dedicated environmental management team which is comprises of mechanical, electrical and environmental officers and monitoring of all these have been done regularly as per PCB Norms.

The list of major Pollution Control Devices installed is as under:-

Sr. No.	Pollution Control Devices attached with	Pollution Control Devices installed
1	Limestone Crusher	Bag Filter
2	Raw Mill/Kiln	Bag House
3	Coal Mill	Bag Filter
4	Raw Material Transport System	Bag Filter
5	Cooler	Electro Static Precipitator
6	Clinker transport	Bag Filter
7	Clinker Storage	Bag Filter
8	Cement Mill, 2 Nos.	Bag Filter
9	Cement Mill Separator venting, 2 Nos.	Bag Filter
10	Packing Plant, 4 Nos.	Bag Filter

11	Coal crusher	Bag Filter
12	CPP	Electro Static Precipitator
13	Stack attached to slag grinding unit	Bag Filter

Modifications for the year 2020-21 for energy conservation and better environment-

Sr. No.	Energy efficiency improvement measures (EEIM)	Energy Saving (Kwh)
1	PH-2 fan, modification of motor cooling system done, such that "In-direct cooling" to "Direct cooling". And Kept P&V water pump idle for safety point of you.	6810
2	PP-I Motor De-rated 22 KW to 18.5 KW	12726
3	Reduction of Power Consumption by stopping RMH Bag filter BF 610	94975
4	Reduction of Idle run of Coal Mill reject Circuit.	48125
5	Optimization of Cooler ESP rectifiers to reduce the Power Consumption	135041
6	Raw Mill Reject elevator is running idle (no load) while extracting the reject outside. To avoid idle run, interlock is provided to stop the Reject elevator during outside reject extraction.	32872
7	Reduction of Compressor running hours of LS Crusher area	3239
8	Cement mill-3 productivity enhancement by annualr gap reduction	785630
9	False air reduction across raw mill feed inlet by installation of slide gate	89163
10	Uneven LS pile cutting and variation (peaks up to 200amps) in reclaimer chain load due to pile cutting face rack spikes missing	77533
11	There are 6 numbers of extraction gates for silo. Earlier two number of gates were operating in a sequence. The silo extraction blower operating counts per hour is 12.	4403
12	HTDB-1 room inside all Lights were continuous under ON condition (even though sufficient illumination in day time). Out of all lights (LED tube lights) 30 no's lights which are not require in day time, made through outdoor circuit (will be made On/Off though outdoor timer). For this we have installed one 230V power contactor and one Two Way Switch in LDB & done wiring.	1898
13	Cement mill MCC P&V Reduction of the pulley size than reduce motor KW 18.5 to 11KW	31331
14	Reduction the Dam ring Height by 20 mm. One segment of 60 mm is replaced by 40 mm in Dam ring.	457468
15	Low Heat transfer observed in St-1 ,Riser 2-1 of Stage 2 cyclone at Preheater 8th Floor as the height of Feed box is higher (i.e. 2.3 m) than other stages . Feed box at the top of cyclone -2 ,string -1 lowered up to 1 m.	1104
16	Low Heat transfer observed in St-2 ,Riser 2-1 of Stage 2 cyclone at Preheater 8th Floor as the height of Feed box is higher (i.e. 2.3 m) than other stages .	982

	Feed box at the top of cyclone -2 ,string -2 lowered up to 1 m.	
17	PP-4: As Fan is equipped with VFD, hence it is decided to remove the Fan inlet damper to reduce the pressure drop.	41548
18	Packer-4 , In-house Skirting installed to reduce false air to Bagfilter.	3196
19	High Pressure drop (24 mmWg) observed the Cement Mill CA Air Fan Inlet damper. To reduce the Pressure drop, increase the Open limit of damper from 90 % to 100 %.	16962
20	Raw mill high false air Ingress observed through the Seal Air pipe annulus area in Raw Mill casing. To prevent false air, provided the flexible covering which restrict the false air and maintain the movement of pipe.	69843
21	Raw mill md motor Blower speed reduction from 1000rpm to 773rpm by making use of V-belt pulley re-sizing	9626
22	High False Air Ingress observed through the Coal Mill Pull rod 1,2 & 3 area. To prevent false air, provided the flexible covering which restrict the false air and maintain the movement of pipe.	19191
23	Manual speed control was there for RABH fan speed wrt to the PH fan OL draft. RABH fan speed taken in PID mode with RABH settling chamber draft resulting into the less power conumption on RABH fan.	39068
24	Raw mill High False Air Ingress observed through the Roller Lubrication hose annulus area in Raw Mill casing. To prevent false air, provided the flexible covering which restrict the false air and maintain the movement of pipe.	31220
25	Since the loading of power transformer is on only one transformer, and one is always on idle. Idle power of one transformer can be saved by making OFF.	37440
26	Kiln Hood door flanges is covered by Ceramic blanket to restrict the false air entry.	0
27	Coal mill taken in fuzzy mode then power saving and parameter controlling good	50538
28	Optimization of Cement Mill-3 inlet draft by using Booster Fan during OPC grinding.	64579
29	CM-1, Process operation parameters given in Fuzzy logic control during OPC Product grinding. It reduces the manual intervention and consistent operation leads to reduction in Power consumption.	34037
30	CM-3, Process operation parameters given in Fuzzy logic control during OPC Product grinding. It reduces the manual intervention and consistent operation leads to reduction in Power consumption.	74686
31	CM-3, Process operation parameters given in Fuzzy logic control during PPC Product grinding. It reduces the manual intervention and consistent operation leads to reduction in Power consumption.	75647
32	CM-3, Process operation parameters given in Fuzzy logic control during PSC Product grinding. It reduces the manual intervention and consistent operation leads to reduction in Power consumption.	22760
33	Raw maill fan motor cooling blower speed reduction from	8117

	1000rpm to 773rpm by making use of V-belt pulley re-sizing.	
34	For the maintenance of OPC bulk loading telescopic chute and weighbridge, there was not any standby loading point. An additional chute with slide gate have been fixed which acts as a standby and also could perform loading parallel with the existing system.	4396
35	CM-3 Reject Elevator motor up gradation from 37 Kw to 45Kw.	34004
36	In Packer area, EFF1 motor replaced with energy efficient IE3 motor	1420
37	Elimination of Idle running of AFR belts, BC100 & BC200.	3596
38	Enhancement of OPC productivity	80051
39	Idle tripping of new slag feeding belt	1800
40	Slag mill Bag house fan P&V blower 11kw motor replaced instead of 15kw motor and reduce the fan RPM by reducing the pulley.	1303
41	Before, Packer3 621BL231 was set to run continuously while packer is running, which caused blower overheating. Blower interlocking was set to stop for 5mins after every 15mins of running.	22472
42	ENCON by shutting off transformer	1978
43	ENCON for room type P&V system	626
44	MCC P&V blower ENCON	912
45	CCR building Lighting illumination level	657
46	Periodical air Leakages arrested across various compressed airlines, which was leading to additional loading hours of compressor.	8800
47	Reduction in Lube oil temp. (40 Deg C to 35 Deg C) during barring gear operation & reduced heaters running hrs.	200
48	ACC Fins cleaning by high pressure jet water system	66000
49	ACC Fans - Reduction of low speed set point. (42 % to 36 %) (VFD optimization)	15000
50	Existing combined APH + ECO ash conveying system split-up modification & high LOI ash recirculation into furnace	706
51	Installed Change over switch between Unit 02 PA Fan VFD & ACC Fan no. 06, utilized for ACC Fan no. 06 during Unit - 02 Boiler stoppage.	50000
52	During plant shutdown, Single Transformer is to be kept under ON condition for all emergency power supply systems & Central Package AC run purpose. (Earlier two no. Transformer were used to keep under ON condition)	9000
53	Reduction in PA fan discharge header pressure (from 1050 mmWC to 1000 mmWC) (VFD Optimization)	43200
54	Common Vacuum control logic developed for ACC Fan no. 01 to 06 (All 6 Nos Fan on VFD mode)	8000
55	Switch On / Off practice of Split AC adopted (VFD room –	28800

