SHREE RAIPUR CEMENT PLANT

(A UNIT OF SHREE CEMENT LIMITED)

Village : Khaparadih, Tehsil : Simga, Distt. : Baloda Bazar-Bhatapara (C.G.) Pin : 493 332,
Ph. : 07727-203101, **CIN No. : L26943RJ1979PLC001935**

SRCP/ENV/2021-22/71

Date: 17/08/2021

To,
The Member Secretary,
Chhattisgarh Environment Conservation Board,
Paryavas Bhavan, North Block, Sector-19
Naya Raipur (C.G)

Sub: - Submission of Environment Statement of Cement Plant for the year 2020-21 by Shree Raipur Cement Plant (A unit of Shree Cement Ltd.) Plant located near Village Khapradih in Baloda Bazar - Bhatapara District (Chhattisgarh).

Ref: Consent to Operate (Air & Water) letter No.- 9505 /TS/CECB/ 2021, dated 02/02/2021

Dear Sir,

Kindly referred to above subject matter and reference letter. In this regards, we are submitting herewith the **Environmental Statement in Form-V** for the year **2020-2021** of Shree Raipur Cement Plant (A unit of Shree Cement Ltd.) located near Village Khapradih in Baloda Bazar - Bhatapara District (Chhattisgarh).

Hope you will find this in Order.

Thanking you,

Yours faithfully,
For Shree Raipur Cement Plant
(A unit of Shree Cement Ltd.)

R K Vijay
Jt. VP (Operations)

Enclosed: - As above.

R.O.C.E.C.B. L.R.No. DATE 31/8 RAIPUR

CC to: - Regional Officer, Chhattisgarh Environment Conservation Board, Commercial Complex, Chhattisgarh Housing Board Colony Kabir Nagar, Raipur (C.G.) - 492099

HO C.G. Environment Conservation Board Naya Raipur (C.G.) 31/8/2021

ENVIRONMENTAL STATEMENT
FORM – V
Shree Raipur Cement Plant
(A Unit of Shree Cement Limited)
Period from: April 2020 to March 2021

PART – A

1.	Name and address of the Owner / Occupier of the Industry operation or process	M/s Shree Raipur Cement Plant (A Unit of Shree Cement Ltd) Village – Khapradih, Tahsil – Simga, Distt – Baloda Bazar (Bhatapara) Chhattisgarh – 493196
2.	Industry Category Primary (S.T.C. Code) Secondary (S.T.C. Code)	Red Category
3.	Production Capacity	3.0 Million TPA Cement 5.2 Million TPA Clinker 55 MW Waste Heat Recovery Power Generation 25 MW Captive Power 750 KVA DG sets
4.	Year of Establishment	2015
5.	Date of the last Environmental Statement Submitted	04/09/2019

PART – B
WATER AND RAW MATERIAL CONSUMPTION

(I) WATER CONSUMPTION:

Process	:	203.93 KLD (WHRS & CPP)
Cooling and dust Suppression	:	252.63 KLD (Cement plant)
Domestic	:	492.9 KLD (Cement & Captive Power plant)

Name of Product	Process Water Consumption per Unit of Product Output	
	During Previous Financial Year (2019-20)	During Current Financial Year (2020-21)
Cement	0.011 KL/MT of Cement	0.010 KL/MT of Cement
Clinker	0.025 KL/MT of Clinker	0.013 KL/MT of Clinker
WHRB Power	0.273 KL/MW of WHRB power generation	0.224 KL/MW of WHRB power generation
CPP Power	0. 164 KL/MW of CPP power generation	0. 201 KL/MW of CPP power generation

(II) RAW MATERIAL CONSUMPTION:

