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Date: 22.06.2017

To
The Director
Ministry of Environment, Forest and Climate Change,
Regional Office (ECZ),
Bungalow No. A-2,
Shyamali Colony,
Ranchi – 834002

Subject: Half yearly Environment Clearance Compliance Report for the period of October'2016 to March'2017.

Dear Sir,

Please find enclosed herewith six monthly compliance report of Environment Clearance of Dalmia Cement East Limited, Bokaro, Jharkhand for the period of October'2016 to March'2017 for your kind perusal.

Thanking you

Yours Sincerely,

For **Dalmia Cement East Limited**

Mukesh Kr. Garg
Authorized Signatory

Copy: 1. Member Secretary, CPCB, Delhi
 2. Member Secretary, JSPCB, Ranchi
 3. Regional Officer, JSPCB, Dhanbad

Enclosed:

1. Compliance Report-4 Pages
2. Annexure - I to XVII



Jharkhand State Pollution Control Board
Regional Office
Dhanbad

DALMIA CEMENT EAST LIMITED, BOKARO

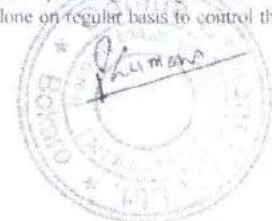
(Formerly Known as Bokaro Jaypee Cement Limited)

HALF-YEARLY COMPLIANCE OF ENVIRONMENT CLEARANCE CONDITIONS LAID DOWN BY MoEF, New Delhi VIDE MoEF Letter F. No. J-11011/823/2008-IA II (I) Dated: 01-01-09 and MoEF Letter F.No.J-11011/823/2008-IA-II(I) Dated: 13.07.2009 FOR CEMENT GRINDING UNIT AT BOKARO INDUSTRIAL AREA DEVELOPMENT AUTHORITY, PO: BALIDIH, DIST-BOKARO, JHARKHAND BY BOKARO JAYPEE CEMENT LIMITED.

PERIOD: October 2016-March 2017

A. SPECIFIC CONDITIONS

S.N.	CONDITIONS STIPULATED	STATUS
i	<p>Necessary statutory clearances from other concerned Departments including 'No Objection Certificate' from the Jharkhand State Pollution Control Board (JSPCB) shall be obtained prior to commencement of construction and/or operation</p> <p>The stack emissions from various sources including cement mill and packing plant shall not exceed 50 mg/Nm³ by installing bag filters</p> <p>Cement grinding shall be carried out in closed clinker and highly efficient bag filters to raw mill and bag house to cement mill to control gaseous emissions within 50 mg/Nm³</p> <p>On-line stack monitoring and continuous ambient air monitoring facilities to monitor particulate emissions shall be installed.</p>	<p>No Objection Certificate' (NOC) from the Jharkhand State Pollution Control Board (JSPCB) has been obtained vide ref. No.LN-93 dated 19.10.2009. Copy enclosed as Annexure-I</p> <p>Bag houses(2nos) are installed for both the cement mills & Bag filters are installed at Packing Plant Stack emission level are being maintained below 30 mg/Nm³. Stack monitoring data is enclosed as Annexure- II</p> <p>Cement grinding is carried out in a closed circuit consisting of a Bag house The stack emission is being maintained below 30 mg/Nm³.</p>
ii	<p>The gaseous and particulate matter emissions from various units shall conform to the standards prescribed by the JSPCB. At no time, the stack emissions from various sources shall exceed 50 mg/Nm³.</p> <p>Interlocking facility shall be provided in the pollution control equipment so that in the event of the pollution control equipment not working, the respective unit (s) is shut down automatically and reports submitted to the Ministry's Regional Office at Bhubaneswar, CPCB and JSPCB regularly. Ambient air quality monitoring stations (AAQMS) shall be set up as per statutory requirement in consultation with the Jharkhand PCB</p>	<p>On line stack monitoring system in Cement Mill Stack (ID-1100127) & two nos. Continous Ambient Air Quality Monitoring Stations have been installed with direct connectivity to JSPCB Server at Ranchi as well as CPCB, Delhi</p> <p>The particulate matter emission from plant stacks are within the standards of 30 mg/Nm³ as prescribed by CPCB/JSPCB.</p> <p>Interlocking facility has been provided. In the event of Bag House not working, mill will stop grinding.</p> <p>In addition to Continous Ambient Air Quality Monitoring , four Nos. stations for manual Ambient Air Quality Monitoring have been set up inside the plant premises in consultation with JSPCB Monitoring reports are regularly being sent to the Regional office Dhanbad and JSPCB, Ranchi Refer Annexure-III.</p>
iii	<p>Continuous monitoring for ambient air in nearby villages shall also be carried out.</p> <p>Ambient air quality including ambient noise levels shall not exceed the standards stipulated under EPA or by the State authorities</p> <p>Monitoring of ambient air quality shall be carried out regularly in consultation with JSPCB</p> <p>On-line data shall be submitted to the Ministry's Regional Office at Bhubaneswar, CPCB and JSPCB regularly</p> <p>The instruments used for ambient air quality monitoring shall be calibrated time to time.</p> <p>The fugitive emissions during loading and unloading shall be suitably controlled.</p> <p>The company shall install adequate dust collection and extraction system to control fugitive dust emissions from hoppers, loading points, vehicular movement etc.</p>	<p>It is unsafe to install CAAQMS nearby village due social condition. An Ambient Air Monitoring Station has been established in Godawali village(buffer zone) near the plant premises. Its monitoring is being carried out regularly Refer Annexure-III.</p> <p>Ambient air quality and ambient noise levels are being maintained within the standards stipulated under EPA or & by the State Authorities. Ambient noise level are also being maintained within the limits and the monitoring result are enclosed as Annexure-IV.</p> <p>We are regularly submitting monthly Ambient Air Quality Monitoring Report to JSPCB head office, Ranchi and Regional office, Dhanbad. We have been also conducted Third party environment Monitoring Annexure - V</p> <p>On-line data of stack emission is being transmitted / submitted continuously to JSPCB & CPCB</p> <p>Instruments used for ambient Air Quality monitoring are being calibrated time to time.</p> <p>Being complied.</p> <p>Bag filters have been installed in hopper building at various hopper filling points. All internal roads are being concreted. Regular sweeping on concrete roads and water sprinkling through water tankers on roads/kutchra area is being done on regular basis to control the fugitive</p>



