

26th September, 2022

DCBL/RGP/ENV/AES/349-2022

The Member Secretary,
State Pollution Control Board, Odisha
A/118, Paribesh Bhawan, Nilakantha Nagar, Unit-VIII
BHUBANESWAR-751 012

Sub: Submission of Environmental statement for the financial year ending 31st
March 2022.

Dear Sir,

It is submitted herewith the Environmental Statement in Form-V, as prescribed under Rule 14 of Environment Protection Act, 1986 for the financial year 2021-22 in respect to our Cement division of **M/s. Dalmia Cement (Bharat) Limited, Works unit: Rajgangpur, Dist. Sundergarh, Odisha.**

This for your kind information.

Thanking you,

For **Dalmia Cement (Bharat) Limited, Rajgangpur**



Dr. Satish Mishra
Sr. General Manager (Env.)/C

Encl: As above.

CC: (1) The Regional officer, State pollution Control Board, Regional Office, Near Hockey Chowk, Panposh, Rourkela-769004

(2) Regional Director, Ministry of Environment, Forest & Climate Change, Regional Office (Eastern Zone), A/3-Chandrasekharapur Bhubaneswar-751023.

"FORM - V"
(See Rule 14)

ENVIRONMENT STATEMENT FOR THE FINANCIAL YEAR ENDING THE 31st MARCH, 2022

PART - A

- (i) Name and address of the owner/ occupier of the industry operation or process. : T.Venkatesan
Dalmia Cement Bharat Limited (formerly OCL India Ltd.)
Rajgangpur 770017
Dist:-Sundargarh (ODISHA)
- (ii) Industry category : Major
Primary - (STC Code)
Secondary - (SIC Code)
- (iii) Production capacity - Units : Clinker - 2.9 MTPA
Cement - 4.0 MTPA
WHRB - 11MW
CPP - 2x27 MW
- (iv) Year of Establishment : 1951
- (v) Date of the last environmental Statement submitted : 14.09.2021

PART - B

Water and Raw Materials Consumption

- (1) Water consumption m³/d.

Nature of products	Process Water consumption per unit of product output	
	During the current financial year (2020-21)	During the current financial year (2021-22)
Cement manufacturing and Power generation	Cement & CPP (Process & Cooling) – 459 KLD (avg. basis), in raw water consumption	Cement & CPP (Process & Cooling) – 480 KLD (avg. basis), in raw water consumption

- (2) Raw Material Consumption – Attached as Annexure-I & Production detail given in Annexure-II

* Nature of consumption	Process Raw Material Consumption per unit of product output		
	Quality of product	During the previous financial year	During the current financial year
	Details attached as Annexure-I		

* Polluting Industry may use codes if disclosing details of raw materials would violate contractual obligations, otherwise all industries have to name the raw materials used.





PART - C

Discharged to environment/unit of output specified if the consent issued.

Pollutants	Quantity of pollutants discharged (mass/day)	Concentration of pollutants in discharges (mass/volume)	Percentage of variation from prescribed standards with reasons
(a) Water	Zero discharge	Not applicable	Not applicable
(b) Air	NA	Given detail in Annexure-II	Parameters are within prescribed standards

PART - D

HAZARDOUS WASTES

(As specified under Hazardous Wastes/Management and Trans-Boundary Rules 2016)