Name of Raw Material	Name of Product	Consumption of Raw Material Per Unit of Output Cement/Clinker	
		During Previous Financial Year (2019-20)	During Current Financial Year (2020-21)
Gypsum	Cement	0.1061	0.1013
Fly Ash		0.3324	0.3257
GBFS Slag		0.0054	Nil
Clinker		0.5776	0.5586
Limestone	Clinker	1.4985	1.4992
Fuel (Pet Coke/Coal)		0.1134	0.0887
Additives (Iron Ore, Red Mud)		0.0007	Nil
AFR		0.0008	0.0056

(III) POWER CONSUMPTION (KWH/T OF PRODUCT):

Product Name	During Previous Financial Year (2019-20)	During Current Financial Year (2020-21)
Cement	62.26	61.65
Clinker	59.97	61.72

(IV) TOTAL PRODUCTION (MT):

Product Name	During Previous Financial Year (2019-20)	During Current Financial Year (2020-21)
Cement	2147655	19,07,491
Clinker	3840620	38,40,402
WHRB Power	162612484 Kwh	19,75,19,133 Kwh
CPP Power	121851831 Kwh	11,49,72,169 Kwh

PART – C

DISCHARGED TO ENVIRONMENTAL / UNIT OF OUTPUT

Pollutants	Quantity of Pollutants Discharged (Mass/Day) Ton/day	Concentration of Pollutants in Discharge (Mass/Volume)	Percentage of variation from prescribed standard with reasons
(a) Water	No waste water is being discharged outside the plant premises. As the plant is being operated on dry process technology, therefore no process liquid effluent is generated from cement plant. Only domestic waste water generated from the office toilet and canteen same is being treated in STP installed at site and treated water is being used for irrigation of greenery developed in the plant premises. We have installed 02 nos. of STP having capacity 80 KL (40 KL each). We are maintaining parameters within the prescribed limit. Analysis Report of STP treated water is attached herewith as **Annexure-4** for your record and ready reference.		

(b) Air Pollutants (PM, SO2 & NOx)		Quantity of Pollutants Discharged (Ton/day)	Concentration of Pollutants in Discharge (Mass/Volume)	Percentage of variation from prescribed standard with reasons
Unit-I	Raw mill & Kiln (PM)	0.0797	9.34	We have installed appropriate air pollution control equipment's (viz. ESP, Bag House & Bag Filters). Installed low NOx burner and De-NOx system to control NOx emissions.
	Raw mill & Kiln (SO2)	0.0089	1.04	
	Raw mill & Kiln (NOx)	3.2762	383.74	
	Coal mill (PM)	0.0139	15.32	
	Cooler stack (PM)	0.0636	10.96	
	Cement mill (PM)	0.0400	13.29	
Unit-II	Raw mill & Kiln (PM)	0.0963	12.08	
	Raw mill & Kiln (SO2)	0.0373	4.68	
	Raw mill & Kiln (NOx)	3.1104	389.74	
	Coal mill (PM)	0.0128	13.84	
	Cooler stack (PM)	0.0594	9.86	

CPP	CPP Boiler stack (PM)	0.1181	31.09
	CPP Boiler stack (SO2)	0.8116	213.73
	CPP Boiler stack (NOx)	0.4626	121.85

Stack emission, AAQ & Noise monitoring report are attached as Annexure- 1, 2 & 3 respectively.

PART – D

HAZARDOUS WASTE

(As specified under Hazardous & other wastes (Management and Transboundary Movement) Rule, 2016.

Hazardous Waste	Total Quantity (kilo Ltrs.)	
	During previous Financial Year (2019-20)	During Current Financial Year (2020-21)
Common for Cement plant & Mines		
a) From Process	Used Oil (Cat. 5.1) : 29.25 KL	Used Oil (Cat. 5.1): 10.42 KL
(b) From Pollution Control Facilities	Nil	Nil