	Jet pulse bag filters shall be provided at all the transfer points to control fugitive emissions	Jet pulse bag filters have been provided at all transfer point to control fugitive emissions
iv	Storage of raw material shall be in closed roof sheds. Water sprinkling arrangement shall be made in the raw material stock yard and cement bag loading areas.	Raw Materials: (a) Clinker: Stored in clinker silo (b) Gypsum: Stored in covered shed (c) Coal: Stored in covered shed (d) Slag: The slag received BSL is containing 10-20% moisture, therefore, stored in open yard. In case moisture is less than 5%, tarpaulin cover is provided to control fugitive emission. Water sprinkling is done by Water tanker at Raw material stock yard and Cement bag loading areas regularly.
v	Secondary fugitive emissions shall be controlled and shall be within the prescribed limits and regularly monitored. Guidelines / Code of Practice issued by the CPCB in this regard shall be followed	Secondary fugitive emission is controlled by following Guidelines / Code of Practice issued by the CPCB
vi	Total water requirement Tenu Ghat Canal shall not exceed 750 m ³ /day. No effluent shall be discharged from the process outside the premises and all the treated effluent shall be utilized for green belt development and other plant related activities. 'Zero' discharge shall be strictly adopted.	Total water consumption is within the limits. Current Source of water is from BIADA, as per permission for drawl of water. Water Consumption details is enclosed as Annexure-VI There is no generation of Waste/Effluent water from the plant process and Zero discharge is being maintained.
vii	Domestic wastewater shall be treated in septic tanks followed by soak pit system	Domestic wastewater is treated in septic tanks and soak pit system. Sewage Treatment Plant of 100 KLD is commissioned for treatment of domestic effluents and the treated water is being re-used in green belt development.
	Permission for the drawl of 750 m ³ /day from Tenu Ghat Canal shall be obtained.	We are taking water from BIADA as our unit is situated in notified industrial area BIADA. Permission for drawl of water has been obtained from BIADA. Copy of the same is enclosed as Annexure-VII .
viii	No ground water should be sourced from bore wells without prior Permission from the Central Ground Water Authority/State Ground Water Board (CGWA/SGWB)	No Ground water used
	A copy of the 'permission' letter from the concerned department shall be submitted to the Ministry and its Regional Office at Bhubaneswar/CPCB/JSPCB within 3 months of issue of this letter	A Copy of the permission letter has already been submitted to the Ministry and its Regional Office at Bhubaneswar/ CPCB /JSPCB
	All the solid waste viz. fly ash and dust etc. shall be properly recycled and reutilized in the process itself. No solid waste shall be discharged from the process. The solid waste collected in different collection systems shall be recycled and reutilized in the cement plant itself.	There is no solid waste generated in plant process. Solid waste collected in different collection systems are recycled & reutilized in the Cement Plant.
ix	Scrap, waste oil and grease shall be sold to the authorized recyclers/reprocessor.	Used Oil & Spent oil is being sold to "Industrial Esters & Chemicals Pvt. Ltd" which is a registered recycler/reprocessor of waste & used oil
	Domestic sludge shall be used as manure for green belt development.	Noted & Agreed
x	As proposed, green belt shall be developed in 22 acres (33 %) out of total 66 acres to mitigate the impacts of fugitive emissions within and around the site to mitigate the impact of air emissions as per the CPCB guidelines	Being complied. The present status of the tree plantation carried out so far with future action plan to develop Green belt in 22 acres in phased manner is enclosed as Annexure-VIII
	Observations of the State Forest Department regarding likely impact due to proposed plant on the surrounding Protected Forests (PF) near Tuvvo Village (4.6 km NNW), PF near Barkibera Village (7.7 km NNW), PF near Mungo Village (8.6 km N) and PF near Chirudih (6 km NNE) shall be obtained and implementation of recommendations, if any, shall be ensured	The observation of State Forest Department has been obtained. Bokaro Jaypee Cement is located in BIADA Industrial area. A copy of this letter Enclosed as Annexure-IX . All the recommendation of the forest department are being followed
xi	All the recommendations mentioned in the Corporate Responsibility for Environmental Protection (CREP) shall be strictly followed	All the recommendations of CREP are being followed. Status of the compliance of the CREP action points is provided at Annexure X .
xii	The company shall provide housing for construction labor within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Complied.



