



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.**

RefNo. - JMB/ENV/LMSL/60/881 /2021

November 27, 2021

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 MoEF&CC, New Delhi to Lagla Mahal Sand Lease, Tata Steel Limited, Dhanbad for the period April'21 to September'21**

Dear Sir,

We are enclosing herewith compliance report for the period **April'21 to September'21** 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.

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**

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

**HALF YEARLY COMPLIANCE REPORT**  
**(PERIOD: APRIL'21 – SEPTEMBER'21)**

**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. The current CTO is valid till 31.03.2026. 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 <b>Annexure-I</b> .
(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 by NABL and JSPCB recognized lab and conform to the prescribed standards. Reports are enclosed as <b>Annexure-I</b> .
(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

**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**

	<p>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.</p>	<p>impact on the hydrogeological regime. The monitoring report of the ground water level and quality is given as <b>Annexure-I</b>.</p>
<b>(viii)</b>	<p>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.</p>	<p>No water is required for the operation of project. Drinking water required by the workers is arranged by the company.</p>
<b>(ix)</b>	<p>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.</p>	<p>Adequate monitoring of the health of the vehicles used for transportation of sand is ensured to avoid any oil &amp; 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.</p>

**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**

(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
(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 neighboring 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,	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 <b>Annexure-I</b> . The monitoring reports are regularly uploaded on company's

**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**

	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.	website along with half-yearly EC compliance reports.
(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 to monitor the statutory requirements and compliance in time. This is reviewed by Board of Directors at company's level.

<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 is being complied with.
(ii)	No change in the calendar plan including excavation, quantum of sand	It is being complied with.

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	from river bed and waste should be made.	
(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 State Pollution Control Board.	The monitoring stations have been established and monitoring jobs are being performed regularly. The ambient air quality analysis reports are attached as <b>Annexure-I</b> .
(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 <b>Annexure-I</b> 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	Proper PPE's are provided to all the workers.

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	operations of HEMM, etc. should be provided with ear plugs / muffs.	
(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 qualified personnel's. 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 purposes. Year wise expenditure should be reported to this ministry and its regional office located at Bhubaneswar.	Expenditure on Environmental Protection measures is monitored separately. It is provided in the Environment Statement every year. The annual expenditure for the financial year 2020-21 is Rs. 0.97 lakhs for water spraying activities on transport road, plantation and environment monitoring.
(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	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.



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	and the date of start of land development work.	
(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&CC, 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.
(xvi)	The State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District	The copy of clearance letter has been sent to JSPCB office and its compliance report is also submitted to JSPCB.

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	Industry Centre and the Collector's Office / Tehsildar's Office for 30 days.	
<b>(xvii)</b>	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 2020-21 has been submitted to JSPCB on 28 <sup>th</sup> September 2021 vide letter no. JMB/ENV/ESSA/05/729/ 2021 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.
<b>(xviii)</b>	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.

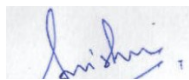
### Ambient Air Quality Analysis Report

**Period-** April'21 to June'21

Name of Industry : Lagla Mahal Sand Mining Project No. of sampling points : 4

Sampling Location	Date of Sampling/ Weather Condition		
	April'21	May'21	June'21
Mahal School Near Izri River	12.04.2021/ Clear	10.05.2021/ Clear	17.06.2021/ Rainy
Lagla Gram Panchayat	12.04.2021/ Clear	10.05.2021/ Clear	17.06.2021/ Rainy
Bagula School	13.04.2021/ Clear	11.05.2021/ Clear	18.06.2021/ Rainy
Shahar Juri School	13.04.2021/ Clear	11.05.2021/ Clear	18.06.2021/ Rainy

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	12.04.2021	62.5	32.1	11.8	12.2
		10.05.2021	64.6	34.2	12.5	12.4
		17.06.2021	63.5	33.8	11.4	12.3
Lagla Gram Panchayat	23°37'21.3" N/ 86°23'35.3" E	12.04.2021	52.5	30.5	11.2	12.5
		10.05.2021	57.9	32.1	12.3	12.1
		17.06.2021	60.2	33.5	12.1	13.2
Bagula School	23°36'27.3" N/ 86°21'59.7" E	13.04.2021	56.5	31.4	11.2	12.4
		11.05.2021	59.8	32.4	10.7	11.8
		18.06.2021	61.3	33.2	11.5	12.1
Shahar Juri School	23°36'26.6" N/ 86°20'58.9" E	13.04.2021	62.4	30.2	11.2	12.5
		11.05.2021	62.2	30.9	11.6	12.7
		18.06.2021	63.5	33.2	11.8	13.2
Minimum			52.5	30.2	10.7	11.8
Maximum			64.6	34.2	12.5	13.2
Average			60.57	32.29	11.60	12.45



**Sr. Manager (Environment)**

## Ambient Air Quality Analysis Report

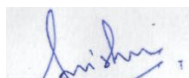
**Period-** July'21 to September'21

Name of Industry : Lagla Mahal Sand Mining Project

No. of sampling points : 4

Sampling Location	Date of Sampling/ Weather Condition		
	July'21	August'21	September'21
Mahal School Near Izri River	09.07.2021/ Clear	02.08.2021/ Clear	28.09.2021/ Cloudy
Lagla Gram Panchayat	09.07.2021/ Clear	02.08.2021/ Clear	28.09.2021/ Cloudy
Bagula School	10.07.2021/ Clear	03.08.2021/ Cloudy	29.09.2021/ Cloudy
Shahar Juri School	10.07.2021/ Clear	03.08.2021/ Cloudy	29.09.2021/ Cloudy