Hazardous Wastes (Disposed / Co-processed)	Total Quantity (kg)		
	During the current financial year (2020-21)	During the current financial year (2021-22)	
(a) From process (disposed)	Used oil – 38.85 KL Waste/Residue containing oil-9.738 MT	Used oil – 31.50 KL Waste/Residue containing oil-6.75 MT	
(b) From pollution control facilities	Nil	Nil	
(c) For co-processing other wastes	(1) PTA waste mix/Process Sludge – 11356.00 MT (2) Mixed Pharma waste – 14864.00 MT (3) Blast furnace flue dust – 3078.00 MT (4) Plastic wastes – 4218.00 MT (5) Spent cat. (Petroleum ref.) – 1460.00 MT (6) RDF from Municipality solid wastes –19055.00MT (7) Rice husk & others – 5096.00MT (8) FMCG trade wastes rejects—147.00MT	Category of wastes	Quantity (MT)*
		1.) Oily sludge /Emulsion, spent clay containing oil	2818.22
		2.) Distillation residues	857.28
		3.) Wastes & Residues	71.43
		4.) Process residues & wastes, spent catalyst/spent carbon, OFF specification drugs, spent organic solvent	1778.32
		5.) Process wastes, any process & Distillation residues	1305.59
		6.) Contamination cotton rags or other cleaning materials, Sludge from wet scrubber, Distillation residues from contaminated organic solvents	704.90
		7.) Chemical sludge from waste water treatment	12444.72
		(8) RDF from Municipality solid wastes –	65387.48

*Received Quantity.

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PART - E

SOLID WASTE

Source	Total Quantity (In tonne)	
	During the financial year: 2020-21	During the financial year: 2021-22
a) From process	100% self-utilization	100% self-utilization
b) From pollution control facilities	-	-
c) Quantity recycled or reutilized within the Unit.	Fly ash-1,61,773 MT	Fly ash-1,47,799 MT
d) Sold	Not applicable	Not applicable
e) Disposed	Not applicable	Not applicable

PART - F

Please specify the characterizations (in terms of composition and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

- No solid waste generated from process of cement plant and the fly ash generated from Captive power plant being utilised for cement manufacturing process, which is 100% utilisation of generated fly ash.
- Used oil (Category 5.1, as per Schedule-I) is a part of Hazardous waste category material, which is regularly being collected in drum & stored in earmarked place before disposed through authorized re-cycler party. Waste/Residue containing oil like used cottons, etc. are being used for kiln firing for captive use. Similarly, Hazardous and other wastes received from outside Industries, Municipality areas & authorised suppliers by using as AFR in the Cement kiln for co-processing purpose.

PART - G

In respect of the pollution abatement measures taken on conservation of natural resources and on the cost of production.

Water conservation:

The recycled water from our facilities (ETP & STP) is fully utilised for our plant process, dust suppression, process cooling, vehicle washing, gardening and firefighting purpose. As a result, our recycled water consumption has increased from 756 Kl/day in 2015-16 to 2419 Kl/Day in 2020-21. Recycled water consumption in 2021-22 is 2252 Kl/D.

- Prior to 2015, fresh water was being utilized for above all requirements and at present only recycled water is used for plant process, gardening and vehicle washing etc, thus our raw water drawl has been reduced from 3177 Kl/day in 2015-16 to 1956.5 Kl/Day in 2020-21. Fresh water withdrawal for 2021-22 is 2536 Kl/Day



- We have constructed rain water harvesting structures of 40,000 Cum capacity at different locations inside our plant premises.
- Installation of WHRB (waste heat recovery boiler) at L-II unit resulted reduction of process water consumption which was earlier used for cooling purpose in Pre-heater cyclones.

PART - H

Additional measures/investment proposed for environmental protection including abatement of pollution, prevention of pollution.

Sl. No.	Pollutants	Measures Adopted to Abate/ Mitigate the pollutants
1.	(a) PM emission from Stack (source emission) (b) PM2.5 & PM10 from AAQ	(a) In order to control particulate matter (PM) emission from all stacks, we do have Pulse Jet Bag filter, Reverse Air Bag House, Electro-static Precipitator, etc. to maintain PM emission to limit the emission norm, i.e. 30 mg/NM3. (b) For Ambient air quality, PM2.5 and PM10 are limited within 60ug/m3 and 100ug/m3 respectively.
2.	NOx from Source emission	In order to meet NOx emission, we have taken primary mitigation measures in our Line-1 & Line-2 and put low Nox burner in kiln section for the control of NOx generation. Also, installed SNCR (Selective Non-catalytic reduction) system for NoX control to meet the emission norm, i.e. < 800 mg/NM3.
3.	SO2 from Source emission	SO2 emission is absorbed by Lime Stone during the clinkerization process, SO2 emission is well within the norm, i.e. 100 mg/NM3.
4.	Noise generation from operation and different running of equipment	Acoustic enclosure provided at TG room of CPP and Noise free generator are there. Cooler fans provided with silencers and most of building were provided with double wall protection in blower and compressor rooms. We have provided signage at noise prone area and all employees are provided with Ear plug/ PPEs to abate with any such sound pollution.