B.GENERAL CONDITIONS		
SN.	CONDITIONS STIPULATED	STATUS
i	The Project authority must adhere to the stipulations made by Jharkhand State Pollution Control Board (JSPCB) and State Government	Noted & Agreed
ii	No further expansion or modification of the Plant shall be carried out without prior approval of the Ministry	Noted & Agreed
iii	The overall noise levels in and around the Plant areas shall be kept well within the standards (85 dBA) , by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environmental (protection) Act, 1986 rules, 1989 viz 75 dB(A) (day time) and 70 dB(A) (night time).	Regular monitoring of Ambient noise level is being done.The noise level is within the standard prescribed limit under Environment (Protection) Act,1986 Rules. Noise level data is enclosed as Annexure-IV .
iv	Proper housekeeping and adequate occupational health programmers shall be taken up.	Proper Housekeeping is regularly being done. A committee is constituted at site for proper monitoring of Housekeeping, Safety and Occupational health aspects. Employee medical checkup is done on regularly basis. Refer Annexure-XI .
v	Rain water harvesting water measures shall be adopted for the augmentation of ground water. Besides, company must also harvest the rainwater from the roof tops and storm water drains to recharge the ground water and use the same water for the various activities of the project to conserve fresh water.	The unit has fully elaborated Ram Water Harvesting facility inside the plant premises as per approval from Ground Water Board, Ranchi vide letter no. GWD320/Ranchi Dated: 06/09/2013.
vi	The company shall undertake eco-development measures including community welfare measures in the project area.	Community development work is going on as per CSR Policy of the company. Details of the eco-development measures and community welfare measures surrounding the plant area are attached as Annexure-XII .
vii	A separate environmental management cell to carry out various management and monitoring functions shall be set up under the control of Senior Executive	A separate Environment Management Cell is working under P&QC Department at DCEL, Bokaro. Organization chart of the Environment Management Cell is enclosed as Annexure-XIII .
viii	As proposed, Rs. 30.00 Crores and Rs. 2.50 Crores shall be earmarked towards total capital cost and recurring cost/annum for environmental pollution control measures and used judiciously to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government. The funds so provided shall not be diverted for any other purpose.	The funds proposed in EIA/EMP are exclusively earmarked towards capital cost and recurring cost. The funds so provided shall not be diverted for any other purpose. The details of the capital and recurring expenditures made so far are enclosed as Annexure-XIV .
ix	The Regional Office of this Ministry at Bhubaneswar / CPCB / JSPCB shall monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.	Six monthly compliance report with environmental monitoring reports are being submitted regularly to the Regional Office of MoEF at Bhubaneswar / CPCB /JSPCB.
x	The Project Authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	Land development work was started after grant of Environment Clearance amendment. The details of the land development work (work order of civil work) are enclosed as Annexure-XV .
xi	The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the JSPCB and may also seen at website of Ministry of Environment and forest at http://envfor.nic.in . This shall be advertised within seven days from there date of issue of the clearance letter at least in two local news papers that are widely circulated in the region of which one shall be in the vernacular language of the locally concerned and a copy if the same be forwarded to the Regional Office Bhubaneswar	Complied.The advertisement for clearance granted by MOEF New Delhi has been published in two local News papers on 20-07-2009. Details are enclosed as Annexure-XVI .

Handwritten signature: *P. K. Mohanta*
Official stamp: Ministry of Environment and Forests, Ranchi.

Environment Condition stipulated in Environment Clearance dated on 13th July 2009.