	08 no.) during plant shutdown.	
56	The conventional V- belt had been replaced by energy efficient Cogged V –Belt for APH root blower	200
57	Bypassing the Clarifier sytem, during low turbidity water supply duration (Agitator Off practice)	500
58	In-house logic developed and implemented on stopping of running idle belt conveyors (bunker top area) during limestone crushing for cement plant (Aux power reduction)	1080
59	Unit I ACC Fans blade angle reduction during winter season	12800
60	Primary crusher single roller running (out of two) to reduce fines level percentage during 100 % Indonesian coal feeding.	21000
61	Removal of ACC Fans suction bird screen, improvement in air velocity & reduction in power consumption	21000
62	AFR material (Rice husk + Dolachar) blending with coal. AFR material are replacing the coal. Since, AFR material are having low moisture content, which is leading to reduction in Plant heat rate.	40370
63	Replacement of High capacity Monobloc pump by low capacity Centrifugal pump (CCR central package AC cooling water)during stoppage period (Aux power reduction)	6480
	Total Energy saving (In Kwh)	**2868110**

PART – H

ADDITONAL MEASURES / INVESTMENT PROPOSALS FOR ENVIRONMENTAL PROTECTION INCLUDING ABATEMENT POLLUTION, PREVENTION OF POLLUTION.

1- Green belt development and tree plantation is our ongoing process. We are continuously doing the plantation in and around the cement plant, power plant, colony and mines area. For example, please see the pictures 4 & 5.

2- We have installed 2 Nos. continuous ambient air quality monitoring systems (CAAQMS). Please see the picture of one instrument in Picture 6.

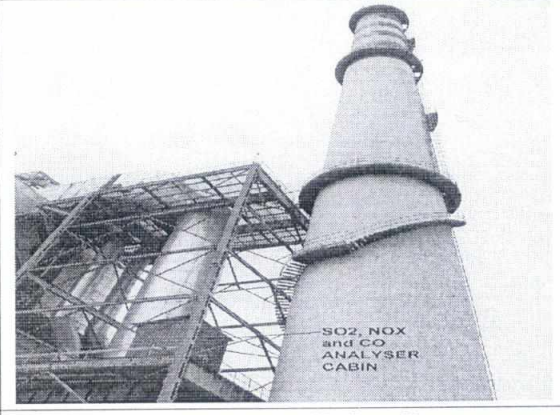
3- We have installed 6 Nos. continuous emission monitoring systems (CEMS). Please see the picture of one instrument in picture 7.

4- We have installed camera at captive power plant's waste water discharging point. Please see the picture of one instrument in picture 8.

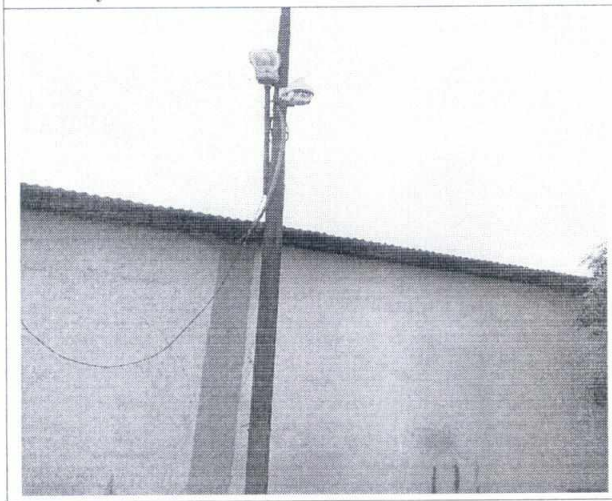
Picture 4- Plantation inside the Factory premises

Picture 5- Plantation along with the rod constructed inside the plant

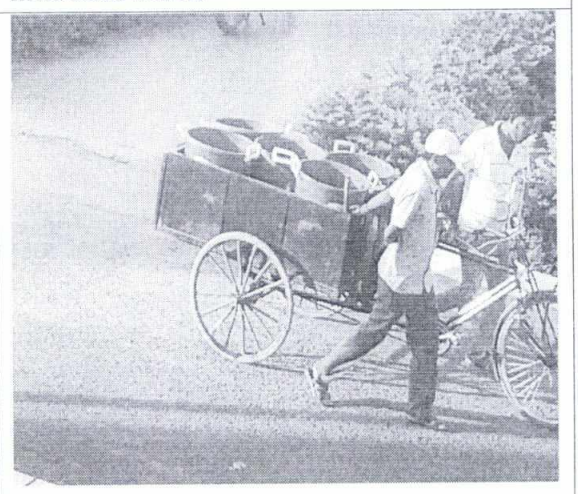
Picture 6- CAAQMS installed in Residential Colony



Picture 7- CEMS installed at Raw mill/Kiln stack



Picture 8- Camera installed at captive power plant's waste water discharging point

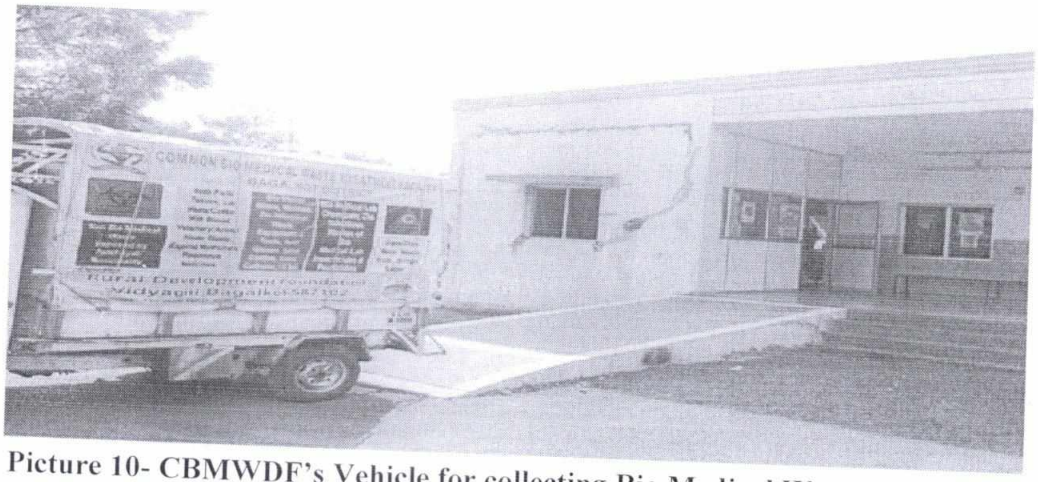


Picture 9- Waste collection system in colony

PART – I

ANY OTHER PARTICULARS FOR IMPROVING THE QUALITY OF ENVIRONMENT.

1- Domestic waste is collected and disposed properly. Please see the picture 9.
2- We have registered with Common Bio Medical Waste Disposal Facility, Bagalkot and disposing our Biomedical Waste with them. Please see the picture 10.