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	09.07.2021	64.3	30.2	11.7	12.4
		02.08.2021	65.2	31.3	11.8	12.5
		28.09.2021	65.4	30.5	12.3	13.2
Lagla Gram Panchayat	23°37'21.3" N/ 86°23'35.3" E	09.07.2021	64.6	30.7	11.4	12.5
		02.08.2021	65.7	31.5	12.0	13.3
		28.09.2021	64.5	32.0	12.4	13.5
Bagula School	23°36'27.3" N/ 86°21'59.7" E	10.07.2021	65.3	31.5	12.6	13.2
		03.08.2021	66.2	32.4	12.3	13.4
		29.09.2021	66.9	31.6	12.8	13.5
Shahar Juri School	23°36'26.6" N/ 86°20'58.9" E	10.07.2021	65.6	30.7	12.2	12.7
		03.08.2021	66.7	31.3	12.7	13.5
		29.09.2021	65.3	32.4	12.8	13.7
Minimum			64.3	30.2	11.4	12.4
Maximum			66.9	32.0	12.8	13.7
Average			65.47	31.34	12.25	13.11



**Sr. Manager (Environment)**

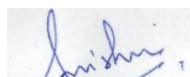
### Ground Water Quality Analysis

#### Ground water level fluctuation in and around Core & Buffer zone area of sand mining lease Pre Monsoon Season- May'21

S.No	Date	Location	Time	Sample Parameter		
				Depth in meter (m)	pH	Electrical Conductivity, $\mu\text{S/m}$
1	12.05.2021	Prem Singhdih	10:25AM	7.8	7.2	742
2	12.05.2021	Lagla	11:20AM	6.7	7.3	580
3	12.05.2021	Alakdih	11:05AM	7.3	7.5	615
4	12.05.2021	Joradih	12:35PM	7.2	7.2	657
5	12.05.2021	SEB Quarters	11:45AM	6.4	7.4	738
6	12.05.2021	Kargali	02:30PM	7.5	7.2	625
7	12.05.2021	Kumargora	01:30PM	6.7	7.2	628
8	12.05.2021	Bhojudih	01:05PM	7.3	7.3	668
9	12.05.2021	Mahal	12:00PM	7.8	7.2	617
10	12.05.2021	Sudamdih	1:45PM	7.6	7.5	645

#### Monsoon Season- August'21

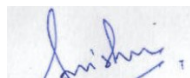
S.No	Date	Location	Time	Sample Parameter		
				Depth in meter (m)	pH	Electrical Conductivity, $\mu\text{S/m}$
1	06.08.2021	Prem Singhdih	10:15AM	1.05	7.1	614
2	06.08.2021	Lagla	11:30AM	2.20	7.0	582
3	06.08.2021	Alakdih	10:55AM	1.32	7.0	578
4	06.08.2021	Joradih	01:45PM	1.85	7.2	528
5	06.08.2021	SEB Quarters	11:10AM	1.54	7.1	653
6	06.08.2021	Kargali	01:45PM	1.62	7.2	542
7	06.08.2021	Kumargora	11:45PM	1.75	7.2	622
8	06.08.2021	Bhojudih	12:50PM	2.15	7.0	665
9	06.08.2021	Mahal	12:25PM	1.45	7.1	557
10	06.08.2021	Sudamdih	12:15PM	1.53	7.3	610



Sr. Manager (Environment)

## 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 Sttream	30.09.2021	10:10AM	27.3	7.2	21.1	4.7	0.7
2.	River Damodar Down Stream	30.09.2021	11.25AM	24.2	7.3	21.2	4.3	0.6
3.	Laghla (Pond)	30.09.2021	01:42 PM	24.5	7.4	19	2.6	0.1
4.	AlakhdiH(Pond)	30.09.2021	01:55 PM	25.3	7.3	21	3.1	0.1
5.	JoradiH (Pond)	30.09.2021	11:48AM	24.4	7.2	20	3.2	0.1
6.	SEB Quarters (Pond)	30.09.2021	11:15AM	25.6	7.3	22	2.6	0.23
7.	Kargali (Pond)	30.09.2021	12:12 PM	24.3	7.2	24	3.3	0.14
8.	Kumargora (Pond)	30.09.2021	01.18PM	24.5	7.3	23	3.5	0.13
9.	Bhojudih (Pond)	30.09.2021	12:55 PM	24.7	7.4	22	4.2	0.12



**Sr. Manager (Environment)**

# ECOMEN LABORATORIES PVT. LTD.

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

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**ecoMen**  
LABORATORIES PVT LTD.

An approved Laboratory from Ministry of Environment , Forests and climate Change, Govt. of India, New Delhi

