

ADITYA BIRLA



26 September, 2019

To,

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

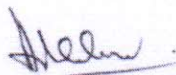

Sub Environment Statement Report for the year 2018 - 2019 of
Hindalco Industries Ltd, CPP at Hirakud

Dear Sir,

Please find enclosed herewith the Annual Environment Statement Report in Form -
V duly filled, with enclosures with respect to our Captive Power Plant at Hirakud for
the financial year 2018 - 2019, as per Govt. of India notification No: GSR 386 (E) of
April 1993.

Thanking you.

Yours very truly
for M/s Hindalco Industries Ltd


Arun Poddar
Head - Hirakud Power


Encl. As above

Copy to The Regional Officer,
State Pollution Control Board, Odisha
1070, Hospital Road
Modipara, Sambalpur - 768 004

"FORM - V"
(See Rule - 14)

**ENVIRONMENTAL STATEMENT REPORT FOR THE FINANCIAL
YEAR ENDING 2018 - 2019**

PART - A

01. Name and Address of the owner / Occupier of the Industry, Operation or Process : Arun Poddar
Head - Hirakud Power
Hindalco Industries Limited
Post Box No: 12
Post: HIRAKUD - 768 016
Dist: Sambalpur (Odisha).
02. Industry Category :
Primary - (STC Code) : Major
Secondary - (SIC Code) :
03. Production Capacity - Units : 4095.3 Million Units (MU) Per Annum at 100 % PLF
Actual Production in Million Units (MU) : 2988.140 MU (2018 - 19)
04. Year of Establishment :
1993 - Unit # I (67.5 MW)
2005 - Unit # II (100 MW)
2006 - Unit # III (100 MW)
2008 - Unit # IV (100 MW)
2013 - Unit # V (100 MW)
05. Date of the last Environmental Statement submitted : September 2018.

PART - B

Water and Raw Material Consumption

01. Water Consumption m³/day
- | | |
|------------|------------------------------|
| | <u>Average (Approx.)</u> |
| Process : | 389.6 m ³ / day |
| Cooling : | 20528.6 m ³ / day |
| Domestic : | 1908.6 m ³ / day |
- * Including Smelter Plant Drinking

Name of the Products	Water consumption per unit of product	
	During the Previoud Financial Year 2017 - 18	During the Current Financial Year 2018 - 19
01. Electricity	2.53 Ltr / KWH	2.56 Ltr / KWH

02. Raw Material Consumption :

Name of the Raw Materials	Name of the Products	Consumption of the Raw materials Per unit of Output	
		During the Previous Financial Year (2017 - 18)	During the Current Financial Year (2018 - 19)
01. COAL	ELECTRICITY	0.794 Kg / KWH	0.817 Kg / KWH
02. LIGHT DIESEL OIL (LDO)	ELECTRICITY	0.069 ml / KWH	0.105 ml / KWH

PART - C

Pollution Discharged to Environment / unit of output.
(Parameters as specified in the Consent Order)

Pollutants	Quantity of Pollutants discharged (mass / day)		Concentrations of Pollutants in discharges (mass / volume)	Percentage of Variation from prescribed standards with reasons.					
a) Water		No discharge to outside. Quality of the effluent is attached.		All the values are well within the prescribed standards.					
(b) Air		Emission through stack in 2018 - 19 (in mg/NM ³)							
		Parameter	Unit - I	Unit - II	Unit - III	Unit - IV	Unit - V	Std*	Remark
		PM	63.3	58.1	58.9	57.5	40.7	100	Within std.
		SO ₂	377.6	389.9	381.8	463.4	338.8	600	Within std
		NO _x	162.30	170.1	167.5	186.3	144.4	300	Within std
		Hg	0.0055	0.0081	0.0081	0.0084	0.0092	0.03	Within std

PART - D

Hazardous Wastes

[As specified under Hazardous Wastes (Management and Handling) Rules]

Hazardous Wastes	Total Quantity			
	During Previous Financial Year (2017 - 18)		During the Current Financial Year (2018 - 19)	
(a) From Process generation	Used Oil	: 15.170 KL	Used Oil	: 23.218 KL
	Spent Resin	: 7.900 KL	Spent Resin	: 2.900 KL
	Waste containing oil	: 2.347 MT	Waste containing oil	: 1.793 MT
(b) From Pollution Control Facilities	Not Applicable		Not Applicable	
(c) Used batteries disposal	26.54 MT		6.14 MT	

