

REGD. OFFICE & WORKS : RAJGANGPUR-770017 (ODISHA) INDIA
TEL. : (91) (06624) 220121 / 221212
FAX : (91) (06624) 220933 / 220133 / 220733
E-mail : ocl_rajgangpur@ocl.in
Website : www.ocl.in / www.oclindia ltd.in
CIN : L26942OR1949PLC000185

CEMENT PLANT - LINE 2



OCL INDIA LIMITED

ओसीएल इण्डिया लिमिटेड

Env./EC/15/-2017

Date 09-06-2017
o/c

To
The Additional Director, Government of India
Ministry of Environment, Forest & Climate Change (I.A. Division)
Indira Paryavaran Bhavan, Aliganj, Jorbagh Road
New Delhi - 110003

Sub:- Submission of six monthly compliance report (October, 2016 to March, 2017) of EC letter for expansion Project from 1.2 MTPA to 2.9 MTPA of clinker and from 2.0 MTPA to 4.00 MTPA of cement of M/s OCL INDIA LTD at Village - Rajgangpur, Tehsil Rajgangpur, District - Sundargarh, Odisha.

Ref:- Environment Clearance letter F. No. J-11011/352/2005- 1A II (I) dated 5th April 2007

Dear Sir,

With reference to above letter, we enclose herewith the six monthly compliance report (Ending March, 2017) of conditions stipulated in the Environmental Clearance for the above project.

Thanking you

Yours sincerely,

For OCL India Limited

(S. K. ROUT)

Asst. Executive Director (Mines & Env.)

Encl: As above

Copy to:

1. The Chairman,
Central Pollution Control Board
Parivesh Bhavan
CBD - cum- Office Complex
East Arjun Nagar
NEW DELHI - 110032

The Director (S)
Government of India
Ministry of Environment and Forest
Eastern Regional Office
A.3. Chandrasekharpur
BHUBANESWAR - 751023

3. The Chairman,
State Pollution Control Board, Orissa
Parivesh Bhavan, A 118, Nilakanthnagar, Unit - VIII
BHUBANESWAR - 751023

L. 2

**SIX MONTHLY COMPLIANCE REPORT
(OCTOBER, 2016 TO MARCH, 2017)
OF
ENVIRONMENT CLEARANCE LETTER NO.
J-11011/352/2005-1A II (I) dated 5th April 2007
FOR EXPANSION CUM MODERNISATION PROJECT
FROM 1.2 MTPA TO 2.9 MTPA OF CLINKER
AND
2.0 MTPA TO 4.0 MTPA OF CEMENT
BY
OCL INDIA LIMITED
RAJGANGPUR – 770017
DIST- SUNDARGARH
ODISHA**

Date-28th June 2017OCL INDIA LTD, RAJGANGPUR

Sub: Submission of six monthly compliance report (October, 2016 to March, 2017) of conditions stipulated in Environmental Clearance letter No. F. No. J-11011/352/2005-1A II (I) dated 5th April 2007 by MoEF for the project of OCL India Limited, Rajgangpur.

A. SPECIAL CONDITION

Sl. No.	Description of Conditions	Compliance Status																																		
i	The gaseous and particulate matter emissions from various units shall conform to the standards prescribed by the Orissa State Pollution Control Board (OSPCB). At no time the particulate emissions shall exceed OSPCB. 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 is shut down automatically.	<p>a. Complied.</p> <p>b. The compliance status of Stack emission is given below. The reading taken from different location are stipulated with respect to the standard prescribed within the norms of emission level. We have installed all the pollution control equipment in order to meet new emission standards, as revised by Gazette Notification G.S.R. 612 (E) dtd. 25th Aug.2014. Online CEEMS (Continuous Emission Monitoring system have been installed and facility for transmitting online data though GPRS to OSPCB/CPCB Server is in place and is being transmitted. The gaseous and particulate matter emissions at all point of time have been noted within the prescribed limits. We have been also conducted third party monitoring of the emissions by an NABL Accredited laboratory recognized by OSPCB and MoEFCC. Summary of the same is reproduced below:</p> <table border="1"> <thead> <tr> <th rowspan="2">Stack attached to</th> <th colspan="6">Particulate matter emission in mg/Nm³</th> </tr> <tr> <th>Oct-16</th> <th>Nov-16</th> <th>Dec-16</th> <th>Jan-17</th> <th>Feb-17</th> <th>March-17</th> </tr> </thead> <tbody> <tr> <td>Kiln & VRM B/F</td> <td>36.3</td> <td>23.7</td> <td>22.1</td> <td>18.8</td> <td>13.5</td> <td>14.8</td> </tr> <tr> <td>Coal Mill B/F</td> <td>19.7</td> <td>13.2</td> <td>18.6</td> <td>12.4</td> <td>14.8</td> <td>13.8</td> </tr> <tr> <td>Cooler ESP</td> <td>21.7</td> <td>28.3</td> <td>26.7</td> <td>21.9</td> <td>18.3</td> <td>24.4</td> </tr> </tbody> </table> <p>c. In order to further strengthen the Pollution Control System, an Interlocking facility has been provided, which automatically shuts down the kiln feed in the event of ESP tripping/malfunctioning.</p>	Stack attached to	Particulate matter emission in mg/Nm ³						Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	March-17	Kiln & VRM B/F	36.3	23.7	22.1	18.8	13.5	14.8	Coal Mill B/F	19.7	13.2	18.6	12.4	14.8	13.8	Cooler ESP	21.7	28.3	26.7	21.9	18.3	24.4
Stack attached to	Particulate matter emission in mg/Nm ³																																			
	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	March-17																														
Kiln & VRM B/F	36.3	23.7	22.1	18.8	13.5	14.8																														
Coal Mill B/F	19.7	13.2	18.6	12.4	14.8	13.8																														
Cooler ESP	21.7	28.3	26.7	21.9	18.3	24.4																														
ii	Continuous on-line monitoring system to monitor gaseous emission shall be controlled with in 50 mg/Nm ³ by installing adequate air pollution control system. On-line monitoring data shall be submitted to the OSPCB and CPCB regularly.	<p>Complied.</p> <p>Continuous stack monitoring system has been installed. On-line data is being transferred through GPRS to OSPCB/CPCB server.</p>																																		

iii	Ambient Air Quality including ambient noise levels shall not exceed the standards stipulated under EPA or by the State authorities. Monitoring of ambient air quality and stack emission shall be carried out regularly in consultation with OSPCB and report submitted to the OSPCB quarterly and to the ministry's Regional office at Bhubaneswar half-yearly. One ambient air quality monitoring station shall be installed in downwind direction.	<p>a. Monitoring of ambient air quality is carried out regularly in consultation with SPCB. The measured data are given here under in Table No. A.iii.a; are within the prescribed limit as stipulated under EPA/SPCB. Similarly data on ambient noise level are within the stipulated norm, as furnished and shown in tabular form under General condition given in B.vi.</p> <p>b. Monitoring of ambient air quality and stack emission is carried out regularly in consultation with OSPCB and report is being submitted to the OSPCB on monthly basis and to the Ministry's Regional Office at Bhubaneswar on half-yearly basis.</p> <p>c. The monitoring report by NABL accredited agency is enclosed as Annexure-II</p>
-----	---	---

Ambient air quality monitoring reports are as under::

