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/JMD/871/249 /2025
May 28th, 2025

Ref.: Environmental Clearance letter no. - J-11015/91/2017-IA .II (M) dated- 11th July 2022.

SUB: Half Yearly Compliance Status Report of Environment Clearance conditions issued by MoEFCC, New Delhi to Jamadoba Colliery, Tata Steel Limited, Dhanbad for the period October-24 to March-2025.

Dear Sir,

We are enclosing herewith compliance report for the period **October-24 to March-2025** for the EC granted vide letter no.- J-11015/91/2017-IA. II (M) dated- 11th July 2022 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, 5th Floor 1582, Rajdanga Main Road, Kolkata -700107.
Copy to: Member Secretary, JSPCB, T.A. Division Building (Ground Floor),H.E.C, Dhurwa, Ranchi - 834004.
Copy to: Regional Officer, JSPCB, HIG -1 Sardar Patel Nagar, Housing Colony, Hirapur, Dhanbad

TATA STEEL LIMITED
Jharia Collieries Jamadoba 828 112 Dhanbad India
Tel 91 326 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

Your (Half Yearly Compliance Report) has been Submitted with following details	
Proposal No	IA/JH/CMIN/109757/2019
Compliance ID	128353495
Compliance Number(For Tracking)	EC/M/COMPLIANCE/128353495/2025
Reporting Year	2025
Reporting Period	01 Jun(01 Oct - 31 Mar)
Submission Date	31-05-2025
RO/SRO Name	Shri Senthil Kumar Sampath
RO/SRO Email	agmu156@ifs.nic.in
State	JHARKHAND
RO/SRO Office Address	Integrated Regional Offices, Ranchi
Note:- SMS and E-Mail has been sent to Shri Senthil Kumar Sampath, JHARKHAND with Notification to Project Proponent.	

Half Yearly Compliance Report
2025
01 Jun(01 Oct - 31 Mar)

Acknowledgement

Proposal Name	Modernization of Jamadoba Underground coal mine of 0.34 MTPA in ML area of 927.17 Ha by M/s Tata Steel Limited at Jorapokhar, Puttiya Dungri village, Jharia, Tehsil, Dhanbad (Jharkhand)
Name of Entity / Corporate Office	Tata Steel Ltd.
Village(s)	N/A
District	DHANBAD

Proposal No.	IA/JH/CMIN/109757/2019
Plot / Survey / Khasra No.	N/A
State	JHARKHAND
MoEF File No.	J-11015/91/2017- IA.II (M)

Category	Coal Mining
Sub-District	N/A
Entity's PAN	*****2803M
Entity name as per PAN	UTSAV KASHYAP

Compliance Reporting Details

Reporting Year	2025
Remarks (if any)	Half Yearly Compliance Submission for October-2024 to March-2025.
Reporting Period	01 Jun(01 Oct - 31 Mar)

Details of Production and Project Area

Name of Entity / Corporate Office Tata Steel Ltd.

	Project Area as per EC Granted	Actual Project Area in Possession
Private	0	0
Revenue Land	0	0
Forest	0	0
Others	927.17	927.15
Total	927.17	927.15

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	0.34	0	

Conditions

Specific Conditions

Sr.No.	Condition Type	Condition Details
1	Statutory compliance	PP to obtain the CTO for 0.34 MTPA capacities immediately after grant of EC.
PPs Submission: Complied Consent to Operate for the existing capacity has been obtained from the State PCB on 31.01.2025 and is valid till 31.12.2025. The production from the mines have been discontinued since January 2024.		Date: 28/05/2025
2	WATER QUALITY MONITORING AND PRESERVATION	PP to conserve the Kari jhore, Dungri jhore, Damodar River following within the core area of the project and the measure taken for its conservation to be furnished in every six-monthly compliance to be reported to respective IRO and SPCB.
PPs Submission: Complied Garland drains have been constructed around the boundary premises of the mines. Moreover, the production from the mines has been suspended since January 2024. Reclamation activities are ongoing and hence there is no adverse impact envisaged from the mines.		Date: 30/05/2025
3	Statutory compliance	Since there is also Jamadoba Coal washery located within mine lease having separated EC vide Letter No.- J-11015/203/2011-II-IA(M) dated 3rd March 2014 so the adequate EMP measure to be adopted to minimize the cumulative impact, also the utilization of rejects generated from washery should be managed as per norms. PP shall obtain integrated EC for future coal/washery expansion.
PPs Submission: Complied There are existing environmental measures for the Jamadoba Coal preparation plant. The rejects like tailing, middling etc are utilized as per norms. The integrated EC shall be taken in case of washery expansion.		Date: 28/05/2025
4	Statutory compliance	PP shall obtain No objection certificate from Ground water Authority for extraction of ground water within six months and submit to IRO Ranchi.
PPs Submission: Complied The NOC from central Ground Water Authority for extraction of ground water was granted vide NOC No. CGWA/NOC/MIN/REN/1/2024/10124; dated: 05.11.2024.		Date: 28/05/2025
5	WASTE MANAGEMENT	PP Shall reduce river sand used for stowing and explore usage of sand segregated from OB dump from any nearest mine (either its own or any mine) and submit detailed report to IRO Ranchi.
PPs Submission: Complied We are in the process of technological exploration of sand from OB dump.		Date: 28/05/2025
6	Statutory compliance	PP to accomplish the requirement of a full fledge qualified manpower with Environmental Engineer/Env. Science degree background in Environmental Management Cell etc. within six months and same shall be reported to IRO, MoEF&CC
PPs Submission: Complied We have a full-fledged Environment cell with Environment professionals and field monitoring staff.		Date: 28/05/2025

7	PUBLIC HEARING	PP to fulfil all the commitment made to address the public hearing issued in time bound manner as committed in EIA EMP report in Chapter & table 7.1 and a progressive report to be furnished to IRO with six monthly compliance report

PPs Submission: Complied The commitments made during the public hearing are being complied in time bound manner. The timeline mentioned in Table 7.1 is strictly followed. The report showing the status has been attached as Annexure-IV.	Date: 30/05/2025

8	AIR QUALITY MONITORING AND PRESERVATION	PP to maintain the transportation road properly to minimize the dust emission. PP to also develop puce roads by seeking consent from the panchayat with widening of roads especially roads inters linking the villages within the study area of 10 Km radius buffer zone.

PPs Submission: Complied The transportation roads in core and buffer zones are maintained properly to minimize the dust emission. The construction of roads in nearby villages are continuous process in consent with panchayat.	Date: 28/05/2025

9	Corporate Environmental Responsibility	PP to complete the estimated allocated budgetary expenditure for EMP capital cost is Rs.273.0 lakhs & Recurring cost is Rs.1359.4 Lakhs per year as per its letter dated JMB/115/001339 dated 3rd September, 2021. Capital EMP budget shall be completed within strict timeline.

PPs Submission: Complied It is being complied. Capital EMP budget expenditure has been completed. Recurring cost on the environment is reported every year in the environment statement.	Date: 30/05/2025

10	WATER QUALITY MONITORING AND PRESERVATION	PP to monitor the water quality of the ground water and surface water body located within the core zone and 5 Km radius from the periphery of the mine boundary as per procedure laid down by CPCB.

PPs Submission: Complied It has been complied.	Date: 28/05/2025

11	AIR QUALITY MONITORING AND PRESERVATION	PP to install More continuous ambient air quality stations at suitable locations preferably village side with consultation of SPCB. The real time data so generated shall be uploaded on company website and linked it with website of CPCB & SPCB. In addition, data should also be displayed digitally at entry and exit gate of mine lease for public display.

PPs Submission: Complied A CAAQMS is being installed in Jamadoba group since 2014. A new CAAQMS has been installed recently in July 2022 and the data connectivity to SPCB, Jharkhand has been done.	Date: 28/05/2025

12	WATER QUALITY MONITORING AND PRESERVATION	PP shall develop rainwater harvesting in Jamadoba coal washery as proposed by PP in vide Letter dated JMB/115/001339 dated 3rd September, 2021 & water harvesting ponds near the villages of suitable area as suggested by EAC in consultation with Gram Panchayat within year and with cultivation of Lotus.

