



**The Deputy Director General of Forests (C),  
Ministry of Environment, Forest and Climate Change,  
Integrated Regional Office, (IRO) - Ranchi  
2nd floor, Headquarter, Jharkhand State Housing Board Harmu Chowk,  
Harmu Housing Colony, Argora, Jharkhand - 834002.**

Ref No. - JMB/ENV/JCPP/38/ 291 /2024  
May 27<sup>th</sup>, 2024

Ref.: Environmental Clearance letter no. - J-11015/203/2011-IA.II(M) dated- 3<sup>rd</sup> March 2014.

**SUB: Half Yearly Compliance Status Report of Environment Clearance conditions issued  
by MoEFCC, New Delhi to Jamadoba Coal washery, Tata Steel Limited, Dhanbad  
for the period October-23 to March-24.**

Dear Sir,

We are enclosing herewith compliance report for the period **October-23 to March-24** for the EC granted vide letter no.- J-11015/203/2011-IA.II(M) dated- 3<sup>rd</sup> March 2014 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](http://www.tatasteel.com)

Your (**Environment Clearance**) application has been **Submitted** with following details

Proposal No	IA/JH/CMIN/7813/2012
Compliance ID	72094821
Compliance Number(For Tracking)	EC/M/COMPLIANCE/72094821/2024
Reporting Year	2024
Reporting Period	01 Jun(01 Oct - 31 Mar)
Submission Date	30-05-2024
IRO Name	ARTATRANA MISHRA
IRO Email	jhk109@ifs.nic.in
State	JHARKHAND
IRO Office Address	Integrated Regional Offices, Ranchi

**Note:-** SMS and E-Mail has been sent to ARTATRANA MISHRA, JHARKHAND with Notification to Project Proponent.

**Half Yearly Compliance Report  
2024  
01 Jun(01 Oct - 31 Mar)**

**Acknowledgment**

<b>Proposal Name</b>	Expansion of Jamadoba Coal washery (1 MTPA to 2 MTPA in 7 ha Area and 24° 31' 30" to 24° 32' 30" N & 87° 25' 00" to 87° 30' 00" E) of M/s Tata Steel Ltd. Tehsil Jharia, dist. Dhanbad, Jharkhand		
<b>Name of Entity / Corporate Office</b>	Tata Steel Ltd.		
<b>Village(s)</b>	N/A		
<b>District</b>	DHANBAD		
<b>Proposal No.</b>	IA/JH/CMIN/7813/2012	<b>Category</b>	Coal Mining
<b>Plot / Survey / Khasra No.</b>	N/A	<b>Sub-District</b>	N/A
<b>State</b>	JHARKHAND	<b>Entity's PAN</b>	AAICM3854E~LALALLL
<b>MoEF File No.</b>	J-11015/203/2011-IA.II(M)	<b>Entity name as per PAN</b>	Prakash Sinha

**Compliance Reporting Details**

<b>Reporting Year</b>	2024
<b>Remarks (if any)</b>	Half Yearly Compliance submission for October 2023- March 2024.
<b>Reporting Period</b>	01 Jun(01 Oct - 31 Mar)

**Details of Production and Project Area**

<b>Name of Entity / Corporate Office</b>	Tata Steel Ltd.	
	<b>Project Area as per EC Granted</b>	<b>Annual Project Area in Possession</b>
Private	0	0
Revenue Land	0	0
Forest	0	0
Others	0	0
Total	0	0

**Production Capacity**

Sr. no	Product Name	units	Valid Upto	Capacity	Production last year	Capacity as per CTO
1	Raw Coal	Million Tons per Annum (MTPA)	N/A	2	0.729	

## Conditions

### Specific Conditions

Sr.No.	Condition Type	Condition Details
1	MISCELLANEOUS	No use of fly ash with sand will take place for stowing in underground mines.

**PPs Submission:** Complied  
This will be strictly followed for our captive underground mines.

Date:  
29/05/2024

2	Risk Mitigation and Disaster Management	The raw coal, washed coal and middling and coal wastes (rejects) shall be stacked properly at earmarked site(s) within sheds/stockyards fitted with wind breakers/shields. Adequate measures shall be taken to ensure that the stored minerals do not catch fire. The storage period shall be not more than 2-3 days.
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**PPs Submission:** Complied  
The material is being stacked properly at stockyards located within the washery. We have a well-established system for disposal of rejects/ tailings to consumers so that storage period is not more than 2-3 days.

Date:  
29/05/2024

3	Statutory compliance	The proponent shall maintain proper records of the ash content of raw (ROM) coal, clean coal, middling and coal rejects along with quantum of raw coal obtained and washed and dispatched every month and the same shall be uploaded on the company website every month.
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**PPs Submission:** Complied  
Proper records are being maintained and the details are uploaded on the company website.

Date:  
29/05/2024

4	MISCELLANEOUS	All internal roads shall be concreted or black topped and the approach roads used for the project shall be blacked topped. Facilities for parking of trucks carrying raw coal from the linked coalmines shall be created within the Unit.
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**PPs Submission:** Complied  
All the internal roads have been concreted while the approach roads are black topped. There is a facility for parking of trucks within the unit.

Date:  
29/05/2024

5	Statutory compliance	Roads used for coal transportation to the linked DRI/TPP shall be developed with 3-tier avenue plantation using a mix of native species. The trucks used for coal transportation shall be high capacity trucks. Drivers of trucks for coal transportation shall be engaged based on past records of road safety and compliance of safety regulations and shall be suitably sensitized about road safety and maintenance of vehicles to keep vehicular emissions to be within prescribed limits.
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**PPs Submission:** Complied  
There is no linked DRI/TPP. - Raw coal is received via underground coal conveyor belt network from captive collieries. - Clean coal is dispatched via rail from the Rail-yard situated on the washery

Date:  
29/05/2024



<p>premises. The clean coal is kept in storage bins and directly transferred to the rail wagons through covered coal-conveying system. - As for the trucks moving for transportation of tailings and rejects are properly covered with tarpaulin. All the given provisions related to road safety and driver competence are being strictly complied with.</p>		
6	Statutory compliance	The roads (internal/approach and roads used for the project) shall be regularly cleaned with mechanical sweepers and with water sprinklers. A 3-tier avenue plantation shall be developed along the major approach roads, internal roads and nearby roads used by the company.
<p><b>PPs Submission:</b> Complied Fixed Water sprinklers have already been installed in the washery premises. Plantation along the road-side is done wherever feasible. A three-tier green belt development is in progress</p>		<p>Date: 29/05/2024</p>
7	GREENBELT	Green belt shall be developed along the areas such as the washery unit, crushing unit, and stockyards and at transfer points and in between mine operations and habitations.
<p><b>PPs Submission:</b> Complied Greenery has been developed in many areas around the washery premises. Saplings have been planted along the boundary of washery for greenbelt development.</p>		<p>Date: 29/05/2024</p>
8	AIR QUALITY MONITORING AND PRESERVATION	Hoppers of the coal crushing unit at the crushing shed and washery unit shall be fitted with high efficiency bag filters/Dust extractors and mist spray water sprinkling system shall be installed and operated effectively at all times of operation to check fugitive emissions from crushing operations, transfer points of belt conveyor systems which shall be closed and from transportation roads.
<p><b>PPs Submission:</b> Complied Dry-fog dust suppression system has been already installed to suppress the dust generated at CHP and transfer points of belt conveyor systems. Fixed-type water sprinklers are also installed on the internal roads of the washery. These are always operated effectively to check the fugitive emissions. Fugitive dust emission monitoring is done on regularly. The values are within the stipulated norms.</p>		<p>Date: 29/05/2024</p>
9	WASTE MANAGEMENT	The proponent shall ensure that coal such as stones, shale and other wastes of an ash content of 77% or more only shall be dumped into the mine voids. Coal rejects with an ash content of 76% or less shall be fully utilized for power generation in linked TPP.
<p><b>PPs Submission:</b> Complied It is being followed.</p>		<p>Date: 29/05/2024</p>
10	WATER QUALITY MONITORING AND PRESERVATION	Regular monitoring of groundwater level and quality including levels of heavy metals such as Hg, Cd, Cr, Se, etc shall be carried out by establishing a network of existing wells and construction of new peizometers. The monitoring for quantity and quality of ground water as per IS: 10500 shall be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons. Proper records of the data thus collected shall be maintained submitted to the Ministry of Environment & Forests and to the Central Pollution Control Board quarterly within one month of monitoring.
<p><b>PPs Submission:</b> Complied The monitoring of groundwater level and quality is done regularly as per the requirements. The groundwater quality report &amp; groundwater level are provided in Annexure-II. The monitoring of heavy metals such as Hg, Cd, Cr, Se, etc in the groundwater is done on quarterly basis by NABL</p>		<p>Date: 30/05/2024</p>

accredited third party and the report has been provided in Annexure-II.		
11	WATER QUALITY MONITORING AND PRESERVATION	As the entire mine water is proposed to be used for the mine-cum-washery operations, measures shall be taken for recharging ground water in and around the mine in the study area. A Plan for water conservation and recharge measures of ground water along with budgetary provisions be prepared and implemented in consultation with the Central/State Ground Water Board to mitigate the adverse impact of mining which may lead to depletion of ground water in the area. The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource in case monitoring of groundwater levels indicate decline of water table. Any additional water requirement for mining operation shall be met from rainwater use only. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.
<b>PPs Submission:</b> Complied Some of the water pumped out during underground mining activity is re-circulated back into the mine for the purpose of stowing. Backfilling of mine voids by stowing is done using sand which is having the porosity to hold the underground water thus helping aquifer to retain the underground water. Further, there are several ponds existing on the surface of the mining lease which act as natural reservoirs for recharging ground water. These ponds/ tanks are regularly cleaned and maintained by our CSR department. As per the hydro-geological report, the variation in the ground water level is only seasonal. The water requirement of the nearby villages is being met by the company already. Now piped drinking water is being provided.		Date: 29/05/2024
12	WATER QUALITY MONITORING AND PRESERVATION	ETP shall also be provided for treatment of effluents from workshop, CHP and an STP shall be provided in the colony and the treated effluents shall be used for green belt development. Outflow of rainfall, if any, from the mine shall meet prescribed norms and the water quality of such discharge including levels of heavy metals such as Hg, Cd, Cr., Se, etc shall be monitored at the exit points and records maintained thereof and also uploaded on the company website. Online monitoring equipment shall be installed by the proponent to ensure that the water quality parameters of mine water discharge are well within the General Discharge Standards under EP, Rules, 1986.
<b>PPs Submission:</b> Complied No effluent is discharged outside of the washery. There is no separate workshop in the washery premises. A central workshop exists in Jamadoba Colliery with Effluent Treatment Plant facility having Oil and Grease Trap. One Sewage Treatment Plant (STP) of 50 KLD and one STP of 10 KLD has been installed in one of the colonies of Jamadoba and Jamadoba canteen. Their treated water is used for gardening and other purpose.		Date: 29/05/2024
13	Human Health Environment	Besides carrying out regular periodic health check-up of their workers, 10% of the workers identified from workforce engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any, through a recognised agency found in the district, and the results reported to this Ministry and to DGMS.
<b>PPs Submission:</b> Complied Not applicable as this is coal beneficiation plant. Though PME is done for washery workers periodically at our Occupational Health centre. Records of the same has been furnished earlier.		Date: 29/05/2024
14	Statutory compliance	For monitoring land use pattern and for post mining land use, a time series of landuse maps, based on satellite imagery (on a scale of 1: 5000) of the core zone and buffer zone, from the start of the project

		until end of mine life shall be prepared once in 3 years (for any one particular season which is consistent in the time series), and the report submitted to MOEF and its concerned Regional Office in the region.
<b>PPs Submission:</b> Complied Complied. The land use study has been completed by Indian School of Mines (IIT-ISM) Dhanbad and the report is submitted vide letter no. JMB/ENV/BAC/38/467/2021 dated: 27.06.2021 to Regional Office, MoEFCC at Ranchi		Date: 29/05/2024
15	Statutory compliance	Land oustees shall be compensated as per the norms laid out R&R Policy of CIL or the National R&R Policy or R&R Policy of the State Government whichever is higher.
<b>PPs Submission:</b> Complied Not applicable		Date: 29/05/2024
16	MINING PLAN	A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests five year before mine closure for approval. Habitat Restoration Plan of the mine area shall be carried out using a mix of native species found in the original ecosystem, which were conserved in-situ and ex-situ in an identified area within the lease for reintroduction in the mine during mine reclamation and at the post mining stage for habitat restoration and for development of grasslands.
<b>PPs Submission:</b> Complied Not applicable		Date: 29/05/2024
17	LAND RECLAMATION	Action plan be developed and implemented for abandoned tailing ponds and for their restoration to the original land use.
<b>PPs Submission:</b> Complied Action plan for cut-off of tailing ponds from tailing management system is in place. Abandoned tailing ponds have been reclaimed by backfilling. Technical reclamation have taken place in two large ponds. Biological reclamation is going on by planting native species.		Date: 29/05/2024
18	WASTE MANAGEMENT	Fly ash generated from the captive power plant of the washery be utilized for house construction, roads and such uses, strictly complying to the timeline in the EIA Notification, 2006 and maintaining proper records.
<b>PPs Submission:</b> Complied This is not applicable as we have ceased the operation of our captive Jamadoba power plant since April' 15.		Date: 29/05/2024
19	WASTE MANAGEMENT	Transportation of fly ash to be done properly by mechanically covered trucks.
<b>PPs Submission:</b> Complied This is not applicable as there is no fly ash being generated since April' 15.		Date: 29/05/2024
20	Corporate Environmental Responsibility	The proponent shall expedite the activities undertaken by TSRDS in over 30 villages in the leasehold area over 15000 households covering a population of about 1.4 lakh.
<b>PPs Submission:</b> Complied CSR activities of TSRDS are managed by a team of experts who are dedicatedly involved in providing benefits and improving standard of living in over 30 villages. The list of activities are		Date: 29/05/2024

developed in consultation with the village representatives and implemented in a time-bound manner.		
21	Corporate Environmental Responsibility	The CSR cost should be Rs 5 per Tonnes of Coal produced which should be adjusted as per the annual inflation.
<b>PPs Submission:</b> Complied The proposed CSR expenditure for the entire company is decided as per the new Company Rules. Once the CSR budget for company is fixed, a share of that amount is dedicated and utilized for implementing the CSR activities at our Jharia Division level. The CSR expenditure for FY23 is Rs. 11.84 crores.		Date: 29/05/2024
22	Corporate Environmental Responsibility	Cost for additional environmental protection measures shall be not less than Rs. 503.00 lakhs. The status of implementation including costs incurred shall be regularly reported to this Ministry and its respective Regional Office in the region as part of the compliance report and also uploaded on the company website.
<b>PPs Submission:</b> Complied The regular expenditure incurred for environment protection and management are submitted to MoEF&CC & SPCB in Annual Environment Statement and the status is uploaded on company website as a part of compliance report of AES.		Date: 29/05/2024
23	GREENBELT	The slope of the embankment towards the river shall be at least 1:3 for stability and shall be stabilized with plantation using native species selected from the study area
<b>PPs Submission:</b> Complied The washery is about 1.5 kms away from the Damodar River. Hence it is not applicable.		Date: 29/05/2024
24	GREENBELT	Top soil shall be stored in the earmarked area and used within a year of its generation for green belt development and for plantation/reclamation.
<b>PPs Submission:</b> Complied There are no topsoil dumps hence it is not applicable.		Date: 29/05/2024
25	MINING PLAN	No external OB dump shall be created for the expansion project. Monitoring and management of existing reclaimed dumpsites shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its respective Regional Office on yearly basis.
<b>PPs Submission:</b> Complied Not applicable as this is a washery project.		Date: 29/05/2024
26	MINING PLAN	Catch drains and siltation ponds of appropriate size shall be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The water so collected shall be utilised for watering the mine area, roads, green belt development, etc. The drains shall be regularly desilted and maintained properly.
<b>PPs Submission:</b> Complied There are no soil or OB dumps in the washery premises. Only the by-products are stored in the stockyards located in the washery premises which are sold off within a week.		Date: 29/05/2024
27	Risk Mitigation and Disaster Management	Garland drains (size, gradient and length) and sump capacity shall be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the

