



JSW Cement Ltd

P.O. Vidyanagar, Village Toranagallu,
Dist. Bellary - 583275 Karnataka, India
Phone : 08395-241001
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CIN - U26957MH2006PLC160839

JSWCL/VDNR/KSPCB/

Date: 15.09.2018

To
The Member Secretary
Karnataka State Pollution Control Board
5th Floor, #49, Parisara Bhavan
Church Street, Bengaluru-560001

Subject: Submission of Environmental Statement (Form-V) for the financial Year ending 31st March 2018.

Ref: Combined Consent order no: AWH-300671, Dt.02.11.2016, Valid up to 30.06.2021& AWH-302207,02.03.2017 Valid up to 30.06.2021

Dear Sir,

Reference to above subject, please find enclosed herewith Environmental Statement (Form-V) of JSW Cement Limited, Vidyanagar, Bellary- District for the financial year 2017-2018.

Thanking You

Yours Faithfully


Rajkumar Dhempe
Plant Head

Encl: a/a

CC:

1. Environmental Officer, KSPCB, Regional Officer, Ward No.25, 4th Main, Near Dr.Vishnuvardhan Park, Kuvempunagara, Bellary-583104.
2. The Director, Regional Officer MoEF&CC (SZ),Kendriya Sadana,4th Floor, E&F wing, 17th Main Road, Koramangala, Bengaluru.-560034
3. Shri S.Suresh (Scientist E & Incharge), Central Pollution Control Board, 1st &2nd floor, Nisarga Bhavan A-Block, Thimmaiah Main road 7th D Cross, Shivanagar ,Opp. Pushpanjali Theater, Bangalore, Karnataka



Part of O.P. Jindal Group

Regd.Office: JSW Center,
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ENVIRONMENTAL STATEMENT REPORT

YEAR 2017-2018



JSW CEMENT LIMITED
P.O Vidyanagar, Toranagallu
Dist. Bellary - 583275

Introduction

India, one of the fastest growing economies in the world, is witnessing an unprecedented growth in infrastructure. JSW Cement; believes that this growth needs to be sustainable and is consciously contributing to creating a self-reliant India by manufacturing the building blocks of the Indian development story with its world-class cement.

JSW entered the cement market in 2009 with a vision to ensure a sustainable future for the country by producing eco-friendly cement, using industrial by-products such as slag. Its plants at Vijayanagar in Karnataka, Nandyal in Andhra Pradesh, Dolvi in Maharashtra and Salboni in West Bengal utilize best quality slag to produce green cement. This has heled in reducing the carbon footprint of the Group. Not only does this ensure optimal utilisation of resources but also saves the ecological risk of industrial by-product dumping. Though, JSW Cement is a relatively late entrant into the industry but with a capacity to produce over 11.6 MTPA tons per year, it is fast becoming a force to reckon with.

Not only does JSW Cement manufacture one of the most eco-friendly cements in India, but it also engineers its products for superior strength and durability. Its flagship plant in Nandyal uses world-class technology (including the advanced Combi Finish Mode Roller Press Circuit and automated loading system) to manufacture cement. It has won prestigious award for its energy-saving processes.

JSW Cement produces: Portland Slag Cement (PSC), Ordinary Portland Cement (OPC), and Ground Granulated Blast Furnace Slag (GGBS). With key markets in Telangana, Andhra Pradesh, Karnataka, Tamil Nadu, Kerala, Maharashtra, Orissa, Goa, Bihar, Jharkhand and West Bengal JSW Cement has been delivering high-quality product to several prestigious and large infrastructural projects in the southern, western and eastern regions of the country.

JSW Cement's first plant was set up at Vijaynagar, District Bellary in Karnataka with a capacity of 0.60 million tonnes per annum in 2008 and enhanced cement plant 3.60 MTPA in the year 2017. The plant uses the latest German Technology supplied by M/s KHD Humbolt Wedag. JSW Cement is a slag based blended cement, manufactured by using granulated blast furnace slag from the Group's steel plants, saving valuable natural resources. This is a giant step by the company towards providing cement that is strong, durable and at the same time eco-friendly.

The slag cement not only preserves the natural resources but also helps in improving the Durability of the Concrete Structures. Use of Slag Cement to produce Concrete can significantly improve durability of the concrete in several ways and consequently extend the life of concrete structures. During the life of the structure, the compressive strength of Slag Cement significantly increases well beyond the 28 days specified strength more than the concrete made from OPC or PPC. Slag Cement has higher resistance to sulphate and chloride attack and also controls the expansion due to Alkali- Silica Reaction hence it is recommended for marine structures.

