



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/LMSL/60/ 463 /2020.

May 26, 2020

Ref.: Environmental Clearance letter No.-J-11015/426/2008-IA.II(M),Dated-27<sup>th</sup> February,2013.

**SUB: Half Yearly Compliance Status Report of Environment Clearance conditions issued by MoEFCC, New Delhi to Lagla Mahal Sand Lease, 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-11015/426/2008-IA.II (M), Dated-27<sup>th</sup> February,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](mailto: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, 5<sup>th</sup> 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**

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**HALF YEARLY COMPLIANCE REPORT**  
**(PERIOD: OCTOBER'19 – MARCH'20)**

**LAGLA MAHAL SAND LEASE**  
**(CAPACITY: 0.1 MTPA RIVER BED SAND)**  
**VILLAGE: LAGLA & MAHAL, DIST: BOKARO, JHARKHAND**



**TATA STEEL LIMITED, JHARIA DIVISION**  
**P.O.- JAMADOBA, DIST. - DHANBAD,**  
**STATE- JHARKHAND, PIN CODE – 828112**

**ENVIRONMENTAL CLEARANCE GRANTED VIDE LETTER NO. - J-11015/426/2008-  
IA.II(M) DATED- 27.02.2013 ISSUED BY GOVT. OF INDIA, MINISTRY OF  
ENVIRONMENT, FOREST AND CLIMATE CHANGE, NEW DELHI.**

**Compliance status of Environmental Clearance of Lagla and Mahal Sand Lease Mining project of M/s Tata Steel Ltd., Village Lagla and Mahal, dist. Bokaro, Jharkhand vide MoEFCC Letter no J-11015/426/2008-IA.II (M) dated February 27, 2013**

S. No.	Condition	Compliance Status
<b>Specific Condition</b>		
(i)	The project proponent shall obtain Consent to Establish and Consent to Operate from the Jharkhand State Pollution Control Board, and effectively implement all the conditions stipulated therein.	The Consent to Establish has been granted by JSPCB vide letter no. PC/NOC/DHN/17/2010-D-497(N) dated 31.03.2015 and the Consent to Operate (CTO) vide letter no. 1376 dated 07.04.2015 valid till 31.03.2016. The CTO has further been renewed on 23.02.2016 for a period of 5 years (till 31.03.2021). All the conditions as stipulated in the consent are being complied with.
(ii)	The project proponent shall comply with section 3 of the Mines Act.	It is being complied.
(iii)	Sand collection shall be done at the middle/ main stream and not at the bank of the river to avoid any change of the river course due to the project.	Sand excavation is done by leaving 1/5th of the width of the river intact for maintaining the embankment. It will be ensured that no change in the river course takes place.
(iv)	Particulate level (PM2.5) shall be monitored regularly and the result placed in the public domain.	Monitoring of PM2.5 has been carried out in this period. The report is given as Annexure-I.
(v)	The project proponent shall identify the degraded area within the mine lease and undertake plantation/afforestation in the area identified by planting the native species.	The mine lease area is a riverbed. Hence, we approach the villagers and assist them in planting the native species as well as fruit plants in the villages. Some of the native species are Pipal, Ber, Jamun, Alostromia, Palash, Karanj, Kadamb etc.
(vi)	Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out of haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	It is being complied. Water spraying is done on the transportation roads on regular basis. The ambient air quality is regularly monitored and analyses by own as well as NABL and MoEF recognized lab and conform the prescribed standards. Reports are enclosed as Annexure-I.
(vii)	The project proponent shall undertake adequate safeguard measures during extraction of river bed material and ensure that due to this activity the	The extraction of sand is done with utmost care of the environment. There is no extraction of water as well as no change in river course involved hence there will be no impact on the

**Compliance status of Environmental Clearance of Lagla and Mahal Sand Lease Mining project of M/s Tata Steel Ltd., Village Lagla and Mahal, dist. Bokaro, Jharkhand vide MoEFCC Letter no J-11015/426/2008-IA.II (M) dated February 27, 2013**

	hydrogeological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area by establishing a network of existing well and installing new piezometers during the mining operation. The periodic monitoring [(at least four times in a year- pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January); once in each season)] shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office Bhubaneswar, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity, necessary corrective measures shall be carried out.	hydrogeological regime. The monitoring report of the ground water level and quality is given as Annexure-I.
(viii)	The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite of water (surface water and groundwater), if any, required for the project.	No water is required for the operation of project. Drinking water required by the workers is arranged by the company.
(ix)	Appropriate mitigative measures shall be taken to prevent pollution of the river in consultation with the State Pollution Control Board. It shall be ensured that there is no leakage of oil and grease in the river from the vehicles used for transportation.	Adequate monitoring of the health of the vehicles used for transportation of sand is ensured to avoid any oil & grease leakage. Higher capacity trucks have been deployed. Without valid fitness certificates and PUC, the vehicles are not allowed to ply and it is regularly checked.
(x)	Vehicular emissions shall be kept under control and regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.	The vehicles used are regularly checked and maintained. Only vehicles having PUC certificates can ply. Transportation of sand is always done via tarpaulin-covered trucks which are optimally loaded. This is monitored whenever vehicles enter premises at weighbridge