		mine site. Sump capacity shall also provide adequate retention period to allow proper settling of silt material.
<b>PPs Submission:</b> Complied Garland drains of adequate size and gradient already exist around the washery area to channelize the surface runoff. The runoff is diverted to the tailing ponds and clear water is utilized in the washery.		Date: 29/05/2024
28	Risk Mitigation and Disaster Management	Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and siltation shall be based on the rainfall data.
<b>PPs Submission:</b> Complied Not applicable as we do not have any opencast mines.		Date: 29/05/2024
29	AIR QUALITY MONITORING AND PRESERVATION	Crushers at the CHP shall be operated with high efficiency bag filters/water sprinkling system shall be provided to check fugitive emissions from crushing operations, conveyor system which shall be closed, haulage roads, transfer points, etc.
<b>PPs Submission:</b> Complied The following measures have been implemented: i) Dry-fog system at all transfer points of CHP ii) Enclosures around crushers. iii) Belts have been covered on top and both sides. These arrangements will protect the coal mass moving on belt from blowing wind. In this way, the dust getting air borne is being minimized. iv) Fixed water sprinklers on the haulage roads. v) In addition, movable water sprinklers are also being deployed on the roads for dust suppression. vi) Dust Extraction System vii) Strengthening of tailing management system viii) Concretization of working complex		Date: 29/05/2024
30	MISCELLANEOUS	Drills shall be wet operated only.
<b>PPs Submission:</b> Complied Not applicable as this is coal beneficiation plant		Date: 29/05/2024
31	Risk Mitigation and Disaster Management	Controlled blasting shall be practiced with use of delay detonators and only during daytime. The mitigative measures for control of ground vibrations and to arrest the fly rocks and boulders shall be implemented.
<b>PPs Submission:</b> Complied Not applicable as this is coal beneficiation plant.		Date: 29/05/2024
32	WATER QUALITY MONITORING AND PRESERVATION	The Washery shall be a zero-discharge and no wastewater shall be discharged from the washery into the drains/natural watercourses. No groundwater shall be used for washery operations. Recycled water shall be used for development and maintenance of green belt and in the plant operations.
<b>PPs Submission:</b> Complied Washery is already operating on a zero-discharge principle. No wastewater is discharged into the drains/ natural water systems. Only mine water is utilized for the washery operations as make up water requirement. The recycled water is again used for plant operations and green-belt development.		Date: 29/05/2024
33	Corporate Environmental Responsibility	Corporate Environment Responsibility: a) The Company shall have a well laid down Environment Policy approved by the Board of Directors. b) The Environment Policy shall prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions. c) The hierarchical system or Administrative Order

		of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions shall be furnished. d) To have proper checks and balances, the company shall have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.
<b>PPs Submission:</b> Complied 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. Moreover, Jamadoba Coal Washery is IMS (Integrated Management System: Quality Management System, Environment Management System and OHSAS) certified unit addressing all environment aspects, impacts and needs and expectation of interested parties with respect to environment protection.		Date: 30/05/2024
34	Corporate Environmental Responsibility	The proponent shall expedite and implement the pilot plant to convert mine water into drinking/domestic water to supply the same to the population of Dhanbad and surrounding areas and shall continue to carry out this activity.
<b>PPs Submission:</b> Complied Mine water is already being converted into potable water by Tata Steel in our 4 nos. Water Treatments Plants (located at Jamadoba, Digwadih, Bhelatand and Malkera having cumulative capacity of around 8000 KL/D). The treated water is then supplied to our colonies and leasehold villages. This will continue in future too.		Date: 29/05/2024
35	Corporate Environmental Responsibility	Tanks/ponds shall be regularly cleaned and maintained. Plantation activities shall be intensified in the mine areas.
<b>PPs Submission:</b> Complied Tanks/ ponds are regularly cleaned and maintained by TSRDS. Plantation activities are undertaken every year in the barren mine leasehold areas. Further, TSRDS engages with the villagers for plantation in the village lands.		Date: 29/05/2024
36	GREENBELT	Adequate green belt shall be provided around coal handling and other areas.
<b>PPs Submission:</b> Complied Greenery has been developed in many areas around the washery premises. Since the expansion job has been completed, remaining area is also being developed. Attached as Annexure I.		Date: 30/05/2024
37	Corporate Environmental Responsibility	The proponent shall connect all the villages in the leasehold area with water pipeline connection.
<b>PPs Submission:</b> Complied All the villages in the leasehold areas are being supplied safe drinking water through pipeline connection. A network of more than 22000 metres of pipeline connection has been established along with 33 water tanks (capacity of 4500 litres).		Date: 29/05/2024
<b>General Conditions</b>		
Sr.No.	Condition Type	Condition Details
1	Statutory compliance	The environmental statement for each financial year ending 31st March in Form-V is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as

		prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be uploaded on the company's website along with the status of compliance of EC conditions and shall be sent to the respective Regional Offices of the MOEF by E-mail.
<b>PPs Submission:</b> Complied The environmental statement for financial year 2022-23 has been submitted to JSPCB on 29th September 2023 vide letter no. JMB/ENV/ESSA/05/734/2023 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.		Date: 29/05/2024
2	Statutory compliance	The Regional Office of this Ministry located at Bhopal shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/information/monitoring reports.
<b>PPs Submission:</b> Complied It will be complied with.		Date: 29/05/2024
3	MINING PLAN	No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests.
<b>PPs Submission:</b> Complied The points mentioned in the EC letter will be strictly followed.		Date: 29/05/2024
4	MISCELLANEOUS	No change in the calendar plan of production for quantum of mineral coal shall be made.
<b>PPs Submission:</b> Complied It will be strictly followed.		Date: 29/05/2024
5	AIR QUALITY MONITORING AND PRESERVATION	Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for PM10, PM2.5, SO2 and NOx monitoring. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc carried out at least once in six months.
<b>PPs Submission:</b> Complied The Air quality monitoring stations are: (i)Jamadoba Group Office (Core Zone) (ii)New Village Colony, Jamadoba (Buffer Zone) (iii)Digwadih 12 No. Colony (Buffer Zone) (iv)6&7 Pits Kalimandir area (Buffer Zone) Monitoring of heavy metals in ambient air is being performed by an independent laboratory (recognised by NABL and JSPCB). The results are enclosed as Annexure.		Date: 30/05/2024
6	Statutory compliance	Data on ambient air quality (PM10, PM 2.5, SO2 and NOx) and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly submitted to the Ministry including its concerned Regional Office and to the State Pollution Control Board and the Central Pollution Control Board once in six months. Random verification of samples through analysis from independent laboratories recognized under the EPA rules, 1986 shall be furnished as part of compliance report.
<b>PPs Submission:</b> Complied		Date:

Ambient air quality report (PM10, PM 2.5, SO2 and NOx) for the period from Oct'23 to Mar'24 is attached as Annexure-II. Additionally, the third party monitoring is being done through a JSPCB & NABL accredited Laboratory for ambient air quality (PM10, PM 2.5, SO2, NOx, CO, NH3, O3) and heavy metals (As, Ni, Cd and Cr). The results are enclosed as Annexure-II.		30/05/2024
7	Noise Monitoring & Prevention	Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with ear plugs/muffs.
<b>PPs Submission:</b> Complied Regular noise survey is being conducted in the underground work environment. Workers are provided with ear-plugs/ muffs in high noise areas.		Date: 29/05/2024
8	WATER QUALITY MONITORING AND PRESERVATION	Industrial wastewater (workshop and wastewater from the mine) shall 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 before discharge. Oil and grease trap shall be installed before discharge of workshop effluents.
<b>PPs Submission:</b> Complied No waste-water is discharged outside the washery premises. 100% water is recirculated back for re-use in the washery. There is a central workshop and garage in Jamadoba Effluent Treatment Plant which includes oil and grease trap has been provided.		Date: 29/05/2024
9	AIR QUALITY MONITORING AND PRESERVATION	Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transporting the mineral shall be covered with tarpaulins and optimally loaded.
<b>PPs Submission:</b> Complied Only the vehicles having valid PUC certificates are being allowed to operate. Coal transportation through trucks is done only from BCCL mines till washery and it is ensured that only optimally loaded trucks with proper tarpaulin cover are allowed into the washery premises.		Date: 29/05/2024
10	Statutory compliance	Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with SPCB and data got analysed through a laboratory recognized under EP Rules, 1986.
<b>PPs Submission:</b> Complied We have a fully equipped Environment Cell Laboratory with qualified personnel. The monitoring and analysis is also done at regular intervals by a JSPCB & NABL recognized laboratory. We have also installed a Continuous Ambient Air Quality Monitoring Station at Jamadoba for real time monitoring.		Date: 29/05/2024
11	Human Health Environment	Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects.
<b>PPs Submission:</b> Complied Persons working in dusty area have been provided with dust masks & have been given awareness training on safety & health aspects. Regular PME (Periodic Medical Examinations) are being done.		Date: 29/05/2024
12	Human Health Environment	Occupational health surveillance programme of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed and records maintained thereof. The quality of environment due to outsourcing and the health and safety issues of the outsourced manpower should



		be addressed by the company while outsourcing.
<b>PPs Submission:</b> Complied The occupational health surveillance programme of the workers is done regularly by our Occupational Health Department, Tata Central Hospital, Jamadoba. We have a PME (Periodic Medical Examination) centre approved by DGMS where annually 20% of the workers identified from workforce engaged in active mining operations are subjected to full medical checkup including hearing impairment checkup, etc. These results are regularly submitted to DGMS as per mines rules. Contractual workers health examination is also done by PME centre.		Date: 29/05/2024
13	MISCELLANEOUS	A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior Executive, who will report directly to the Head of the company.
<b>PPs Submission:</b> Complied We have a separate Environmental Management Cell with qualified personnel. The reporting of Environmental Cell is directly to General Manager of the Division.		Date: 29/05/2024
14	Corporate Environmental Responsibility	The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its Regional Office at Bhubaneswar.
<b>PPs Submission:</b> Complied The Environment Cell has a separate fund for Environmental protection measures and for complying with legal requirements. The annual environmental expenditure for the financial year 2021-22 is Rs. 1098.32 lakhs.		Date: 29/05/2024
15	Statutory compliance	The Project authorities shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution control Board and may also be seen at the website of the ministry of Environment & Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a> .
<b>PPs Submission:</b> Complied It has been complied with. Attached as an Annexure.		Date: 30/05/2024
16	Statutory compliance	A copy of the environmental clearance letter shall be marked to concerned Panchayat/Zila Parishad, Municipal Corporation or Urban Local Body and local NGO, if any, from whom any suggestion/representation has been received while processing the proposal. A copy of the clearance letter shall also be displayed on the company's website.
<b>PPs Submission:</b> Complied It has been complied with. Attached as an Annexure.		Date: 30/05/2024
17	Statutory compliance	A copy of the clearance letter shall be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industry Centre and Collector's Office/Tehsildar's Office for 30 days.
<b>PPs Submission:</b> Complied It has been complied with.		Date: 29/05/2024

18	Statutory compliance	<p>The clearance letter shall be uploaded on the company's website. The compliance status of the stipulated EC conditions shall also be uploaded by the project authorities on their website and updated at least once every six months so as to bring the same in the public domain. The monitoring data of environmental quality parameters (air, water, noise and soil) and critical pollutants such as PM10, PM2.5, SO2 and NOx (ambient and stack if any) and critical sectoral parameters shall also be displayed at the entrance of the project premises and mines office and in corporate office and on the company's website.</p>	
<p><b>PPs Submission:</b> Complied          The clearance letter has been uploaded on the company's website. The compliance status (as Half-yearly compliance report) is being uploaded in company's website. The display of information near the washery's office has been provided.</p>			<p>Date: 29/05/2024</p>
19	Statutory compliance	<p>The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) to the respective Regional Office of the MOEF, the respective Zonal offices of CPCB and the SPCB.</p>	
<p><b>PPs Submission:</b> Complied          It has been complied with.</p>			<p>Date: 29/05/2024</p>
<p style="text-align: center;"><b>Visit Remarks</b></p>			
<b>Last Site Visit Report Date:</b>		N/A	
<b>Additional Remarks:</b>			

# **HALF YEARLY COMPLIANCE REPORT**

**(PERIOD: OCTOBER'23 – MARCH'24)**

## **JAMADOBA COAL WASHERY**

**(CAPACITY: EXPANSION FROM 1 TO 2 MTPA RAW COAL  
THROUGHPUT)**

**TEHSIL: JHARIA, DIST: DHANBAD, JHARKHAND**



**TATA STEEL LIMITED, JHARIA DIVISION**

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

**ENVIRONMENTAL CLEARANCE GRANTED VIDE LETTER NO. - J-  
11015/203/2011-IA.II(M) DATED- 03.03.2014 ISSUED BY GOVT. OF INDIA,  
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE, NEW  
DELHI.**

**Compliance status of Expansion of Jamadoba Coal washery (1 MTPA to 2 MTPA in 7 ha Area) of M/s Tata Steel Ltd. Tehsil Jharia, dist. Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/203/2011-IA.II (M) dated March 3, 2014**

S. No.	Condition	Compliance Status
<b>Specific Condition</b>		
(i)	Adequate green belt shall be provided around coal handling and other areas.	Greenery has been developed in many areas around the washery premises. Since the expansion job has been completed, remaining area is also being developed. Attached as <b>Annexure I.</b>
(ii)	Action plan be developed and implemented for abandoned tailing ponds and for their restoration to the original land use.	Action plan for cut-off of tailing ponds from tailing management system is in place. Abandoned tailing ponds have been reclaimed by backfilling. Technical reclamation have taken place in two large ponds. Biological reclamation is going on by planting native species.
(iii)	Fly ash generated from the captive power plant of the washery be utilized for house construction, roads and such uses, strictly complying to the timeline in the EIA Notification, 2006 and maintaining proper records.	This is not applicable as we have ceased the operation of our captive Jamadoba power plant since April'15.
(iv)	No use of fly ash with sand will take place for stowing in underground mines.	This will be strictly followed for our captive underground mines.
(v)	Transportation of fly ash to be done properly by mechanically covered trucks.	This is not applicable as there is no fly ash being generated since April'15.
(vi)	The proponent shall connect all the villages in the leasehold area with water pipeline connection.	All the villages in the leasehold areas are being supplied safe drinking water through pipeline connection. A network of more than 22000 metres of pipeline connection has been established along with 33 water tanks (capacity of 4500 litres).
(vii)	The proponent shall expedite and implement the pilot plant to convert mine water into drinking/domestic water to supply the same to the population of Dhanbad and surrounding areas and shall continue to carry out this activity.	Mine water is already being converted into potable water by Tata Steel in our 4 nos. Water Treatments Plants (located at Jamadoba, Digwadiah, Bhelatand and Malkera having cumulative capacity of around 8000 KL/D). The treated water is then supplied to our colonies and leasehold villages. This will continue in future too.

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<b>(viii)</b>	Tanks/ponds shall be regularly cleaned and maintained. Plantation activities shall be intensified in the mine areas.	Tanks/ ponds are regularly cleaned and maintained by TSRDS. Plantation activities are undertaken every year in the barren mine leasehold areas. Further, TSRDS engages with the villagers for plantation in the village lands.
<b>(ix)</b>	The proponent shall expedite the activities undertaken by TSRDS in over 30 villages in the leasehold area over 15000 households covering a population of about 1.4 lakh.	CSR activities of TSRDS are managed by a team of experts who are dedicatedly involved in providing benefits and improving standard of living in over 30 villages. The list of activities are developed in consultation with the village representatives and implemented in a time-bound manner.
<b>(x)</b>	The CSR cost should be Rs 5 per Tonnes of Coal produced which should be adjusted as per the annual inflation.	The proposed CSR expenditure for the entire company is decided as per the new Company Rules. Once the CSR budget for company is fixed, a share of that amount is dedicated and utilized for implementing the CSR activities at our Jharia Division level. The CSR expenditure for FY24 is Rs. 21.81 crores.
<b>(xi)</b>	Cost for additional environmental protection measures shall be not less than Rs. 503.00 lakhs. The status of implementation including costs incurred shall be regularly reported to this Ministry and its respective Regional Office in the region as part of the compliance report and also uploaded on the company website.	The regular expenditure incurred for environment protection and management are submitted to MoEF&CC & SPCB in Annual Environment Statement and the status is uploaded on company website as a part of compliance report of AES.
<b>(xii)</b>	The slope of the embankment towards the river shall be at least 1:3 for stability and shall be stabilized with plantation using native species selected from the study area.	The washery is about 1.5 kms away from the Damodar River. Hence it is not applicable.
<b>(xiii)</b>	Top soil shall be stored in the earmarked area and used within a year of its generation for green belt development and for plantation/reclamation.	There are no topsoil dumps hence it is not applicable.

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<b>(xiv)</b>	No external OB dump shall be created for the expansion project. Monitoring and management of existing reclaimed dumpsites shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its respective Regional Office on yearly basis.	Not applicable as this is a washery project.
<b>(xv)</b>	Catch drains and siltation ponds of appropriate size shall be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The water so collected shall be utilised for watering the mine area, roads, green belt development, etc. The drains shall be regularly desilted and maintained properly.	There are no soil or OB dumps in the washery premises. Only the by-products are stored in the stockyards located in the washery premises which are sold off within a week.
<b>(xvi)</b>	Garland drains (size, gradient and length) and sump capacity shall be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity shall also provide adequate retention period to allow proper settling of silt material.	Garland drains of adequate size and gradient already exist around the washery area to channelize the surface runoff. The runoff is diverted to the tailing ponds and clear water is utilized in the washery.
<b>(xvii)</b>	Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and siltation shall be based on the rainfall data.	Not applicable as we do not have any opencast mines.
<b>(xviii)</b>	Crushers at the CHP shall be operated with high efficiency bag filters/water sprinkling system shall be provided to check fugitive emissions from crushing operations, conveyor system which shall be closed, haulage roads, transfer points, etc.	The following measures have been implemented:  i) Dry-fog system at all transfer points of CHP ii) Enclosures around crushers. iii) Belts have been covered on top and both sides. These arrangements will protect the coal mass moving on belt from blowing wind. In this way, the dust getting air borne is being minimized. iv) Fixed water sprinklers on the haulage roads.

