Addl. PCCF, MoEFCC,
Regional Office (ECZ),
Bungalow No. A-2, Shyamali Colony,
Ranchi – 834002.

Ref No. - JMB/115/ 001572 /2017

November, 22 , 2017

SUB: Half Yearly Compliance Report of the conditions of EC issued by MoEFCC, New Delhi to Digwadih Colliery, Tata Steel Limited, Dhanbad for the period April'17 to September'17.

Dear Sir,

We are enclosing herewith compliance report for the period April'17 to September'17 for the EC granted vide letter no.- J-11015/372/2010-IA.II(M) dated- 30th September 2013 issued by Ministry of Environment, Forest and Climate Change, New Delhi. This is for your kind perusal.

Thanking you,

Yours faithfully,

Sanjay
General Manager (Coal)

Email I.D.- skumar.singh@tatasteel.com
Encl: As above.

Copy to: Member Secretary, Eastern Zonal Office, Southend Conclave, 502, 5th Floor 1582, Rajdanga Main Road, Kolkata-700107.

Copy to: Member Secretary, JSPCB, T.A. Division Building (Ground Floor), H.E.C, Dhurwa, Ranchi -834004.

TATA STEEL LIMITED
Jharia Collieries Jamadoba 828 112 Dhanbad India
Tel 91 326 2320263/2320265/2320267 Fax 91 326 2320268
Regd. Office Bombay House 24 Homi Mody Street Fort Mumbai 400 001
Tel 91 22 66658282 Fax 91 22 66657724
Corporate Identity Number L27100MH1907PLC000260 Website www.tatasteel.com

HALF YEARLY COMPLIANCE REPORT

(PERIOD: APRIL'17 – SEPTEMBER'17)

DIGWADIH COLLIERY

(CAPACITY: EXPANSION FROM 0.38 TO 0.6 MTPA RAW COAL)
TEHSIL: JHARIA, DIST: DHANBAD, JHARKHAND

TATA

TATA STEEL

TATA STEEL LIMITED, JHARIA DIVISION

P.O.- JAMADOBA, DIST. - DHANBAD,
STATE- JHARKHAND, PIN CODE – 828112

ENVIRONMENTAL CLEARANCE GRANTED VIDE LETTER NO. - J-11015/372/2010-IA.II(M) DATED- 30.09.2013 ISSUED BY GOVT. OF INDIA, MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE, NEW DELHI.

Compliance status of Digwadih Colliery of M/s Tata Steel Ltd. for (Expansion from 0.38 MTPA to 0.6 MTPA in ML area 314.57 ha), dist. Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/372/2010-IA.II (M) dated September 30, 2013

S. No.	Condition	Compliance Status
Specific Condition		
(i)	The maximum production from the mines shall not exceed beyond that for which environmental clearance has been granted.	It is being strictly followed. The EC capacity is for 0.6 MTPA raw coal while the raw coal production for Digwadih Colliery is well below the limit. The production details are: FY17 – 0.262 MTPA FY16 – 0.308 MTPA FY15 – 0.25 MTPA
(ii)	The impact on the Damodar river due to mining activity which is at a distance of 2 km be studied through a reputed 3rd Party and submitted to the SPCB and the regional office of the MoEF for monitoring.	The underground coal mines operated by Tata Steel Ltd are adjacent to the Damodar River. Other coal mines of BCCL & SAIL are also in close proximity to the river basin. Major source of pollution of Damodar River is the flow of industrial effluents and untreated sewage water into the river. A number of OB dumps lie close to the river banks causing the flow of sediments into the river. As per the hydrology study conducted by Indian School of Mines, Dhanbad, the impact of the underground mines of Tata Steel Ltd is minimal. This is due to the following reasons • The mining activity does not require any diversion of river/streams or natural drain. As land profile does not change appreciably in case of underground mines with backfilling of mined out areas, there is no change in surface drainage till date and unlikely to occur in future. • Surface water quality also does not undergo any change, as there is no discharge to surface drainage in dry season. In Monsoon, the excess mine water discharged gets mixed with storm water. • Large settling tanks are available for storage and sedimentation of mine water before its discharge to conform to the norms. The industrial wastewater generated during vehicle washing from the central workshop catering to all the mines is treated in oil and grease trap followed by recycling of water. • The two coal washeries of Tata Steel are operating on Zero Liquid discharge (ZLD) principle. • Sewage water generated from our townships is treated in Soak pit and Septic tank arrangement. Now we are replacing it with Packaged Sewage Treatment Plant (PSTP). Already one STP of 200 KLD has been installed in one colony and remaining colonies are also proposed to be covered with STP.

Compliance status of Digwadih Colliery of M/s Tata Steel Ltd. for (Expansion from 0.38 MTPA to 0.6 MTPA in ML area 314.57 ha), dist. Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/372/2010-IA.II (M) dated September 30, 2013

(iii)	Details of underground transportation of coal from mine to coal yard/ rail yard be submitted to the MoEF for record.	Coal from the mine is sent to the captive Jamadoba coal washery for beneficiation purpose through a network of underground conveyor belts. The detailed diagram of transportation network has already been submitted in earlier compliance report.
(iv)	Adequate care be taken to prevent sand spillages from the trucks/tippers.	The trucks that are being used for the transportation of sand are properly covered using tarpaulin sheets. Larger trucks have been engaged for reducing no of cycles. Quality checks are done on trucks to ensure its health and punitive action is taken against defaulters by the management.
(v)	The test results of the study of leaching of heavy metals from bottom-ash be submitted to SPCB and the regional office of the MoEF for monitoring.	A study conducted in 2013, by Indian School of Mines, Dhanbad to assess the leachability characteristics of fly ash and bottom ash samples taken from our, has determined that the concentration of heavy metals in the leachates were invariably well below the permissible limits for discharge of effluents as per the Indian standards IS 2490 (1993). The test results have already been submitted in December'13.
(vi)	The CSR activities shall be need based and detailed CSR plan be prepared for implementation.	The CSR plan for each financial year is prepared by TSRDS (Tata Steel Rural Development Society) only after proper discussions to assess the needs have been held with the elected/ senior members of the communities where our CSR activities are to be undertaken.
(vii)	The detailed breakup of funds during 2012-13 be submitted to the MoEF for record. A social audit to be got done annually by a reputed institute and uploaded on the company's website.	The detailed breakup has already been submitted to MOEF. The Corporate Sustainability Reports viz. Integrated Reports are made annually for the company which is certified by an assurance agency. It also includes the Social Audit of the company. All the reports are uploaded on the Tata Steel website. Further, an internal Social audit is also conducted once in five years. In 2012, a HDI (Human Development Index) survey of surrounding villages was conducted with the help of XLRI, Jamshedpur.