PART – E
SOLID WASTE

		Total Quantity	
		During Previous Financial Year (2019-20) (MT/Year)	During Current Financial Year (2020-21) (MT/Year)
(a)	From Process	No solid waste is generated from the Cement manufacturing process.	No solid waste is generated from the cement manufacturing process.
(b)	From Pollution Control Facility	Dust collected in the ESPs, Bag House and Bag Filters are recycled to the system.	Dust collected in the ESPs, Bag House and Bag Filters are recycled to the system.
(c)	1. Quantity rejected or re-utilized within the unit	All the collected swept waste is 100% rèused in the process.	All the collected swept waste is 100% reused in the process.
	2. Sold (Metal / nonmetal / plastic scrap /Burst Bags, filter & PP bags etc.) (Common for Cement plant & Mines)	1986.20 MT	1483.34 MT
	3. Disposed	Nil	Nil

Note: - Scraps sold to scrap dealers/recyclers

PART – F

Please specify the characterization (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 Wastes

Cement manufacturing is based on "Dry Process". No Hazardous waste is generated from the process except used oil which is drained from Machineries / Equipment's. The store department stores all collected hazardous waste at specified location as per Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 from where the hazardous waste is being sold out to SPCB authorized recyclers.

Battery Wastes: Nil

Note – No any used battery generated in April-2020 to March-2021.

E-WASTE

	Total Quantity (MT) (Common for Cement plant & Mines)	
April, 2020 to March, 2021	**During Previous Financial Year (2019-20)**	**During Current Financial Year (2020-21)**
	7.480	9.340

Note- E-Waste sold to authorized recycler.

Bio-Medical Wastes:

Bio-medical waste generated during current financial year April, 2020 to March, 2021 under the Bio-Medical Waste Management Rules, 2016, are as follows.

April, 2020 to March, 2021	**Bio-Medical Waste Quantity (Kg)** (Common for Cement plant & Mines)			
	(Cat. -Yellow)	**(Cat. - Red)**	**(Cat. -White)**	**(Cat.-Blue)**
	10.56	8.96	9.58	11.99

Note- Above mentioned waste has been sent to M/s SMS Watergrace Enviroprotect Pvt. Ltd., CBWTF Bio Medical Treatment Facility, Raipur (C.G.) for disposal.

PART – G

IMPACT OF THE POLLUTION CONTROL MEASURES ON CONSERVATION OF NATURAL RESOURCES AND CONSEQUENTLY ON THE COST OF PRODUCTION

M/s Shree Raipur Cement Plant (A Unit of Shree Cement Ltd.) is being operated on dry process technology, which is cost effective and environmentally clean technology. The advantage of dry process is also in fuel economic. The stack emissions from the plant are controlled by equipment like ESPs, Reverse Air Bag House (RABH) and Bag Filters installed at various material transfer points to clean the process and arrest the fugitive emissions. The particulate matter collected in the

pollution control equipment is recycled in process and neutralizing the cost of operation of pollution control equipment's and hence no cost impact on the production cost.

Waste Heat Recovery System (WHRS) is installed at Pre- heater and cooler section for trapping gasses of high temperatures and are being used for generation of Green Power which has resulted in conservation of fuel, reduction of GHG emissions and water conservation. Company has separate AFR cell looking after the utilization of alternative fuels and raw materials. Unit is utilizing ETP sludge, Organic residue, Distillation residue, spent carbon, spent solvent, spent catalyst, spent resin, waste containing oil etc.

PART – H

ADDITIONAL MEASURES / INVESTMENTS PROPOSAL FOR ENVIRONMENT PROTECTION INCLUDING ABATEMENT OF POLLUTION

1. Green belt development and tree plantation is our ongoing process. Out of Total plant area of 159.256 hectare, Green belt has been developed on 43.4 Hectare (27.25%) area with 1,02,176 Nos. of saplings along with entire periphery of the plant.

2. Additionally, under Hariyar Chhattisgarh project we have planted 15,000 saplings near school of Bharuwadih, Semradih, Khapradih, Chandi, Karahi & Parkidih villages. Road side plantation of about 10 KM on both side of road from Bharuwadih to Chandi village has been done. And we have also planted 15,050 saplings at Bhatapara. Apart from that 2,000 sapling has been planted near the Logistic building.