PPs Submission: Complied There are a number of ponds developed 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	Date: 28/05/2025

our CSR department. As per the hydro-geological report, the variation in the ground water level is only seasonal. Rain water harvesting structure inside the washery premises shall be complied. Work has been initiated and under progress.		
13	MISCELLANEOUS	PP must seek the input of experts for phytoremediation of Slurry and accordingly work on it with proper scientific approach.
PPs Submission: Complied There is no generation of slurry during raw coal production.		Date: 28/05/2025
14	GREENBELT	PP to plant additional 100,000 plants with three tier plantations along the transportation route, if not completed, and identified areas with consent to the gram panchayat within two year and plant for remaining within 2 years for their proper growth.
PPs Submission: Complied Plantation and green belt development is a continuous process. For FY 24, around 12452 saplings have been planted. For FY25 12313 saplings have been planted Green belt report has been attached as Annexure-I.		Date: 30/05/2025
15	ENERGY PRESERVATION MEASURES	PP to install solar lights along the road used for transportation of minerals to avoid the accidents at night and also seek its maintenance. PP is asked to also identify the rural areas for installation of solar light with in its maintenance within the study area of 10 km radius buffer zone within one year
PPs Submission: Complied Adequate lighting facilities have been installed along the roads. Several facilities under CSR, including lights have been provided in the area.		Date: 28/05/2025
16	Human Health Environment	Proponent shall appoint an occupational Health Specialist for Regular and Periodical medical examination of the workers engaged in the project and maintain records accordingly also Occupational health check-up for workers having some ailments like BP, diabetes, habitual smoking etc. shall be undertaken once in six months and necessary redial/preventive measures taken accordingly. The recommendations of National Institute for ensuring good occupational environment for mine workers shall be implemented. The prevention measure for burns, malaria and provision of anti-snake venom including all other paramedical safeguards may be ensured before initiating the mining activities.
PPs Submission: Complied It has been complied. Its a continuous process. There is fully developed Tata Central Hospital in Jamadoba to take care of all these types of concerns of community.		Date: 28/05/2025
17	MISCELLANEOUS	Persons of nearby villages shall be given training on livelihood and skill development makes them employable with its proper records.
PPs Submission: Complied It is a continuous process and has been complied. Separate training cell (JNTVTI) has been developed for skill based training of local youth.		Date: 28/05/2025
18	Noise Monitoring & Prevention	The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may effects the health in the village located aloes tom mining operations. Habitations have a right for darkness and minimal noise levels at nights, PPs must ensure that the biological clock of the villages is not distributed by orienting the

		floodlights/masks away from the villagers and keeping the noise levels well within the prescribed limits for day lights/night hours
PPs Submission: Complied It has been noted and shall be complied strictly.		Date: 28/05/2025
19	Statutory compliance	PP shall pay to farmers of agricultural land if there is any loss due to pollution found by concerned District Commissioner as per extent rules or norms.
PPs Submission: Complied It has been noted and shall be complied.		Date: 28/05/2025
20	Statutory compliance	PP should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground A dedicated team to oversee environment management shall be setup which should comprise of Environmental Engineer, Laboratory chemist and staff for monitoring of air , water quality parameters on routine basis. Any non-compliance or infringement should be reported to the concerned authority.
PPs Submission: Complied We have a full-fledged Environment cell with Environment professionals and field monitoring staff.		Date: 28/05/2025
21	MISCELLANEOUS	PP shall follow the recommendation of subsidence study and monitor the degree of subsidence regularly and shall be submitted to IRO- Ranchi.
PPs Submission: Complied The subsidence is monitored regularly, and the recommendations are implemented.		Date: 30/05/2025

General Conditions

Sr.No.	Condition Type	Condition Details
1	Statutory compliance	The Environmental clearance shall be subject orders of Hon'ble Supreme Court of India. Hon'ble High Courts, NGT and any other Court of Law, from time to time, and as applicable to the project.
PPs Submission: Complied It has been noted.		Date: 28/05/2025
2	Statutory compliance	The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non- forest purpose involved in the project.
PPs Submission: Complied It has been noted.		Date: 28/05/2025
3	Statutory compliance	The Project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
PPs Submission: Complied		Date:

Not Applicable		28/05/2025
4	Statutory compliance	The project proponent shall prepare a site-specific conservation plan/wildlife management Plan and approved by the Chief Wildlife Warden. The recommendation of the approved Site-Specific Conservation Plan/Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report (in case of the presence of schedule I species in the study area)
PPs Submission: Complied There is no Schedule-I species in the study area.		Date: 28/05/2025
5	Statutory compliance	The project proponent shall obtain Consent to Establish/Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and Water (Prevention & Control of Pollution) Act, 1974 from the Concerned State Pollution Control Board/Committee.
PPs Submission: Complied The CTE has been obtained from JSPCB vide letter no. JSPCB/HO/RNC/CTE-14115974/2022/523 dated 12.11.2022 and CTO has been received from JSPCB with Ref No. JSPCB/HO/RNC/CTO-13955624/2022/1601 dated 14.11.2022.		Date: 28/05/2025
6	Statutory compliance	The project proponent shall obtain the necessary permission from the Central Ground Water Authority.
PPs Submission: Complied The NOC from central Ground Water Authority for extraction of ground water was granted vide NOC No. CGWA/NOC/MIN/REN/1/2024/10124; dated: 05.11.2024.		Date: 28/05/2025
7	Statutory compliance	Solid Waste/Hazardous Waste generated in the mines needs to addressed in accordance to the Solid Waste Management Rules,2016/ Hazardous & Other Waste Management Rules,2016
PPs Submission: Complied It has been noted and shall be complied.		Date: 28/05/2025
8	AIR QUALITY MONITORING AND PRESERVATION	Adequate ambient air quality monitoring stations shall be established in core zone as well as in the buffer zone for monitoring of pollutants, namely particulates ,SO2and NOx location of the Station shall be decided based on the metrological data, topographical features and environmentally and ecologically sensitive in consultation with the State Pollution Control Board. Monitoring of heavy metal such as Hg, As, Ni, Cd, Cr, etc. to be carried out at least once in six months. Online ambient air quality monitoring station may also be installed in addition to the regular air monitoring stations as per the requirement and /or in consultation with the SPCB.
PPs Submission: Complied It has been complied		Date: 28/05/2025
9	AIR QUALITY MONITORING AND PRESERVATION	The Ambient Air Quality monitoring in the core zone shall be carried out to ensure the coal Industry Standards notifies vide GSR 742 E dated 25.09.2000 and as amended from time to time by the Central Pollution Control Board. Data on ambient air quality and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly reported to the Ministry/Regional Office and to the CPCB/SPCB.

PPs Submission: Complied Ambient air quality of core as well as buffer zone are measures by inhouse environmental laboratory as well as third party NABL recognised lab. Report has been attached as Annexure-II.		Date: 28/05/2025
10	WATER QUALITY MONITORING AND PRESERVATION	The project proponent shall take all precautionary measure to ensure reverian/riparian ecosystem in and around the coal mine up to a distance of 5 km. a revarian/riparian ecosystem conservation and management plan should be prepared and implemented in consultation with the irrigation/water resources department in the state government.
PPs Submission: Complied It has been noted and shall be complied		Date: 28/05/2025
11	PUBLIC HEARING	Effective arrangements shall be made to provide and maintain at suitable point's conveniently situated, a sufficient supply of drinking water for all the persons employed.
PPs Submission: Complied Water treatment plants are operated for safe drinking water supply in nearby community.		Date: 28/05/2025
12	AIR QUALITY MONITORING AND PRESERVATION	Transportation of coal, to the extent permitted by road shall be carried out by covered trucks/conveyors .Effective control measure such as regular water sprinkling /rain gun/mist sprinkling etc. shall be carried out in critical areas prone to air pollution with higher level of particulate matter all through the coal; transport roads., loading /Unloading and transfer points. Fugitive dust emissions from all sources shall be controlled regularly. It shall be ensured that the ambient air quality parameters conform to the norms prescribed by the Central/ State Pollution Control Board.
PPs Submission: Complied The production from the mine has been discontinued from January 2024. Transportation of coal from colliery to washery was done through covered conveyor belts. Road transportation is done through covered truck only.		Date: 28/05/2025
13	AIR QUALITY MONITORING AND PRESERVATION	Major approach roads shall be black topped and properly maintained.
PPs Submission: Complied It has been complied		Date: 28/05/2025
14	AIR QUALITY MONITORING AND PRESERVATION	The transportation of coal shall be carried out as per the provision and route proposed in the approved mining plan. Transportation of coal through the exiting road passing through any village shall be avoided. In case it is proposed to construct a bypass road it should be so constructed that the impact of sound, dust and accidents could be appropriately mitigated.
PPs Submission: Complied The production from the mine has been discontinued from January 2024. Transportation of coal from colliery to washery was done through covered conveyor belts. Road transportation is done through covered truck only.		Date: 28/05/2025
15	AIR QUALITY MONITORING AND PRESERVATION	Vehicular emissions shall be kept under control and regularly monitored. All the vehicles engaged in mining and allied activities shall operate only after obtaining PUC' certificate from the authorized

