



To,
The Additional Principal Chief Conservator of Forest,
Regional Office (Eastern Central Zone)
Ministry of Environment, Forests and Climate Change, Govt. of India
Bungalow No. A-2, Shyamali Colony,
Ranchi – 834002, Jharkhand.

Ref No. - JMB/ENV/DIG/37/ 467 /2020

May 26, 2020

Ref.: Environmental Clearance letter No.-J-11015/372/2010-IA.II(M)dated-30th September 2013.

SUB: Half Yearly Compliance Status Report of Environment Clearance conditions issued by MoEFCC, New Delhi to Digwadih Colliery, Tata Steel Limited, Dhanbad for the period October'19 to March'20.

Dear Sir,

We are enclosing herewith compliance report for the period **October'19 to March'20** 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.

Copy of the compliance report is also being sent in soft format through email at ro.ranchi-mef@gov.in for your kind perusal. We trust the information furnished is in line with your requirement.

Thanking you,

Yours faithfully,

Head (Planning)
Jharia Division, Tata Steel Ltd.

Encl: As above.

Copy to: Member Secretary, CPCB, 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.

Copy to: Regional Officer, JSPCB, HIG-1 Sardar Patel Nagar, Housing Colony, Hirapur,
Dhanbad

TATA STEEL LIMITED

Jharia Collieries Jamadoba 828 112 Dhanbad India

Tel 91 326 2320262/2320263/2320265/2320267 Fax 91 326 2320268

Registered 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: OCTOBER'19 – MARCH'20)

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



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: FY20 - 0.231 MTPA FY19 - 0.261 MTPA FY18 – 0.259 MTPA FY17 – 0.262 MTPA FY16 – 0.308 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 3 rd 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 <ul style="list-style-type: none"> • 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

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

		<p>operating on Zero Liquid discharge (ZLD) principle.</p> <ul style="list-style-type: none"> • 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.
(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. To ensure the compliance, every vehicle is checked as per vehicle checklist on PUC, Tyre /body condition, emission check at every entry point. 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 us, 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 and also re-submitted in April'18.
(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	The detailed breakup has already been submitted to MOEF. The Corporate Sustainability Reports viz.

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

	reputed institute and uploaded on the company's website.	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.
(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. The latest subsidence report has been submitted to MoEFCC, Regional Office, Ranchi in hard copy and soft copy vide mail dt. 19.04.2018.
(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	Regular monitoring of subsidence is being

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

	if subsidence is found exceeding the permitted limits, then the landowners shall be adequately compensated with mutual agreement with the landowners.	done by CIMFR, Dhanbad.
(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. However plantation has been done on vacant plots and areas
(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. The details of size of garland drain mapped in surface plan has been submitted earlier in April'18.
(xviii)	The locations of monitoring stations in the Jharia Coalfields should be finalized 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.	The locations of monitoring stations for our colliery have already been finalized in consultation with JSPCB, Dhanbad. The mineralogical composition study has being carried out by an independent laboratory (recognized by MoEFCC and NABL) and the results are provided in Annexure-I .
(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	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

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

	roads, infrastructure, along ML boundary and township etc, by planting native species in consultation with the local DFO/Agriculture Department.	distributed to employees and also to villagers, schools, institutions, 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 10000 trees have been planted in the leasehold areas. High root density trees of native species are planted under annual plantation program this year. We have covered around 45 Nos of species under tree plantation jobs this year
(xxii)	Regular monitoring of groundwater level and quality shall be carried out by establishing a network of existing wells and construction of new piezometers. The monitoring for quantity shall be done four 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 MoEFCC and to the CPCB quarterly within one month of monitoring.	The monitoring of groundwater level and quality is done four times a year. The groundwater quality report & groundwater level for the Post-Monsoon (November) and winter season (January) are provided in Annexure-I.
(xxiii)	Acid Water Treatment Plant, volume of water to be treated and disposal of brine should be provided.	Not applicable.
(xxiv)	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.	There is one mine-water outlet point in the colliery which is regularly monitored by the Environmental Laboratory.
(xxv)	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.	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

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

		being met by the company already. Now piped drinking water is being provided.
(xxvi)	Besides carrying out regular periodic health checkup of their workers, 10% of the workers identified from workforce 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.	The periodic health checkup of the workers is done regularly by our Occupational Health Department, Tata Central Hospital, Jamadoba. 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. Some sample reports and as well as past records have been submitted in previous compliance report.
(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.	<p>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 FY20 is Rs.5.32 crores.</p> <p>CSR data submitted is for Jharia Division which comprises all 5 collieries and 2 washeries. Jamadoba Washery, Digwadih Colliery and 6&7 Pits Colliery are adjacent to each other and fall under same leasehold area i.e. Jamadoba group of collieries. The core zone and buffer zone of all above units overlap to each other and in many cases, the villages are same where CSR work is going on. Therefore, we have a central budget for CSR which is managed by a team of experts who are dedicatedly involved in providing benefits and improving standard of living in over 50+ villages and municipal wards. Hence, separate CSR expenditure for individual unit cannot be</p>

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

		<p>estimated. For calculation/ statutory reporting purpose, the consolidated CSR expenditure can be divided into unit-wise based on size of leasehold area of individual units.</p> <p>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.</p>
(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 has been approved by Ministry of Coal, New Delhi. Details on deposition of closure cost in escrow account along with expenditure incurred for progressive closure is regularly submitted to Office of Coal controller. Final mine closure along with details of corpus fund will be submitted to MoEFCC 5 years in advance.
(xxx)	<p>Corporate Environment Responsibility:</p> <p>a)The Company shall have a well laid down Environment Policy approved by the Board of Directors.</p> <p>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.</p> <p>c)The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions shall be furnished.</p> <p>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.</p>	<p>The Company already has an Environment Policy approved by the Managing Director and it addresses all the issues mentioned.</p> <p>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.</p> <p>Moreover, Digwadih Colliery is IMS (Integrated Management System: Quality Management System, Environment Management System and OHSAS) certified unit addressing all environment aspects, impacts and needs and expectation of interested parties with respect to environment protection.</p>

B.	GENERAL CONDITIONS	
(i)	No change in technology and scope of	It is being strictly followed. Board and Pillar

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

	working shall be made without prior approval of the MoEF.	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/NABL) once in six months. The results are enclosed as Annexure-I.
(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 Oct'19 to Mar'20 is attached as Annexure-I. Additionally, M/s Ecomen Laboratories Pvt. Ltd (an MoEFCC and NABL 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). The results are enclosed as Annexure-I.
(v)	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.	Regular noise survey is being conducted in the underground work environment. Workers are provided with ear-plugs/ muffs in high noise areas.
(vi)	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	No industrial wastewater is generated in Digwadih Colliery premises. There is a central workshop and garage in Jamadoba where Effluent Treatment Plant having oil and grease trap facility has been provided.