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(viii)	There should be no OB dumps at the end of the mining.	Since this is an underground mine, it is not applicable.
(ix)	Regular monitoring of subsidence movement on the surface over and around the working area and impact on natural drainage pattern, water bodies, vegetation, structure, roads, and surroundings shall be continued till movement ceases completely. In case of observation of any high rate of subsidence movement, appropriate effective corrective measures shall be taken to avoid loss of life and material. Cracks shall be effectively plugged with ballast and clayey soil/suitable material.	Regular monitoring of subsidence is done by Central Institute for Mining and Fuel Research, Dhanbad. According to the subsidence reports, the impact of subsidence is negligible since the underground mine workings are now at great depth and proper filling of voids through sand stowing is being done.
(x)	If subsidence is found exceeding the permitted limits, then the landowners shall be adequately compensated with mutual agreement of the landowners.	It will be strictly followed.
(xi)	Mining shall be carried out as per statuette at a safe distance from the river/nallah flowing adjacent to the lease boundary.	Since this is an underground project, there is hardly any impact on the river/ nallah. The closest jore is at a distance of about 2kms from the mine office area. Therefore, no impact on the course of flow in the jore is anticipated.
(xii)	High root density tree species shall be selected and planted over areas likely to be affected by subsidence.	Impact on land by subsidence has been found to be negligible as per the subsidence monitoring reports prepared by CIMFR, Dhanbad.
(xiii)	Coal extraction shall also be optimized in areas where agricultural production is continuing. Some pillars shall be left below the agricultural land. No depillaring & coal extraction should be carried out below habitation, H.T. Lines & beneath road, water bodies.	It will be strictly followed.
(xiv)	Subsidence shall be monitored closely and if subsidence is found exceeding the permitted limits, then the landowners shall be adequately compensated with mutual agreement with the landowners.	Regular monitoring of subsidence is being done by CIMFR, Dhanbad.

Compliance status of Digwadih Colliery of M/s Tata Steel Ltd. for (Expansion from 0.38 MTPA to 0.6 MTPA in ML area 314.57 ha), dist. Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/372/2010-IA.II (M) dated September 30, 2013

(xv)	3-tier plantation should be developed 2 km stretch of road from the mine using native species.	Plantation along stretches of road has been done. 3-tier plantation is not feasible due to presence of private land around the periphery of colliery. In the last two years, about 7500 trees have been planted in leasehold area.
(xvi)	Garland drains (size, gradient and length) around the safety areas such as mine shaft and low lying areas and sump capacity shall be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine sites. Sump capacity shall also provide adequate retention period to allow proper settling of silt material.	Garland drains of adequate size and gradient already exist around the colliery area to channelize the surface runoff.
(xvii)	Specific mitigative measures identified for the Jharia Coalfields in the Environmental Action Plan prepared for Dhanbad as a critically polluted area and relevant for Digwadih colliery shall be implemented.	The following measures relevant for Digwadih Colliery have been implemented- i. Movement of covered trucks used for sand transportation ii. Water spraying by tankers on the roads within colliery premises. iii. The mine water is collected in a reservoir where the sediments in the water settle before any water overflows from the tank. iv. Sewage Treatment Plant project is being implemented in a phased manner in all the colonies of Tata Steel, Jharia Division. v. Adequate tree plantation done on the barren areas of the leasehold. vi. Hazardous wastes are disposed off to CPCB-authorised recyclers. vii. Natural ponds in the leasehold are regularly cleaned and maintained to enhance the recharging of ground water in the area. viii. Sand stowing of underground voids created during mining. ix. Nitrogen flushing into the mines to control the mine fires. x. Compliance to all the legal requirements, like monitoring of pollutants, submission of reports to JSPCB, etc.
(xviii)	The locations of monitoring stations in the Jharia Coalfields should be finalized	The locations of monitoring stations for our colliery have already been finalized in

	in consultation with the Jharkhand State Pollution Control Board. The smoke/dust emission varies from source to source (fuel wood, coal, flyash from TPPs, silica from natural dust, etc). Mineralogical composition study should be undertaken on the composition of the suspended particulate matter (PM10 and PM2.5) in Jharia Coalfields and also quantified. These studies would help ascertain source and extent of the air pollution, based on which appropriate mitigative measures could be taken.	consultation with JSPCB, Dhanbad. The mineralogical composition study has being carried out by an independent laboratory (recognized by MoEFCC) and the results are provided in Annexure-II.
(xix)	Water sprinkling system shall be provided to check fugitive emissions from loading operations, conveyor system, haulage roads, transfer points, etc. Major approach roads shall be black topped and properly maintained.	Water spraying arrangement is present in the underground mines at all transfer points. Water spraying via tankers is done on sand transportation routes. Major approach roads have been black-topped and maintained regularly.
(xx)	Transportation of coal from the mine to railway siding should be by 20T mechanically covered trucks.	Not applicable due to transportation of coal via underground belt conveyor network system directly to washery.
(xxi)	A progressive afforestation plan shall be prepared and implemented over the mine lease area acquired and shall include areas under green belt development, areas along roads, infrastructure, along ML boundary and township etc, by planting native species in consultation with the local DFO/Agriculture Department.	Tree plantation activities are carried out every year on the barren/ degraded areas, areas along road-side, infrastructure, etc of the colliery leasehold. Apart from these, fruit plants are distributed to employees and also to villagers, schools, institutions, etc. Species planted include Neem, Sisam, Karanj, Kadamb, Gamahar, Lagastromia, Alostromia, etc. The environment department is responsible for implementing the afforestation plan which is prepared along with the mine management. In the last two years, about 7500 trees have been planted in the leasehold areas.
(xxii)	Regular monitoring of groundwater level and quality shall be carried out by establishing a network of existing wells and construction of new peizometers. The monitoring for quantity shall be done four	The monitoring of groundwater level and quality is done four times a year. The groundwater quality report & groundwater level for the pre-monsoon (May) and monsoon season (August) are provided in Annexure-I.