PART - E
Solid Wastes

	TOTAL QUANTITY					
	During the Previous Financial Year (2017 - 18)			During the Current Financial Year (2018 - 19)		
(a) From process	Fly ash	:	8,54,052 MT	Fly ash	:	9,27,621 MT
	Bottom ash	:	94,895 MT	Bottom ash	:	1,03,070 MT
(b) From Pollution Control Facilities	Same as in (a) above			Same as in (a) above		
(c) (01) Quantity re-cycled or re-utilised	Utilisation as given below			Utilisation as given below		
(02) Sold	Nil			Nil		
(03) Disposal	3,47,177 MT (Dry disposal at Ash Mound)			1,57,027 MT (Dry disposal at Ash Mound)		

Ash utilization:

<u>Sl. No</u>	<u>Mode of utilisation</u>	<u>2017 - 2018</u>	<u>2018 - 2019</u>
1.	Quantity used for Cement Production	80,979 MT	2,02,227 MT
2.	Quantity used for Bricks manufacturing	3,12,388 MT	3,83,437 MT
3.	Quantity used for Land filling	1,58,697 MT	1,86,473 MT
4.	Quantity used for Road construction	42,656 MT	1,20,310 MT
5.	Quantity used for Dyke raising	7,050 MT	0 MT
6.	Percentage of Ash utilisation	63.4 %	86.6 %
7.	Total Cost involved in Ash Management	1462.43 Lakh	1863.69 Lakh

PART - F

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

AA GENERATION & DISPOSAL OF HAZARDOUS WASTES :

- a) **Used Oil:** Used oil generated from various processes is collected in barrels and are stored in oil storage shed. The stored oil is disposed to registered recyclers later on. Total 23.218 KL of used oil was generated. Total 18.27 KL used oil was disposed to authorized agencies during the year 2018 -19.

- b) **Waste containing oil:** The waste containing oil, comprising basically cottons used during handling of oil, is kept in barrels and disposed in the coal yard for burning in the boilers on daily basis. 1.793 MT of waste containing oil was generated and disposed during 2018 - 19.
- c) **Spent Resin:** Spent Resin is generated from DM Plant, usually once in several years. These are kept under shed in barrels with cover and disposed off in an impervious lined pit inside plant premise. 2.9 KL of spent resin was generated in 2018 - 19 during operation of DM plant.
- d) **Used Batteries :** Used batteries, are kept under shed in designated place for re-sell to the authorised dealers on buy-back scheme. During 2018 -19, used batteries weighing approximately 6.14 MT was disposed to the dealer.

BB CHARACTERISTICS OF SOLID WASTE:

The high volume solid waste generated in the operation of thermal power unit is coal ash. Analysis report of ash analysed by M/s. R.V.Briggs, Kolkotta is enclosed (**Annexure - I**).

CC. DISPOSAL PRACTICE OF SOLID WASTES:

Fly ash generated from ESP is conveyed to Ash Silo pneumatically and stored in Ash Silos. The stored ash from the silos are first sent for utilisation in various sectors like Cement, Bricks, Road making, Low lying area filling etc and the balance ash is disposed dry in the Ash Mound. The detailed quantity of generation, utilisation and disposal of ash for the year 2018 - 19 has been provided in Part E.

The unloading of Ash from the Silo is done through Ash Conditioning units where ash is conditioned with water containing adequate moisture, leaving no ash particles to be air borne. The ash is transported in tarpaulin-covered and rope tied trucks to various sectors of utilization, like cement and fly ash brick manufacturing, low lying area filling, road construction, etc. Balance ash, if any, is taken to Ash Mound for dry disposal.

PART - G

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

AA Impact of pollution control measures :

- a) **AIR:** Electrostatic Precipitators, Dust Suppression and Dust Extraction systems were properly working. The average emission from the all the stacks was PM - 55.7 mg / NM³, SO₂ - 390.3 mg / NM³, NOx - 166.1 mg / NM³ & Hg - 0.0079 mg / NM³ which were well below the specified limit. The values of Particulate Matter emitted from stacks of each unit is enclosed in Annexure - II. Further, Bag Filters installed in Secondary Crusher Houses and all transfer Points to control the Fugitive emissions was working effectively.

