O/C – Acknowledgement

ACL/EMD/F22/2014/ 358 - 73812/8 **16.09.2014**

Member Secretary,
Gujarat Pollution Control Board,
Paryavaran Bhavan,
Sector-10A,
Gandhinagar – 382010

Sub.: Environmental Statement of Gajambuja Cement (Unit of Ambuja Cements Ltd.) for the year 2013-14.

Sir,

This has reference to Rule 14 of Environment Protection Act 1986. We are submitting herewith Environmental Statement in prescribed Form-V of Gajambuja Cement (Unit of Ambuja Cements Ltd.) for the financial year April 2013 to March 2014.

Kindly acknowledge receipt for the same.

Thanking You,

Yours truly,
For **Ambuja Cements Ltd.**

16/9/14

Dr. Anand K. Rai
HOD - Environment

26/9/14
Gujarat Pollution Control Board
Sector No. 10 A,
Gandhinagar - 382 010.

Encl.: Form V with Annexure.

Copy to: Regional Officer,
Gujarat Pollution Control Board,
Opp. Saint Anne's Church
Station Road, Junagadh

[FORM-V]
(See rule 14)

Environmental statement for the financial year ending the 31st March 2014

PART- A

(i) Name and address of the owner/occupier of the industry operation or process:

Ambuja Cement Ltd. Unit - Gajambuja, PO: Ambujanagar, Taluka- Kodinar, District – Gir Somnath, Gujarat, 362715

(ii) Industry category primary-(STC code) Secondary-(SIC Code) : Red

(iii) Production capacity : Cement – 4.2 Million ton per annum (MTPA)

(iv) Year of Establishment : 1993

(v) Date of last environmental statement submitted : 25th Sep 2013

PART- B

Water and Raw Material Consumption

(i) Water consumption in m^3/d

Process:	Nil	
Cooling:	266.04	(Industrial cooling, dust suppression & fire fighting)
Domestic:	255.93	

Name of Products	Process water consumption per unit of product output.	
	During the previous Financial year	During the current Financial year
	(1)	(2)
(1) Cement	39.64 litre/ton *	32.47 litre/ton *

* Water consumption for plant cooling. No process water consumption in cement production.

(ii) Raw material consumption

* Name of raw Materials	Name of products	Consumption of raw material per unit of output	
		During the previous Financial year	During the current Financial year
(1) Limestone	Cement	1.087	1.0158
(2) Marl		0.148	0.1187
(3) Silica Sand		0.0407	0.0369
(4) Laterite		0.0026	0.0121
(5) Gypsum		0.0606	0.0533
(6) Fly ash (Raw Mill)		0.0003	0.0010
(7) Fly ash (Cement Mill)		0.2153	0.2209

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

PART- C

Pollution discharged to environment/unit of output
(Parameter as specified in the consent issued)

(1) Pollutants	Quality of pollutants discharged (mass/day)	Concentrations of pollutants discharges (Mass/volume)	Percentage of variation from prescribed standards with reasons.
(a) Water			Permissible limit as per Consent
BOD(5d at 20°C)	No discharge of treated sewage water , it is being reused for plant cooling, dust suppression & horticulture	15.0 mg/l	20 mg/l
Suspended Solids		19.1 mg/l	30 mg/l
Residual Chlorine		0.6 mg/l	Min. 0.5 mg/l
(b) Air			
Particulate matters			
Raw Mill & kiln I	0.0421 ton/day	7.58 mg/Nm^3	50 mg/Nm^3
Raw Mill & kiln II	0.0570 ton/day	10.43 mg/Nm^3	
Cooler ESP I	0.3316 ton/day	37.67 mg/Nm^3	
Cooler ESP II	0.3396 ton/day	41.17 mg/Nm^3	
Coal Mill I	0.0341 ton/day	38.67 mg/Nm^3	
Coal Mill II	0.0333 ton/day	37.50 mg/Nm^3	
Cement Mill 1	0.0490 ton/day	34.00 mg/Nm^3	
Cement Mill 2	0.0389 ton/day	37.00 mg/Nm^3	
Cement Mill 3	0.0527 ton/day	35.33 mg/Nm^3	
Cement Mill 4	0.0455 ton/day	34.50 mg/Nm^3	
Packer 1	0.0047 ton/day	28.17 mg/Nm^3	
Packer 2	0.0041 ton/day	27.33 mg/Nm^3	
Packer 3	0.0037 ton/day	30.50 mg/Nm^3	