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		<p>v) In addition, movable water sprinklers are also being deployed on the roads for dust suppression.</p> <p>vi) Dust Extraction System</p> <p>vii) Strengthening of tailing management system</p> <p>viii) Concretization of working complex</p>
<b>(xix)</b>	Drills shall be wet operated only.	Not applicable as this is coal beneficiation plant
<b>(xx)</b>	Controlled blasting shall be practiced with use of delay detonators and only during daytime. The mitigative measures for control of ground vibrations and to arrest the fly rocks and boulders shall be implemented.	Not applicable as this is coal beneficiation plant.
<b>(xxi)</b>	The Washery shall be a zero-discharge and no wastewater shall be discharged from the washery into the drains/natural watercourses. No groundwater shall be used for washery operations. Recycled water shall be used for development and maintenance of green belt and in the plant operations.	Washery is already operating on a zero-discharge principle. No wastewater is discharged into the drains/ natural water systems. Only mine water is utilized for the washery operations as make up water requirement. The recycled water is again used for plant operations and green-belt development.
<b>(xxii)</b>	The raw coal, washed coal and middling and coal wastes (rejects) shall be stacked properly at earmarked site(s) within sheds/stockyards fitted with wind breakers/shields. Adequate measures shall be taken to ensure that the stored minerals do not catch fire. The storage period shall be not more than 2-3 days.	The material is being stacked properly at stockyards located within the washery. We have a well-established system for disposal of rejects/ tailings to consumers so that storage period is not more than 2-3 days.
<b>(xxiii)</b>	The proponent shall maintain proper records of the ash content of raw (ROM) coal, clean coal, middling and coal rejects along with quantum of raw coal obtained and washed and dispatched every month and the same shall be uploaded on the company website every month.	Proper records are being maintained and the details are uploaded on the company website.
<b>(xxiv)</b>	All internal roads shall be concreted or black topped and the approach roads used for the project shall be blacked topped. Facilities for parking of trucks	All the internal roads have been concreted while the approach roads are black topped. There is a facility for parking of trucks within the unit.

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	carrying raw coal from the linked coalmines shall be created within the Unit.	
(xxv)	Roads used for coal transportation to the linked DRI/TPP shall be developed with 3-tier avenue plantation using a mix of native species. The trucks used for coal transportation shall be high capacity trucks. Drivers of trucks for coal transportation shall be engaged based on past records of road safety and compliance of safety regulations and shall be suitably sensitized about road safety and maintenance of vehicles to keep vehicular emissions to be within prescribed limits.	<p>There is no linked DRI/TPP.</p> <ul style="list-style-type: none"> <li>- Raw coal is received via underground coal conveyor belt network from captive collieries.</li> <li>- Clean coal is dispatched via rail from the Rail-yard situated on the washery premises. The clean coal is kept in storage bins and directly transferred to the rail wagons through covered coal-conveying system.</li> <li>- As for the trucks moving for transportation of tailings and rejects are properly covered with tarpaulin. All the given provisions related to road safety and driver competence are being strictly complied with.</li> </ul>
(xxvi)	The roads (internal/approach and roads used for the project) shall be regularly cleaned with mechanical sweepers and with water sprinklers. A 3-tier avenue plantation shall be developed along the major approach roads, internal roads and nearby roads used by the company.	Fixed Water sprinklers have already been installed in the washery premises. Plantation along the road-side is done wherever feasible. A three-tier green belt development is in progress
(xxvii)	Green belt shall be developed along the areas such as the washery unit, crushing unit, and stockyards and at transfer points and in between mine operations and habitations.	Greenery has been developed in many areas around the washery premises. Saplings have been planted along the boundary of washery for greenbelt development.
(xxviii)	Hoppers of the coal crushing unit at the crushing shed and washery unit shall be fitted with high efficiency bag filters/Dust extractors and mist spray water sprinkling system shall be installed and operated effectively at all times of operation to check fugitive emissions from crushing operations, transfer points of belt conveyor systems which shall be closed and from transportation roads.	<p>Dry-fog dust suppression system has been already installed to suppress the dust generated at CHP and transfer points of belt conveyor systems. Fixed-type water sprinklers are also installed on the internal roads of the washery. These are always operated effectively to check the fugitive emissions.</p> <p>Fugitive dust emission monitoring is done on regularly. The values are within the stipulated norms.</p>



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(xxix)	The proponent shall ensure that coal such as stones, shale and other wastes of an ash content of 77% or more only shall be dumped into the mine voids. Coal rejects with an ash content of 76% or less shall be fully utilized for power generation in linked TPP.	It is being followed.
(xxx)	Regular monitoring of groundwater level and quality including levels of heavy metals such as Hg, Cd, Cr, Se, etc shall be carried out by establishing a network of existing wells and construction of new piezometers. The monitoring for quantity and quality of ground water as per IS: 10500 shall be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons. Proper records of the data thus collected shall be maintained submitted to the Ministry of Environment & Forests and to the Central Pollution Control Board quarterly within one month of monitoring.	<p>The monitoring of groundwater level and quality is done regularly as per the requirements. The groundwater quality report &amp; groundwater level are provided in <b>Annexure-II</b>.</p> <p>The monitoring of heavy metals such as Hg, Cd, Cr, Se, etc in the groundwater is done on quarterly basis by NABL accredited third party and the report has been provided in <b>Annexure-II</b>.</p>
(xxxi)	As the entire mine water is proposed to be used for the mine-cum-washery operations, measures shall be taken for recharging ground water in and around the mine in the study area. A Plan for water conservation and recharge measures of ground water along with budgetary provisions be prepared and implemented in consultation with the Central/State Ground Water Board to mitigate the adverse impact of mining which may lead to depletion of ground water in the area. The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource in case monitoring of groundwater levels indicate decline of water table. Any additional water requirement for mining operation shall	<p>Some of the water pumped out during underground mining activity is re-circulated back into the mine for the purpose of stowing. Backfilling of mine voids by stowing is done using sand which is having the porosity to hold the underground water thus helping aquifer to retain the underground water.</p> <p>Further, there are several ponds existing on the surface of the mining lease which act as natural reservoirs for recharging ground water. These ponds/ tanks are regularly cleaned and maintained by our CSR department. As per the hydro-geological report, the variation in the ground water level is only seasonal.</p> <p>The water requirement of the nearby villages is being met by the company already. Now piped drinking water is being provided.</p>

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	be met from rainwater use only. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.	
(xxxii)	ETP shall also be provided for treatment of effluents from workshop, CHP and an STP shall be provided in the colony and the treated effluents shall be used for green belt development. Outflow of rainfall, if any, from the mine shall meet prescribed norms and the water quality of such discharge including levels of heavy metals such as Hg, Cd, Cr., Se, etc shall be monitored at the exit points and records maintained thereof and also uploaded on the company website. Online monitoring equipment shall be installed by the proponent to ensure that the water quality parameters of mine water discharge are well within the General Discharge Standards under EP, Rules, 1986.	No effluent is discharged outside of the washery. There is no separate workshop in the washery premises. A central workshop exists in Jamadoba Colliery with Effluent Treatment Plant facility having Oil and Grease Trap. One Sewage Treatment Plant (STP) of 50 KLD and one STP of 10 KLD has been installed in one of the colonies of Jamadoba and Jamadoba canteen. Their treated water is used for gardening and other purpose.
(xxxiii)	Besides carrying out regular periodic health check-up of their workers, 10% of the workers identified from workforce engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any, through a recognised agency found in the district, and the results reported to this Ministry and to DGMS.	Not applicable as this is coal beneficiation plant. Though PME is done for washery workers periodically at our Occupational Health centre. Records of the same has been furnished earlier.
(xxxiv)	For monitoring land use pattern and for post mining land use, a time series of land use maps, based on satellite imagery (on a scale of 1: 5000) of the core zone and buffer zone, from the start of the project until end of mine life shall be prepared once in 3 years (for any one particular season which is consistent in the time series), and the report submitted	Complied. The land use study has been completed by Indian School of Mines (IIT-ISM) Dhanbad and the report is submitted vide letter no. JMB/ENV/BAC/38/467/2021 dated: 27.06.2021 to Regional Office, MoEFCC at Ranchi

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	to MOEF and its concerned Regional Office in the region.	
(xxxv)	Land oustees shall be compensated as per the norms laid out R&R Policy of CIL or the National R&R Policy or R&R Policy of the State Government whichever is higher.	Not applicable
(xxxvi)	A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests five year before mine closure for approval. Habitat Restoration Plan of the mine area shall be carried out using a mix of native species found in the original ecosystem, which were conserved in-situ and ex-situ in an identified area within the lease for reintroduction in the mine during mine reclamation and at the post mining stage for habitat restoration and for development of grasslands.	Not applicable.
(xxxvii)	<p>Corporate Environment Responsibility:</p> <p>a) The Company shall have a well laid down Environment Policy approved by the Board of Directors.</p> <p>b) The Environment Policy shall prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.</p> <p>c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions shall be furnished.</p> <p>d) To have proper checks and balances, the company shall have a well laid down system of reporting of non-</p>	<p>The Company already has an Environment Policy approved by the Managing Director and it addresses all the issues mentioned. Attached as an <b>annexure-III</b>.</p> <p>The status of adherence to the policy and compliance to Environmental laws and regulations is regularly discussed at higher levels. Any non-compliance noticed is corrected at divisional level. If any issue is beyond our control, it is brought to the notice of higher management.</p> <p>Moreover, Jamadoba Coal Washery is IMS (Integrated Management System: Quality Management System, Environment Management System and OHSAS) certified unit addressing all environment aspects, impacts and needs and expectation of interested parties with respect to environment protection.</p>

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	compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.	
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<b>B.</b>	<b>GENERAL CONDITIONS</b>	
<b>(i)</b>	No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests.	The points mentioned in the EC letter will be strictly followed.
<b>(ii)</b>	No change in the calendar plan of production for quantum of mineral coal shall be made.	It will be strictly followed.
<b>(iii)</b>	Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for PM10, PM2.5, SO2 and NOx monitoring. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc carried out at least once in six months.	The Air quality monitoring stations are: (i) Jamadoba Group Office (Core Zone) (ii) New Village Colony, Jamadoba (Buffer Zone) (iii) Digwadih 12 No. Colony (Buffer Zone) (iv) 6&7 Pits Kalimandir area (Buffer Zone) Monitoring of heavy metals in ambient air is being performed by an independent laboratory (recognised by NABL and JSPCB). The results are enclosed as <b>Annexure-II</b> .
<b>(iv)</b>	Data on ambient air quality (PM10, PM 2.5, SO2 and NOx) and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly submitted to the Ministry including its concerned Regional Office and to the State Pollution Control Board and the Central Pollution Control Board once in six months. Random verification of samples through analysis from independent laboratories recognized under the EPA rules, 1986 shall be furnished as part of compliance report.	Ambient air quality report (PM10, PM 2.5, SO2 and NOx) for the period from Oct'23 to Mar'24 is attached as <b>Annexure-II</b> . Additionally, the third party monitoring is being done through a JSPCB & NABL accredited Laboratory for ambient air quality (PM10, PM 2.5, SO2, NOx, CO, NH3, O3) and heavy metals (As, Ni, Cd and Cr). The results are enclosed as <b>Annexure-II</b> .
<b>(v)</b>	Adequate measures shall be taken for control of noise levels below 85 dBA	Regular noise survey is being conducted in the underground work environment. Workers are

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	in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with ear plugs/muffs.	provided with ear-plugs/ muffs in high noise areas.
<b>(vi)</b>	Industrial wastewater (workshop and wastewater from the mine) shall 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 before discharge. Oil and grease trap shall be installed before discharge of workshop effluents.	No waste-water is discharged outside the washery premises. 100% water is recirculated back for re-use in the washery. There is a central workshop and garage in Jamadoba Effluent Treatment Plant which includes oil and grease trap has been provided.
<b>(vii)</b>	Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transporting the mineral shall be covered with tarpaulins and optimally loaded.	Only the vehicles having valid PUC certificates are being allowed to operate. Coal transportation through trucks is done only from BCCL mines till washery and it is ensured that only optimally loaded trucks with proper tarpaulin cover are allowed into the washery premises.
<b>(viii)</b>	Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with SPCB and data got analysed through a laboratory recognized under EP Rules, 1986.	We have a fully equipped Environment Cell Laboratory with qualified personnel. The monitoring and analysis is also done at regular intervals by a JSPCB & NABL recognized laboratory.  We have also installed a Continuous Ambient Air Quality Monitoring Station at Jamadoba for real time monitoring.
<b>(ix)</b>	Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects.	Persons working in dusty area have been provided with dust masks & have been given awareness training on safety & health aspects. Regular PME (Periodic Medical Examinations) are being done.
<b>(x)</b>	Occupational health surveillance programme of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed and records maintained thereof. The quality of environment due to outsourcing and the health and safety	The occupational health surveillance programme of the workers is done regularly by our Occupational Health Department, Tata Central Hospital, Jamadoba. We have a PME (Periodic Medical Examination) centre approved by DGMS where annually 20% of the workers identified from workforce engaged in active mining operations are

**Compliance status of Expansion of Jamadoba Coal washery (1 MTPA to 2 MTPA in 7 ha Area) of M/s Tata Steel Ltd. Tehsil Jharia, dist. Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/203/2011-IA.II (M) dated March 3, 2014**

	issues of the outsourced manpower should be addressed by the company while outsourcing.	subjected to full medical checkup including hearing impairment checkup, etc. These results are regularly submitted to DGMS as per mines rules. Contractual workers health examination is also done by PME centre.
(xi)	A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior Executive, who will report directly to the Head of the company.	We have a separate Environmental Management Cell with qualified personnel. The reporting of Environmental Cell is directly to General Manager of the Division.
(xii)	The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its Regional Office at Bhubaneswar.	The Environment Cell has a separate fund for Environmental protection measures and for complying with legal requirements. The annual environmental expenditure for the financial year 2022-23 is Rs. 1263.35 lakhs.
(xiii)	The Project authorities shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution control Board and may also be seen at the website of the ministry of Environment & Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a> .	It has been complied with. Attached as an <b>Annexure-IV</b> .
(xiv)	A copy of the environmental clearance letter shall be marked to concerned Panchayat/Zila Parishad, Municipal Corporation or Urban Local Body and local NGO, if any, from whom any suggestion/representation has been received while processing the proposal. A copy of the clearance letter shall also be displayed on the company's website.	It has been complied with. Attached as an <b>Annexure-V</b> .
(xv)	A copy of the clearance letter shall be displayed on the website of the	It has been complied with.

**Compliance status of Expansion of Jamadoba Coal washery (1 MTPA to 2 MTPA in 7 ha Area) of M/s Tata Steel Ltd. Tehsil Jharia, dist. Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/203/2011-IA.II (M) dated March 3, 2014**

	concerned State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industry Centre and Collector's Office/Tehsildar's Office for 30 days.	
<b>(xvi)</b>	The clearance letter shall be uploaded on the company's website. The compliance status of the stipulated EC conditions shall also be uploaded by the project authorities on their website and updated at least once every six months so as to bring the same in the public domain. The monitoring data of environmental quality parameters (air, water, noise and soil) and critical pollutants such as PM10, PM2.5, SO2 and NOx (ambient and stack if any) and critical sectoral parameters shall also be displayed at the entrance of the project premises and mines office and in corporate office and on the company's website.	The clearance letter has been uploaded on the company's website. The compliance status (as Half-yearly compliance report) is being uploaded in company's website. The display of information near the washery's office has been provided.
<b>(xvii)</b>	The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) to the respective Regional Office of the MOEF, the respective Zonal offices of CPCB and the SPCB.	It has been complied with.
<b>(xviii)</b>	The Regional Office of this Ministry located at Bhopal shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/ information/monitoring reports.	It will be complied with.
<b>(xix)</b>	The environmental statement for each financial year ending 31st March in Form-V is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as	The environmental statement for financial year 2022-23 has been submitted to JSPCB on 29th September 2023 vide letter no. JMB/ENV/ESSA/05/734/2023 and it is also uploaded on the company website. The soft

**Compliance status of Expansion of Jamadoba Coal washery (1 MTPA to 2 MTPA in 7 ha Area) of M/s Tata Steel Ltd. Tehsil Jharia, dist. Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/203/2011-IA.II (M) dated March 3, 2014**

	prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be uploaded on the company's website along with the status of compliance of EC conditions and shall be sent to the respective Regional Offices of the MOEF by E-mail.	copy of Environment Statement is also sent to MOEF by email at ro.ranchi-mef@gov.in.
--	--	--



## Annexure- I Greenbelt Development Report

Green belt developed around JCPP is given in the pictures below. Plantation in this monsoon has been done in JCPP to enhance the green belt. The plantations are done in areas in front of MCC building, and near the boundary wall of JCPP to enhance the green cover around the operational areas of washery. Since the washery is in construction phase, three tier plantation has been done in some patches around the boundary wall of the washery premises. Once the washery starts to operate, further plantation will be taken up.



Picture: Existing Green Belt around JCPP

Photographs of some recent plantation activities in this monsoon season are shown below:





Picture: Plantation in area in front of MCC building(JCPP) during this monsoon season.





Picture: Plantation around some patches of the boundary wall of washery (JCPP) during this monsoon season.