		pollution testing centres.
PPs Submission: Complied It has been complied		Date: 28/05/2025
16	AIR QUALITY MONITORING AND PRESERVATION	Coal Stock pile/crusher/feeder and breaker material transfer points shall invariably be provided with dust suppression system. Belt conveyors shall be fully covered to avoid air borne dust Side cladding all along the conveyor gantry should be made to avoid air borne dust. Drills shall be wet operated or fitted with dust extractors.
PPs Submission: Complied It has been complied		Date: 28/05/2025
17	AIR QUALITY MONITORING AND PRESERVATION	Coal handling plant shall be operated with effective control measures w.r.t various environmental parameters. Environmental friendly sustainable technology should be implemented for mitigating such parameters.
PPs Submission: Complied CHP is being operated using dry fog system, water sprinklers, mist canons and other various effective dust control measures.		Date: 28/05/2025
18	WATER QUALITY MONITORING AND PRESERVATION	The effluent discharge(mine waste water, workshop effluent) shall be monitored in terms of the parameters notified under the Water Act, 1974 Coal Industry Standard vide GSR 742 E, dated 25.09.2000 an as amended from time to time by the Central Pollution Control Board .
PPs Submission: Complied Water quality analysis discharge from mine sump, effluent treatment plants, sewage treatment plants are done regularly.		Date: 28/05/2025
19	WATER QUALITY MONITORING AND PRESERVATION	The Monitoring data shall be uploaded on the company's website and displayed at the project site at a suitable location. The Circular NO. J-20012/1/2006-1A.11 (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regards for its compliance.
PPs Submission: Complied Monitoring data are being uploaded along with the half yearly compliance report on Tata Steel Limited website.		Date: 28/05/2025
20	WATER QUALITY MONITORING AND PRESERVATION	Regular monitoring of ground water level and quality shall be carried out in and around the mine lease area by establishing a network of existing wells and construction new piezometers during the mining operations. The monitoring of ground water levels shall be carried out four times in a year i.e, pre monsoon monsoon, post monsoon and winter. The ground water quality shall be monitored once a year, and the data thus collected shall be sent regularly to MoEFCC/RO.
PPs Submission: Complied It is being complied.		Date: 28/05/2025
21	WATER QUALITY MONITORING AND PRESERVATION	Monitoring of Water quality upstream and downstream of water bodies shall be carried out once in six months and records of monitoring data shall be maintained and submitted to the Ministry of environment, Forest and Climate Change/ Regional Office,

	PPs Submission: Complied Water quality upstream and downstream of the water bodies are carried out.	Date: 28/05/2025
22	WATER QUALITY MONITORING AND PRESERVATION	Ground Water, excluding mine water, shall not be used for mining operations rainwater harvesting shall be implemented for conservation and augmentation of ground water resources.
	PPs Submission: Complied It has been noted and shall be complied	Date: 28/05/2025
23	WATER QUALITY MONITORING AND PRESERVATION	The Project proponent shall not alter major water channels around the site. Appropriate embankment shall be provided along the side of the river/nallah flowing near or adjacent to the mine. The embankment constructed along river/nallah boundary shall be suitable dimensions and critical patches shall be strengthened by stone pitching on the river front side, Stabilized with plantation so as to withstand the peak water pressure preventing any chance of mine inundation.
	PPs Submission: Complied It has been noted and agreed to comply.	Date: 28/05/2025
24	WATER QUALITY MONITORING AND PRESERVATION	Garland drains (of suitable size, gradient and length) around the critical areas i.e. mine shaft and low lying areas, shall be designed keeping at least 50% safety margin the mine sites. The sump capacity shall also provide adequate retention period to allow proper settling of slit material of the surface runoff.
	PPs Submission: Complied It is being complied	Date: 28/05/2025
25	WATER QUALITY MONITORING AND PRESERVATION	The Water pumped out from the mine, after siltation, shall be utilized for industrial purpose viz. watering the mine area, roads green belt development etc. The drains shall be regularly distilled particularly after monsoon and maintained properly.
	PPs Submission: Complied The pumped water from the mine are being utilized for stowing, coal washing, sprinkling, green belt development and water treatment plant for community.	Date: 28/05/2025
26	WATER QUALITY MONITORING AND PRESERVATION	Industrial waste water from coal handling plant and mine water shall be properly collected and treated so as to conform to the standard prescribed under the Environment Protection Act, 1986 and the rules made thereunder, and as amended from time to time. Oil and grease trap shall be installed before discharge of workshop affluent. Sewage treatment plant of adequate capacity shall be installed for treatment of domestic waste water.
	PPs Submission: Complied Industrial wastewater from coal handing plants are collected, treated and used in the coal washing and stowing activities.	Date: 28/05/2025
27	WATER QUALITY MONITORING AND PRESERVATION	Adequate ground water recharge measure shall be taken up for augmentation of ground water. The project authorities shall meet water requirement of nearby villages in case the village wells go dry to dewatering of mine.

		PPs Submission: Complied Water recharge structures are being constructed and renewed regularly in the nearby villages. Date: 28/05/2025
28	WATER QUALITY MONITORING AND PRESERVATION	The surface drainage plan including surface water conservation of area of influence affected by the said miming operations shall be prepared, considering the presence of any river/rivulet/pond/lake etc. with impact of mining activities on it. And implemented by the project proponent. The surface drainage plan and /or any diversion of natural water courses shall be as per the provisions of the approved Mining Plan /EIA/EMP submitted to this Ministry and the same should be as per the approved mining plan and as per the permission of DGMS.
		PPs Submission: Complied It has been noted and shall be complied Date: 28/05/2025
29	MISCELLANEOUS	The Proponent shall abide by all the commitments and recommendation made in the EIA/EMP report and also that during presentation to the EAC. All the commitments made on the issues raised during public hearing shall also be implemented in letter and spirit.
		PPs Submission: Complied All the commitment and recommendations made as per Public hearing are under process of completion. Date: 28/05/2025
30	Noise Monitoring & Prevention	Adequate measures shall be taken for control of noise levels below 85 db. (A) in the work environment. Workers engaged in underground mining operations of HEMM etc. shall be provided with personal protective equipment's (PPE) like ear plugs/muffs in conformity with the prescribed norms/guidelines in this regards. Progress in usage of such accessories to be monitored. Adequate awareness programme for users to be conducted.
		PPs Submission: Complied It has been complied Date: 28/05/2025
31	Noise Monitoring & Prevention	The noise level survey shall be carried out as per the prescribed gridlines to assess noise exposure of the workmen at vulnerable points in the mines premises, and report in this regard shall be submitted to the Ministry/RO on six monthly basis.
		PPs Submission: Complied It has been complied. The report has been attached in Annexure-II. Date: 28/05/2025
32	MINING PLAN	Mining shall be carried out under strict adherence to provisions of Mines Act 1952 and subordinate legislations made there under as applicable.
		PPs Submission: Complied It has been noted and shall be complied. Date: 28/05/2025
33	MINING PLAN	No change in mining method i.e. UG to OC, calendar programme and scope of work shall be made without obtaining prior approval of the Ministry of Environment Forest, and Climate Change (MoEFCC)