FORMAT NO. ECO/QS/FORMAT/10 TEST REPORT NO: ECO LAB/AAQ-1/05/2021

TEST REPORT ISSUE DATE: 04.06.2021

## TEST REPORT OF AMBIENT AIR\*

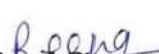
Name of the Customer : Tata Steel Colliery (Sand Lease Area)  
Address of the Customer : Jamadoba, Distt. Dhanbad Jharkhand  
Sample Collected By : Mr.Arvind Singh  
Sampling Method : IS: 5182  
Date of Sampling : May, 24<sup>th</sup> , 2021  
Date of Testing : 29.05.2021 to 04.06.2021  
Environmental Condition : A.Temp(°C) : 34°C, Humidity(%) : 64,  
Weather Condition -Shiny  
Instrument Name & Lab ID : Fine Dust Sampler /  
Respirable Dust Sampler  
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>10</sub> (µg/m <sup>3</sup> )	IS:5182(Part-23)	86.84	2-1000(µg/m <sup>3</sup> )	100
2	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	IS:5182(Part-24)	38.64	2-100(µg/m <sup>3</sup> )	60
3	SO <sub>2</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-2)	18.05	5-200(µg/m <sup>3</sup> )	80
4	NO <sub>x</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-6)	20.84	5-200(µg/m <sup>3</sup> )	80
5	NH <sub>3</sub> (µg/m <sup>3</sup> )	IS:5182(Part-25)	16.98	0.02-700(µg/m <sup>3</sup> )	400
6	O <sub>3</sub> (µg/m <sup>3</sup> )	IS:5182(Part-9)	17.95	1-200(µg/m <sup>3</sup> )	180
7	CO (mg/m <sup>3</sup> )	IS:5182 (Part-10)	0.70	0-500(mg/l)	4.0
8	Pb(µg/m <sup>3</sup> )	IS:5182(Part-22)	BDL	1-100(µg/m <sup>3</sup> )	1.0
9	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	IS:5182(Part-11)	BDL	-	05
10	BaP (ng/m <sup>3</sup> )	IS:5182(Part-12)	BDL	>2(ng/m <sup>3</sup> )	01
11	As (ng/m <sup>3</sup> )	NAAQM Guideline Volume-I by CPCB	BDL	1-100(ng/m <sup>3</sup> )	06
12	Ni (ng/m <sup>3</sup> )	IS:5182(Part-26)	BDL	1-100(ng/m <sup>3</sup> )	20

\*The results is related only to tested item.

**Note:** Below Detection Limit

  
Analyst

  
Authorized Signatory  
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Quality Manager

FORMAT NO. ECO/QS/FORMAT/10 TEST REPORT NO: ECO LAB/AAQ-2/05/2021  
TEST REPORT ISSUE DATE: 04.06.2021

**TEST REPORT OF AMBIENT AIR\***

Name of the Customer : Tata Steel Colliery (Sand Lease Area)  
Address of the Customer : Jamadoba, Distt. Dhanbad Jharkhand  
Sample Collected By : Mr.Arvind Singh  
Sampling Method : IS: 5182  
Date of Sampling : May 27<sup>th</sup>, 2021  
Date of Testing : 29.05.2021 to 04.06.2021  
Environmental Condition : A.Temp(°C) : 34°C, Humidity(%) : 64,  
Weather Condition -Shiny  
Instrument Name & Lab ID : Fine Dust Sampler /  
Respirable Dust Sampler  
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>10</sub> (µg/m <sup>3</sup> )	IS:5182(Part-23)	82.94	2-1000(µg/m <sup>3</sup> )	100
2	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	IS:5182(Part-24)	38.42	2-100(µg/m <sup>3</sup> )	60
3	SO <sub>2</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-2)	18.60	5-200(µg/m <sup>3</sup> )	80
4	NO <sub>x</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-6)	21.85	5-200(µg/m <sup>3</sup> )	80
5	NH <sub>3</sub> (µg/m <sup>3</sup> )	IS:5182(Part-25)	17.94	0.02-700(µg/m <sup>3</sup> )	400
6	O <sub>3</sub> (µg/m <sup>3</sup> )	IS:5182(Part-9)	16.98	1-200(µg/m <sup>3</sup> )	180
7	CO (mg/m <sup>3</sup> )	IS:5182 (Part-10)	0.84	0-500(mg/l)	4.0
8	Pb(µg/m <sup>3</sup> )	IS:5182(Part-22)	BDL	1-100(µg/m <sup>3</sup> )	1.0
9	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	IS:5182(Part-11)	BDL	-	05
10	BaP (ng/m <sup>3</sup> )	IS:5182(Part-12)	BDL	>2(ng/m <sup>3</sup> )	01
11	As (ng/m <sup>3</sup> )	NAAQM Guideline Volume-I by CPCB	BDL	1-100(ng/m <sup>3</sup> )	06
12	Ni (ng/m <sup>3</sup> )	IS:5182(Part-26)	BDL	1-100(ng/m <sup>3</sup> )	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



FORMAT NO. ECO/QS/FORMAT/10

TEST REPORT NO: ECO LAB/AAQ-3/05/2021

TEST REPORT ISSUE DATE: 04.06.2021

**TEST REPORT OF AMBIENT AIR\***

Name of the Customer : Tata Steel Colliery (Sand Lease Area)  
 Address of the Customer : Jamadoba, Distt. Dhanbad, Jharkhand  
 Sample Collected By : Mr.Arvind Singh  
 Sampling Method : IS: 5182  
 Date of Sampling : May 27<sup>th</sup>, 2021  
 Date of Testing : 29.05.2021 to 04.06.2021  
 Environmental Condition : A.Temp(°C) : 34°C, Humidity(%) : 64,  
 Weather Condition -Shiny  
 Instrument Name & Lab ID : Fine Dust Sampler /  
 Respirable Dust Sampler  
 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>10</sub> (µg/m <sup>3</sup> )	IS:5182(Part-23)	82.46	2-1000(µg/m <sup>3</sup> )	100
2	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	IS:5182(Part-24)	40.68	2-100(µg/m <sup>3</sup> )	60
3	SO <sub>2</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-2)	18.92	5-200(µg/m <sup>3</sup> )	80
4	NO <sub>x</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-6)	20.76	5-200(µg/m <sup>3</sup> )	80
5	NH <sub>3</sub> (µg/m <sup>3</sup> )	IS:5182(Part-25)	18.60	0.02-700(µg/m <sup>3</sup> )	400
6	O <sub>3</sub> (µg/m <sup>3</sup> )	IS:5182(Part-9)	16.86	1-200(µg/m <sup>3</sup> )	180
7	CO (mg/m <sup>3</sup> )	IS:5182 (Part-10)	BDL	0-500(mg/l)	4.0
8	Pb(µg/m <sup>3</sup> )	IS:5182(Part-22)	BDL	1-100(µg/m <sup>3</sup> )	1.0
9	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	IS:5182(Part-11)	BDL	-	05
10	BaP (ng/m <sup>3</sup> )	IS:5182(Part-12)	BDL	>2(ng/m <sup>3</sup> )	01
11	As (ng/m <sup>3</sup> )	NAAQM Guideline Volume-I by CPCB	BDL	1-100(ng/m <sup>3</sup> )	06
12	Ni (ng/m <sup>3</sup> )	IS:5182(Part-26)	BDL	1-100(ng/m <sup>3</sup> )	20