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(xi)	No drilling and blasting operation shall be carried out.	Not applicable as it is a sand mining project.
(xii)	Mineral handling area shall be provided with the adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.	Sand, being coarse in nature and having high moisture content, does not get air borne during gathering & transportation. Sand stored in the sand yards is transferred to underground voids through surface bunkers in a slurry form. However, dust control measures while transporting of sand is in place through water tanker, coverage of trucks and optimal loading.
(xiii)	Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.	As per our policy, PME's (Periodical Medical Examination) are conducted at regular intervals.
(xiv)	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	The workers are from the neighbouring villages and hence new housing facilities are not required.
(xv)	The critical parameters such as RSPM (Particulate matter with size less than 10 micron i.e., PM10) and NOx in the ambient air within the impact zone shall be monitored periodically. Further, quality of discharge water shall also be monitored [(TDS, DO, PH, Fecal Coliform and Total Suspended Solids (TSS)]. The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the company in public domain. The Circular No. J-20012/1/2006-IA.II(M) dated 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry <a href="http://www.envfor.nic.in">www.envfor.nic.in</a> shall also be referred in this regard for its compliance.	The monitoring of the air parameters has been done in this period. There is no use of water for mining operation hence there is no discharge. Details of air quality monitoring are given in Annexure-I. The monitoring reports are regularly uploaded on company's website along with half-yearly EC compliance reports.

**Compliance status of Environmental Clearance of Lagla and Mahal Sand Lease Mining project of M/s Tata Steel Ltd., Village Lagla and Mahal, dist. Bokaro, Jharkhand vide MoEFCC Letter no J-11015/426/2008-IA.II (M) dated February 27, 2013**

(xvi)	The Company shall submit within 3 months their policy towards Corporate Environment Responsibility which should inter-alia provide for (i) Standard operating process / process to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions, (ii) Hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the EC conditions and (iii) System of reporting of non-compliances / violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders.	The Company already has an Environment Policy approved by the Managing Director and it addresses all the issues mentioned.  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. The environment management cell directly reports to General Manager and it is reviewed on weekly basis. We have an online system (Legatrix) to monitor the statutory requirements and compliance in time. This is reviewed by Board of Directors at company's level.
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<b>B.</b>	<b>GENERAL CONDITIONS</b>	
(i)	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment and forests.	It will be complied with.
(ii)	No change in the calendar plan including excavation, quantum of sand from river bed and waste should be made.	It will be complied with.
(iii)	Conservation measures for protection of flora and fauna in the core & buffer zone should be drawn up in consultation with the local forest and wildlife department and effectively implemented.	No rare species are found in the area.
(iv)	At least four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10micron i.e., PM10) and NOx monitoring. Location of stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the	The monitoring stations have been established and monitoring jobs are being performed regularly. The ambient air quality analysis reports are attached as Annexure-I.

**Compliance status of Environmental Clearance of Lagla and Mahal Sand Lease Mining project of M/s Tata Steel Ltd., Village Lagla and Mahal, dist. Bokaro, Jharkhand vide MoEFCC Letter no J-11015/426/2008-IA.II (M) dated February 27, 2013**

	State Pollution Control Board.	
(v)	Data on ambient air quality [(RSPM(Particulate matter with size less than 10micron i.e., PM10) and NOx] should be regularly submitted to the Ministry including its regional office at Bhubaneswar and to the State Pollution Control Board/ Central Pollution Control Board once in six months.	It is being submitted as Annexure-I in this compliance report.
(vi)	Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.	Sand, being coarse in nature and having high moisture content, does not get air borne during gathering & transportation. However, dust control measures while transporting of sand is in place through water tanker, coverage of trucks and optimal loading.
(vii)	Measures should be taken for control of noise levels below 85 dBA in work Environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.	Proper PPE's are provided to all the workers.
(viii)	Industrial waste water (Workshop and Waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422(E) dated 19th May 1993 and 31st December 1993 or as amended from time to time. Oil and Grease trap should be installed before discharge of Workshop effluents.	No waste water generation will take place.
(ix)	Personnel working in dusty area should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspect. Occupational Health Surveillance programme of the worker should be undertaken periodically to observe any contraction due to exposure to dust and take corrective measures, if needed.	It is being complied during operating hours.
(x)	A separate Environmental Management cell with suitable qualified personnel should be set-up under the control of a senior executive, who will report directly to the Head of the Organization.	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.
(xi)	The funds earmarked for environmental protection measures should be kept in separate A/C and should not be diverted for other	The Environmental cell has a separate fund for environmental protection measures and for complying with legal requirements. The