Table No. A.iii.a

Location of sampling station	SO ₂ (ug/m ³)	NOX (ug/m ³)	Particulate matter (size less than 10um) or PM ₁₀ (ug/m ³)	Particulate matter (size less than 2.5um) or PM _{2.5} (ug/m ³)	Ozone (o ₃) (ug/m ³)	Lead (Pb) (ug/m ³)	CO (mg/m ³)	Ammonia (nh ₃) (ug/m ³)	Benzene (C ₆ H ₆) (ug/m ³)	Benzo(a) Pyrene (BaP) – particulate phase only (ug/m ³)	Arsenic (AS) (ug/m ³)	Nickel (Ni) (ug/m ³)
STORES BUILDING	5.0	11.0	84.0	30.0	<19.6	<0.4	<0.1	26.0	<0.1	<0.1	<1.0	<5.0
DITC BUILDING	<3.0	8.0	93.0	44.0	<21.0	<0.4	<0.1	23.0	<0.1	<0.1	<1.0	<5.0
CANTEEN BUILDING	<3.0	13.0	80.0	20.0	<19.6	<0.4	<0.1	56.0	<0.1	<0.1	<1.0	<5.0
LOCO GATE	49.0	16.0	86.0	32.0	<19.6	<0.4	<0.1	39.0	<0.1	<0.1	<1.0	<5.0

iv	<p>The company shall install adequate dust collection and extraction system to control fugitive dust emission at various transfer points, raw mill handling (unloading, conveying, transporting, stacking), vehicular movement, bagging and packing areas etc. ESP to Cooler and cyclone & bag filter to kiln, CVRM and bag filters shall be provided in the coal mill and cement mills to control air emissions less than 50 mg/Nm³. Jet pulse bag filters/ dust extraction system shall be provided to control fugitive emissions in raw material, coal handling and cement grinding areas. Dust suppression system at unloading hoppers, discharge gate of silos and totally closed operations for all belt conveyers and storage etc shall be used. Raw materials shall be stored in closed roof sheds and clinker in silos.</p>	<p>Following air pollution control measures are taken:</p> <ol style="list-style-type: none"> Dust collection extraction system (Bag filters) have been installed and maintained at various transfer points such as loading/ unloading areas. Raw materials are transported through closed conveyor belts. Coal handling, cement grinding units are equipped with bag filters to control fugitive dust emissions. Bag house installed for CVRM & Coal mill to maintain stack emission as per standard. Road sweeping machines are deployed on regular cleaning of roads. Internal roads are concreted and water sprinkling on the roads are also carried out. Belt conveyors are thoroughly hood covered. Clinker is stored in clinker silo & transported by hatch adopter system. Raw material handling & its storing is carried out by closed shed.
v	<p>Asphalting/concreting of roads and water spray all around the coals stockpiles shall be carried out to control fugitive emissions.</p>	<p>Concreting and black-topping or paving with hard solid reject Refractory bricks are completed. Road sweeping machines deployed & water spray in coal stockpiles are being done as per requirement to control the fugitive emission.</p>
vi	<p>Total water requirement from the Nakti nala and ground water source shall not exceed 5,788 m³/d including 785 m³/d respectively and prior permission for the drawl of ground water from the SGWB/CGWA shall be obtained. All the treated waste water shall be recycled and reused in the process, dust suppression, green belt development and other plant related activities etc. No process wastewater shall be discharged outside the factory premises and 'zero' discharge shall be adopted. Domestic effluent treated in Sewage Treatment Plant (STP) shall be used for green belt development within the plant and colony area.</p>	<ol style="list-style-type: none"> It is ensured that the water consumption shall not exceed the quantity 5,788 m³/d including 785 m³/d from the Nakti nala and ground water source respectively. Approval from the Additional Secretary, Govt. of Orissa, Dept. of water resources for our drawl of additional 3.17 cusecs of water from River Sankh is already received. The treated water of ETP is reused. There is no effluent discharged outside the factory premises and "zero" discharge is adopted. Domestic sewerage is treated in STP. The treated water is used for green belt development.
vii	<p>All the cement dust collected from pollution control devices shall be recycled and reutilized in the process. Char from sponge iron plant of M/s. OCL shall be used as raw material in manufacturing cement and mixed with feed. Hazardous waste viz. Used oil from gear boxes and automotive batteries, etc shall be properly stored in a designated area and sold to authorized recyclers/ re processors.</p>	<ol style="list-style-type: none"> Dust collected from pollution control devices is recycled and reutilized in the process. Char is used as raw material, as per availability. Used oil & batteries are stored at earmarked area and disposed off through the authorized recyclers/ preprocessor.

viii	The company must 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.	<p>Following rain water harvesting projects are existing</p> <p>a. One rain water harvesting project from storm water near STP and near CPP.</p> <p>b. Roof top rain water-harvesting has been completed in colony under guidance of the Office of Hydrologist, Ground Water Survey & Investigation Division, Sambalpur, and Government of Orissa.</p> <p>c. Rain water harvesting projects from the roof top of raw material shed inside the plant.</p>																																				
ix	Green belt shall be developed in at least 28.0 ha out of total 91.15 ha land in consultation with the local DFO as per the CPCB guidelines.	<p>Green belt cover has already been developed in 44.39 ha. In addition, company has also taken up plantation campaign outside plant area by distributing saplings to nearby villagers free of cost and ensuring that the saplings are planted. Total area covered under green belt is around 79 ha., Statistical data is enclosed as Annexure-I</p> <table border="1" data-bbox="1043 555 2105 999"> <thead> <tr> <th colspan="3">DETAILS OF YEAR WISE PALNTATION (CUMULATIVE STATUS)</th> </tr> <tr> <th>YEAR</th> <th>NO. TREES PLANTED</th> <th>REMARKS</th> </tr> </thead> <tbody> <tr> <td>Up to march,2007-08</td> <td>148655</td> <td>Plantation & sapling distributed</td> </tr> <tr> <td>2008-2009</td> <td>155155</td> <td>2300</td> </tr> <tr> <td>2009-2010</td> <td>162401</td> <td>4800</td> </tr> <tr> <td>2010-2011</td> <td>171757</td> <td>6964</td> </tr> <tr> <td>2011-2012</td> <td>177957</td> <td>9964</td> </tr> <tr> <td>2012-2013</td> <td>183957</td> <td>14164</td> </tr> <tr> <td>2013-2014</td> <td>190246</td> <td>19664</td> </tr> <tr> <td>2014-2015</td> <td>196660</td> <td>27664</td> </tr> <tr> <td>2015-2016</td> <td>203892</td> <td>92664</td> </tr> <tr> <td>2016-2017</td> <td>209442</td> <td>130364</td> </tr> </tbody> </table>	DETAILS OF YEAR WISE PALNTATION (CUMULATIVE STATUS)			YEAR	NO. TREES PLANTED	REMARKS	Up to march,2007-08	148655	Plantation & sapling distributed	2008-2009	155155	2300	2009-2010	162401	4800	2010-2011	171757	6964	2011-2012	177957	9964	2012-2013	183957	14164	2013-2014	190246	19664	2014-2015	196660	27664	2015-2016	203892	92664	2016-2017	209442	130364
DETAILS OF YEAR WISE PALNTATION (CUMULATIVE STATUS)																																						
YEAR	NO. TREES PLANTED	REMARKS																																				
Up to march,2007-08	148655	Plantation & sapling distributed																																				
2008-2009	155155	2300																																				
2009-2010	162401	4800																																				
2010-2011	171757	6964																																				
2011-2012	177957	9964																																				
2012-2013	183957	14164																																				
2013-2014	190246	19664																																				
2014-2015	196660	27664																																				
2015-2016	203892	92664																																				
2016-2017	209442	130364																																				
x	The company shall undertake eco- development measures including community welfare measures in the project area.	Company has been continuously doing eco-development work in the surrounding area.																																				
xi	All the recommendation mentioned in the Charter on the Corporate Responsibility for Environmental Protection (CREP) shall be strictly followed.	It is being complied																																				
xii	High calorific hazardous waste shall be used as fuel in the cement kiln. Accordingly provision shall be made in the kiln.	High calorific hazardous waste is being burnt in cement kiln. We have already obtained the authorization from SPCB, Odisha; vide Lr. No. IND-IV-HW-286/12720, dtd 16.8.2016.																																				
xiii	Prior permission from the State Forest Department shall be obtained regarding likely impact of proposed expansion on the reverse forest viz. Gudiali RF (3km), Tunmura RF (6.5 km) Chudia RF (6.5 km) and Hathidhara R.F. (4 km) and recommendations/ suggestion, if any shall be implemented in a time bound manner.	The new plant is constructed over non-forest land and equipped with high standard pollution control devices. However, an application to the Forest Deptt. Already submitted at the conceptual stage of the plant.																																				