3. The funds earmarked for Environmental Protection measures are being utilized. Total expenditure incurred during the period April-2020 to March-2021 are as under-

S. No.	Description	Amount (in Rs)
1	Sewage treatment plant	5,90,978
2	Water treatment plant	2,88,1691
3	Technical Consultancy charges for Environment Monitoring	28,56,630
4	Environment Monitoring (Ambient, Stack emission, Ground Water & STP water etc.)	3,02,932
5	Plantation (Cement plant & Mines area)	33,83,308
6	Plantation through CSR	5,18,794
7	Housekeeping & Vacuum Sweeping m/c	3,70,83,399
	Total	**4,76,17,733**

PART – I

ANY OTHER PARTICULARS FOR IMPROVING THE QUALITY OF ENVIRONMENT.

1. Installed 4 numbers of online Ambient Air Quality Monitoring Stations and Installed Continuous Emission Monitoring System at raw mill & kiln stack, Cooler stack, Coal mill stack, Cement mill stack and CPP stack.
2. Real time online data for AAQMS & CEMS stacks, are transmitting to State Pollution Control Board or Pollution Control Committees and Central Pollution Control Board on continuous basis.
3. Monitoring of stack emission and ambient air and water quality is being done regularly.
4. Effective operation of cooler ESP transformer and control panel in first field to further reduce PM emission levels.
5. Installed NOx mitigation systems at Cement Kiln-I & II as pollution control measure to achieve prescribed standards.
6. We have full-fledged Environment Department with three separate cells for monitoring, maintenance of pollution control equipment and Green Belt development.
7. Installed 72 & 35 numbers of Bag filters at various material transfer points in unit-1 & unit-2 respectively for control of fugitive emission.
8. Cement being manufacturing in dry process and there is no any effluent generated from the process hence maintaining Zero Effluent Discharge Plant.
9. Provided waste heat recovery system of capacity 55 MW for power generation from the waste heat gases of kiln & cooler.
10. All internal roads are made concrete for further reduction of fugitive emission.
11. Civil department taking care of House keeping with the help of four Numbers of heavy duty sweeping machines for regular sweeping of all plants roads, shop floors on regular basis.
12. Fly ash is being transported in the closed containers and bulkers.
13. Constructed three Clinker silo with fully covered with tin shed to avoid dust emission.
14. Installed bag filter at all material transfer points to avoid fugitive dust emission along with fully enclosed tin sheet.
15. All Storage Silo installed with Bag filter for controlling dust emission.
16. Maintenance department is doing regular checking and scheduled maintenance of all the pollution control devices.
17. Dust collected from pollution control devices and vacuum cleaning devices is being totally recycled & reused in the process of cement manufacturing.
18. Domestic waste water generated by unit being treated in Movable Bed Bio reactor (MBBR) based sewage treatment plant (STP). Treated STP water being used for plantation/ greenbelt development.
19. Horticulture Department is taking care of tree plantation and green belt development.

20. Applicable best available control measures have been adopted to minimize the fugitive dust emission from each fugitive dust source within active operation.

21. Constructed Covered storage shed for stockpiles of Limestone, Coal & Gypsum.

22. Developed 2 Nos of Rain water harvesting Pond capacity about 2 x 1.5 Lakh capacity each within plant premises where mostly rain water from the plant premises is being stored & recharging ground water through recharge pit.

On support of above, we are enclosing herewith following: -

Annexure-1: - Stack Emission monitoring report.

Annexure-2: - Ambient Air Quality Monitoring Station Report.

Annexure-3: - Ambient Noise Monitoring report

Annexure-4: - STP water Analysis report.