<table>
<tr><td></td><td>times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality in May. Data thus collected shall be submitted to the MoEF and to the CPCB quarterly within one month of monitoring.</td><td></td></tr>
<tr><td>(xxiii)</td><td>Acid Water Treatment Plant, volume of water to be treated and disposal of brine should be provided.</td><td>Not applicable.</td></tr>
<tr><td>(xxiv)</td><td>Mine discharge water outside the ML shall be monitored, particularly for TDS and treated to conform to prescribed levels before discharge into the natural environment.</td><td>There is one mine-water outlet point in the colliery which is regularly monitored by the Environmental Laboratory. The analysis results are given below:
<table>
<tr><th>Month</th><th>Temp</th><th>pH</th><th>TSS</th><th>TDS</th><th>BOD</th><th>COD</th><th>Oil & Grease</th></tr>
<tr><td>Limits</td><td><40°C</td><td>5.5-9.0</td><td>100 mg/l</td><td>2100 mg/l</td><td>30mg/l</td><td>250 mg/l</td><td>10 mg/l</td></tr>
<tr><td>April'17</td><td>32</td><td>8.2</td><td>10</td><td>693</td><td>5.8</td><td>16</td><td>1.0</td></tr>
<tr><td>May'17</td><td colspan="7">No Discharge</td></tr>
<tr><td>June'17</td><td colspan="7">No Discharge</td></tr>
<tr><td>July'17</td><td>28</td><td>7.5</td><td>12</td><td>688</td><td>4.4</td><td>32</td><td>1.2</td></tr>
<tr><td>Aug'17</td><td colspan="7">No Discharge</td></tr>
<tr><td>Sept'17</td><td>29</td><td>7.4</td><td>10</td><td>740</td><td>3.6</td><td>16</td><td>1.8</td></tr>
<tr><td>Minimum</td><td>28</td><td>7.4</td><td>10</td><td>688</td><td>3.6</td><td>16</td><td>1</td></tr>
<tr><td>Maximum</td><td>32</td><td>8.2</td><td>12</td><td>740</td><td>5.8</td><td>32</td><td>1.8</td></tr>
<tr><td>Average</td><td>29.7</td><td>7.7</td><td>10.7</td><td>707.0</td><td>4.6</td><td>21.3</td><td>1.3</td></tr>
</table></td></tr>
<tr><td>(xxv)</td><td>The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource, in case water table shows a declining trend. The project authorities shall
meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.</td><td>More than 50% of the water pumped out during underground mining activity is re-circulated back into the mine for the purpose of stowing. Backfilling of mine voids by stowing is done using sand which is having the porosity to hold the underground water thus helping aquifer to retain the underground water.
Further, there are a number of ponds existing on the surface of the mining lease which act as natural reservoirs for recharging ground water. These ponds/ tanks are regularly cleaned and maintained by our CSR department. As per the hydro-geological report, the variation in the ground water level is only seasonal.
The water requirement of the nearby villages is being met by the company already. Now piped drinking water is being provided.</td></tr>
<tr><td>(xxvi)</td><td>Besides carrying out regular periodic health checkup of their workers, 10% of the workers identified from workforce</td><td>The periodic health checkup of the workers is done regularly by our Occupational Health Department, Tata Central Hospital, Jamadoba.</td></tr>
</table>

	engaged in active mining operations shall be subjected to health checkup for occupational diseases and hearing impairment, if any, through an agency such as NIOH, Ahmedabad within a period of one year and the results reported to this Ministry and to DGMS.	We have a PME (Periodic Medical Examination) centre approved by DGMS where 20 % of the workers identified from workforce engaged in active mining operations are subjected to full medical checkup including hearing impairment checkup, etc. These results are regularly submitted to DGMS as per mines rules.
(xxvii)	The mining in the existing mines would be phased out after expiry of the current mining lease and after reclamation of mined over area. The operating mines may be analyzed and monitored for compliance of conditions, having bearing with movement of wild life until such time they are closed/ phased out.	It is not applicable in our case.
(xxviii)	Project specific CSR for an amount of Rs 5/Tonne of coal production should be provided for the activities under CSR undertaken for the neighboring villages shall be for not less than Rs 10 per tonne of coal and the progress made thereon shall be uploaded by the company annually on the company website. Monitoring of the impacts of activities under CSR shall be carried out periodically.	The proposed CSR expenditure for the entire company is decided as per the new Company Rules. Once the CSR budget for company is fixed, a share of that amount is dedicated and utilized for implementing the CSR activities at our Jharia Division level. The CSR expenditure for FY17 is Rs.4.29 crores. The progress report is uploaded every year on the company website. Internal social audits are carried out regularly to assess the impact of CSR activities.
(xxix)	A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.	Mine Closure Plan as per new guidelines has been prepared and submitted to MOC for its approval.
(xxx)	Corporate Environment Responsibility: a)The Company shall have a well laid down Environment Policy approved by the Board of Directors. b)The Environment Policy shall prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions. c)The hierarchical system or Administrative Order of the company to deal with environmental issues and for	The Company already has an Environment Policy approved by the Managing Director and it addresses all the issues mentioned. Tata Steel Environmental Policy is attached as Annexure-IV. The status of adherence to the policy and compliance to Environmental laws and regulations is regularly discussed at higher levels. Any non-compliance noticed is corrected at divisional level. If any issue is beyond our control, it is brought to the notice of higher management.