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

	effluents.	
(vii)	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.	Only the vehicles having valid PUC certificates are being allowed to operate for sand transportation. Some of the vehicle fitness certificates and PUC certificates have been shared in hard copies and over mail at <i>ro.ranchi-mef@gov.in</i> . 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.
(viii)	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 laboratory recognised under EP Rules, 1986.	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 intervals by M/s Ecomen Laboratories Pvt. Ltd., an MoEF recognised laboratory (vide its notification 03.01.2014). We have also installed a Continuous Ambient Air Quality Monitoring Station at Jamadoba for real time monitoring.
(ix)	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.	There is one mine-water outlet point in the colliery which is regularly monitored by the Environmental Laboratory. The analysis results has been provided as Annexure-1
(x)	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.	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. IME and PME records of last three years have been shared in hard copies and over mail at <i>ro.ranchi-mef@gov.in</i> earlier.
(xi)	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.	We have a separate Environmental Management Cell with four qualified personnel (One Head and Two Senior Managers and One Manager). The reporting of Environmental Cell is directly to General Manager of the Division.
(xii)	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.	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 2018-19 is Rs. 795.27 lakhs. The annual environmental expenditure for the financial year

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

		2019-20 shall be submitted along with Annual Environment Statement in September 2020.
(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. 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

	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.	
(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 to 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 2018-19 has been submitted to JSPCB on 23 rd September 2019 and it is also uploaded on the company website. The soft copy of Environment Statement is also sent to MOEF by email at ro.ranchi-mef@gov.in.



**Head Planning
Tata Steel Limited,
Jharia Division**

AIR QUALITY REPORT

Core zone & Buffer zone

Period- October'19 to December'19

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/m ³	RSPM 24 Hourly Limit- 300 µg/m ³	SO ₂ 24 Hourly Limit- 120 µg/m ³	NOx 24 Hourly Limit- 120 µg/m ³		
Jamadoba Group Office	23°42'15.3" N/ 86°24'11" E	21.10.19	Clear	175.6	78.2	14.6	14.2		
		04.11.19	Clear	177.2	84.7	14.9	12.8		
		23.12.19	Clear	177.6	75.8	15.2	14.8		
Buffer zone (as per NAAQS 2009 for ambient air quality standards)									
Location	Latitude/ Longitude	Date	Weather Condition	PM10 24 Hourly Limit- 100 µg/m ³	PM2.5 24 Hourly Limit- 60 µg/m ³	SO ₂ 24 Hourly Limit- 80 µg/m ³	NO ₂ 24 Hourly Limit- 80 µg/m ³		
Digwadih 12 No. Colony	23°41'42" N/ 86°24'45.3" E	14.10.19	Clear	84.6	42.3	8.2	10.9		
		18.11.19	Clear	83.7	42.3	8.2	10.9		
		17.12.19	Clear	81.3	41.8	9.6	10.2		
New Village Colony, Jamadoba	23°41'51" N/ 86°23'19" E	16.10.19	Clear	73.1	49.3	8.6	7.1		
		06.11.19	Clear	73.1	49.6	11.6	10.3		
		13.12.19	Clear	74.2	50.1	8.8	8.6		
6&7 Pits Kalimandir colony	23°43'15" N/ 86°24'12" E	23.10.19	Rainy	76.4	28.4	8.4	7.6		
		14.11.19	Clear	78.4	40.2	12.4	10.6		
		02.12.19	Clear	72.6	30.5	9.2	8.4		



Sr. Manager (Environment)

AIR QUALITY REPORT

Core zone & Buffer zone

Period- January'20 to March'20

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/m ³	RSPM 24 Hourly Limit- 300 µg/m ³	SO ₂ 24 Hourly Limit- 120 µg/m ³	NO _x 24 Hourly Limit- 120 µg/m ³		
Jamadoba Group Office	23°42'15.3" N/ 86°24'11" E	03.01.20	Clear	197.5	82.6	18.4	16.8		
		10.02.20	Clear	231.7	98.7	20.7	16.8		
		02.03.20	Clear	233.1	96.7	21.8	17.4		
Buffer zone (as per NAAQS 2009 for ambient air quality standards)									
Location	Latitude/ Longitude	Date	Weather Condition	PM10 24 Hourly Limit- 100µg/m ³	PM2.5 24 Hourly Limit- 60µg/m ³	SO ₂ 24 Hourly Limit- 80µg/m ³	NO ₂ 24 Hourly Limit- 80µg/m ³		
Digwadih 12 No. Colony	23°41'42" N/ 86°24'45.3" E	14.01.20	Clear	84.6	47.2	11.9	12.3		
		03.02.20	Clear	98.7	52.6	16.7	14.6		
		06.03.20	Clear	98.2	53.4	16.9	15.1		
New Village Colony, Jamadoba	23°41'51" N/ 86°23'19" E	13.01.20	Clear	82.9	50.7	12.4	10.8		
		13.02.20	Clear	101.3	56.7	16.2	15.7		
		19.03.20	Clear	97.3	58.4	16.5	15.3		
6&7 Pits Kalimandir colony	23°43'15" N/ 86°24'12" E	06.01.20	Clear	79.8	45.7	11.2	10.8		
		17.02.20	Clear	89.4	52.8	14.6	12.9		
		04.03.20	Clear	88.3	51.9	15.2	13.4		



Sr. Manager (Environment)