All the fixed sprinklers were also working properly throughout the period along with sprinkling through mobile vehicle, thus keeping the PM₁₀ and PM_{2.5} level inside the plant

premise under prescribed standards. The ambient air quality monitoring values are enclosed as Annexure - III.

- b) **WATER:** The waste water generated out of the Plant is treated with continuous dosing of Alum, Lime and Sodium Hypochlorite followed by settling in a pit prior to discharge to common monitoring basin. The effluents generated from the Plant, after treatment and settling in common monitoring basin were re-used in Ash Conditioning system for ash moisturisation, coal yard spraying, road washing, gardening etc. The treated effluent was also reutilized as make up in Cooling Tower. Blow down from the Cooling Towers is treated in RO plant and re-used in cooling tower and also in process. The quality of the effluent in the final pit is enclosed as Annexure - IV.
- c) **COAL / OIL :** To reduce the specific Coal/Oil consumption, the following steps were undertaken:
01. Further increase in boiler efficiency by initiatives in PHR improvement
 02. Reducing the THR by capital overhauling of TG
 03. Reducing auxillary energy consumption by retrofitting of VFD in ID fans of Boilers # 6, 7, 8 & 9, by replacement of 5 no.s solid GRP CT Fan blades with hollow FRP blades, stoppage of CW pumps, CT make up pumps and CT fans for winter impact, stage reduction implementation in CEP, replacement of conventional light fittings with LED lights etc
 04. Installation of 5 KW solar power project on the roof top of Unit - I Chemical Building.

BB	Impact on Cost of production :	<u>2017 – 2018</u>	<u>2018 – 2019</u>
01.	Total Environmental expenditure in Lakh	1988.45	3416.35
02.	Power generation in MU	2874.098	2988.140
03.	Impact on Cost per unit of Power(KWH) generation in Paise	6.92	11.43

PART - H

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

1. High Frequency Rectifier Transformers (HFTRs), a **state-of-art technology** installed in 1st fields of all the ESPs, except ESPs attached to Unit # I, and proposed to be installed in second fields of ESPs to further minimize the emission of Particulate Matter in the flue gas discharged through stacks
2. Lime stone dosing in the boiler for reduction of SO₂ emission through stacks

3. Increasing the coal handling capacity of Railway Siding to 100000 Ton per month, thus further reducing transportation of coal through trucks, and reducing the environmental impact.
4. Exploring the option for replacing "Light diesel Oil "with "Petro polymer Fuel "(Green Fuel / byproduct of waste plastics).
5. Continuing effort to enhance the fly ash utilization, ash will be supplied for expansion of Sambalpur - Angul section of the National Highway. Moreover increase in utilization of ash in the sectors of cement and ash brick manufacturing, low lying area filling after obtaining permission of SPCB, etc are under progress to achieve 100% ash utilization.
6. Effort to achieve zero discharge by sealing of the discharge outlet of Common Monitoring Basin (final pit) and maximum utilization of waste water.

PART - I

Any other particular for improving the quality of the environment

AA Plantation : Plantation has been done inside the plant premises, around the Ash Mound and in and around Hirakud Township. 10500 saplings were planted in Ash Disposal area and Plant area during the year 2018 - 19, with survival rate of around 80%.

Since inception around 6.86 lakh saplings have been planted so far in ash disposal area, plant area, in and around Hirakud Township, which includes plantation in replenished areas. Provisions have been made to plant more than 10000 saplings during 2019 - 20 in Smelter & Power Complex and surrounding areas to raise the green coverage further.

BB Community Development : Various community developments projects in the field of Education, Health, Environmental Sustainability, Empowerment of women, Economy improvement projects etc were undertaken under CSR activities during the year 2018 - 19.