FORM-V

See Rule-14

Environmental Statement Report for the financial year ending the March 31, 2018**PART- A**

i	Name and address of the owner /Occupier of Industry operation or process	Nilesh Narwekar Director & CEO JSW Cement Limited Toranagallu Dist.Bellary Karnataka-583275
I a	Authorized person for the occupier	Mr. Rajkumar Dhempe Plant Head JSW Cement Limited Toranagallu Dist.Bellary Karnataka-583275
ii.	Industry Category Primary (STC CODE) Secondary (STC CODE)	Red /Large (Cement manufacturing unit) Primary STC Category
iii.	Production Capacity (Units)	3.60 MTPA Ground Granulated Blast Furnace slag (GGBS) Ordinary Portland Cement (OPC) Portland Slag cement (PSC)
iv.	Year of establishment	December 2008
v.	Date of last environmental statement submitted	27.09.2017 Vide our letter No: JSWCL/VDNR/KSPCB/, Dated 27.09.2017

PART- B

Water and Raw material consumption

A. Water

(i) Water consumption m³/day

Process	:	Nil	
Cooling & Spraying m ³ /day	:	155.00	(Average during 2017-18)
Domestic m ³ /day	:	28.03	(Average during 2017-18)

(ii) Consumption per unit of production:

Name of product	Process water* consumption per unit of product-output (KL/MT)	
	During the previous financial year (2016-2017)	During the current financial year (2017-2018)
1.GGBS	0.018	0.044
2.Cement (PSC)	0.020	0.039

***process cooling water**

B. Raw material consumption

Name of the raw material	Name of product	Consumption of raw material per unit product output (MT of Cement)	
		During the previous financial year (2015-16)	During the current financial year (2016-2017)
Clinker	PSC	0.41	0.33
Gypsum		0.04	0.04
GGBS		0.55	0.63
GBS	GGBS	1.070	1.070

1. PSC Grinding	: 10468 MT/Year+
a. Clinker consumption	: 5436.94 MT/Year
b. Gypsum consumption	: 515.05 MT/Year
c. Slag Consumption	: 4576.79 MT/Year

- 2. PSC Blending** : **707169 MT/Year**
 a. OPC Consumption : 275817.8 MT/Year
 b. GGBS Consumption : 431352.0 MT/Year
3. Total GGBS Production : **1400959 MT/Year**
 4. Slag consumption for GGBS production : 1506371.83 MT/ Year

PART –C

**Pollutant discharge to environment/unit of output
 (Parameter as specified in the consent issued)**

S.N	Pollutants	Quantity of pollutants discharged (Mass/day) (tone/day)	Concentrations of pollutants in discharged (mass/volume) (mg/Nm ³)	Percentage of variation from prescribed standard with reason
a	Water	No waste water is generated from process. Water is used for cooling purpose and it is recycled. Domestic waste water is treated septic tanks and soak pits.		
b	Air			
	Stack emission			
1	VRM Bag House Stack	0.066	21.85	< 27.1 %
2	RP 1&2 Bag House stack	0.089	22.24	<25.8 %
3	RP 3&4 Bag House stack	0.082	23.51	<21.6 %

PART-D

HAZARDOUS WASTES

(As specified under Hazardous wastes/management& handling rule, 1989)

Hazardous waste	Total Quantity (Kg)	
	During the previous financial year 2016-2017	During the current financial year 2017-2018
(a) From process	Used oil / waste grease	Used oil / waste grease
	Nil	Nil
(b) From pollution control facility	Nil	Nil

PART-E

SOLID WASTE

S.N	Solid Waste	Total Quantity (Kg.)	
		During the previous financial year (2016-17)	During the current financial year (2017-18)
a	From Process	No solid waste is generated from Cement & GGBS manufacturing process	No solid waste is generated from Cement & GGBS manufacturing process
b	From Pollution control facility	All the collected material is automatically recycled in process	All the collected material is automatically recycled in process
c	(i)Quantity recycled or reused	100%	100%
	(ii) sold	Nil	Nil
	(iii) Disposed	Nil	Nil

PART -F

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

Hazardous waste, used oil: Nil

Solid waste: Nil

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, and conservation of natural resource: -

- 1. UTILIZATION OF SLAG:** We are using blast furnace slag for the manufacturing of GGBS / PSC cement which is waste material of steel plant. The slag is consumed for making the PSC & GGBS almost **1506371.83** MT for the year of 2017-18.
- 2. CONSERVATION OF MINERAL GYPSUM:** Utilization of chemical gypsum. We have used fertilizer industry by-product which is waste in nature and its chemical properties are as good as gypsum. The chemical gypsum is used for cement manufacturing process almost 9432.22 MT of Chemical gypsum has been consumed in cement manufacturing process during the year of 2017-2018.
- 3. WATER CONSERVATION:**
Company is adopting best possible approaches to conserve water, which can be witnessed as:
 - i Dry Cement manufacturing process.
 - ii. The process water is used for machinery cooling and it is recycled to Maintain Zero Waste Water Discharge.
 - iii Rain water harvesting is being done in plant area for ground water Recharge.

4. AIR POLLUTION CONTROL MEASURES:

Following measures have been taken to control of air pollution

- A. Bag House, Bag filters installed in the plant for the control of air pollution. These are capable of controlling dust emissions <30 mg/Nm³.