Picture 10- CBMWDF's Vehicle for collecting Bio Medical Waste

3- We have installed bar code system in dispensary for Bio medical waste management.
4- We have full-fledged Environment Department with three separate cells, one for monitoring and one for maintenance of pollution control equipment and one for Green Belt development.
5- Monitoring of stack emission, ambient air and water quality is being done regularly. Maintenance deptt. is regular checking and maintaining all the pollution control devices.
6- Domestic waste water is treated in STP and treated waste water is used for gardening.
7- Horticulture Department is taking care of tree plantation and green belt development.
8- Some committees have been formed by company i.e. Stoppage Analysis Committee, Spillage Study & Control Committee, Safety Committee, Task force committee for Scrap material and Committee of shining the plant area. These committees work to improve the environment in different ways.
9- Industry is taking energy conservation measures.
10- Company helps the engineering and management students to carry out their project works.
11- Fugitive dust, ambient air and Noise are being monitored regularly.
12- Surface water, treated waste water and ground water are being testing time to time.
13- Industry has been certified for standards ISO 9001: 2008, ISO 14001: 2004, OHSAS 18001, ISO 45001 and ISO 50001.
14- We have used 8400 MWh Solar power and 19200 MWh Wind Power during F.Y. 2020-21.

For J.K. Cement Works, Muddapur (Karnataka)
(Unit: J.K. Cement Limited)

Umashankar Choudhary
(Unit Head)

ANNEXURE-1

J.K. Cement WORKS, MUDDAPUR (KARNATAKA)

(Unit: J.K. Cement Ltd.)

EFFLUENT WATER ANALYSIS REPORT (Monthly Average) FOR THE MONTH OF APRIL-2020 TO MARCH-2021

Constituents	Suspended Solids (mg/L)	Temperature (°C) max	pH value	Oils and Grease (mg/L)
Permissible limit	100	Unobjectionable	5.5 to 9	10
Apr-20	66.5	0.3	8.3	Nil
May-20	42.1	0.6	8.1	Nil
Jun-20	40.7	0.6	8.2	Nil
Jul-20	46.3	0.6	8.2	Nil
Aug-20	49.8	0.5	8.2	Nil
Sep-20	50.6	0.5	8.3	Nil
Oct-20	42.2	0.5	8.3	Nil
Nov-20	50.8	0.5	8.1	Nil
Dec-20	53.4	0.4	8.2	Nil
Jan-21	53.6	0.4	8.2	Nil
Feb-21	55.7	0.4	8.3	Nil
Mar-21	49.4	0.4	8.3	Nil
Yearly Avg	50.1	0.5	8.2	Nil
Yearly Minimum	40.7	0.3	8.1	Nil
YearlyMaximum	66.5	0.6	8.3	Nil

Vani Patil
Monitored by

Shridhar
Checked by

ANNEXURE -2

J.K. Cement WORKS, MUDDAPUR (KARNATAKA)

(Unit: J.K. Cement Ltd.)

STP water Analysis Report (Monthly Average) for the Month of April-2020 to March-2021

Sl.No.	Month	Suspended Solids	PH	BOD	COD	NH4-N	N-total	Fecal Coliform	PO4-P,
Tolerance limit		**10**	**6 to 9**	**10**	**50**	**5**	**10**	**<,230**	**2**
1	**Apr-20**	8.25	7.22	7.77	29.17	3.14	6.74	Nil	0.76
2	**May-20**	8.09	7.25	6.65	34.10	3.44	7.37	Nil	0.77
3	**Jun-20**	8.08	7.46	6.84	26.02	4.50	7.16	Nil	0.77
4	**Jul-20**	8.00	7.22	7.83	27.15	3.73	7.13	Nil	0.74
5	**Aug-20**	8.22	7.44	6.93	24.38	3.32	7.44	Nil	0.80
6	**Sep-20**	8.22	7.34	8.12	24.91	3.56	7.48	Nil	0.77
7	**Oct-20**	8.31	7.63	7.93	23.66	3.63	7.38	Nil	0.75
8	**Nov-20**	8.28	7.57	7.57	25.80	3.72	7.55	Nil	0.76
9	**Dec-20**	8.31	7.47	7.38	24.83	3.44	7.53	Nil	0.76
10	**Jan-21**	7.84	7.53	7.17	23.94	3.54	7.10	Nil	0.68
11	**Feb-21**	7.94	7.57	7.13	24.89	3.40	7.37	Nil	0.73
12	**Mar-21**	7.90	7.55	7.12	23.24	4.05	7.04	Nil	0.73
Yearly Min.		**7.84**	**7.22**	**6.65**	**23.24**	**3.14**	**6.74**	Nil	**0.68**
Yearly Max.		**8.31**	**7.63**	**8.12**	**34.10**	**4.50**	**7.55**	Nil	**0.80**
Yearly Avg.		**8.12**	**7.44**	**7.37**	**26.01**	**3.62**	**7.27**	Nil	**0.75**

Vani Patil
Analysed by

Shridhar
Checked by

ANNEXURE-3

J.K. Cement Works, Village- Muddapur (Karnataka)
(Unit: J.K. Cement Ltd.)
Ambient Air Quality Monitoring Report for the period from April-2020 to March-2021
(All Values are in Micrograms / Cubic meter)