Ambient Air Quality and Groundwater Quality Report (Period- **October'23 to March'24**)**AIR QUALITY REPORT**

Core zone &amp; Buffer zone

Period- **October'23 to December'23**

No. of sampling points: 4

Core zone (as per Air quality standards for coal mines in EPA Notification, 1988)							
Location	Latitude/ Longitude	Date	Weather Condition	SPM 24 Hourly Limit- 700 µg/m³	RSPM 24 Hourly Limit- 300 µg/m³	SO <sub>2</sub> 24 Hourly Limit- 120 µg/m³	NO <sub>x</sub> 24 Hourly Limit-120 µg/m³
6&7 Pits Kalimandir area	23°43'15" N/ 86°24'12" E	20.10.23	Clear	218.3	80.9	15.2	17.2
		10.11.23	Clear	248.1	86.3	18.6	20.9
		13.12.23	Clear	242.5	84.2	17.8	19.5
Buffer zone (as per NAAQS 2009 for ambient air quality standards)							
Location	Latitude/ Longitude	Date	Weather Condition	PM10 24 Hourly Limit- 100µg/m³	PM2.5 24 Hourly Limit- 60µg/m³	SO <sub>2</sub> 24 Hourly Limit- 80µg/m³	NO <sub>2</sub> 24 Hourly Limit- 80µg/m³
Jamadoba Group Office	23°42'15.3" N/ 86°24'11" E	17.10.23	Clear	90.7	49.1	16.8	18.2
		08.11.23	Clear	94.2	50.7	17.9	20.5
		04.12.23	Clear	90.5	48.1	18.4	21.9
Digwadih 12 No. Colony	23°41'42" N/ 86°24'45.3" E	19.10.23	Clear	76.1	36.0	18.4	20.1
		06.11.23	Clear	90.5	48.1	15.7	17.4
		11.12.23	Clear	88.6	45.2	14.9	18.3
New Village Colony, Jamadoba	23°41'51" N/ 86°23'19" E	16.10.23	Clear	84.3	43.5	17.6	19.4
		09.11.23	Clear	87.4	46.5	16.8	18.2
		05.12.23	Clear	92.8	50.3	17.4	19.7
Tata Central Hospital	23°42'36" N/ 86°24'10.4"E	18.10.23	Clear	78..2	38.9	15.4	17.6
		07.11.23	Clear	82.1	41.0	18.4	21.3
		08.12.23	Clear	68.4	32.0	15.7	17.8


**Area Manager (Environment)**

Ambient Air Quality and Groundwater Quality Report (Period- **October'23 to March'24**)**AIR QUALITY REPORT**

Core zone &amp; Buffer zone

Period- January'24 to March'24

No. of sampling points: 4

Core zone (as per Air quality standards for coal mines in EPA Notification, 1988)							
Location	Latitude/ Longitude	Date	Weather Condition	SPM 24 Hourly Limit- 700 µg/m³	RSPM 24 Hourly Limit- 300 µg/m³	SO <sub>2</sub> 24 Hourly Limit- 120 µg/m³	NO <sub>x</sub> 24 Hourly Limit-120 µg/m³
6&7 Pits Kalimandir area	23°43'15" N/ 86°24'12" E	08.01.24	Clear	248.7	89.5	16.4	18.2
		16.02.24	Clear	231.9	84.2	18.2	22.8
		08.03.24	Clear	226.7	80.1	17.9	20.5
Buffer zone (as per NAAQS 2009 for ambient air quality standards)							
Location	Latitude/ Longitude	Date	Weather Condition	PM10 24 Hourly Limit- 100µg/m³	PM2.5 24 Hourly Limit- 60µg/m³	SO <sub>2</sub> 24 Hourly Limit- 80µg/m³	NO <sub>2</sub> 24 Hourly Limit- 80µg/m³
Jamadoba Group Office	23°42'15.3" N/ 86°24'11" E	05.01.24	Clear	94.2	50.1	17.6	19.5
		12.02.24	Clear	92.1	48.7	16.4	20.1
		06.03.24	Clear	76.6	32.8	18.4	20.3
Digwadih 12 No. Colony	23°41'42" N/ 86°24'45.3" E	04.01.24	Clear	92.7	48.3	15.2	17.1
		15.02.24	Clear	95.3	51.6	18.7	21.5
		07.03.24	Clear	81.4	42.1	15.9	18.6
New Village Colony, Jamadoba	23°41'51" N/ 86°23'19" E	09.01.24	Clear	90.5	46.9	16.8	18.4
		14.02.24	Clear	78.7	36.9	14.5	17.2
		04.03.24	Clear	84.3	44.2	17.2	19.5
Tata Central Hospital	23°42'36" N/ 86°24'10.4"E	03.01.24	Clear	76.3	38.9	14.8	16.2
		19.02.24	Clear	87.3	43.5	15.8	18.7
		11.03.24	Clear	74.5	30.4	16.7	19.2



Area Manager (Environment)

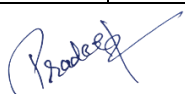
Ambient Air Quality and Groundwater Quality Report (Period- **October'23 to March'24**)**Ground Water Quality Analysis (Hand Pump & Dung Well)****(Post Monsoon Season- November'2023)**

S.No	Date	Location	Time	Depth in meter	pH	Electrical Conductivity, $\mu\text{S/m}$
1	15.11.23	Purnadih (Jorapokhar)	01:15 PM	3.53	7.0	1210
2	15.11.23	Bhowra 13 No	12:50 PM	3.32	7.3	1251
3	15.11.23	Mohalbani Basti	02:15 PM	2.94	6.9	1198
4	15.11.23	Digwadih 10 No F & J	12:10 PM	2.61	7.3	1252
5	15.11.23	Kalimela Shivmandir	11:05 AM	1.62	7.4	1022
6	15.11.23	Kalimela Kalimandir	11:20 AM	3.31	7.0	1358
7	15.11.23	Lower Dungari	10:45 AM	3.10	7.2	778
8	15.11.23	Upper Dungari	10:25 AM	2.26	7.4	912
9	15.11.23	Pattia Basti	10:00 AM	3.42	7.1	887
10	15.11.23	Kenduadih Basti	09:35 AM	2.34	7.4	810
11	15.11.23	Jorapokhar Kushtand	01:55 PM	4.24	7.6	1465
12	15.11.23	6&7 Pits (Ayodhya Nagri)	11:45 AM	1.86	7.3	994
13	15.11.23	Jorapokhar Basti Chhattand	12:25 PM	2.12	7.4	1236
14	15.11.23	Jorapokhar Babu Basa	01:30 PM	2.04	7.2	1138


**Area Manager (Environment)**

Ambient Air Quality and Groundwater Quality Report (Period- **October'23 to March'24**)**Ground Water Quality Analysis (Hand Pump & Dung Well)****(Winter Season- January'2024)**

S.No	Date	Location	Time	Depth in meter	pH	Electrical Conductivity $\mu\text{S/m}$
1	12.01.24	Purnadih (Jorapokhar)	11:50 AM	4.78	7.2	1208
2	12.01.24	Bhowra 13 No	12:20 PM	3.38	7.0	984
3	12.01.24	Mohalbani Basti	12:30 PM	2.98	7.1	1174
4	12.01.24	Digwadih 10 No F & J	12:50 PM	2.82	7.2	1608
5	12.01.24	Kalimela Shivmandir	10:55 AM	1.66	7.0	878
6	12.01.24	Kalimela Kalimandir	11:10 AM	3.42	7.1	1339
7	12.01.24	Lower Dungari	10:40 AM	3.41	7.3	776
8	12.01.24	Upper Dungari	09:35 AM	2.44	7.6	810
9	12.01.24	Pattia Basti	09:55 AM	3.51	7.2	920
10	12.01.24	Kenduadih Basti	10:15 AM	2.47	7.3	1120
11	12.01.24	Jorapokhar Kushtand	11:30 AM	4.52	7.3	1628
12	12.01.24	6&7 Pits (Ayodhya Nagri)	01:40 PM	1.95	7.4	1019
13	12.01.24	Jorapokhar Basti Chhattand	01:10 PM	1.01	7.2	1327
14	12.01.24	Jorapokhar Babu Basa	12:05 PM	2.08	7.0	1172


**Area Manager (Environment)**



## Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)



# ADITI R&D SERVICES

## Testing Laboratory

### NABL ACCREDITED

(A Constituent Board of Quality Council of India)

ISO/IEC 17025:2017, ISO 9001:2015, ISO (OHSAS) 45001:2018 Certified

Plot No. - I-B-17 (P)  
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Fax: 0326-2952377  
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/23-24/1416

Date: 15.11.2023

### TEST REPORT OF AMBIENT AIR QUALITY

- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO. : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 09/11/2023 to 10/11/2023
- Date of Testing : 11/11/2023 to 14/11/2023
- Test Procedure : As per IS-5182

### TEST RESULTS

LOCATION - 6 & 7 PITS COLLIERY OFFICE				
	Avg. Ambient Temperature	30°C	Avg. Humidity	39%
Sl No.	Particulars	Value	NAAQ - CPCB STANDARD	
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	90.76	100 µg/m <sup>3</sup>	
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	53.45	60 µg/m <sup>3</sup>	
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	20.83	80 µg/m <sup>3</sup>	
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	28.62	80 µg/m <sup>3</sup>	
5.	Ozone, µg/m <sup>3</sup>	18.36	180 µg/m <sup>3</sup>	
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	14.25	400 µg/m <sup>3</sup>	
7.	CO, mg/m <sup>3</sup>	0.89	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

*S. D. Ray*  
Sr. Chemist  
Aditi R&D Services




*[Signature]*  
Technical Manager  
Aditi R&D Services, Sindri

### Statements :

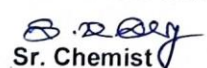
- The test report refers only to the particular item(s) submitted for testing.
- The test results reported in this report are valid at the time of and under the stated condition of measurement.
- This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.





## Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)

	<h2 style="margin: 0;">ADITI R&amp;D SERVICES</h2> <h3 style="margin: 0;">Testing Laboratory</h3> <p style="margin: 0;"><b>NABL ACCREDITED</b></p> <p style="margin: 0;">(A Constituent Board of Quality Council of India)</p> <p style="margin: 0;"><b>ISO/IEC 17025:2017, ISO 9001:2015, ISO (OHSAS) 45001:2018 Certified</b></p>	Plot No. - I-B-17 (P) Sindri, Industrial Area, P.O.- Domgarh, Dist.- Dhanbad Jharkhand - 828107 Email ID: sindriaditi@gmail.com Website: aditirndservices.com Phone: 0326-2952377 (O), Fax: 0326-2952377 Mobile: 09471358492, 09431512608								
Ref. No.: ARDS/23-24/1417		Date: 15.11.2023								
<h3 style="margin: 0;">TEST REPORT OF AMBIENT AIR QUALITY</h3>										
<ul style="list-style-type: none"> <li>Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)</li> <li>Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021</li> <li>Date of Sample Collection : 09/11/2023 to 10/11/2023</li> <li>Date of Testing : 11/11/2023 to 14/11/2023</li> <li>Test Procedure : As per IS-5182</li> </ul>										
<h4 style="margin: 0;">TEST RESULTS</h4>										
<b>LOCATION – OFFICERS COLONY, 12 NO. DIGWADIH</b>										
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;"></th> <th style="width: 40%;">Avg. Ambient Temperature</th> <th style="width: 10%;">30°C</th> <th style="width: 40%;">Avg. Humidity</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td>39%</td> </tr> </tbody> </table>				Avg. Ambient Temperature	30°C	Avg. Humidity				39%
	Avg. Ambient Temperature	30°C	Avg. Humidity							
			39%							
Sl No.	Particulars	Value	NAAQ - CPCB STANDARD							
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	78.18	100 µg/m <sup>3</sup>							
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	44.90	60 µg/m <sup>3</sup>							
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	17.32	80 µg/m <sup>3</sup>							
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	29.30	80 µg/m <sup>3</sup>							
5.	Ozone, µg/m <sup>3</sup>	16.65	180 µg/m <sup>3</sup>							
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	14.15	400 µg/m <sup>3</sup>							
7.	CO, mg/m <sup>3</sup>	0.79	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


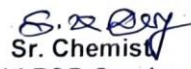




  
 Technical Manager  
 Aditi R&D Services, Sindri

**Statements :**

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## Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)

	<h2 style="margin: 0;">ADITI R&amp;D SERVICES</h2> <h3 style="margin: 0;">Testing Laboratory</h3> <p style="margin: 0;"><b>NABL ACCREDITED</b></p> <p style="margin: 0;">(A Constituent Board of Quality Council of India)</p> <p style="margin: 0;"><b>ISO/IEC 17025:2017, ISO 9001:2015, ISO (OHSAS) 45001:2018 Certified</b></p>	Plot No. - I-B-17 (P) Sindri, Industrial Area, P.O. - Domgarh, Dist. - Dhanbad Jharkhand - 828107 Email ID: sindriaditi@gmail.com Website: aditirndservices.com Phone: 0326-2952377 (O), Fax: 0326-2952377 Mobile: 09471358492, 09431512608		
Ref. No.: - ARDS/23-24/1418		Date: 15.11.2023		
<b>TEST REPORT OF AMBIENT AIR QUALITY</b>				
<ul style="list-style-type: none"> <li>• Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)</li> <li>• Work Order Ref. NO. : 4700092573/932 Dt. 20.07.2021</li> <li>• Date of Sample Collection : 09/11/2023 to 10/11/2023</li> <li>• Date of Testing : 11/11/2023 to 14/11/2023</li> <li>• Test Procedure : As per IS-5182</li> </ul>				
<b>TEST RESULTS</b>				
LOCATION – CENTRAL WORKSHOP AREA , JAMADOBA				
	Avg. Ambient Temperature	30°C	Avg. Humidity	39%
Sl No.	Particulars	Value	NAAQ - CPCB STANDARD	
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	88.57	100 µg/m <sup>3</sup>	
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	54.15	60 µg/m <sup>3</sup>	
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	22.27	80 µg/m <sup>3</sup>	
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	29.00	80 µg/m <sup>3</sup>	
5.	Ozone, µg/m <sup>3</sup>	17.90	180 µg/m <sup>3</sup>	
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	18.36	400 µg/m <sup>3</sup>	
7.	CO, mg/m <sup>3</sup>	1.09	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		
				
<b>Statements :</b> <ol style="list-style-type: none"> <li>The test report refers only to the particular item(s) submitted for testing.</li> <li>The test results reported in this report are valid at the time of and under the stated condition of measurement.</li> <li>This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.</li> </ol>				



## Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)



# ADITI R&D SERVICES

## Testing Laboratory

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Fax: 0326-2952377  
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/23-24/1419

Date: 15.11.2023

### TEST REPORT OF AMBIENT AIR QUALITY

- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 09/11/2023 to 10/11/2023
- Date of Testing : 11/11/2023 to 14/11/2023
- Test Procedure : As per IS-5182

### TEST RESULTS

#### LOCATION - TATA CENTRAL HOSPITAL

	Avg. Ambient Temperature	30°C	Avg. Humidity	39%
Sl No.	Particulars	Value	NAAQ - CPCB STANDARD	
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	70.63	100 µg/m <sup>3</sup>	
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	41.38	60 µg/m <sup>3</sup>	
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	18.12	80 µg/m <sup>3</sup>	
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	29.93	80 µg/m <sup>3</sup>	
5.	Ozone, µg/m <sup>3</sup>	15.83	180 µg/m <sup>3</sup>	
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	16.70	400 µg/m <sup>3</sup>	
7.	CO, mg/m <sup>3</sup>	0.73	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

*S. D. Singh*  
Sr. Chemist  
Aditi R&D Services




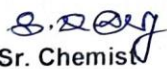
*S. D. Singh*  
Technical Manager  
Aditi R&D Services, Sindri


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## Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)

		<h1 style="text-align: center;">ADITI R&amp;D SERVICES</h1> <h2 style="text-align: center;">Testing Laboratory</h2> <h3 style="text-align: center;">NABL ACCREDITED</h3> <p style="text-align: center;">(A Constituent Board of Quality Council of India)</p> <p style="text-align: center;">ISO/IEC 17025:2017, ISO 9001:2015, ISO (OHSAS) 45001:2018 Certified</p>		Plot No. - I-B-17 (P) Sindri, Industrial Area, P.O. - Domgarh, Dist. - Dhanbad Jharkhand - 828107 Email ID: sindriaditi@gmail.com Website: aditirndservices.com Phone: 0326-2952377 (O), Fax: 0326-2952377 Mobile: 09471358492, 09431512608					
<b>TEST REPORT OF NOISE (AMBIENT) LEVEL MONITORING</b>									
Ref. No. & Date		NAME AND ADDRESS OF THE CLIENT							
ARDS/23-24/1420 Date: 15.11.2023		M/S TATA STEEL, JAMADOBA,							
Date of Monitoring		TATA STEEL LIMITED, JAMADOBA GROUP PLANT,							
		DIST. - DHANBAD (JHARKHAND)							
09/11/2023 TO 10/11/2023		Avg. Ambient Temperature (°C)	Average Humidity (%)	Weather Condition	Status of the plant				
Work Order 4700092573/932 Dt. 20.07.2021		30	44	Clear	Running				
<b>MONITORING RESULTS</b>									
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		
							Day Time	Night Time	
	LOCATION	MAX	MIN	AVG. dB(A) Leq	MAX	MIN	AVERAGE dB(A) Leq	Industrial Area	Industrial Area
	JAMADOBA GROUP								
1.	Central Workshop Area, Jamadoba	68.4	56.2	65.64	54.2	46.8	51.92	75	70
2.	6 & 7 Pits Colliery Office	69.8	53.4	66.89	58.6	52.4	56.52		
								Residential Area	Residential Area
3.	Officers Colony 12 No. Digwadih	52.8	47.2	50.85	46.8	42.4	45.13	65	55
								Silence Zone	Silence Zone
4.	Tata Central Hospital	49.2	44.8	47.53	39.4	37.8	38.67	50	40

  
 Sr. Chemist  
 Aditi R&D Services







  
 Technical Manager  
 Aditi R&D Services, Sindri

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## Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)