	ensuring compliance with the environmental clearance conditions shall be furnished. d) To have proper checks and balances, the company shall have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.	
B.	**GENERAL CONDITIONS**	
(i)	No change in technology and scope of working shall be made without prior approval of the MoEF.	It is being strictly followed. Bord and Pillar method is being used for mining.
(ii)	No change in the calendar plan including quantum of mineral coal and waste being produced shall be made.	It will be strictly followed.
(iii)	Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for monitoring PM10, PM2.5, SO2 and NOx. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, in RSPM etc. shall be carried out at least once in six months.	The Air quality monitoring stations are: (i)Jamadoba Group Office (Core Zone) (ii)New Village Colony, Jamadoba (Buffer Zone) (iii)Digwadih 12 No. Colony (Buffer Zone) (iv)6&7 Pits Kalimandir area (Buffer Zone) Monitoring of heavy metals in ambient air is being performed by an independent laboratory (recognized by MoEFCC) once in six months. The results are enclosed as Annexure-II.
(iv)	Data on ambient air quality (PM10, PM2.5, SO2 and NOx and heavy metals such as Hg, As, Ni, Cr, etc) and other monitoring data shall be regularly submitted to the Ministry including its Regional Office at Bhubaneswar and to the SPCB and the CPCB once in six months. Random verification of samples through analysis from independent laboratories recognised under the EP Rules, 1986 shall be furnished as part of the compliance report.	Ambient air quality report (PM10, PM 2.5, SO2 and NOx) for the period from April'17 to September'17 is attached as Annexure-I. Additionally, M/s S S Environics India Pvt Ltd (an MoEFCC recognised Laboratory) has done monitoring on ambient air quality (PM10, PM 2.5, SO2, NOx, CO, NH3, O3) and heavy metals (As, Ni, Cd and Cr) in the month of May'17. The results are enclosed as Annexure-II.

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<table>
<tr><td>(v)</td><td>Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with ear plugs/muffs.</td><td>Regular noise survey is being conducted in the underground work environment. Workers are provided with ear-plugs/ muffs in high noise areas. The noise levels monitored in the month of August'17 is given below:
<table>
<tr><th>S .No.</th><th>Unit / Place</th><th>Equipment / Location</th><th>Distance (meter away)</th><th>Leq (dB 'A')</th><th>Exposure Hours</th></tr>
<tr><td>1.</td><td rowspan="3">11 Seam</td><td>Pit Bottom, 11 Seam, 9 Pit, 0 L</td><td>-</td><td>65.7</td><td>8 hrs. /shift</td></tr>
<tr><td>2</td><td>Hoist, 4th D / 4th L</td><td>-</td><td>73.5</td><td>4 hrs. /shift</td></tr>
<tr><td>3</td><td>Transformer Room (Substation) 6th L / 5th D - 6th D</td><td>2 m.</td><td>64.8</td><td>8 hrs. /shift</td></tr>
<tr><td>4</td><td rowspan="3">8 Seam (North)</td><td>Compressor at Operator's Seat, 7th L / 5th D</td><td>10 m.</td><td>82.6</td><td>8 hrs. /shift</td></tr>
<tr><td>5</td><td>Auxiliary fan at Operator's Seat, 3rd L / 1st L - 0 L</td><td>10 m.</td><td>73.8</td><td>6 hrs. /shift</td></tr>
<tr><td>6</td><td>Auxiliary fan at Operator's Seat, 4th L / 0 D – 1st N D</td><td>10 m.</td><td>77.7</td><td>6 hrs. /shift</td></tr>
<tr><td>7</td><td rowspan="2">SURFACE</td><td>MMV Fan House at Operator's seat</td><td>-</td><td>82.6</td><td>8 hrs. /shift</td></tr>
<tr><td>8</td><td>Tele monitoring cum Nitrogen Plant at operator's seat</td><td>-</td><td>66.8</td><td>8 hrs. /shift</td></tr>
</table></td></tr>
<tr><td>(vi)</td><td>Industrial wastewater (workshop and wastewater from the mine) shall be properly collected, and treated so as to conform to the standards including for heavy metals before discharge prescribed under GSR 422 (E) dated 19th May 1993 and 31st December 1993 or as amended from time to time. Oil and grease trap shall be installed before discharge of workshop effluents.</td><td>No industrial wastewater is generated in Digwadih Colliery premises. There is a central workshop and garage in Jamadoba where oil and grease trap has been provided.</td></tr>
<tr><td>(vii)</td><td>Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transportation of the mineral shall be covered with tarpaulins and optimally loaded.</td><td>Only the vehicles having valid PUC certificates are being allowed to operate for sand transportation.
Coal transportation is done through underground belt network. Only sand transportation is done through trucks which are covered with tarpaulins as well as optimally loaded.</td></tr>
<tr><td>(viii)</td><td>Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with
SPCB and data got analysed through a</td><td>We have a fully equipped Environment Cell Laboratory with qualified personnel. Laboratory has been recognized and registered with the Jharkhand State Pollution Control Board vide letter ref no. B-3922, dated-30.08.2012. The monitoring and analysis is also done at regular</td></tr>
</table>

<table>
<tr><td></td><td>laboratory recognised under EP Rules, 1986.</td><td>intervals by M/s S S Environics India Pvt. Ltd., an MoEF recognised laboratory (vide its notification 07.12.2012).

