

O/c - Acknowledgement

ACL/EMD/F22/2014/38 73812/6

16.09.2014

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

**Sub.:** Environmental Statement of Captive Thermal Power Plant (Unit of Ambuja Cements Ltd.) for the year 2013-14.

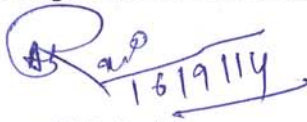
Sir,

This has reference to Rule 14 of Environment Protection Act 1986. We are submitting herewith Environmental Statement in prescribed Form-V of Captive Thermal Power Plant (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.**



**Dr. Anand K. Rai**  
**HOD - Environment**

Encl.: Form V with Annexure. ~

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

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

**[FORM-V]**  
(See rule 14)

**Environmental statement for the financial year ending the 31<sup>st</sup> March 2014**

**PART- A**

- (i) Name and address of the owner/occupier of the industry operation or process:  
Thermal Power Plant - A unit of Ambuja Cements Ltd.  
PO. Ambujanagar, Taluka- Kodinar,  
District – Gir Somnath, Gujarat. PIN: 362 715
- (ii) Industry category primary-(STC code) Secondary-(SIC Code) : Red
- (iii) Production capacity: Electricity – 90 MW
- (iv) Year of Establishment: 2005
- (v) Date of last environmental statement submitted: 25<sup>th</sup> Sep 2013

**PART- B**

**Water and Raw Material Consumption**

- (i) Water consumption m<sup>3</sup>/d
- |           |   |                           |
|-----------|---|---------------------------|
| Process:  | } | 314.18 (Industrial Water) |
| Cooling:  |   |                           |
| Domestic: |   |                           |

Name of Products	Process water consumption per unit of product output.	
	During the previous Financial year	During the current Financial year
	(1)	(2)
(1) Electricity	0.30 litre/unit	0.25 litre/unit

(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) Coal	Electricity	0.878 kg/Unit	0.798 kg/Unit

\* 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
<b>Domestic effluents</b>			
BOD (5 Days 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		0.60 mg/l	Min. 0.5 mg/l
<b>Industrial effluents</b>	No discharge of RO reject & boiler blow down water, it is being totally re-used for cement mill cooling purpose at cement plant.	Not applicable	Not applicable
(b) Air (Boiler I & II)			
<b>Particulate matters</b>	0.214 tons/day	28.70 mg/Nm <sup>3</sup>	100 mg/Nm <sup>3</sup>
SO <sub>2</sub>	0.932 tons/day	47.90 ppm	100 ppm
NO <sub>x</sub>	0.279 tons/day	19.60 ppm	50 ppm
(Boiler III)			
<b>Particulate matters</b>	0.219 tons/day	31.70 mg/Nm <sup>3</sup>	100 mg/Nm <sup>3</sup>
SO <sub>2</sub>	0.909 tons/day	50.40 ppm	100 ppm
NO <sub>x</sub>	0.279 tons/day	21.20 ppm	50 ppm

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

**PART- D**  
**HAZARDOUS WASTES**  
**(As specified under Hazardous Waste Management, Handling & Transboundary movement rules 2008)**

Hazardous Wastes	Total Quantity	
	During the previous financial year	During the current financial year
(a) From process Used/Waste oil	3.89 MT	4.88 MT
(b) Paint Drums/Plastic Carboy	----	3.68 MT
(c) From pollution control Facilities	Nil	Nil



**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.		
Fly ash	35890.30 MT	25266.61 MT
Bed Ash	1713.00 MT	636.012 MT
(2) Sold	Not applicable	
(3) Disposed	Fly ash / Bed ash collected through pollution control equipments is being stored in closed silos and totally disposed off by utilizing it in cement manufacturing at own cement plant.	

**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 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) **Discarded Container/Barrels contaminated with Hazardous Waste/ Chemicals (Category-33.3)**

ACL has valid authorization of GPCB for collection, storage, transportation and disposal of Discarded Container/Barrels contaminated with Hazardous Waste/ Chemicals (Category-33.3) by selling to authorized recycler.

➤ Solid Waste

- No solid waste generated from process.
- Fly ash/ Bed ash collected through pollution control equipments is being stored in closed silos and totally utilized for cement manufacturing at cement plant.
- E-waste is being segregated and sold to 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.**

**Boilers** of Thermal Power Plant are based on circulating fluidized bed combustion (CFBC) technology, which is one of the most advanced and clean technology. The boiler confirms the strictest pollution norms and is suitable to run on any type of solid fuel at higher thermal efficiency. The Boiler can also operate on Biomass as supplement fuel.

The Boiler is designed to maintain  $\text{SO}_x$  level of  $100 \text{ mg/Nm}^3$ , which is achieved by dosing of crushed limestone directly in to the combustor. As the combustor height is 40 mtrs, the residence time for reaction of sulphur in coal with limestone is maximum. The system runs in interlock with the  $\text{SO}_x$  level monitored continuously at stack.

The Boiler is designed to maintain optimum  $\text{NO}_x$  level by maintaining uniform temperature throughout the combustor (i.e.)  $< 850 \text{ deg.C}$ . The ash generated from the boiler is having carbon content of 2%. This quality is maintained irrespective of type of fuel.

**Air Cooled Condenser:** Cooling medium is required for cooling the exhaust steam for re-circulation in to Boiler. The cooling can be performed by air or water. Since water is precious, ACL selected air cooled condenser. The finned tube is elliptical and fins are galvanized to resist corrosion due to coastal environment. The total water requirement for all the three units of 30 MW shall be reduced by 90% (**saving of  $9,000 \text{ m}^3/\text{d}$  of water in comparison with conventional condenser**).

