Dalmia
Bharat Cement

newthink! cement! sugar! refractories! power!

Date: 10th September 2019

To
The Additional Principal Chief Conservator of Forests (C),
The Ministry of Environment, Forests and Climate Change,
Regional Office (SEZ),
1st and 2nd Floor, Handloom Export Promotion Council,
34, Cathedral Garden Road, Nungambakkam,
Chennai-34.

Ref: **J-11011/76/2007-IA-II (I) (T) Dated on 05/04/2007**

Dear Sir,

Sub: Submission of Environmental Audit statement (Form-5) of M/s Dalmia Cement plant for the financial year 2018-2019.

X - X - X – X - X

We are herewith submitting the Environmental Audit statement (Form-5) of M/S Dalmia Cement (Bharat) Ltd. for the financial year 2018-2019 in Form-V.
This is for your kind reference and records please.
Kindly acknowledge the receipt of the same.

Thanking you,

Yours faithfully

For Dalmia Cement (Bharat) Limited

Authorized Signatory

(K. KARUNAKARA RAO)

Unit Head

Enclosure: As above

CC to: Environmental Engineer, APPCB -RO, Kadapa.

M/s. DALMIA CEMENTS (BHARAT) LIMITED,

Chinnakomerla (VI), Mylavaram(M),
Jammalamadugu(T), YSR (Dist)-AP

ENVIRONMENTAL STATEMENT (AUDIT) FOR THE FINANCIAL YEAR 2018-2019

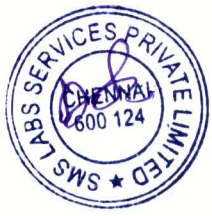
Consultants:

SMSLA

SMS LABS SERVICES PVT LTD
39/6, T.H. Road, Pudhuchatram, Thirumalisai (Via),
Poonamallee – Tk, Chennai – 600124,
Tamilnadu, India.
Website: www.smsla.in

ACKNOWLEDGEMENT

M/s. SMS LABS SERVICES PVT LTD express sincere debt of gratitude to **M/s. Dalmia Cement (Bharat) Limited** for the opportunity given by assigning the preparation of Environmental Statement (Audit) for the financial year **2018-2019**, for their cement unit located at Chinnakomerla (P.o), Mylavaram (M), Jammalamadugu(Tq), YSR Kadapa District of A.P. The Environmental statement is prepared for the financial year 2018-2019 Special mention needs to be made of Executives of **M/s. Dalmia Cement (Bharat) Limited,** for their co-operation and assistance during the preparation of this statement. We also wish to acknowledge our gratitude to all of them who helped during the data collection and report preparation.



CONTENTS

APPENDIX

LIST OF TABLES

LIST OF FIGURES

FORM - V
(See rule 14)
ENVIRONMENTAL STATEMENT REPORT FOR THE FINANCIAL YEAR ENDING THE 31ST MARCH, 2019.

PART – A

i) Name and address of the owner/ occupier of the industry operation or process.	:	**Mr. T. Venkatesan** **M/s. DALMIA CEMENT (BHARAT) LIMITED,** Chinnakomerla (P), Mylavaram (M), Jammalamadugu (T), Kadapa – 516 433.
ii) Operation Process	:	Clinker and Cement manufacturing
iii) Date of the last environmental audit report submitted	:	September, 2018
iv) Production Capacity	:	4.06 MMTA Cement (Inclusive of 2.06 MMTA Clinker)
v) Year of Establishment	:	2008-09

PART – B
WATER AND RAW MATERIAL CONSUMPTION

i) Water consumption	:	**800 KLD**
1. Process	:	700 KLD
2. Domestic	:	100 KLD

Water consumption per unit of product (KL/MT of Cement)

Name of Product	During the previous financial year (2017-2018)	During the current financial year (2018-2019)
Up to Clinkerization	0.049	0.050
Overall Cement	0.108	0.113

ii) Raw material consumption:

Name of Raw Materials	Name of product	Consumption of raw material per MT of output based on MT of Cement	
		During the previous Financial year (2017-2018)	During the current financial year (2018-2019)
1. Lime Stone		1.199	1.1920
2. Red mud		--	0.0001
3. Laterite		0.030	0.0001
4. Bauxite		--	0.0496
5. Iron Ore		0.015	0.0215
6. Fly ash (Raw mix)		--	0.0062
7. Pet coke		0.071	0.0685
8. Coal		--	--
9. Carbon Black		0.003	0.0038
10. Al.Fuel		0.003	0.0045
11. Gypsum		0.004	1.32%
12. Fly Ash		0.337	11.29%