Month	Sl. No.	Date	Week	SO_2				NO_2				PM_{10}				$PM_{2.5}$			
				Locations				Locations				Locations				Locations			
				Adm	D-Block	Weigh Bridge	Guest House	Adm	D-Block	Weigh Bridge	Guest House	Adm	D-Block	Weigh Bridge	Guest House	Adm	D-Block	Weigh Bridge	Guest House
APRIL	1	2.4.2020	1st	Lockdown															
	2	6.4.2020																	
	3	9.4.2020	2nd	4.3	4.5	6.0	4.8	15.0	16.8	15.5	15.8	33.3	40.0	43.3	22.7	20.8	29.2	20.8	12.5
	4	13.4.2020		5.7	5.8	5.5	4.8	15.2	16.5	15.2	16.2	53.4	45.7	39.4	32.1	12.5	25.0	16.7	25.0
	5	16.4.2020	3rd	4.8	5.8	4.7	5.3	14.8	16.0	14.8	15.8	48.6	33.9	47.0	45.8	25.0	12.5	12.5	20.8
	6	20.4.2020		5.7	4.8	4.8	4.8	15.8	14.8	15.3	15.8	40.8	49.9	30.1	60.7	16.7	20.8	29.2	16.7
	7	23.4.2020	4th	5.5	4.3	6.0	5.0	16.0	14.3	16.0	17.2	47.1	40.0	37.4	48.1	16.7	25.0	20.8	12.5
	8	27.4.2020		7.3	5.5	6.0	4.7	17.3	16.2	15.3	14.3	36.2	48.7	45.0	34.8	20.8	29.2	33.3	25.0
	9	30.4.2020		4.5	6.8	7.0	5.5	15.5	18.8	17.0	13.5	46.7	43.7	58.8	47.5	16.7	20.8	16.7	16.7
MAY	1	4.5.2020	1st	5.8	8.0	6.3	6.0	16.8	18.0	16.3	15.8	57.3	66.0	68.4	42.7	20.8	25.0	33.3	20.8
	2	7.5.2020		7.7	7.8	7.3	6.8	17.8	18.3	17.5	16.5	72.1	49.1	81.8	57.7	16.7	33.4	20.8	25.0
	3	11.5.2020		6.3	7.7	6.0	5.7	18.0	18.5	17.7	15.7	55.9	41.4	56.5	38.0	12.5	28.5	25.0	33.3
	4	14.5.2020	2nd	8.0	7.5	7.0	4.8	18.0	18.0	17.0	15.8	69.4	59.0	72.5	49.9	16.7	30.7	29.2	45.8
	5	18.5.2020		6.7	6.7	7.8	5.8	16.5	17.8	17.7	15.5	48.7	61.5	47.5	68.2	25.0	29.2	33.3	37.5
	6	21.5.2020	3rd	7.5	5.7	7.7	3.8	18.0	15.7	18.5	14.2	74.8	47.9	56.1	54.5	37.5	25.0	20.8	50.0
	7	25.5.2020		7.7	3.8	8.0	4.8	18.7	14.0	17.5	15.3	68.8	44.6	60.4	40.0	16.7	33.3	29.2	37.5
	8	28.5.2020	4th	6.5	5.2	6.0	5.5	17.3	15.7	17.7	16.0	72.8	60.8	42.2	67.5	20.8	29.2	37.5	29.2
JUNE	1	1.6.2020	1st	7.0	9.2	8.0	6.8	17.8	19.0	18.0	17.0	28.1	33.6	29.7	37.3	8.3	12.0	16.7	20.8
	2	4.6.2020		7.5	6.8	7.8	8.0	17.5	16.7	18.3	18.0	14.2	38.4	36.0	32.9	12.5	20.8	20.8	16.7
	3	8.6.2020		6.5	7.2	7.7	8.2	17.3	17.0	18.5	19.0	31.0	45.8	34.1	41.8	16.7	16.7	20.8	12.5
	4	11.6.2020	2nd	8.3	8.3	7.5	9.2	18.0	18.3	18.0	19.2	16.8	36.6	26.3	32.0	12.5	20.8	16.7	8.3
	5	15.6.2020		6.7	7.5	6.7	8.7	17.0	17.5	17.8	19.2	14.6	40.7	30.3	45.7	20.8	16.7	20.8	16.7
	6	18.6.2020	3rd	9.8	8.0	5.7	6.8	20.0	18.2	15.7	16.7	15.7	45.1	44.8	40.2	16.7	20.8	8.3	20.8
	7	22.6.2020		10.0	9.0	3.8	7.3	19.5	20.2	14.0	17.3	28.9	33.1	31.4	47.7	20.8	16.7	12.5	12.5
	8	25.6.2020	4th	8.3	9.8	5.2	7.0	18.3	19.2	15.7	16.8	14.3	42.4	23.3	36.6	8.3	20.8	12.5	16.7
	9	29.6.2020		9.5	8.2	6.8	8.0	19.5	18.0	14.3	18.0	16.2	46.1	29.7	23.6	7.2	16.7	16.7	12.5
JULY	1	2.7.2020	1st	8.0	6.2	6.3	5.7	18.7	16.0	15.7	15.7	19.2	44.3	18.6	17.9	8.3	20.8	4.2	8.3
	2	6.7.2020		7.7	7.7	5.2	7.3	17.7	17.2	15.5	17.3	33.7	55.9	37.1	30.3	16.7	25.0	16.7	20.8
	3	9.7.2020	2nd	8.3	5.7	7.7	6.5	15.3	14.0	17.7	16.8	44.9	62.7	13.3	12.9	12.5	29.2	20.8	8.3
	4	13.7.2020		6.7	7.3	6.7	7.3	16.7	17.8	14.3	17.0	37.0	43.6	31.5	36.3	20.8	20.8	16.7	16.7
	5	16.7.2020	3rd	5.7	8.0	6.2	6.5	15.7	18.0	16.8	16.5	30.2	39.9	29.1	24.2	12.5	29.2	12.5	16.7
	6	20.7.2020		7.3	7.3	7.8	6.7	17.3	17.3	17.8	17.5	36.5	30.1	23.6	35.4	16.7	25.0	29.2	12.5
	7	23.7.2020	4th	6.2	8.0	8.0	8.0	15.8	19.0	18.5	16.5	42.2	44.2	36.6	31.5	20.8	29.2	20.8	20.8
	8	27.7.2020		6.7	6.3	6.7	6.7	14.5	16.3	16.7	16.0	41.4	61.8	29.8	33.2	29.2	25.0	16.7	16.7
	9	30.7.2020		6.7	7.0	5.7	7.7	16.7	17.2	14.7	17.7	30.6	33.4	20.9	28.6	20.8	20.0	25.0	12.5
AUGUST	1	3.8.2020	1st	7.3	8.0	6.0	7.3	17.5	18.2	16.7	17.3	10.6	30.4	21.0	25.1	4.2	20.8	8.3	16.7
	2	6.8.2020		6.5	6.8	7.0	6.5	16.5	17.3	17.5	16.8	26.4	42.2	15.2	20.8	4.2	16.7	8.3	8.3
	3	10.8.2020	2nd	7.0	8.2	8.0	8.0	18.0	19.2	18.8	18.0	15.6	34.2	11.3	15.8	8.3	12.5	16.7	12.5
	4	13.8.2020		9.7	10.0	7.7	7.7	19.0	19.8	17.7	17.7	28.3	37.2	33.9	27.1	8.3	16.7	12.5	16.7
	5	17.8.2020	3rd	7.3	7.5	8.3	6.2	17.3	18.0	18.2	17.8	20.0	28.2	30.5	32.1	4.2	12.5	8.3	8.3
	6	20.8.2020		6.8	8.5	7.3	7.0	17.5	18.8	17.8	18.7	27.8	35.1	22.4	36.9	4.2	16.7	4.2	4.2
	7	24.8.2020	4th	8.0	9.7	9.2	8.0	19.8	20.2	17.0	18.8	26.4	40.8	20.8	16.6	4.2	20.8	4.2	8.3
	8	27.8.2020		7.7	8.3	8.0	8.8	18.5	19.2	18.0	19.5	33.2	45.8	43.2	38.6	8.3	16.7	8.3	12.5
	9	31.8.2020		8.5	7.7	8.8	8.3	18.2	18.2	18.0	18.3	53.4	62.9	53.7	45.6	12.5	20.8	12.5	16.7
SEPTEMBER	1	3.9.2020	1st	7.3	7.2	6.2	8.3	17.3	17.7	16.3	17.3	29.7	35.5	23.7	21.1	12.5	16.7	12.5	8.3
	2	7.9.2020		8.0	8.8	7.3	4.2	18.0	18.8	17.3	18.7	15.4	29.6	17.2	28.4	4.2	12.5	8.3	4.2
	3	10.9.2020	2nd	9.3	6.7	8.0	4.2	19.3	16.7	18.8	16.8	22.6	33.7	15.7	19.1	4.2	16.7	4.2	4.2
	4	14.9.2020		7.3	7.7	7.7	8.3	17.8	17.8	17.7	17.2	17.2	29.0	23.9	18.0	8.3	12.5	8.3	8.3
	5	17.9.2020	3rd	6.7	8.0	6.8	16.7	16.7	18.5	16.7	16.3	13.8	22.6	34.8	28.1	4.2	12.5	8.3	16.7
	6	21.9.2020		7.0	6.0	7.2	12.5	17.3	16.3	17.7	18.0	9.6	35.9	4.5	4.2	2.8	8.3	12.5	12.5
	7	24.9.2020	4th	6.2	7.3	8.0	4.2	16.8	17.5	18.0	16.7	32.2	47.1	28.9	13.5	2.9	12.5	2.1	4.2
	8	28.9.2020		7.0	8.2	7.3	16.7	17.7	18.2	17.3	17.3	59.8	64.8	68.1	37.9	10.4	16.7	12.9	16.7
OCTOBER	1	01.10.2020	1st	7.3	6.7	7.3	6.7	17.3	17.3	17.5	16.8	40.7	29.7	67.6	30.1	12.5	12.5	12.5	8.3
	2	05.10.2020		6.7	7.5	8.0	8.0	16.3	17.5	18.0	18.0	53.1	23.2	46.7	42.1	8.3	20.8	16.7	12.5
	3	08.10.2020	2nd	8.0	8.0	6.5	6.7	18.0	18.0	16.7	16.7	37.8	48.2	61.6	48.4	12.5	16.7	4.2	16.7
	4	12.10.2020		7.5	7.7	6.8	8.0	17.7	17.7	17.0	17.7	31.2	50.0	30.8	32.2	16.7	20.8	16.7	8.3
	5	16.10.2020	3rd	8.0	7.8	7.8	7.7	18.5	18.3	18.0	17.7	48.3	60.4	41.7	48.5	12.5	25.0	12.5	12.5
	6	19.10.2020		7.8	8.0	8.0	8.2	17.8	18.0	18.0	16.7	47.8	56.2	48.1	41.1	20.8	25.0	29.2	20.8
	7	23.10.2020	4th	7.3	8.0	8.0	8.0	17.3	18.7	18.0	18.8	65.8	73.7	77.1	63.8	33.3	37.5	37.5	33.3
	8	27.10.2020		6.7	7.5	6.5	7.7	16.5	17.5	17.3	17.7	76.2	88.5	84.2	64.4	29.2	41.7	33.3	29.2
	9	30.10.2020		8.8	8.5	7.7	6.5	20.0	18.5	17.7	16.5	68.9	75.9	66.3	78.9	33.3	45.8	29.2	33.3
NOVEMBER	1	03.11.2020	1st	7.2	7.7	6.7	7.0	16.7	17.7	16.7	17.8	69.2	73.8	67.8	61.6	25.0	37.5	25.0	29.2
	2	06.11.2020		6.7	7.5	7.7	8.0	17.3	16.5	17.7	17.8	83.3	88.1	76.0	66.0	29.2	29.2	29.2	33.3
	3	10.11.2020	2nd	7.7	8.3	8.0	7.5	16.5	18.3	18.0	16.7	88.7	94.4	90.8	81.9	33.3	25.0	33.3	25.0
	4	13.11.2020		8.0	7.8	7.2	8.0	18.0	17.7	17.7	18.0	64.1	73.5	55.1	40.6	25.0	31.7	25.0	37.5
	5	17.11.2020	3rd	6.7	6.7	6.7	7.2	16.7	16.7	17.3	17.7	71.9	88.9	60.4	66.6	20.8	28.3	37.5	25.0
	6	20.11.2020		6.7	8.0	8.0	6.8	15.7	18.0	18.0	16.8	73.3	81.5	80.0	72.2	16.7	22.9	25.0	20.8
	7	24.11.2020	4th	8.0	7.7	6.7	8.0	18.0	17.7	16.7	18.0	75.1	86.3	71.1	64.1	22.9	29.2	31.3	29.2
	8	27.11.2020		6.7	6.7	8.0	7.7	16.5	17.0	18.0	17.7	68.2	74.4	81.7	70.4	26.7	37.5	35.8	33.3