**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.

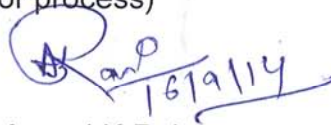
Ambuja Cements Ltd. has set milestone in the field of pollution control & environmental protection, which is reflected through the various awards won by the Ambuja Cement Ltd.

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)



**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/m <sup>3</sup> )											
	Inside TPP				Navapara				Devalpara			
	PM2.5	PM10	SO2	NOx	PM2.5	PM10	SO2	NOx	PM2.5	PM10	SO2	NOx
Apr-13	23.0	35.0	11.8	18.2	26.0	37.0	12.1	19.2	29.0	41.0	10.5	20.3
May-13	24.0	39.0	11.4	18.7	28.0	35.0	12.5	19.9	27.0	42.0	11.3	19.7
Jun-13	26.0	41.0	12.1	17.8	30.0	38.0	11.7	18.6	29.0	39.0	13.1	20.0
Jul-13	23.0	39.0	11.5	17.5	29.0	37.0	11.3	18.1	27.0	40.0	13.5	18.8
Aug-13	18.0	34.0	10.5	16.9	25.0	35.0	12.1	17.8	22.0	37.0	13.2	18.5
Sep-13	19.0	38.0	10.8	16.4	21.0	36.0	11.8	17.2	24.0	40.0	12.6	16.8
Oct-13	21.0	35.0	11.4	18.2	23.0	39.0	12.6	16.8	26.0	45.0	12.8	17.5
Nov-13	25.0	33.0	12.2	16.6	23.0	39.0	12.6	16.8	26.0	45.0	12.8	17.5
Dec-13	21.0	35.0	11.2	17.4	26.0	34.0	11.8	17.2	28.0	40.0	12.1	18.4
Jan-14	24.0	33.0	12.7	16.7	29.0	38.0	12.9	16.1	30.0	35.0	11.7	17.8
Feb-14	28.0	35.0	11.7	17.7	25.0	40.0	12.2	16.8	26.0	32.0	12.8	18.2
Mar-14	30.0	31.0	12.4	16.6	28.0	37.0	13.6	17.8	29.0	35.0	11.8	16.3
Minimum	18.0	31.0	10.5	16.4	21.0	34.0	11.3	16.1	22.0	32.0	10.5	16.3
Maximum	30.0	41.0	12.7	18.7	30.0	40.0	13.6	19.9	30.0	45.0	13.5	20.3
Average	22.2	37.7	11.4	17.6	26.5	36.3	11.9	18.5	26.3	39.8	12.4	19.0

# Annexure -I

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

Month	Stack attached to					
	Boiler I & II			Boiler III		
	PM mg/Nm <sup>3</sup>	SOx ppm	NOx ppm	PM mg/Nm <sup>3</sup>	SOx ppm	NOx ppm
Apr-13	26.00	55.40	20.80	30.00	59.70	21.20
May-13	24.00	54.10	21.50	27.00	56.30	23.10
Jun-13	22.00	55.40	22.40	24.00	57.90	25.10
Jul-13	21.00	53.40	21.80	22.0	55.00	22.90
Aug-13	24.00	55.10	20.50	26.0	57.50	22.20
Sep-13	28.00	53.70	22.10	30.0	55.60	24.50
Oct-13	32.00	49.80	18.60	35.00	51.20	21.40
Nov-13	36.00	46.50	20.40	39.00	49.70	23.20
Dec-13	31.00	42.20	18.80	36.0	45.50	20.00
Jan-14	35.00	41.20	16.70	39.0	42.80	18.70
Feb-14	31.00	35.60	15.50	34.0	38.40	16.60
Mar-14	34.00	32.40	16.20	38.0	34.60	15.70
Minimum	21.0	32.4	15.5	22.0	34.6	15.7
Maximum	36.0	55.4	22.4	39.0	59.7	25.1
Average	28.7	47.9	19.6	31.7	50.4	21.2
Permissible Limit	100.0	100.0	50.0	100.0	100.0	50.0

\*PM : particulate matters



## **ANNEXURE II**

Additional measures taken for environmental protection at **captive mines** including abatement of pollution, prevention of pollution are as follows:

### **CONTROL AT SOURCE:**

Environment-friendly Surface Miners are being used for mining, which have in-built water sprinklers facility to suppress dust generated during mining. Surface mining itself reduces dust generation substantially as compared to conventional drilling & blasting, further dust suppression is carried out by auto-water sprinklers in Surface miners, which results in negligible dusting during mining activities.

### **OPERATIONAL CONTROL:**

Regular water is being sprinkled over haul road by water tankers. Frequency of water sprinkling is based on weather condition.

Limestone excavated from surface mining is transported to cement plant through fully covered vehicles through tarpaulin/ multicap covering mechanism, which prevents spillage & fugitive dusting during transportation.

### **GREEN BELT DEVELOPMENT:**

Every year plantation activities is 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.

### **AIR QUALITY MONITORING:**

Ambient air quality at established AAQM stations is being regularly monitored twice a month by GPCB approved third party. Results of monitoring are maintained well within the prescribed AAQ norms. AAQM results are being regularly submitted to GPCB.

(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.

Also 100 % of fly ash/Bed ash generated from TPP is being used for Cement manufacturing at cement plant.