- B. All the conveyors and transfer points are covered with hood
- C. Bag filters have been installed at all the transfer points to control fugitive emission
- D. Most of the internal approach roads are paved
- E. Water sprinkling is done in unpaved areas
- F. Clinker is stored in covered stockpile whereas cement and GGBS are stored in closed silos

Photographs of Bag filters & List of Bag filters with their details given below:



Bag filters provided at raw material transfer point with covered beld conveyer



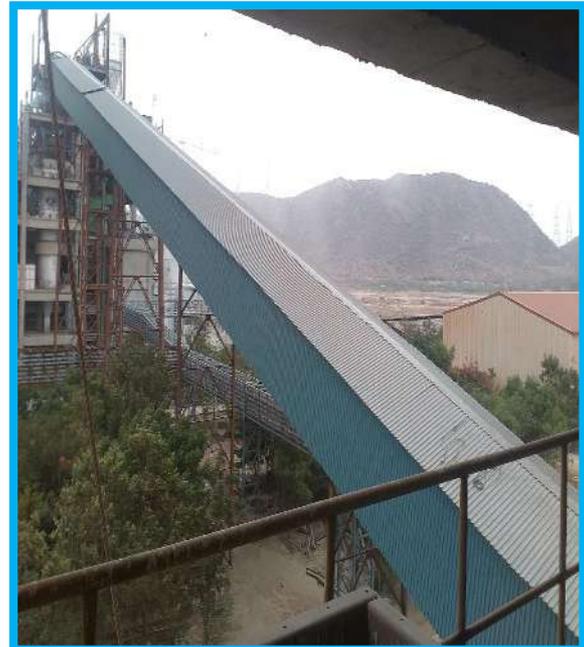
Bag House provided in VRM & RP1&2 mill for the control of air pollution



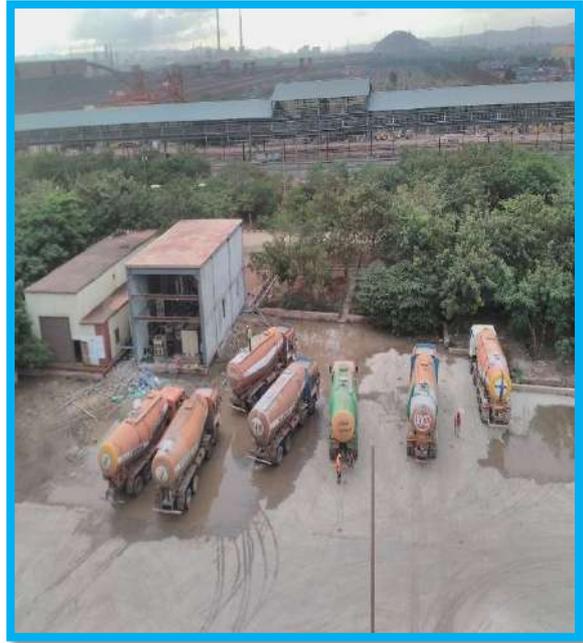
Covered clinker stock pile for storage of clinker with bag filter



Silo provided for storage of product along with bag filter



Covered belt conveyers provide for the control of fugitive dust emission



Covered began loading and concreted floor packing plant area

JSW CEMENT LIMITED, VIJAYNAGAR

Pollution control equipment Bag filters installed at VRM area

S.N	Location	Bag filter capacity (in m ³ /hr)	Fan Capacity (in m ³ /hr)	Qty	No of Bags	Inlet Dust Load	Out let Dust Emission	Type of Bags	MAKE
1	Dump hopper	13700	15000	1	110	15Gms/m ³	25mg/Nm ³	POLYSTER NON WOVEN PE 550 PE SILICON TERATMENT	RECO
2	Ground hopper	12000	13500	1	110	15Gms/m ³	25mg/Nm ³		RECO
3	Transfer tower	15000	16500	1	110	15Gms/m ³	25mg/Nm ³		RECO
4	Feed hopper - 1	15000	16500	2	132	15Gms/m ³	25mg/Nm ³		RECO
5	Feed hopper - 2	18000	20000	1	156	15Gms/m ³	25mg/Nm ³		RECO
6	Reject building	15000	16500	1	110	15Gms/m ³	25mg/Nm ³		RECO
7	Bag house	375000	400000	1	2772	290Gm/Am ³	25mg/Nm ³		THERMAX
8	Airslide 138,139,140 & BE 150	12000	13500	1	110	15Gms/m ³	25mg/Nm ³		RECO
9	Silo-1 inside	5000	13500	1	36	15Gms/m ³	25mg/Nm ³		ENEXCO
10	Silo-1 Top	12000	13500	1	110	15Gms/m ³	25mg/Nm ³		RECO
11	Silo-2 inside	5000	13500	1	36	15Gms/m ³	25mg/Nm ³		ENEXCO
12	Silo-2 Top	12000	13500	1	110	15Gms/m ³	25mg/Nm ³		RECO
13	Bulkloading GGBS side (STATIONARY PACKER)	12000	13500	1	110	15Gms/m ³	25mg/Nm ³		RECO
14	Bulkloading PSC side (STATIONARY PACKER)	12000	13500	1	110	15Gms/m ³	25mg/Nm ³		RECO
15	Roto packer top	25000	29000	1	192	<10Gms	25mg/Nm ³		INTENSIV FILTER
16	Roto packer	7500	8650	1	56	<10Gms	25mg/Nm ³		INTENSIV FILTER
17	Silo-3 inside	4000	4600	1	30	<10Gms	25mg/Nm ³		INTENSIV FILTER
18	Silo-3 Top	7500	8650	1	56	<10Gms	25mg/Nm ³		INTENSIV FILTER
19	Paddle mixer building elevator - 1 (TOP)	5000	5750	1	36	<10Gms	25mg/Nm ³		INTENSIV FILTER
20	Paddle mixer building elevator - 2 (TOP)	5000	5750	1	36	<10Gms	25mg/Nm ³		INTENSIV FILTER
21	Paddle mixer building elevator - 1 (BOTTOM)	5000	5750	1	36	<10Gms	25mg/Nm ³		INTENSIV FILTER
22	Paddle mixer building elevator - 2 (BOTTOM)	5000	5750	1	36	<10Gms	25mg/Nm ³		INTENSIV FILTER
23	Paddle mixer building solid flow feeder - 1	7500	8650	1	56	<10Gms	25mg/Nm ³		INTENSIV FILTER
24	Paddle mixer airslide discharge to silo-3 BE fan	5000	5750	1	36	<10Gms	25mg/Nm ³		INTENSIV FILTER
25	Silo-3 BIN Discharge air slide to roto packer BE	4000	4600	1	30	<10Gms	25mg/Nm ³		INTENSIV FILTER