Environment monitoring results are enclosed as **Annexure I**

PART- D

HAZARDOUS WASTES

(As specified under Hazardous Waste Management, Handling & Transboundry movement rules 2008)

Hazardous Wastes	Total Quantity	
	During the previous financial year	During the current financial year
(a) From process		
Used/Waste oil	7.560 MT	13.41 MT
Chemical Gypsum *	108292.90 MT	129412.58 MT
Plastic Waste*	29335 MT	40574.863 MT
Waste Mix Liquid**(GEPIL)	0.00 MT	0.00 MT
Waste Mix Liquid**(BEIL)	330.74 MT	4211.14 MT
Waste Mix Liquid**(LUPIN)	2412.96 MT	2577.49 MT
Waste Mix Liquid*(Unimark)	138.325 MT	0.00 MT
(c) From pollution control facilities	Nil	Nil

* Quantity is common for Ambuja & Gajambuja plant

** Co-processing in Cement kiln as alternative fuel.

PART- E
Solid Wastes

Waste Generation	Total Quantity	
	During the previous financial year	During the current financial year
(a) From process	No solid waste generated from process	
(b) From pollution control Facilities	From Sewage treatment plant, sludge generated, which is being used as manure for horticulture purpose.	
(c) (1) Quantity recycled or re-utilized within unit.	Dust collected from all pollution control equipments is being continuously recyled in to the process.	
(2) Sold	Not applicable	
(3) Disposed	Not applicable	

PART- F

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

- Hazardous waste

(1) **Used Oil** – (Category - 5.1)
Main source of Used Oil generation in ACL is Plant and Mining machineries. Full-fledged storage & handling facility is available which is earmarked and stored properly in closed barrels. The storage area is provided with roofing and impervious flooring. ACL has valid authorization of GPCB for collection, storage, transportation and disposal of used/waste oil by selling to authorized recycler.

(2) **Chemical Gypsum** – (Category – 26.1)
ACL is using chemical gypsum generated from various dyes and intermediate manufacturing units; chemical industries etc. in cement manufacturing. GPCB has granted Authorization for reception, collection, storage & re-using of 237250 TPA Chemical gypsum in cement manufacturing process. ACL has provided proper storage and handling facility for the same as per CPCB Guidelines.

(3) **Waste Mix Liquid** – (Category – 28.1, 20.3)
ACL is promoting cleaner production by co-processing various industrial hazardous wastes as Alternative Fuel in Cement production. In this regards, GPCB and CPCB have granted permission for using waste mix liquid from following pharmaceutical industries & TSDF sites as alternative fuel:

1. Lupin Pharma (28.1) - 3600 TPA,
2. Unimark Remedies (28.1 & 20.3)- 1140 TPA & 900 TPA respectively.
3. BEIL (No Cat.) – 16000 TPA

For this, at Gajambuja Plant, a well established facility for storage and handling of waste mix liquid is provided. Waste Mix Liquid from various industrial sources is being disposed off by co-processing in cement kiln.

- **Solid Waste**

  - No solid waste generated from process.
  - Only dust collected from all APCEs is continuously recycled in the process.
  - Garbage generated from housing colony/ Township is segregated at source, out of which bio-degradable waste is used as compost by vermicomposting, whereas non-biodegradable wastes is sold to third party.
  - E-waste and battery waste generated in ACL is segregated at source and sold to authorized third party.
  - Sludge generated from sewage water treatment plant is being totally used for horticulture purpose.

PART- G

Impact of the pollution abatement measures taken on conservation of natural resources on the cost of production.

ACL is committed for conservation of key natural resources like minerals, coal, petroleum products, water & energy, wherever feasible, by adopting various innovative technologies-

- **Raw Material**:

For Raw material conservation following steps are being taken:

- Clinker factor reduction,
- Increasing usage of Fly ash in cement manufacturing,
- Using Chemical Gypsum (waste from ETP & dyes industries) used as additive along with clinker in cement manufacturing.

- **Fuel**:

For fuel conservation following measures are being taken:

- For conservation of non-renewable energy sources various types of renewable energy sources is being used. List of hazardous waste being used at ACL is given below:-
  - Plastic Waste
  - Mixed Waste Liquid from Pharma Industry, GEPIL and BEIL.