\*The results is related only to tested item.

**Note:** Below Detection Limit

*Arvind Singh*  
Analyst

*Ravi Bhargava*  
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*Abhishek*  
Quality Manager

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LABORATORIES PVT LTD.

An approved Laboratory from Ministry of Environment , Forests and climate Change, Govt. of India, New Delhi

FORMAT NO. ECO/QS/FORMAT/10 TEST REPORT NO:ECO LAB/AAQ-4/05/2021  
TEST REPORT ISSUE DATE: 04.06.2021

## TEST REPORT OF AMBIENT AIR\*

Name of the Customer : Tata Steel Colliery (Sand Lease Area)  
Address of the Customer : Jamadoba, Distt. Dhanbad Jharkhand  
Sample Collected By : Mr.Arvind Singh  
Sampling Method : IS: 5182  
Date of Sampling : May 24<sup>th</sup>, 2021  
Date of Testing : 29.05.2021 to 04.06.2021  
Environmental Condition : A.Temp(°C) : 34°C, Humidity(%) : 64,  
Weather Condition -Shiny  
Instrument Name & Lab ID : Fine Dust Sampler /  
Respirable Dust Sampler  
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>10</sub> (µg/m <sup>3</sup> )	IS:5182(Part-23)	80.35	2-1000(µg/m <sup>3</sup> )	100
2	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	IS:5182(Part-24)	45.26	2-100(µg/m <sup>3</sup> )	60
3	SO <sub>2</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-2)	12.68	5-200(µg/m <sup>3</sup> )	80
4	NO <sub>x</sub> (µg/m <sup>3</sup> )	IS:5182 (Part-6)	20.42	5-200(µg/m <sup>3</sup> )	80
5	NH <sub>3</sub> (µg/m <sup>3</sup> )	IS:5182(Part-25)	12.65	0.02-700(µg/m <sup>3</sup> )	400
6	O <sub>3</sub> (µg/m <sup>3</sup> )	IS:5182(Part-9)	18.50	1-200(µg/m <sup>3</sup> )	180
7	CO (mg/m <sup>3</sup> )	IS:5182 (Part-10)	0.35	0-500(mg/l)	4.0
8	Pb(µg/m <sup>3</sup> )	IS:5182(Part-22)	BDL	1-100(µg/m <sup>3</sup> )	1.0
9	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	IS:5182(Part-11)	BDL	-	05
10	BaP (ng/m <sup>3</sup> )	IS:5182(Part-12)	BDL	>2(ng/m <sup>3</sup> )	01
11	As (ng/m <sup>3</sup> )	NAAQM Guideline Volume-I by CPCB	BDL	1-100(ng/m <sup>3</sup> )	06
12	Ni (ng/m <sup>3</sup> )	IS:5182(Part-26)	BDL	1-100(ng/m <sup>3</sup> )	20

\*The results is related only to tested item.

**Note:** Below Detection Limit.

Analyst

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Quality Manager

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LABORATORIES PVT LTD.

An approved Laboratory from Ministry of Environment , Forests and climate Change, Govt. of India, New Delhi

FORMAT NO. ECO/QS/FORMAT/10

TEST REPORT NO: ECO LAB/MCPM/05/21

TEST REPORT ISSUE DATE: 04.06.2021


## 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 : May, 2021

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	Lagla Gram Panchayat	24.05.2021	2.31	0.34	1.35	2.76
2	Saharjuri School	27.05.2021	1.58	0.26	1.26	2.78

  
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An approved Laboratory from Ministry of Environment , Forests and climate Change, Govt. of India, New Delhi

FORMAT NO. ECO/QS/FORMAT/10

TEST REPORT NO: ECO LAB/AN/05/21

TEST REPORT ISSUE DATE: 04.06.2021

## 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. Arvind Singh  
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	24.05.2021	56.2	51.2	53.2	52.0	47.3	49.6
2.	Saharjuri School	27.05.2021	58.9	54.4	56.65	50.3	45.6	47.9
3.	Icchar High School	27.05.2021	58.1	51.3	54.7	45.2	40.5	42.8
4.	Railway Colony Bhojudih	24.05.2021	60.7	51.7	56.2	47.9	42.8	45.3

### 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.

*Arvind Singh*  
Analyst

*Reena*  
Authorized Signatory  
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*Abhishek*  
Quality Manager