**Ground Water Quality Analysis (Hand Pump & Dugwell)
Post-Monsoon Season- November' 2019**

S.No	Date	Location	Time	Sample Parameter			
				Depth in meter (m)	pH	Electrical Conductivity, $\mu\text{S}/\text{m}$	Total Hardness (as CaCO_3), mg/l
1	22.11.19	Purnadih (Jorapokhar)	10:50AM	2.64	7.6	708	629
2	22.11.19	Bhowra 13 No	10:05AM	1.96	7.4	629	601
3	14.11.19	Mohalbani Basti	12:45PM	2.16	7.3	701	599
4	14.11.19	Digwadih 12 No	12:30PM	2.08	7.4	598	511
5	14.11.19	Digwadih 10 No F & J	12:15PM	2.41	7.3	1334	718
6	14.11.19	Kalimela Shivmandir	10:00AM	1.12	7.5	786	593
7	14.11.19	Kalimela Kalimandir	09:35AM	2.02	7.4	774	537
8	14.11.19	Lower Dungari	10:20AM	2.32	7.4	511	516
9	14.11.19	Upper Dungari	10:45AM	1.84	7.3	654	497
10	14.11.19	Pattia Basti	11:00AM	1.96	7.2	609	442
11	14.11.19	Kenduadih Basti	11:30AM	1.87	7.4	688	549
12	22.11.19	Jorapokhar Kushtand	11:05AM	2.42	7.1	743	467
13	14.11.19	Jamadoba 3 No	01:10PM	2.10	7.4	651	449
14	14.11.19	6&7 Pits (Ayodhya Nagri)	12:00PM	1.72	7.5	645	485

Sr. Manager (Environment)

Ground Water Quality Analysis (Hand Pump & Dugwell)
Winter Season- January' 2020

S.No	Date	Location	Time	Sample Parameter			
				Depth in meter (m)	pH	Electrical Conductivity, $\mu\text{S/m}$	Total Hardness (as CaCO_3), mg/l
1	29.01.20	Purnadih (Jorapokhar)	09:55AM	5.12	7.6	714	612
2	29.01.20	Bhowra 13 No	10:15AM	2.10	7.5	632	587
3	29.01.20	Mohalbani Basti	10:35AM	2.84	7.3	712	645
4	29.01.20	Digwadih 12 No	10:50AM	3.16	7.3	598	524
5	29.01.20	Digwadih 10 No F & J	11:15AM	2.85	7.4	1228	728
6	29.01.20	Kalimela Shivmandir	01:30PM	1.48	7.2	802	612
7	29.01.20	Kalimela Kalimandir	01:45PM	2.16	7.5	786	574
8	29.01.20	Lower Dungari	01:10PM	4.86	7.5	572	502
9	29.01.20	Upper Dungari	12:55PM	2.48	7.3	664	506
10	29.01.20	Pattia Basti	12:40PM	2.64	7.2	612	478
11	29.01.20	Kenduadih Basti	12:15PM	2.10	7.3	703	562
12	29.01.20	Jorapokhar Kushtand	09:20AM	3.82	7.4	668	488
13	29.01.20	Jamadoba 3 No	11:50AM	3.16	7.3	656	462
14	29.01.20	6&7 Pits (Ayodhya Nagri)	11:30AM	2.52	7.3	792	492


Sr. Manager (Environment)

ECOMEN LABORATORIES PVT. LTD.

Flat No. 8, 2nd Floor, Arif Chamber-V, Sector H, Aliganj, Lucknow - 226 024

Phone No. : (91-522) 2746282, 2745726 Telefax No.: (91 - 522) 2745726

E-mail: ravi.bhargava@gmail.com, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1Z1



An approved Laboratory from Ministry of Environment, Forest and Climate Change, Govt. of India, New Delhi (Valid Upto 02.01.19)

FORMAT NO. ECO/QS/FORMAT/10

TEST REPORT NO: ECO LAB/AAQ-1/03/20

TEST REPORT ISSUE DATE: 30.03.2020

TEST REPORT OF AMBIENT AIR*

Name of the Customer : Tata Steel Colliery (Jamadoba Group)
 Address of the Customer : Jamadoba, Distt. Dhanbad
 Jharkhand
 Date of Sampling : 02.03.2020
 Sample Collected By : Mr. Aman Dixit
 Sampling Method : IS: 5182
 Instrument Used : RDS & FDS
 Location : Central Work Shop Area, Jamadoba

Sl. No.	Tests Conducted	Method	Results	Detection Range	NAAQ Standards as per CPCB, New Delhi, Nov. 18 th , 2009
1.	PM _{2.5} (µg/m ³)	SOP NO. A -15, Issue No.1 date 26.07.2016 (Gravimetric Method)	39.04	12.5-1000	60
2.	PM ₁₀ (µg/m ³)	IS:5182 (Part-23)	78.20	12.5-1000	100
3.	SO ₂ (µg/m ³)	IS:5182 (Part-2)	16.30	9-200	80
4.	NO ₂ (µg/m ³)	IS:5182 (Part-6)	24.60	6-200	80
5.	NH ₃ (µg/m ³)	SOP NO. A -26, Issue No.1 date 26.07.2016 (Indophenol Method)	14.20	2-700	400
6.	O ₃ (µg/m ³)	IS:5182(Part-9)	18.80	2-200	180
7.	CO (mg/m ³)	IS:5182 (Part-10)	1.28	0.2-500	04
8.	Pb(µg/m ³)	IS:5182(Part-22)	BDL	1-100	1.0
9.	Cr (µg/m ³)	SOP NO. A -23, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
10.	Cd (µg/m ³)	SOP NO. A -24, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
11.	As (ng/m ³)	SOP NO. A -22, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	06
12.	Ni (ng/m ³)	SOP NO. A -21, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	20

*The results is related only to tested item. **Note:** Below Detection Limit

Analyst

Authorized Signatory
Ecomen Laboratories Pvt. Ltd
Flat No. 8, 2nd Floor, Arif Chamber-V
Sector H, Aliganj, Lucknow-226024
Ph: (91-522) 2746282, 2745726

Quality Manager

ECOMEN LABORATORIES PVT. LTD.