JSW CEMENT LIMITED, VJAYNAGAR

POLLUTION CONTROL EQUIPMENTS BAG FILTER INSTALLED AT ROLLER PRESS MILL AREA

Sr. No	Bag filter Location	HEIGHT (m)	Eqpt no	Bag filter capacity (Am ³ /hr)	Fan capacity m ³ /hr)	Nos of bags (nos)	Inlet dust load gm/Am ³	outlet dust emission (mg/Nm ³)	Make
1	HOPPER BUILDING	18.15	531BF1	10,000	11,500	80	50	25	THERMAX
2	HOPPER BUILDING	12.00	531BF2	8,000	9,200	64	50	25	THERMAX
3	RP BUILDING	31.00	531BF3	12,000	13,800	96	50	25	THERMAX
4	RP BUILDING	31.00	531BF4	18,000	20,700	140	50	25	THERMAX
5	HOPPER BUILDING	18.15	533BF1	10,000	11,500	80	50	25	THERMAX
6	HOPPER BUILDING	12.00	533BF2	8,000	9,200	64	50	25	THERMAX
7	RP BUILDING	37.00	551BF1	25,000	28,750	196	50	25	THERMAX
8	RP BUILDING	18.15	551BF2	8,000	9,200	64	50	25	THERMAX
9	RP BUILDING	37.00	552BF1	25,000	28,750	196	50	25	THERMAX
10	RP BUILDING	37.00	553BF1	25,000	28,750	196	50	25	THERMAX
11	HOPPER BUILDING	12.00	553BF2	8,000	9,200	64	50	25	THERMAX
12	RP BUILDING	37.00	554BF1	25,000	28,750	196	50	25	THERMAX
13	RP BUILDING	18.50	591BF1	5,000	5,750	80	50	25	THERMAX
14	RP BUILDING	10.00	591BF2	10,000	11,500	80	50	25	THERMAX
15	RP BUILDING	18.50	593BF1	5,000	5,750	40	50	25	THERMAX
16	RP BUILDING	10.00	593BF2	10,000	11,500	80	50	25	THERMAX
17	At Discharge of Clinker extraction belt conveyor	25.20	481BF01	7,000	8,100	46	50	25	THERMAX
18	At Deep Pan conv 481DP01 discharge	9.00	481BF02	10,250	11,500	80	50	25	THERMAX
19	ABOVE CLINKER HOPPER	41.20	481BF03	19,500	23,400	146	50	25	THERMAX
20	At Belt 151BC07 discharge	9.00	481BF04	8,700	10,000	46	50	25	THERMAX