PART - C
POLLUTION GENERATED
(Parameter as specified in the consent issued)

Pollutants		Concentrations Of Pollutants (mg/L) 2017-2017	Concentrations Of Pollutants (mg/L) 2018-2019	Percentage of variation from prescribed standards with reasons
a) Treated Waste Water				
1	Total Dissolved Solids	1061.9	992	50.5% Less
2	Suspended solids	45.0	8.4	77.5% Less
3	B.O.D.	18.5	7.3	81.59% Less
4	Oil & Grease	Traces	Traces	
Average Effluent Quantity **100.00 Cu.m/Day**				

b) Air				
Stack Attached to	Pollutants	Concentrations Of Pollutants in Emissions (mg/Nm^3) 2017-2018	Concentrations Of Pollutants in Emissions (mg/Nm^3) 2018-2019	Percentage of variation from prescribed standards with reasons
Cooler	PM	23.6	15.9	21.3 % less
Coal Mill	PM	23.8	19.6	20.6 % less
Cement Mill	PM	24.0	21.3	20 % less
Raw Mill/Kiln	PM	22.0	15.2	26.6 % less
Crusher	PM	22.2	22.2	26 % less

PART - D
HAZARDOUS WASTE

(As specified under hazardous wastes/Management and handling rules, 2003)

Source of Solid waste		Total Quantity During the previous financial year (2017-2018)	Total Quantity During the current financial year (2018-2019)
1.	**From Process**	--	--
2.	**From Pollution Control**	--	--
	I. Waste Grease	--	--
	II. Waste Oil	24.3 MT	13.96MT
	III. Used Batteries	63 NO'S	20 NO'S
Co-processing of Hazardous Waste			
	Spent Organic Solvents	6916.6 MT	11164MT
	(Solids& Liquids)& Solid Waste Mix		
	E-Waste		4.620MT

PART - E
SOLID WASTES

S.No	Solids Waste	Total quantity MT per year During the previous financial year (2017-2018)	During the current financial year (2018-2019)
a)	**From Process**	--	--
b)	**From Pollution Control Facility**	--	--
c)	**Quantity recycled or re-utilized**	--	--

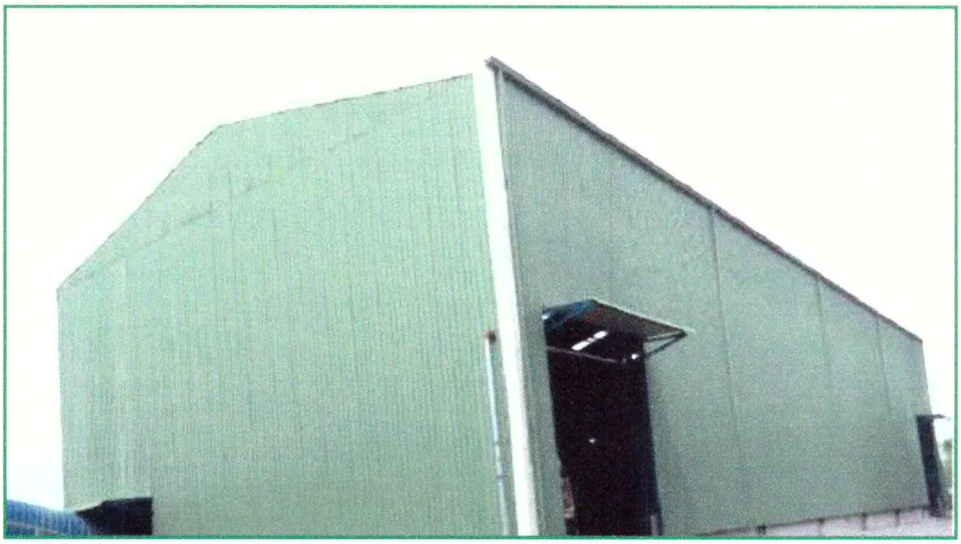
Note: No Solid waste generated from plant and limestone mine.

Household waste will be segregated and food and horticulture waste used for manure preparation by using Organic Waste Composter.

Alternative Fuel and Raw Material Shed:

We wish to inform you that our management is very much keen on doing various activities for sustainable developments.As a part of this initiative, we are being utilize the hazardous waste for "co-processing of Hazardous waste in Cement Kiln".