Flat No. 8, 2nd Floor, Arif Chamber-V, Sector H, Aliganj, Lucknow - 226 024

Phone No. : (91-522) 2746282, 2745726 Telefax No.: (91 - 522) 2745726

E-mail: ravi.bhargava@gmail.com, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1Z1

An approved Laboratory from Ministry of Environment, Forest and Climate Change, Govt. of India, New Delhi (Valid Upto 02.01.19)



FORMAT NO. ECO/QS/FORMAT/10 TEST REPORT NO: ECO LAB/AAQ-2/03/20
TEST REPORT ISSUE DATE: 30.03.2020

TEST REPORT OF AMBIENT AIR*

Name of the Customer : Tata Steel Colliery (Jamadoba Group)
Address of the Customer : Jamadoba, Distt. Dhanbad
Jharkhand
Date of Sampling : 03.03.2020
Sample Collected By : Mr. Aman Dixit
Sampling Method : IS: 5182
Instrument Used : RDS & FDS
Location : Officers Colony, 12 No. Digwadih

Sl. No.	Tests Conducted	Method	Results	Detection Range	NAAQ Standards as per CPCB, New Delhi, Nov. 18 th , 2009
1.	PM _{2.5} (µg/m ³)	SOP NO. A -15, Issue No.1 date 26.07.2016 (Gravimetric Method)	35.70	12.5-1000	60
2.	PM ₁₀ (µg/m ³)	IS:5182 (Part-23)	80.20	12.5-1000	100
3.	SO ₂ (µg/m ³)	IS:5182 (Part-2)	13.40	9-200	80
4.	NO ₂ (µg/m ³)	IS:5182 (Part-6)	22.90	6-200	80
5.	NH ₃ (µg/m ³)	SOP NO. A -26, Issue No.1 date 26.07.2016 (Indophenol Method)	14.30	2-700	400
6.	O ₃ (µg/m ³)	IS:5182(Part-9)	19.10	2-200	180
7.	CO (mg/m ³)	IS:5182 (Part-10)	0.78	0.2-500	04
8.	Pb(µg/m ³)	IS:5182(Part-22)	BDL	1-100	1.0
9.	Cr (µg/m ³)	SOP NO. A -23, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
10.	Cd (µg/m ³)	SOP NO. A -24, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
11.	As (ng/m ³)	SOP NO. A -22, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	06
12.	Ni (ng/m ³)	SOP NO. A -21, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	20

*The results is related only to tested item. **Note:** Below Detection Limit

Ashish Kumar
Analyst

Aman Dixit
Authorized Signatory
Ecomen Laboratories Pvt. Ltd
Flat No. 8, 2nd Floor, Arif Chamber-V
Sector H, Aliganj, Lucknow-226024
Ph-2746282, Fax:2745726

For R
Quality Manager

ECOMEN LABORATORIES PVT. LTD.

Flat No. 8, 2nd Floor, Arif Chamber-V, Sector H, Aliganj, Lucknow - 226 024

Phone No. : (91-522) 2746282, 2745726 Telefax No.: (91 - 522) 2745726

E-mail: ravi.bhargava@gmail.com, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1Z1

ecomen
LABORATORIES PVT LTD

An approved Laboratory from Ministry of Environment, Forest and Climate Change, Govt. of India, New Delhi (Valid Upto 02.01.19)

FORMAT NO. ECO/QS/FORMAT/10

TEST REPORT NO: ECO LAB/AAQ-3/03/20

TEST REPORT ISSUE DATE: 30.03.2020

TEST REPORT OF AMBIENT AIR*

Name of the Customer : Tata Steel Colliery (Jamadoba Group)
 Address of the Customer : Jamadoba, Distt. Dhanbad
 Jharkhand
 Date of Sampling : 06.03.2020
 Sample Collected By : Mr. Aman Dixit
 Sampling Method : IS: 5182
 Instrument Used : RDS & FDS
 Location : General Manager's Office Area

Sl. No.	Tests Conducted	Method	Results	Detection Range	NAAQ Standards as per CPCB, New Delhi, Nov. 18 th , 2009
1.	PM _{2.5} (µg/m ³)	SOP NO. A -15, Issue No.1 date 26.07.2016 (Gravimetric Method)	36.25	12.5-1000	60
2.	PM ₁₀ (µg/m ³)	IS:5182 (Part-23)	74.30	12.5-1000	100
3.	SO ₂ (µg/m ³)	IS:5182 (Part-2)	15.40	9-200	80
4.	NO ₂ (µg/m ³)	IS:5182 (Part-6)	27.20	6-200	80
5.	NH ₃ (µg/m ³)	SOP NO. A -26, Issue No.1 date 26.07.2016 (Indophenol Method)	11.90	2-700	400
6.	O ₃ (µg/m ³)	IS:5182(Part-9)	20.40	2-200	180
7.	CO (mg/m ³)	IS:5182 (Part-10)	0.89	0.2-500	04
8.	Pb(µg/m ³)	IS:5182(Part-22)	BDL	1-100	1.0
9.	Cr (µg/m ³)	SOP NO. A -23, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
10.	Cd (µg/m ³)	SOP NO. A -24, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
11.	As (ng/m ³)	SOP NO. A -22, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	06
12.	Ni (ng/m ³)	SOP NO. A -21, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	20

*The results is related only to tested item. **Note:** Below Detection Limit

(Signature)
Analyst

(Signature)
Authorized Signatory,
Ecomen Laboratories Pvt. Ltd
Flat No. 8, 2nd Floor, Arif Chamber-V
Sector H, Aliganj, Lucknow-226024
Ph: (2746282, 2745726)

(Signature)
Quality Manager

ECOMEN LABORATORIES PVT. LTD.Flat No. 8, 2nd Floor, Arif Chamber-V, Sector H, Aliganj, Lucknow - 226 024
Phone No. : (91-522) 2746282, 2745726 Telefax No.: (91 - 522) 2745726

E-mail: ravi.bhargava@gmail.com. Website: www.ecomen.in. CIN - U74210UP1989PTC010601. GSTIN : 09AAACE6076H1Z1