JSW CEMENT LIMITED, VJAYNAGAR

POLLUTION CONTROL EQUIPMENTS BAG FILTER INSTALLED AT ROLLER PRESS MILL AREA

Sr. No	Bag filter Location	HEIGHT (m)	Eqpt no	Bag filter capacity (Am ³ /hr)	Fan capacity m ³ /hr	Nos of bags (nos)	Inlet dust load gm/Am ³	outlet dust emission (mg/Nm ³)	Make
1	HOPPER BUILDING	18.15	531BF1	10,000	11,500	80	50	25	THERMAX
2	HOPPER BUILDING	12.00	531BF2	8,000	9,200	64	50	25	THERMAX
3	RP BUILDING	31.00	531BF3	12,000	13,800	96	50	25	THERMAX
4	RP BUILDING	31.00	531BF4	18,000	20,700	140	50	25	THERMAX
5	HOPPER BUILDING	18.15	533BF1	10,000	11,500	80	50	25	THERMAX
6	HOPPER BUILDING	12.00	533BF2	8,000	9,200	64	50	25	THERMAX
7	RP BUILDING	37.00	551BF1	25,000	28,750	196	50	25	THERMAX
8	RP BUILDING	18.15	551BF2	8,000	9,200	64	50	25	THERMAX
9	RP BUILDING	37.00	552BF1	25,000	28,750	196	50	25	THERMAX
10	RP BUILDING	37.00	553BF1	25,000	28,750	196	50	25	THERMAX
11	HOPPER BUILDING	12.00	553BF2	8,000	9,200	64	50	25	THERMAX
12	RP BUILDING	37.00	554BF1	25,000	28,750	196	50	25	THERMAX
13	RP BUILDING	18.50	591BF1	5,000	5,750	40	50	25	THERMAX
14	RP BUILDING	10.00	591BF2	10,000	11,500	80	50	25	THERMAX
15	RP BUILDING	18.50	593BF1	5,000	5,750	40	50	25	THERMAX
16	RP BUILDING	10.00	593BF2	10,000	11,500	80	50	25	THERMAX
17	At Discharge of Clinker extraction belt conveyor	25.20	481BF01	7,000	8,100	46	50	25	THERMAX
18	At Deep Pan conv 481DP01 discharge	9.00	481BF02	10,250	11,500	80	50	25	THERMAX
19	ABOVE CLINKER HOPPER	41.20	481BF03	19,500	23,400	146	50	25	THERMAX
20	At Belt 151BC07 discharge	9.00	481BF04	8,700	10,000	46	50	25	THERMAX

21	At Truck Tippler station	8.00	471BF01	28,000	32,200	198	50	25	THERMAX
22	At Clinker Silo top	11.00	471BF02	6,000	6,900	44	50	25	THERMAX
23	ABOVE COAL BIN (HAG)	20.25	561BF01	3,000	3,450	30	50	25	THERMAX
24	ABOVE COAL BIN (HAG)	20.25	563BF01	3,000	3,450	30	50	25	THERMAX
25	GGBS ELEVATOR	35.00	610BF01	5,000	5,750	42	60	25	IFI
26	AS VENT (GGBS SILO FEED	66.14	610BF02	4,000	4,600	60	60	25	IFI
27	AS VENT WITH RAL(GGBS SILO FEED)	57.81	610BF03	6,000	6,900	49	60	25	IFI
28	GGBS ELEVATOR	84.55	610BF04	5,000	5,750	42	60	25	IFI
29	AS VENT (GGBS SILO FEED)	66.14	610BF05	4,000	4,600	60	60	25	IFI
30	AS VENT WITH RAL(GGBS SILO FEED)	57.81	610BF06	6,000	6,900	49	60	25	IFI
31	GGBS TOP (SILO)	36.85	610BF07	5,000	5,750	126	60	25	IFI
32	GGBS SILO CONE BIN	20.00	611BF01	5,000	5,750	77	60	25	IFI
33	GGBS ELEVATOR(EXTRACTION)	10.00	611BF02	6,000	6,900	49	60	25	IFI
34	GGBS SILO BULK LOADING	10.00	611BF03	12,000	13,800	98	60	25	IFI
35	PSC SILO TOP	39.00	612BF01	6,000	6,900	49	60	25	IFI
36	PSC SILO CONE	15.90	612BF02	6,000	6,900	49	60	25	IFI
37	PSC SILO CONE ELEVATOR	49.50	612BF03	6,000	6,900	49	60	25	IFI
38	ABOVE BULK LOADING	17.675	612BF04	10,000	11,500	80	60	25	IFI
39	INLET AT 621BE01	8.70	621BF01	6,000	6,900	49	60	25	IFI
40	ABOVE PACKER 1	19.47	621BF02	15,000	17,250	120	60	25	IFI
41	ABOVE PACKER 1	19.47	621BF03	35,000	40,250	220	60	25	IFI
42	INLET AT 622BE01	8.70	622BF01	6,000	6,900	49	60	25	IFI
43	ABOVE PACKER 2	19.47	622BF02	15,000	17,250	120	60	25	IFI
44	ABOVE PACKER 2	19.47	622BF03	35,000	40,250	220	60	25	IFI
45	INLET AT 623BE01	8.70	623BF01	6,000	6,900	49	60	25	IFI
46	ABOVE PACKER 3	19.47	623BF02	15,000	17,250	120	60	25	IFI
47	ABOVE PACKER 3	19.47	623BF03	35,000	40,250	220	60	25	IFI
48	BAG HOUSE-I	55.00	581BH1	2,97,000	3,41,550	1,800	550	10	HIMENVIRO
49	BAG HOUSE-II	55.00	582BH1	2,97,000	3,41,550	1,800	550	10	HIMENVIRO
50	BAG HOUSE-III	55.00	583BH1	2,97,000	3,41,550	1,800	550	10	HIMENVIRO
51	BAG HOUSE-IV	55.00	584BH1	2,97,000	3,41,550	1,800	550	10	HIMENVIRO