B.GENERAL CONDITION

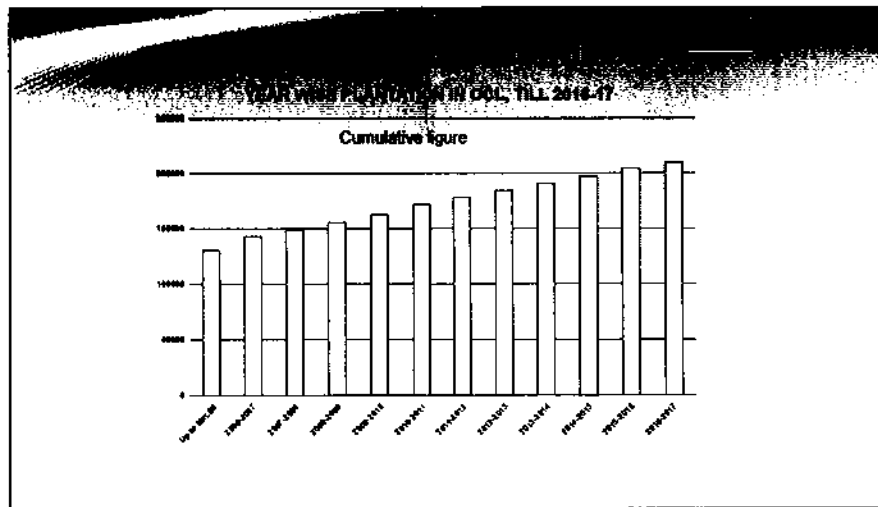
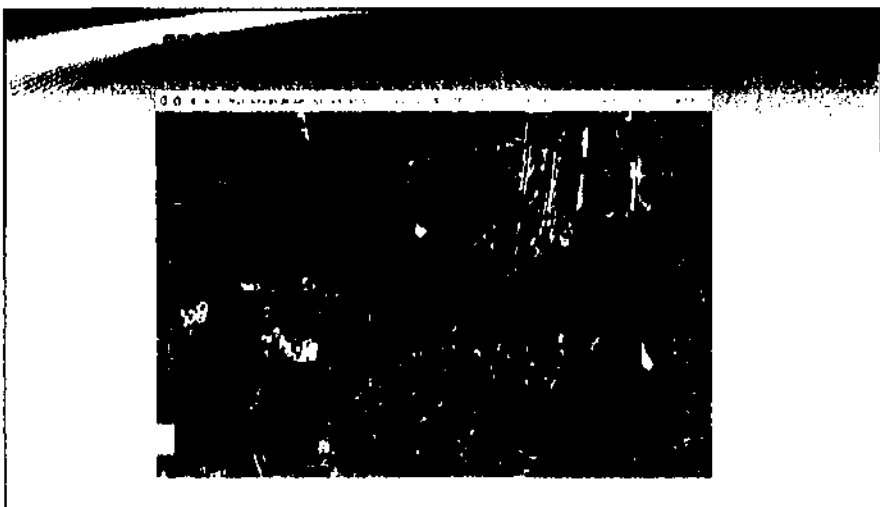
Sl.No.	Description of conditions	Compliance Status																		
i	The project authority must adhere to the stipulation made by Orissa State Pollution Control Board and State Government.	All condition laid by Orissa state pollution control board is strictly abiding to all stipulations.																		
ii	No expansion or modification of the plant should be carried out without prior approval of this Ministry.	No expansion or modification have been made.																		
iii	Adequate number of ambient air quality- monitoring stations shall be established in the downward direction as well as where maximum ground level concentration of SO ₂ and NO _x are anticipated in consultation with the OSPCB. Data on ambient air quality and stack emission shall be regularly submitted to this Ministry including Regional Office at Bhubaneswar and OSPCB once in six months.	<p>a. Four numbers of ambient air quality monitoring stations are installed as per SPCB guideline, which are shown in the Table A.iii.a</p> <p>b. Data on ambient air quality and stack emission is submitted to SPCB/CPCB and MoEF&CC</p>																		
iv	Industrial wastewater shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19 th May 1993 and 31 st December 1993 or as amended from time to time. The treated wastewater shall be recycled in the plant as well as utilization for plantation purposes.	<p>a. Waste water generated in the plant is being treated in the effluent treatment plant (ETP). The last analysis report of ETP outlet is given here under. Date of sampling:- 03.03.2017</p> <table border="1"> <thead> <tr> <th>Sl. No.</th> <th>parameter</th> <th>Result of ETP outlet treated water</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>PH value</td> <td>8.06</td> </tr> <tr> <td>2</td> <td>Total suspended solids (mg/l)</td> <td>8.0</td> </tr> <tr> <td>3</td> <td>B.O.D (mg/l)</td> <td>11</td> </tr> <tr> <td>4</td> <td>C.O.D (mg/l)</td> <td>19.35</td> </tr> <tr> <td>5</td> <td>Oil & Grease (mg/l)</td> <td>0.2</td> </tr> </tbody> </table> <p>b. The treated water is utilised in the plant for machineries cooling, sprinkling on road & green belt development.</p>	Sl. No.	parameter	Result of ETP outlet treated water	1	PH value	8.06	2	Total suspended solids (mg/l)	8.0	3	B.O.D (mg/l)	11	4	C.O.D (mg/l)	19.35	5	Oil & Grease (mg/l)	0.2
Sl. No.	parameter	Result of ETP outlet treated water																		
1	PH value	8.06																		
2	Total suspended solids (mg/l)	8.0																		
3	B.O.D (mg/l)	11																		
4	C.O.D (mg/l)	19.35																		
5	Oil & Grease (mg/l)	0.2																		
v	The project authorities must strictly comply with the rules and regulations with regard to handling and disposal of hazardous waste in accordance with the Hazardous Waste (Management and Handling) Rules, 2003. Authorization from the OSPCB must be obtained for collection, storage, treatment and disposal of hazardous wastes.	<p>Complied.</p> <p>Regular disposal of Hazardous waste, as per Rule are maintained and Form-IV is being submitted to OSPCB with required information.</p>																		

vi	The overall noise levels in and around the plant area shall be kept well within the standards (85dBA) 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 EPA Rules, 1986 viz. 75 dBA (day time) and 70 dBA (night time).	<p>a. Noise monitoring is being carried out regularly at specified locations. Following data is given herewith for four locations. Result for the month of March,2017 is furnished below:</p> <table border="1" data-bbox="1032 320 2101 651"> <thead> <tr> <th rowspan="2">Particulates</th> <th colspan="4">Sampling Locations</th> </tr> <tr> <th>WORKSHOP BUILDING</th> <th>CCR BUILDING</th> <th>NEAR WATER HARVESTING AREA OF CPP</th> <th>DITC BUILDING</th> </tr> </thead> <tbody> <tr> <td>Noise level(L day) during day time</td> <td>64.6</td> <td>69.7</td> <td>67.3</td> <td>70.5</td> </tr> <tr> <td>Noise level (L night) during night time</td> <td>54.6</td> <td>53.9</td> <td>56.2</td> <td>58.1</td> </tr> </tbody> </table>	Particulates	Sampling Locations				WORKSHOP BUILDING	CCR BUILDING	NEAR WATER HARVESTING AREA OF CPP	DITC BUILDING	Noise level(L day) during day time	64.6	69.7	67.3	70.5	Noise level (L night) during night time	54.6	53.9	56.2	58.1
Particulates	Sampling Locations																				
	WORKSHOP BUILDING	CCR BUILDING	NEAR WATER HARVESTING AREA OF CPP	DITC BUILDING																	
Noise level(L day) during day time	64.6	69.7	67.3	70.5																	
Noise level (L night) during night time	54.6	53.9	56.2	58.1																	
vii	The project proponent shall comply with all the environmental protection measures and safeguards recommended in the Environmental Impact Assessment / Environmental management Plan.	Complied																			
viii	As proposed in EIA / EMP, Rs.31.82 Crores and Rs.2.64 Crores earmarked toward the capital cost and recurring the expenditure / annum for environmental protection measures shall be used judiciously to implement the conditions as well as Ministry of Environment and forests as well as the State Government. The funds so provided shall not be diverted for any other purposes.	Complied.																			
ix	The Regional Office of this Ministry at Bhubaneswar / Central Pollution Control Board / OSPCB shall monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation should be submitted to them regularly	Complied. Six monthly reports are being submitted regularly.																			

x	The project authorities should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the state pollution Control Board / Committee and may also be seen at Website of the Ministry of Environment and Forests at http://envfor.nic.in This shall be advertised within seven days from the date of issues of the clearance letter at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the Regional office.	Complied
xi	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.	Complied
xii	The Regional office of the Ministry at Bhubaneswar / Central Pollution Control Board / State Pollution Board will monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation should be submitted to them regularly.	Six monthly compliance report along with monitored data is being submitted regularly.