DECEMBER	1	02.12.2020	1st	7.7	8.0	8.0	7.7	17.7	18.0	18.0	17.7	81.6	81.6	75.4	68.0	33.3	37.5	38.4	33.3
	2	04.12.2020		8.0	7.7	6.7	8.0	18.0	18.5	16.7	18.0	89.8	89.8	81.6	83.7	41.7	50.0	35.1	37.5
	3	08.12.2020	2nd	7.7	8.0	8.3	7.7	17.8	19.8	18.3	17.8	55.3	55.3	90.0	74.4	37.5	41.7	31.8	34.4
	4	12.12.2020		9.0	8.3	7.3	9.0	19.2	20.2	17.7	19.2	67.6	67.6	77.8	67.9	45.8	37.9	41.0	38.1
	5	16.12.2020	3rd	8.0	7.3	6.7	8.0	18.0	17.3	17.3	18.0	65.0	65.0	63.5	86.3	33.3	43.0	29.4	34.7
	6	19.12.2020		6.7	8.0	7.3	6.7	16.7	18.0	17.3	16.7	72.1	72.1	71.3	80.8	54.2	41.6	34.0	37.4
	7	23.12.2020	4th	7.3	8.3	8.0	7.3	17.3	19.3	18.0	17.3	61.0	61.0	69.7	72.0	37.5	54.0	35.3	42.3
	8	26.12.2020		6.5	8.7	6.7	6.5	16.5	18.7	16.7	16.5	69.3	69.3	77.2	88.3	33.3	46.7	36.2	32.5
	9	29.12.2020		6.0	7.3	7.7	6.0	12.5	17.3	17.7	12.5	59.5	59.5	58.4	87.4	41.7	42.5	40.4	40.2
JANUARY	1	1.1.2021	1st	6.7	7.3	7.3	6.0	17.8	17.3	7.3	6.0	58.3	70.4	72.2	57.1	37.5	33.3	33.3	29.2
	2	5.1.2021		8.0	6.3	8.2	7.2	18.0	16.3	8.2	7.2	73.6	72.5	58.8	48.6	29.2	37.5	37.5	37.5
	3	8.1.2021	2nd	6.7	8.0	8.0	6.7	16.2	18.0	8.0	6.7	89.0	80.6	62.8	62.5	25.0	41.7	25.0	20.8
	4	12.1.2021		7.7	7.0	6.7	8.0	17.7	17.3	6.7	8.0	78.4	67.0	62.7	56.2	33.3	50.0	29.2	25.0
	5	15.1.2021	3rd	5.8	8.8	7.5	7.7	15.8	19.7	7.5	7.7	62.3	74.5	71.2	65.1	37.5	37.5	37.5	29.2
	6	19.1.2021		8.3	6.7	8.0	8.2	19.0	17.3	8.0	8.2	69.9	79.4	89.2	78.4	27.1	45.4	33.3	44.2
	7	22.1.2021	4th	8.0	7.0	6.0	9.2	18.0	17.7	6.0	9.2	74.4	88.2	60.5	70.0	36.7	54.2	41.7	43.7
	8	26.1.2021		8.7	6.7	7.0	6.7	19.5	17.5	7.0	6.7	70.1	84.3	72.1	72.7	29.6	36.7	45.8	33.3
	9	29.1.2021		6.8	8.0	8.0	7.5	16.7	18.0	8.0	7.5	76.5	78.7	77.6	49.3	36.8	41.7	31.3	33.3
FEBRUARY	1	1.2.2021	1st	6.7	8.0	8.0	6.7	16.8	18.0	18.8	17.3	67.5	73.8	60.0	69.0	29.2	37.5	29.2	29.2
	2	4.2.2021		7.8	6.7	6.7	8.3	17.8	16.8	16.7	16.5	60.4	66.0	44.6	71.2	25.0	29.2	25.0	33.3
	3	8.2.2021	2nd	8.0	7.0	7.2	7.7	18.0	17.8	17.2	17.0	46.4	60.0	57.7	77.6	20.8	33.3	33.3	45.8
	4	11.2.2021		6.8	8.0	8.0	8.0	16.8	18.0	18.0	18.0	41.7	69.5	66.5	66.7	33.3	32.5	37.5	29.2
	5	15.2.2021	3rd	8.0	7.8	6.0	8.0	18.0	17.8	16.0	17.3	69.9	77.8	76.7	67.3	25.0	43.8	33.3	25.0
	6	18.2.2021		7.0	6.5	6.5	6.7	17.7	16.5	17.2	16.8	59.5	67.7	72.9	63.3	29.2	41.7	45.8	37.5
	7	22.2.2021	4th	7.7	5.5	8.0	7.0	18.0	15.8	18.0	17.7	65.5	73.7	59.9	45.4	16.7	27.5	33.3	29.2
	8	25.2.2021		8.8	6.7	6.7	7.2	19.2	16.5	17.3	18.0	61.7	68.6	40.1	59.5	22.9	31.7	44.2	20.8
MARCH	1	1.3.2021	1st	6.7	6.7	6.7	6.7	16.7	16.7	16.7	17.3	64.8	75.7	59.1	86.4	29.2	41.7	29.2	25.0
	2	4.3.2021		5.7	7.3	7.3	7.2	15.7	17.3	17.2	16.7	50.9	71.2	71.4	81.2	20.8	29.2	25.0	29.2
	3	8.3.2021	2nd	6.8	8.0	8.0	6.7	16.8	18.0	18.0	18.0	52.9	68.9	72.4	71.5	31.7	33.3	16.7	28.7
	4	11.3.2021		7.2	7.7	6.7	8.0	17.2	17.7	16.7	18.0	59.1	79.7	61.8	76.8	35.8	25.0	25.0	34.2
	5	15.3.2021	3rd	6.2	6.7	7.5	7.3	16.0	16.8	17.5	17.3	64.1	71.0	64.5	63.5	29.2	35.8	26.3	37.5
	6	18.3.2021		7.5	7.7	6.5	6.3	17.5	17.5	16.8	17.3	67.8	87.2	56.8	73.5	25.0	37.5	30.8	25.0
	7	22.3.2021	4th	6.3	8.2	8.0	8.0	16.7	18.2	18.0	18.0	72.5	73.3	64.3	58.9	37.5	22.9	33.3	33.3
	8	25.3.2021		7.0	6.7	6.7	6.2	17.0	16.3	16.2	16.3	77.8	84.2	59.4	73.2	27.5	25.0	29.2	29.2
	9	29.3.2021		8.5	9.0	7.3	5.5	19.0	18.5	18.8	17.0	64.5	77.3	56.8	59.7	27.5	29.2	16.7	37.5
Avg.				**7.3**	**7.4**	**7.1**	**7.2**	**17.3**	**17.6**	**16.3**	**16.3**	**50.5**	**57.8**	**51.2**	**50.3**	**21.4**	**28.1**	**23.8**	**23.8**
Min.				**4.3**	**3.8**	**3.8**	**3.8**	**12.5**	**14.0**	**6.0**	**6.0**	**9.6**	**22.6**	**4.5**	**4.2**	**2.8**	**8.3**	**2.1**	**4.2**
Max.				**10.0**	**10.0**	**9.2**	**16.7**	**20.0**	**20.2**	**18.8**	**19.5**	**89.8**	**94.4**	**90.8**	**88.3**	**54.2**	**54.2**	**45.8**	**50.0**