Schedule maintenance and monitoring of pollution control device: All the pollution control devices have been maintained as per scheduled maintenance by dedicated environment management team and monitoring of all these are done regularly as per KSPCB Norms

Regular Stack emission & AAQM monitoring is being done to check the emission levels. The results show that the emissions like PM-10, PM-2.5, SO₂, and NO₂ are well within limits



Emission data displayed at factory main gate



CEMS Installed at VRM Bag house stack

5. GREEN BELT DEVELOPMENT:

Plantation is being developed in following manner:

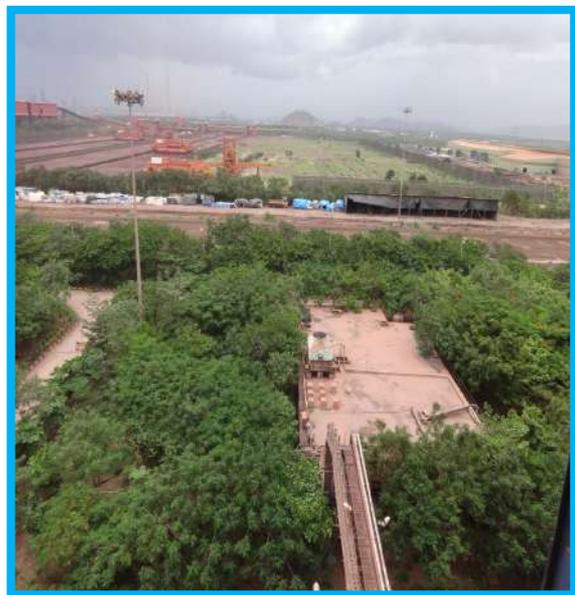
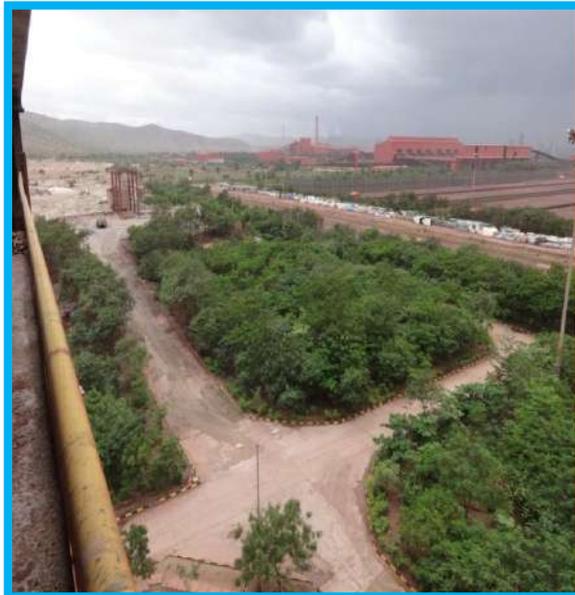
S. No.	Form of Plantation	Description
i	Shelter Belt plantation	All around the cement plant, tree plantation is being done, Preference is being given to fast growing species including locally dominant species such as Neem, Pongamia, Alstronia etc
ii	Avenue plantation	Both side of internal roads
iii	Block plantation	Vacant land around facilities being developed

So far we have planted 22500.nos of saplings (Trees & Shrubs) covering an area of 32 acres up to March 2018 in all plant premises

Greenbelt development will serve following purposes:

- (i) Increase in fresh Oxygen supply
- (ii) Acting as carbon sink thereby combating global warming through reduction in CO₂ emissions.
- (iii) Improving microclimate, contributing to cooling effect and improve green cover in the Surrounding areas improving QOL (Quality of Life) with Increase in lung space and promoting healthy lifestyle
- (iv) Noise pollution control
- (v) Aesthetics
- (vi) optimum use of unused land

Green belt development



Green belt development inside the plant area



Green belt development inside JSW Cement Limited, Vijaynagar

6. SOLID WASTE MANAGEMENT

Following strategy is being implemented to handle solid waste of all kinds.

- a. Practicing principle of 2Rs i.e. Reduces & Reuse
- b. All the waste is segregated on the basis on degradability/recyclability, than Accordingly they are disposed. Bio degradable waste from Canteen & toilets composted and the Manure is used for horticulture Purpose.
- c. All the hazarded waste is disposed through the authorized recyclers.

7. GOOD HOUSE KEEPING

Following measures have been taken for good housekeeping at plant

- a. Regular roads sweeping is being carried out
- b. All the roads of plant have been concreted as well as flowers and plantation has been done side by the roads for the beautification
- c. Development of plantation and greenery.

