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/2020-21/356

O/C

Date: 15/07/2020

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 2019-20 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.- 9776 /TS/CECB/ 2020, dated 01/02/2020

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 **2019-2020** 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,

R.O.C.E.C.B. L.R.No 11614 DATE 14/08/2020 RAIPUR

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

R K Vijay
Jt. VP (Operations)

Enclosed: - As above.

H.O.C.G. Environment Conservation Dept. Raipur (C.G.) 21/7/2020

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

ENVIRONMENTAL STATEMENT
FORM – V
Shree Raipur Cement Plant
(A Unit of Shree Cement Limited)
Period from: April 2019 to March 2020

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	:	205.79 KLD (WHRS & CPP)
Cooling and dust Suppression	:	569.46 KLD (Cement plant)
Domestic	:	349.32 KLD (Cement & Power plant)

Name of Product	Process Water Consumption per Unit of Product Output	
	During Previous Financial Year (2018-19)	During Current Financial Year (2019-20)
Cement	0.020 KL/MT of cement	0.011 KL/MT of cement
Clinker	0.021 KL/MT of clinker	0.025 KL/MT of cement
WHRB Power	0.258 KL/MW of WHRB power generation	0.273 KL/MW of WHRB power generation
CPP Power	0. 120 KL/MW of CPP power generation	0. 164 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 (2018-19)	During Current Financial Year (2019-20)
Gypsum	Cement	0.0822	0.1061
Fly Ash		0.3185	0.3324
GBFS Slag		0.0253	0.0054
Clinker		0.5807	0.5776
Limestone	Clinker	1.4898	1.4985
Fuel (Pet Coke/Coal)		0.1109	0.1134
Additives (Iron Ore, Red Mud)		0.0133	0.0007
AFR		--	0.0008

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

Product Name	During Previous Financial Year (2018-19)	During Current Financial Year (2019-20)
Cement	61.99	62.26
Clinker	61.58	59.97

(IV) TOTAL PRODUCTION (MT):

Product Name	During Previous Financial Year (2018-19)	During Current Financial Year (2019-20)
Cement	2381845	2147655
Clinker	4379792	3840620
WHRB Power	172455755 Kwh	162612484 Kwh
CPP Power	130221628 Kwh	121851831 Kwh

PART – C

DISCHARGED TO ENVIRONMENTAL / UNIT OF OUTPUT

Pollutants	Quantity of Pollutants Discharged (Mass/Day)	Concentration of Pollutants in Discharge (Mass/Value)	Percentage of variation from prescribed standard with reasons
(a)	Water	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-3** for your record and ready reference.	
(b)	Air	**Please refer Annexure - 1 & 2**	

PART – D

HAZARDOUS WASTE

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

Hazardous Waste	Total Quantity (Ltrs.)	
	During Previous Financial Year (2018-19)	During Current Financial Year (2019-20)
Common for Cement plant & Mines		
a) From Process	Used Oil (Cat. 5.1) : 15.20 KL	Used Oil (Cat. 5.1): 29.25 KL
(b) From Pollution Control Facilities	Nil	Nil

PART – E
SOLID WASTE

		Total Quantity	
		During Previous Financial Year (2018-19) (MT/Year)	During Current Financial Year (2019-20) (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% reused 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)	1768.72 MT	1986.20 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 used oil, Lead acid batteries waste, E-waste & Bio medical waste are sold to SPCB/CPCB authorized recyclers.

Battery Wastes:

As specified under Batteries (Management and Handling) Amendment Rules, 2010, we have purchased following new batteries of different categories.

Number of new batteries of different categories purchased from the manufacturer / importer / dealer or any other agency.	During Current Financial Year **April, 2019 to March, 2020**	
Common for Cement plant & Mines		
Category:	No of Batteries	Approximate Weight (In Tons)
(i) Automotive		
a) Four wheeler	08	0.018
b) Two wheeler	Nil	Nil
(ii) Industrial		
a) UPS	26	0.74
b) Motive Power	Nil	Nil
c) Stand –by	Nil	Nil
(iii) Others	Nil	Nil
Total	**34**	**0.758**

Number of used batteries of different categories sent to manufacturer/dealer/importer/registered recycler/or any other agency	During Current Financial Year **April, 2019 to March, 2020**	
Common for Cement plant & Mines		
Category:	No of Batteries	Approximate Weight (In Tons)
(i) Automotive		

a) Four wheeler	Nil	Nil
b) Two wheeler	Nil	Nil
(ii) Industrial		
a) UPS	Nil	Nil
b) Motive Power	Nil	Nil
c) Stand –by	Nil	Nil
(iii) Others	Nil	Nil
Total	Nil	Nil

Note - Used battery scrap sold to authorized recycler

E-WASTE

	Total Quantity (MT) (Common for Cement plant & Mines)	
April, 2019 to March, 2020	**During Previous Financial Year (2018-19)**	**During Current Financial Year (2019-20)**
	Nil	7.480

Note- E-Waste sold to authorized recycler

Bio-Medical Wastes:

Bio-medical waste generated during current financial year April, 2019 to March, 2020 under the Bio-Medical Waste Management Rules, 2016, are as follows.