PPs Submission: Complied It has been noted and shall be complied.		Date: 28/05/2025
34	MINING PLAN	Mining shall be carried out as per the approved mining plan (including mines closure plan) abiding by mining laws related to coal mining and the relevant circulars issued by Directorate General of Mines Safety (DGMS)
PPs Submission: Complied It has been noted and shall be complied.		Date: 28/05/2025
35	MINING PLAN	Underground work place environment conditions shall be rendered ergonomic and air breathable with adequate illumination in conformance with DGMS Standards.
PPs Submission: Complied It has been complied		Date: 28/05/2025
36	MINING PLAN	No mining activity shall be carried out in forest land without forestry clearance as per forest (Conservations) Act, 1980 and also adhering to the Scheduled tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act,2006 read with provisions of Indian Forest Act,1927
PPs Submission: Complied It has been noted. No forest land involved.		Date: 28/05/2025
37	MINING PLAN	Efforts should be made to reduce energy and fuel consumption by conservation, efficiency improvements and use of renewable energy.
PPs Submission: Complied It has been noted and shall be complied		Date: 28/05/2025
38	LAND RECLAMATION	Digital Survey of entire lease hold area/core zone using Satellite Remote Sensing survey shall be carried out at least once in three years for monitoring land use pattern and report in 1:50,000 scale or as notified by Ministry of Environment, Forest and Climate Change (MoEFCC) from time to time shall be submitted to MoEFCC/ Regional Office (RO)
PPs Submission: Complied It has been complied. The LULC study has been done in 2025 by Natural Resources Division, Tata Steel Limited, Jamshedpur, Jharkhand 831001 (A QCI-NABET Accredited Agency). Report is attached as Annexure-III.		Date: 30/05/2025
39	LAND RECLAMATION	Post mining l/Forestry purpose and shall be handled over to the respective State Government, as specified in the Guidelines for preparation of Mine closure Plan, issued by the Ministry of Coal dated 27th Auguust,2009 and subsequent amendments
PPs Submission: Complied It has been noted and shall be complied		Date: 28/05/2025
40	LAND RECLAMATION	Regular Monitoring of subsidence movement on the surface over and around the working areas and its impact on natural drainage pattern, water bodies, vegetation, structure, roads and surroundings

		shall be continued till movement ceases completely. In case of observation of any high rate of subsidence beyond the limit prescribed, appropriately effective mitigation measures shall be taken to avoid loss of life and materials. Cracks should be effectively plugged in with ballast and clay soil/suitable material.
PPs Submission: Complied It has been complied		Date: 28/05/2025
41	LAND RECLAMATION	Fly ash shall be used for external dump of overburden, backfilling, or stowing of mines as per provision contained in clause (I)and (ii) of subparagraph (8) of fly ash notification issued vide SO 2804 E dated 3rd Nov. 2009 as amended from time to time. Efforts shall be made to utilize gypsum generated from flue Gas Desulfurization (FGD) if any along with fly ash for external dump of overburden, backfilling or stowing of mines. Compliance report shall be submitted to Regional office of MoEFCC, CPCB, and SPCB.
PPs Submission: Complied It has been complied		Date: 28/05/2025
42	LAND RECLAMATION	A separate team for subsidence monitoring and surface mitigation measures shall be constituted and continuous monitoring & implementation of mitigation measures be carried out.
PPs Submission: Complied A separate team including surveyors has been made for continuous measurement and monitoring subsidence and implement mitigation measures.		Date: 28/05/2025
43	LAND RECLAMATION	Through inspection of the mines lease area of any cracks developed at the surface due to mining activities below ground shall be carried out to prevent inrush of water in the mine.
PPs Submission: Complied It is being complied		Date: 28/05/2025
44	LAND RECLAMATION	Native tree species shall be selected and planted over areas affected by subsidence.
PPs Submission: Complied Generally, no areas are as much affected by subsidence. However, native species are planted for the land reclamation.		Date: 28/05/2025
45	LAND RECLAMATION	The Project proponent shall make necessary alternative arrangements, if grazing land is for livestock grazing, if any. In this context the project proponent shall implements the direction of Hon'ble Supreme Court with regards to acquiring grazing land.
PPs Submission: Complied Not applicable as it is an underground mine		Date: 28/05/2025
46	GREENBELT	The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered flora/fauna, if any spotted/ reported in the study area. Action plan, in this regards if any shall be prepared and implemented in consultation with the State Forest and Wildlife Department.

PPs Submission: Complied It has been noted and shall be complied		Date: 28/05/2025
47	GREENBELT	Green belt, consisting of three -tier plantation, of which not less than 7.5 m shall be developed all along the mines lease area in a phased manner. The green belt comprising of a mix of natives species shall be developed all along the major roads/ coal transportation roads.
PPs Submission: Complied It is an ongoing process. Plantation is being carried out regularly in and around the premises wherever feasible.		Date: 30/05/2025
48	Human Health Environment	Adequate illumination shall be ensured in all mine location (as per DGMS standards) and monitored.
PPs Submission: Complied Illumination monitoring is done on regular basis as per DGMS norms.		Date: 28/05/2025
49	Human Health Environment	The project proponent shall undertake occupational Health survey for initial and Periodical medical examination of the workers engaged in the project and maintain records accordingly as per the provision of the Mines Rule, 1995 and DGMS Circulars. Besides carrying out regular periodic health check-up of their workers, 20% of the workers engaged in active mining operations shall be subjected to health check-up for occupational disease and hearing impairment, if any.
PPs Submission: Complied IME and PME rase done on regular basis through our inhouse Tata Central Hospital.		Date: 28/05/2025
50	Human Health Environment	Personal (including outsourcing employees) working in dusty area shall wear protective respiratory devices and shall also be provide with adequate training and information on safety and health aspects.
PPs Submission: Complied Adequate on site and off-site job training are given before deployment of employees. PPEs are being ensured to wear from safety and environment point of view.		Date: 28/05/2025
51	PUBLIC HEARING	Skill training as per safety norms specified by DGMS shall be provided to all workmen including the outsourcing employees to ensure high safety standards in mines.
PPs Submission: Complied Skill training along with basis safety training are done before deployment of employees to work.		Date: 28/05/2025
52	PUBLIC HEARING	Implementation of Action Plan on the issues raised during the public hearing shall be ensured. The Project Proponent shall undertake all the tasks as peer the Action Plan Submitted with budgetary provisions during the Public Hearing. Land outies shall be compensated as per the norms laid out R&R Policy of the Company/or the National R&R Polity/R & R Policy of State Government as applicable.
PPs Submission: Complied It is under progress and shall be complied. The various action plans are in various stages of compliance.		Date: 28/05/2025

53	PUBLIC HEARING	The project proponent shall follow the mitigation measures provided in the Ministry's OM No. Z- 11013/5712014-IA.II (M) dated 29th October, 2014, titled 'Impact of mining activities on habitations issues related to the mining projects where habitation and villages are the part of mines lease areas or habitations and villages are surrounded by the mine lease area'.
PPs Submission: Complied It has been noted and shall be complied		Date: 28/05/2025
54	Corporate Environmental Responsibility	The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures have proper checks and balances and to bring in focus any infringements/deviation/violation of the environment/forest /wildlife norms/conditions. The company shall have defined system of reporting infringements /deviation/violation of their environment /forest/wildlife norms/conditions and /or shareholder/ stockholders. The copy of the board resolution in this regards shall be submitted to MoEF&CC as a part of six monthly reports.
PPs Submission: Complied The company has well laid down Environmental Policy.		Date: 30/05/2025
55	Corporate Environmental Responsibility	A separate Environmental Cell both at the project and company head quarter level, with qualified personal shall be set up under the control of senior Executive, who will directly to the head of the organization.
PPs Submission: Complied It has been complied		Date: 28/05/2025
56	Corporate Environmental Responsibility	Action Plan for implementation EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be providing for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the six Monthly Compliance Report.
PPs Submission: Complied It has been noted and shall be complied		Date: 28/05/2025
57	Corporate Environmental Responsibility	Self-Environmental audit shall be conducted annually. Every three year third party environmental audit shall be carried out.
PPs Submission: Complied Self-audit is conducted annually and IRQS audit for EMS 14001:2015 are conducted every three year.		Date: 28/05/2025
58	MISCELLANEOUS	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspaper of District or State of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the projects proponents website permanently.