8. SOCIO-ECONOMIC BENEFIT

- a. Indirect employment though our contractors
- b. Direct employment to local residents
- c. Growth of local market and development of nearby villages through CSR activities

M/s JSW Cement Limited has adopted dry process technology, which is cost effective and environmentally clean technology. The advantage of dry process is also fuel economy and less water consumption. Additionally, the company has undertaken various energy efficiency improvement measures & process optimization which helped to significantly reduce the overall energy consumption to enable us to achieves our ultimate goal of GHG emission reduction and positive contribution towards reversing the effects of Climate

change. The stack emission from the plant controlled by equipment like Bag house and bag filter installed at various material transfer points to clean the process and arrest the fugitive emission. The particulate matter collected in the pollution control equipment is recycled in process and neutralizing the cost of operation of pollution control equipments and hence no cost impact on the production cost.

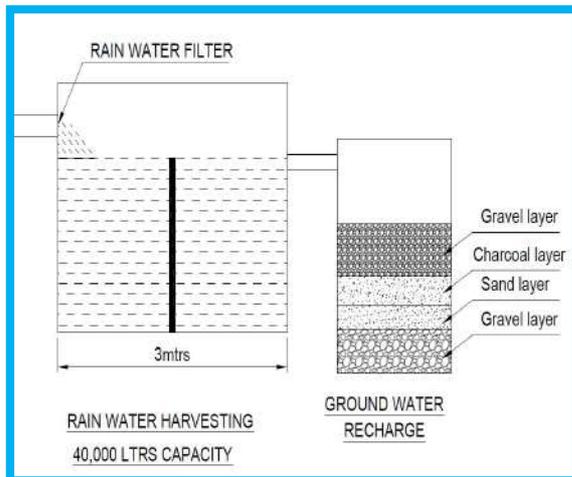
PART -H

Additional Measures /investments proposed for environmental protection including abatement of pollution, prevention of pollution.

1. Installation of Bio-Gas plant to convert domestic waste into useful energy resource



Bio gas plant installed near canteen



Roof top rain water harvesting implemented for water conservation

2. 500 Nos trees plantation done in 2017-2018
3. Usage of 100% GBF Slag replacing river sand in cement plastering in construction to avoid Usage of river sand

PART -I

Any other particulars for improving the quality of environment

1. Environment Management System improvement

- (i) External certification of Management Systems conforming to ISO 14001:2015 and ISO 50001: 2011 (Energy Management System) by M/s IQRS Mumbai
- (ii) Periodic review of EMS including compliance of environmental laws through periodic Management Review & Internal & external audits.
- (iii) Awareness program through various environment workshop Tree Plantation etc on world environment day.

2. Significant energy saving & other measures implemented

- (i) Replacement of conventional lights with LED to save energy
- (ii) Installation of LED Lamps in street light fitting by replacing with CFL lamps.
- (iii) Top soils conservation during excavation (during project work) and utilized the soil for nursery development and tree plantation.
- (iv) Regular maintenance of vehicles to control of vehicles emission & noise.
- (v) Acoustic enclosures are provided at noise generating area to control of noise pollution
- (vi) Use of personal protective Equipment: All employees are provided with personal protective Equipment's (PPEs), as per the requirement, such as workers working in plant area are provided with dust masks and in noise pollution areas with Ear plugs/Ear muffs, safety boots gloves welding goggles, Goggles and safety helmet are also being provided as per the requirement.

JSW Cement Limited , Vijaynagar

Ambient air quality monitoring Report From April 2017-March 2018

Location : Sultanpur Village					
Month	PM₁₀	PM_{2.5}	SO₂	NO_x	KSPCB Norms (Annual)
	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
April,2017	81	32	14.8	17.3	PM₁₀ - 100
May,2017	85	33	16.8	20.4	
June,2017	77	35	14	16	
July,2017	81	23	15	21	PM_{2.5} - 60
August,2017	85	32	16	21	
September,2017	84	26	18	19	
October,2017	86	31	8	11	
November,2017	73	23	18	24	SO₂ - 80
December,2017	85	23	13	15	
January,2018	86	26	14	15	
February,2018	97	19	15	13	
March,2018	93	27	16	18	NO₂ - 80
Min.	73.0	19.0	8.0	11.0	
Max.	97.0	35.0	18.0	24.0	
Avg.	84.5	27.4	14.6	17.6	

JSW Cement Limited , Vijaynagar

Ambient air quality monitoring Report From April 2017- March 2018

Location : Torangallu Village					
Month	PM ₁₀	PM _{2.5}	SO ₂	NO _x	KSPCB Norms (Annual)
	µg/m ³				
April,2017	84	31	13.3	16.6	PM₁₀ - 100
May,2017	91	31	17.6	26.0	
June,2017	81	36	15.0	17.0	
July,2017	81	36	15.0	17.0	PM_{2.5} - 60
August,2017	86	30	17.0	23.0	
September,2017	87	29	15.0	18.0	
October,2017	84	27	11.0	14	SO₂ - 80
November,2017	82	30	17.0	18	
December,2017	92	25	14.0	9	
January,2018	86	24	15.0	13	
February,2018	97	23	13.0	14	NO₂ - 80
March,2018	96	28	15.0	16	
Min.	81.0	23.0	11.0	9.0	
Max.	97.0	36.0	17.6	26.0	
Avg.	87.5	29.2	14.8	16.9	