- Periodic monitoring carried out by NABL accredited agency for special parameters like PCDD & PCDF (as per co-processing guideline for cement manufacturing).
- Alternate fuel & raw material (AFR) feeding system with proper arrangement of hooding and mechanised control method were adopted to handle Hazardous waste and non-hazardous materials (PTA waste, Pharma waste and other wastes) for co-processing in cement manufacturing process.
- Preheater fan 2 drive changed with high efficiency drive in Line-1 and Installation of SPRS in preheater fan in Line-2 for improving Specific power consumption for plant operation, which ultimately contribute for Co2 emission reduction.
- Reduction in use of fossil fuel by using alternative fuel for cut down Co2 emission by establishing our objective towards GHG emission reduction and achievement of sustainable development goal.
- System operation of WHRS (waste heat recovery systems) in Line-2 preheater and cooler sections.
- Implementation of Mechanical composting system for domestic and canteen waste materials.

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**Investment made in pollution control system during the financial year 2021-2022
(i.e., from 01.04.2021 to 31.03.2022)**

	Investment during 2019-2020 (In Rupees)	Investment during 2020-2021 (In Rupees)	Investment during 2021-2022 (In Rupees)
Water pollution control system	15,92,076.00	79,58,140.00	28,95,240.0
Air pollution control system	92,86,737.96	3,26,29,657.00	1,31,28,877.10
Solid Waste/Hazardous waste/Bio-medical Management System	9,50,00,000.00	14,22,66,922.00	25,23,072.76
TOTAL COST (INR)	10,58,78,813.96	18,28,54,719.00	1,85,47,189.86

PART – I

Any other particulars for improving the quality of the environment.

Following initiatives have been taken by Dalmia Cement (Bharat) Limited towards the improvement of environmental progress:

- Installation of SNCR De-Nox system for emission control from VRM-2 stack.
- Cumulative plantation of 2,88,478 trees made in and around of our factory till FY: 2021-22.
- Commissioning of Pond-ash Feeding System for CVRM-1 & 2 in close circuit for control of fugitive dust emission.
- Successfully Completed the Installation of Liquid Green fuel firing system in Line-1.
- Successfully commissioning of Green fuel Processing and Feeding system at Line-2.
- Total Fly-ash & bed ash generated from our own captive Power Plant for manufacture of Cement.
- Disposal of E-waste and Bio-medical waste by proper management system through authorised recyclers and authorized CBWMTF were carried out.
- Celebration of Carbon Free "World Environment Day "on 5th June every year to create greater awareness among the people of Colony ladies, children's of DVM School, villagers, employers and organising various types of competitions with massive plantations.
- Installation of Vehicle Wheel washing Point at Line-1 clay Gate.





Annexure – I

Raw Material Details:

Raw Material Consumption for previous year 2020-21			
Name of Product	Name of Raw Material	Consumption quantity per annum (Tonne)	Raw Material consumption per tonne of product
CLINKER	LIMESTONE	34,29,773	1.43
	FLYASH & OTHERS	54,767	-
	SANDSTONE	55,552	-
	MORRUM & REDMUD	97,184	-
	FLUE DUST & OTHERS	17,683	-
	COAL (clinkerisation)	1,06,722	-
	PETCOKE	2,40,386	-
	ALTERNATE FUEL	35,737	-
CEMENT & CPP	GYPSUM	14,532	-
	SLAG	3,49,747	-
	FLYASH	2,23,244	-
	RICE HUSK & OTHERS	5,184	-
	COAL (CPP)	2,78,808	-