Alternative Fuel and Raw Material Shed



Plastic Waste Shredder

PART - F

Please specify the characteristics (in terms of concentration and quantum) of Hazardous as well as solid wastes and indicates disposal practice adopted for both these categories of wastes.

The industry has been maintaining top priority to waste minimization and cleaner practices.

Industry has been taken practical steps for prevention of spillages of waste oils at all applications.

The industry is maintaining 6 copy manifest system for transportation of waste generated.

PART – G

Impact of the pollution control measures on conservation of natural resources and consequently on the cost of production.

M/s. Dalmia Cement (Bharat) Ltd., has taken a number of pollution control measures with respect to water, air solid waste and also in the development of greenery within the factory premises. By adopting these measures the cost of production is slightly increased.

PART – H

Additional investment for environmental protection including abatement of pollution

During the financial year 2018-19 DCBL spent Rs 5 crores for environment protection activities.

PART – I

Any other particulars in respect of environment protection and abatement of pollution.

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1. INTRODUCTION:

M/s.Dalmia Cement (Bharat) Limited has setup Cement manufacturing unit at Chinnakomerla (P), Mylavaram (M), Jammalamadugu (T), YSR Kadapa District of A.P. The Plant is established in the year of 2008-09. **M/s.Dalmia Cement (Bharat) Limited** is manufacturing Ordinary Port Land Cement (OPC) 53 grade, OPC 43 grade, Sulphate Resistant Cement and PPC with a production capacity of 4500 MT/day (Clinker).

2. OBJECTIVE OF THE STUDY:

The objective of the present study is to review the performance of pollution control systems installed by the industry so as to identify efficient pollution prevention and control systems, which could be beneficial to both environment and its components. And also **Inserted by rule 2 of the Environment (Protection) second Amendment & Rules, 1992 vide G.S.R. 329 (E), dated: 13-3-1992.** Every person carrying on an Industry, operation or process requiring consent under section 25 of the water (prevention and control of pollution) Act 1974 (6 of 1974) or under section 21 of the Air (Prevention and Control of Pollution), Act 1981 (14 of 1981) or both or authorization under the Hazardous wastes (Management and Handling) Rules, 1989 issued under the

Environmental (Protection) Act 1986 (29 of 1986) shall submit an environmental audit report for the financial year ending 31st March in Form – V to the concerned state pollution control board on or before the 30th day of September every year beginning 1993.

3. BENEFITS OF ENVIRONMENTAL AUDIT:

Environmental audit creates awareness in the conservation of natural resources and helps to improve production safety and health. The benefits of audits are:

1. It helps in reduction of raw material consumption by way of waste minimization and adoption of recovery of waste and recycles the same.
2. Determined the performance of process systems and helps to improve the systems.
3. Efficiency of pollution control systems can be calculated.
4. This gives the awareness of environmental organization in the industry.
5. Data available will help the management for use in the plant modification and adopting pollution control for different types of technology.
6. It helps to identify pollution creating systems and exposure to it by the employees for taking remedial measures.
7. The management will be assisted in complying with local, regional and national laws regulations by adopting standards.
8. It helps to identify hazardous wastes, handling measures taken and exposure to litigation can be reduced.
9. To determine the impact on the surrounding environment due the disposal of its pollutants and identify suitable preventive measures.
10. Energy saving systems can be adopted by considering fuel consumption data.

M/s. Dalmia Cement Bharat Limited has entrusted the task of preparation of Environmental Statement (Audit) to *M/s. SMS Labs Service Private Limited* Chennai. An in-depth study was conducted by SMS Labs, to review the process efficiency, waste water generated and the present treatment systems, emissions generated and air pollution control equipment provided mode of solid waste collection and disposal and the other associated problems leading to the pollution and impact on environment.

4. LOCATION:

M/s.Dalmia Cement (Bharat) Limited is located at Chinnakomerla (P), Mylavaram (M), Jammalamadugu (Division), Kadapa District of A.P. The plant is situated 11km away from Jammalamadugu by the side of Jammalamadugu – Tadipatri road. The project site falls under the Latitude 14^0 57′ of North and Longitude of $78^0$20′ of East. The site comes under arid zone. The location map and Plant layout are shown in Fig.1.

5. PROCESS DESCRIPTION

The limestone is drilled, blasted and then loaded by hydraulic excavators into dumpers, which transports the limestone boulders to the crusher. After crushing it sent to stockpile through belt conveyors.