Annexure - 1

Shree Raipur Cement Plant
(A Unit of Shree Cement Ltd)
Online CEMS Stack Emission Monitoring Report (Monthly Average Values)

Name of Stacks →		Cement Mill	Coal Mill Stack-I	Coal Mill Stack-II	Clinker Cooler Stack-I	Clinker Cooler Stack-II	Raw Mill & Kiln Stack -I			Raw Mill & Kiln Stack -II			Captive Power plant Stack		
S. No.	Month	PM	PM	PM	PM	PM	PM	NOx	SO2	PM	NOx	SO2	PM	NOx	SO2
Norms (mg/Nm3)		30	30	30	30	30	30	600	100	30	600	100	50	300	600
1	Apr-20	8.70	SD	10.30	SD	5.50	SD			9.23	334.91	0.26	22.40	122.80	128.80
2	May-20	11.10	16.20	13.20	11.30	7.70	9.70	375.90	5.80	10.90	315.80	0.00	25.60	122.10	195.10
3	Jun-20	14.40	16.40	14.20	11.40	8.90	9.60	317.30	2.40	12.00	327.00	1.90	32.10	99.00	272.40
4	Jul-20	12.50	SD	15.50	SD	12.20	SD			12.70	400.80	28.30	35.70	121.60	248.80
5	Aug-20	15.20		16.20		13.10				10.30	412.30	25.50	27.00	128.70	226.90
6	Sep-20	15.20	17.70	15.70	11.10	11.20	9.80	364.80	0.80	12.30	373.90	0.10	33.40	110.90	245.70
7	Oct-20	14.32	16.18	15.68	10.71	12.44	8.87	361.92	0.22	11.80	380.96	0.08	33.25	178.96	171.68
8	Nov-20	12.16	16.06	15.46	10.52	12.96	8.56	407.18	0.02	12.06	420.19	0.00	32.81	231.86	159.71
9	Dec-20	13.01	11.96	11.27	10.00	12.11	8.62	407.06	0.00	12.88	452.81	0.00	32.75	82.88	276.56
10	Jan-21	13.62	14.37	13.70	11.11	8.05	9.50	452.47	0.07	12.11	486.05	0.00	30.54	88.18	200.15
11	Feb-21	14.68	14.40	11.65	11.27	6.61	9.74	359.70	0.02	13.27	402.02	0.00	33.76	102.56	184.96
12	Mar-21	14.55	14.59	13.19	11.24	7.51	9.65	407.34	0.00	15.35	370.10	0.00	33.77	72.62	254.57
Avg.		13.29	15.32	13.84	10.96	9.86	9.34	383.74	1.04	12.08	389.74	4.68	31.09	121.85	213.78

Annexure-2

Shree Raipur Cement Plant
(A Unit of Shree Cement ltd)
CONTINUOUS AMBIENT AIR QUALITY MONITORING REPORT (MONTHLY AVERAGE)

Location	Parameters	Norms	Unit	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Avg.
AAQMS 1 (Mines boundary towards village Bharuwadih)	PM_{10}	100	µg/m3	57.40	54.02	45.64	37.49	28.29	43.12	53.38	51.64	59.00	53.39	55.06	48.57	48.92
	$PM_{2.5}$	60		24.83	26.27	24.96	18.43	14.05	24.16	29.74	28.81	29.05	29.11	27.06	26.71	25.26
	SO_2	80		12.06	11.81	10.36	10.22	10.60	10.66	12.12	11.93	12.16	12.13	12.12	11.80	11.50
	NO_2	80		11.13	10.90	9.56	9.44	9.77	9.84	11.18	11.02	11.22	11.20	11.19	7.77	10.35
AAQMS 2 (Mines boundary towards villageSemradih)	PM_{10}	100		22.65	55.61	Not in Operation due to UPS breakdown						37.49	31.05	48.64	57.53	42.16
	$PM_{2.5}$	60		13.18	26.53							16.71	11.95	24.68	28.08	20.19
	SO_2	80		22.10	11.76							9.74	9.46	11.14	10.44	12.44
	NO_2	80		20.51	7.84							6.49	6.31	7.43	6.96	9.26
AAQMS 3 (Plant Boundary towards South Diection)	PM_{10}	100		46.64	58.77	42.58	30.30	21.99	38.63	53.70	51.77	53.60	60.35	49.87	53.66	46.82
	$PM_{2.5}$	60		21.85	29.56	25.55	18.97	11.35	21.38	26.34	31.63	31.00	30.79	22.27	27.00	24.81
	SO_2	80		12.14	12.35	12.59	12.39	12.61	12.69	12.79	12.47	12.19	12.31	12.38	13.06	12.50
	NO_2	80		9.11	9.26	9.45	9.30	9.46	9.52	9.59	9.35	9.14	9.23	9.28	13.60	9.69
AAQMS 4 (Plant Boundary towards village Khapradih)	PM_{10}	100		42.07	41.22	30.02	37.68	28.69	43.69	56.00	53.52	60.95	59.41	51.47	51.58	46.36
	$PM_{2.5}$	60		22.77	24.78	22.09	18.22	13.45	23.26	24.91	30.44	30.78	30.75	24.53	24.79	24.23
	SO_2	80		10.04	9.12	22.04	7.71	5.36	5.21	5.06	5.28	5.34	5.71	5.77	6.07	7.73
	NO_2	80		6.45	6.13	6.22	6.23	3.93	0.96	1.62	2.00	7.70	12.26	12.41	12.14	6.50