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FORMAT NO. ECO/QS/FORMAT/07

TEST REPORT NO: ECO LAB/SW/05/21

TEST REPORT ISSUE DATE: 04.06.2021

## TEST REPORT OF SURFACE WATER\*

Name of the Customer : M/s Tata Steel Ltd. (Sand Lease Area)  
Address of the Customer : Jamadoba,  
Distt. Dhanbad - 828 112  
Sampling Method : APHA, 23<sup>rd</sup> Ed. 2017  
Sample Collected by : Mr. Arvind Singh  
Sample Quantity : As per requirement  
Date of Sampling : 24.05.2021 to 28.05.2021  
Date of Sample Receiving : 29.05.2021  
Date of Analysis : 29.05.2021 to 03.06.2021  
Source of Sample : Gowai River, Up Stream

Sl. No.	TESTS	PROTOCOL	RESULT	Detection Range	IS:2296 Class-C
1.	pH	APHA,23 <sup>rd</sup> Ed.2017,4500H+A+B,	7.86	2-12	8.5
2.	Turbidity as (NTU)	APHA, 23 <sup>rd</sup> Ed. 2017, 2130-A+B	14.50	1-100	-
3.	Total Dissolved Solids as TDS (mg/l)	APHA,23 <sup>rd</sup> Ed.2017 (2540C)	582.0	5-10000	1500
4.	Dissolved Oxygen as DO (mg/l)	APHA,23 <sup>rd</sup> Ed.2017 (4500 A+C)	5.6	2-10	4.0
5.	Biochemical Oxygen Demand as BOD (mg/l)	APHA,23 <sup>rd</sup> Ed.2017 (5210A+ B)	BDL	5-10000	3.0
6.	Chloride as Cl (mg/l)	APHA, 23 <sup>rd</sup> Ed. 2017, 4500 Cl A+B	48.0	5-1000	-
7.	Fluorides as F (mg/l)	APHA,23 <sup>rd</sup> Ed.2017 (4500 -C)	0.43	0.05-10	1.5
8.	Sulfate as SO <sub>4</sub> (mg/l)	APHA,23 <sup>rd</sup> Ed.2017 (4500 -SO <sub>4</sub> <sup>2-</sup> E)	55.0	1.0-250	400.0

\*The result are related only to item tested - The parameters are not included in IS: 2296 Class-C  
BDL - Below Detection Limit

*Arvind Singh*  
Analyst

*Ravi Bhargava*  
Authorized Signatory  
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*Abhishek*  
Quality Manager

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An approved Laboratory from Ministry of Environment , Forests and climate Change, Govt. of India, New Delhi

FORMAT NO. ECO/QS/FORMAT/07

TEST REPORT NO: ECO LAB/SW/05/21

TEST REPORT ISSUE DATE: 04.06.2021

## TEST REPORT OF SURFACE WATER\*

Name of the Customer : M/s Tata Steel Ltd. (Sand Lease Area)  
Address of the Customer : Jamadoba,  
Distt. Dhanbad - 828 112  
Sampling Method : APHA, 23<sup>rd</sup> Ed. 2017  
Sample Collected by : Mr. Arvind Singh  
Sample Quantity : As per requirement  
Date of Sampling : 24.05.2021 to 28.05.2021  
Date of Sample Receiving : 29.05.2021  
Date of Analysis : 29.05.2021 to 03.06.2021  
Source of Sample : Gowai River, Down Stream

Sl. No.	TESTS	PROTOCOL	RESULT	Detection Range	IS:2296 Class-C
1.	pH	APHA, 23 <sup>rd</sup> Ed. 2017, 4500H+A+B,	8.10	2-12	8.5
2.	Turbidity as (NTU)	APHA, 23 <sup>rd</sup> Ed. 2017, 2130-A+B	23.0	1-100	-
3.	Total Dissolved Solids as TDS (mg/l)	APHA, 23 <sup>rd</sup> Ed. 2017 (2540C)	680.0	5-10000	1500
4.	Dissolved Oxygen as DO (mg/l)	APHA, 23 <sup>rd</sup> Ed. 2017 (4500 A+C)	6.5	2-10	4.0
5.	Biochemical Oxygen Demand as BOD (mg/l)	APHA, 23 <sup>rd</sup> Ed. 2017 (5210A+ B)	BDL	5-10000	3.0
6.	Chloride as Cl (mg/l)	APHA, 23 <sup>rd</sup> Ed. 2017, 4500 Cl A+B	56.0	5-1000	-
7.	Fluorides as F (mg/l)	APHA, 23 <sup>rd</sup> Ed. 2017 (4500 - C)	0.43	0.05-10	1.5
8.	Sulfate as SO <sub>4</sub> (mg/l)	APHA, 23 <sup>rd</sup> Ed. 2017 (4500 -SO <sub>4</sub> <sup>2-</sup> E)	62.50	1.0-250	400.0

\*The result are related only to item tested - The parameters are not included in IS: 2296 Class-C  
BDL - Below Detection Limit

*Abhishek*  
Analyst

*Reena*  
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FORMAT NO. ECO/QS/FORMAT/07

TEST REPORT NO: ECO LAB/SW/05/21

TEST REPORT ISSUE DATE: 04.06.2021

## TEST REPORT OF SURFACE WATER\*

Name of the Customer : M/s Tata Steel Ltd. (Sand Lease Area)  
Address of the Customer : Jamadoba,  
Distt. Dhanbad - 828 112  
Sampling Method : APHA, 23<sup>rd</sup> Ed. 2017  
Sample Collected by : Mr. Arvind Singh  
Sample Quantity : As per requirement  
Date of Sampling : 24.05.2021 to 28.05.2021  
Date of Sample Receiving : 29.05.2021  
Date of Analysis : 29.05.2021 to 03.06.2021  
Source of Sample : Izri River, Up Stream