PART- H

Additional measures/Investment proposal for environmental protection including abatement of pollution, prevention of pollution.

Pl. refer **Annexure II**

PART- I

Any other particulars for improving the quality of the environment.

ACL has well established Integrated Management System (IMS):

- **ISO 14001:2004 (Environmental Management System),**
- **ISO-9001:2008 (Quality Management Systems)**
- **BS OHSAS 18001:2007 (Occupational Health & Safety).**

Beyond that for self evaluation of environmental performance, ACL has PEP system (Plant Environmental Profile), through which we are evaluating our environmental performance on annual basis and sets new goal every year for continual improvement in all sphere of activities.

Ambuja Cements Ltd. has set milestone in the field of pollution control & environmental protection, which is reflected through the various awards won by the Ambuja Cement Ltd.

To impart the awareness among Employees, Workers, Students and community every year Ambuja Cement is Celebrating various Environment Awareness programs such as World Environment Day, Ozone Day, Water Day, Earth Hour, Earth Day, Biodiversity Day etc. Some glimpses of Celebrations are enclosed as **Annexure III**

For the socio-economic development of the surrounding areas, Ambuja Cement Foundation (ACF), a corporate social responsibility wing of Ambuja Cements Ltd. has left positive footprints by initiating and implementing various community developments works in the surrounding area. Major focus areas of ACF are Water Resource Development & Management, Integrated Agriculture Development, Women Empowerment, Community Health, Animal Husbandry etc. Some glimpses of activities of Ambuja Cement Foundation are enclosed as **Annexure IV**

Ambuja Cements Ltd. has initiated Water Positive Mission under which various projects for rain water harvesting, minimization in water consumption & water recycling are implemented due to which ACL is Water Positive which was audited and certified by an independent agency DNV (Det Norske Veritas).

(Signature of a person carrying out an

Industry-operation or process)

18/9/14

Name : Dr Anand K Rai
Designation: DGM-Environment
Address: Ambuja Cements Ltd.
Ambujanagar,
Tal:-Kodinar,
Dist: Gir Somnath, Gujarat

Annexure - I

Ambient Air Quality Monitoring Results (April 2013 - March 2014)

Month	Average Ambient Air Quality Monitoring Results (µg/m3)											
	At CCR				Near Packing section				Ambuja School			
	PM2.5	PM10	SO2	NOx	PM2.5	PM10	SO2	NOx	PM2.5	PM10	SO2	NOx
April 2013	28.00	45.00	10.90	19.70	31.00	52.00	12.60	21.10	22.00	36.00	12.10	18.20
May 2013	26.00	48.00	11.30	20.20	32.00	55.00	12.20	22.10	21.00	34.00	12.70	18.50
June 2013	28.00	46.00	11.60	20.80	33.00	58.00	12.70	21.30	22.00	33.00	12.90	19.30
July 2013	27.00	48.00	10.50	18.70	31.00	53.00	11.30	19.10	21.00	31.00	11.10	18.90
Aug. 2013	35.00	64.00	11.10	19.30	49.00	78.00	10.80	18.70	25.00	38.00	10.50	18.20
Sept. 2013	41.00	69.00	10.70	18.10	53.00	82.00	11.40	17.40	27.00	41.00	11.20	17.80
Oct. 2013	35.00	73.00	12.40	16.40	45.00	75.00	12.80	17.60	29.00	38.00	10.80	16.30
Nov.2013	31.00	68.00	11.40	15.60	42.00	70.00	12.10	16.10	25.00	35.00	11.30	15.70
Dec.2013	27.00	61.00	12.60	16.60	36.00	65.00	11.50	17.50	21.00	37.00	12.20	14.60
Jan. 2014	34.00	68.00	12.90	17.20	42.00	74.00	13.50	16.90	26.00	41.00	13.10	15.40
Feb. 2014	31.00	64.00	11.80	16.40	38.00	71.00	12.60	13.40	23.00	37.00	12.60	16.50
March 2014	34.00	61.00	12.30	15.50	31.00	66.00	13.60	14.30	21.00	34.00	11.70	17.30
Minimum	**26.00**	**45.00**	**10.50**	**18.10**	**31.00**	**52.00**	**10.80**	**17.40**	**21.00**	**31.00**	**10.50**	**17.80**
Maximum	**41.00**	**69.00**	**11.60**	**20.80**	**53.00**	**82.00**	**12.70**	**22.10**	**27.00**	**41.00**	**12.90**	**19.30**
Average	**30.83**	**53.33**	**11.02**	**19.47**	**38.17**	**63.00**	**11.83**	**19.95**	**23.00**	**35.50**	**11.75**	**18.48**