SN.	CONDITIONS STIPULATED	STATUS
vii	<p>A copy of Clearance letter shall be sent by the proponent to concerned Panchayat Zila Parisad/ Municiple Corporation . Urban local body & the Local NGO if any from whom suggestion/repersantation if any were received while processing the propasal the clearance letter shall also be put on the website of the company by the proponent.</p>	<p>We have submitted the EC copt to Factory Inspector, Bokaro, Jharkhand Pollution Control Board, Bokaro Industrial Area Development Authority. And We will upload it on the company's website at the earliest</p>
viii	<p>The project proponent shall upload the status of compliance of the stipulated environment clearance conditions including results of monitored data on their website & shall updated the same periodically. It shall simultaneously be sent to the Regional office of the namely: SPM, RSPM, SO2 & SOx (ambient level as well as stack emission) and critical sectorial near the main gate of the company in public domain.</p>	<p>On-line data as well as manual data has been desplay near the main gate of company I the public domain Refer Annexure-XV II And We will upload it on the company's website at the earliest</p>
ix	<p>The project proponent shall also submit six monthly reports on the status of the compliance of stipulated environment conditions including results of monitored data (both in hard copy as well as by e-mail) to the respective Regional office of MOEF, the respective zonal office of CPCB and the SPCB.</p>	<p>Noted & Agreed</p>
x	<p>The environmental Statement for each financial year ending 31st March in form-V as is mandated to be stipulated by the project proponent to the concerned state Pollution Control Board as prescribed under the environment (protection) rules-1986 as amended subsequently shall also be put on the website of the company along with the status of compliance of environment conditions & shell also be sent to the respective regional office of the MOEF by email</p>	<p>Noted & Agreed</p>



STACK GAS ANALYSIS REPORT

1.	Name of the Industry	: Dalmia Cement East Ltd.
2.	Address	: Bokaro Industrial Area, Near I.O.C.L Bottling Plant, Bokaro – 827104
3.	Date of sampling	: 09.03.2017
4.	Report No.	: 17/EC/M/March/TR(A)/I/16-17
5.	Analysis completed on	: 14.03.2017
6.	Reporting Date	: 20.03.2017

A. GENERAL INFORMATION ABOUT STACK

1.	Stack attached to	: Cement Mill
2.	Shape of Stack	: Circular
3.	Material of Construction	: M.S.
4.	Height of Stack from G. L. (mtr.)	: 50.0
5.	Stack I.D. at sampling point (mtr.)	: 3.75
6.	Height of sampling port from G. L. (mtr.)	: 30.0
7.	Emission due to	: Grinding of Materials
(a) Type of Fuel Used		: N.A.
(b) Fuel Consumption		: Nil
8.(a)	Permanent ladder & platform	Yes
(b)	Pollution Control Device	: Bag Filter

B. RESULTS OF SAMPLING

SL. NO.	PARAMETERS	METHOD NO.	RESULTS	LIMIT*
1.	Flue Gas Temperature (°C)	IS : 11255 (Part 1)	: 91.0	-
2.	Barometric Pressure (mm of Hg.)	--	: 756.0	-
3.	Velocity of Gas flow (m/s)	IS : 11255 (Part 3)	: 8.05	-
4.	Quantity of Gas flow (Nm ³ /hr.)	IS : 11255 (Part 3)	: 260380.80	-
5.	Concentration of Particulate Matter (mg/Nm ³)	IS 11255 (Part – 1) & ASTM D 3685/D 3685M	: 16.90	50.0

Remarks : All the information under column A are supplied by the respective industry.

*Limit as per CPCB [Emission Regulation Part IV : COINDS/26/1986-87]

Date : 20.03.2017

Authorised Signatory :



Dr. Ajoy Paul
(Scientist)

AMBIENT AIR ANALYSIS REPORT

1.	Name of the Industry	: Dalmia East Cement Ltd.
2.	Address	: Bokaro Industrial Area, Near I.O.C.L Bottling Plant, Bokaro – 827104
3.	Date of sampling	: 09.03.2017 – 10.03.2017
4.	Report No.	: 17/EC/M/March/TR(A)/VI/16-17
5.	Analysis completed on	: 17.03.2017
6.	Reporting Date	: 20.03.2017
7.	Particular of Plant	: Cement Plant

A] GENERAL INFORMATION

1.	Location of Sampling	: On the Roof of field Hostel 3 & 4
2.	Duration of Sampling	: 24 hrs. (03:00 p.m. – 03:00 p.m.)

B] METEOROLOGICAL INFORMATION

1.	Average Temperature (°C)	: 32.0
2.	Average Relative Humidity (%)	: 68.0
3.	Barometric Pressure (mm of Hg)	: 756.0
4.	Smell or Odour	: No Remarkable Smell
5.	Weather Condition	: Cloudy