An approved Laboratory from Ministry of Environment, Forest and Climate Change, Govt. of India, New Delhi (Valid Upto 02.01.19)

ecoMen
LABORATORIES PVT LTD


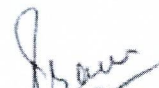
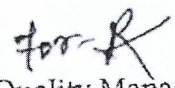
FORMAT NO. ECO/QS/FORMAT/10

TEST REPORT NO: ECO LAB/AAQ-4/03/20
TEST REPORT ISSUE DATE: 30.03.2020**TEST REPORT OF AMBIENT AIR***

Name of the Customer : Tata Steel Colliery (Jamadoba Group)
Address of the Customer : Jamadoba, Distt. Dhanbad
Jharkhand
Date of Sampling : 03.03.2020
Sample Collected By : Mr. Aman Dixit
Sampling Method : IS: 5182
Instrument Used : RDS & FDS
Location : Jamadoba Colliery

Sl. No.	Tests Conducted	Method	Results	Detection Range	NAAQ Standards as per CPCB, New Delhi, Nov. 18 th , 2009
1.	PM _{2.5} (µg/m ³)	SOP NO. A -15, Issue No.1 date 26.07.2016 (Gravimetric Method)	35.80	12.5-1000	60
2.	PM ₁₀ (µg/m ³)	IS:5182 (Part-23)	77.40	12.5-1000	100
3.	SO ₂ (µg/m ³)	IS:5182 (Part-2)	12.75	9-200	80
4.	NO ₂ (µg/m ³)	IS:5182 (Part-6)	14.35	6-200	80
5.	NH ₃ (µg/m ³)	SOP NO. A -26, Issue No.1 date 26.07.2016 (Indophenol Method)	30.60	2-700	400
6.	O ₃ (µg/m ³)	IS:5182(Part-9)	21.30	2-200	180
7.	CO (mg/m ³)	IS:5182 (Part-10)	1.02	0.2-500	04
8.	Pb (µg/m ³)	IS:5182(Part-22)	BDL	1-100	1.0
9.	Cr (µg/m ³)	SOP NO. A -23, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
10.	Cd (µg/m ³)	SOP NO. A -24, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
11.	As (ng/m ³)	SOP NO. A -22, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	06
12.	Ni (ng/m ³)	SOP NO. A -21, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	20

*The results is related only to tested item. Note: Below Detection Limit


Analyst
Authorized Signatory
Ecomen Laboratories Pvt. Ltd
Flat No. 8, 2nd Floor, Arif Chamber-V
Sector H, Aliganj, Lucknow-226024
Ph - 2746282, Fax: 2745726
Quality Manager

ECOMEN LABORATORIES PVT. LTD.Flat No. 8, 2nd Floor, Arif Chamber-V, Sector H, Aligarj, Lucknow - 226 024
Phone No. : (91-522) 2746282, 2745726 Telefax No.: (91 - 522) 2745726

E-mail: ravi.bhargava@gmail.com, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1Z1

An approved Laboratory from Ministry of Environment, Forest and Climate Change, Govt. of India, New Delhi (Valid Upto 02.01.19)

ecomen
LABORATORIES PVT LTD

FORMAT NO. ECO/QS/FORMAT/10

TEST REPORT NO: ECO LAB/AN/03/20
TEST REPORT ISSUE DATE: 30.03.2020**TEST REPORT OF AMBIENT NOISE LEVEL**

Name of the Customer : Tata Steel Colliery (Jamadoba Group)
Address of the Customer : Jamadoba, Distt. Dhanbad
Jharkhand
Sample Collected By : Mr. Aman Dixit
Instrument Used : Noise Meter (HTC)


Sl. No.	Locations	Date of Monitoring	Day Time			Night Time		
			Max.	Min.	Leq.	Max.	Min.	Leq.
1.	Central Work Shop Area Jamadoba	03.03.2020	64.3	52.8	56.3	56.8	46.5	51.5
2.	Officer's Colony, 12 No. Digwadih	03.03.2020	55.5	48.2	49.9	42.6	40.5	41.8
3.	General Manager's Office Area	03.03.2020	49.8	45.5	48.6	43.5	37.7	39.6
4.	Jamadoba Colliery	03.03.2020	66.5	50.8	64.7	62.8	45.8	50.7

Noise (Ambient Standard)

Area Code	Category of area	Limit in dB (A) Leq	
		Day Time	Night Time
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

Note:

1. Day time is reckoned in between 6:00 AM and 10:00 PM.
2. Night time is reckoned in between 10:00 PM and 6:00 AM
3. Silence zone is defined as area up to 100m around such premises as hospitals, Educational institutions & courts. The silence zones are to be declared by a competent authority.
4. Mixed categories of areas should be declared as one of the four above-mentioned Categories by the competent authority and the corresponding standard shall apply.

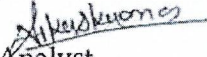
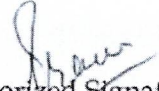
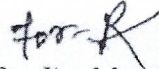

Analyst
Authorized Signatory
Ecomen Laboratories Pvt. Ltd
Flat No. 8, 2nd Floor, Arif Chamber-V
Sector H, Aligarj, Lucknow-226024
Phone No. : (91-522) 2745726
Quality Manager

ECOMEN LABORATORIES PVT. LTD.Flat No. 8, 2nd Floor, Arif Chamber-V, Sector H, Aliganj, Lucknow - 226 024
Phone No. : (91-522) 2745282, 2745726 Telefax No.: (91 - 522) 2745726

E-mail: ravi.bhargava@gmail.com, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1Z1

ecomen
LABORATORIES PVT LTD**An approved Laboratory from Ministry of Environment, Forest and Climate Change, Govt. of India, New Delhi (Valid Upto 02.01.19)**FORMAT NO. ECO/QS/FORMAT/10 TEST REPORT NO: ECO LAB/MCPM/03/20
TEST REPORT ISSUE DATE: 30.03.2020**MINERALOGICAL COMPOSITION OF PARTICULATE MATTER**Name of the Customer : M/s Tata Steel Ltd. (Jamadoba Group)
Address of the Customer : Jamadoba,
Distt. Dhanbad - 828 112
Month : March, 2020