**Compliance status of Environmental Clearance of Lagla and Mahal Sand Lease Mining project of M/s Tata Steel Ltd., Village Lagla and Mahal, dist. Bokaro, Jharkhand vide MoEFCC Letter no J-11015/426/2008-IA.II (M) dated February 27, 2013**

	purposes. Year wise expenditure should be reported to this ministry and its regional office located at Bhubaneswar.	annual expenditure for the financial year 2018-19 included Rs.8.2 lakhs for water spraying activities on transport road and Rs. 0.6 lakhs for green belt development in and around leasehold area. The annual expenditure for FY 2019-20 shall be submitted along with Annual Environmental Statement in Sep'2020
(xii)	The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	The CTE and CTO of the project have been granted by JSPCB. The permission for lifting of sand from the river bed has also been granted by District Mining Officer, Bokaro.
(xiii)	The regional office of this ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities should extend full co-operation to the officer (s) of the regional office by furnishing the requisite Data/ information/ monitoring reports.	It will be complied with.
(xiv)	The project proponent shall submit six monthly reports on the status of compliance of the stipulated environment clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the MoEF, its Regional Office Bhubaneswar, the respective zonal office of CPCB and the SPCB. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MoEF, Bhubaneswar, the respective Zonal Officer of CPCB and the SPCB.	It is being complied with. We are submitting the six-monthly compliance reports to MoEF, its regional office, CPCB and SPCB twice a year. In adherence with the guideline as per notification dt. 26.11.2018, from now onwards, we are sending only soft copy of the compliance status report over mail.
(xv)	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad/ Municipal Corporation, Urban local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.	It has been complied with.



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(xvi)	The State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Centre and the Collector's Office / Tehsildar's Office for 30 days.	The copy of clearance letter has been sent to JSPCB office and its compliance report is also submitted to JSPCB.
(xvii)	The environmental statement for each financial year ending 31st March in Form-V as 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 put on the website of the company along with the status of compliance of environmental clearance conditions and also be sent to the respective Regional Office of the Ministry on Environment and Forests, Bhubaneswar by e-mail.	The environmental statement for financial year 2018-19 has been submitted to JSPCB on 23rd 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.
(xviii)	The project authorities should advertise at least in two local newspapers of the District or State in which the project is located and widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue 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 also at website of the Ministry of Environment and Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a> and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar.	It has been complied with.



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



## Ambient Air Quality Report

### Annexure-I


Period- January'20 to March'20

Name of Industry : Lagla Mahal Sand Mining Project

No. of sampling points : 4

Sampling Location	Date of Sampling/ Weather Condition		
	January'20	February'20	March'20
Mahal School Near Izri River	07.01.2020/ Clear	11.02.2020/ Clear	18.03.2020/ Clear
Lagla Gram Panchayat	07.01.2020/ Clear	11.02.2020/ Clear	18.03.2020/ Clear
Bagula School	08.01.2020/ Clear	12.02.2020/ Clear	19.03.2020/ Clear
Shahar Juri School	08.01.2020/ Clear	12.02.2020/ Clear	19.03.2020/ Clear

Location	Latitude/ Longitude	Date	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>x</sub>
			PM <sub>10</sub> Level : 24 Hourly Limit-100µg/m <sup>3</sup>	PM <sub>2.5</sub> Level : 24 Hourly Limit-60µg/m <sup>3</sup>	SO <sub>x</sub> Level: 24 Hourly Limit- 80µg/m <sup>3</sup>	NO <sub>x</sub> Level: 24 Hourly Limit- 80µg/m <sup>3</sup>
Mahal School Near Izri River	23°38'06.1"N / 86°23'41.2" E	07.01.2020	61.5	30.2	11.9	11.5
		11.02.2020	62.6	29.8	12.1	11.2
		18.03.2020	63.2	31.3	12.5	12.4
Lagla Gram Panchayat	23°37'21.3" N/ 86°23'35.3" E	07.01.2020	65.5	29.4	12.2	12.3
		11.02.2020	63.8	29.6	11.8	12.4
		18.03.2020	65.6	30.5	12.3	12.5
Bagula School	23°36'27.3" N/ 86°21'59.7" E	08.01.2020	65.3	31.2	11.5	11.8
		12.02.2020	62.8	29.7	11.9	12.1
		19.03.2020	65.2	29.3	12.6	12.2
Shahar Juri School	23°36'26.6" N/ 86°20'58.9" E	08.01.2020	64.2	30.6	12.8	12.6
		12.02.2020	63.5	30.1	12.4	12.2
		19.03.2020	64.5	30.8	12.2	12.3
Minimum			61.5	29.3	11.5	11.2
Maximum			65.6	31.3	12.8	12.6
Average			63.97	30.2	12.18	12.12