	<h2 style="margin: 0;">ADITI R&amp;D SERVICES</h2> <h3 style="margin: 0;">Testing Laboratory</h3> <p style="margin: 0;"><b>NABL ACCREDITED</b></p> <p style="margin: 0;">(A Constituent Board of Quality Council of India)</p> <p style="margin: 0;"><b>ISO/IEC 17025:2017, ISO 9001:2015, ISO (OHSAS) 45001:2018 Certified</b></p>	Plot No. - I-B-17 (P) Sindri, Industrial Area, P.O. - Domgarh, Dist. - Dhanbad Jharkhand - 828107 Email ID: sindriaditi@gmail.com Website: aditirdservices.com Phone: 0326-2952377 (O), Fax: 0326-2952377 Mobile: 09471358492, 09431512608																						
Ref. No.: - ARDS/23-24/1421		Date: 15.11.2023																						
<h3 style="margin: 0;">TEST REPORT OF MINERALOGICAL COMPOSITION</h3> <h4 style="margin: 0;">OF PARTICULATE MATTER</h4>																								
<ul style="list-style-type: none"> <li>• Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)</li> <li>• Work Order Ref. NO. : 4700092573/932 Dt. 20.07.2021</li> <li>• Date of Sample Collection : 10/11/2023</li> <li>• Date of Testing : 11/11/2023 – 14/11/2023</li> </ul>																								
<h4 style="margin: 0;">TEST RESULTS</h4>																								
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2">Sl No.</th> <th rowspan="2">Particulars</th> <th colspan="4">Mineralogical Composition (%)</th> </tr> <tr> <th>SiO<sub>2</sub></th> <th>FeO</th> <th>Al<sub>2</sub>O<sub>3</sub></th> <th>CaO</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Central Workshop Area, Jamadoba</td> <td>1.83</td> <td>0.06</td> <td>1.39</td> <td>2.8</td> </tr> <tr> <td>2.</td> <td>Officer's Colony 12 No. Digwadih</td> <td>1.09</td> <td>0.14</td> <td>1.30</td> <td>2.89</td> </tr> </tbody> </table>			Sl No.	Particulars	Mineralogical Composition (%)				SiO <sub>2</sub>	FeO	Al <sub>2</sub> O <sub>3</sub>	CaO	1.	Central Workshop Area, Jamadoba	1.83	0.06	1.39	2.8	2.	Officer's Colony 12 No. Digwadih	1.09	0.14	1.30	2.89
Sl No.	Particulars	Mineralogical Composition (%)																						
		SiO <sub>2</sub>	FeO	Al <sub>2</sub> O <sub>3</sub>	CaO																			
1.	Central Workshop Area, Jamadoba	1.83	0.06	1.39	2.8																			
2.	Officer's Colony 12 No. Digwadih	1.09	0.14	1.30	2.89																			
 Sr. Chemist Aditi R&D Services		 Technical Manager Aditi R&D Services, Sindri																						
<b>Statements :</b> <ol style="list-style-type: none"> <li>1. The test report refers only to the particular item(s) submitted for testing.</li> <li>2. The test results reported in this report are valid at the time of and under the stated condition of measurement.</li> <li>3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.</li> </ol>																								

## Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)



# ADITI R&D SERVICES

## Testing Laboratory

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Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/23-24/1428

Date: 17.11.2023

### TEST REPORT OF SURFACE WATER

- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Sample Code : 1. Damodar River Up Stream  
2. Damodar River Down Stream
- Date of Sample Collection: 09/11/2023
- Date of Testing : 11/11/2023 To 16/11/2023
- 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
		Damodar River Up Stream	Damodar River Dn Stream		
1.	pH	7.9	8.0	6.5 -8.5	IS-3025 (P-11): 1983
2.	Total Dissolved Solids, mg/l	403	393	1500	IS-3025 (P-16): 1984
3.	Turbidity, NTU	1	1	-	IS-3025 (P-10):1984
4.	Dissolved Oxygen, mg/l	4.5	5.9	4.0	IS-3025 (P-38):1989
5.	Bio chemical Oxygen Demand, mg/l	2.6	2.0	3.0	IS-3025 (P-44):1994
6.	Chloride as Cl, mg/l	29.8	27.9	-	IS-3025 (P-32):1988
7.	Fluoride as F, mg/l	0.48	0.45	1.5	IS-3025 (P-60):2008
8.	Sulphate as SO <sub>4</sub> , mg/l	65.5	49	400	IS-3025 (P-24):1986

*Anandita*  
Sr. Chemist  
Aditi R&D Services




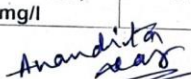


*[Signature]*  
Technical Manager  
Aditi R&D Services, Sindri

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## Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)

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Ref. No.: - ARDS/23-24/1429		Date: 17.11.2023		
<h3 style="margin: 0;">TEST REPORT OF MINE WATER DISCHARGE</h3>				
<ul style="list-style-type: none"> <li>• Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED, JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)</li> <li>• Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021</li> <li>• Sample Code :                <ul style="list-style-type: none"> <li>1. 3 Pit Jamadoba Colliery</li> <li>2. 6 &amp; 7 Pits Colliery</li> <li>3. 2 Pit Jamadoba Colliery</li> <li>4. 2 Incline Jamadoba Colliery</li> <li>5. Digwadih Colliery</li> </ul> </li> <li>• Date of Sample Collection: 09/11/2023 to 10/11/2023</li> <li>• Date of Testing : 11/11/2023 to 16/11/2023</li> <li>• Test : pH, TDS, TSS, BOD, COD, OIL &amp; GREASE.</li> </ul>				
<b>TEST RESULT</b>				
Sl. No.	PARAMETERS OF TEST	VALUE	Limit as per IS-2296 Class B (For Bathing)	Test Method
1.	pH,	7.7      6.8      7.4      7.1      7.3	6.5-8.5	IS-3025 (P-11): 1983
2.	Total Dissolved Solids, mg/l	799      912      845      720      932	-	IS-3025 (P-16): 1984
3.	Total Suspended Solids, mg/l	34      35      31      34      32	-	IS-3025(P-17): 1984
4.	Bio chemical Oxygen Demand, mg/l	2.4      1.8      2.0      2.0      1.6	3	IS-3025 (P-44):1994
5.	Chemical Oxygen Demand, mg/l	65      43.6      87      43.6      43.6	-	IS-3025 (P-58):2006
6.	Oil & Grease, mg/l	0.4      BDL      BDL      BDL      BDL	-	IS-3025 (P-39):2021
<div style="display: flex; justify-content: space-between; align-items: flex-end;"> <div style="width: 30%;"> <p style="text-align: center;">   <b>Sr. Chemist</b>            Aditi R&amp;D Services         </p> </div> <div style="width: 30%; text-align: center;">  </div> <div style="width: 30%;"> <p style="text-align: center;">   <b>Technical Manager</b>            Aditi R&amp;D Services, Sindri         </p> </div> </div>				
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## Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)

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Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/23-24/1430

Date: 17.11.2023

**TEST REPORT OF SEWAGE**

- Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Sample Code :
  1. S.T.P. Outlet J.C.P.P. Canteen
  2. S.T.P. Outlet Jamadoba Canteen
  3. S.T.P. Outlet Railway Colony
  4. S.T.P. Out let Digwadih Officer Colony.
  5. S.T.P. Out let Digwadih 12 No. Supervisor Flat
- Date of Sample Collection: 09/11/2023 to 10/11/2023
- Date of Testing : 11/11/2023 to 16/11/2023
- Test : pH, TDS, TSS, BOD, COD, OIL & GREASE.

**TEST RESULT**

Sl. No.	PARAMETERS OF TEST	VALUE					General Standards For Discharge Of Environmental Pollutants, Inland Surface Water By The MOEF&C	Test Method
		S.T.P. Outlet J.C.P.P. Canteen	S.T.P. Outlet Jamadoba Canteen	S.T.P. Outlet Railway Colony	S.T.P. Outlet Digwadih Officer Colony	S.T.P. Outlet Digwadih 12 NO. Supervisor Flat		
1.	pH,	7.5	7.3	7.4	8.1	7.3	5.5-9.0	IS-3025 (P-11):1983
2.	Total Dissolved Solids, mg/l	988	871	910	767	945	2100	IS-3025 (P-16):1984
3.	Total Suspended Solids, mg/l	42	38	45	34	40	100	IS-3025(P-17):1984
4.	Bio chemical Oxygen Demand, mg/l	2.4	2.8	3.2	3.6	3.0	30	IS-3025 (P-44):1994
5.	Chemical Oxygen Demand, mg/l	80	102	109	94	102	250	IS-3025 (P-58):2006
6.	Oil & Grease, mg/l	1.2	0.8	1.6	1.2	0.8	10	IS-3025 (P-39):2021

*Anandita*  
Sr. Chemist  
Aditi R&D Services



*[Signature]*  
Technical Manager  
Aditi R&D Services, Sindri

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## Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)



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Fax: 0326-2952377  
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/23-24/1431

Date: 17.11.2023

## TEST REPORT OF EFFLUENT

- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Sample Code : 1. ETP Outlet Garage  
2. ETP Outlet T.C.H Jamadoba
- Date of Sample Collection: 09/11/2023
- Date of Testing : 11/11/2023 to 16/11/2023
- Test : pH, TDS, TSS, BOD, COD, OIL & GREASE.

## TEST RESULT

Sl. No.	PARAMETERS OF TEST	VALUE		MoEF&C Notification 1 <sup>st</sup> Jan.2016 Permissible Max. Desirable Limit	Test Method
		ETP Out let Garage	ETP Outlet T.C.H Jamadoba		
1.	pH,	8.1	8.2	6.0 – 9.0	IS-3025 (P-11): 1983
2.	Total Dissolved Solids, mg/l	858	754	2100	IS-3025 (P-16): 1984
3.	Total Suspended Solids, mg/l	45	36	100	IS-3025(P-17): 1984
4.	Bio chemical Oxygen Demand, mg/l	2.6	1.6	30	IS-3025 (P-44):1994
5.	Chemical Oxygen Demand, mg/l	87	29.2	250	IS-3025 (P-58):2006
6.	Oil & Grease, mg/l	1.6	1.2	10	IS-3025 (P-39):2021

*Anandita*  
Sr. Chemist  
Aditi R&D Services




*[Signature]*  
Technical Manager  
Aditi R&D Services, Sindri


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## Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)

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Ref. No.: - ARDS/23-24/1432		Date: 17.11.2023						
<b>TEST REPORT OF DRINKING WATER</b>								
<ul style="list-style-type: none"> <li>• Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)</li> <li>• Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021</li> <li>• Sample Code :                <ul style="list-style-type: none"> <li>1. Canteen - Jamadoba Colliery</li> <li>2. Canteen 6 &amp; 7 Pits Colliery</li> <li>3. Canteen Digwadiah Colliery</li> <li>4. Canteen Jamadoba Washery</li> </ul> </li> <li>• Date of Sample Collection: 09/11/2023 to 10/11/2023</li> <li>• Date of Testing : 11/11/2023 to 16/11/2023</li> <li>• Test :                <ul style="list-style-type: none"> <li>Colour, Odour, Taste, Turbidity, pH, Total Hardness, Iron, Chloride, Res. Free chlorine, Total Dissolved Solids, Calcium, Copper, Manganese, Sulphate, Nitrate, Fluoride, Phenolic Compound, Mercury, Cadmium, Arsenic, Cyanide, Lead, Zinc, Total Coliform, Hexavalent Chromium, Mineral Oil, Alkalinity, Aluminium &amp; Boron.</li> </ul> </li> </ul>								
<b>TEST RESULT</b>								
Sl. No	PARAMETERS OF TEST	VALUE	IS as per IS 10500:2012	Test Method				
		Canteen Jamadoba Colliery	Canteen 6 & 7 Pits Colliery	Canteen Digwadiah Colliery	Canteen Jamadoba Washery	Desirable	Permissible	
1.	Colour, (Hazen Unit)	1	1	1	1	5.00	15.0	IS 3025 (P-4):2021
2.	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	IS 3025 (P-5):2018
3.	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	IS 3025 (P-7):2017
4.	Turbidity, NTU	NIL	NIL	NIL	NIL	1.0	5.0	IS 3025 (P-10):1984
5.	pH	7.7	7.8	7.9	8.1	6.5-8.5	No. Relax.	IS-3025 (P-11):1983
6.	Total Hardness as CaCO <sub>3</sub> , mg/l	415.8	193.2	420	411.6	200	600	IS 3025 (P-21):2009
7.	Chloride as Cl, mg/l	57.6	24.2	59.5	57.6	250	1000	IS 3025 (P-32):1988
8.	Res. Free chlorine as Cl <sub>2</sub> mg/l	NIL	NIL	NIL	NIL	0.20	1.0	IS 3025 (P-26):2021
9.	Total Dissolved Solids, mg/l	503	368	727	684	500	2000	IS 3025 (P-16):1984
10.	Calcium as Ca, mg/l	72.2	42	87.4	84		200	IS 3025 (P-40):1991
11.	Copper as Cu, mg/l	BDL	BDL	BDL	BDL	BDL	1.5	IS 3025 (P-42):1992

Continued on Page 2



**Statements :**

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## Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)



# ADITI R&D SERVICES

## Testing Laboratory

### NABL ACCREDITED

(A Constituent Board of Quality Council of India)

ISO/IEC 17025:2017, ISO 9001:2015, ISO (OHSAS) 45001:2018 Certified

Plot No. - I-B-17 (P)  
Sindri, Industrial Area,  
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Fax: 0326-2952377  
Mobile: 09471358492, 09431512608

- 2 -

Sl. No	PARAMETERS OF TEST	VALUE						IS as per IS 10500:1991		Test Method
		Kendwad ih Basti	6 & 7 Pits Ayodhaya Nagari	Upper Dungri	Kalimela Kalimandir	Purnadi h (Joraph okhar)	Digw adih 10 No. F&J	Desi r- able	Permi s-sible	
11	Sulphate as SO <sub>4</sub> , mg/l	62.4	55.7	44	58.4	71	73.5	200	400	IS 3025(P-24):1986
12	Nitrate as NO <sub>3</sub> , mg/l	8.6	8.1	4.5	8.7	9.3	9.1	45	No. Relax	IS 3025(P-34):1988
13	Alkalinity as CaCO <sub>3</sub> , mg/l	306.6	310.8	105	264.6	564	576	200	600	IS 3025(P-23):1983
14	Lead as Pb, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	0.01	No. Relax	IS 3025(P-47):1994
15	Zinc as Zn, mg/l	0.56	0.38	0.18	0.7	0.8	0.64	5	15	IS 3025(P-42):1992
16	Iron as Fe, mg/l	0.18	0.2	0.12	0.33	0.29	0.28	0.3	No. Relax	IS 3025(P-53):2003
17	Copper as Cu, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	0.05	1.5	IS 3025 (P-42):1992
18	Mercury as Hg, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	0.001	No. Relax	IS 3025(P-48):1994
19	Cadmium as Cd, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	0.003	No. Relax	IS 3025(P-41):1992
20	Nickel as Ni, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	0.02	No. Relax	IS 3025(P-37):1992
21	Arsenic as As, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	0.01	No. Relax	IS 3025(P-37):1988
22	Cyanide as CN, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	0.05	No. Relax	IS 3025(P-27):1986
23	Total Chromium as Cr, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	0.05	No. Relax	IS 3025(P-52):2003

NOTE: BDL - Below Detection Limit

*Anandita*  
Sr. Chemist  
Aditi R&D Services



*[Signature]*  
Technical Manager  
Aditi R&D Services, Sindri

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Fax: 0326-2952377  
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/23-24/1433

Date: 17.11.2023

**TEST REPORT OF GROUND WATER**

- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO. : 4700092573/932 Dt. 20.07.2021
- Sample Code : 1. Kendwadih Basti  
2. 6 & 7 Pits Ayodhaya Nagari  
3. Upper Dungri  
4. Kalimela Kalimandir  
5. Purnadih (Joraphokhar).  
6. Digwadih 10 No. F&J
- Date of Sample Collection : 09/11/2023 to 10/11/2023
- Date of Testing : 11/11/2023 to 16/11/2023
- Test : Colour, Odour, Taste, Turbidity, pH, Total Hardness,  
Iron, Chloride, Res. Free chlorine, Total Dissolved  
Solids, Calcium, Copper, Manganese, Sulphate, Nitrate,  
Fluoride, Phenolic Compound, Mercury, Cadmium,  
Arsenic, Cyanide, Lead, Zinc, Total Coliform,  
Hexavalent Chromium, Mineral Oil, Alkalinity,  
Aluminium & Boron.