**STATUS ON PLANTATION
AND
GREEN BELT AREA
DEVELOPED
BY
OCL INDIA LIMITED**

YEARWISE PLANTATION DETAILS IN AND AROUND OCL PREMISES	
YEAR	Trees planted in & around plant (Cumulative)
Up to Mar 06	130000
2006-2007	142645
2007-2008	148655
2008-2009	155155
2009-2010	162401
2010-2011	171757
2011-2012	177957
2012-2013	183957
2013-2014	190246
2014-2015	196660
2015-2016	203892
2016-2017	209442



ENVIRONMENTAL MONITORING REPORT

BASED ON DATA GENERATED

FROM

OCTOBER 2016 – MARCH 2017

FOR

OCL INDIA LIMITED

At/Po: RAJGANGPUR, District: SUNDARGARH, ODISHA

AT

CEMENT PLANT, LINE – 1 & LINE - 2

Prepared By:

Cleenviron Private Limited

D-124, KOELNAGAR, ROURKELA, ODISHA

Tele fax: 0661 – 2475746

Email: cleenviron@gmail.com & cpl_rkl@yahoo.co.in

TABLE OF CONTENTS

Chapter No	Name of Chapter	Page No
1	INTRODUCTION	5
2	LOCATION AND ACCESSIBILITY	5
3	ASPECTS CONSIDERED FOR ENVIRONMENTAL MONITORING	6
4	SAMPLING LOCATIONS	7
5	METHODOLOGY OF SAMPLING & ANALYTICAL PROCEDURES	8
6	DATA ANALYSIS	8
7	CONCLUSION	15

LIST OF TABLES

Table No	Name of Table	Page No
6.1	Summary of the Micro-meteorological Data	9
6.2 & 6.2 A	Ambient Air Quality Data for Station A-1	11 & 12
6.3 & 6.3 A	Ambient Air Quality Data for Station A-2	12
6.4 & 6.4 A	Ambient Air Quality Data for Station A-3	12 & 13
6.5 & 6.5 A	Ambient Air Quality Data for Station A-4	13
6.6 & 6.6 A	Ambient Air Quality Data for Station A-5	13 & 14
6.7 & 6.7 A	Ambient Air Quality Data for Station A-6	14
6.8 & 6.8 A	Ambient Air Quality Data for Station A-7	14 & 15
6.9	Stack Emission Monitoring Results	15

LIST OF FIGURES

Figure No	Name of Figure	Page No
1.1	Location Map of The Project	6
6.1	Wind Rose Diagram for 24 Hours	10
6.2	Wind Rose Diagram for 6 – 14 Hours	10
6.3	Wind Rose Diagram for 14 – 22 Hours	11
6.4	Wind Rose Diagram for 22 – 06 Hours	11

1. INTRODUCTION

OCL is currently manufacturing Ordinary Portland Cement (OPC) of various grades including grade 53S specially meant for concrete sleepers for railways, Portland Slag Cement (PSC), flyash based Portland Pozzolana Cement (PPC), Sulphate Resistance Portland Cement (SRPC) and Oil well cement. The main raw materials used for manufacturing of various types of cement are Clinker, Slag, Flyash and Gypsum. Clinker is the main raw material, which is produced by sintering limestone along with other additives like clay, morrum, char, cinder etc. Coal is used as fuel for burning the limestone in kiln.

Cement Division of OCL India Limited (OCL) is currently operating a cement plant located at Rajgangpur in Sundargarh district of Odisha state. The existing plant has production capacity of 2.9 million tonnes clinker per annum and cement manufacturing capacity 4 million tonnes cement per annum.

The limestone requirement for the proposed expansion is proposed to be met by the increased production from the existing captive mines at Lanjibema.

2. LOCATION AND ACCESSIBILITY

The proposed site is well within the existing factory premises of OCL at Rajgangpur and has the following coordinates (as per Survey of India toposheet no. 73 B/12, scale 1:50000):

- Latitude : 22° 12' N
- Longitude : 84° 35' E

The area covered by OCL comes under Rajgangpur village of Tehsil Rajgangpur, district Sundargarh. The general elevation of land is about 250 m above mean sea level. Accessibility to the site is as per details given below:

Road

The plant is located about 43 km from Rourkela on Rourkela-Sambalpur state highway (SH-10).

Rail

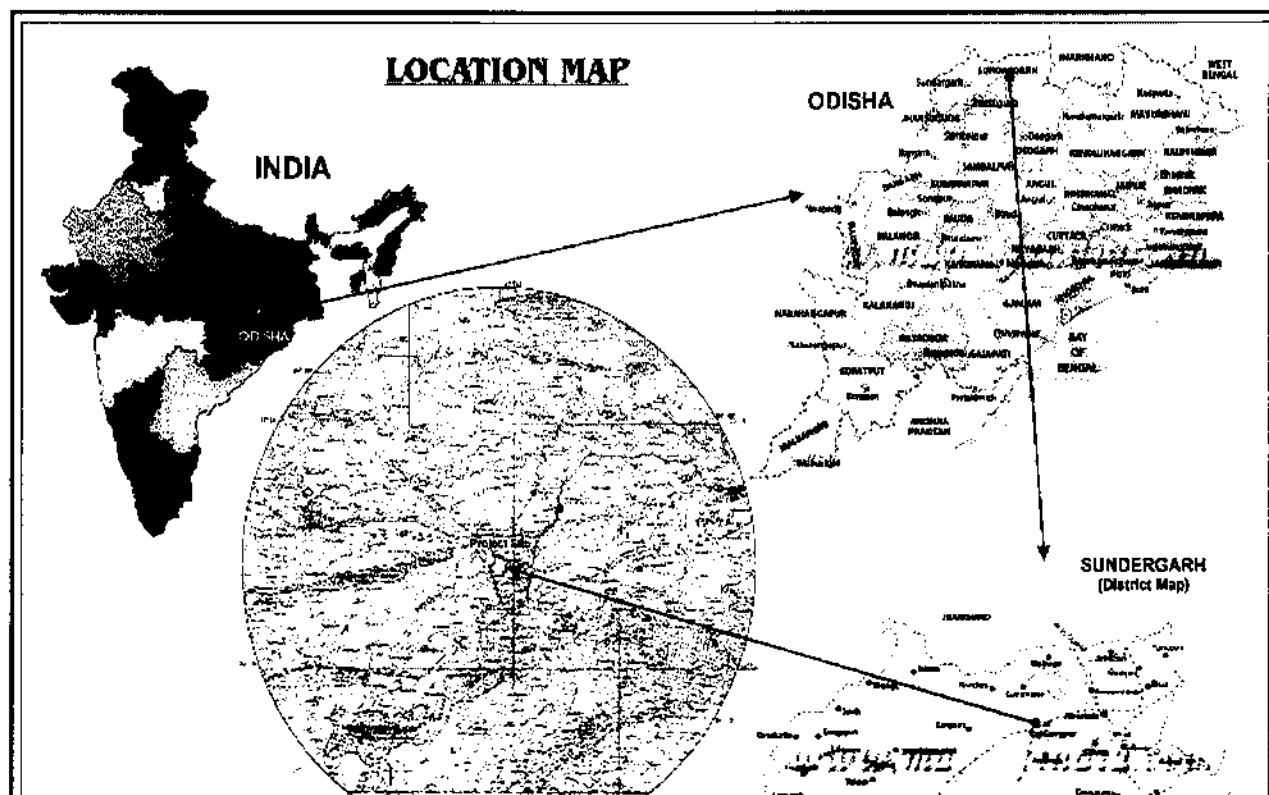
The nearest railway station is at Rajgangpur, which is about 2 km from the plant site and is located on the Howrah-Mumbai section of South Eastern Railway.

Air

The nearest airport is at Kolkatta, which is about 450 km from plant site and well connected by rail and road.

The location of the project site is depicted as in **Figure1.1**

Figure No: 1.1



OCL has affianced *Cleenviron Private Limited (NABL accredited Laboratory)*, Rourkela, Odisha, to carry out periodical environmental monitoring and to prepare Environment monitoring report. The study has been carried out as per the guidelines of Ministry of Environment & Forests (MOEF) and State Pollution Control Board, Odisha (SPCB).

3. ASPECTS CONSIDERED FOR ENVIRONMENTAL MONITORING

This report is based on the monitoring results generated from October 2016 to March 2017 covering post-monsoon and winter seasons of the year. Ambient Air Quality and Stack Emission monitoring was carried out on Quarterly once basis.

- i. Micro-meteorological Monitoring
- ii. Ambient Air Quality Monitoring
- iii. Stack Emission Monitoring

Monitoring of environmental parameters for collection of data involves field work, which is described below:

3.1 Micro-meteorological Study

For collection of micro-meteorological data like Temperature, Relative Humidity, Wind Speed, Wind Direction, & Rainfall, a weather monitoring station is fixed on the Magazine Hill Top of Lanjiberna Limestone and Dolomite Mines of M/s OCL India Ltd. Hourly data is being recorded continuously by putting up windows compatible data logging facility instrument, Make: Virtual Electronics Company, Roorkee.