C] RESULTS

SL. NO.	PARAMETERS	METHOD NO.	RESULTS	LIMIT*
1.	Concentration of PM _{2.5} (µg/m ³)	USEPA 1997a, 40 CFR Part 50, Appendix L	: 51.72	60.0
2.	Concentration of PM ₁₀ (µg/m ³)	IS 5182 (Part 23)	: 83.10	100.0
3.	Concentration of SO ₂ (µg/m ³)	IS 5182 (Part 2) & ASTM D 2914	: 7.65	80.0
4.	Concentration of NO _x (µg/m ³)	IS 5182 (Part 6) & ASTM D 1607	: 24.95	80.0
5.	Concentration of CO (mg/m ³)	IS 5182 (Part 10) & ASTM D 3162	: 0.51	2.0
6.	Concentration of Pb (µg/m ³)	IS 5182 (Part 22) & ASTM D 4185	: <0.01	1.0
7.	Benzo (a) Pyrene (BaP) (ng/m ³)	IS 5182 (Part 12) 2004 & ASTM D 6209	: <0.36	1.0
8.	Benzene (C ₆ H ₆) (µg/m ³)	IS 5182 (Part 11) 2006 & ASTM D 5466	: <0.74	5.0
9.	Ozone (O ₃) (µg/m ³)	IS 5182 (Part-IX)	: <10.0	180.0
10.	Ammonia (NH ₃) (µg/m ³)	NIOSH Manual of Analytical Method, 4 th Edition 1994, Method 6015	: <150.0	400.0
11.	Nickel (Ni) (ng/m ³)	IS 5182 (Part-22) 2004 & ASTM D 4185	: <0.02	20.0
12.	Arsenic (As) (ng/m ³)	IS 5182 (Part 22) 2004 & ASTM D 4185	: <0.01	20.0

* Limit as per National Ambient Air Quality Standards Central Pollution Control Board Notification, New Delhi, the 18th November, 2009

Date : 20.03.2017

Authorised Signatory :



Dr. Ajoy Paul
(Scientist)

AMBIENT AIR ANALYSIS REPORT

1.	Name of the Industry	: Dalmia East Cement Ltd.
2.	Address	: Bokaro Industrial Area, Near I.O.C.L Bottling Plant, Bokaro – 827104
3.	Date of sampling	: 09.03.2017 – 10.03.2017
4.	Report No.	: 17/EC/M/March/TR(A)/VII/16-17
5.	Analysis completed on	: 17.03.2017
6.	Reporting Date	: 20.03.2017
7.	Particular of Plant	: Cement Plant

A] GENERAL INFORMATION

1.	Location of Sampling	: Near Main Gate
2.	Duration of Sampling	: 24 hrs. (02:00 p.m. – 02:00 p.m.)

B] METEOROLOGICAL INFORMATION

1.	Average Temperature (°C)	: 32.0
2.	Average Relative Humidity (%)	: 68.0
3.	Barometric Pressure (mm of Hg)	: 756.0
4.	Smell or Odour	: No Remarkable Smell
5.	Weather Condition	: Cloudy

C] RESULTS

SL. NO.	PARAMETERS	METHOD NO.	RESULTS	LIMIT*
1.	Concentration of PM _{2.5} (µg/m ³)	USEPA 1997a, 40 CFR Part 50, Appendix L	: 53.17	60.0
2.	Concentration of PM ₁₀ (µg/m ³)	IS 5182 (Part 23)	: 93.09	100.0
3.	Concentration of SO ₂ (µg/m ³)	IS 5182 (Part 2) & ASTM D 2914	: 8.58	80.0
4.	Concentration of NO _x (µg/m ³)	IS 5182 (Part 6) & ASTM D 1607	: 29.94	80.0
5.	Concentration of CO (mg/m ³)	IS 5182 (Part 10) & ASTM D 3162	: 0.73	2.0
6.	Concentration of Pb (µg/m ³)	IS 5182 (Part 22) & ASTM D 4185	: <0.01	1.0
7.	Benzo (a) Pyrene (BaP) (ng/m ³)	IS 5182 (Part 12) 2004 & ASTM D 6209	: <0.36	1.0
8.	Benzene (C ₆ H ₆) (µg/m ³)	IS 5182 (Part 11) 2006 & ASTM D 5466	: <0.74	5.0
9.	Ozone (O ₃) (µg/m ³)	IS 5182 (Part-IX)	: <10.0	180.0
10.	Ammonia (NH ₃) (µg/m ³)	NIOSH Manual of Analytical Method, 4 th Edition 1994, Method 6015	: <150.0	400.0
11.	Nickel (Ni) (ng/m ³)	IS 5182 (Part-22) 2004 & ASTM D 4185	: <0.02	20.0
12.	Arsenic (As) (ng/m ³)	IS 5182 (Part 22) 2004 & ASTM D 4185	: <0.01	20.0