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ANNEXURE-4

J.K. Cement WORKS, MUDDAPUR (KARNATAKA)

(Unit : J.K. Cement Ltd.)

Yearly Stack monitoring report of Cement plant & 2x25 MW Thermal power plant for April-2020 to March-2021

Sl. No.	Month/Year	Stack locations										
		Thermal Power Plant			Kiln / Raw Mill			SPM in mg/Nm3				
		SPM in mg/Nm3	SO2 in mg/Nm3	NOx in mg/Nm3	SPM in mg/Nm3	SO2 in mg/Nm3	NOx in mg/Nm3	Coal Mill Bag Filter	Cooler	LSC	CM-1	CM-2
1	Apr-20	22.2	95.0	56.0	15.6	0.0	460.0	14.4	7.3	8.6	8.1	5.0
2	May-20	27.0	95.0	60.0	16.8	0.0	682.0	15.0	11.5	16.0	6.1	7.2
3	Jun-20	20.4	114.0	70.0	11.9	0.0	436.0	11.6	10.0	10.7	10.5	7.0
4	Jul-20	31.7	140.0	68.0	11.5	0.0	484.0	11.3	6.4	9.0	11.3	5.9
5	Aug-20	21.8	168.0	95.0	13.8	0.0	695.0	12.7	10.6	16.43	14.1	12.0
6	Sep-20	20.7	143.7	102.1	10.9	6.0	640.0	12.7	7.5	7.7	8.4	7.0
7	Oct-20	26.3	150.0	170.0	7.3	7.0	500.0	9.3	8.3	7.7	7.9	5.6
8	Nov-20	28.5	200.0	80.0	11.1	6.0	520.0	11.9	8.1	7.3	8.0	6.6
9	Dec-20	23.1	110.0	68.0	21.3	6.5	680.0	17.7	8.0	14.2	11.9	18.3
10	Jan-21	39.8	145.0	68.0	9.7	6.0	528.0	14.9	10.2	18.5	10.4	9.8
11	Feb-21	36.4	420.0	160.0	18.2	10.0	700.0	18.8	12.0	15.6	6.8	15.8
12	Mar-21	37.6	132.0	84.0	15.0	14.0	784.0	11.6	6.2	9.5	8.3	14.5
Avg		28.0	159.4	90.1	13.6	4.6	592.4	13.5	8.8	11.8	9.3	9.5
Min		20.4	95.0	56.0	7.3	0.0	436.0	9.3	6.2	7.3	6.1	5.0
Max		39.8	420.0	170.0	21.3	14.0	784.0	18.8	12.0	18.5	14.1	18.3

Sl. No.	Month/Year	Stack locations										
		SPM in mg/Nm3										
		Slag mill	Coal crusher	Packing plant No-1	Packing plant No-2	Packing plant No-3	Packing plant No-4	RMT System	Clinker Transport	Clinker Storage	CM Sep-1	CM Sep-2
1	Apr-20	12.8	13.5	10.45	7.40	10.23	13.37	10.12	18.19	7.2	8.1	5.0
2	May-20	13.0	17.0	11.00	13.00	16.00	20.00	13.0	15.0	17.0	6.1	7.2
3	Jun-20	17.1	15.7	14.58	13.39	10.77	12.92	14.6	12.4	10.2	10.5	7.0
4	Jul-20	16.4	12.2	11.21	13.93	12.84	11.72	14.6	13.9	11.0	11.3	5.9
5	Aug-20	13.2	10.5	8.38	11.53	11.86	13.56	12.73	11.0	13.4	14.1	12.0
6	Sep-20	11.5	12.1	13.82	10.45	12.41	15.11	9.5	9.9	11.6	8.4	7.0
7	Oct-20	15.6	11.6	12.73	11.65	8.38	12.01	12.3	14.0	10.8	7.9	5.6
8	Nov-20	10.8	20.8	14.15	18.50	14.37	12.45	14.2	14.1	12.7	8.0	6.6
9	Dec-20	3.9	18.8	14.58	16.00	13.71	18.24	16.8	15.9	12.1	11.9	18.3
10	Jan-21	12.1	16.5	12.41	16.54	14.91	12.78	12.3	19.0	12.1	10.4	9.8
11	Feb-21	8.0	16.8	13.82	16.65	12.73	14.09	11.7	11.4	15.1	6.8	15.8
12	Mar-21	6.9	9.3	17.74	15.46	10.12	13.43	12.1	15.2	13.2	8.3	14.5
Avg		11.8	14.6	12.9	13.7	12.4	14.1	12.8	14.2	12.2	9.3	9.5
Min		3.9	9.3	8.4	7.4	8.4	11.7	9.5	9.9	7.2	6.1	5.0
Max		17.1	20.8	17.7	18.5	16.0	20.0	16.8	19.0	17.0	14.1	18.3

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ANNEXURE -5

J.K. Cement Works, Village- Muddapur (Karnataka)

(Unit: J.K. Cement Ltd.)