PPs Submission: Complied It has been complied		Date: 28/05/2025
59	MISCELLANEOUS	The copies of the environmental clearance shall be submitted by the projects proponents to the head of local bodies, panchayats and Municipal Bodies in addition to relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
PPs Submission: Complied It has been complied		Date: 28/05/2025
60	MISCELLANEOUS	The project proponent shall upload the status of compliance of the Stipulated environment clearance conditions, including results of monitored data on their website and update the same on half yearly basis.
PPs Submission: Complied It has been noted and shall be complied		Date: 28/05/2025
61	MISCELLANEOUS	The project proponent shall monitor the criteria pollutants level namely; PM10, So2, NOx (ambient level) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to public and put on the website of the company.
PPs Submission: Complied It has been complied		Date: 28/05/2025
62	MISCELLANEOUS	The project proponent shall submit six monthly monthly reports on the status of the compliance of stipulated environment conditions on the and Climate Change at environmental clearance portal.
PPs Submission: Complied It has been noted and shall be complied		Date: 28/05/2025
63	MISCELLANEOUS	The project proponent shall follow the mitigation measure provided in this Ministry's OM No. Z-11013/5712014-IA.II (M) dated 29th October, 2014, Titled "Impact of mining activities on habitation - issues related to the mining projects wherein habitations and villages are the apart of mine lease areas or habitations and villages are surrounded by the mines lease area.
PPs Submission: Complied Adequate mitigation measures are in place for any impact on surrounding environment/ habitations.		Date: 28/05/2025
64	MISCELLANEOUS	The project proponent shall submit the environmental statement for each financial year in FORM-V the concerned State pollution Control Board as prescribe under the Environment Rule, 1986 as amended subsequently and put on the Website of the company.
PPs Submission: Complied Environmental Statement has been submitted on time to the concerned authorities. vide letter no. JMB/ENV/ESSA/05/564/2024 on 27th September 2024.		Date: 28/05/2025
65	MISCELLANEOUS	The project authorities shall inform to the regional Office of

		MoEF&CC regarding commencement of mining operations.
PPs Submission: Complied The mining activities are ongoing since more than 100 years.		Date: 28/05/2025
66	MISCELLANEOUS	The project authorities must strictly adhere to the stipulation made by the State Pollution Control Board and the State Government.
PPs Submission: Complied Shall be complied		Date: 28/05/2025
67	MISCELLANEOUS	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during public hearing and also that during their presentation to the Expert Appraisal Committee.
PPs Submission: Complied It has been noted and shall be complied		Date: 28/05/2025
68	MISCELLANEOUS	Concealing factual data or submission of false /fabricated data may result in revocation of this environmental clearance and attract action under this provision of Environment (Protection) Act, 1986.
PPs Submission: Complied It has been noted		Date: 28/05/2025
69	MISCELLANEOUS	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
PPs Submission: Complied It has been agreed		Date: 28/05/2025
70	MISCELLANEOUS	The Ministry reserve the right to stipulate additional condition if found necessary .The company in a time bound manner shall implement these conditions.
PPs Submission: Complied Agreed		Date: 28/05/2025
71	MISCELLANEOUS	The Regional office of this Ministry shall monitor compliance of the stipulated conditions The project authorities should extend full cooperation to the officers of the Regional Office by furnishing the requisite data /information/monitoring reports.
PPs Submission: Complied Agreed		Date: 28/05/2025
72	MISCELLANEOUS	The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1986, Hazardous and Other Waste (Managements and Trans-Boundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders by the Hon'ble Supreme Court of India/ High Court and any other Court of Law relating to the subject matter.

PPs Submission: Complied It has been agreed		Date: 28/05/2025
73	MISCELLANEOUS	The proponent shall obtain all necessary Clarence /approvals that may be required before the start of the project. The Ministry or any other competent authority may stipulate any further condition for environmental protection. Ministry or any other competent authority may stipulate any further condition for Environment protection.
PPs Submission: Complied It has been agreed		Date: 28/05/2025
74	MISCELLANEOUS	Any appeal against this environmental clearance shall lie with the Green Tribunal if Preferred, with in a period of 30 day as prescribed under section 16 of the National Green Tribunal Act, 2010.
PPs Submission: Complied Not required		Date: 28/05/2025
75	MISCELLANEOUS	The coal company\/project proponent shall be liable to pay compensation against the illegal mining, if any, and raised by the respective state Government at any point of time in terms of the orders dated 2nd August, 2017 of Hon'ble Supreme Court in WP (Civil) No.-114/2014 in the matter of Common Cause Vs Union of India & others.
PPs Submission: Complied Agreed		Date: 28/05/2025
76	MISCELLANEOUS	The concerned State Government shall ensure no mining operations to commence till the entire compensation for illegal mining if any is paid by the project proponents through their respective Department Of Mining & Geology, in strict compliance of judgement of Hon'ble Supreme Court.
PPs Submission: Complied It has been noted		Date: 28/05/2025
77	MISCELLANEOUS	This environmental clearance shall not be operational till time the project proponent complies with the above said judgement of Hon'ble Supreme Court, as applicable, and other statutory requirements.
PPs Submission: Complied Agreed		Date: 28/05/2025
78	MISCELLANEOUS	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change.
PPs Submission: Complied It has been Agreed		Date: 28/05/2025

Visit Remarks

Last Site Visit Report Date:	N/A
Additional Remarks:	

Note: This acknowledgement is as per the details submitted by project proponent. In no way is this document to be considered as conclusion on any action on the compliance of the project. This is strictly for the project proponent's reference purpose.

HALF YEARLY COMPLIANCE REPORT
(PERIOD: OCTOBER-2024 TO MARCH-2025)

JAMADOBA UNDERGROUND COAL MINE

(CAPACITY: 0.34 MTPA)
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-11015/91/2017-IA.II (M) dated July 11, 2022 ISSUED BY GOVT. OF INDIA, MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE, NEW DELHI.

Compliance status of Jamadoba Underground Coal Mine 0.34 MTPA in ML Area of 927.17 ha by M/s Tata Steel Ltd. At village Jorapokhar, Pattiya Dungri, Tehsil Jharia, District- Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/91/2017-IA.II (M) dated July 11, 2022

Sl. No.	Consent Condition	Compliance Status
i	PP to obtain the CTO for 0.34 MTPA capacities immediately after grant of EC.	Consent to Operate for the existing capacity has been obtained from the State PCB on 31.01.2025 and is valid till 31.12.2025. The production from the mines have been discontinued since January 2024.
ii	PP to conserve the Kari jhore, Dungri jhore, Damodar River following within the core area of the project and the measure taken for its conservation to be furnished in every six-monthly compliance to be reported to respective IRO and SPCB.	Garland drains have been constructed around the boundary premises of the mines. Moreover, the production from the mines has been suspended since January 2024. Reclamation activities are ongoing and hence there is no adverse impact envisaged from the mines.
iii	Since there is also Jamadoba Coal washery located within mine lease having separated EC vide Letter No.- J-11015/203/2011-II-IA(M) dated 3rd March 2014 so the adequate EMP measure to be adopted to minimize the cumulative impact, also the utilization of rejects generated from washery should be managed as per norms. PP shall obtain integrated EC for future coal/washery expansion.	There are existing environmental measures for the Jamadoba Coal preparation plant. The rejects like tailing, middling etc are utilized as per norms. The integrated EC shall be taken in case of washery expansion.
iv	PP shall obtain No objection certificate from Ground water Authority for extraction of ground water within six months and submit to IRO Ranchi.	The NOC from central Ground Water Authority for extraction of ground water was granted vide NOC No. CGWA/NOC/MIN/REN/1/2024/10124; dated: 05.11.2024.
v	PP Shall reduce river sand used for stowing and explore usage of sand segregated from OB dump from any nearest mine (either its own or any mine) and submit detailed report to IRO Ranchi.	We are in the process of technological exploration of sand from OB dump.
vi	PP shall follow the recommendation of subsidence study and monitor the degree of subsidence regularly and shall be submitted to IRO- Ranchi.	The subsidence is monitored regularly, and the recommendations are implemented.
vii	PP to accomplish the requirement of a full fledge qualified manpower with Environmental Engineer/Env. Science degree background in Environmental Management Cell etc. within six months and same shall be reported to IRO,	We have a full-fledged Environment cell with Environment professionals and field monitoring staff.