The raw materials (limestone, lateriate, and bauxite and iron ore) are withdrawn from their respective storage hoppers in proper proportions by weigh feeders and discharge into raw mills (ball mill & vertical mill) inlet. The exact ratio of raw material is governed by the analysis of sample composition and x-ray analyzer and computer automatically adjust raw material. Kiln feed is with drawn from the storage of raw meal.

The pyro processing area includes three integrated large process equipment units namely the pre-heater with pre-calciner, rotary kiln and coolax cooler. The flow of material begins in the pre-heater and flow towards the cooler and major flow of gases begins at the cooler and flow towards pre-heater. The materials enter the pre-calciner at the lower section of the tower and it is in this vessel that the major portion of the calcining occurs. The material drops into rotary kiln and is conveyed due to kiln slope and rotation to the coolax cooler at discharge end. The speed of the kiln rotation is normally governed by quantity of kiln feed while at the same time various temperature controllers are used automatically regulate fuel efficiency burning in pre-heater system. Material drops from rotary kiln into cooler, where it is rapidly air-cooled to acceptable clinker product temperature. The cooler product is directly stored in clinker silo through deep pan conveyor. Cooler outlet ESP collects all dust and keeps always pollution free atmosphere. Coal is withdraw from storage bin and feed to the coal mills (vertical mill). The mills' output with gases is taken to bag filters through pre-collecting cyclone system. The requirement of coal for firing at pre-calcinator and kiln is met by above coal.

The required proportion of clinker and gypsum is fed to cement mill for cement grinding. The cement from mill is conveyed to storage silos. After storage silo cement is conveyed to rotary fluxo packer and electronic packers. Where cement is packed to trucks and wagons for selling. Manufacturing process flow sheets are shown in Fig. 1.

6. WATER REQUIREMENT:

The total consumption is 600 m^3/day and the breakup details are given below:

1. Process water - 700 m^3/day
2. Domestic & Gardening - 100 m^3/day

Most of the process and cooling water will be evaporated / consumed. The domestic requirement includes requirements of colony, drinking as well as sanitation. The water requirement is being met from the bore wells. The industry has taken lot steps to reduce the water consumption. The industry is using STP waste water in process and green belt development. DCBL also has taken lot of initiation to harvest rainwater. The industry made two rain water harvesting pits with capacity of 7.2 lac cum.

7. POLLUTION CONTROL IN THE PLANT

The industry has given top priority for pollution prevention and control. Therefore all the sources that release particulate matter are provided with ESP & Bag filters for the control of particulate emissions into atmosphere. Tall stacks are provided as an effective measure for good atmospheric dispersion of the pollutants and air pollution control.

7.1 Waste water Sources and Monitoring

Most of the water consumed for process as well as cooling is consumed/ evaporated. The only source of wastewater is from sanitary facilities of the plant and colony is presently being sent to Sewage treatment plant to treat this wastewater. Discharges from the sewage treatment plant water characteristic meets the discharge standards of APPCB for on-land irrigation. The industry using the treated waste water for process and green belt development.

7.2 Air Pollution Control

7.2.1 Stack Emissions

The sources of air emissions are from raw mills & Kiln, Cooler Stack, Cement Mill, and Coal Mill. Stack emissions monitoring is carried out regularly for the parameters PM, SO_2 and NOx. The average values of stack emission data is given in table 7.1. It is noticed from the collected emissions data that the parameters monitored are within the limits prescribed by A.P. pollution control Board.

Table 7.2.1

Average values of Stack Emissions monitoring data

Source	Flow Rate(Nm^3/Hr)	PM Concentration (mg/Nm^3)	Control Equipment
Cooler	373062	15.9	ESP
Coal Mill	86911	19.6	Bag House
Cement Mill	276559	24.0	Bag House
Raw Mill / Kiln	515896	15.2	Bag House

The emission from Cooler passed through ESP; Kiln, cement mill and coal mill emissions are passed through bag houses which reduce the particulate matter to the minimum levels.

7.2.2 Ambient Air Quality

Ambient air quality monitoring is carried out regularly at the following locations to know the status of the ambient air quality.

1. Near Security Office Area
2. Near Substation Area
3. Near Main Gate Area
4. Near Guest House Area

Ambient air quality is monitored for 24 hours at each station for the estimation of PM_{10}, $PM_{2.5}$, SO_2 and NOx. Estimated average values for the parameters monitored are represented in the Table 7.2 the analyzed values for PM_{10}, $PM_{2.5}$, SO_2 and NOx are within limits prescribed by A.P.P.C.B.