01. Expenses on Community development and Plantation Activity

For the Year [Actual] :		<u>2017 - 2018</u>	<u>2018 - 2019</u>
Plantation	Rs	9.89 Lakh	21.94 Lakh
Community Development	Rs	49.82 Lakh	37.25 Lakh

ANNEXURE - I

ANALYSIS RESULTS OF ASH

Silica as SiO ₂	:	62.66 %
Alumina as Al ₂ O ₃	:	23.76 %
Oxide of Iron as Fe ₂ O ₃	:	6.99 %
Titanium Oxide as TiO ₂	:	0.34 %
Lime as CaO	:	2.46 %
Magnesia as MgO	:	0.48 %
Potash as K ₂ O	:	0.36 %
Soda as Na ₂ O	:	1.63 %
Sulphate as SO ₃	:	0.08 %
Fluoride as F	:	0.02 %
Phosphate as P ₂ O ₅	:	0.16 %
Heavy Metals	:	0.12 %
Loss on ignition	:	0.28 %
Undetermined	:	0.31 %

HEAVY METALS ANALYSIS

Nickel as Ni	:	0.032 %
Lead as Pb	:	0.018 %
Zinc as Zn	:	0.037 %
Cadmium as Cd	:	0.014 %
Copper as Cu	:	0.001 %
Chromium as Cr	:	0.014 %

* Sample analysed by M/s. R.V. Briggs & Co. Pvt. Ltd., Kolkata.

ANNEXURE - II

STACK EMISSION FOR THE YEAR 2018 - 2019
(April - 2018 to March - 2019)

UNIT # I (67.5 MW)

Process attached to the unit : Boiler # 1 & 2

Sl. No.	Month / Year	Unit	PM	SO ₂	NO _x	Hg
01.	April '18	mg / NM ³	SD	SD	SD	SD
02.	May	mg / NM ³	SD	SD	SD	SD
03.	June	mg / NM ³	SD	SD	SD	SD
04.	July	mg / NM ³	SD	SD	SD	SD
05.	August	mg / NM ³	SD	SD	SD	SD
06.	September	mg / NM ³	SD	SD	SD	SD
07.	October	mg / NM ³	SD	SD	SD	SD
08.	November	mg / NM ³	64.55	377.60	160.95	0.0040
09.	December	mg / NM ³	SD	SD	SD	SD
10.	January '19	mg / NM ³	SD	SD	SD	SD
11.	February	mg / NM ³	SD	SD	SD	SD
12.	March	mg / NM ³	61.85	377.45	163.65	0.0050
	Average	mg / NM ³	63.20	377.53	162.30	0.0045
	Standard	mg / NM ³	100	600	300	0.03

STACK EMISSION FOR THE YEAR 2018 - 2019
(April - 2018 to March - 2019)

UNIT # II (100 MW)

Process attached to the unit : Boiler # 3, 4 & 5

Sl. No.	Month / Year	Unit	PM	SO ₂	NO _x	Hg
01.	April'18	mg / NM ³	58.85	361.53	167.05	0.0058
02.	May	mg / NM ³	60.10	364.70	167.73	0.0056
03.	June	mg / NM ³	60.70	364.40	167.18	0.0058
04.	July	mg / NM ³	65.28	366.60	163.50	0.0058
05.	August	mg / NM ³	51.13	405.37	159.63	0.0128
06.	September	mg / NM ³	49.98	364.00	161.60	0.0056
07.	October	mg / NM ³	65.00	448.00	199.25	0.0128
08.	November	mg / NM ³	51.13	364.05	159.20	0.0050
09.	December	mg / NM ³	83.25	467.75	194.25	0.0120
	Average	mg / NM ³	60.60	389.60	171.04	0.0079
	Standard	mg / NM ³	100	600	300	0.03
10.	January'19	mg / NM ³	50.63	364.18	158.78	0.0050
11.	February	mg / NM ³	48.83	448.17	184.17	0.0110
12.	March	mg / NM ³	48.95	359.60	158.17	0.005
	Average	mg / NM ³	49.47	390.65	167.04	0.0070
	Standard	mg / NM ³	50	600	300	0.03

STACK EMISSION FOR THE YEAR 2018 - 2019
(April - 2018 to March - 2019)

UNIT # III (100 MW)