Compliance status of Jamadoba Underground Coal Mine 0.34 MTPA in ML Area of 927.17 ha by M/s Tata Steel Ltd. At village Jorapokhar, Pattiya Dungri, Tehsil Jharia, District- Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/91/2017-IA.II (M) dated July 11, 2022

	MoEF&CC	
viii	PP to fulfil all the commitment made to address the public hearing issued in time bound manner as committed in EIA EMP report in Chapter & table 7.1 and a progressive report to be furnished to IRO with six monthly compliance report	The commitments made during the public hearing are being complied in time bound manner. The timeline mentioned in Table 7.1 is strictly followed. The report showing the status has been attached as **Annexure-IV.**
ix	PP to maintain the transportation road properly to minimize the dust emission. PP to also develop puce roads by seeking consent from the panchayat with widening of roads especially roads inters linking the villages within the study area of 10 Km radius buffer zone.	The transportation roads in core and buffer zones are maintained properly to minimize the dust emission. The construction of roads in nearby villages are continuous process in consent with panchayat.
x	PP to complete the estimated allocated budgetary expenditure for EMP capital cost is Rs.273.0 lakhs & Recurring cost is Rs.1359.4 Lakhs per year as per its letter dated JMB/115/001339 dated 3rd September, 2021. Capital EMP budget shall be completed within strict timeline.	It is being complied. Capital EMP budget expenditure has been completed. Recurring cost on the environment is reported every year in the environment statement.
xi	PP to monitor the water quality of the ground water and surface water body located within the core zone and 5 Km radius from the periphery of the mine boundary as per procedure laid down by CPCB.	It has been complied.
xii	PP to install More continuous ambient air quality stations at suitable locations preferably village side with consultation of SPCB. The real time data so generated shall be uploaded on company website and linked it with website of CPCB & SPCB. In addition, data should also be displayed digitally at entry and exit gate of mine lease for public display.	A CAAQMS is being installed in Jamadoba group since 2014. A new CAAQMS has been installed recently in July 2022 and the data connectivity to SPCB, Jharkhand has been done.
xiii	PP shall develop rainwater harvesting in Jamadoba coal washery as proposed by PP in vide Letter dated JMB/115/001339 dated 3rd September, 2021 & water harvesting ponds near the villages of suitable area as suggested by EAC in consultation with Gram Panchayat within year and with cultivation of Lotus.	There are a number of ponds developed 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. Rain water harvesting structure inside the washery premises shall be

		complied. Work has been initiated and under progress.
xiv	PP must seek the input of experts for phytoremediation of Slurry and accordingly work on it with proper scientific approach.	There is no generation of slurry during raw coal production.
xv	PP to plant additional 100,000 plants with three tier plantations along the transportation route, if not completed, and identified areas with consent to the gram panchayat within two year and plant for remaining within 2 years for their proper growth.	Plantation and green belt development is a continuous process. For FY 24, around 12452 saplings have been planted. For FY25 12313 saplings have been planted Green belt report has been attached as Annexure-I.
xvi	PP to install solar lights along the road used for transportation of minerals to avoid the accidents at night and also seek its maintenance. PP is asked to also identify the rural areas for installation of solar light with in its maintenance within the study area of 10 km radius buffer zone within one year	Adequate lighting facilities have been installed along the roads. Several facilities under CSR, including lights have been provided in the area.
xvii	Proponent shall appoint an occupational Health Specialist for Regular and Periodical medical examination of the workers engaged in the project and maintain records accordingly also Occupational health check-up for workers having some ailments like BP, diabetes, habitual smoking etc. shall be undertaken once in six months and necessary redial/preventive measures taken accordingly. The recommendations of National Institute for ensuring good occupational environment for mine workers shall be implemented. The prevention measure for burns, malaria and provision of anti-snake venom including all other paramedical safeguards may be ensured before initiating the mining activities.	It has been complied. It's a continuous process. There is fully developed Tata Central Hospital in Jamadoba to take care of all these types of concerns of community.
xviii	Persons of nearby villages shall be given training on livelihood and skill development makes them employable with its proper records.	It is a continuous process and has been complied. Separate training cell (JNTVTI) has been developed for skill based training of local youth.
xix	The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may effects the health in the village located aloes tom mining operations. Habitations have a right for darkness and minimal noise levels at nights, PPs must ensure that the biological clock of the villages is not distributed by orienting the floodlights/masks away from the villagers and keeping the noise	It has been noted and shall be complied strictly.

	levels well within the prescribed limits for day lights/night hours	
xx	PP shall pay to farmers of agricultural land if there is any loss due to pollution found by concerned District Commissioner as per extent rules or norms.	It has been noted and shall be complied.
xxi	PP should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground A dedicated team to oversee environment management shall be setup which should comprise of Environmental Engineer, Laboratory chemist and staff for monitoring of air , water quality parameters on routine basis. Any non-compliance or infringement should be reported to the concerned authority.	We have a full-fledged Environment cell with Environment professionals and field monitoring staff.
4.1	The grant of Environment Compliance (EC) is further subject to compliance of the Standard EC Conditions as under:	
(a)	Statutory Compliance:	
i	The Environmental clearance shall be subject orders of Hon'ble Supreme Court of India. Hon'ble High Courts, NGT and any other Court of Law, from time to time, and as applicable to the project.	It has been noted.
ii	The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non- forest purpose involved in the project.	It is not applicable.
iii	The Project proponent shall obtain clearance from the National Board for Wildlife, if applicable.	Not Applicable
iv	The project proponent shall prepare a site-specific conservation plan/wildlife management Plan and approved by the Chief Wildlife Warden. The recommendation of the approved Site-Specific Conservation Plan/Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report (in case of the presence of schedule I species in the study area)	There is no Schedule-I species in the study area.
v	The project proponent shall obtain Consent to Establish/Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and Water (Prevention & Control of Pollution)	The CTE has been obtained from JSPCB vide letter no. JSPCB/HO/RNC/CTE-14115974/2022/523 dated

Compliance status of Jamadoba Underground Coal Mine 0.34 MTPA in ML Area of 927.17 ha by M/s Tata Steel Ltd. At village Jorapokhar, Pattiya Dungri, Tehsil Jharia, District- Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/91/2017-IA.II (M) dated July 11, 2022

	Act, 1974 from the Concerned State Pollution Control Board/Committee.	12.11.2022 & CTO has been received from JSPCB with Ref No. JSPCB/HO/RNC/CTO-13955624/2022/1601 dated 14.11.2022.
vi	The project proponent shall obtain the necessary permission from the Central Ground Water Authority.	The NOC from central Ground Water Authority for extraction of ground water was granted vide NOC No. CGWA/NOC/MIN/REN/1/2024/10124; dated: 05.11.2024.
vii	Solid Waste/Hazardous Waste generated in the mines needs to addressed in accordance to the Solid Waste Management Rules,2016/ Hazardous & Other Waste Management Rules,2016	It has been noted and shall be complied.
I.(a)	**Air Quality Monitoring and Preservation**	
i	Adequate ambient air quality monitoring stations shall be established in core zone as well as in the buffer zone for monitoring of pollutants, namely particulates ,SO2and NOx location of the Station shall be decided based on the metrological data, topographical features and environmentally and ecologically sensitive in consultation with the State Pollution Control Board. Monitoring of heavy metal such as Hg, As, Ni, Cd, Cr, etc. to be carried out at least once in six months. Online ambient air quality monitoring station may also be installed in addition to the regular air monitoring stations as per the requirement and /or in consultation with the SPCB.	It has been complied
ii	The Ambient Air Quality monitoring in the core zone shall be carried out to ensure the coal Industry Standards notifies vide GSR 742 E dated 25.09.2000 and as amended from time to time by the Central Pollution Control Board. Data on ambient air quality and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly reported to the Ministry/Regional Office and to the CPCB/SPCB.	Ambient air quality of core as well as buffer zone are measures by inhouse environmental laboratory as well as third party NABL recognised lab. Report has been attached as **Annexure-II.**
iii	Transportation of coal, to the extent permitted by road shall be carried out by covered trucks/conveyors .Effective control measure such as regular water sprinkling /rain gun/mist sprinkling etc. shall be carried out in critical areas prone to air pollution with higher level of particulate matter all through the coal; transport	The production from the mine has been discontinued from January 2024. Transportation of coal from colliery to washery was done through covered conveyor belts. Road transportation is done through