* Limit as per National Ambient Air Quality Standards Central Pollution Control Board Notification, New Delhi, the 18th November, 2009

Date : 20.03.2017

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(Scientist)

AMBIENT AIR ANALYSIS REPORT

1.	Name of the Industry	: Dalmia East Cement Ltd.
2.	Address	: Bokaro Industrial Area, Near I.O.C.L Bottling Plant, Bokaro – 827104
3.	Date of sampling	: 09.03.2017 – 10.03.2017
4.	Report No.	: 17/EC/M/March/TR(A)/VIII/16-17
5.	Analysis completed on	: 17.03.2017
6.	Reporting Date	: 20.03.2017
7.	Particular of Plant	: Cement Plant

A] GENERAL INFORMATION

1.	Location of Sampling	: Near Store
2.	Duration of Sampling	: 24 hrs. (04:00 p.m. – 04:00 p.m.)

B] METEOROLOGICAL INFORMATION

1.	Average Temperature (°C)	: 32.0
2.	Average Relative Humidity (%)	: 68.0
3.	Barometric Pressure (mm of Hg)	: 756.0
4.	Smell or Odour	: No Remarkable Smell
5.	Weather Condition	: Cloudy

C] RESULTS

SL. NO.	PARAMETERS	METHOD NO.	RESULTS	LIMIT*
1.	Concentration of PM _{2.5} (µg/m ³)	USEPA 1997a, 40 CFR Part 50, Appendix L	: 48.30	60.0
2.	Concentration of PM ₁₀ (µg/m ³)	IS 5182 (Part 23)	: 80.17	100.0
3.	Concentration of SO ₂ (µg/m ³)	IS 5182 (Part 2) & ASTM D 2914	: 6.26	80.0
4.	Concentration of NO _x (µg/m ³)	IS 5182 (Part 6) & ASTM D 1607	: 25.03	80.0
5.	Concentration of CO (mg/m ³)	IS 5182 (Part 10) & ASTM D 3162	: 0.65	2.0
6.	Concentration of Pb (µg/m ³)	IS 5182 (Part 22) & ASTM D 4185	: <0.01	1.0
7.	Benzo (a) Pyrene (BaP) (ng/m ³)	IS 5182 (Part 12) 2004 & ASTM D 6209	: <0.36	1.0
8.	Benzene (C ₆ H ₆) (µg/m ³)	IS 5182 (Part 11) 2006 & ASTM D 5466	: <0.74	5.0
9.	Ozone (O ₃) (µg/m ³)	IS 5182 (Part-IX)	: <10.0	180.0
10.	Ammonia (NH ₃) (µg/m ³)	NIOSH Manual of Analytical Method, 4 th Edition 1994, Method 6015	: <150.0	400.0
11.	Nickel (Ni) (ng/m ³)	IS 5182 (Part-22) 2004 & ASTM D 4185	: <0.02	20.0
12.	Arsenic (As) (ng/m ³)	IS 5182 (Part 22) 2004 & ASTM D 4185	: <0.01	20.0

* Limit as per National Ambient Air Quality Standards Central Pollution Control Board Notification, New Delhi, the 18th November, 2009

Date : 20.03.2017

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(Scientist)

AMBIENT AIR ANALYSIS REPORT

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3.	Date of sampling	: 09.03.2017 – 10.03.2017
4.	Report No.	: 17/EC/M/March/TR(A)/IX/16-17
5.	Analysis completed on	: 17.03.2017
6.	Reporting Date	: 20.03.2017
7.	Particular of Plant	: Cement Plant

A] GENERAL INFORMATION

1.	Location of Sampling	: Near Fabrication Yard
2.	Duration of Sampling	: 24 hrs. (05:00 p.m. – 05:00 p.m.)

B] METEOROLOGICAL INFORMATION

1.	Average Temperature (°C)	: 32.0
2.	Average Relative Humidity (%)	: 68.0
3.	Barometric Pressure (mm of Hg)	: 756.0
4.	Smell or Odour	: No Remarkable Smell
5.	Weather Condition	: Cloudy