**TEST RESULT**

Sl. No	PARAMETERS OF TEST	VALUE						IS as per IS 10500:1991		Test Method
		Kendwadih Basti	6 & 7 Pits Ayodhaya Nagari	Upper Dungri	Kalimela Kalimandir	Purnadih (Joraphokhar)	Digwadih 10 No. F&J	Desirable	Permissible	
1.	Colour, (Hazen Unit)	1	1	1	1	1	2	5	15	IS 3025 (P-4):2021
2.	Temperature °C	24	25	24	25	25	25	-	-	-
3.	Electrical Conductivity, $\mu\text{mhos/cm}$	1140	1100	400	1360	1400	1300	-	-	-
4.	Total Dissolved Solids, mg/l	734	711	265	878	882	842	500	2000	IS 3025(P-16):1984
5.	pH	7.3	7.5	7.8	7.2	7.4	7.5	6.5-8.5	No Relax	IS-3025(P-11):1983
6.	Total Hardness as $\text{CaCO}_3$ , mg/l	491.4	508.2	138.6	484	510	496	200	600	IS 3025 (P-21):2009
7.	Calcium as Ca, mg/l	92.4	104.2	33.6	116	122	119	75	200	IS 3025(P-40):1991
8.	Magnesium as Mg, mg/l	62.5	59.5	13	47	49	48	30	100	IS 3025(P-46):1994
9.	Chloride as Cl, mg/l	81.8	55.8	20.5	132	174.7	165.5	250	1000	IS 3025(P-32):1988
10.	Fluoride as F, mg/l	0.42	0.38	0.28	0.56	0.62	0.58	1.0	1.5	IS 3025(P-60):2008

Continued on Page -2

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- 2 -

Sl. No.	PARAMETERS OF TEST	VALUE				IS as per IS 10500:1991		Test Method
		Canteen Jamadoba Colliery	Canteen 6 & 7 Pits Colliery	Canteen Digwadih Colliery	Canteen Jamadoba Washery	Desirable	Permissible	
12.	Manganese as Mn, mg/l	BDL	BDL	BDL	BDL	0.10	0.30	IS 3025 (P-59):2006
13.	Sulphate as SO <sub>4</sub> , mg/l	52.4	47.7	48.8	60.2	200	400	IS 3025 (P-24):1986
14.	Nitrate as NO <sub>3</sub> , mg/l	3.7	1.8	2.1	1.7	45	No. Relax	IS 3025 (P-34):1988
15.	Fluoride as F, mg/l	0.26	0.34	0.56	0.38	1.0	1.5	IS 3025 (P-60):2008
16.	Phenolic Compound as (C <sub>6</sub> H <sub>5</sub> OH) mg/l	BDL	BDL	BDL	BDL	0.001	0.002	IS 3025 (P-43):1992
17.	Mercury as Hg, mg/l	BDL	BDL	BDL	BDL	0.001	No. Relax	IS 3025 (P-48):1994
18.	Cadmium as Cd, mg/l	BDL	BDL	BDL	BDL	0.003	No. Relax	IS 3025 (P-41):1992
19.	Arsenic as As, mg/l	BDL	BDL	BDL	BDL	0.01	No. Relax	IS 3025 (P-37):1988
20.	Cyanide as CN, mg/l	BDL	BDL	BDL	BDL	0.05	No. Relax	IS 3025 (P-27):1986
21.	Lead as Pb, mg/l	BDL	BDL	BDL	BDL	0.01	No. Relax	IS 3025 (P-47):1994
22.	Zinc as Zn, mg/l	0.28	0.16	0.24	0.18	5	15	IS 3025 (P-42):1992
23.	Total Coliform, No./100ml	Absent	Absent	Absent	Absent	Absent	Absent	IS 3025 (P-49):1994
24.	Hexavalent Chromium as Cr, mg/l	BDL	BDL	BDL	BDL	0.05	No. Relax	IS 3025 (P-52):2003
25.	Mineral Oil, mg/l	BDL	BDL	BDL	BDL	0.5	No. Relax	IS 3025 (P-39):1989
26.	Alkalinity as CaCO <sub>3</sub> , mg/l	483	184.8	453.6	310.8	200	600	IS 3025 (P-23):1983
27.	Aluminium as Al, mg/l	BDL	BDL	BDL	BDL	0.03	0.2	IS 3025 (P-55):2003
28.	Boron as B, mg/l	BDL	BDL	BDL	BDL	0.5	1.0	IS 3025 (P-57):2005

NOTE: BDL - Below Detection Limit

*Anandita*  
Sr. Chemist  
Aditi R&D Services




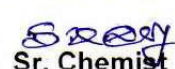


*Aditi*  
Technical Manager  
Aditi R&D Services, Sindri

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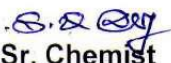




## Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)

	<h2 style="margin: 0;">ADITI R&amp;D SERVICES</h2> <h3 style="margin: 0;">Testing Laboratory</h3> <p style="margin: 0;"><b>NABL ACCREDITED</b></p> <p style="margin: 0;">(A Constituent Board of Quality Council of India)</p> <p style="margin: 0;"><b>ISO/IEC 17025:2017, ISO 9001:2015, ISO (OHSAS) 45001:2018 Certified</b></p>	Plot No. - I-B-17 (P) Sindri, Industrial Area, P.O.- Domgarh, Dist.- Dhanbad Jharkhand - 828107 Email ID: sindriaditi@gmail.com Website: aditirndservices.com Phone: 0326-2952377 (O) Mobile: 09471358492, 09431512608		
Ref. No.: - ARDS/23-24/1943		Date: 17.02.2024		
<b><u>TEST REPORT OF AMBIENT AIR QUALITY</u></b>				
<ul style="list-style-type: none"> <li>• Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)</li> <li>• Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021</li> <li>• Date of Sample Collection : 09.02.2024 to 10.02.2024</li> <li>• Date of Testing : 14.02.2024 to 16.02.2024</li> <li>• Test Procedure : As per IS-5182</li> </ul>				
<b><u>TEST RESULTS</u></b>				
<b>LOCATION – 6 &amp; 7 PITS COLLOIERY OFFICE</b>				
	Avg. Ambient Temperature	24°C	Avg. Humidity	46%
Sl No.	Particulars	Value	NAAQ - CPCB STANDARD	
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	93.28	100 µg/m <sup>3</sup>	
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	54.96	60 µg/m <sup>3</sup>	
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	21.18	80 µg/m <sup>3</sup>	
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	26.64	80 µg/m <sup>3</sup>	
5.	Ozone, µg/m <sup>3</sup>	17.63	180 µg/m <sup>3</sup>	
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	14.54	400 µg/m <sup>3</sup>	
7.	CO, mg/m <sup>3</sup>	0.78	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				
 <b>Sr. Chemist</b> Aditi R&D Services			 <b>Technical Manager</b> Aditi R&D Services, Sindri	
<b>Statements :</b> <ol style="list-style-type: none"> <li>The test report refers only to the particular item(s) submitted for testing.</li> <li>The test results reported in this report are valid at the time of and under the stated condition of measurement.</li> <li>This particular test report cannot be reproduced except in full without prior permission of Quality Manager of the laboratory.</li> </ol>				


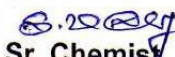

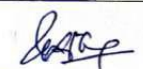


## Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)

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<div style="display: flex; justify-content: space-between;"> <span>Ref. No.: - ARDS/23-24/1944</span> <span>Date: 17.02.2024</span> </div> <h3 style="text-align: center; margin-top: 10px;">TEST REPORT OF AMBIENT AIR QUALITY</h3> <div style="margin-top: 10px;"> <p>Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)</p> <p>Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021</p> <p>Date of Sample Collection : 09.02.2024 to 10.02.2024</p> <p>Date of Testing : 14.02.2024 to 16.02.2024</p> <p>Test Procedure : As per IS-5182</p> </div> <h3 style="text-align: center; margin-top: 10px;">TEST RESULTS</h3> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th colspan="5" style="text-align: center;">LOCATION – OFFICERS COLONY, 12 NO. DIGWADIH</th> </tr> <tr> <th></th> <th style="text-align: center;">Avg. Ambient Temperature</th> <th style="text-align: center;">24°C</th> <th style="text-align: center;">Avg. Humidity</th> <th style="text-align: center;">46%</th> </tr> </thead> <tbody> <tr> <th style="text-align: center;">Sl No.</th> <th style="text-align: center;">Particulars</th> <th style="text-align: center;">Value</th> <th colspan="2" style="text-align: center;">NAAQ - CPCB STANDARD</th> </tr> <tr> <td style="text-align: center;">1.</td> <td>Particulate Matter (PM<sub>10</sub>), µg/m<sup>3</sup></td> <td style="text-align: center;">75.92</td> <td colspan="2" style="text-align: center;">100 µg/m<sup>3</sup></td> </tr> <tr> <td style="text-align: center;">2.</td> <td>Particulate Matter (PM<sub>2.5</sub>), µg/m<sup>3</sup></td> <td style="text-align: center;">46.52</td> <td colspan="2" style="text-align: center;">60 µg/m<sup>3</sup></td> </tr> <tr> <td style="text-align: center;">3.</td> <td>SO<sub>2</sub>, µg/m<sup>3</sup></td> <td style="text-align: center;">18.35</td> <td colspan="2" style="text-align: center;">80 µg/m<sup>3</sup></td> </tr> <tr> <td style="text-align: center;">4.</td> <td>NO<sub>2</sub>, µg/m<sup>3</sup></td> <td style="text-align: center;">25.52</td> <td colspan="2" style="text-align: center;">80 µg/m<sup>3</sup></td> </tr> <tr> <td style="text-align: center;">5.</td> <td>Ozone, µg/m<sup>3</sup></td> <td style="text-align: center;">17.48</td> <td colspan="2" style="text-align: center;">180 µg/m<sup>3</sup></td> </tr> <tr> <td style="text-align: center;">6.</td> <td>NH<sub>3</sub>, µg/m<sup>3</sup></td> <td style="text-align: center;">14.60</td> <td colspan="2" style="text-align: center;">400 µg/m<sup>3</sup></td> </tr> <tr> <td style="text-align: center;">7.</td> <td>CO, mg/m<sup>3</sup></td> <td style="text-align: center;">0.63</td> <td colspan="2" style="text-align: center;">4 mg/m<sup>3</sup></td> </tr> <tr> <td style="text-align: center;">8.</td> <td>Pb, µg/m<sup>3</sup></td> <td style="text-align: center;">BDL</td> <td colspan="2" style="text-align: center;">1 µg/m<sup>3</sup></td> </tr> <tr> <td style="text-align: center;">9.</td> <td>As, ng/m<sup>3</sup></td> <td style="text-align: center;">BDL</td> <td colspan="2" style="text-align: center;">6 ng/m<sup>3</sup></td> </tr> <tr> <td style="text-align: center;">10.</td> <td>Ni, ng/m<sup>3</sup></td> <td style="text-align: center;">BDL</td> <td colspan="2" style="text-align: center;">20 ng/m<sup>3</sup></td> </tr> <tr> <td style="text-align: center;">11.</td> <td>Benzene, µg/m<sup>3</sup></td> <td style="text-align: center;">BDL</td> <td colspan="2" style="text-align: center;">5 µg/m<sup>3</sup></td> </tr> <tr> <td style="text-align: center;">12.</td> <td>Benzoapyrene ng/m<sup>3</sup></td> <td style="text-align: center;">BDL</td> <td colspan="2" style="text-align: center;">1 ng/m<sup>3</sup></td> </tr> </tbody> </table> <p style="margin-top: 5px;">NOTE: BDL - Below Detection Limit</p> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="text-align: center;">   <b>Sr. Chemist</b>            Aditi R&amp;D Services         </div> <div style="text-align: center;">  </div> <div style="text-align: center;">   <b>Technical Manager</b>            Aditi R&amp;D Services, Sindri         </div> </div>			LOCATION – OFFICERS COLONY, 12 NO. DIGWADIH						Avg. Ambient Temperature	24°C	Avg. Humidity	46%	Sl No.	Particulars	Value	NAAQ - CPCB STANDARD		1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	75.92	100 µg/m <sup>3</sup>		2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	46.52	60 µg/m <sup>3</sup>		3.	SO <sub>2</sub> , µg/m <sup>3</sup>	18.35	80 µg/m <sup>3</sup>		4.	NO <sub>2</sub> , µg/m <sup>3</sup>	25.52	80 µg/m <sup>3</sup>		5.	Ozone, µg/m <sup>3</sup>	17.48	180 µg/m <sup>3</sup>		6.	NH <sub>3</sub> , µg/m <sup>3</sup>	14.60	400 µg/m <sup>3</sup>		7.	CO, mg/m <sup>3</sup>	0.63	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>	
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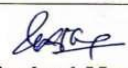


## Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)

	<h2 style="margin: 0;">ADITI R&amp;D SERVICES</h2> <h3 style="margin: 0;">Testing Laboratory</h3> <p style="margin: 0;"><b>NABL ACCREDITED</b></p> <p style="margin: 0;">Ref. No.: - ARDS/23-24/1945 (A Constituent Board of Quality Council of India)</p> <p style="margin: 0; color: red;">ISO/IEC 17025:2017, ISO 9001:2015, ISO (OHSAS) 45001:2018 Certified</p>	Plot No. - I-B-17 (P) Sindri, Industrial Area, P.O.- Domgarh, Dist.- Dhanbad Jharkhand - 828107 Email ID: sindriaditi@gmail.com Website: sindriaditiservices.com Phone: 0326-2952377 (O) Mobile: 09471358492, 09431512608		
<b>TEST REPORT OF AMBIENT AIR QUALITY</b>				
<ul style="list-style-type: none"> <li>• Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)</li> <li>• Work Order Ref. NO. : 4700092573/932 Dt. 20.07.2021</li> <li>• Date of Sample Collection : 09.02.2024 to 10.02.2024</li> <li>• Date of Testing : 14.02.2024 to 16.02.2024</li> <li>• Test Procedure : As per IS-5182</li> </ul>				
<b>TEST RESULTS</b>				
LOCATION – CENTRAL WORKSHOP AREA, JAMADOBA				
	Avg. Ambient Temperature	24°C	Avg. Humidity	46%
SI No.	Particulars	Value	NAAQ - CPCB STANDARD	
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	90.48	100 µg/m <sup>3</sup>	
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	53.29	60 µg/m <sup>3</sup>	
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	22.46	80 µg/m <sup>3</sup>	
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	30.29	80 µg/m <sup>3</sup>	
5.	Ozone, µg/m <sup>3</sup>	17.32	180 µg/m <sup>3</sup>	
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	17.83	400 µg/m <sup>3</sup>	
7.	CO, mg/m <sup>3</sup>	0.95	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				
 <b>Sr. Chemist</b> Aditi R&D Services			 <b>Technical Manager</b> Aditi R&D Services, Sindri	
<b>Statements :</b>				
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## Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)

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<div style="display: flex; justify-content: space-between;"> <span>Ref. No.: - ARDS/23-24/1946</span> <span>Date: 17.02.2024</span> </div> <h3 style="text-align: center; margin: 10px 0;">TEST REPORT OF AMBIENT AIR QUALITY</h3> <div style="margin-top: 10px;"> <p>Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)</p> <p>Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021</p> <p>Date of Sample Collection : 09.02.2024 to 10.02.2024</p> <p>Date of Testing : 14.02.2024 to 16.02.2024</p> <p>Test Procedure : As per IS-5182</p> </div> <h3 style="text-align: center; margin: 10px 0;">TEST RESULTS</h3> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4" style="text-align: center;">LOCATION – TATA CENTRAL HOSPITAL</th> </tr> <tr> <th></th> <th>Avg. Ambient Temperature</th> <th>24°C</th> <th>Avg. Humidity</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td>46%</td> </tr> <tr> <th>Sl No.</th> <th>Particulars</th> <th>Value</th> <th>NAAQ - CPCB STANDARD</th> </tr> <tr> <td>1.</td> <td>Particulate Matter (PM<sub>10</sub>), µg/m<sup>3</sup></td> <td>72.41</td> <td>100 µg/m<sup>3</sup></td> </tr> <tr> <td>2.</td> <td>Particulate Matter (PM<sub>2.5</sub>), µg/m<sup>3</sup></td> <td>44.38</td> <td>60 µg/m<sup>3</sup></td> </tr> <tr> <td>3.</td> <td>SO<sub>2</sub>, µg/m<sup>3</sup></td> <td>16.48</td> <td>80 µg/m<sup>3</sup></td> </tr> <tr> <td>4.</td> <td>NO<sub>2</sub>, µg/m<sup>3</sup></td> <td>26.88</td> <td>80 µg/m<sup>3</sup></td> </tr> <tr> <td>5.</td> <td>Ozone, µg/m<sup>3</sup></td> <td>16.56</td> <td>180 µg/m<sup>3</sup></td> </tr> <tr> <td>6.</td> <td>NH<sub>3</sub>, µg/m<sup>3</sup></td> <td>17.44</td> <td>400 µg/m<sup>3</sup></td> </tr> <tr> <td>7.</td> <td>CO, mg/m<sup>3</sup></td> <td>0.83</td> <td>4 mg/m<sup>3</sup></td> </tr> <tr> <td>8.</td> <td>Pb, µg/m<sup>3</sup></td> <td>BDL</td> <td>1 µg/m<sup>3</sup></td> </tr> <tr> <td>9.</td> <td>As, ng/m<sup>3</sup></td> <td>BDL</td> <td>6 ng/m<sup>3</sup></td> </tr> <tr> <td>10.</td> <td>Ni, ng/m<sup>3</sup></td> <td>BDL</td> <td>20 ng/m<sup>3</sup></td> </tr> <tr> <td>11.</td> <td>Benzene, µg/m<sup>3</sup></td> <td>BDL</td> <td>5 µg/m<sup>3</sup></td> </tr> <tr> <td>12.</td> <td>Benzoapyrene ng/m<sup>3</sup></td> <td>BDL</td> <td>1 ng/m<sup>3</sup></td> </tr> </tbody> </table> <p style="margin-top: 5px;">NOTE: BDL - Below Detection Limit</p> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="text-align: center;">   <b>Sr. Chemist</b>            Aditi R&amp;D Services         </div> <div style="text-align: center;">  </div> <div style="text-align: center;">   <b>Technical Manager</b>            Aditi R&amp;D Services, Sindri         </div> </div>			LOCATION – TATA CENTRAL HOSPITAL					Avg. Ambient Temperature	24°C	Avg. Humidity				46%	Sl No.	Particulars	Value	NAAQ - CPCB STANDARD	1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	72.41	100 µg/m <sup>3</sup>	2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	44.38	60 µg/m <sup>3</sup>	3.	SO <sub>2</sub> , µg/m <sup>3</sup>	16.48	80 µg/m <sup>3</sup>	4.	NO <sub>2</sub> , µg/m <sup>3</sup>	26.88	80 µg/m <sup>3</sup>	5.	Ozone, µg/m <sup>3</sup>	16.56	180 µg/m <sup>3</sup>	6.	NH <sub>3</sub> , µg/m <sup>3</sup>	17.44	400 µg/m <sup>3</sup>	7.	CO, mg/m <sup>3</sup>	0.83	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>
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Plot No. - I-B-17 (P)  
Sindri, Industrial Area,  
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Jharkhand - 828107  
Email ID: sindriaditi@gmail.com  
Website: aditirndservices.com  
Phone: 0326-2952377 (O)  
Mobile: 09471358492, 09431512608