Compliance status of Jamadoba Underground Coal Mine 0.34 MTPA in ML Area of 927.17 ha by M/s Tata Steel Ltd. At village Jorapokhar, Pattiya Dungri, Tehsil Jharia, District- Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/91/2017-IA.II (M) dated July 11, 2022

	roads., loading /Unloading and transfer points. Fugitive dust emissions from all sources shall be controlled regularly. It shall be ensured that the ambient air quality parameters conform to the norms prescribed by the Central/ State Pollution Control Board.	covered truck only.
iv	Major approach roads shall be black topped and properly maintained.	It has been complied
v	The transportation of coal shall be carried out as per the provision and route proposed in the approved mining plan. Transportation of coal through the exiting road passing through any village shall be avoided. In case it is proposed to construct a bypass road it should be so constructed that the impact of sound, dust and accidents could be appropriately mitigated.	The production from the mine has been discontinued from January 2024. Transportation of coal from colliery to washery was done through covered conveyor belts. Road transportation is done through covered truck only.
vi	Vehicular emissions shall be kept under control and regularly monitored. All the vehicles engaged in mining and allied activities shall operate only after obtaining PUC' certificate from the authorized pollution testing centres.	It has been complied
vii	Coal Stock pile/crusher/feeder and breaker material transfer points shall invariably be provided with dust suppression system. Belt conveyors shall be fully covered to avoid air borne dust Side cladding all along the conveyor gantry should be made to avoid air borne dust. Drills shall be wet operated or fitted with dust extractors.	It has been complied
viii	Coal handling plant shall be operated with effective control measures w.r.t various environmental parameters. Environmental friendly sustainable technology should be implemented for mitigating such parameters.	CHP is being operated using dry fog system, water sprinklers, mist canons and other various effective dust control measures.
(b)	**Water Quality Monitoring and Preservation**	
i	The effluent discharge(mine waste water, workshop effluent) shall be monitored in terms of the parameters notified under the Water Act, 1974 Coal Industry Standard vide GSR 742 E, dated 25.09.2000 an as amended from time to time by the Central Pollution Control Board .	Water quality analysis discharge from mine sump, effluent treatment plants, sewage treatment plants are done regularly.
ii	The Monitoring data shall be uploaded on the company's website and displayed at the project site at a suitable location. The Circular NO. J-20012/1/2006-1A.11 (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regards for its compliance.	Monitoring data are being uploaded along with the half yearly compliance report on Tata Steel Limited website.

Compliance status of Jamadoba Underground Coal Mine 0.34 MTPA in ML Area of 927.17 ha by M/s Tata Steel Ltd. At village Jorapokhar, Pattiya Dungri, Tehsil Jharia, District- Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/91/2017-IA.II (M) dated July 11, 2022

iii	Regular monitoring of ground water level and quality shall be carried out in and around the mine lease area by establishing a network of existing wells and construction new piezometers during the mining operations. The monitoring of ground water levels shall be carried out four times in a year i.e, pre monsoon monsoon, post monsoon and winter. The ground water quality shall be monitored once a year, and the data thus collected shall be sent regularly to MoEFCC/RO.	It is being complied.
vi	Monitoring of Water quality upstream and downstream of water bodies shall be carried out once in six months and records of monitoring data shall be maintained and submitted to the Ministry of environment, Forest and Climate Change/ Regional Office,	Water quality upstream and downstream of the water bodies are carried out.
v	Ground Water, excluding mine water, shall not be used for mining operation s rainwater harvesting shall be implemented for conservation and augmentation of ground water resources.	It has been noted and shall be complied
vi	The Project proponent shall not alter major water channels around the site. Appropriate embankment shall be provided along the side of the river/nallah flowing near or adjacent to the mine. The embankment constructed along river/nallah boundary shall be suitable dimensions and critical patches shall be strengthened by stone pitching on the river front side, Stabilized with plantation so as to withstand the peak water pressure preventing any chance of mine inundation.	It has been noted and agreed to comply.
vii	Garland drains (of suitable size, gradient and length) around the critical areas i.e. mine shaft and low lying areas, shall be designed keeping at least 50% safety margin the mine sites. The sump capacity shall also provide adequate retention period to allow proper settling of slit material of the surface runoff.	It is being complied
viii	The Water pumped out from the mine, after siltation, shall be utilized for industrial purpose viz. watering the mine area, roads green belt development etc. The drains shall be regularly distilled particularly after monsoon and maintained properly.	The pumped water from the mine are being utilized for stowing, coal washing, sprinkling, green belt development and water treatment plant for community.
ix	Industrial waste water from coal handling plant and mine water shall be properly collected and treated so as to conform to the standard prescribed under the Environment Protection	Industrial wastewater from coal handing plants are collected, treated and used in the coal washing and stowing activities.

	Act, 1986 and the rules made thereunder, and as amended from time to time. Oil and grease trap shall be installed before discharge of workshop affluent. Sewage treatment plant of adequate capacity shall be installed for treatment of domestic waste water.	
x	Adequate ground water recharge measure shall be taken up for augmentation of ground water. The project authorities shall meet water requirement of nearby villages in case the village wells go dry to dewatering of mine.	Water recharge structures are being constructed and renewed regularly in the nearby villages.
xi	The surface drainage plan including surface water conservation of area of influence affected by the said miming operations shall be prepared, considering the presence of any river/rivulet/pond/lake etc. with impact of mining activities on it. And implemented by the project proponent. The surface drainage plan and /or any diversion of natural water courses shall be as per the provisions of the approved Mining Plan /EIA/EMP submitted to this Ministry and the same should be as per the approved mining plan and as per the permission of DGMS.	It has been noted and shall be complied
xii	The project proponent shall take all precautionary measure to ensure reverian/riparian ecosystem in and around the coal mine up to a distance of 5 km. a revarian/riparian ecosystem conservation and management plan should be prepared and implemented in consultation with the irrigation/water resources department in the state government.	It has been noted and shall be complied
(c)	**Noise and Vibration Monitoring and Prevention**	
i	Adequate measures shall be taken for control of noise levels below 85 db. (A) in the work environment. Workers engaged in underground mining operations of HEMM etc. shall be provided with personal protective equipment's (PPE) like ear plugs/muffs in conformity with the prescribed norms/guidelines in this regards. Progress in usage of such accessories to be monitored. Adequate awareness programme for users to be conducted.	It has been complied
ii	The noise level survey shall be carried out as per the prescribed gridlines to assess noise exposure of the workmen at vulnerable points in the mines premises, and report in this regard shall be	It has been complied. The report has been attached in **Annexure-II.**

Compliance status of Jamadoba Underground Coal Mine 0.34 MTPA in ML Area of 927.17 ha by M/s Tata Steel Ltd. At village Jorapokhar, Pattiya Dungri, Tehsil Jharia, District- Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/91/2017-IA.II (M) dated July 11, 2022

	submitted to the Ministry/RO on six monthly basis.	
(d)	**Mining Plan**	
i	Mining shall be carried out under strict adherence to provisions of Mines Act 1952 and subordinate legislations made there under as applicable.	It has been noted and shall be complied.
ii	No change in mining method i.e. UG to OC, calendar programme and scope of work shall be made without obtaining prior approval of the Ministry of Environment Forest, and Climate Change (MoEFCC)	It has been noted and shall be complied.
iii	Mining shall be carried out as per the approved mining plan (including mines closure plan) abiding by mining laws related to coal mining and the relevant circulars issued by Directorate General of Mines Safety (DGMS)	It has been noted and shall be complied.
iv	Underground work place environment conditions shall be rendered ergonomic and air breathable with adequate illumination in conformance with DGMS Standards.	It has been complied
v	No mining activity shall be carried out in forest land without forestry clearance as per forest (Conservations) Act, 1980 and also adhering to the Scheduled tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act,2006 read with provisions of Indian Forest Act,1927	It has been noted. No forest land involved.
vi	Efforts should be made to reduce energy and fuel consumption by conservation, efficiency improvements and use of renewable energy.	It has been noted and shall be complied
(e)	**Land Reclamation**	
i	Digital Survey of entire lease hold area/core zone using Satellite Remote Sensing survey shall be carried out at least once in three years for monitoring land use pattern and report in 1:50,000 scale or as notified by Ministry of Environment, Forest and Climate Change (MoEFCC) from time to time shall be submitted to MoEFCC/ Regional Office (RO)	It has been complied. The LULC study has been done in 2025 by Natural Resources Division, Tata Steel Limited, Jamshedpur, Jharkhand – 831001 (A QCI-NABET Accredited Agency). Report is attached as **Annexure-III.**
ii	Post mining l/Forestry purpose and shall be handled over to the respective State Government, as specified in the Guidelines for preparation of Mine closure Plan, issued by the Ministry of Coal dated 27th Auguust,2009 and subsequent amendments	It has been noted and shall be complied
iii	Regular Monitoring of subsidence movement on the surface over and around the working areas	It has been complied