We have also installed a Continuous Ambient Air Quality Monitoring Station at Jamadoba for real time monitoring with data transfer to JSPCB, Ranchi.</td></tr>
<tr><td>(ix)</td><td>Monitoring of outlet points should be carried out and records of same should be maintained and submitted to the Regional Office of the MOEF as part of the Compliance Report.</td><td>There is one mine-water outlet point in the colliery which is regularly monitored by the Environmental Laboratory. The analysis results has been provided in point no. (xxiv) of specific condition.</td></tr>
<tr><td>(x)</td><td>There is one mine-water outlet point in the colliery which is regularly monitored by the Environmental Laboratory. The analysis results has been provided in point no. (xxiv) of specific condition.</td><td>Persons working in dusty area have been provided with dust masks & have been given awareness training on safety & health aspects. Regular PME (Periodic Medical Examinations) are being done. The details have been provided earlier.</td></tr>
<tr><td>(xi)</td><td>A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior Executive, who will report directly to the Head of the company.</td><td>We have a separate Environmental Management Cell with two qualified personnel. (One Head and one Senior Manager). The reporting of Environmental Cell is directly to General Manager of the Division.</td></tr>
<tr><td>(xii)</td><td>The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its Regional Office at Bhubaneswar.</td><td>The Environment Cell has a separate fund for Environmental protection measures and for complying with legal requirements. The annual environmental expenditure for the financial year 2016-17 is Rs. 799.22 lakhs. The details are given below-
<table>
<tr><th>S. No.</th><th>Environment Management Activity</th><th>Expenditure in Lakhs</th></tr>
<tr><td>1.</td><td>Stowing activities i.e filling of U/G voids for surface protection and prevention of subsidence</td><td>606.09</td></tr>
<tr><td>2.</td><td>Fire Control measures (Fire/Isolation Stopping and Nitrogen plant)</td><td>131.52</td></tr>
<tr><td>3.</td><td>Goaf Filling activities, drain repairing and maintenance, settling tank maintenance jobs</td><td>6.9</td></tr>
<tr><td>4.</td><td>Water spraying costs in underground and surface</td><td>10</td></tr>
<tr><td>5.</td><td>Making potable water in Water Treatment Plant & Supply to colonies</td><td>25.40</td></tr>
<tr><td>6.</td><td>Horticultural activities including green belt development and regular lawn and garden maintenance</td><td>16.46</td></tr>
<tr><td>7.</td><td>Plantation of saplings and maintenance</td><td>2.85</td></tr>
<tr><td></td><td>Total Cost incurred</td><td>799.22</td></tr>
</table></td></tr>
</table>

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(xiii)	The Project authorities shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution control Board and may also be seen at the website of the ministry of Environment & Forests at http://envfor.nic.in.	It has been complied with.
(xiv)	A copy of the environmental clearance letter shall be marked to concerned Panchayat/Zila Parishad, Municipal Corporation or Urban Local Body and local NGO, if any, from whom any suggestion/representation has been received while processing the proposal. A copy of the clearance letter shall also be displayed on the company's website.	It has been complied with.
(xv)	A copy of the clearance letter shall be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industry Centre and Collector's Office/Tehsildar's Office for 30 days.	It has been complied with.
(xvi)	The clearance letter shall be uploaded on the company's website. The compliance status of the stipulated EC conditions shall also be uploaded by the project authorities on their website and updated at least once every six months so as to bring the same in the public domain. The monitoring data of environmental quality parameters (air, water, noise and soil) and critical pollutants such as PM10, PM2.5, SO2 and NOx (ambient and stack if any) and critical sectoral parameters shall also be displayed at the entrance of the project premises and mines office and in corporate office and on the company's website.	The clearance letter has been uploaded on the company's website. The compliance status (as Half-yearly compliance report) is being uploaded in company's website (Enclosed as Annexure-III). The display of information near the mine's office has been done.

Compliance status of Digwadih Colliery of M/s Tata Steel Ltd. for (Expansion from 0.38 MTPA to 0.6 MTPA in ML area 314.57 ha), dist. Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/372/2010-IA.II (M) dated September 30, 2013

(xvii)	The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) to the respective Regional Office of the MOEF, the respective Zonal offices of CPCB and the SPCB.	It is being complied
(xviii)	The Regional Office of this Ministry located at Bhopal shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/ information/monitoring reports.	It will be complied with.
(xix)	The environmental statement for each financial year ending 31st March in Form-V is mandated to be submitted by the project proponent tot the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be uploaded on the company's website along with the status of compliance of EC conditions and shall be sent to the respective Regional Offices of the MOEF by E-mail.	The environmental statement for financial year 2016-17 has been submitted to JSPCB on 26th September 2017 and it is also uploaded on the company website (Annexure- III). The soft copy of Environment Statement is also sent to MOEF by email at ro.ranchi-mef@gov.in.

Sanjay
General Manager (Coal)

AIR QUALITY REPORT

Core zone & Buffer zone

Period- April'17 to June'17 **No. of sampling points: 4**

Core zone (as per Air quality standards for coal mines in EPA Notification, 1988)							
Location	**Latitude/ Longitude**	**Date**	**Weather Condition**	**SPM 24 Hourly Limit- 700 µg/m³**	**RSPM 24 Hourly Limit- 300 µg/m³**	**SO_2 24 Hourly Limit- 120 µg/m³**	**NOx 24 Hourly Limit- 120 µg/m³**
Jamadoba Group Office	23°42'15.3" N/ 86°24'11" E	04.04.17	Clear	156.9	69.8	13.9	11.2
		03.05.17	Clear	148.9	72.1	14.5	13.2
		05.06.17	Clear	132.9	58.7	8.9	11.2
Buffer zone (as per NAAQS 2009 for ambient air quality standards)							
Location	**Latitude/ Longitude**	**Date**	**Weather Condition**	**PM10 24 Hourly Limit- 100µg/m³**	**PM2.5 24 Hourly Limit- 60µg/m³**	**SO_2 24 Hourly Limit- 80µg/m³**	**NO_2 24 Hourly Limit- 80µg/m³**
Digwadih 12 No. Colony	23°41'42" N/ 86°24'45.3" E	19.04.17	Clear	89.8	38.7	7.6	10.8
		15.05.17	Clear	84.3	41.3	9.8	12.1
		12.06.17	Clear	82.1	43.2	7.2	10.1
New Village Colony, Jamadoba	23°41'51" N/ 86°23'19" E	13.04.17	Clear	85.4	51.1	8.4	11.4
		18.05.17	Clear	78.9	52.2	10.2	8.7
		14.06.17	Clear	77.9	39.8	8.1	8.3
6&7 Pits Kalimandir colony	23°43'15" N/ 86°24'12" E	27.04.17	Clear	77.1	33.5	7.8	8.9
		22.05.17	Clear	83.2	44.5	9.2	10.1
		21.06.17	Rainy	81.8	46.1	8.2	9.3

Sr. Manager (Environment)