C] RESULTS

SL. NO.	PARAMETERS	METHOD NO.	RESULTS	LIMIT*
1.	Concentration of PM _{2.5} (µg/m ³)	USEPA 1997a, 40 CFR Part 50, Appendix L	: 53.87	60.0
2.	Concentration of PM ₁₀ (µg/m ³)	IS 5182 (Part 23)	: 93.86	100.0
3.	Concentration of SO ₂ (µg/m ³)	IS 5182 (Part 2) & ASTM D 2914	: 7.88	80.0
4.	Concentration of NO _x (µg/m ³)	IS 5182 (Part 6) & ASTM D 1607	: 27.93	80.0
5.	Concentration of CO (mg/m ³)	IS 5182 (Part 10) & ASTM D 3162	: 0.44	2.0
6.	Concentration of Pb (µg/m ³)	IS 5182 (Part 22) & ASTM D 4185	: <0.01	1.0
7.	Benzo (a) Pyrene (BaP) (ng/m ³)	IS 5182 (Part 12) 2004 & ASTM D 6209	: <0.36	1.0
8.	Benzene (C ₆ H ₆) (µg/m ³)	IS 5182 (Part 11) 2006 & ASTM D 5466	: <0.74	5.0
9.	Ozone (O ₃) (µg/m ³)	IS 5182 (Part-IX)	: <10.0	180.0
10.	Ammonia (NH ₃) (µg/m ³)	NIOSH Manual of Analytical Method, 4 th Edition 1994, Method 6015	: <150.0	400.0
11.	Nickel (Ni) (ng/m ³)	IS 5182 (Part-22) 2004 & ASTM D 4185	: <0.02	20.0
12.	Arsenic (As) (ng/m ³)	IS 5182 (Part 22) 2004 & ASTM D 4185	: <0.01	20.0

* Limit as per National Ambient Air Quality Standards Central Pollution Control Board Notification, New Delhi, the 18th November, 2009

Date : 20.03.2017

Authorised Signatory :



Dr. Ajoy Paul
(Scientist)

EFFLUENT WATER ANALYSIS REPORT

1.	Name of the Industry	: Dalmia East Cement Ltd.
2.	Address	: Bokaro Industrial Area, Near I.O.C.L Bottling Plant, Bokaro - 827104
3.	Report No.	: Env/10/E/M/March(i)/16-17
4.	Date of sampling	: 09.03.2017
5.	Date of analysis	: 10.03.2017 - 14.03.2017
6.	Reporting date	: 16.03.2017
7.	Type of sample	: Domestic Effluent Water (Grab)
8.	Collection & preservation of sample	: APHA 22 nd Edition, 1060
9.	Location of sample	: S.T.P Inlet
10.	Sample collected in presence of	: Mr. P. Kumar

<u>PARAMETERS</u>	<u>TEST METHODS</u>	<u>RESULTS</u>	<u>LIMIT*</u>
1. pH	APHA 22 nd Edition, 4500-H+B	: 6.02	5.5-9.0
2. Total Suspended Solids (mg./l)	APHA 22 nd Edition, 2540 C	: 126.0	100.0
3. Oil and Grease (mg./l)	APHA 22 nd Edition, 5520 B/D	: 8.5	10.0
4. COD (mg./l)	APHA 22 nd Edition, 5220 B/C/D	: 526.24	250.0
5. BOD [3 days, 27°C] (mg./l)	APHA 22 nd Edition, 5210-B	: 173.0	30.0

*Limit as per Schedule VI inserted by Rule 2(d) of the Environment (Protection) Second Amendment Rules, 1993 notified vide G.S.R. 422(E) dated 19.05.1993, published in the Gazette No. 174 dated 19.05.1993

Authorised Signatory :



**Dr. Ajoy Paul
(Scientist)**

EFFLUENT WATER ANALYSIS REPORT

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| 9. | Location of sample | : S.T.P Outlet |
| 10. | Sample collected in presence of | : Mr. P. Kumar |

<u>PARAMETERS</u>	<u>TEST METHODS</u>	<u>RESULTS</u>	<u>LIMIT*</u>
1. pH	APHA 22 nd Edition, 4500-H+B	: 6.92	5.5-9.0
2. Total Suspended Solids (mg./l)	APHA 22 nd Edition, 2540 C	: 35.0	100.0
3. Oil and Grease (mg./l)	APHA 22 nd Edition, 5520 B/D	: 2.0	10.0
4. COD (mg./l)	APHA 22 nd Edition, 5220 B/C/D	: 60.72	250.0
5. BOD [3 days, 27°C] (mg./l)	APHA 22 nd Edition, 5210-B	: 17.0	30.0

*Limit as per Schedule VI inserted by Rule 2(d) of the Environment (Protection) Second Amendment Rules, 1993 notified vide G.S.R. 422(E) dated 19.05.1993, published in the Gazette No. 174 dated 19.05.1993

Authorised Signatory :



**Dr. Ajoy Paul
(Scientist)**



NOISE LEVEL STUDY

I. Name of the Industry/Factory/Company	:	Dalmia Cement East Limited
II. Address	:	Bokaro Industrial Estate, Bokaro
III. Date of Sampling	:	09/03/2017
IV. Reporting Date	:	13/03/2017
V. Report No	:	399/EC/M/16-17
VI. Method No	:	IS: 9989 - 1981
VII. Time of Duration of Noise	:	20 Minutes
VIII. Height from Ground Level	:	4 feet
IX. Type of Industry	:	Cement Industry
X. Sample Monitoring by	:	Mr. Sujoy Dasgupta