  
 Sr. Manager (Environment)



## Ambient Air Quality Report

### Annexure-I

Period- October'19 to December'19

Name of Industry : Lagla Mahal Sand Mining Project

No. of sampling points : 4

Sampling Location	Date of Sampling/ Weather Condition		
	October'19	November'19	December'19
Mahal School Near Izri River	10.10.2019/ Clear	14.11.2019/ Clear	16.12.2019/ Clear
Lagla Gram Panchayat	10.10.2019/ Clear	14.11.2019/ Clear	16.12.2019/ Clear
Bagula School	11.10.2019/ Clear	15.11.2019/ Clear	17.12.2019/ Clear
Shahar Juri School	11.10.2019/ Clear	15.11.2019/ Clear	17.12.2019/ Clear

Location	Latitude/ Longitude	Date	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>x</sub>
			PM <sub>10</sub> Level : 24 Hourly Limit-100µg/m <sup>3</sup>	PM <sub>2.5</sub> Level : 24 Hourly Limit-60µg/m <sup>3</sup>	SO <sub>x</sub> Level: 24 Hourly Limit- 80µg/m <sup>3</sup>	NO <sub>x</sub> Level: 24 Hourly Limit- 80µg/m <sup>3</sup>
Mahal School Near Izri River	23°38'06.1"N / 86°23'41.2" E	10.10.2019	66.4	32.5	12.3	12.2
		14.11.2019	67.5	32.3	12.2	11.5
		16.12.2019	67.3	33.2	13.6	13.3
Lagla Gram Panchayat	23°37'21.3" N/ 86°23'35.3" E	10.10.2019	68.2	32.4	13.3	13.4
		14.11.2019	68.1	32.7	12.4	13.2
		16.12.2019	67.2	32.8	12.5	13.7
Bagula School	23°36'27.3" N/ 86°21'59.7" E	11.10.2019	67.4	32.4	12.7	12.3
		15.11.2019	64.6	31.6	12.5	13.2
		17.12.2019	66.3	31.9	13.1	13.5
Shahar Juri School	23°36'26.6" N/ 86°20'58.9" E	11.10.2019	68.5	32.8	13.7	13.3
		15.11.2019	68.2	32.2	13.5	13.4
		17.12.2019	67.2	33.7	13.7	13.2
Minimum			63.3	31.6	12.2	11.5
Maximum			68.5	33.7	13.7	13.7
Average			67.24	32.54	12.95	13.01

  
Sr. Manager (Environment)



**Annexure-I**

**Surface Water Quality Analysis**

Sl. No.	Location	Sampling Date	Sampling Time	Temp	pH	TSS	BOD	Oil & Grease
				< 40°C	5.5 - 9.0	100 mg/l	30 mg/l	10 mg/l
1.	River Gowai Up Stream	20.11.2019	10:10AM	26.8	7.3	21	3.7	0.3
2.	River Damodar Down Stream	20.11.2019	11:30AM	27.5	7.2	21	4.2	0.6
3.	Laghla (Pond)	20.11.2019	10:45AM	27.2	7.5	22	4.2	0.1
4.	Alakhdih(Pond)	20.11.2019	12:20PM	27.1	7.3	20	3.4	0.2
5.	Joradih (Pond)	20.11.2019	10:10AM	26.7	7.4	21	3.8	0.1
6.	SEB Quarters (Pond)	20.11.2019	01:45PM	27.4	7.3	22	3.6	0.2
7.	Kargali (Pond)	20.11.2019	01:20PM	26.5	7.3	23	3.52	0.1
8.	Kumargora (Pond)	20.11.2019	01:35PM	25.2	7.4	22	3.8	0.2
9.	Bhojudih (Pond)	20.11.2019	11:15PM	24.0	7.3	22	2.5	0.1

**Sr. Manager (Environment)**



Annexure-I


**Ground Water Quality Analysis**

**Ground water level fluctuation in and around Core & Buffer zone area of sand mining lease  
Post-Monsoon Season- November'19**