Process attached to the unit : Boiler # 6, 7 & 8

Sl. No.	Month / Year	Unit	PM	SO ₂	NO _x	Hg
01.	April'18	mg / NM ³	67.37	387.08	178.30	0.0054
02.	May	mg / NM ³	68.43	388.18	173.92	0.0055
03.	June	mg / NM ³	68.62	385.63	174.62	0.0056
04.	July	mg / NM ³	67.93	386.13	168.03	0.0055
05.	August	mg / NM ³	69.25	363.50	144.50	0.0138
06.	September	mg / NM ³	50.63	381.30	165.45	0.0055
07.	October	mg / NM ³	58.00	336.25	139.75	0.0153
08.	November	mg / NM ³	50.65	375.77	162.68	0.0053
09.	December	mg / NM ³	59.00	329.50	183.33	0.0078
Average		mg / NM ³	62.21	370.37	165.62	0.0077
Standard		mg / NM ³	100	600	300	0.03
10.	January'19	mg / NM ³	49.63	375.17	162.18	0.0052
11.	February	mg / NM ³	47.17	498.67	190.00	0.0117
12.	March	mg / NM ³	47.73	374.05	159.43	0.0051
Average		mg / NM ³	48.18	415.96	170.54	0.0073
Standard		mg / NM ³	50	600	300	0.03

STACK EMISSION FOR THE YEAR 2018 - 2019
(April - 2018 to March - 2019)

UNIT # IV (100 MW)

Process attached to the unit : Boiler # 9, 10 & 11

Sl. No.	Month / Year	Unit	PM	SO ₂	NO _x	Hg
01.	April'18	mg / NM ³	59.67	503.07	176.95	0.0053
02.	May	mg / NM ³	58.28	495.55	174.70	0.0051
03.	June	mg / NM ³	59.78	493.38	176.38	0.0056
04.	July	mg / NM ³	63.98	435.80	163.85	0.0065
05.	August	mg / NM ³	47.00	511.17	162.50	0.0143
06.	September	mg / NM ³	61.05	440.73	170.63	0.0051
07.	October	mg / NM ³	45.83	477.33	165.33	0.0153
08.	November	mg / NM ³	SD	SD	SD	SD
09.	December	mg / NM ³	86.00	497.50	262.50	0.0068
	Average	mg / NM ³	60.20	481.82	181.61	0.0080
	Standard	mg / NM ³	100	600	300	0.03
10.	January'19	mg / NM ³	52.95	449.30	172.90	0.0053
11.	February	mg / NM ³	45.33	354.00	229.33	0.0117
12.	March	mg / NM ³	49.30	439.87	171.33	0.0048
	Average	mg / NM ³	49.19	414.39	191.19	0.0073
	Standard	mg / NM ³	50	600	300	0.03

STACK EMISSION FOR THE YEAR 2018 - 2019
(April - 2018 to March - 2019)

UNIT # V (100 MW)

Process attached to the unit : Boiler # 12 & 13

Sl. No.	Month / Year	Unit	PM	SO ₂	NO _x	Hg
01.	April'18	mg / NM ³	45.50	402.03	165.90	0.0056
02.	May	mg / NM ³	45.00	400.28	164.55	0.0056
03.	June	mg / NM ³	45.38	394.83	164.30	0.0058
04.	July	mg / NM ³	44.28	394.73	161.23	0.0063
05.	August	mg / NM ³	40.00	307.00	137.50	0.0185
06.	September	mg / NM ³	45.98	390.35	165.45	0.0049
07.	October	mg / NM ³	38.00	285.00	141.50	0.0145
08.	November	mg / NM ³	41.45	381.73	165.28	0.0047
09.	December	mg / NM ³	18.00	221.25	78.00	0.0100
10.	January'19	mg / NM ³	39.03	382.75	168.05	0.0050
11.	February	mg / NM ³	45.00	167.00	76.00	0.0130
12.	March	mg / NM ³	SD	SD	SD	SD
Average		mg / NM ³	37.30	310.58	132.31	0.0078
Standard		mg / NM ³	50	600	300	0.03