April, 2019 to March, 2020	**Bio-Medical Waste Quantity (Kg)** (Common for Cement plant & Mines)			
	(Cat. -Yellow)	**(Cat. - Red)**	**(Cat. -White)**	**(Cat.-Blue)**
	9.72	15.88	9.49	10.75

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 economy. 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 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

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 42.1 Hectare (26.4%) area with 99,176 Nos. of saplings along with entire periphery of the plant.

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.

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 on line CEMS data for AAQMS & 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. Constructed concrete roads near Raw mill, coal mill, cooler, cement mill, packing plant and TG building areas 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 3 Nos of Rain water harvesting Pond capacity about 2 x 1 Lakh each and 35,000 KL capacity 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: - STP water Analysis report.

Annexure - 1

Stack Emission Monitoring Report
Year-2019-20

Name of stack	Raw Mill & Kiln-I Stack			Coal Mill-I Stack	Cooler-I Stack	Cement mill stack	Raw Mill & Kiln-II Stack			Coal Mill-II Stack	Cooler-II Stack	Captive power plant stack		
Parameters / Month	PM	NOx	SO2	PM	PM	PM	PM	NOx	SO2	PM	PM	PM	NOx	SO2
Norms (mg/Nm3)	30	600	100	30	30	30	30	600	100	30	30	50	300	600
Apr-19	4.17	346.6	10.5	6.34	4.63	7.49	10.90	326.7	30.9	11.55	5.13	21.73	59.52	113.7
May-19	10.23	298.5	5.31	15.42	11.51	9.69	8.61	413	25.1	9.44	4.90	26.99	89.98	106.9
June-19	9.69	364.6	25.75	13.23	11.48	11.72	3.90	343.2	41.5	5.12	3.18	23.52	90.60	198.5
July-19	4.60	371.6	29.2	6.98	5.31	9.76	13.54	268.4	46.3	13.24	9.94	13.06	93.98	224.7
Aug-19	SD	SD	SD	SD	SD	7.47	13.38	302.1	37.2	12.57	9.12	15.10	77.06	227.4
Sept-19	3.30	269.5	36.6	5.08	3.71	10.38	6.59	244	26.5	6.34	3.94	12.32	54.90	214.6
Oct-19	9.4	251.5	30.4	13.6	11.2	11.8	13.5	368.0	34.6	14.0	9.4	12.3	64.2	234.4
Nov-19	10.2	397.1	0.5	15.8	12.2	11.9	12.4	394.2	3.3	14.6	11.1	13.9	60.3	231.2
Dec-20	8.8	312.7	13.5	14.2	11.3	12.6	12.3	298.8	17.7	14.2	11.1	14.0	68.4	172.8
Jan-20	8.9	341.1	12.4	16.8	11.8	12.3	11.2	378.1	15.0	14.9	9.6	20.5	68.1	194.5
Feb-20	9.7	312.8	0.1	16.4	11.8	11.7	11.0	294.6	24.0	13.2	8.5	28.5	76.8	184.1
Mar-20	9.8	382.6	0.4	15.2	11.6	12.3	10.2	386.7	1.1	10.2	5.4	26.4	99.2	179.5
Average	**8.1**	**331.7**	**14.9**	**12.6**	**9.7**	**10.8**	**10.6**	**334.8**	**25.3**	**11.6**	**7.6**	**19.0**	**75.3**	**190.2**

*SD - Shutdown

Annexure -2

Ambient Air Quality Monitoring Report
(All value in µg/m³)
For The Period of April 2019 To March 2020