S.NO.	Locations	Date of Sampling	Mineralogical Composition (in %)			
			Silica (SiO ₂)	Ferrous oxide (FeO)	Alumina (Al ₂ O ₃)	Calcium Oxide CaO
1	General Manager's Office Area	02.03.2020	1.62	0.08	1.35	2.95
2	Jamadoba Colliery	02.03.2020	2.80	0.16	1.35	2.92


Analyst
Authorized Signatory
Ecomen Laboratories Pvt. Ltd
Flat No. 8, 2nd Floor, Arif Chamber-V
Sector-H, Aliganj, Lucknow-226024
Ph: (91-522) 2745282, 2745726
Quality Manager

ECOMEN LABORATORIES PVT. LTD.ecoMen
LABORATORIES PVT. LTD.

Flat No. 8, 2nd Floor, Arif Chamber-V, Sector H, Aliganj, Lucknow - 226 024

Phone No. : (91-522) 2746282, 2745726 Telefax No.: (91 - 522) 2745726

E-mail: ravi.bhargava@gmail.com, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1Z1

FORMAT NO. ECO/QS/FORMAT/10

TEST REPORT NO: ECO LAB/AAQ-1/11/19
TEST REPORT ISSUE DATE: 30.11.2019**TEST REPORT OF AMBIENT AIR***

Name of the Customer : Tata Steel Colliery (Jamadoba Group)
Address of the Customer : Jamadoba, Distt. Dhanbad
Jharkhand
Date of Sampling : 11.11.2019
Sample Collected By : Mr. Aman Dixit
Sampling Method : IS: 5182
Instrument Used : RDS & FDS
Location : Central Work Shop Arca, Jamadoba

Sl. No.	Tests Conducted	Method	Results	Detection Range	NAAQ Standards as per CPCB, New Delhi, Nov. 18 th , 2009
1.	PM _{2.5} (µg/m ³)	SOP NO. A -15, Issue No.1 date 26.07.2016 (Gravimetric Method)	35.20	12.5-1000	60
2.	PM ₁₀ (µg/m ³)	IS:5182 (Part-23)	73.20	12.5-1000	100
3.	SO ₂ (µg/m ³)	IS:5182 (Part-2)	11.30	9-200	80
4.	NO ₂ (µg/m ³)	IS:5182 (Part-6)	14.60	6-200	80
5.	NH ₃ (µg/m ³)	SOP NO. A -26, Issue No.1 date 26.07.2016 (Indophenol Method)	14.20	2-700	400
6.	O ₃ (µg/m ³)	IS:5182(Part-9)	11.30	2-200	180
7.	CO (mg/m ³)	IS:5182 (Part-10)	1.40	0.2-500	04
8.	Pb(µg/m ³)	IS:5182(Part-22)	BDL	1-100	1.0
9.	Cr (µg/m ³)	SOP NO. A -23, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
10.	Cd (µg/m ³)	SOP NO. A -24, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
11.	As (ng/m ³)	SOP NO. A -22, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	06
12.	Ni (ng/m ³)	SOP NO. A -21, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	20

*The results is related only to tested item.

Note: Below Detection Limit

Aman Dixit
Analyst

Ravi Bhargava
Authorized Signatory

Ravi Bhargava
Quality Manager

Ecomen Laboratories Pvt. Ltd.
Flat No. 8, 2nd Floor, Arif Chamber-V, Sector H, Aliganj, Lucknow - 226 024
Phone No. : (91-522) 2746282, 2745726

ECOMEN LABORATORIES PVT. LTD.Flat No. 8, 2nd Floor, Arif Chamber-V, Sector H, Aliganj, Lucknow - 226 024
Phone No. : (91-522) 2746282, 2745726 Telefax No.: (91 - 522) 2745726**ecoMen**
LABORATORIES PVT. LTD.

E-mail: ravi.bhargava@gmail.com, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1Z1

FORMAT NO. ECO/QS/FORMAT/10 TEST REPORT NO: ECO LAB/AAQ-2/11/19
TEST REPORT ISSUE DATE: 30.11.2019**TEST REPORT OF AMBIENT AIR***Name of the Customer : Tata Steel Colliery (Jamadoba Group)
Address of the Customer : Jamadoba, Dist. Dhanbad
Jharkhand
Date of Sampling : 06.11.2019
Sample Collected By : Mr. Aman Dixit
Sampling Method : IS: 5182
Instrument Used : RDS & FDS
Location : Officers Colony, 12 No. Digwadih

Sl. No.	Tests Conducted	Method	Results	Detection Range	NAAQ Standards as per CPCB, New Delhi, Nov. 18 th , 2009
1.	PM _{2.5} (µg/m ³)	SOP NO. A -15, Issue No.1 date 26.07.2016 (Gravimetric Method)	31.70	12.5-1000	60
2.	PM ₁₀ (µg/m ³)	IS:5182 (Part-23)	64.20	12.5-1000	100
3.	SO ₂ (µg/m ³)	IS:5182 (Part-2)	11.60	9-200	80
4.	NO ₂ (µg/m ³)	IS:5182 (Part-6)	14.90	6-200	80
5.	NH ₃ (µg/m ³)	SOP NO. A -26, Issue No.1 date 26.07.2016 (Indophenol Method)	14.30	2-700	400
6.	O ₃ (µg/m ³)	IS:5182(Part-9)	15.60	2-200	180
7.	CO (mg/m ³)	IS:5182 (Part-10)	0.78	0.2-500	04
8.	Pb(µg/m ³)	IS:5182(Part-22)	BDL	1-100	1.0
9.	Cr (µg/m ³)	SOP NO. A -23, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
10.	Cd (µg/m ³)	SOP NO. A -24, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
11.	As (ng/m ³)	SOP NO. A -22, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	06
12.	Ni (ng/m ³)	SOP NO. A -21, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	20

*The results is related only to tested item.