AIR QUALITY REPORT

Core zone & Buffer zone

Period- July'17 to September'17 **No. of sampling points:** 4

Core zone (as per Air quality standards for coal mines in EPA Notification, 1988)							
Location	**Latitude/ Longitude**	**Date**	**Weather Condition**	**SPM 24 Hourly Limit- 700 µg/m³**	**RSPM 24 Hourly Limit- 300 µg/m³**	**SO_2 24 Hourly Limit- 120 µg/m³**	**NOx 24 Hourly Limit- 120 µg/m³**
Jamadoba Group Office	23°42'15.3" N/ 86°24'11" E	03.07.17	Cloudy	112.3	45.3	7.5	8.1
		02.08.17	Cloudy	128.5	53.4	7.6	8.3
		04.09.17	Clear	132.7	64.4	10.8	7.6
Buffer zone (as per NAAQS 2009 for ambient air quality standards)							
Location	**Latitude/ Longitude**	**Date**	**Weather Condition**	**PM10 24 Hourly Limit- 100µg/m³**	**PM2.5 24 Hourly Limit- 60µg/m³**	**SO_2 24 Hourly Limit- 80µg/m³**	**NO_2 24 Hourly Limit- 80µg/m³**
Digwadih 12 No. Colony	23°41'42" N/ 86°24'45.3" E	10.07.17	Rainy	71.2	35.4	8.1	9.2
		09.08.17	Clear	78.4	43.2	6.8	8.1
		06.09.17	Clear	91.2	48.7	9.2	6.6
New Village Colony, Jamadoba	23°41'51" N/ 86°23'19" E	13.07.17	Clear	61.3	31.1	6.2	7.1
		16.08.17	Rainy	76.5	41.8	7.6	6.4
		14.09.17	Rainy	71.2	42.2	8.2	7.7
6&7 Pits Kalimandir colony	23°43'15" N/ 86°24'12" E	17.07.17	Clear	72.2	34.4	7.1	6.3
		24.08.17	Clear	71.1	38.9	8.1	8.2
		22.09.17	Clear	82.3	39.9	10.2	9.2

Sr. Manager (Environment)

Ground Water Quality Analysis (Hand Pump & Dugwell)
Pre-Monsoon Season- May 2017

S.No	Date	Location	Time	Sample Parameter			
				Depth in meter (m)	pH	Electrical Conductivity, µS/m	Total Hardness (as $CaCO_3$), mg/l
1	15.05.17	Purnadih (Jorapokhar)	12:20PM	8.82	6.9	784	668
2	15.05.17	Bhowra 13 No	11:45AM	3.05	7.2	552	514
3	15.05.17	Mohalbani Basti	11:15AM	9.15	6.9	440	426
4	15.05.17	Digwadih 12 No	10:55AM	8.20	6.9	372	340
5	15.05.17	Digwadih 10 No F & J	10:30AM	4.05	7.0	490	384
6	15.05.17	Kalimela Shivmandir	09:10AM	2.15	7.0	602	532
7	15.05.17	Kalimela Kalimandir	09:15AM	3.75	6.9	616	546
8	15.05.17	Lower Dungari	12:40PM	7.85	7.2	448	392
9	15.05.17	Upper Dungari	12:55PM	5.55	7.2	456	984
10	15.05.17	Pattia Basti	01:15PM	7.10	7.0	564	478
11	15.05.17	Kenduadih Basti	01:40AM	3.15	6.8	536	442
12	15.05.17	Jorapokhar Kushtand	12:10PM	4.95	6.9	684	528
13	15.05.17	Jamadoba 3 No	10:00AM	3.60	7.0	588	490
14	15.05.17	6&7 Pits (Ayodhya Nagri)	02:10PM	4.90	7.1	512	482

Sr. Manager (Environment)

Ground Water Quality Analysis (Hand Pump & Dugwell)
Monsoon Season- August 2017

S.No	Date	Location	Time	Sample Parameter			
				Depth in meter (m)	pH	Electrical Conductivity, µS/m	Total Hardness (as $CaCO_3$), mg/l
1	31.08.17	Purnadih (Jorapokhar)	10.35AM	1.43	4.2	752	734
2	31.08.17	Bhowra 13 No	10.45AM	1.52	7.2	596	562
3	31.08.17	Mohalbani Basti	11.05AM	1.87	7.0	708	688
4	31.08.17	Digwadih 12 No	11.15AM	1.83	7.1	499	458
5	31.08.17	Digwadih 10 No F & J	11.25AM	2.83	7.2	886	812
6	31.08.17	Kalimela Shivmandir	12.05PM	0.96	7.0	744	686
7	31.08.17	Kalimela Kalimandir	12.10PM	1.02	7.3	904	848
8	31.08.17	Lower Dungari	12.25PM	2.14	7.0	614	580
9	31.08.17	Upper Dungari	12.40PM	1.64	7.1	628	596
10	31.08.17	Pattia Basti	12.55PM	1.96	7.1	592	572
11	31.08.17	Kenduadih Basti	1.05PM	1.12	7.2	776	752
12	31.08.17	Jorapokhar Kushtand	10.20AM	2.28	7.0	857	794
13	31.08.17	Jamadoba 3 No	1.35PM	1.24	7.2	804	782
14	31.08.17	6&7 Pits (Ayodhya Nagri)	1.20PM	1.74	7.2	688	614

Sr. Manager (Environment)

Annexure-II

S.S.Environics (India) Pvt. Ltd.

(An ISO 9001:2008, 14001:2004 and OHSAS 18001:2007 Certified Company)

Plot No-361/2314 "Sustenance Tower"

At: Patrapada, P.O: Dumuduma, Dist: Khurda, Bhubaneswar-751 019, Odisha

Tele Fax: 0674- 2471574; E-mail: emails@ssenvironics.com

Ref No: SSE/17/R-0562

Date: 05.06.2017

AMBIENT AIR QUALITY REPORTS

Name of Industry : M/s. Tata Steel Ltd, Jharia division, Jamadoba Jharkhand.