**TEST REPORT OF NOISE (AMBIENT) LEVEL MONITORING**

Ref. No. & Date				NAME AND ADDRESS OF THE CLIENT							
ARDS/23-24/1903    Date: 12.02.2024				M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED, JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)							
Date of Monitoring											
09.02.2024 TO 10.02.2024				Avg. Ambient Temperature (°C)		Average Humidity (%)		Weather Condition		Status of the plant	
Work Order 4700092573/932 Dt. 20.07.2021				24		46		Clear		Running	
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	Industrial Area	Industrial Area
LOCATION JAMADOBA GROUP											
1.	Central Workshop	69.6	54.8	66.73	56.2	44.8	53.49	75		70	
2.	6 & 7 Pits Colliery Office	68.6	62.4	66.52	57.2	48.4	54.73				
								Residential Area	Residential Area		
3.	Officer Colony 12 No. Digwadih	50.4	46.2	48.79	44.2	40.4	42.7	65	55		
								Silence Zone	Silence Zone		
4.	Tata Central Hospital	47.8	42.6	45.94	36.8	32.4	34.6	50	40		

*S. D. Roy*  
**Sr. Chemist**  
Aditi R&D Services



*Arce*  
**Technical Manager**  
Aditi R&D Services, Sindri

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Ref. No.: - ARDS/23-24/1947

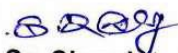
Date: 17.02.2024

**TEST REPORT OF MINERALOGICAL COMPOSITION**  
**OF PARTICULATE MATTER**

- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO. : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 10.02.2024
- Date of Testing : 14.02.2024 – 16.02.2024

**TEST RESULTS**

Sl No.	Particulars	Mineralogical Composition (%)			
		SiO <sub>2</sub>	FeO	Al <sub>2</sub> O <sub>3</sub>	CaO
1.	6 & 7 Pits Colliery Officer	1.76	0.08	1.24	2.4
2.	Tata Central Hospital	2.02	0.10	1.23	2.49

  
Sr. Chemist  
Aditi R&D Services







  
Technical Manager  
Aditi R&D Services, Sindri

**Statements :**


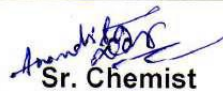


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## Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)

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<p>Ref. No.: - ARDS/23-24/1924 <span style="float: right;">Date: 15.02.2024</span></p>					
<h3><u>TEST REPORT OF SURFACE WATER</u></h3>					
<p>• Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)</p>					
<p>• Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021</p>					
<p>• Sample Code : 1. Damodar River Up Stream 2. Damodar River Down Stream</p>					
<p>• Date of Sample Collection: 09.02.2024</p>					
<p>• Date of Testing : 10.02.2024 To 14.02.2024</p>					
<p>• Test : pH, TDS, Turbidity, DO, BOD, Cl, F, SO<sub>4</sub></p>					
<h3><u>TEST RESULT</u></h3>					
Sl. No.	PARAMETERS OF TEST	VALUE		Limit as per IS 2296 Class - C	Test Method
		Damodar River Up Stream	Damodar River Dn Stream		
1.	pH	7.5	7.6	6.5 -8.5	IS-3025 (P-11): 1983
2.	Total Dissolved Solids, mg/l	455	462	1500	IS-3025 (P-16): 1984
3.	Turbidity, NTU	2.2	2.6	-	IS-3025 (P-10):1984
4.	Dissolved Oxygen, mg/l	5.3	5.7	4.0 (Min)	IS-3025 (P-38):1989
5.	Bio chemical Oxygen Demand, mg/l	1.3	1.4	3.0	IS-3025 (P-44):1994
6.	Chloride as Cl, mg/l	31.34	32.3	600 (Max.)	IS-3025 (P-32):1988
7.	Fluoride as F, mg/l	0.65	0.69	1.5	IS-3025 (P-60):2008
8.	Sulphate as SO <sub>4</sub> , mg/l	70.9	74.7	400	IS-3025 (P-24):1986
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">   <b>Sr. Chemist</b>  Aditi R&amp;D Services </div> <div style="text-align: center;">  </div> <div style="text-align: center;">   <b>Technical Manager</b>  Aditi R&amp;D Services, Sindri </div> </div>					
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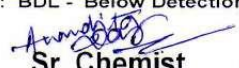




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Ref. No.: - ARDS/23-24/1925		Date: 15.02.2024					
<b><u>TEST REPORT OF MINE WATER DISCHARGE</u></b>							
<ul style="list-style-type: none"> <li>• Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)</li> <li>• Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021</li> <li>• Sample Code : 1. 2 Pit Jamadoba Colliery 2. 3 Pit Jamadoba Colliery 3. 6 &amp; 7 Pits Colliery 4. Digwadiah Colliery</li> <li>• Date of Sample Collection: 09.02.2024 To 10.02.2024</li> <li>• Date of Testing : 10.02.2024 to 14.02.2024</li> <li>• Test : pH, TDS, TSS, BOD, COD, OIL &amp; GREASE.</li> </ul>							
<b><u>TEST RESULT</u></b>							
Sl. No.	PARAMETERS OF TEST	VALUE				Limit as per IS-2296 Class B (For Bathing)	Test Method
		2 Pit Jamadoba Colliery	3 Pit Jamadoba Colliery	6 & 7 Pits Colliery	Digwadiah Colliery		
1.	pH,	7.7	7.6	7.3	7.3	6.5-8.5	IS-3025 (P-11): 1983
2.	Total Dissolved Solids, mg/l	924	826	1066	845	-	IS-3025 (P-16): 1984
3.	Total Suspended Solids, mg/l	34	36	38	30	-	IS-3025(P-17): 1984
4.	Bio chemical Oxygen Demand, mg/l	2.7	2.8	2.4	3.0	3	IS-3025 (P-44):1994
5.	Chemical Oxygen Demand, mg/l	67	74	61	54	-	IS-3025 (P-58):2006
6.	Oil & Grease, mg/l	BDL	BDL	BDL	BDL	-	IS-3025 (P-39):2021
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">   <b>Sr. Chemist</b>            Aditi R&amp;D Services         </div> <div style="text-align: center;">  </div> <div style="text-align: center;">   <b>Technical Manager</b>            Aditi R&amp;D Services, Sindri         </div> </div>							
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## Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)

	<h2 style="margin: 0;">ADITI R&amp;D SERVICES</h2> <h3 style="margin: 0;">Testing Laboratory</h3> <p style="margin: 0;"><b>NABL ACCREDITED</b></p> <p style="margin: 0;">(A Constituent Board of Quality Council of India)</p> <p style="margin: 0;"><b>ISO/IEC 17025:2017, ISO 9001:2015, ISO (OHSAS) 45001:2018 Certified</b></p>	<p>Plot No. - I-B-17 (P)</p> <p>Sindri, Industrial Area,</p> <p>P.O.- Domgarh, Dist.- Dhanbad</p> <p>Jharkhand - 828107</p> <p>Email ID: sindriaditi@gmail.com</p> <p>Website: aditirndservices.com</p> <p>Phone: 0326-2952377 (O)</p> <p>Mobile: 09471358492, 09431512608</p>						
<p>Ref. No.: - ARDS/23-24/1948 <span style="float: right;">Date: 17.02.2024</span></p>								
<h3 style="margin: 0;">TEST REPORT OF SEWAGE</h3>								
<ul style="list-style-type: none"> <li>• Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED, JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)</li> <li>• Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021</li> <li>• Sample Code :                <ul style="list-style-type: none"> <li>1. S.T.P. Outlet J.C.P.P. Canteen</li> <li>2. S.T.P. Outlet Jamadoba Canteen</li> <li>3. S.T.P. Outlet Railway Colony</li> <li>4. S.T.P. Supervisor Apartment Digwadih 12 No</li> <li>5. S.T.P. Officer Colony Digwadih 12 No.</li> </ul> </li> <li>• Date of Sample Collection: 10.02.2024</li> <li>• Date of Testing : 12.02.2024 to 16.02.2024</li> <li>• Test : pH, TDS, TSS, BOD, COD, OIL &amp; GREASE.</li> </ul>								
<h3 style="margin: 0;">TEST RESULT</h3>								
Sl. No.	PARAMETERS OF TEST	VALUE					MoEF&C Notification 1 <sup>st</sup> Jan.2016 Permissible Max. Desirable Limit	Test Method
		S.T.P. Outlet J.C.P.P. Canteen	S.T.P. Outlet Jamadoba Canteen	S.T.P. Outlet Railway Colony	S.T.P. Supervisor or Apartment Digwadih 12 No	S.T.P. Officer Colony Digwadih 12 No		
1.	pH,	7.4	7.8	8.1	7.7	8.0	5.5-9.0	IS-3025(P-11):1983
2.	Total Dissolved Solids, mg/l	1131	975	1300	1430	858	2100	IS-3025(P-16):1984
3.	Total Suspended Solids, mg/l	47	35	50	45	40	100	IS-3025(P-17):1984
4.	Bio chemical Oxygen Demand, mg/l	5.7	1.9	7.5	8.1	7.8	30	IS-3025(P-44):1994
5.	Chemical Oxygen Demand, mg/l	81	33.6	94	101	94	250	IS-3025(P-58):2006
6.	Oil & Grease, mg/l	BDL	BDL	3.2	2.4	2.0	10	IS-3025(P-39):2021
<p>Note : BDL - Below Detection Limit</p> <div style="display: flex; justify-content: space-between; align-items: flex-end;"> <div style="width: 45%;"> <p style="text-align: center;">   <b>Sr. Chemist</b>  <b>Aditi R&amp;D Services</b> </p> </div> <div style="width: 10%; text-align: center;">  </div> <div style="width: 45%;"> <p style="text-align: center;">   <b>Technical Manager</b>  <b>Aditi R&amp;D Services, Sindri</b> </p> </div> </div>								
<p><b>Statements :</b></p> <ol style="list-style-type: none"> <li>The test report refers only to the particular item(s) submitted for testing.</li> <li>The test results reported in this report are valid at the time of and under the stated condition of measurement.</li> <li>This particular test report cannot be reproduced except in full without prior permission of Quality Manager of the laboratory.</li> </ol>								




## Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)

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<div style="display: flex; justify-content: space-between;"> <span>Ref. No.: - ARDS/23-24/1926</span> <span>Date: 15.02.2024</span> </div> <h3 style="text-align: center; margin-top: 10px;">TEST REPORT OF EFFLUENT</h3> <div style="margin-top: 10px;"> <ul style="list-style-type: none"> <li>• Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED, JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)</li> <li>• Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021</li> <li>• Sample Code : 1. E.T.P. Outlet T.C.H. 2. E.T.P. Outlet Garage</li> <li>• Date of Sample Collection: 09.02.2024 to 10.02.2024</li> <li>• Date of Testing : 10.02.2024 to 14.02.2024</li> <li>• Test : pH, TDS, TSS, BOD, COD, OIL &amp; GREASE.</li> </ul> </div> <h4 style="text-align: center; margin-top: 10px;">TEST RESULT</h4> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Sl. No.</th> <th rowspan="2">PARAMETERS OF TEST</th> <th colspan="2">VALUE</th> <th rowspan="2">MoEF&amp;C Notification 1<sup>st</sup> Jan.2016 Permissible  Max. Desirable Limit</th> <th rowspan="2">Test Method</th> </tr> <tr> <th>E.T.P. Outlet T.C.H</th> <th>E.T.P. Outlet Garage</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>pH,</td> <td>7.9</td> <td>8.1</td> <td>5.5-9.0</td> <td>IS-3025 (P-11): 1983</td> </tr> <tr> <td>2.</td> <td>Total Dissolved Solids, mg/l</td> <td>872</td> <td>715</td> <td>2100</td> <td>IS-3025 (P-16): 1984</td> </tr> <tr> <td>3.</td> <td>Total Suspended Solids, mg/l</td> <td>40</td> <td>42</td> <td>100</td> <td>IS-3025(P-17) : 1984</td> </tr> <tr> <td>4.</td> <td>Bio chemical Oxygen Demand, mg/l</td> <td>2.6</td> <td>6.9</td> <td>30</td> <td>IS-3025 (P-44):1994</td> </tr> <tr> <td>5.</td> <td>Chemical Oxygen Demand, mg/l</td> <td>33.6</td> <td>81</td> <td>250</td> <td>IS-3025 (P-58):2006</td> </tr> <tr> <td>6.</td> <td>Oil &amp; Grease, mg/l</td> <td>B.D.L</td> <td>2.8</td> <td>10</td> <td>IS-3025 (P-39):2021</td> </tr> </tbody> </table> <p style="margin-top: 5px;">Note : BDL - Below Detection Limit</p> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;">  <p><b>Sr. Chemist</b> Aditi R&amp;D Services</p> </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  <p><b>Technical Manager</b> Aditi R&amp;D Services, Sindri</p> </div> </div>			Sl. No.	PARAMETERS OF TEST	VALUE		MoEF&C Notification 1 <sup>st</sup> Jan.2016 Permissible  Max. Desirable Limit	Test Method	E.T.P. Outlet T.C.H	E.T.P. Outlet Garage	1.	pH,	7.9	8.1	5.5-9.0	IS-3025 (P-11): 1983	2.	Total Dissolved Solids, mg/l	872	715	2100	IS-3025 (P-16): 1984	3.	Total Suspended Solids, mg/l	40	42	100	IS-3025(P-17) : 1984	4.	Bio chemical Oxygen Demand, mg/l	2.6	6.9	30	IS-3025 (P-44):1994	5.	Chemical Oxygen Demand, mg/l	33.6	81	250	IS-3025 (P-58):2006	6.	Oil & Grease, mg/l	B.D.L	2.8	10	IS-3025 (P-39):2021
Sl. No.	PARAMETERS OF TEST	VALUE			MoEF&C Notification 1 <sup>st</sup> Jan.2016 Permissible  Max. Desirable Limit	Test Method																																								
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<p><b>Statements :</b></p> <ol style="list-style-type: none"> <li>The test report refers only to the particular item(s) submitted for testing.</li> <li>The test results reported in this report are valid at the time of and under the stated condition of measurement.</li> <li>This particular test report cannot be reproduced except in full without prior permission of Quality Manager of the laboratory.</li> </ol>																																														



## Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)

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Ref. No.: - ARDS/23-24/1932		Date: 16.02.2024						
<b><u>TEST REPORT OF DRINKING WATER</u></b>								
<ul style="list-style-type: none"> <li>• Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)</li> <li>• Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021</li> <li>• Sample Code :                <ul style="list-style-type: none"> <li>1. Canteen Jamadoba Colliery</li> <li>2. Canteen Digwadih Colliery</li> <li>3. Canteen 6&amp;7 Pit Colliery</li> <li>4. Canteen Jamadoba Washery</li> </ul> </li> <li>• Date of Sample Collection: 09.02.2024 to 10.02.2024</li> <li>• Date of Testing : 10.02.2024 to 15.02.2024</li> <li>• Test :                Colour, Odour, Taste, Turbidity, pH, Total Hardness, Iron, Chloride, Res. Free chlorine, Total Dissolved Solids, Calcium, Copper, Manganese, Sulphate, Nitrate, Fluoride, Phenolic Compound, Mercury, Cadmium, Arsenic, Cyanide, Lead, Zinc, Total Coliform, Hexavalent Chromium, Mineral Oil, Alkalinity, Aluminium &amp; Boron.             </li> </ul>								
<b><u>TEST RESULT</u></b>								
Sl. No	PARAMETERS OF TEST	VALUE	IS as per IS 10500:2012	Test Method				
		Canteen Jamadoba Colliery	Canteen Digwadih Colliery	Canteen 6&7 Pit Colliery	Canteen Jamadoba Washery	Desirable	Permissible	
1.	Colour, (Hazen Unit)	1	1	1	1	5.00	15.0	IS 3025 (P-4):2021
2.	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	IS 3025 (P-5):2018
3.	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	IS 3025 (P-7):2017
4.	Turbidity, NTU	NIL	NIL	NIL	NIL	1.0	5.0	IS 3025 (P-10):1984
5.	pH	7.6	7.8	7.7	7.9	6.5-8.5	No. Relax.	IS-3025 (P-11):1983
6.	Total Hardness as CaCO <sub>3</sub> , mg/l	325.6	330	259.6	343.2	200	600	IS 3025 (P-21):2009
7.	Chloride as Cl, mg/l	64.5	64.5	32.3	66.5	250	1000	IS 3025 (P-32):1988
8.	Res. Free chlorine as Cl <sub>2</sub> mg/l	NIL	NIL	NIL	NIL	0.20	1.0	IS 3025 (P-26):2021
9.	Total Dissolved Solids, mg/l	825	805	458	845	500	2000	IS 3025 (P-16):1984
10.	Calcium as CaCO <sub>3</sub> , mg/l	65.12	41.2	52.8	66.8	75	200	IS 3025 (P-40):1991
11.	Copper as Cu, mg/l	BDL	BDL	BDL	BDL	0.05	1.5	IS 3025 (P-42):1992
Continued on Page 2								
<b>Statements :</b> <ol style="list-style-type: none"> <li>The test report refers only to the particular item(s) submitted for testing.</li> <li>The test results reported in this report are valid at the time of and under the stated condition of measurement.</li> <li>This particular test report cannot be reproduced except in full without prior permission of Quality Manager of the laboratory.</li> </ol>								



## Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)



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Testing Laboratory  
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Plot No. - I-B-17 (P)  
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Phone: 0326-2952377 (O)  
Mobile: 09471358492, 09431512608

- 2 -

Sl. No.	PARAMETERS OF TEST	VALUE				IS as per IS 10500:1991		Test Method
		Canteen Jamadoba Colliery	Canteen Digwadih Colliery	Canteen 6&7 Pit Colliery	Canteen Jamadoba Washery	Desirable	Permissible	
12.	Manganese as Mn, mg/l	BDL	BDL	BDL	BDL	0.10	0.30	IS 3025 (P-59):2006
13.	Sulphate as SO <sub>4</sub> , mg/l	70.3	64.4	61.8	75.1	200	400	IS 3025 (P-24):1986
14.	Nitrate as NO <sub>3</sub> , mg/l	3.2	3.7	2.7	3.5	45	No. Relax	IS 3025 (P-34):1988
15.	Fluoride as F, mg/l	0.35	0.42	0.30	0.40	1.0	1.5	IS 3025 (P-60):2008
16.	Phenolic Compound as (C <sub>6</sub> H <sub>5</sub> OH) mg/l	BDL	BDL	BDL	BDL	0.001	0.002	IS 3025 (P-43):1992
17.	Mercury as Hg, mg/l	BDL	BDL	BDL	BDL	0.001	No. Relax	IS 3025 (P-48):1994
18.	Cadmium as Cd, mg/l	BDL	BDL	BDL	BDL	0.003	No. Relax	IS 3025 (P-41):1992
19.	Arsenic as As, mg/l	BDL	BDL	BDL	BDL	0.01	No. Relax	IS 3025 (P-37):1988
20.	Cyanide as CN, mg/l	BDL	BDL	BDL	BDL	0.05	No. Relax	IS 3025 (P-27):1986
21.	Lead as Pb, mg/l	BDL	BDL	BDL	BDL	0.01	No. Relax	IS 3025 (P-47):1994
22.	Zinc as Zn, mg/l	0.20	0.16	0.14	0.28	5	15	IS 3025 (P-42):1992
23.	Total Coliform, No./100ml	Absent	Absent	Absent	Absent	Absent	Absent	IS 3025 (P-49):1994
24.	Hexavalent Chromium as Cr, mg/l	BDL	BDL	BDL	BDL	0.05	No. Relax	IS 3025 (P-52):2003
25.	Mineral Oil, mg/l	BDL	BDL	BDL	BDL	0.5	No. Relax	IS 3025 (P-39):1989
26.	Alkalinity as CaCO <sub>3</sub> , mg/l	523.2	528	216	523.2	200	600	IS 3025 (P-23):1983
27.	Aluminium as Al, mg/l	BDL	BDL	BDL	BDL	0.03	0.2	IS 3025 (P-55):2003
28.	Boron as B, mg/l	BDL	BDL	BDL	BDL	0.5	1.0	IS 3025 (P-57):2005

NOTE: BDL - Below Detection Limit

  
 Sr. Chemist  
 Aditi R&D Services




  
 Technical Manager  
 Aditi R&D Services, Sindri

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<p>Ref. No.: - ARDS/23-24/1933 <span style="float: right;">Date: 16.02.2024</span></p> <p style="text-align: center;"><b><u>TEST REPORT OF GROUND WATER</u></b></p>									
<ul style="list-style-type: none"> <li>• Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED, JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)</li> <li>• Work Order Ref. NO. : 4700092573/932 Dt. 20.07.2021</li> <li>• Sample Code :                <ul style="list-style-type: none"> <li>1. Mohalbani Basti</li> <li>2. Jorapokhar Kushtand</li> <li>3. Bhowra 13 NO</li> <li>4. Jamadoba 3 No</li> <li>5. Lower Dungri</li> </ul> </li> <li>• Date of Sample Collection : 09.02.2024 to 10.02.2024</li> <li>• Date of Testing : 10.02.2024 to 16.02.2024</li> <li>• Test : Colour, Odour, Taste, Turbidity, pH, Total Hardness, Iron, Chloride, Res. Free chlorine, Total Dissolved Solids, Calcium, Copper, Manganese, Sulphate, Nitrate, Fluoride, Phenolic Compound, Mercury, Cadmium, Arsenic, Cyanide, Lead, Zinc, Total Coliform, Hexavalent Chromium, Mineral Oil, Alkalinity, Aluminium &amp; Boron.</li> </ul>									
<b><u>TEST RESULT</u></b>									
Sl. No	PARAMETERS OF TEST	VALUE					IS as per IS 10500:1991		Test Method
		Mohalbani Basti	Jorapokhar Kushtand	Bhowra 13 NO	Jamadoba 3 No	Lower Dungri	Desirable	Permissible	
1.	Colour, (Hazen Unit)	1	2	2	1	1	5	15	IS 3025 (P-4):2021
2.	Temperature °C	22	22	20	22	21	-	-	-
3.	Electrical Conductivity, µmhos/cm	1040	2400	1090	550	870	-	-	-
4.	Total Dissolved Solids, mg/l	676	1545	708	350	560	-	-	IS 3025(P-16):1984
5.	pH	7.0	7.6	7.5	7.6	7.0	6.5-8.5	No Relax	IS-3025(P-11):1983
6.	Total Hardness as CaCO <sub>3</sub> , mg/l	470.8	589.6	466.4	233.2	347.6	200	600	IS 3025(P-21):2009
7.	Calcium as Ca, mg/l	96.8	153.1	95.0	49.3	72.2	75	200	IS 3025(P-40):1991
8.	Magnesium as Mg, mg/l	54.9	49.6	54.9	26.4	40.1	30	100	IS 3025(P-46):1994
9.	Chloride as Cl, mg/l	930	138.7	75.9	24.7	53.2	250	1000	IS 3025(P-32):1988
10.	Fluoride as F, mg/l	0.30	0.54	0.34	0.35	0.42	1.0	1.5	IS 3025(P-60):2008

**Statements :**





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Continued on Page -2






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 <b>ADITI R&amp;D SERVICES</b> <b>Testing Laboratory</b> <b>NABL ACCREDITED</b> <b>(A Constituent Board of Quality Council of India)</b> <b>ISO/IEC 17025:2017, ISO 9001:2015, ISO (OHSAS) 45001:2018 Certified</b>		Plot No. - I-B-17 (P) Sindri, Industrial Area, P.O.- Domgarh, Dist.- Dhanbad Jharkhand - 828107 Email ID: sindriaditi@gmail.com Website: aditirndservices.com Phone: 0326-2952377 (O) Mobile: 09471358492, 09431512608							
- 2 -									
Sl. No	PARAMETERS OF TEST	VALUE					IS as per IS 10500:1991		Test Method
		Mohalbani Basti	Jorapokhar Kushtand	Bhowra 13 NO	Jamado ba 3 No	Lower Dungri	Desi r-able	Permi s-sible	
11	Sulphate as SO <sub>4</sub> , mg/l	49.5	97.6	60.5	38.2	43.9	200	400	IS 3025(P-24):1986
12	Nitrate as NO <sub>3</sub> , mg/l	7.8	11.5	8.7	7.7	8.5	45	No. Relax	IS 3025(P-34):1988
13	Alkalinity as CaCO <sub>3</sub> , mg/l	242	523.2	384	144	196.8	200	600	IS 3025(P-23):1983
14	Lead as Pb, mg/l	BDL	BDL	BDL	BDL	BDL	0.01	No. Relax	IS 3025(P-47):1994
15	Zinc as Zn, mg/l	0.24	0.36	0.3	0.14	0.24	5	15	IS 3025(P-42):1992
16	Iron a Fe, mg/l	0.09	0.09	0.07	0.08	0.09	1.0	No. Relax	IS 3025(P-53):2003
17	Copper as Cu, mg/l	BDL	BDL	BDL	BDL	BDL	0.05	1.5	IS3025 (P-42):1992
18	Mercury as Hg, mg/l	BDL	BDL	BDL	BDL	BDL	0.00 1	No. Relax	IS 3025(P-48):1994
19	Cadmium as Cd, mg/l	BDL	BDL	BDL	BDL	BDL	0.00 3	No. Relax	IS 3025(P-41):1992
20	Nickel as Ni, mg/l	BDL	BDL	BDL	BDL	BDL	0.02	No. Relax	IS 3025(P-37):1992
21	Arsenic as As, mg/l	BDL	BDL	BDL	BDL	BDL	0.01	No. Relax	IS 3025(P-37):1988
22	Cyanide as CN, mg/l	BDL	BDL	BDL	BDL	BDL	0.05	No. Relax	IS 3025(P-27):1986
23	Total Chromium as Cr, mg/l	BDL	BDL	BDL	BDL	BDL	0.05	No. Relax	IS 3025(P-52):2003
NOTE: BDL - Below Detection Limit									
 <b>Sr. Chemist</b> <b>Aditi R&amp;D Services</b>				 <b>Technical Manager</b> <b>Aditi R&amp;D Services, Sindri</b>					
<b>Statements :</b> 1. The test report refers only to the particular item(s) submitted for testing. 2. The test results reported in this report are valid at the time of and under the stated condition of measurement. 3. This particular test report cannot be reproduced except in full without prior permission of Quality Manager of the laboratory.									



## Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)

	<h2 style="margin: 0;">ADITI R&amp;D SERVICES</h2> <h3 style="margin: 0;">Testing Laboratory</h3> <p style="margin: 0;"><b>NABL ACCREDITED</b></p> <p style="margin: 0;">(A Constituent Board of Quality Council of India)</p> <p style="margin: 0;"><b>ISO/IEC 17025:2017, ISO 9001:2015, ISO (OHSAS) 45001:2018 Certified</b></p>	<p>Plot No. - I-B-17 (P) Sindri, Industrial Area, P.O. - Domgarh, Dist. - Dhanbad Jharkhand - 828107 Email ID: sindriaditi@gmail.com Website: aditirnds-services.com Phone: 0326-2952377 (O) Mobile: 09471358492, 09431512608</p>																																													
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## Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)

**ADITI R&D SERVICES****Testing Laboratory****NABL ACCREDITED****(A Constituent Board of Quality Council of India)****ISO/IEC 17025:2017, ISO 9001:2015, ISO (OHSAS) 45001:2018 Certified**

Plot No. - I-B-17 (P)  
Sindri, Industrial Area,  
P.O.- Domgarh, Dist.- Dhanbad  
Jharkhand - 828107  
Email ID: sindriaditi@gmail.com  
Website: aditirndservices.com  
Phone: 0326-2952377 (O)  
Mobile: 09471358492, 09431512608

**TEST REPORT OF NOISE (AMBIENT) LEVEL MONITORING**

Ref. No. & Date	NAME AND ADDRESS OF THE CLIENT			
ARDS/23-24/1928 Date: 15.02.2024	M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED, JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)			
Date of Monitoring				
13.02.2024 to 14.02.2024	Avg. Ambient Temperature (°C)	Average Humidity (%)	Weather Condition	Status of the plant
Work Order 4700092573/932 Dt. 20.07.2021	24	39	Clear	Running
MONITORING RESULTS				

Sl. No	Place of Monitoring	Day Time		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	
		(6 AM to 10 PM) dB(A)		Limit in dB(A) Leq	
		Day Time	Night Time	Day Time	Night Time
LOCATION		MAX	MIN	Industrial Area	Industrial Area
JAMADOBA GROUP					
Central Workshop Area Jamadoba near DG Set		71.4	65.8	75	70

Remarks: Noise level is well within the standard specified limit for Industrial Area.

*S. D. Dey*  
Sr. Technician  
Aditi R&D Services



*[Signature]*  
Technical Manager  
Aditi R&D Services, Sindri

**Statements :**

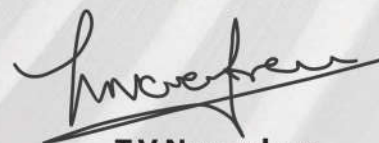
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## ENVIRONMENTAL POLICY

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

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

**Date :** November 1, 2017



**T V Narendran**  
CEO & Managing Director





FROM THE PRESS

Publication **PRABHAT KHAZAR, DHANBAD** Date **11-3-14**



**सूचना**

जन साधारण को सूचित किया जाता है कि भारत सरकार, वन एवं पर्यावरण मंत्रालय के पत्रांक संख्या - J-11015/203/2011-IA.II(M) के जरिए जामाडोबा कोल वाशरी (1.0 मिलियन टन प्रतिवर्ष से 2.0 मिलियन टन प्रतिवर्ष विस्तारीकरण परियोजना) मेसर्स टाटा स्टील लिमिटेड, जामाडोबा, जिला-धनबाद को पर्यावरण स्वीकृति प्रदान की गयी है, जिसकी प्रतिलिपि क्षेत्रीय कार्यालय, झारखण्ड राज्य प्रदूषण नियंत्रण परिषद, धनबाद में उपलब्ध है तथा भारत सरकार, वन एवं पर्यावरण मंत्रालय के इंटरनेट साइट <http://envfor.nic.in> पर भी देखी जा सकती है।

महाप्रबंधक (झरिया)

टाटा स्टील, जामाडोबा (धनबाद)



FROM THE PRESS

Publication **HINDUSTANI, DHANBAD** Date **11-3-14**



**TATA  
TATA STEEL**

**सूचना**

जन साधारण को सूचित किया जाता है कि भारत सरकार, वन एवं पर्यावरण मंत्रालय के पत्रांक संख्या - J-11015/203/2011-IA.II(M) के जरिए जामाडोबा कोल वाशरी (1.0 मिलियन टन प्रतिवर्ष से 2.0 मिलियन टन प्रतिवर्ष विस्तारीकरण परियोजना) मेसर्स टाटा स्टील लिमिटेड, जामाडोबा, जिला-धनबाद को पर्यावरण स्वीकृति प्रदान की गयी है, जिसकी प्रतिलिपि क्षेत्रीय कार्यालय, झारखण्ड राज्य प्रदूषण नियंत्रण परिषद, धनबाद में उपलब्ध है तथा भारत सरकार, वन एवं पर्यावरण मंत्रालय के इंटरनेट साइट <http://envfor.nic.in> पर भी देखी जा सकती है।

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टाटा स्टील, जामाडोबा (धनबाद)

FROM THE PRESS

Publication

DAINIK BHASKAR, DHANBAD Date 11-3-14



TATA STEEL

सूचना

जन साधारण को सूचित किया जाता है कि भारत सरकार, वन एवं पर्यावरण मंत्रालय के पत्रांक संख्या - J-11015/373/2010-IA.II(M) के जरिए 6 एवं 7 पिट्स कोलियरी (0.28 मिलियन टन प्रतिवर्ष से 0.6 मिलियन टन प्रतिवर्ष विस्तारीकरण परियोजना) मेसर्स टाटा स्टील लिमिटेड, जामाडोबा, जिला-धनबाद को पर्यावरण स्वीकृति प्रदान की गयी है, जिसकी प्रतिलिपि क्षेत्रीय कार्यालय, झारखण्ड राज्य प्रदूषण नियंत्रण परिषद, धनबाद में उपलब्ध है तथा भारत सरकार, वन एवं पर्यावरण मंत्रालय के इंटरनेट साइट <http://envfor.nic.in> पर भी देखी जा सकती है।

महाप्रबंधक (झरिया)

टाटा स्टील, जामाडोबा (धनबाद)

FROM THE PRESS

Publication **DAINIK JAGRAN, DHANBAD** Date **11-3-14**



**सूचना**

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महाप्रबंधक (झरिया)

टाटा स्टील, जामाडोबा (धनबाद)

CORPORATE COMMUNICATIONS  
JHARIA DIVISION



## ANNEXURE-V

Municipal Commissioner,  
Dhanbad.

Ref No.: JMB/ENV/DIG/37/ 805 /2018

September 17, 2018

Sub: Submission of copy of Environmental Clearance granted to units of M/s Tata Steel Limited

Dear Sir,

Please find enclosed the letter of Environmental Clearance (EC) granted by MoEFCC to various units of Tata Steel Limited, Jharia Division, Dhanbad as per the following details-

1. Digwadih Colliery (for expansion from 0.38 MTPA to 0.6 MTPA in ML area 314.57 ha), dist. Dhanbad, Jharkhand.
2. 6 & 7 Pits Colliery (for expansion from 0.28 MTPA to 0.6 MTPA in ML area 168.12 ha), dist. Dhanbad, Jharkhand.
3. Jamadoba Coal Washery (for expansion from 1 MTPA to 2 MTPA in 7 Ha area), dist. Dhanbad, Jharkhand.

The copy of EC letter and its compliance is also uploaded in website (<http://www.tatasteel.com/sustainability/environment-compliance-reports/>) for your kind perusal.

Thanking You,

Yours faithfully,



Head, Planning  
Jharia Division