Note: Below Detection Limit

Analyst

Authorized Signatory

Quality Manager

Ecomen Laboratories Pvt. Ltd.
Flat No. 8, 2nd Floor, Arif Chamber-V
Sector H, Aliganj, Lucknow-226024
Ph.-2746282, Fax.2745726

ECOMEN LABORATORIES PVT. LTD.

ecomen
LABORATORIES PVT. LTD.

Flat No. 8, 2nd Floor, Arif Chamber-V, Sector H, Aliganj, Lucknow - 226 024

Phone No. : (91-522) 2746282, 2745726 Telefax No.: (91 - 522) 2745726

E-mail: ravi.bhargava@gmail.com, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

FORMAT NO. ECO/QS/FORMAT/10

TEST REPORT NO: ECO LAB/AAQ-3/11/19

TEST REPORT ISSUE DATE: 30.11.2019

TEST REPORT OF AMBIENT AIR*

Name of the Customer : Tata Steel Colliery (Jamadoba Group)
 Address of the Customer : Jamadoba, Distt. Dhanbad
 Jharkhand
 Date of Sampling : 07.11.2019
 Sample Collected By : Mr. Aman Dixit
 Sampling Method : IS: 5182
 Instrument Used : RDS & FDS
 Location : General Manager's Office Area

Sl. No.	Tests Conducted	Method	Results	Detection Range	NAAQ Standards as per CPCB, New Delhi, Nov. 18 th , 2009
1.	PM _{2.5} (µg/m ³)	SOP NO. A -15, Issue No.1 date 26.07.2016 (Gravimetric Method)	35.25	12.5-1000	60
2.	PM ₁₀ (µg/m ³)	IS:5182 (Part-23)	72.30	12.5-1000	100
3.	SO ₂ (µg/m ³)	IS:5182 (Part-2)	10.50	9-200	80
4.	NO ₂ (µg/m ³)	IS:5182 (Part-6)	13.20	6-200	80
5.	NH ₃ (µg/m ³)	SOP NO. A -26, Issue No.1 date 26.07.2016 (Indophenol Method)	11.90	2-700	400
6.	O ₃ (µg/m ³)	IS:5182(Part-9)	20.40	2-200	180
7.	CO (mg/m ³)	IS:5182 (Part-10)	0.89	0.2-500	04
8.	Pb (µg/m ³)	IS:5182(Part-22)	BDL	1-100	1.0
9.	Cr (µg/m ³)	SOP NO. A -23, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
10.	Cd (µg/m ³)	SOP NO. A -24, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
11.	As (ng/m ³)	SOP NO. A -22, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	06
12.	Ni (ng/m ³)	SOP NO. A -21, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	20

*The results is related only to tested item.

Note: Below Detection Limit

Aman Dixit
Analyst

Reena
Authorized Signatory

Reena
Quality Manager

ECOMEN LABORATORIES PVT. LTD.
 Flat No. 8, 2nd Floor, Arif Chamber-V,
 Sector H, Aliganj, Lucknow - 226 024
 Phone: (91-522) 2746282, Fax: 2745726

ECOMEN LABORATORIES PVT. LTD.

ecoMen
LABORATORIES PVT. LTD.

Flat No. 8, 2nd Floor, Arif Chamber-V, Sector H, Aliganj, Lucknow - 226 024
Phone No. : (91-522) 2746282, 2745726 Telefax No.: (91 - 522) 2745726

E-mail: ravi.bhargava@gmail.com, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1Z1

FORMAT NO. ECO/QS/FORMAT/10

TEST REPORT NO: ECO LAB/AAQ-2/11/19
TEST REPORT ISSUE DATE: 30.11.2019


TEST REPORT OF AMBIENT AIR*

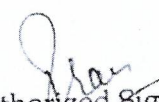
Name of the Customer : Tata Steel Colliery (Jamadoba Group)
Address of the Customer : Jamadoba, Distt. Dhanbad
Jharkhand
Date of Sampling : 06.11.2019
Sample Collected By : Mr. Aman Dixit
Sampling Method : IS: 5182
Instrument Used : RDS & FDS
Location : Officers Colony, 12 No. Digwadih

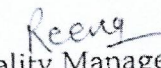
Sl. No.	Tests Conducted	Method	Results	Detection Range	NAAQ Standards as per CPCB, New Delhi, Nov. 18 th , 2009
1.	PM _{2.5} (µg/m ³)	SOP NO. A -15, Issue No.1 date 26.07.2016 (Gravimetric Method)	31.70	12.5-1000	60
2.	PM ₁₀ (µg/m ³)	IS:5182 (Part-23)	64.20	12.5-1000	100
3.	SO ₂ (µg/m ³)	IS:5182 (Part-2)	11.60	9-200	80
4.	NO ₂ (µg/m ³)	IS:5182 (Part-6)	14.90	6-200	80
5.	NH ₃ (µg/m ³)	SOP NO. A -26, Issue No.1 date 26.07.2016 (Indophenol Method)	14.30	2-700	400
6.	O ₃ (µg/m ³)	IS:5182(Part-9)	15.60	2-200	180
7.	CO (mg/m ³)	IS:5182 (Part-10)	0.78	0.2-500	04
8.	Pb (µg/m ³)	IS:5182(Part-22)	BDL	1-100	1.0
9.	Cr (µg/m ³)	SOP NO. A -23, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
10.	Cd (µg/m ³)	SOP NO. A -24, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
11.	As (ng/m ³)	SOP NO. A -22, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	06
12.	Ni (ng/m ³)	SOP NO. A -21, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	20

*The results is related only to tested item.

Note: Below Detection Limit


Analyst


Authorized Signatory


Quality Manager

Ecomen Laboratories Pvt. Ltd.
Flat No. 8, 2nd Floor, Arif Chamber-V
Sector H, Aliganj, Lucknow-226024
Ph-2746282, Fax-2745726

ECOMEN LABORATORIES PVT. LTD.

Flat No. 8, 2nd Floor, Arif Chamber-V, Sector H, Aliganj, Lucknow - 226 024

Phone No. : (91-522) 2746282, 2745726 Telefax No.: (91 - 522) 2745726

E-mail: ravi.bhargava@gmail.com, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1Z1

ecoMen
LABORATORIES PVT. LTD.