Sl. No.	TESTS	PROTOCOL	RESULT	Detection Range	IS:2296 Class-C
1.	pH	APHA,23 <sup>rd</sup> Ed.2017,4500H+A+B,	7.41	2-12	8.5
2.	Turbidity as (NTU)	APHA, 23 <sup>rd</sup> Ed. 2017, 2130-A+B	10.0	1-100	-
3.	Total Dissolved Solids as TDS (mg/l)	APHA,23 <sup>rd</sup> Ed.2017 (2540C)	648.0	5-10000	1500
4.	Dissolved Oxygen as DO (mg/l)	APHA,23 <sup>rd</sup> Ed.2017 (4500 A+C)	6.2	2-10	4.0
5.	Biochemical Oxygen Demand as BOD (mg/l)	APHA,23 <sup>rd</sup> Ed.2017 (5210A+ B)	BDL	5-10000	3.0
6.	Chloride as Cl (mg/l)	APHA, 23 <sup>rd</sup> Ed. 2017, 4500 Cl A+B	64.0	5-1000	-
7.	Fluorides as F (mg/l)	APHA,23 <sup>rd</sup> Ed.2017 (4500 -C)	0.52	0.05-10	1.5
8.	Sulfate as SO <sub>4</sub> (mg/l)	APHA,23 <sup>rd</sup> Ed.2017 (4500 -SO <sub>4</sub> <sup>2-</sup> E)	59.60	1.0-250	400.0

\*The result are related only to item tested - The parameters are not included in IS: 2296 Class-C  
BDL - Below Detection Limit

*Abhishek*  
Analyst

*Reena*  
Authorized Signatory  
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*Abhishek*  
Quality Manager

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**ecoMen**  
LABORATORIES PVT LTD.

An approved Laboratory from Ministry of Environment , Forests and climate Change, Govt. of India, New Delhi

FORMAT NO. ECO/QS/FORMAT/07

TEST REPORT NO: ECO LAB/SW/05/21

TEST REPORT ISSUE DATE: 04.06.2021

## TEST REPORT OF SURFACE WATER\*

Name of the Customer : M/s Tata Steel Ltd. (Sand Lease Area)  
Address of the Customer : Jamadoba,  
Distt. Dhanbad - 828 112  
Sampling Method : APHA, 23<sup>rd</sup> Ed. 2017  
Sample Collected by : Mr. Arvind Singh  
Sample Quantity : As per requirement  
Date of Sampling : 24.05.2021 to 28.05.2021  
Date of Sample Receiving : 29.05.2021  
Date of Analysis : 29.05.2021 to 03.06.2021  
Source of Sample : Izri River,Down Stream

Sl. No.	TESTS	PROTOCOL	RESULT	Detection Range	IS:2296 Class-C
1.	pH	APHA,23 <sup>rd</sup> Ed.2017, 4500H+A+B,	7.69	2-12	8.5
2.	Turbidity as (NTU)	APHA, 23 <sup>rd</sup> Ed. 2017, 2130-A+B	19.0	1-100	-
3.	Total Dissolved Solids as TDS (mg/l)	APHA,23 <sup>rd</sup> Ed.2017 (2540C)	685.0	5-10000	1500
4.	Dissolved Oxygen as DO (mg/l)	APHA,23 <sup>rd</sup> Ed.2017 (4500 A+C)	5.7	2-10	4.0
5.	Biochemical Oxygen Demand as BOD (mg/l)	APHA,23 <sup>rd</sup> Ed.2017 (5210A+ B)	BDL	5-10000	3.0
6.	Chloride as Cl (mg/l)	APHA, 23 <sup>rd</sup> Ed. 2017, 4500 Cl A+B	64.0	5-1000	-
7.	Fluorides as F (mg/l)	APHA,23 <sup>rd</sup> Ed.2017 (4500 - C)	0.56	0.05-10	1.5
8.	Sulfate as SO <sub>4</sub> (mg/l)	APHA,23 <sup>rd</sup> Ed.2017 (4500 -SO <sub>4</sub> <sup>2-</sup> E)	67.80	1.0-250	400.0

\*The result are related only to item tested - The parameters are not included in IS: 2296 Class-C  
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**M/S TATA STEEL LIMITED**

**(SAND LEASE AREA)**



# ADITI R&D SERVICES

Testing Laboratory

NABL ACCREDITED

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Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/21-22/2627

Date: 09.08.2021


## TEST REPORT OF AMBIENT AIR QUALITY

- Name of the industry : TATA STEEL JHARIA DIVISION  
TATA STEEL COLLIERY  
(SAND LEASE AREA, BHOJUDIH)  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 04.08.2021 to 05.08.2021
- Date of Testing : 07.08.2021
- Test Procedure : As per IS-5182

### TEST RESULTS

LOCATION – ICCHAR HIGH SCHOOL			
	Avg. Ambient Temperature	29°C	Avg. Humidity
SI No.	Particulars	Value	68%
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	74.44	100 µg/m <sup>3</sup>
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	44.21	60 µg/m <sup>3</sup>
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	14.24	80 µg/m <sup>3</sup>
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	28.63	80 µg/m <sup>3</sup>
5.	Ozone, µg/m <sup>3</sup>	15.52	180 µg/m <sup>3</sup>
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	21.68	400 µg/m <sup>3</sup>
7.	CO, mg/m <sup>3</sup>	0.58	4 mg/m <sup>3</sup>
8.	Pb, µg/m <sup>3</sup>	BDL	1 µg/m <sup>3</sup>
9.	As, ng/m <sup>3</sup>	BDL	6 ng/m <sup>3</sup>
10.	Ni, ng/m <sup>3</sup>	BDL	20 ng/m <sup>3</sup>
11.	Benzene, µg/m <sup>3</sup>	BDL	5 µg/m <sup>3</sup>
12.	Benzoapyrene ng/m <sup>3</sup>	BDL	1 ng/m <sup>3</sup>