Table 7.2.2

AVERAGE VALUES OF AMBIENT AIR QUALITY DATA

Location	Parameters			
	PM_{10}	$PM_{2.5}$	SO_2	NOx
Near Main Gate Area	55.4	22.5	11.1	19.6
Near Substation Area	51.7	19.8	11.3	21.1
Near Guest House Area	54.4	20.6	11.0	19.2
Near Mines Gate Area	52.0	21.7	12.8	21.1

Note: All the values are expressed as ($\mu g/m^3$)

7.2.3 Noise Pollution

Noise Levels are measured at various places in the factory premises by using a sound level meter. The noise levels were found to be within the limits prescribed by APPCB. The management has taken all provided required PPE (Ear muffs and ear plugs)for workers who are expose to high noise levels.

Table 7.2

AVERAGE VALUES OF AMBIENT NOISE QUALITY DATA

Location	Noise Level (dB)	
	Day	Night
Sub Station	62.7	58.8
Time Office	65.7	62.2
Vajram Nagar Gate	58.8	54
STP Area	60.8	56.6
Near Swagath Gest House	58.2	53.3
Near Anjali Canteen	66.5	63.1
Mines Gate	66.3	62.7
Truck Yard	71.1	66.3
Main Gate No - 1	71	65
Near Athiti Guest House	62.5	58.9

8. GREENBELT DEVELOPMENT

Greenery/plantation recharges oxygen into environment. Greenbelt development may have the following benefits.

a. Mitigation of fugitive emissions including odor
b. Noise pollution control
c. Improving the local eco-system
d. Arresting the soil erosion
e. Improving the landscape of the area
f. Aesthetics

M/s. Dalmia Cement (Bharat) Limited has already developed greenbelt in and around the plant. The industry has taken lot of efforts to raise the plantation in and around the plant premises. Industry has planted about 1,15,000 plants till now.

9. HOUSE KEEPING:

Proper cleaning of the different sections is required to maintain healthy environment, to avoid unnecessary loss of product in the form of dust emission and polluting surrounding environment. Water spraying is done inside the factory premises to control fugitive emissions from coal yard and raw material storage yards. Stores to be maintain properly. Factory premises are to be clean and green to have good housekeeping. M/s. DALMIA CEMENT (BHARAT) LTD, is keeping their plant and premises neat and tidy. Housekeeping has been found to be well. The industry have sweeping machine to clean the roads and floors.

AWARENESS PROGRAMS:

Dalmia Cement (Bharat) Limited striving to achieve Swaccha Bharat mission and many programs were taken up to maintain clean surroundings in and around the plant and Colony, By joining

initiatives such as **Swachhta Hi Seva** in response to the clarion call given by Hon'ble PM to make our Nation free from single use of plastic. We strengthen our commitment to a cleaner world.To inculcate the culture down the line, we are organizing many awareness programs in plant and community.We involving people in various Environmental activities like World Environment Day, World Earth Day, World Soil Day etc.We are putting efforts to make single use plastic free premises.

Awareness Programs to Colony Residents and School Children's

Inauguration of Auto-Rickshaw for Domestic Waste collection

10. RAIN WATER HARVESTING:

We all agree with the fact that water is the basic need for survival on this earth. It is required by all organisms from ant to elephant to human beings. Water is the foundation of life. All around the world, many people spend their entire day searching for it. In India the availability of water is constantly decreasing since last 2 decades. According to 2011 census it is expected that water in India would rise dramatically to about 833 cubic kilometers in 2025 and 899 cubic kilometers in 2050 due to increase in population, rapid urbanization and a growing GDP with significant lifestyle changes.

DCBL has unique approach towards water conservation from Top management to bottom level workmen. The company strongly believes that, water is natural resource and every person has a responsibility to save the water. The management provided necessary trainings to employees on water conservation. DCBL has formed water management committee headed by Unit head. The committee will act as a think tank for Water conservation. The committee will implement the management decision related to water projects.

DCBL has taken lot of Water conservation measures by constructing Rain water Harvesting structures, Farm ponds, Check Dams and Recharge pits Etc.

The industry strictly adhered to Zero Liquid System.