Month of Monitoring : May 2017

Sl. No	Name of the Location	Date of Sampling	Time Weighted Average	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	As (ng/m^3)	Ni (ng/m^3)	Cd (ng/m^3)	Cr (ng/m^3)
1.	Central Workshop Area Jamadoba	29.05.17	24hrly	79.40	44.7	5.7	14.8	0.34	31.2	8.6	BDL	2.1	ND	ND
2.	Tatasteel Officer's Colony Digwadih	30.05.17	24hrly	58.20	32.5	4.4	13.1	0.19	28.6	6.4	BDL	BDL	ND	ND
3.	Near General Manager's Office	29.05.17	24hrly	71.50	39.2	5.3	13.6	0.28	33.4	7.7	BDL	BDL	ND	ND
4.	Jamadoba Colliery	30.05.17	24hrly	75.60	41.6	5.7	13.9	0.34	25.1	8.1	BDL	1.6	ND	ND
CPCB Standard			24hrly	**100**	**60**	**80**	**80**	**4(1hr)**	**400**	**180 (1hr)**	--	--	--	--
Method of Analysis & Code of Method				Gravimetric Method IS: 5182,Part-23	Gravimetric Method IS: 5182,Part-23	Improved West-Gaeke Method IS: 5182,Part-2	Modified Jacob & Hochheiser (Na. Arsenite) IS: 5182,Part-6	Non Dispersive Infrared Spectroscopy (NDIR) IS: 5182,Part-10	1.Chemiluminescence 2.Idophenol Blue Method APHA-401	1.Chemiluminescence 2.Chemical Method IS: 5182,Part-9	ICP Method After Sampling on EPM 2000 OR Equivalent Filter P...	ICP Method After Sampling on EPM 2000 OR Equivalent Filter Paper.	ICP Method After Sampling on EPM 2000 OR Equivalent Filter Paper.	ICP Method After Sampling on EPM 2000 OR Equivalent Filter Paper.

BDL Values: **PM-10**:-5$\mu g/m^3$, **PM-2.5**:- 2.0$\mu g/m^3$, **SO_2**:- 4 $\mu g/m^3$, **NOx**:- 9 $\mu g/m^3$, **CO**:- 0.1 mg/m^3, **Ozone**:- 5 $\mu g/m^3$, **Ni**:- 0.05 ng/m^3, **As**:- 0.05 ng/m^3, **NH_3**:- 20 $\mu g/m^3$ **ND**: Not Detected

S.S. ENVIRONICS (INDIA) PVT. LTD. BBSR.

Kapathy

For S.S. Environics (India) Pvt. Ltd.

A Group concerned with Environmental Pollution

Ann-II

S.S.Environics (India) Pvt. Ltd.

(An ISO 9001:2008, 14001:2004 and OHSAS 18001:2007 Certified Company)

Plot No-361/2314 "Sustenance Tower"

At: Patrapada, P.O: Dumuduma, Dist: Khurda, Bhubaneswar-751 019, Odisha

Tele Fax: 0674- 2471574; E-mail: emails@ssenvironics.com

Ref No: SSE/17/R-0564 Date: 16.06.2017

MINERALOGICAL COMPOSITION OF PARTICULATE MATTER

Name of the industry : M/s. Tata Steel Ltd, Jharia division, Jamadoba Jharkhand.

Sample Collected by : S.S. Environics (India) Pvt. Ltd, Bhubaneswar, Odisha.

Date of Analysis : 07.06.2017 to 12.06.2017

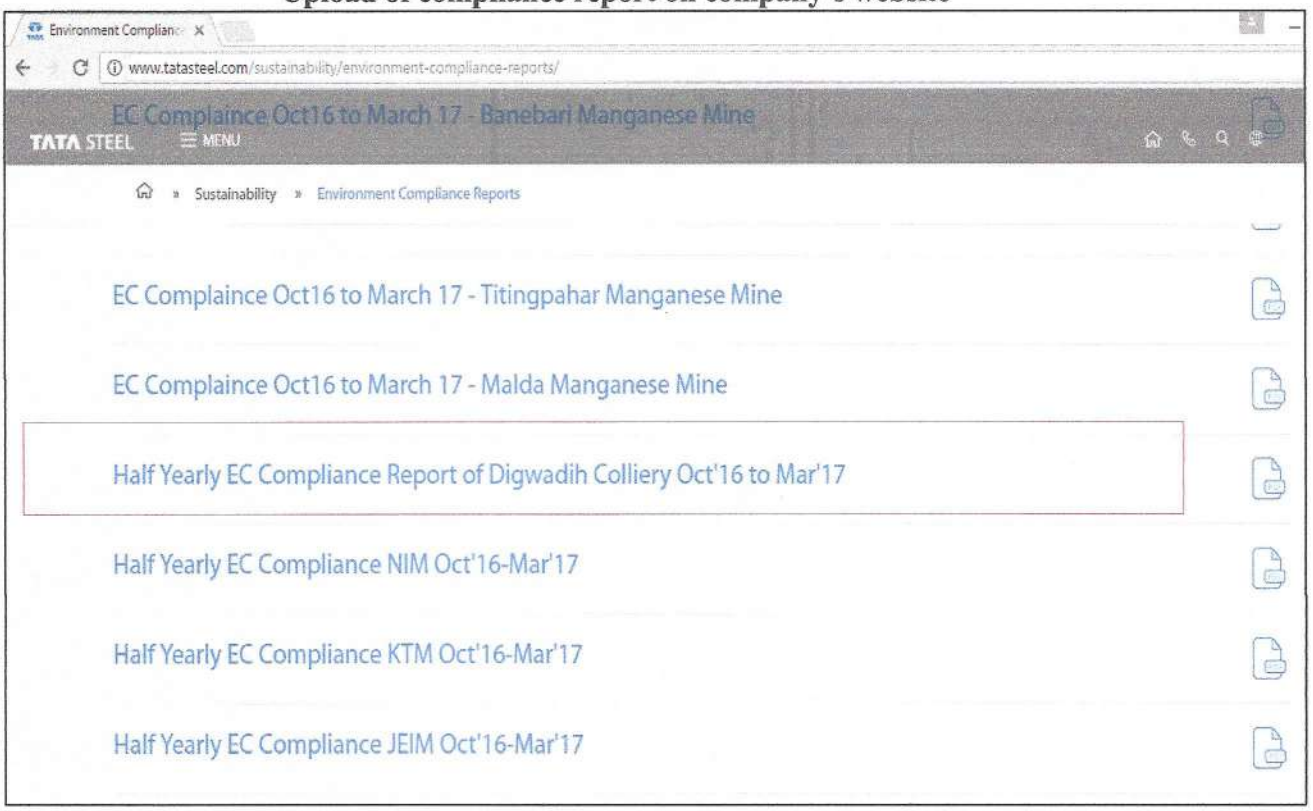
Sl. No.	Location	Date of Sampling	Mineralogical Composition (in %)			
			Silica (SiO_2)	FeO	Alumina (Al_2O_3)	CaO
1.	Central Workshop Area Jamadoba	29.05.17	1.92	0.14	1.35	3.27
2.	Tatasteel Officers Colony Digwadih	30.05.17	1.86	0.09	1.17	2.74
3.	Near General Manager Office	29.05.17	2.10	0.12	1.29	2.96
4.	Jamadoba Colliery	30.05.17	2.22	0.16	1.35	3.43