FORMAT NO. ECO/QS/FORMAT/10

TEST REPORT NO: ECO LAB/AAQ-4/11/19

TEST REPORT ISSUE DATE: 30.11.2019

TEST REPORT OF AMBIENT AIR*

Name of the Customer : Tata Steel Colliery (Jamadoba Group)
Address of the Customer : Jamadoba, Distt. Dhanbad
Jharkhand
Date of Sampling : 08.11.2019
Sample Collected By : Mr. Aman Dixit
Sampling Method : IS: 5182
Instrument Used : RDS & FDS
Location : Jamadoba Colliery

Sl. No.	Tests Conducted	Method	Results	Detection Range	NAAQ Standards as per CPCB, New Delhi, Nov. 18 th , 2009
1.	PM _{2.5} (µg/m ³)	SOP NO. A -15, Issue No.1 date 26.07.2016 (Gravimetric Method)	32.80	12.5-1000	60
2.	PM ₁₀ (µg/m ³)	IS:5182 (Part-23)	70.30	12.5-1000	100
3.	SO ₂ (µg/m ³)	IS:5182 (Part-2)	12.75	9-200	80
4.	NO ₂ (µg/m ³)	IS:5182 (Part-6)	14.35	6-200	80
5.	NH ₃ (µg/m ³)	SOP NO. A -26, Issue No.1 date 26.07.2016 (Indophenol Method)	16.60	2-700	400
6.	O ₃ (µg/m ³)	IS:5182(Part-9)	21.30	2-200	180
7.	CO (mg/m ³)	IS:5182 (Part-10)	1.02	0.2-500	04
8.	Pb(µg/m ³)	IS:5182(Part-22)	BDL	1-100	1.0
9.	Cr (µg/m ³)	SOP NO. A -23, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
10.	Cd (µg/m ³)	SOP NO. A -24, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
11.	As (ng/m ³)	SOP NO. A -22, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	06
12.	Ni (ng/m ³)	SOP NO. A -21, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	20

*The results is related only to tested item.

Note: Below Detection Limit

Analyst

Authorized Signatory

Quality Manager

Ecomen Laboratories Pvt. Ltd.
Flat No. 8, 2nd Floor, Arif Chamber-V
Sector-H, Aliganj, Lucknow-226024
Ph:-2746282, Fax:2745726

ECOMEN LABORATORIES PVT. LTD.

Flat No. 8, 2nd Floor, Arif Chamber-V, Sector H, Aliganj, Lucknow - 226 024

Phone No. : (91-522) 2746282, 2745726 Telefax No.: (91 - 522) 2745726

ecoMen
LABORATORIES PVT. LTD.

E-mail: ravi.bhargava@gmail.com, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

FORMAT NO. ECO/QS/FORMAT/10

TEST REPORT NO: ECO LAB/AN/11/19

TEST REPORT ISSUE DATE: 30.11.2019

TEST REPORT OF AMBIENT NOISE LEVEL

Name of the Customer : Tata Steel Colliery (Jamadoba Group)
 Address of the Customer : Jamadoba, Distt. Dhanbad
 Jharkhand
 Sample Collected By : Mr. Aman Dixit
 Instrument Used : Noise Meter (HTC)

Sl. No.	Locations	Date of Monitoring	Day Time			Night Time		
			Max.	Min.	Leq.	Max.	Min.	Leq.
1.	Central Work Shop Area Jamadoba	11.11.2019	64.3	52.8	56.3	56.8	46.5	51.5
2.	Officer's Colony, 12 No. Digwadih	11.11.2019	55.5	48.2	49.9	42.6	40.5	41.8
3.	General Manager's Office Area	11.11.2019	49.8	45.5	48.6	43.5	37.7	39.6
4.	Jamadoba Colliery	11.11.2019	66.5	50.8	64.7	62.8	45.8	50.7

Noise (Ambient Standard)

Area Code	Category of area	Limit in dB (A) Leq	
		Day Time	Night Time
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

Note:

1. Day time is reckoned in between 6:00 AM and 10:00 PM.
2. Night time is reckoned in between 10:00 PM and 6:00 AM
3. Silence zone is defined as area up to 100m around such premises as hospitals, Educational institutions & courts. The silence zones are to be declared by a competent authority.
4. Mixed categories of areas should be declared as one of the four above-mentioned Categories by the competent authority and the corresponding standard shall apply.

Analyst

Authorized Signatory

Quality Manager

ECOMEN LABORATORIES PVT. LTD.
 Flat No. 8, 2nd Floor, Arif Chamber-V
 Sector H, Aliganj, Lucknow - 226024
 Phone No. : (91-522) 2746282, 2745726
 Website: www.ecomen.in

ECOMEN LABORATORIES PVT. LTD.

Flat No. 8, 2nd Floor, Arif Chamber-V, Sector H, Aliganj, Lucknow - 226 024

Phone No. : (91-522) 2746282, 2745726 Telefax No.: (91 - 522) 2745726

E-mail: ravi.bhargava@gmail.com, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI


ecoMen
LABORATORIES PVT. LTD.

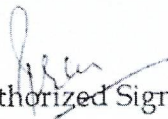
FORMAT NO. ECO/QS/FORMAT/10 TEST REPORT NO: ECO LAB/MCPM/11/19
TEST REPORT ISSUE DATE: 30.11.2019

MINERALOGICAL COMPOSITION OF PARTICULATE MATTER

Name of the Customer : M/s Tata Steel Ltd. (Jamadoba Group)
Address of the Customer : Jamadoba,
Distt. Dhanbad - 828 112
Month : November, 2019

S.NO.	Locations	Date of Sampling	Mineralogical Composition (in %)			
			Silica (SiO ₂)	Ferrous oxide (FeO)	Alumina (Al ₂ O ₃)	Calcium Oxide CaO
1	Officers Colony, 12 No. Digwadit	06.11.2019	1.62	0.08	1.35	2.95
2	Central Work Shop Area, Jamadoba	11.11.2019	2.80	0.16	1.35	2.92


Analyst


Authorized Signatory


Quality Manager