S.No	Date	Location	Time	Sample Parameter			
				Depth in meter (m)	pH	Electrical Conductivity, $\mu\text{S/m}$	Total Hardness (as $\text{CaCO}_3$ ), mg/l
1	14.11.2019	Prem Singhdih	10:20AM	1.22	7.1	599	401
2	14.11.2019	Lagla	11:00AM	1.20	7.0	465	335
3	14.11.2019	Alakdih	10:25AM	1.27	7.2	472	320
4	14.11.2019	Joradih	12:00PM	1.55	7.3	528	412
5	14.11.2019	SEB Quarters	10:10AM	1.45	7.1	672	340
6	14.11.2019	Kargali	01:35PM	2.34	7.2	450	308
7	14.11.2019	Kumargora	01:20PM	1.28	7.0	584	303
8	14.11.2019	Bhojudih	01:15PM	1.75	7.2	582	434
9	14.11.2019	Mahal	11:05PM	1.40	7.1	550	318
10	14.11.2019	Sudamdih	12:25PM	1.22	7.0	584	320

**Winter Season- January'20**

S.No	Date	Location	Time	Sample Parameter			
				Depth in meter (m)	pH	Electrical Conductivity, $\mu\text{S/m}$	Total Hardness (as $\text{CaCO}_3$ ), mg/l
1	13.01.2020	Prem Singhdih	10:50AM	1.22	7.1	605	403
2	13.01.2020	Lagla	11:00AM	1.31	7.0	520	326
3	13.01.2020	Alakdih	11:55AM	1.50	7.1	525	362
4	13.01.2020	Joradih	12:45PM	1.53	7.0	565	412
5	13.01.2020	SEB Quarters	11:00AM	1.47	7.0	675	332
6	13.01.2020	Kargali	02:25PM	2.25	7.1	482	352
7	13.01.2020	Kumargora	01:30PM	1.80	7.2	600	312
8	13.01.2020	Bhojudih	01:55PM	1.96	7.0	532	445
9	13.01.2020	Mahal	12:05PM	1.85	7.2	550	361
10	13.01.2020	Sudamdih	12:55PM	1.45	7.0	568	387

  
Sr. Manager (Environment)

**ECOMEN LABORATORIES PVT. LTD.****ecomen**  
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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 (Sand Lease Area)  
 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 : Lagla Gram Panchayat

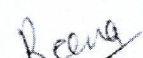
Sl. No.	Tests Conducted	Method	Results	Detection Range	NAAQ Standards as per CPCB, New Delhi, Nov. 18 <sup>th</sup> , 2009
1.	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SOP NO. A -15, Issue No.1 date 26.07.2016 (Gravimetric Method)	30.70	12.5-1000	60
2.	PM <sub>10</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-23)	73.60	12.5-1000	100
3.	SO <sub>2</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-2)	10.10	9-200	80
4.	NO <sub>2</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-6)	11.13	6-200	80
5.	NH <sub>3</sub> (µg/m <sup>3</sup> )	SOP NO. A -26, Issue No.1 date 26.07.2016 (Indophenol Method)	12.60	2-700	400
6.	O <sub>3</sub> (µg/m <sup>3</sup> )	IS:5182(Part-9)	19.84	2-200	180
7.	CO (mg/m <sup>3</sup> )	IS:5182 (Part-10)	0.37	0.2-500	04
8.	Pb (µg/m <sup>3</sup> )	IS:5182(Part-22)	BDL	1-100	1.0
9.	Cr (µg/m <sup>3</sup> )	SOP NO. A -23, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
10.	Cd (µg/m <sup>3</sup> )	SOP NO. A -24, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
11.	As (ng/m <sup>3</sup> )	SOP NO. A -22, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	06
12.	Ni (ng/m <sup>3</sup> )	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

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**ecomen**  
LABORATORIES PVT. LTD.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 (Sand Lease Area)  
 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 : Saharjuri School

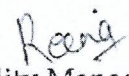
Sl. No.	Tests Conducted	Method	Results	Detection Range	NAAQ Standards as per CPCB, New Delhi, Nov. 18 <sup>th</sup> , 2009
1.	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SOP NO. A -15, Issue No.1 date 26.07.2016 (Gravimetric Method)	35.30	12.5-1000	60
2.	PM <sub>10</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-23)	68.80	12.5-1000	100
3.	SO <sub>2</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-2)	9.60	9-200	80
4.	NO <sub>2</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-6)	11.28	6-200	80
5.	NH <sub>3</sub> (µg/m <sup>3</sup> )	SOP NO. A -26, Issue No.1 date 26.07.2016 (Indophenol Method)	12.10	2-700	400
6.	O <sub>3</sub> (µg/m <sup>3</sup> )	IS:5182(Part-9)	20.16	2-200	180
7.	CO (mg/m <sup>3</sup> )	IS:5182 (Part-10)	0.36	0.2-500	04
8.	Pb (µg/m <sup>3</sup> )	IS:5182(Part-22)	BDL	1-100	1.0
9.	Cr (µg/m <sup>3</sup> )	SOP NO. A -23, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
10.	Cd (µg/m <sup>3</sup> )	SOP NO. A -24, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
11.	As (ng/m <sup>3</sup> )	SOP NO. A -22, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	06
12.	Ni (ng/m <sup>3</sup> )	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

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LABORATORIES PVT. LTD.