NOTE: BDL - Below Detection Limit

  
Sr. Chemist  
Aditi R&D Services



  
Technical-Manager  
Aditi R&D Services, Sindri

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Ref. No.: - ARDS/21-22/2628

Date: 09.08.2021


## TEST REPORT OF AMBIENT AIR QUALITY

- Name of the industry : TATA STEEL JHARIA DIVISION  
TATA STEEL COLLIERY  
(SAND LEASE AREA, BHOJUDIH)  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 04.08.2021 to 05.08.2021
- Date of Testing : 07.08.2021
- Test Procedure : As per IS-5182

### TEST RESULTS

LOCATION - LAGLA GRAM PANCHYAT				
	Avg. Ambient Temperature	29°C	Avg. Humidity	69%
Sl No.	Particulars	Value	CPCB STANDARD	
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	76.82	100 µg/m <sup>3</sup>	
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	48.56	60 µg/m <sup>3</sup>	
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	17.42	80 µg/m <sup>3</sup>	
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	28.64	80 µg/m <sup>3</sup>	
5.	Ozone, µg/m <sup>3</sup>	16.28	180 µg/m <sup>3</sup>	
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	22.65	400 µg/m <sup>3</sup>	
7.	CO, mg/m <sup>3</sup>	0.81	4 mg/m <sup>3</sup>	
8.	Pb, µg/m <sup>3</sup>	BDL	1 µg/m <sup>3</sup>	
9.	As, ng/m <sup>3</sup>	BDL	6 ng/m <sup>3</sup>	
10.	Ni, ng/m <sup>3</sup>	BDL	20 ng/m <sup>3</sup>	
11.	Benzene, µg/m <sup>3</sup>	BDL	5 µg/m <sup>3</sup>	
12.	Benzoapyrene ng/m <sup>3</sup>	BDL	1 ng/m <sup>3</sup>	

NOTE: BDL - Below Detection Limit

  
Sr. Chemist  
Aditi R&D Services



  
Technical Manager  
Aditi R&D Services, Sindri

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Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/21-22/2629

Date: 09.08.2021


## TEST REPORT OF AMBIENT AIR QUALITY

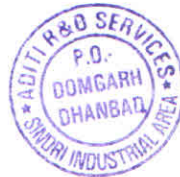
- Name of the industry : TATA STEEL JHARIA DIVISION  
TATA STEEL COLLIERY  
(SAND LEASE AREA, BHOJUDIH)  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO. : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 04.08.2021 to 05.08.2021
- Date of Testing : 07.08.2021
- Test Procedure : As per IS-5182

### TEST RESULTS

LOCATION – SAHARJURI SCHOOL				
	Avg. Ambient Temperature	29 <sup>o</sup> C	Avg. Humidity	68%
Sl No.	Particulars	Value	CPCB STANDARD	
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	78.93	100 µg/m <sup>3</sup>	
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	42.26	60 µg/m <sup>3</sup>	
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	14.81	80 µg/m <sup>3</sup>	
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	22.10	80 µg/m <sup>3</sup>	
5.	Ozone, µg/m <sup>3</sup>	18.48	180 µg/m <sup>3</sup>	
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	16.61	400 µg/m <sup>3</sup>	
7.	CO, mg/m <sup>3</sup>	0.88	4 mg/m <sup>3</sup>	
8.	Pb, µg/m <sup>3</sup>	BDL	1 µg/m <sup>3</sup>	
9.	As, ng/m <sup>3</sup>	BDL	6 ng/m <sup>3</sup>	
10.	Ni, ng/m <sup>3</sup>	BDL	20 ng/m <sup>3</sup>	
11.	Benzene, µg/m <sup>3</sup>	BDL	5 µg/m <sup>3</sup>	
12.	Benzoapyrene ng/m <sup>3</sup>	BDL	1 ng/m <sup>3</sup>	

NOTE: BDL - Below Detection Limit

  
Sr. Chemist  
Aditi R&D Services



  
Technical Manager  
Aditi R&D Services, Sindri

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Ref. No.: - ARDS/21-22/ 2630

Date: 09.08.2021


## TEST REPORT OF AMBIENT AIR QUALITY

- Name of the industry : TATA STEEL JHARIA DIVISION  
TATA STEEL COLLIERY  
(SAND LEASE AREA, BHOJUDIH)  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 04.08.2021 to 05.08.2021
- Date of Testing : 07.08.2021
- Test Procedure : As per IS-5182

### TEST RESULTS

LOCATION – RAILWAY COLONY , BHOJUDIH			
	Avg. Ambient Temperature	29 <sup>o</sup> C	Avg. Humidity
Sl No.	Particulars	Value	CPCB STANDARD
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	82.31	100 µg/m <sup>3</sup>
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	44.23	60 µg/m <sup>3</sup>
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	16.56	80 µg/m <sup>3</sup>
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	20.76	80 µg/m <sup>3</sup>
5.	Ozone, µg/m <sup>3</sup>	16.64	180 µg/m <sup>3</sup>
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	20.62	400 µg/m <sup>3</sup>
7.	CO, mg/m <sup>3</sup>	0.42	4 mg/m <sup>3</sup>
8.	Pb, µg/m <sup>3</sup>	BDL	1 µg/m <sup>3</sup>
9.	As, µg/m <sup>3</sup>	BDL	6 µg/m <sup>3</sup>
10.	Ni, µg/m <sup>3</sup>	BDL	20 µg/m <sup>3</sup>
11.	Benzene, µg/m <sup>3</sup>	BDL	5 µg/m <sup>3</sup>
12.	Benzoapyrene µg/m <sup>3</sup>	BDL	1 µg/m <sup>3</sup>