Fugitive Emission Monitoring Report of Cement plant for the period from April-2020 to March-2021

Sl.No.	Month/Year	SPM (microgram/cubic meter)							
		Gypsum Yard	Slag Yard	Flyash Yard	Cement mill	Lime stone unloading hopper	Lime stone crushing Site	Coal Yard	Packing Plant
1	Apr-20	750.2	985.2	729.3	900.7	1114.4	926.9	946.2	739.3
2	May-20	771.4	680.4	844.6	792.4	914.7	773.5	837.1	865.3
3	Jun-20	878.3	771.8	848.3	724.5	1014.5	940.5	854.5	933.0
4	Jul-20	826.6	663.5	560.7	480.2	587.4	516.9	628.7	637.5
5	Aug-20	677.0	562.5	470.8	699.2	506.2	456.6	585.3	608.3
6	Sep-20	638.0	711.9	575.5	725.2	619.5	716.9	639.1	714.7
7	Oct-20	704.0	723.1	645.3	800.6	714.6	787.5	722.5	768.9
8	Nov-20	977.0	1024.0	1167.9	866.9	906.3	1029.6	799.3	846.3
9	Dec-20	1173.4	1115.4	1202.1	1033.5	1035.8	1156.4	1059.5	1198.1
10	Jan-21	844.0	1008.9	1006.4	980.2	1030.2	1354.9	879.9	738.7
11	Feb-21	1229.3	786.0	979.5	968.1	589.6	584.6	1124.3	943.9
12	Mar-21	1570.8	1189.9	1100.0	1013.5	592.5	573.2	1078.8	1076.6
Minimum		**638.0**	**562.5**	**470.8**	**480.2**	**506.2**	**456.6**	**585.3**	**608.3**
Maximum		**1570.8**	**1189.9**	**1202.1**	**1033.5**	**1114.4**	**1354.9**	**1124.3**	**1198.1**
Average		**920.0**	**851.9**	**844.2**	**832.1**	**802.1**	**818.1**	**846.3**	**839.2**

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ANNEXURE-6

J.K. Cement Works, Village- Muddapur (Karnataka)
(Unit: J.K. Cement Ltd.)

Noise monitoring report of Cement & Power Plant for the period from April-2020 to March-2021

Sl. No.	Location Name	Apr-20		May-20		Jun-20		Jul-20		Aug-20		Sep-20		Oct-20		Nov-20		Dec-20	
		Day (dB) Leq	Night (dB) Leq	Day (dB) Leq	Night (dB) Leq	Day (dB) Leq	Night (dB) Leq	Day (dB) Leq	Night (dB) Leq	Day (dB) Leq	Night (dB) Leq	Day (dB) Leq	Night (dB) Leq	Day (dB) Leq	Night (dB) Leq	Day (dB) Leq	Night (dB) Leq	Day (dB) Leq	Night (dB) Leq
1	Boundary side	45.6	31.5	43.2	30.4	48.2	32.8	47.5	34.8	48.6	35.8	48.6	35.5	47.2	35.6	47.5	38.8	46.2	33.8
2	Administrative Building	42.2	30.6	40.6	31.5	40.5	30.2	44.6	31.8	45.8	32.6	45.8	32.1	45.4	32.8	44.7	32.5	40.8	30.2
3	Lime Stone gate	52.5	33.5	54.6	33.5	50.7	40.7	51.5	46.5	52.7	47.6	52.8	45.8	52.8	45.6	52.6	45.5	55.7	40.7
4	Lime Stone Crusher	46.6	35.2	48.5	35.2	47.2	37.5	49.8	37.5	65.8	58.2	65.9	52.5	62.5	50.7	66.7	48.5	47.2	37.5
5	Kiln/ Cooler	50.4	36.6	51.8	36.6	55.8	41.2	64.8	48.9	68.5	60.6	70.5	60.8	66.8	52.5	58.7	38.5	55.8	41.2
6	Kiln Platform	60.5	45.2	62.5	45.2	50.5	43.6	72.6	65.8	74.8	66.7	74.5	66.5	73.5	64.5	67.5	53.4	50.5	43.6
7	Power Plant	66.1	50.5	64.2	50.5	60.6	50.7	63.5	47.8	68.7	55.8	65.4	48.5	64.7	52.2	69.8	48.5	60.6	50.7
8	Despatch gate	52.4	40.6	50.5	40.6	53.5	41.6	53.4	40.8	55.4	41.2	54.6	41.6	54.6	41.5	53.6	42.5	53.5	41.6
9	Near QC Lab.	50.6	32.8	49.2	32.8	45.9	36.2	48.5	38.5	46.8	39.2	47.6	37.5	49.7	39.6	43.6	38.2	45.9	36.2
10	Coal Yard	56.5	35.4	55.4	35.4	54.7	38.5	56.8	42.8	55.7	48.7	55.4	41.5	54.8	43.8	60.5	48.5	54.7	38.5
11	Slag yard	55.4	34.2	52.8	34.2	66.8	41.2	48.5	35.6	52.8	45.6	47.6	36.8	67.5	42.6	54.6	38.5	66.8	41.2
12	Gypsum yard	56.6	35.8	54.5	35.8	65.7	40.1	57.8	41.6	58.4	47.5	58.2	42.5	66.8	51.5	58.5	44.6	65.7	40.1
13	Near Canteen	40.6	30.2	41.5	30.2	62.2	40.2	46.7	32.8	47.5	40.7	48.5	35.5	63.4	50.6	50.2	35.5	62.2	40.2
14	Plant main gate	50.5	32.6	50.4	32.6	58.8	45.5	52.5	35.5	53.7	46.4	53.6	40.6	57.5	45.8	48.8	35.8	59.8	45.5
15	Dispensary	44.6	30.2	43.6	30.2	46.5	40	43.6	32.6	45.8	34.8	44.7	33.7	46.5	36.5	46.6	37.5	46.5	40
16	Packing Plant	50.2	36.6	51.5	36.6	71.5	55.4	55.8	42.5	56.7	48.7	56.7	43.5	71.5	65.4	55.8	44.6	71.5	55.4
17	General Store	55.4	33.4	52.8	33.4	60.1	45.5	50	38.6	51.6	45.5	51.6	38.6	62.5	52.8	47.3	35.5	60.1	45.5
18	DG House (1-meter distance)	64.5	-	65.5	-	75.5	-	80	-	82	-	78.8	-	80.5	-	78.6	-	75.5	-
19	DG House (2-meter distance)	62.2	-	62.8	-	71.5	-	76	-	80	-	75.6	-	78.6	-	76.4	-	71.5	-
20	Raw mill proporting hopper	60.6	40.5	64.6	41.5	79.9	63	68.7	42.8	74.5	68.5	69.5	45.8	70.4	63	68.5	59.5	79.9	63
21	coal mill	64.5	45.6	65.2	43.6	77	61	55.8	44.6	70.5	65.6	62.5	42.6	68.5	55.7	66.7	56.8	77	61
22	Near silo clinker loading point	60.6	46.8	62.2	41.5	64.2	51.8	58.4	47.6	65.2	59.8	58.4	47.6	62.8	51.6	63.4	52.8	64.2	51.8
23	CM-1 weigh feeder	61.5	50.2	62.5	51.2	71.5	55.5	62.5	52.4	60.5	55.6	63.5	52.5	70.6	61.5	68.6	58.9	71.5	55.5
24	CM-2 weigh feeder	60.2	55.2	65.5	52.8	67.7	52.6	65.8	55.7	65.2	58.2	65.2	53.8	68.5	53.8	70.4	55.4	67.7	52.6
25	Cement silo Packer-1	62.8	45.5	60.7	43.3	64.8	50.7	63.5	50.8	64.5	59.5	62.8	51.6	61.7	50.6	62.5	52.5	64.8	50.7
26	Cement silo Packer-2	60.6	50.2	61.8	51.5	69.5	45.2	65.8	52.8	66.4	55.7	65.8	52.8	65.5	52.7	66.8	54.3	69.5	45.2
27	Cement silo Packer-3	62.5	49.7	64.4	50.5	64.8	52.5	66.5	48.7	65.3	57.4	67.2	54.5	62.6	50.5	60.4	51.6	64.8	52.5
28	Cement silo Packer-4	63.6	50.5	60.1	48.9	57.5	47.2	62.8	45.8	63.4	56.8	63.4	46.5	58.4	48.6	58.7	48.6	57.5	47.2
29	Truck Loading point- 1	61.5	45.5	62.2	44.7	71.6	51.7	52.8	46.7	60.9	50.4	53.5	47.5	70.5	60.5	68.5	58.9	71.6	54.7
30	Truck Loading point- 2	60.6	50.6	58.7	48.5	61.8	52.8	64.5	48.5	65.6	59.5	65.4	48.6	65.3	55.8	66.9	56.7	61.8	48.5
31	Truck Loading point- 3	60.5	51.5	62.4	50.6	65.2	50.5	65.2	47.5	67.4	63.8	68.5	50.5	68.8	52.4	69.5	53.5	65.2	50.5
32	Truck Loading point- 4	62.4	45.4	65.5	46.5	60.7	48.5	58.4	46.5	64.2	59.7	60.7	48.5	64.6	50.5	65.5	51.8	60.7	48.5
33	Slag mill weigh feeder	62.1	49.6	68.7	45.6	73.8	55.4	64.5	50.7	60.8	56.4	73.8	55.4	62.4	52.6	60.8	53.5	73.8	55.4