3.2 Ambient Air Monitoring

To assess ambient air quality, total 7 (seven) monitoring stations are fixed including 5 (five) in the Line - 1 and 2 (two) in the Line - 2. The monitoring locations are fixed according to the micro-meteorological data and in consultation with State Pollution Control Board. The monitoring was carried out for parameters like PM2.5, PM10, SO₂, NO_x, NH₃, O₃, CO, As, Ni, Pb, Benzene & Benzo(a)pyrene and monitoring was carried out once during three months from each location. For collection of samples Respirable Dust sampler with PM2.5 attachment was placed at each location, sampling and analytical techniques are followed as per the standard methods of ambient air sampling and analysis.

3.3 Stack Emission Monitoring

The essential units of the cement plant are equipped with pollution control equipments. To assess the emission level of Particulate Matter from the stacks of different units, monitoring of Stack emission levels were scheduled on quarterly once basis. Particulate Matter emission was monitored following the BIS methods for Stack monitoring.

4. SAMPLING LOCATIONS

4.1 Micro-Meteorological Study

One meteorological station was set up on the Magazine Hill Top of the Lanjibema Limestone & Dolomite Mines to monitor wind speed, wind direction, temperature, relative humidity and rainfall on hourly basis by data logging technique. The station is at an aerial distance of around 8 kms from the project site.

4.2 Ambient Air Quality Monitoring

Five ambient air quality monitoring stations are fixed within the Line -1 and two stations are fixed in the Line - 2 area. General precautions were taken to position the Respirable Dust Samplers at all the locations. The descriptions of the Ambient Air Monitoring Stations are as follows:

A-1 Stores Building (Line - 1):

The sampling station is located within the Plant site and the station was selected to assess the present level of pollution due to the general unit operations of the Line - 1.

A-2 DITC Building Near Line - 2:

This location is nearer to the Line - 2 operational area. This was selected to assess the air quality in and around the Line - 2 unit operations.

A-3 Near Canteen Building (Line - 1):

The sampling station is located within the Plant site and the station was selected to assess the present level of pollution due to the general unit operations of the Line - 1.

A-4 Near Loco Gate (Line - 1):

The sampling station is located within the Plant site and the station was selected to assess the present level of pollution due to the general unit operations of the Line - 1.

A-5 CCR Building (Line - 1):

The sampling station is located within the Plant site and the station was selected to assess the present level of pollution due to the general unit operations of the Line - 1.

A-6 Workshop Building (Line - 1):

The sampling station is located within the Plant site and the station was selected to assess the present level of pollution due to the general unit operations of the Line - 1.

A-7 Near Water Harvesting Area of CPP (Line – 2):

This location is within the Line – 2 operational area. This was selected to assess the air quality in and around the Line – 2 unit operations.

4.3 Stack Emission Monitoring:

The stack of the different units of the Cement plant like, VRM – Line – 1, CVRM – 1, CVRM – 2, CVRM – 3, RABH Line – 2, Boiler – 1, Boiler – 2, Coal Mill Line – 1, Coal Mill Line – 2, Cooler Line – 2, were carried out for parameters like, Particulate Matter, Sulphur Dioxide and Nitrogen Oxides emission levels.

5. METHODOLOGY OF SAMPLING & ANALYTICAL PROCEDURES

5.1 Meteorological Study

For recording various meteorological parameters like, Temperature, RH, Wind Speed, Wind Direction & Rainfall, a weather monitoring station, Make: Virtual Electronics Company, Roorkee was installed at the site. The instrument is equipped with windows based data logging software to store each data on hourly basis, which can be further down loaded to a PC and data can be interpreted as per the requirement of the report.

5.2 Ambient Air Monitoring

Air quality samples were monitored for all parameters as per NAAQS. For sampling and analysis, methods prescribed by CPCB were followed and Respirable Dust Samplers (RDS) APM 460BL – 411TE, Make: Envirotech Instruments Pvt. Ltd. were used and for PM_{2.5} sampling AAS 190 attachment for fine particulate sampling along with RDS was used where ever necessary at the site.

5.3 Stack Monitoring

Stack monitoring were carried out once in every three months from the bag filter and ESP outlet stacks of the units mentioned and the Indian standard methods for monitoring of Stack emission was followed for collecting the sample and the concentration of Particulate Matter were calculated by following the standard methods. For collection of sample Vayubodhan Upkaran Pvt. Ltd. make Stack sampler Model: VSS -1 was used at the site.

6. DATA ANALYSIS

6.1 Micro-meteorological Study:

6.1.1 Wind Speed & Wind Direction

During the entire period from 1st October to 31st March all total 4370 no. of data are recorded by the instrument and after interpretation of the collected data it was found that Calm condition prevailed over 39.49%, while considering the 24 hourly data. 37.48% calm condition prevailed from morning 6 hrs to 14hrs for the entire study period. 40.90% calm condition prevailed from 14hrs to 22hrs and 39.44% calm condition prevailed from 22hrs to 06hrs. The predominant wind directions were from NE & SW with average wind speed 1.08 m/sec. The wind rose diagrams for the entire study period are depicted on the **Figure No: 6.1, 6.2, 6.3 & 6.4.**

6.1.2 Temperature

The maximum & minimum temperature during the entire study period were divided in to two parts as the study period was covering post-monsoon as well as winter seasons. The Minimum temperature during the post-monsoon season was found to be 13.02°C and the Maximum temperature was found to be 34.83°C up to the end of 30th November.

The minimum and maximum temperature during the winter season i.e. from December to March was found to be 9.64°C and 43.04°C. **Table No 6.1** shows a summary of micro-meteorological data collected for the entire period.

6.1.3 Rainfall

The total rain fall from 1st October to 31st March was observed to be 2.454 mm. during the study period. A month wise rainfall data recorded at the site is depicted in **Table No 6.1**.

Table No: 6.1
A Summary of the Micro-meteorological Data

Project Site (Ref.) : **OCL Lanjiberna Mines**
Location : **Magazine Hill Top**

Sl No	Parameters	From October' 16 – March' 17
1	Predominant Wind Direction	From NE & SW
2	Calm Condition %	39.49
3	Average Wind Speed m/sec	1.08
4	Temperature °C	
	Post-monsoon Season	
	Minimum	13.02
	Maximum	34.83
	Winter Season	
	Minimum	9.64
	Maximum	43.04
5	Rain Fall in mm	
	October	0.80
	November	0.60
	December	0.00
	January	0.00
	February	0.00
	March	1.05
	Total	2.454