NOTE: BDL - Below Detection Limit

  
Sr. Chemist  
Aditi R&D Services



  
Technical Manager  
Aditi R&D Services, Sindri

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## TEST REPORT OF NOISE (AMBIENT) LEVEL MONITORING

Ref. No. & Date	NAME AND ADDRESS OF THE CLIENT			
ARDS/21-22/2631 Date:09.08.2021	TATA STEEL JHARIA DIVISION			
Date of Monitoring	TATA STEEL COLLIERY (SAND LEASE AREA, BHOJUDIH) DIST. - DHANBAD (JHARKHAND)			
04.08.2021 – 05.08.2021	Avg. Ambient Temperature (°C)	Average Humidity (%)	Weather Condition	Status of the plant
Work Order 4700092573/932 Dt. 20.07.2021	29	68	Clear	Not in Operational

### MONITORING RESULTS

Sl. No	Place of Monitoring	Day Time (6 AM to 10 PM) Avg. dB(A)			Night Time (10 PM to 6 AM) Avg. dB(A)			Noise level (Ambient standard) for Industrial Area as per CPCB Noise Pollution (Regulation and Control) (Amendment) Rules, 2000 notified vide S.O. 1046(E) Dt. 22.11.2020 Limit in dB(A) Leq	
		MAX	MIN	AVG. dB(A) Leq	MAX	MIN	AVERAGE dB(A) Leq	Day Time	Night Time
LOCATION		MAX	MIN	AVG. dB(A) Leq	MAX	MIN	AVERAGE dB(A) Leq	Residential Area	Residential Area
SAND LEASE AREA									
1.	Saharjuri School	52.3	50.1	51.34	42.8	38.2	41.08	55.00	45.00
2.	Lagla Gram Panchyat	50.1	46.0	48.52	40.8	38.2	39.69		
3.	Ichhar High School	52.4	43.3	49.89	41.7	37.5	40.09		
4.	Railway Colony Bhojidih	53.4	44.2	50.88	44.6	40.9	43.13		

  
Sr. Chemist  
Aditi R&D Services



  
Technical Manager  
Aditi R&D Services, Sindri

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Ref. No.: - ARDS/21-22/2724


Date: 14.08.2021

## TEST REPORT OF MINERALOGICAL COMPOSITION OF PARTICULATE MATTER

- Name of the industry : TATA STEEL JHARIA DIVISION  
TATA STEEL COLLIERY  
(SAND LEASE AREA, BHOJUDIH)  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 05.08.2021
- Date of Testing : 07.08.2021 – 09.08.2021

### TEST RESULTS

Sl No.	Particulars	Mineralogical Composition (%)			
		SiO <sub>2</sub>	FeO	Al <sub>2</sub> O <sub>3</sub>	CaO
1.	Icchar High School	1.71	0.06	1.20	2.2
2.	Railway Colony, Bhojudih	2.02	0.14	1.22	2.93

  
Sr. Chemist  
Aditi R&D Services



  
Technical Manager  
Aditi R&D Services, Sindri

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Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/21-22/2725

Date: 14.08.2021

## TEST REPORT OF SURFACE WATER

- Name of the industry : TATA STEEL JHARIA DIVISION  
TATA STEEL COLLIERY  
(SAND LEASE AREA, BHOJUDIH)  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO. : 4700092573/932 Dt. 20.07.2021
- Sample Code : 1. Gowai River (Up Stream)  
2. Gowai River (Dn. Stream)  
3. Izri River (Up Stream)  
4. Izri River (Dn. Stream)
- Date of Sample Collection: 04.08.2021
- Date of Testing : 06.08.2021 - 12.08.2021
- Test : pH, TDS, Turbidity, DO, BOD, Cl, F, SO<sub>4</sub>

### TEST RESULT

Sl. No.	PARAMETERS OF TEST	VALUE				Limit as per IS 2296 Class - C	Test Method
		Gowai River (Up Stream)	Gowai River Dn. Stream	Izri River (Up Stream)	Izri River (Dn. Stream)		
1.	pH,	7.9	8.0	7.7	7.9	8.5	IS-3025 (P-11): 1983
2.	Total Dissolved Solids, mg/l	676	708	692	768	1500 (Max.)	IS-3025 (P-16): 1984
3.	Turbidity, NTU	10.0	12.0	10.2	14.4	-	IS-3025 (P-10):1984
4.	Dissolved Oxygen, mg/l	5.6	5.4	5.5	4.3	4.0 (Min)	IS-3025 (P-38):1989
5.	Bio chemical Oxygen Demand, mg/l	1.0	2.3	1.0	2.0	3.0	IS-3025 (P-44):1994
6.	Chloride as Cl, mg/l	32.0	38	60.6	65.8	-	IS-3025 (P-32):1988
7.	Fluoride as F, mg/l	0.60	0.52	0.60	0.64	1.5	IS-3025 (P-60):2008
8.	Sulphate as SO <sub>4</sub> , mg/l	58.2	60.4	54.2	58.4	400	IS-3025 (P-24):1986

*S. D. Singh*

Sr. Chemist  
Aditi R&D Services



*J. K. Singh*

Technical Manager  
Aditi R&D Services, Sindri

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