FORMAT NO. ECO/QS/FORMAT/10

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

Test Report Issue date: 30.11.2019

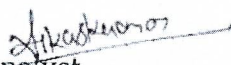
**TEST REPORT OF AMBIENT AIR\***

Name of the Customer : Tata Steel Colliery (Sand Lease Area)  
 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 : Icchar High School

Sl. No.	Tests Conducted	Method	Results	Detection Range	NAAQ Standards as per CPCB, New Delhi, Nov. 18 <sup>th</sup> , 2009
1.	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SOP NO. A -15, Issue No.1 date 26.07.2016 (Gravimetric Method)	30.60	12.5-1000	60
2.	PM <sub>10</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-23)	69.60	12.5-1000	100
3.	SO <sub>2</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-2)	9.30	9-200	80
4.	NO <sub>2</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-6)	11.50	6-200	80
5.	NH <sub>3</sub> (µg/m <sup>3</sup> )	SOP NO. A -26, Issue No.1 date 26.07.2016 (Indophenol Method)	11.30	2-700	400
6.	O <sub>3</sub> (µg/m <sup>3</sup> )	IS:5182(Part-9)	18.55	2-200	180
7.	CO (mg/m <sup>3</sup> )	IS:5182 (Part-10)	BDL	0.2-500	04
8.	Pb(µg/m <sup>3</sup> )	IS:5182(Part-22)	BDL	1-100	1.0
9.	Cr (µg/m <sup>3</sup> )	SOP NO. A -23, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
10.	Cd (µg/m <sup>3</sup> )	SOP NO. A -24, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
11.	As (ng/m <sup>3</sup> )	SOP NO. A -22, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	06
12.	Ni (ng/m <sup>3</sup> )	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

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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/AAQ-4/11/19

Test Report Issue date: 30.11.2019

**TEST REPORT OF AMBIENT AIR\***

Name of the Customer : Tata Steel Colliery (Sand Lease Area)  
Address of the Customer : Jamadoba, Distt. Dhanbad  
Jharkhand  
Date of Sampling : 09.11.2019  
Sample Collected By : Mr. Aman Dixit  
Sampling Method : IS: 5182  
Instrument Used : RDS & FDS  
Location : Railway Colony Bhojudih

Sl. No.	Tests Conducted	Method	Results	Detection Range	NAAQ Standards as per CPCB, New Delhi, Nov. 18 <sup>th</sup> , 2009
1.	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SOP NO. A -15, Issue No.1 date 26.07.2016 (Gravimetric Method)	46.80	12.5-1000	60
2.	PM <sub>10</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-23)	75.90	12.5-1000	100
3.	SO <sub>2</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-2)	12.60	9-200	80
4.	NO <sub>2</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-6)	13.70	6-200	80
5.	NH <sub>3</sub> (µg/m <sup>3</sup> )	SOP NO. A -26, Issue No.1 date 26.07.2016 (Indophenol Method)	16.60	2-700	400
6.	O <sub>3</sub> (µg/m <sup>3</sup> )	IS:5182(Part-9)	15.90	2-200	180
7.	CO (mg/m <sup>3</sup> )	IS:5182 (Part-10)	0.32	0.2-500	04
8.	Pb (µg/m <sup>3</sup> )	IS:5182(Part-22)	BDL	1-100	1.0
9.	Cr (µg/m <sup>3</sup> )	SOP NO. A -23, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
10.	Cd (µg/m <sup>3</sup> )	SOP NO. A -24, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
11.	As (ng/m <sup>3</sup> )	SOP NO. A -22, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	06
12.	Ni (ng/m <sup>3</sup> )	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

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Sector-H, Aliganj, Lucknow-226024  
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E-mail: ravi.bhargava@gmail.com, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

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LABORATORIES PVT. LTD.

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 (Sand Lease Area)  
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.	Lagla Gram Panchayat	11.11.2019	53.5	48.3	50.8	50.5	46.5	48.5
2.	Saharjuri School	09.11.2019	54.7	46.2	47.7	47.8	39.6	42.8
3.	Icchar High School	09.11.2019	46.5	43.4	44.6	40.5	36.5	37.5
4.	Railway Colony, Bhojudih	11.11.2019	53.5	48.5	51.6	38.8	34.7	36.4

### 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.

*Akash Kumar*  
Analyst

*Ravi*  
Authorized Signatory

*Reena*  
Quality Manager

Ecomen Laboratories Pvt. Ltd.  
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FORMAT NO. ECO/Q5/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 : Tata Steel Colliery (Sand Lease Area)  
Address of the Customer : Jamadoba, Distt. Dhanbad  
Jharkhand  
Month : November, 2019