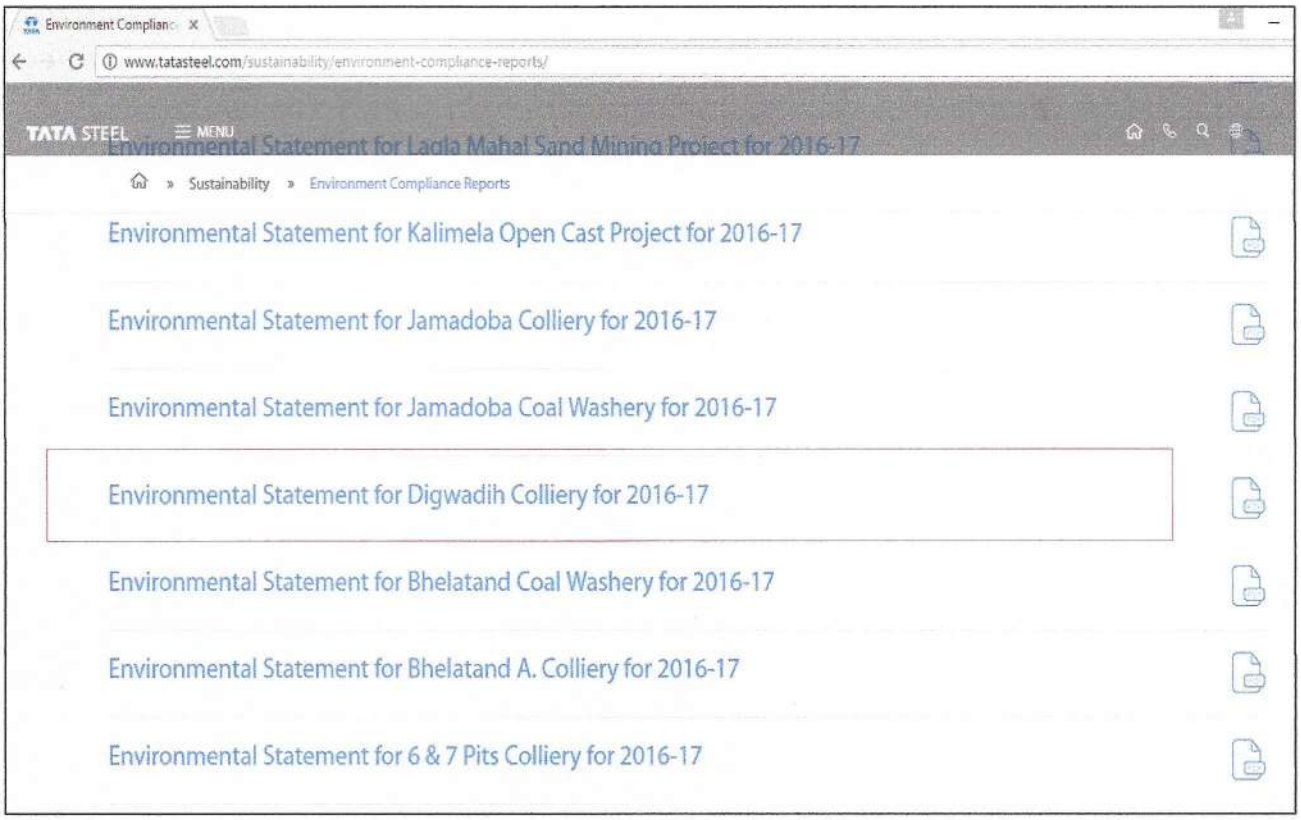
S.S. ENVIRONICS (INDIA) PVT. LTD. BBSR

For S. S. Environics (India) Pvt. Ltd.

Annexure-III

Upload of compliance report on company's website





Annexure- IV

TATA STEEL

TATA

ENVIRONMENTAL POLICY

Tata Steel's environmental responsibilities are driven by our commitment to preserve the environment and are integral to the way we do business.

1. We are committed to deal proactively with Climate Change issue by efficient use of natural resources & energy; reducing and preventing pollution; promoting waste avoidance and recycling measures; and product stewardship.
   - We shall identify, assess and manage our environment impact.
   - We shall regularly monitor, review and report publicly our environmental performance.
   - We shall develop & rehabilitate abandoned sites through afforestation and landscaping and shall protect and preserve the biodiversity in the areas of our operations.
   - We shall enhance awareness, skill and competence of our employees and contractors so as to enable them to demonstrate their involvement, responsibility and accountability for sound environmental performance.
2. We are committed to continual improvement in our environmental performance.
   - We shall set objective-targets, develop, implement and maintain management standards and systems, and go beyond compliance of the relevant industry standards, legal and other requirements.
3. We will truly succeed when we sustain our environmental achievement and are valued by the communities in which we work.

Date : November 1, 2013

T V Narendran
Managing Director