Figure No: 6.1 Wind Rose Diagram for 24 Hours

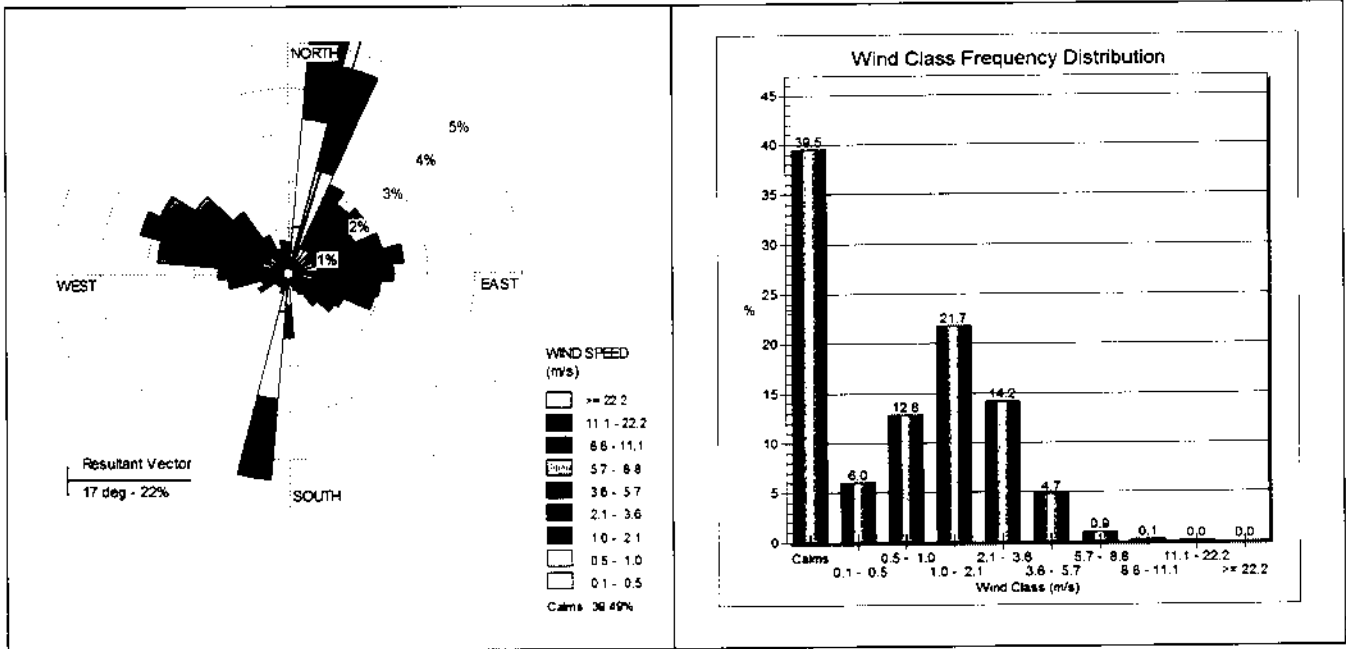


Figure No: 6.2 Wind Rose Diagram from 06 – 14 Hours

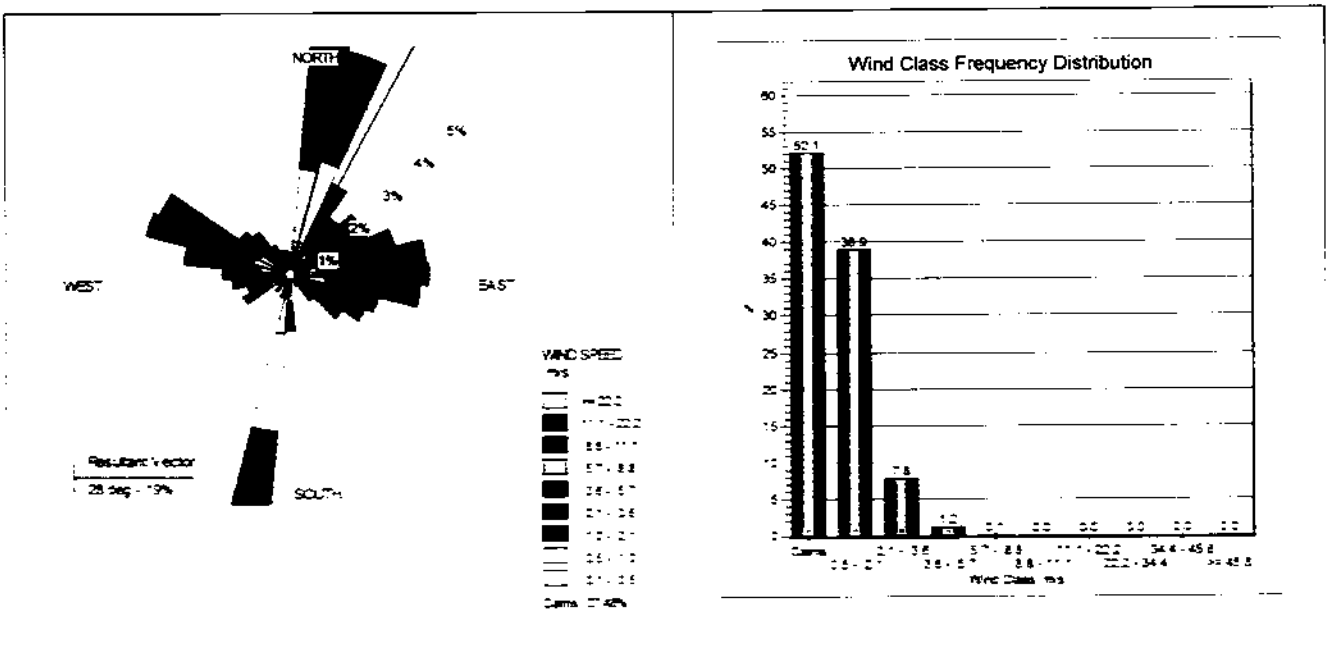


Figure No: 6.3 Wind Rose Diagram from 14 – 22 Hours

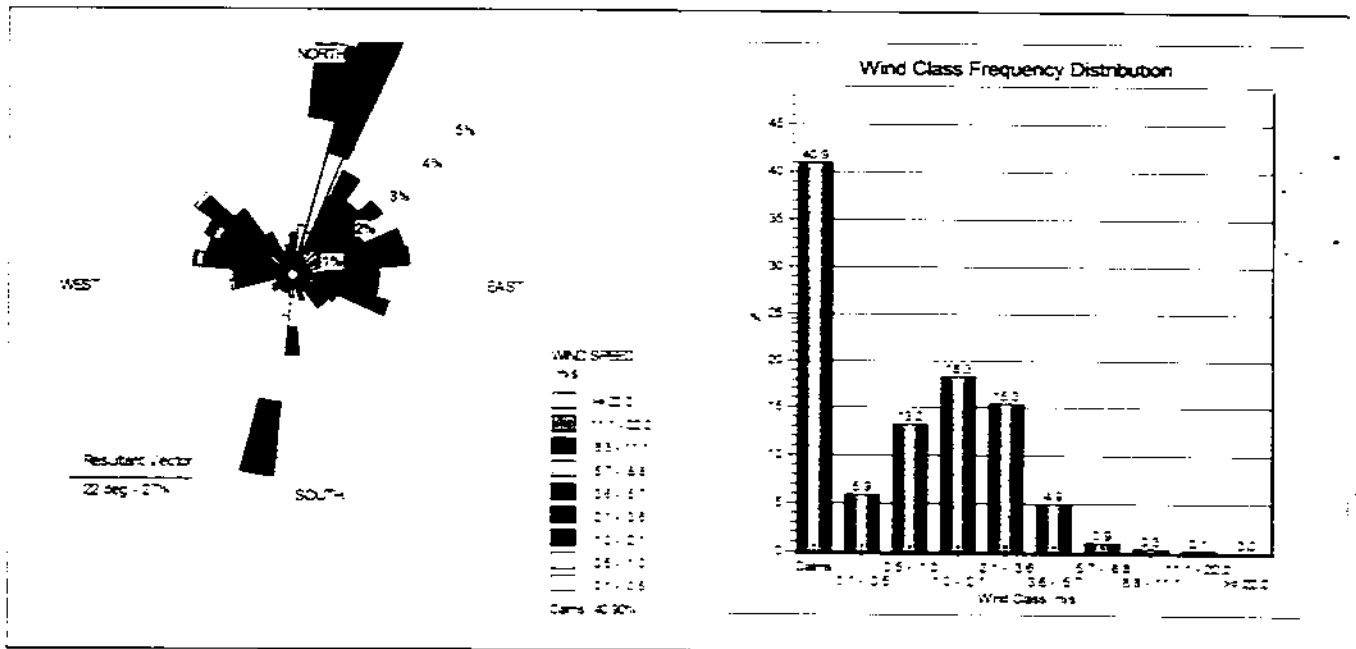


Figure No: 6.4 Wind Rose Diagram from 22 – 06 Hours

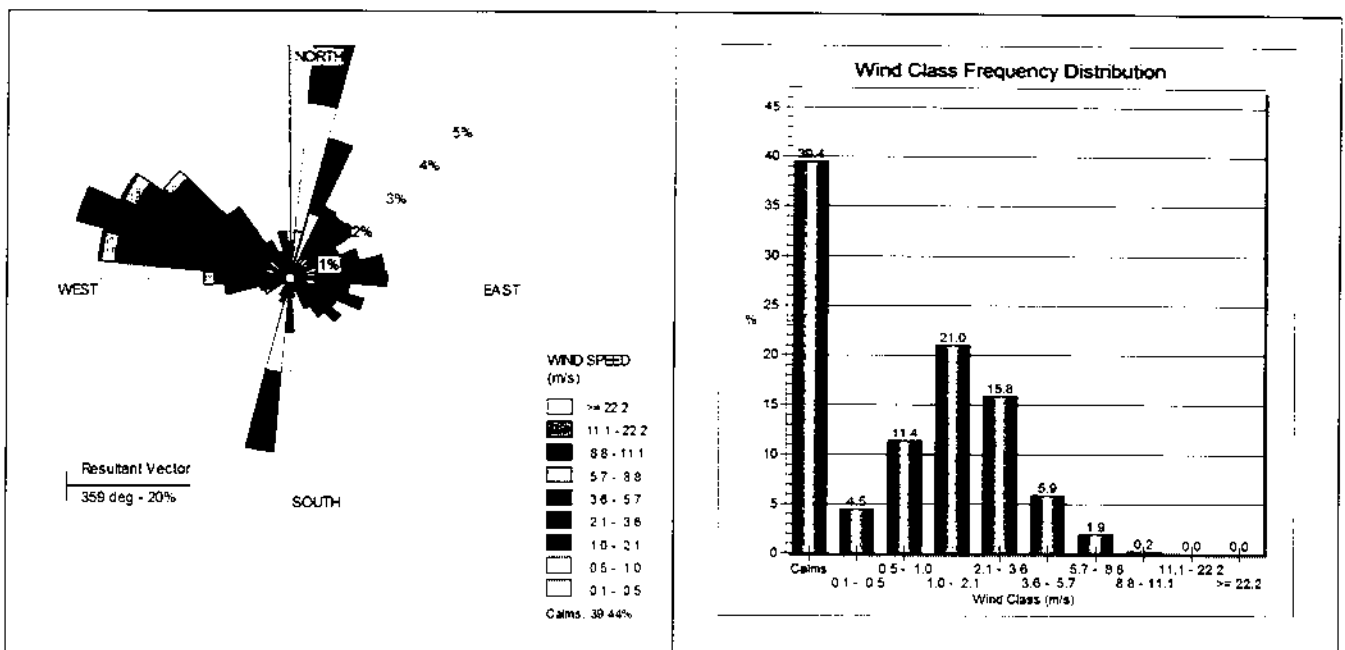


Table No: 6.2
AMBIENT AIR QUALITY DATA
 From 01.10.2016 to 31.03.2017
 Station: A-1 Stores Building (Line – 1)

Date	PM2.5	PM10	SO ₂	NO _x
05.12.2016	34	88	05	11
07.02.2017	30	84	05	11

Table No: 6.2A

Sl No	Date of Sampling	Parameters							
		NH ₃	O ₃	Lead (Pb)	Arsenic (As)	Nickel (Ni)	Benzene (C ₆ H ₆)	Carbon Monoxide (CO)	Benzo(a)pyrene (BaP) – Particulate Phase
Units		µg/m ³	µg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	mg/m ³	ng/m ³
Method of Analysis		APWA 3 rd Ed. Method - 401	APWA 3 rd Ed. Method - 411	APWA 3 rd Ed. Method - 822	APWA 3 rd Ed. Method - 804	APWA 3 rd Ed. Method - 822	IS 5182 (Part - 11)	Electro-chemical Sensor	IS 5182 (Part - 12)
1.	05.12.2016	31	26	< 0.4	< 1.0	< 5.0	< 0.1	< 0.1	< 0.1
2.	07.02.2017	26	< 19.6	< 0.4	< 1.0	< 5.0	< 0.1	< 0.1	< 0.1

Table No: 6.3
AMBIENT AIR QUALITY DATA
 From 01.10.2016 to 31.03.2017
 Station: A-2 DITC Building Near Line - 2

Date	PM2.5	PM10	SO ₂	NO _x
07.12.2016	36	99	04	15
09.02.2017	44	93	< 3	08

Table No: 6.3A

Sl No	Date of Sampling	Parameters							
		NH ₃	O ₃	Lead (Pb)	Arsenic (As)	Nickel (Ni)	Benzene (C ₆ H ₆)	Carbon Monoxide (CO)	Benzo(a)pyrene (BaP) – Particulate Phase
Units		µg/m ³	µg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	mg/m ³	ng/m ³
Method of Analysis		APWA 3 rd Ed. Method - 401	APWA 3 rd Ed. Method - 411	APWA 3 rd Ed. Method - 822	APWA 3 rd Ed. Method - 804	APWA 3 rd Ed. Method - 822	IS 5182 (Part - 11)	Electro-chemical Sensor	IS 5182 (Part - 12)
1.	07.12.2016	33	23	< 0.4	< 1.0	< 5.0	< 0.1	0.60	< 0.1
2.	09.02.2017	23	21	< 0.4	< 1.0	< 5.0	< 0.1	< 0.1	< 0.1

Table No: 6.4
AMBIENT AIR QUALITY DATA
 From 01.10.2016 to 31.03.2017
 Station: A-3 Near Canteen Building (Line - 1)

Date	PM2.5	PM10	SO ₂	NO _x
05.12.2016	38	86	< 3	< 6
07.02.2017	20	80	< 3	13

Table No: 6.4A

Sl No	Date of Sampling	Parameters							
		NH ₃	O ₃	Lead (Pb)	Arsenic (As)	Nickel (Ni)	Benzene (C ₆ H ₆)	Carbon Monoxide (CO)	Benzo(a)pyrene (BaP) - Particulate Phase
Units		µg/m ³	µg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	mg/m ³	ng/m ³
Method of Analysis		APWA 3 rd Ed. Method - 401	APWA 3 rd Ed. Method - 411	APWA 3 rd Ed. Method - 822	APWA 3 rd Ed. Method - 804	APWA 3 rd Ed. Method - 822	IS 5182 (Part - 11)	Electro-chemical Sensor	IS 5182 (Part - 12)