S.NO.	Locations	Date of Sampling	Mineralogical Composition (in %)			
			Silica (SiO <sub>2</sub> )	Ferrous oxide (FeO)	Alumina (Al <sub>2</sub> O <sub>3</sub> )	Calcium Oxide CaO
1	Saharjuri School	08.11.2019	2.80	0.24	1.62	2.76
2	Lagla Gram Panchayat	07.11.2019	2.60	0.18	1.23	2.84

  
Analyst

  
Authorized Signatory

  
Quality Manager

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**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-1/03/2020

TEST REPORT ISSUE DATE: 30.03.2020

**TEST REPORT OF AMBIENT AIR\***

Name of the Customer : Tata Steel Colliery (Sand Lease Area)  
 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 : Lagla Gram Panchayat

Sl. No.	Tests Conducted	Method	Results	Detection Range	NAAQ Standards as per CPCB, New Delhi, Nov. 18 <sup>th</sup> , 2009
1.	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SOP NO. A -15, Issue No.1 date 26.07.2016 (Gravimetric Method)	42.0	12.5-1000	60
2.	PM <sub>10</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-23)	86.0	12.5-1000	100
3.	SO <sub>2</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-2)	11.04	9-200	80
4.	NO <sub>2</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-6)	23.80	6-200	80
5.	NH <sub>3</sub> (µg/m <sup>3</sup> )	SOP NO. A -26, Issue No.1 date 26.07.2016 (Indophenol Method)	14.92	2-700	400
6.	O <sub>3</sub> (µg/m <sup>3</sup> )	IS:5182(Part-9)	16.00	2-200	180
7.	CO (mg/m <sup>3</sup> )	IS:5182 (Part-10)	0.62	0.2-500	04
8.	Pb (µg/m <sup>3</sup> )	IS:5182(Part-22)	BDL	1-100	1.0
9.	Cr (µg/m <sup>3</sup> )	SOP NO. A -23, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
10.	Cd (µg/m <sup>3</sup> )	SOP NO. A -24, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
11.	As (ng/m <sup>3</sup> )	SOP NO. A -22, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	06
12.	Ni (ng/m <sup>3</sup> )	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: 2745282, Fax: 2745726

*[Signature]*  
Quality Manager

**ECOMEN LABORATORIES PVT. LTD.**Flat No. 8, 2nd Floor, Arif Chamber-V, Sector H, Aliganj, Lucknow - 226 024  
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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


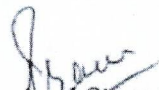
TEST REPORT NO: ECO LAB/AAQ-1/03/2020

TEST REPORT ISSUE DATE: 30.03.2020

**TEST REPORT OF AMBIENT AIR\***

Name of the Customer : Tata Steel Colliery (Sand Lease Area)  
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 : Saharjuri School

Sl. No.	Tests Conducted	Method	Results	Detection Range	NAAQ Standards as per CPCB, New Delhi, Nov. 18 <sup>th</sup> , 2009
1.	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SOP NO. A -15, Issue No.1 date 26.07.2016 (Gravimetric Method)	36.82	12.5-1000	60
2.	PM <sub>10</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-23)	66.28	12.5-1000	100
3.	SO <sub>2</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-2)	10.60	9-200	80
4.	NO <sub>2</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-6)	16.00	6-200	80
5.	NH <sub>3</sub> (µg/m <sup>3</sup> )	SOP NO. A -26, Issue No.1 date 26.07.2016 (Indophenol Method)	12.48	2-700	400
6.	O <sub>3</sub> (µg/m <sup>3</sup> )	IS:5182(Part-9)	18.92	2-200	180
7.	CO (mg/m <sup>3</sup> )	IS:5182 (Part-10)	0.42	0.2-500	04
8.	Pb(µg/m <sup>3</sup> )	IS:5182(Part-22)	BDL	1-100	1.0
9.	Cr (µg/m <sup>3</sup> )	SOP NO. A -23, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
10.	Cd (µg/m <sup>3</sup> )	SOP NO. A -24, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
11.	As (ng/m <sup>3</sup> )	SOP NO. A -22, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	06
12.	Ni (ng/m <sup>3</sup> )	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.  
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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-1/03/2020

TEST REPORT ISSUE DATE: 30.03.2020

**TEST REPORT OF AMBIENT AIR\***

Name of the Customer : Tata Steel Colliery (Sand Lease Area)  
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 : Icchar High School