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Raw Material Consumption for FY: 2021-22			
Name of Product	Name of Raw Material	Consumption quantity per annum (Tonne)	Raw Material consumption per tonne of product
CLINKER	LIMESTONE	2600408	1.388
	FLYASH & OTHERS	52375	0.028
	SANDSTONE	16250	0.009
	IRON ORE	1541	0.001
	MORRUM & REDMUD	60474	0.032
	FLUE DUST & OTHERS	9629	0.005
	LD SLAG	44063	0.024
	COAL (CLINKERISATION)	55974	0.030
	PETCOKE	134168	0.072
	ALTERNATE FUEL	65476	0.035
CEMENT	GYPSUM	37490	0.013
	SLAG	1120948	0.378
	FLYASH	589729	0.199
	COAL	32718	0.011
	PETCOKE	9753	0.003
CPP	RICE HUSK & OTHERS	52502	0.0002
	COAL (CPP)	217141	0.0007

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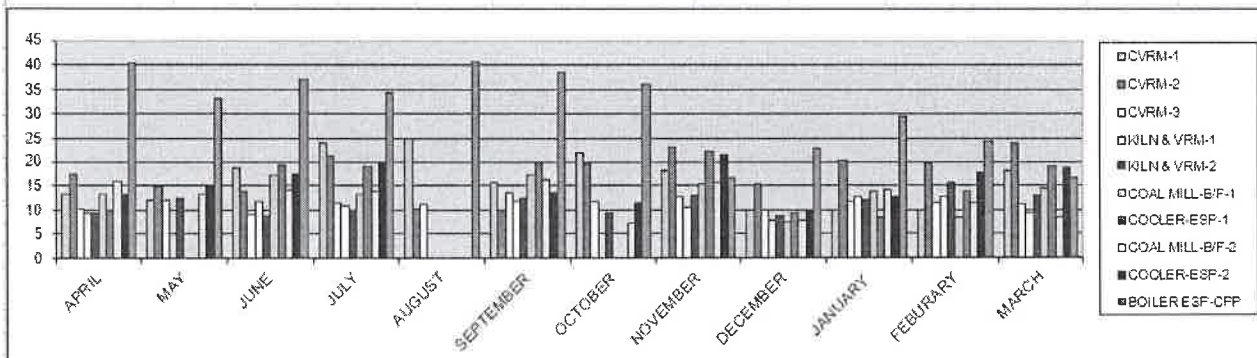
Production details for FY: 2021-22

- (a) Cement: 2963165.9 tonnes.
- (b) Clinker: 1874031.7 tonnes.
- (c) Power: 35,51,71,900 Kwh.

Stack Emission details (For 2021-22):

Nox, Sox and other Significant air emissions															
Sl.No.	Parameter	Unit	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Total
Type of stack 1 (VRM/Kiln stack,Line-1)															
1	Nox	mg/Nm ³	610		425	532		360	301	421	396	422	499	324	4290
2	Sox	mg/Nm ³	32		18	11		12	8	40	12	13	37	9	192
Type of stack 2 (VRM/Kiln stack,Line-2)															
1	NOx	mg/Nm ³	510	378	311	420		170	159	256	323	288	195	439	3449
2	Sox	mg/Nm ³	10	14	20	18		8	6	56	36	23	7	45	243