Location	Parameters	Norms	Apr-19	May-19	June-19	July-19	Aug-19	Sept-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Avg.
AAQMS 1 (Mines boundary towards village Bharuwadih)	PM_{10}	100	92.6	75.8	60.3	30.8	20.8	13.4	53.3	66.6	65.3	57.7	53.5	46.4	**53.0**
	$PM_{2.5}$	60	47.5	37.9	26.4	16.9	16.2	13.2	35.8	40.9	31.8	34.7	30.2	25.9	**29.8**
	SO_2	80	3.8	2.9	4.4	10.0	10.7	12.0	13.4	14.0	11.4	12.8	12.9	12.0	**10.0**
	NO_2	80	4.2	3.1	4.8	11.0	11.7	13.2	11.9	15.7	11.0	11.8	11.9	11.1	**10.1**
AAQMS 2 (Mines boundary towards village Semradih)	PM_{10}	100	75.8	73.8	46.6	31.5	25.1	24.0	55.7	70.1	61.4	55.0	55.8	37.2	**51.0**
	$PM_{2.5}$	60	38.8	35.8	25.5	16.1	15.0	10.9	35.1	41.4	37.5	33.5	27.6	20.3	**28.1**
	SO_2	80	7.5	6.5	7.0	7.8	8.1	7.4	8.1	8.8	7.5	8.6	8.7	19.7	**8.8**
	NO_2	80	8.0	6.9	7.5	6.7	8.6	7.9	6.9	9.5	8.9	8.3	8.4	18.7	**8.9**
AAQMS 3 (Plant Boundary towards South Direction)	PM_{10}	100	93.0	76.1	62.8	27.1	23.6	20.2	49.0	71.4	64.9	59.3	46.2	45.7	**53.3**
	$PM_{2.5}$	60	37.9	52.0	26.5	18.3	15.3	9.9	30.3	40.4	37.8	33.8	25.9	26.4	**29.5**
	SO_2	80	8.1	5.7	7.2	6.6	6.9	8.2	7.0	11.2	10.4	11.8	12.0	12.2	**8.9**
	NO_2	80	8.1	5.6	6.0	5.5	5.8	6.9	4.7	9.3	10.1	8.8	9.0	9.1	**7.4**
AAQMS 4 (Plant Boundary towards village Khapradih)	PM_{10}	100	75.6	78.3	56.4	40.6	45.7	20.7	53.4	69.0	61.7	63.9	51.3	46.8	**55.3**
	$PM_{2.5}$	60	38.7	46.9	22.7	20.0	19.5	14.7	37.7	35.8	33.6	35.0	30.5	28.7	**30.3**
	SO_2	80	20.4	13.4	12.9	8.7	6.7	6.5	6.5	6.4	7.5	10.4	10.2	10.1	**10.0**
	NO_2	80	7.8	6.8	6.8	6.9	6.7	6.7	4.9	6.7	7.4	6.2	6.3	6.5	**6.6**

Ambient Noise Level Monitoring Report - dB(A)
For The Period of April 2019 To March 2020

Location	Noise level dB (A)	Norms	Apr-19	May-19	June-19	July-19	Aug-19	Sept-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Avg.
AAQMS 1 (Mines boundary towards village Bharuwadih)	Day time	75	55	52	43	56	52	53	62	58	54	50	54	52	53
	Night time	70	51	47	37	51	45	47	48	43	42	39	40	42	44
AAQMS 2 (Mines boundary towards village Semradih)	Day time	75	53	52	50	53	53	55	56	60	52	49	51	53	53
	Night time	70	45	47	46	45	46	49	44	46	39	36	38	40	43
AAQMS 3 (Plant Boundary towards South Direction)	Day time	75	51	51	46	51	51	55	63	54	56	58	62	60	55
	Night time	70	44	46	40	44	45	49	45	41	44	47	49	45	45
AAQMS 4 (Plant Boundary towards village Khapradih)	Day time	75	56	53	52	56	54	53	60	52	58	53	49	55	54
	Night time	70	50	47	44	50	48	48	43	43	44	40	36	48	45

Annexure -3

STP Treated Water Analysis Result
For The Period of April 2019 To March 2020

STP – I (Near Packing plant)

S. no.	Parameters	Norms	Apr-19	May-19	June-19	July-19	Aug-19	Sept-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Avg.
1	pH	6.5 - 9.0	6.97	7.15	6.5	6.28	8.33	7.05	8.08	7.72	7.8	8.24	8.31	7.56	**7.5**
2	TSS	100	2.8	12.8	32	20	28	19.12	12	26	28	31	24	26	**21.81**
3	BOD (3 day at 27 deg)	30	10	18	19	16	14	15.40	10	14	16	16	15	14	**14.78**
4	COD	250	60.4	80.6	104	104	84	86.60	80	96	78	94	78	72	**84.8**
5	Oil & Grease	10	<0.2	0.4	0.4	0.4	<0.2	<0.2	<0.2	<0.2	0.6	<0.2	0.4	<0.2	**0.44**

STP – II (Near CCR Building)

S. no.	Parameters	Norms	Apr-19	May-19	June-19	July-19	Aug-19	Sept-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Avg.
1	pH	6.5 - 9.0	7.38	7.84	6.8	6.77	7.6	7.28	7.84	7.63	7.62	7.78	7.64	7.57	**7.5**
2	TSS	100	18	20.8	34	20	18	22.16	14	24	20	17	15.5	14	**19.79**
3	BOD (3 day at 27 deg)	30	20	24	22	23	18	21.40	17	12	14	19	12.2	24	**18.88**
4	COD	250	120.9	141.1	128	116	144	130.00	88	84	98	123	49.8	108	**110.9**
5	Oil & Grease	10	<0.2	0.2	0.6	0.6	<0.2	<0.2	<0.2	0.5	0.5	<0.2	0.4	0.5	**0.47**