1.	05.12.2016	28	23	< 0.10	< 1.0	< 5.0	< 0.1	0.44	< 0.1
2.	07.02.2017	56	< 19.6	0.50	< 1.0	< 5.0	< 0.1	< 0.1	< 0.1

Table No: 6.5
AMBIENT AIR QUALITY DATA
 From 01.10.2016 to 31.03.2017
 Station: A-4 Near Loco Gate (Line - 1)

Date	PM2.5	PM10	SO ₂	NO _x
05.12.2016	19	89	34	18
07.02.2017	32	86	49	16

Table No: 6.5A

Sl No	Date of Sampling	Parameters							
		NH ₃	O ₃	Lead (Pb)	Arsenic (As)	Nickel (Ni)	Benzene (C ₆ H ₆)	Carbon Monoxide (CO)	Benzo(a)pyrene (BaP) - Particulate Phase
Units		µg/m ³	µg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	mg/m ³	ng/m ³
Method of Analysis		APWA 3 rd Ed. Method - 401	APWA 3 rd Ed. Method - 411	APWA 3 rd Ed. Method - 822	APWA 3 rd Ed. Method - 804	APWA 3 rd Ed. Method - 822	IS 5182 (Part - 11)	Electro-chemical Sensor	IS 5182 (Part - 12)
1.	05.12.2016	< 20	22	< 0.4	< 1.0	< 5.0	< 0.1	< 0.1	< 0.1
2.	07.02.2017	39	< 19.6	< 0.4	< 1.0	< 5.0	< 0.1	< 0.1	< 0.1

Table No: 6.6
AMBIENT AIR QUALITY DATA
 From 01.10.2016 to 31.03.2017
 Station: A-5 CCR Building (Line - 1)

Date	PM2.5	PM10	SO ₂	NO _x
06.12.2016	32	87	06	17
08.02.2017	31	98	38	30

Table No: 6.6A

Sl No	Date of Sampling	Parameters							
		NH ₃	O ₃	Lead (Pb)	Arsenic (As)	Nickel (Ni)	Benzene (C ₆ H ₆)	Carbon Monoxide (CO)	Benzo(a)pyrene (BaP) – Particulate Phase
Units		µg/m ³	µg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	mg/m ³	ng/m ³
Method of Analysis		APWA 3 rd Ed. Method - 401	APWA 3 rd Ed. Method - 411	APWA 3 rd Ed. Method - 822	APWA 3 rd Ed. Method - 804	APWA 3 rd Ed. Method - 822	IS 5182 (Part - 11)	Electro-chemical Sensor	IS 5182 (Part - 12)
1.	06.12.2016	< 20	< 19.6	< 0.4	< 1.0	< 5.0	< 0.1	< 0.1	< 0.1
2.	08.02.2017	25	< 19.6	< 0.4	< 1.0	< 5.0	< 0.1	< 0.1	< 0.1

Table No: 6.7
AMBIENT AIR QUALITY DATA
 From 01.10.2016 to 31.03.2017
 Station: A-6 Workshop Building (Line - 1)

Date	PM2.5	PM10	SO ₂	NOx
06.12.2016	25	94	< 3	11
08.02.2017	26	89	26	29

Table No: 6.7A

Sl No	Date of Sampling	Parameters							
		NH ₃	O ₃	Lead (Pb)	Arsenic (As)	Nickel (Ni)	Benzene (C ₆ H ₆)	Carbon Monoxide (CO)	Benzo(a)pyrene (BaP) – Particulate Phase
Units		µg/m ³	µg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	mg/m ³	ng/m ³
Method of Analysis		APWA 3 rd Ed. Method - 401	APWA 3 rd Ed. Method - 411	APWA 3 rd Ed. Method - 822	APWA 3 rd Ed. Method - 804	APWA 3 rd Ed. Method - 822	IS 5182 (Part - 11)	Electro-chemical Sensor	IS 5182 (Part - 12)
1.	06.12.2016	< 20	< 19.6	< 0.4	< 1.0	< 5.0	< 0.1	< 0.1	< 0.1
2.	08.02.2017	40	< 19.6	< 0.4	< 1.0	< 5.0	< 0.1	< 0.1	< 0.1