Sl. No.	Tests Conducted	Method	Results	Detection Range	NAAQ Standards as per CPCB, New Delhi, Nov. 18 <sup>th</sup> , 2009
1.	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SOP NO. A -15, Issue No.1 date 26.07.2016 (Gravimetric Method)	37.80	12.5-1000	60
2.	PM <sub>10</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-23)	74.52	12.5-1000	100
3.	SO <sub>2</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-2)	9.52	9-200	80
4.	NO <sub>2</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-6)	19.22	6-200	80
5.	NH <sub>3</sub> (µg/m <sup>3</sup> )	SOP NO. A -26, Issue No.1 date 26.07.2016 (Indophenol Method)	13.40	2-700	400
6.	O <sub>3</sub> (µg/m <sup>3</sup> )	IS:5182(Part-9)	15.20	2-200	180
7.	CO (mg/m <sup>3</sup> )	IS:5182 (Part-10)	BDL	0.2-500	04
8.	Pb(µg/m <sup>3</sup> )	IS:5182(Part-22)	BDL	1-100	1.0
9.	Cr (µg/m <sup>3</sup> )	SOP NO. A -23, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
10.	Cd (µg/m <sup>3</sup> )	SOP NO. A -24, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
11.	As (ng/m <sup>3</sup> )	SOP NO. A -22, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	06
12.	Ni (ng/m <sup>3</sup> )	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  
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*[Signature]*  
Quality Manager

**ECOMEN LABORATORIES PVT. LTD.**

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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-1/03/2020  
TEST REPORT ISSUE DATE: 30.03.2020

**TEST REPORT OF AMBIENT AIR\***

Name of the Customer : Tata Steel Colliery (Sand Lease Area)  
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 : Railway Colony Bhojudih

Sl. No.	Tests Conducted	Method	Results	Detection Range	NAAQ Standards as per CPCB, New Delhi, Nov. 18 <sup>th</sup> , 2009
1.	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SOP NO. A -15, Issue No.1 date 26.07.2016 (Gravimetric Method)	41.02	12.5-1000	60
2.	PM <sub>10</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-23)	74.84	12.5-1000	100
3.	SO <sub>2</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-2)	12.68	9-200	80
4.	NO <sub>2</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-6)	16.72	6-200	80
5.	NH <sub>3</sub> (µg/m <sup>3</sup> )	SOP NO. A -26, Issue No.1 date 26.07.2016 (Indophenol Method)	14.20	2-700	400
6.	O <sub>3</sub> (µg/m <sup>3</sup> )	IS:5182(Part-9)	16.69	2-200	180
7.	CO (mg/m <sup>3</sup> )	IS:5182 (Part-10)	0.34	0.2-500	04
8.	Pb (µg/m <sup>3</sup> )	IS:5182(Part-22)	BDL	1-100	1.0
9.	Cr (µg/m <sup>3</sup> )	SOP NO. A -23, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
10.	Cd (µg/m <sup>3</sup> )	SOP NO. A -24, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	-
11.	As (ng/m <sup>3</sup> )	SOP NO. A -22, Issue No.1 date 26.07.2016 (CPCB-NAAQM Guideline)	BDL	1-100	06
12.	Ni (ng/m <sup>3</sup> )	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**  
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*[Signature]*  
Quality Manager

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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 (Sand Lease Area)  
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.	Lagla Gram Panchayat	02.03.2020	58.3	53.8	51.6	50.5	44.5	43.3
2.	Saharjuri School	02.03.2020	62.5	54.2	53.8	44.6	39.4	37.8
3.	Icchar High School	02.03.2020	61.8	48.4	46.8	41.2	38.7	36.8
4.	Railway Colony Bhojudih	02.03.2020	64.8	52.6	51.7	48.8	42.8	40.7

**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.

*Aman Dixit*  
Analyst

*Aman Dixit*  
Authorized Signatory,  
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*For R*  
Quality Manager



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FORMAT NO. ECO/QS/FORMAT/10

TEST REPORT NO: ECO LAB/MCPM/03/20

TEST REPORT ISSUE DATE: 30.03.2020


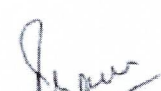
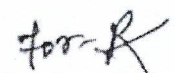
**MINERALOGICAL COMPOSITION OF PARTICULATE MATTER**

Name of the Customer : M/s Tata Steel Ltd. (Sand Lease Area)

Address of the Customer : Jamadoba,  
Distt. Dhanbad - 828 112

Month : March, 2020

S.NO.	Locations	Date of Sampling	Mineralogical Composition (in %)			
			Silica (SiO <sub>2</sub> )	Ferrous oxide (FeO)	Alumina (Al <sub>2</sub> O <sub>3</sub> )	Calcium Oxide CaO
1	Saharjuri School	03.03.2020	2.28	0.24	1.35	2.77
2	Lagla Gram Panchayat	03.03.2020	1.49	0.14	1.17	2.68

  
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