JSW Cement Limited , Vijaynagar

Ambient air quality monitoring Report From April 2017- March 2018

Location : Vidyanagar Colony					
Month	PM ₁₀	PM _{2.5}	SO ₂	NO _x	KSPCB Norms (Annual)
	µg/m ³				
April,2017	48	22	3	7	PM₁₀ - 100
May,2017	38	18	4	19	
June,2017	49	21	5	18	
July,2017	42	28	8	15	PM_{2.5} - 60
August,2017	34	22	9	14	
September,2017	39	25	18	11	
October,2017	84	44	6	15	SO₂ - 80
November,2017	52	22	11	21	
December,2017	87	53	13	17	
January,2018	98	55	18	17	
February,2018	88	52	22	19	NO₂ - 80
March,2018	79	45	25	24	
Min.	34.1	18.2	2.9	6.9	
Max.	98.4	54.8	24.5	24.4	
Avg.	62.1	34.2	12.0	16.3	

JSW CEMENT LIMITED.

Vijayangara Works
Vidyanagara ,Sandur Taluk
Bellary District. Karnataka

Stack emission monitoring report for the year 2017-18

Manual Stack monitoring Report (Stack monitoring Kit VSS1)

S.N	Name of Stack	Stack emission (PM)		Standard KSPCB mg/Nm ³
		mg/Nm ³		
1	VRM Bag House Stack	Minimum	17.4	30.0
		Maximum	26.2	
		Average	21.8	
2	RP 1&2 Bag House Stack	Minimum	13.5	
		Maximum	27.2	
		Average	22.2	
3	RP 1&2 Bag House Stack	Minimum	24.9	
		Maximum	28.4	
		Average	26.9	

JSW Cement Limited
 Vijayangara Works
 Vidyanagara ,Sandur Taluk
 Bellary District. Karnataka

Ambient Noise Level report 2017-2018

	Day Time			Night Time			KSPCB Noise level Standard	
Location	Min dB(A)	Max dB(A)	Avg. dB(A)	Min dB(A)	Max dB(A)	Avg. dB(A)	Day Time	Night Time
Main Gate	56.5	67.5	63.52	53.6	65.3	60.67	75 dB(A)	70 dB(A)
Back side gate	55.3	66.3	61.26	51.6	62.6	58.87		
Railway siding	53.4	68.5	62.83	51.1	67.5	59.79		
Slag Yard	57.3	70.8	63.38	55.2	65.2	60.34		
Store	52.0	66.7	62.13	48.1	64.7	59.27		
Mill section	62.3	73.4	69.88	56.7	70.6	66.28		
Packing area	59.5	71.1	64.96	53.8	66.3	61.18		
Near JSSL	53.2	67.6	60.63	50.8	62.4	57.55		

JSW CEMENT LIMITED

Vijayangara Works
Vidyanagara ,Sandur Taluk
Bellary District. Karnataka

METEOROLOGICAL REPORT FOR THE YEAR 2017-2018

Year	Month		Wind Direction	Wind Speed	Temperature	RH
			Deg	m/s	°C	%
2017-2018	April.2017	Minimum	100	1.1	30.3	22.19
		Maximum	253	2.4	33.66	45.57
		Avg	220	1.8	32.17	37.64
	May.2017	Minimum	145	0.9	27.8	30.93
		Maximum	252	4.6	33.26	63.95
		Avg	219	2.6	30.93	48.55
	June.2017	Minimum	191	2.2	25.46	52.39
		Maximum	257	3.3	30.27	72.25
		Avg	228.6	2.8	27.55	63.5
	July.2017	Minimum	214	2.2	24.84	61.42
		Maximum	250	3.7	28.04	77.86
		Avg	234.7	3	26.6	66.92
	August.2017	Minimum	211	1.7	24.67	60.59
		Maximum	253	2.9	28.27	80.42
		Avg	234.7	2.3	26.22	70.84
	September.2017	Minimum	110	1.1	23.26	61.26
		Maximum	267	3.1	28.99	86.69
		Avg	218.3	1.6	26.18	72.51
	October.2017	Minimum	88	1	24.66	50.37
		Maximum	240	1.8	27.38	82.66
		Avg	193.3	1.4	25.79	68.34
	November.2017	Minimum	82	1	22.4	53.91
		Maximum	248	1.9	26.42	78.8
		Avg	153.8	1.3	24.8	63.06
	December.2017	Minimum	85	1	21.97	50.14
		Maximum	208	1.9	25.65	72.75
		Avg	131.5	1.5	23.22	61.07
	January.2018	Minimum	85	1	16.6	81.3
		Maximum	208	2.1	30.9	23.7
		Avg	131.5	1.6	23.75	49.4
	February.2018	Minimum	85	1	16.4	81.3
		Maximum	208	2.7	33.9	23.7
		Avg	131.5	1.82	25.15	49.4
	March.2018	Minimum	85	1	21	81.3
		Maximum	208	2.7	36.5	23.7
		Avg	131.5	1.82	28.75	49.4