STACK MONITORING REPORT - FOR FY:2021- 22 IN L-1, L-2 & CPP												
STACK LOCATION	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH
CVRM-1	13.4	12.1	18.7	24.1	25.12	15.76	22.14	18.23	9.93	9.96	10.04	18.15
CVRM-2	17.6	14.7	14	21	10.37	9.93	19.7	23.34	15.34	20.09	19.7	24.01
CVRM-3	10.3	12	9	11.5	11.26	13.6	11.91	12.59	9.92	11.63	11.6	11.22
KILN & VRM-1	9.4		11.7	10.9		11.73		10.56	7.72	12.76	12.79	9.22
KILN & VRM-2	9.5	12.4	8.7	10.1		12.23	9.41	12.83	8.84	11.93	15.78	12.97
COAL MILL-B/F-1	13.4		17.3	13.3		17.07		15.23	7.41	13.76	8.42	14.53
COOLER-ESP-1	10		19.3	19.1		19.45		22.42	9.48	8.56	13.92	18.91
COAL MILL-B/F-2	15.9	13.3	14.1	14		16.29	7.28	15.6	7.83	14.03	11.4	8.57
COOLER-ESP-2	13.3	14.9	17.5	19.8		13.62	11.6	21.53	9.89	12.76	17.8	18.71
BOILER ESP-CPP	40.2	33.1	37	34.3	40.7	38.6	36.1	16.5	22.9	29.4	24.5	16.6



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Trend Last Three Years

Sl. No.	Parameters monitored	Pollution control Technology/ system Adopted in Source emission system	2019-20		2020-21		2021-22	
			Emission (mg/Nm ³)		Emission (mg/Nm ³)		Emission (mg/Nm ³)	
			Prescribed Standard	Observed value	Prescribed Standard	Observed value	Prescribed Standard	Observed value
1	PM	VRM ESP/PJBF, L-1	30	6.24	30	6.9	30	10.75
	So ₂		100	20.50	100	27.4	100	19.2
	No _X		800	512.17	800	547.5	800	429
2	PM	COAL MILL B.F, L-1	30	10.9	30	11.3	30	13.38
3	PM	COOLER ESP, L-1	30	17.03	30	12.6	30	15.68
4	PM	CVRM - 1	30	9.35	30	13.1	30	16.46
5	PM	CVRM - 2	30	13.7	30	13.3	30	17.48
6	PM	CVRM - 3	30	12.11	30	17.2	30	11.37
7	PM	VRM RABH, L-2	30	7.93	30	9.8	30	11.33
	So ₂		100	19.64	100	13.4	100	22.09
	No _X		800	411.90	800	455.4	800	313.54
8	PM	COAL MILL B.F, L-2	30	12.5	30	11.3	30	12.57
9	PM	COOLER ESP, L-2	30	16.44	30	14.2	30	15.57
10	PM	BOILER ESP (CPP)	50	35.64	50	39.6	50	30.82

AMBIENT AIR YEARLY AVG. DATA (FOR FY: 2021-22)

Location of sampling station	SO ₂ (ug/m ³)	NO _X (ug/m ³)	PM ₁₀ (ug/m ³)	PM _{2.5} (ug/m ³)	Ozone (O ₃) (ug/m ³)	Lead (Pb) (ug/m ³)	CO (mg/m ³)	Ammonia (nh ₃) (ug/m ³)	Benzene (C ₆ H ₆) (ug/m ³)	Benzo (a) Pyrene (BaP) – (ug/m ³)	Arsenic (AS) (ug/m ³)	Nickel (Ni) (ug/m ³)
Workshop Bldg.	05	15	47	18	<20	<0.4	<0.1	<60	<0.5	<0.1	<0.2	<12
Atithi Niwas Bldg.	05	11	78	29	<20	<0.4	<0.1	61	<0.5	<0.1	<0.2	<12
Near WTP, CPP	04	11	79	29	<20	<0.4	<0.1	86	<0.5	<0.1	<0.2	<12
Store Bldg.	05	20	68	26	<20	<0.4	<0.1	71	<0.5	<0.1	<0.2	<12
Canteen Bldg.	05	16	88	34	<20	<0.4	<0.1	60	<0.5	<0.1	<0.2	<12
Loco gate	06	17	57	22	<20	<0.4	<0.1	97	<0.5	<0.1	<0.2	<12