Vani Patil
Monitored by

Shridhar
Checked by

J.K. Cement Works, Village- Muddapur (Karnataka)
(Unit: J.K. Cement Ltd.)

Noise monitoring report of Cement & Power Plant for the period from April-2020 to March-2021

Sl. No.	Location Name	Jan-21		Feb-21		Mar-21		Minimum		Maximum		Average	
		Day (dB) Leq	Night (dB) Leq	Day (dB) Leq	Night (dB) Leq	Day (dB) Leq	Night (dB) Leq	Day (dB) Leq	Night (dB) Leq	Day (dB) Leq	Night (dB) Leq	Day (dB) Leq	Night (dB) Leq
1	Boundary side	46.7	36.7	48.5	37.5	48.6	36.7	43.2	30.4	48.6	38.8	47.2	35.0
2	Administrative Building	44.5	33.2	45.3	35.4	46.7	34.5	40.5	30.2	46.7	35.4	43.9	32.3
3	Lime Stone gate	53.8	48.5	54.7	48.8	56.4	48.8	50.7	33.5	56.4	48.8	53.4	43.8
4	Lime Stone Crusher	66.7	57.6	65.8	58.5	60.5	52.5	46.6	35.2	66.7	58.5	57.8	46.8
5	Kiln/ Cooler	70.8	61.5	67.6	60.2	68.6	53.4	50.4	36.6	70.8	61.5	62.5	49.3
6	Kiln Platform	74.2	65.5	73.6	64.5	74.6	65.5	50.5	43.6	74.8	66.7	67.4	57.5
7	Power Plant	66.5	50.8	65.4	53.6	68.5	55.8	60.6	47.8	69.8	55.8	65.3	51.3
8	Despatch gate	54.6	42.3	55.5	43.6	52.8	43.6	50.5	40.6	55.5	43.6	53.7	41.8
9	Near QC Lab.	47.5	38.5	48.2	37.5	48.5	38.5	43.6	32.8	50.6	39.6	47.7	37.1
10	Coal Yard	56.8	49.7	57.6	48.5	55.7	44.6	54.7	35.4	60.5	49.7	56.2	43.0
11	Slag yard	50.44	47.5	51.2	46.7	68.8	46.7	47.6	34.2	68.8	47.5	56.9	40.9
12	Gypsum yard	58.7	46.3	60.5	48.2	67.5	54.5	54.5	35.8	67.5	54.5	60.7	44.0
13	Near Canteen	50.6	40.7	52.5	43.5	64.4	52.8	40.6	30.2	64.4	52.8	52.5	39.4
14	Plant main gate	54.2	44.8	55.6	45.7	58.6	48.7	48.8	32.6	59.8	48.7	54.5	41.6
15	Dispensary	48.6	38.6	48.2	37.5	48.2	36.5	43.6	30.2	48.6	40	46.1	35.7
16	Packing Plant	58.8	48.6	60.4	50.5	68.9	66.5	50.2	36.6	71.5	66.5	60.8	49.5
17	General Store	52.5	46.5	54.6	48.7	63.6	55.4	47.3	33.4	63.6	55.4	55.2	43.3
18	DG House (1-meter distance)	78.2	-	77.6	-	78.5	-	64.5	-	82	-	76.3	-
19	DG House (2-meter distance)	76.5	-	75.4	-	76.6	-	62.2	-	80	-	73.6	-
20	Raw mill proporting hopper	73.6	66.7	74.6	65.8	70.2	64	60.6	40.5	79.9	68.5	71.3	57.0
21	coal mill	70.2	64.8	72.5	65.4	65.8	50.4	55.8	42.6	77	65.6	68.0	54.8
22	Near silo clinker loading point	67.5	58.6	68.8	57.5	63.5	52.8	58.4	41.5	68.8	59.8	63.3	51.7
23	CM-1 weigh feeder	62.8	53.8	63.5	54.4	68.5	56.2	60.5	50.2	71.5	61.5	65.6	54.8
24	CM-2 weigh feeder	66.4	56.6	65.3	55.4	67.6	54.8	60.2	52.6	70.4	58.2	66.3	54.7
25	Cement silo Packer-1	63.7	54.7	60.8	52.5	63.5	51.7	60.7	43.3	64.8	59.5	63.0	51.2
26	Cement silo Packer-2	67.5	57.3	66.7	58.4	64.3	54.6	60.6	45.2	69.5	58.4	65.9	52.6
27	Cement silo Packer-3	64.8	56.5	65.5	55.8	60.5	49.8	60.4	48.7	67.2	57.4	64.1	52.5
28	Cement silo Packer-4	62.8	53.8	61.6	54.4	57.8	49.5	57.5	45.8	63.6	56.8	60.6	49.8
29	Truck Loading point- 1	60.5	50.8	63.7	51.5	68.3	58.7	52.8	44.7	71.6	60.5	63.8	51.8
30	Truck Loading point- 2	68.6	57.5	65.6	56.8	66.2	56.5	58.7	48.5	68.6	59.5	64.3	53.4
31	Truck Loading point- 3	68.3	60.8	67.4	59.5	67.5	50.3	60.5	47.5	69.5	63.8	66.3	53.5
32	Truck Loading point- 4	65.5	57.4	64.6	57.5	65.4	52.3	58.4	45.4	65.5	59.7	63.2	51.1
33	Slag mill weigh feeder	60.2	55.8	62.8	56.8	63.7	53.5	60.2	45.6	73.8	56.8	65.6	53.4

Vasu Patil
Monitored by

Shridhar
Checked by