By doing all the Water conservative activities, Now M/s Dalmia Cement Bharat Limed became a **Water Positive Unit.**

The following table explains Water conservation by various methods

S.no	Type of the activity	Quantity	Capacity
1	Water pound	23	98000 KL
2	Rainwater storage pit at mines	1	700000 KL
3	Drain water Harvesting structure	5	50 KL
4	Form ponds	78	135000 KL
5	Check Dam	4	252000 KL
6	Bore well Recharge pits	3	60000 KL

At present DCBL is being met its total water requirement from harvested water which is stored in mine pit.

Rain Water Storage in Mine Pit

Bore Well Recharge Pit

Rain Water Harvesting Pond in Plant

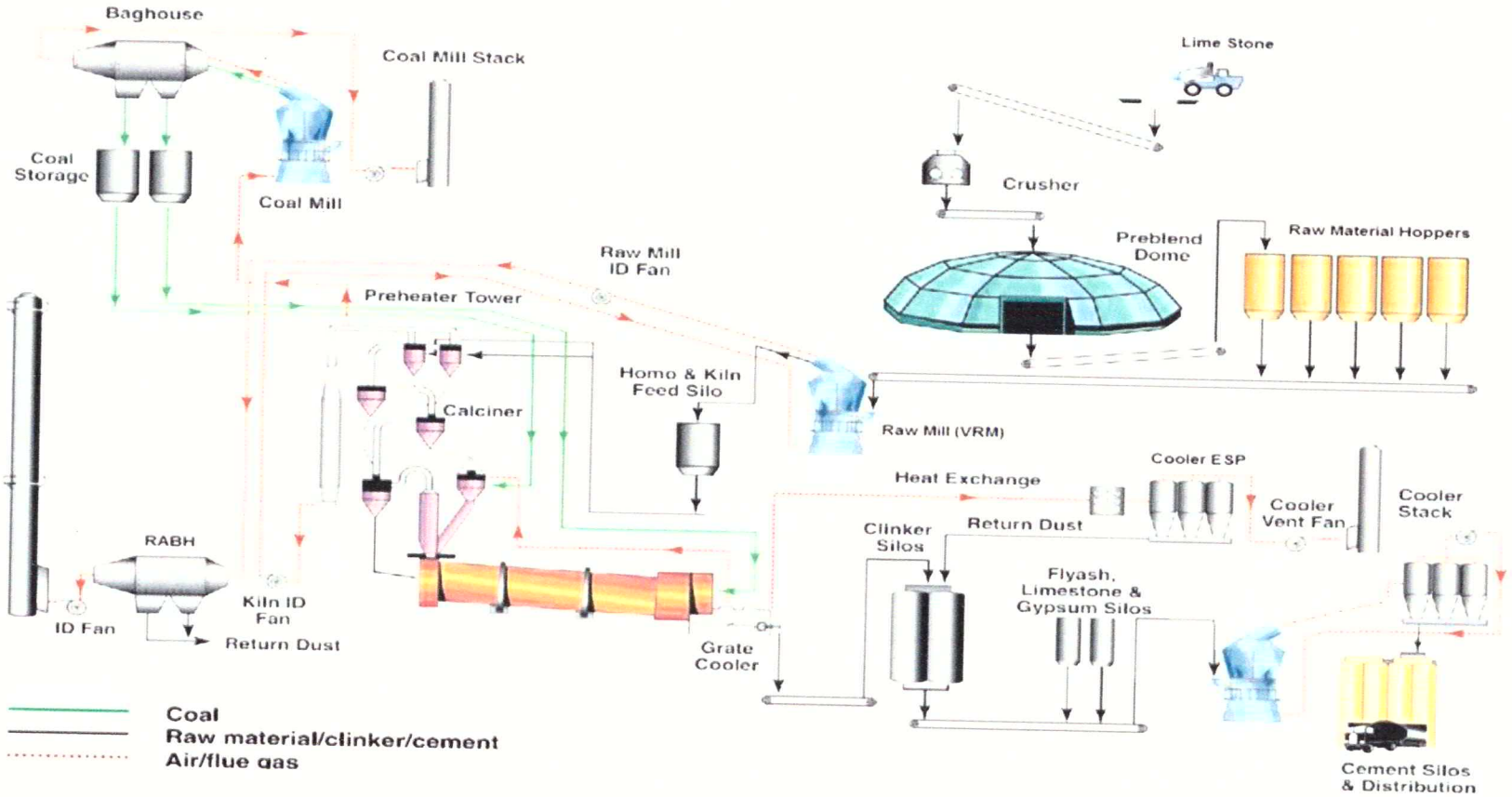

Fig.1. Process flow diagram of Cements Manufacturing