Month	Average Ambient Air Quality Monitoring Results (µg/m3)							
	West Colony				South Colony			
	PM2.5	PM10	SO2	NOx	PM2.5	PM10	SO2	NOx
April 2013	24.00	40.00	10.80	19.50	29.00	39.00	11.30	20.20
May 2013	25.00	37.00	11.30	19.20	27.00	36.00	12.10	20.50
June 2013	24.00	39.00	11.70	20.10	25.00	37.00	12.60	19.70
July 2013	23.00	35.00	10.50	19.40	22.00	34.00	10.80	19.90
Aug. 2013	24.00	32.00	10.90	18.90	29.00	46.00	11.30	19.40
Sept. 2013	23.00	36.00	11.40	18.40	31.00	49.00	10.60	18.80
Oct. 2013	21.00	39.00	12.50	17.20	27.00	45.00	11.60	16.70
Nov.2013	26.00	37.00	11.90	16.60	23.00	41.00	12.40	15.50
Dec.2013	24.00	39.00	12.80	15.70	25.00	36.00	11.70	14.40
Jan. 2014	22.00	40.00	12.30	15.90	28.00	45.00	12.10	14.80
Feb. 2014	26.00	35.00	13.40	16.10	30.00	42.00	11.20	15.40
March 2014	24.00	31.00	12.60	17.80	28.00	38.00	12.20	16.50
Minimum	**23.00**	**32.00**	**10.50**	**18.40**	**22.00**	**34.00**	**10.60**	**18.80**
Maximum	**25.00**	**40.00**	**11.70**	**20.10**	**31.00**	**49.00**	**12.60**	**20.50**
Average	**23.83**	**36.50**	**11.10**	**19.25**	**27.17**	**40.17**	**11.45**	**19.75**

Annexure - IA

Stack Monitoring Results (April'2013 - March'2014)

Month	Stack attached to					
	Raw mill & Kiln- I	Cooler ESP-1	Coal Mill -1	Raw mill & Kiln- 2	Cooler ESP-2	Coal Mill- 2
	Average Particullate Matter (Mg/Nm3)					
Apr-13	32	30	36	23	40	37
May-13	35	32	38	25	38	35
Jun-13	36	32	37	24	35	32
Jul-13	20	41	42	22	41	38
Aug-13	16	43	41	28	44	40
Sep-13	15	48	38	25	49	43
Oct-13	19	45	34	Not Running	Not Running	Not Running
Nov-13	23	41	38	Not Running	Not Running	Not Running
Dec-13	25	35	32	28	31	35
Jan-14	28	46	40	25	49	47
Feb-14	31	40	38	28	47	43
Mar-14	34	38	34	25	42	40
Minimum	**15**	**30**	**36**	**22**	**35**	**32**
Maximum	**36.00**	**48.00**	**42.00**	**28.00**	**49.00**	**43.00**
Average	**25.67**	**37.67**	**38.67**	**24.50**	**41.17**	**37.50**
Permissible Limit	**50.00**	**50.00**	**50.00**	**50.00**	**50.00**	**50.00**

Month	Stack attached to						
	Cement Mill- I	Cement Mill-II	Cement Mill-III	Cement Mill -IV	Packer - I	Packer - II	Packer - III
	Average Particullate Matter (Mg/Nm3)						
Apr-13	32	34	29	31	22	25	29
May-13	35	33	30	32	27	28	31
Jun-13	34	36	32	37	30	29	32
Jul-13	31	38	30	33	31	28	30
Aug-13	34	40	43	39	27	29	32
Sep-13	38	41	48	35	32	25	29
Oct-13	32	Not Running	Not Running	29	30	28	26
Nov-13	36	Not Running	32	33	33	32	29
Dec-13	31	Not Running	27	29	27	30	26
Jan-14	36	34	39	32	26	31	30
Feb-14	32	35	36	37	23	29	28
Mar-14	34	38	39	37	25	27	30
Minimum	**31**	**33**	**29**	**31**	**22**	**25**	**29**
Maximum	**38.00**	**41.00**	**48.00**	**39.00**	**32.00**	**29.00**	**32.00**
Average	**34.00**	**37.00**	**35.33**	**34.50**	**28.17**	**27.33**	**30.50**
Permissible Limit	**50.00**	**50.00**	**50.00**	**50.00**	**50.00**	**50.00**	**50.00**