Table No: 6.8
AMBIENT AIR QUALITY DATA
 From 01.10.2016 to 31.03.2017
 Station: A-7 Near Water Harvesting Area of CPP (Line - 2)

Date	PM2.5	PM10	SO ₂	NOx
06.12.2016	30	83	< 3	16
08.02.2017	31	95	17	10

Table No: 6.8A

SI No	Date of Sampling	Parameters							
		NH ₃	O ₃	Lead (Pb)	Arsenic (As)	Nickel (Ni)	Benzene (C ₆ H ₆)	Carbon Monoxide (CO)	Benzo(a)pyrene (BaP) - Particulate Phase
Units		µg/m ³	µg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	mg/m ³	ng/m ³
Method of Analysis		APWA 3 rd Ed. Method - 401	APWA 3 rd Ed. Method - 411	APWA 3 rd Ed. Method - 822	APWA 3 rd Ed. Method - 804	APWA 3 rd Ed. Method - 822	IS 5182 (Part - 11)	Electro-chemical Sensor	IS 5182 (Part - 12)
1.	06.12.2016	< 20	< 19.6	< 0.4	< 1.0	< 5.0	< 0.1	< 0.1	< 0.1
2.	08.02.2017	47	< 19.6	< 0.4	< 1.0	< 5.0	< 0.1	< 0.1	< 0.1

6.2 Stack Emission Monitoring

The Quarterly monitoring results of stack emission from the different units of the Cement Plant are given below:

Table No 6.9: Stack Emission Monitoring Results

SI No	Location	Particulate Matter Concentration in mg/Nm ³	
		December 2016	February 2017
1	Coal Mill, Line - 2	08	05
2	RABH Kiln, Line - 2	11	04
3	Cooler, Line - 2	08	03
4	CVRM - 2, Line - 1	20	02
5	CVRM - 3, Line - 1	46	23
6	CVRM - 1, Line - 1	15	03
7	Boiler - 2 Outlet ESP	12	11
8	Boiler - 1 Outlet ESP	07	32
9	VRM, Line - 1	45	24
10	Coal Mill, Line - 1	-	14

7. CONCLUSION

7.1 Ambient Air Quality

It is concluded from the above study that the overall ambient air quality of the Cement Plant, both Line -1 and Line - 2 of OCL India Ltd. is good and the action taken by the plant authority were quite satisfactory.

7.2 Stack Emission Monitoring

The stack emission monitoring results of all control equipments monitored is very much effective and results are all within the prescribed standards by the State Pollution Control Board, Odisha.

Annual average-AAQ stations

Secure | <https://sunepcbirdas.com/ADPR/Rep.htm>



LIST VIEW DASH BOARD

Year	Station Id.	NOX (ug m ³)	PM10 (ug m ³)	PM2.5 (ug m ³)	SO2 (ug m ³)	Station Id.	Location
2017	AAQMS-1	21.31	29.56	25.75	11.96	● AAQMS-	WORKSHOP BUILDING
2017	AAQMS-2	12.89	13.31	5.00	12.84	Threshold:	NOX:80.00, PM10:100.00, PM2.5:60.00, SO2:80.00
2017	AAQMS-3	20.34	29.45	11.23	8.62	● AAQMS-	RGP CLUB
2017	AAQMS-4	17.49	27.90	45.49	4.09	Threshold:	NOX:80.00, PM10:100.00, PM2.5:60.00, SO2:80.00
						● AAQMS-	STP
						Threshold:	NOX:80.00, PM10:100.00, PM2.5:60.00, SO2:80.00
						● AAQMS-	RGP CLUB MUNICIPALITY ROAD
						Threshold:	NOX:80.00, PM10:100.00, PM2.5:60.00, SO2:80.00

Reset Chart Max To Original

Year	Station Id.	NOX (ug m ³)	PM10 (ug m ³)	PM2.5 (ug m ³)	SO2 (ug m ³)	Station Id.	Location
2017	AAQMS-1	21.31	29.56	25.75	11.96	AAQMS-1	WORKSHOP BUILDING
2017	AAQMS-2	12.89	13.31	5.00	12.84	Threshold:	NOX:80.00, PM10:100.00, PM2.5:60.00, SO2:80.00
2017	AAQMS-3	20.34	29.45	11.23	8.62	AAQMS-2	RGP CLUB
2017	AAQMS-4	17.49	27.90	45.49	4.09	Threshold:	NOX:80.00, PM10:100.00, PM2.5:60.00, SO2:80.00
						AAQMS-3	STP
						Threshold:	NOX:80.00, PM10:100.00, PM2.5:60.00, SO2:80.00
						AAQMS-4	RGP OCL COLONY MUNICIPALITY ROAD
						Threshold:	NOX:80.00, PM10:100.00, PM2.5:60.00, SO2:80.00

Annual Average-CEMS stations



LIST VIEW DASH BOARD

Year	Station Id.	NOX (in µg/m ³)	PM (in µg/m ³)	SOX (in µg/m ³)
2017	CEMS-1	353.45	20.85	12.31
2017	CEMS-10	211.62	34.56	118.24
2017	CEMS-2	N/A	28.78	
2017	CEMS-3	N/A	21.48	
2017	CEMS-4	N/A	23.49	
2017	CEMS-5	N/A	16.54	
2017	CEMS-6	N/A	32.65	
2017	CEMS-7	370.55	8.56	14.67
2017	CEMS-8	N/A	13.16	
2017	CEMS-9	N/A	11.23	

Station Id.	Location
● CEMS-1	LINE-1 KILN ESP
Threshold	NOX 800.00, PM 100.00, SOX 100.00
● CEMS-10	CPP
Threshold	NOX 100.00, PM 100.00, SOX 600.00
● CEMS-2	LINE-3 COAL SHLE BH
Threshold	PM 100.00
● CEMS-3	LINE-1 COOLER ESP
Threshold	PM 100.00
● CEMS-4	LINE-1 CVRM-1
Threshold	PM 100.00
● CEMS-5	LINE-1 CVRM-2
Threshold	PM 100.00
● CEMS-6	LINE-1 CVRM-3
Threshold	PM 100.00
● CEMS-7	LINE-3 KILN REVERSE AIR BH
Threshold	NOX 800.00, PM 100.00, SOX 100.00

Year	Station Id.	NOX (in µg/m ³)	PM (in µg/m ³)	SOX (in µg/m ³)
2017	CEMS 1	353.45	20.85	12.31
2017	CEMS-10	211.62	34.56	118.24
2017	CEMS-2	N/A	28.78	
2017	CEMS-3	N/A	21.48	
2017	CEMS-4	N/A	23.49	
2017	CEMS-5	N/A	16.54	
2017	CEMS-6	N/A	32.65	
2017	CEMS-7	370.55	8.56	14.67
2017	CEMS-8	N/A	13.16	
2017	CEMS-9	N/A	11.23	

Station Id. Location

CEMS 1 LINE 1 KILN ESP
 Threshold: NOX:800.00, PM:100.00, SOX:100.00

CEMS 10 CPP
 Threshold: NOX:300.00, PM:100.00, SOX:600.00

CEMS 2 LINE 1 COAL MILL BH
 Threshold: PM:100.00

CEMS 3 LINE 1 COOLER ESP
 Threshold: PM:100.00

CEMS 4 LINE 1 CVRM 1
 Threshold: PM:100.00

CEMS 5 LINE 1 CVRM 2
 Threshold: PM:100.00

CEMS 6 LINE 1 CVRM 3
 Threshold: PM:100.00

CEMS 7 LINE 2 KILN REVERSE AIR BH
 Threshold: NOX:800.00, PM:100.00, SOX:100.00

CEMS 8 LINE 2 COAL MILL BH
 Threshold: PM:100.00

CEMS 9 LINE 2 COOLER ESP
 Threshold: PM:100.00

Real Time Data Acquisition System

LIST VIEW DASH BOARD

Year	Station Id.	PH (mg/l)	TEMP (in °C)	TSS (in mg/l)
2016	EQMS-1	8.72	32.95	29.35
2017	EQMS-1	8.06	25.15	28.44

Station Id. Location
 ● EQMS-1 WTP
 Threshold: PH:9.00, TEMP:50.00, TSS:100.00
 Reset Chart Max To Original