RESULT OF NOISE LEVEL STUDY

DAY TIME

1. Location of Study : Near Filed Hostel 3 & 4

Time (A.M)	dB(A) (Noise Data)	Minimum dB(A)	Maximum dB(A)	Leq dB(A)
8:00 - 8:20	60.4	60.4	68.3	65.85
	61.8			
	62.6			
	63.5			
	64.8			
	66.2			
	68.3			
	67.4			
	67.6			
	68.2			

NIGHT TIME

2. Location of Study : Near Filed Hostel 3 & 4

Time (P.M)	dB(A) (Noise Data)	Minimum dB(A)	Maximum dB(A)	Leq dB(A)
10:00 - 10:20	52.1	52.1	58.8	56.73
	52.2			
	53.8			
	56.8			
	57.6			
	58.8			
	57.8			
	56.6			
	57.5			
	58.5			



ENVIROCHECK

Environmental Laboratory
189 & 190, Rastraguru Avenue, Kol-700028
Ph : 2579-2889/2891, 2549-7490, Fax : 2529-9141
E-mail : envcheck@cal2.vsnl.net.in
Website : www.envirocheck.org

DAY TIME

3. Location of Study : Near Store

Time (A.M)	dB(A) (Noise Data)	Minimum dB(A)	Maximum dB(A)	Leq dB(A)
8:30 - 8:50	68.3	68.3	70.2	69.42
	70.1			
	70.2			
	69.6			
	68.8			
	69.9			
	70.2			
	68.3			
	69.7			
	68.5			

NIGHT TIME

4. Location of Study : Near Store

Time (P.M)	dB(A) (Noise Data)	Minimum dB(A)	Maximum dB(A)	Leq dB(A)
10:30 - 10:50	50.8	50.8	58.8	56.88
	52.8			
	55.4			
	57.7			
	56.9			
	57.2			
	58.8			
	56.7			
	58.3			
	58.5			

DAY TIME

5. Location of Study : Near Fabrication Yard

Time (A.M)	dB(A) (Noise Data)	Minimum dB(A)	Maximum dB(A)	Leq dB(A)
9:00 - 9:20	62.1	62.1	68.7	66.22
	62.2			
	64.8			
	65.5			
	66.3			
	67.2			
	65.5			
	68.7			
	67.3			
	67.9			



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NIGHT TIME				
6. Location of Study		: Near Fabrication Yard		
Time (P.M)	dB(A) (Noise Data)	Minimum dB(A)	Maximum dB(A)	Leq dB(A)
11:00 - 11:20	56.2	56.2	60.6	58.75
	56.3			
	57.7			
	57.8			
	58.9			
	59.9			
	59.2			
	60.2			
	60.6			
	58.3			
DAY TIME				
7. Location of Study		: Near Main Gate		
Time (A.M)	dB(A) (Noise Data)	Minimum dB(A)	Maximum dB(A)	Leq dB(A)
9:30 - 9:50	64.8	64.5	70.2	68.32
	64.5			
	65.5			
	67.2			
	68.8			
	70.2			
	69.7			
	68.7			
	69.2			
	70.1			
NIGHT TIME				
8. Location of Study		: Near Main Gate		
Time (P.M)	dB(A) (Noise Data)	Minimum dB(A)	Maximum dB(A)	Leq dB(A)
11:30 - 11:50	49.2	48.2	54.5	52.48
	48.2			
	50.6			
	50.4			
	53.2			
	54.5			
	54.0			
	53.9			
	52.7			
	53.5			



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** Mean of L_{eq} - Equivalent to Sound Energy		
Limit in L_{eq} dB(A)		
Category Area	Day Time dB(A)	Night Time dB(A)
A. Industrial Area	75	70
B. Commercial Area	65	55
C. Residential Area	55	45
D. Silence Zone	50	40
**Day Time is reckoned in between 6:00 A.M & 10:00 P.M		**Night Time is reckoned in between 10:00 P.M & 6:00 A.M
(Central Pollution Control Board, Ministry of Environment & Forests Government of India) & (Department of Environment, Government of West Bengal)		
PERMISSIBLE NOISE EXPOSURE FOR INDUSTRIAL WORKERS		
Hours	Limit in dB(A)	
8	90	
4	93	
2	96	
1	99	
1/2	102	
1/4	105	
1/8	108	
1/16	111	
1/32	114	
(2 minutes or less)	-	

Date: 13/03/2017

Authorized Signatory & Stamp