Stack Monitoring Results (April'2013 - March'2014)

Month	Stack attached to								
	DG set 4			DG set 5			DG set 6		
	Avg. PM* mg/Nm^3	Avg. SO2 ppm	Avg.NOx ppm	Avg. PM* mg/Nm^3	Avg. SO2 ppm	Avg.NOx ppm	Avg. PM* mg/Nm^3	Avg. SO2 ppm	Avg. NOx ppm
Apr-13	Not in Operation								
May-13									
Jun-13									
Jul-13									
Aug-13									
Sep-13									
Oct-13	67.67	54	14	Not in Operation			62.33	52	10
Nov-13	Not in Operation								
Dec-13	63.67	48	12	65.17	49	15	63.33	52	14
Jan-14	Not in Operation			69	56	20	68.33	54	18
Feb-14	62	52	18	68	58	21	59	45	24
Mar-14	Not in Operation						54	42	22
Minimum	----	----	----	----	----	----	----	----	----
Maximum	----	----	----	----	----	----	----	----	----
Average	64.45	51.33	14.67	67.39	54.33	18.67	61.398	49	17.6
Permissible Limit	100.00	100	50	100.00	100	50	100.00	100	50

*PM : Particullate Matters

ANNEXURE – II

Additional measures taken for environmental protection at **Cement Plant** including abatement & prevention of pollution are as follows:

(i) **Air**

In order to improve ambient air quality & control fugitive emissions in & around plant following measures is being taken:

1) Almost all the internal roads of the plant are paved. Regular cleaning of paved roads and plant premises through road sweeping machines. Various type of sweeping machine like vacuum, mechanized and manual sweeping machine has been deployed in order to collect dust from ground level and not allow further to suspend in air.

2) Regular sprinkling of water is being done on unpaved roads & material handling areas to suppress air borne dust.

3) Monitoring of ambient air quality is being done through Continuous Ambient Air Quality monitoring System (CAAQMS). As well as regular ambient air quality monitoring is being perfom at all the identified AAQM locations by GPCB Approved third party and monitoring report is submitted to GPCB on monthly basis.

4) Every year plantation activities are being undertaken for strengthening the existing green belt. The Dense plantation around the periphery of the plant and colony enhances the aesthetic environment of the area & greenery also helps in abatement of the fugitive emissions.

5) All loading and unloading points have been provided with Bag Filters.

6) Maintenance of all pollution control equipments is being done regularly.

7) Raw material is being transported in tractors and tippers which are provided with closed cover or tarpaulin in order to minimize spillage.

8) All the conveyor belts for material handling have been provided with closed cover in order to reduce fugitive emissions.

9) Majority of raw material/fuel storage areas is provided with closed shed for control of fugitive dust emission. Dry fly is being handled through well design closed conveying system & stored in silos.

- **Control of point source emission from process stack.**

1) In order to reduce source emission through process all the equipments have been provided with well equipped air pollution control equipments.

2) Also all the stack is being regularly monitored by GPCB approved third party, results are intimated to concern department for proper smooth operation of pollution control equipments. All the stack emission is being also regularly monitored by State Pollution Control Board approved auditors and recommendation given by auditors is being implemented.

3) At main process stack continuous emission monitoring system (CEMS) has been installed for gaseous pollutants & particulate matter emission measurement. CEMS emission is being regularly accessed by control room for controlling emission well below prescribed norms.

(ii) **Water**

1) Cement plant process is based on dry process, so water only required for equipment cooling, fire fighting, refrigeration, dust suppression & green belt development purpose only.

2) Above water requirement is being fulfilled 100 % through recycled water i.e. through recycled sewage water from sewage treatment plant. For cement mill cooling & clinker cooling RO reject water from captive thermal power plant is being used.

(iii) **Hazardous Waste**

All the hazardous waste generated from the plant and ancillary industrial activities is being handled, store & disposed in accordance with hazardous Waste Management & Transboundary Movement Rules 2008.