AMBIENT AIR QUALITY

Particulate Matter PM ₁₀	Location	Standard - 100.0 µg/m ³											
		Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19
FHP Control Room Top (Near Admn. Building) 120° NNE 240° SSE (Rajapada village) 360° W (Hindalco Club)		83.7	84.5	70.3	64.3	66.2	69.1	73.5	67.9	71.2	74.6	71.5	71.3
		48.3	58.5	40.9	38.8	40.2	43.7	48.3	48.2	50.2	53.1	56.3	56.7
		70.2	66.4	55.8	49.3	52.3	54.6	52.9	53.7	45.4	43.0	47.2	48.1
Jyoti Vihar, Burla		68.8	56.7	47.6	41.7	43.4	41.2	42.0	40.5	41.6	45.7	51.6	49.6
		54.0	53.4	47.8	42.8	39.0	36.3	34.6	35.0	42.1	43.9	53.0	40.8
Ash Mound Road		64.6	70.3	68.6	63.1	62.4	60.2	63.5	62.3	68.0	74.0	66.9	75.5
Ash Mound area		79.3	83.2	75.6	69.2	70.1	69.0	72.3	72.0	70.5	76.3	69.4	78.0

Particulate Matter PM _{2.5}	Location	Standard - 60.0 µg/m ³											
		Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19
FHP Control Room Top (Near Admn. Building) 120° NNE 240° SSE (Rajapada village) 360° W (Hindalco Club)		51.1	52.2	45.6	39.2	41.1	43.5	42.8	41.5	45.6	48.0	42.9	43.5
		34.5	33.2	31.3	27.5	29.7	31.5	32.5	34.8	36.4	40.4	35.4	39.2
		47.7	45.2	35.8	30.1	32.9	34.2	31.7	36.2	31.1	29.9	24.9	32.7
Jyoti Vihar, Burla		47.5	43.4	35.5	29.5	31.7	29.5	28.8	27.6	29.0	32.2	30.3	35.1
		31.2	32.1	30.4	24.3	23.6	22.7	21.3	23.8	30.6	31.5	32.7	29.4
Ash Mound Road		48.1	46.9	44.7	40.6	42.5	43.8	44.1	44.7	42.7	44.3	40.2	56.2
Ash Mound area		48.0	50.3	46.6	44.5	45.6	44.5	48.0	46.1	44.3	46.1	42.1	49.5

Standard - 80.0 µg/m³

Sulphur Dioxide SO ₂		Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19
Location													
FHP Control Room Top		9.8	11.3	9.7	7.9	8.3	9.3	9.7	10.1	11.4	10.9	12.4	11.5
120° NNE (Near Admn. Building)		8.9	9.2	7.6	6.2	7.8	8.4	9.3	9.0	10.1	11.2	9.8	10.9
240° SSE (Rajapada village)		7.1	8.2	6.5	5.9	6.5	7.8	7.2	8.2	8.9	9.5	7.5	9.2
360° W (Hindalco Club)		6.8	7.1	6.3	5.6	6.9	6.1	6.5	7.4	7.7	8.0	8.3	8.8
Jyoti Vihar, Burla		5.9	6.3	7.5	5.2	5.7	5.4	5.9	6.1	6.9	6.6	8.8	6.9
Ash Mound Road		7.4	8.5	7.6	7.0	7.9	7.6	7.5	8.2	9.1	9.7	9.7	9.7
Ash Mound area		8.2	9.3	8.7	8.2	9.0	8.3	9.2	8.8	9.4	8.8	11.5	9.3

Standard - 80.0 µg/m³

Oxides of Nitrogen NO _x		Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19
Location													
FHP Control Room Top		16.4	17.2	14.4	12.1	13.5	14.6	15.1	13.6	14.1	13.7	16.0	14.0
120° NNE (Near Admn. Building)		13.2	14.1	11.4	9.5	10.0	11.6	13.5	12.4	12.9	13.5	12.5	12.5
240° SSE (Rajapada village)		11.5	12.3	10.8	8.4	9.6	10.0	10.9	11.0	10.4	11.3	10.2	12.7
360° W (Hindalco Club)		10.3	11.5	9.4	7.8	8.1	7.9	7.7	8.7	8.2	10.2	11.6	11.1
Jyoti Vihar, Burla		11.0	13.3	12.2	9.7	9.4	8.9	8.4	8.4	8.0	8.9	11.3	9.0
Ash Mound Road		13.8	15.4	13.2	11.9	11.1	10.8	11.8	10.7	10.5	11.0	12.9	12.2
Ash Mound area		11.7	12.4	11.8	11.0	11.8	11.1	11.5	11.0	11.6	10.6	13.7	11.7