Annexure- 3

Shree Raipur Cement Plant
(A Unit of Shree Cement Ltd)
Ambient Noise monitoring report

Prescribed Limit - Day Time - 75 dB(A), Night Time - 70 dB(A)

S.No.	Location → / Month ↓	AAQMS-1(Near Bharuadih) (SE)		AAQMS-2 (Near Semaradih) (NE)		AAQMS-3 (Near RMS) (SE)		AAQMS-4 (Near Kharpradih) (SW)	
		Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time
1	Apr-20	58	42	59	43	57	41	55	40
2	May-20	60	45	56	42	61	44	59	42
3	Jun-20	62	44	55	40	61	42	62	45
4	Jul-20	60	40	52	37	60	46	59	43
5	Aug-20	58	43	60	40	58	43	60	40
6	Sep-20	58	40	59	41	63	48	64	47
7	Oct-20	57	43	58	44	56	41	59	40
8	Nov-20	59	44	57	42	61	44	58	42
9	Dec-20	63	46	60	40	59	42	61	45
10	Jan-21	61	45	53	37	60	46	57	43
11	Feb-21	59	40	55	40	57	43	63	40
12	Mar-21	57	42	60	41	62	48	63	47

Annexure-4

Shree Raipur Cement Plant
(A Unit of Shree Cement Ltd)
STP Treated Water Analysis Result
April 2020 To March 2021

STP – I (Near Packing plant)

S. No.	Parameters	Norms	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Avg.
1	pH	6.5 - 9.0	Samplingnot done due to Covid-19	8.06	8.6	8.7	8.16	8.45	8.25	8.2	8.1	8.2	8	7.05	8.16
2	TSS	100		35	36	40	36	45	47	38	40	40	38	18	37.55
3	BOD	30		14	12	15	18	18	17	24	23	22	20	11	17.64
4	COD	250		80	72	92	88	110	115	114	120	114	110	100	101.36
5	Oil & Grease	10		0.4	0.4	0.5	0.6	0.4	0.45	0.3	0.4	3	2	<2	0.85

STP – II (Near CCR Building)

S. No.	Parameters	Norms	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Avg.
1	pH	6.5 - 9.0	Samplingnot done due to Covid-19	8.25	7.49	8.49	8.14	8.28	8.18	7.47	7.97	7.9	7.8	7.77	7.98
2	TSS	100		20	29	45	32	43	42	20	30	33	32	8	30.36
3	BOD	30		12	18	20	20	20	19	22	20	18	18	2	17.18
4	COD	250		74	86	100	96	108	112	102	130	108	101	20	94.27
5	Oil & Grease	10		0.3	0.3	0.6	0.5	0.3	0.35	0.5	0.4	0.4	3	<2	0.67