	and its impact on natural drainage pattern, water bodies, vegetation, structure, roads and surroundings shall be continued till movement ceases completely. In case of observation of any high rate of subsidence beyond the limit prescribed, appropriately effective mitigation measures shall be taken to avoid loss of life and materials. Cracks should be effectively plugged in with ballast and clay soil/suitable material.	
iv	Fly ash shall be used for external dump of overburden, backfilling, or stowing of mines as per provision contained in clause (I)and (ii) of subparagraph (8) of fly ash notification issued vide SO 2804 E dated 3rd Nov. 2009 as amended from time to time. Efforts shall be made to utilize gypsum generated from flue Gas Desulfurization (FGD) if any along with fly ash for external dump of overburden, backfilling or stowing of mines. Compliance report shall be submitted to Regional office of MoEFCC, CPCB, and SPCB.	It is being complied.
v	A separate team for subsidence monitoring and surface mitigation measures shall be constituted and continuous monitoring & implementation of mitigation measures be carried out.	A separate team including surveyors has been made for continuous measurement and monitoring subsidence and implement mitigation measures.
vi	Through inspection of the mines lease area of any cracks developed at the surface due to mining activities below ground shall be carried out to prevent inrush of water in the mine.	It is being complied
vii	Native tree species shall be selected and planted over areas affected by subsidence.	Generally, no areas are as much affected by subsidence. However, native species are planted for the land reclamation.
viii	The Project proponent shall make necessary alternative arrangements, if grazing land is for livestock grazing, if any. In this context the project proponent shall implements the direction of Hon'ble Supreme Court with regards to acquiring grazing land.	Not applicable as it is an underground mine
(f)	**Green Belt**	
i	The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered flora/fauna, if any spotted/ reported in the study area. Action plan, in this regards if any shall be prepared and implemented in consultation with the State Forest and Wildlife Department.	It has been noted and shall be complied

Compliance status of Jamadoba Underground Coal Mine 0.34 MTPA in ML Area of 927.17 ha by M/s Tata Steel Ltd. At village Jorapokhar, Pattiya Dungri, Tehsil Jharia, District- Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/91/2017-IA.II (M) dated July 11, 2022

ii	Green belt, consisting of three -tier plantation, of which not less than 7.5 m shall be developed all along the mines lease area in a phased manner. The green belt comprising of a mix of natives species shall be developed all along the major roads/ coal transportation roads.	It is an ongoing process. Plantation is being carried out regularly in and around the premises wherever feasible.
(g)	**Public Hearing and Human Health Issues**	
i	Adequate illumination shall be ensured in all mine location (as per DGMS standards) and monitored.	Illumination monitoring is done on regular basis as per DGMS norms.
ii	The project proponent shall undertake occupational Health survey for initial and Periodical medical examination of the workers engaged in the project and maintain records accordingly as per the provision of the Mines Rule, 1995 and DGMS Circulars. Besides carrying out regular periodic health check-up of their workers, 20% of the workers engaged in active mining operations shall be subjected to health check-up for occupational disease and hearing impairment, if any.	IME and PME rase done on regular basis through our inhouse Tata Central Hospital.
iii	Personal (including outsourcing employees) working in dusty area shall wear protective respiratory devices and shall also be provide with adequate training and information on safety and health aspects.	Adequate on site and off-site job training are given before deployment of employees. PPEs are being ensured to wear from safety and environment point of view.
iv	Skill training as per safety norms specified by DGMS shall be provided to all workmen including the outsourcing employees to ensure high safety standards in mines.	Skill training along with basis safety training are done before deployment of employees to work.
v	Effective arrangements shall be made to provide and maintain at suitable point's conveniently situated, a sufficient supply of drinking water for all the persons employed.	Water treatment plants are operated for safe drinking water supply in nearby community.
vi	Implementation of Action Plan on the issues raised during the public hearing shall be ensured. The Project Proponent shall undertake all the tasks as per the Action Plan Submitted with budgetary provisions during the Public Hearing. Land outies shall be compensated as per the norms laid out R&R Policy of the Company/or the National R&R Polity/R & R Policy of State Government as applicable.	It is under progress and shall be complied. The various action plans are in various stages of compliance.
vii	The project proponent shall follow the mitigation measures provided in the Ministry's OM No. Z-11013/5712014-IA.II (M) dated 29th October, 2014, titled 'Impact of mining activities on habitations issues related to the mining projects	It has been noted and shall be complied

Compliance status of Jamadoba Underground Coal Mine 0.34 MTPA in ML Area of 927.17 ha by M/s Tata Steel Ltd. At village Jorapokhar, Pattiya Dungri, Tehsil Jharia, District- Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/91/2017-IA.II (M) dated July 11, 2022

	where habitation and villages are the part of mines lease areas or habitations and villages are surrounded by the mine lease area'.	
(h)	**Corporate Environment Responsibility**	
i	The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures have proper checks and balances and to bring in focus any infringements/deviation/violation of the environment/forest /wildlife norms/conditions. The company shall have defined system of reporting infringements /deviation/violation of their environment /forest/wildlife norms/conditions and /or shareholder/ stockholders. The copy of the board resolution in this regards shall be submitted to MoEF&CC as a part of six monthly reports.	The company has well laid down Environmental Policy.
ii	A separate Environmental Cell both at the project and company head quarter level, with qualified personal shall be set up under the control of senior Executive, who will directly to the head of the organization.	It has been complied
iii	Action Plan for implementation EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be providing for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the six Monthly Compliance Report.	It has been noted and shall be complied
iv	Self-Environmental audit shall be conducted annually. Every three year third party environmental audit shall be carried out.	Self-audit is conducted annually and IRQS audit for EMS 14001:2015 are conducted every three year.
	Miscellaneous	
i	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspaper of District or State of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the projects proponents website permanently.	It has been complied

Compliance status of Jamadoba Underground Coal Mine 0.34 MTPA in ML Area of 927.17 ha by M/s Tata Steel Ltd. At village Jorapokhar, Pattiya Dungri, Tehsil Jharia, District- Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/91/2017-IA.II (M) dated July 11, 2022

ii	The copies of the environmental clearance shall be submitted by the projects proponents to the head of local bodies, panchayats and Municipal Bodies in addition to relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.	It has been complied
iii	The project proponent shall upload the status of compliance of the Stipulated environment clearance conditions, including results of monitored data on their website and update the same on half yearly basis.	It has been noted and shall be complied
iv	The project proponent shall monitor the criteria pollutants level namely; MP10, So2, NOx (ambient level) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to public and put on the website of the company.	It has been complied
v	The project proponent shall submit six monthly monthly reports on the status of the compliance of stipulated environment conditions on the website of the Ministry of Environment, Forest and Climate Change at environmental clearance portal.	It has been noted and shall be complied
vi	The project proponent shall follow the mitigation measure provided in this Ministry's OM No. Z-11013/5712014-IA.II (M) dated 29th October, 2014, Titled "Impact of mining activities on habitation - issues related to the mining projects wherein habitations and villages are the apart of mine lease areas or habitations and villages are surrounded by the mines lease area.	Adequate mitigation measures are in place for any impact on surrounding environment/ habitations.
vii	The project proponent shall submit the environmental statement for each financial year in FORM-V the concerned State pollution Control Board as prescribe under the Environment Rule, 1986 as amended subsequently and put on the Website of the company.	Environmental Statement has been submitted on time to the concerned authorities. vide letter no. JMB/ENV/ESSA/05/564/2024 on 27th September 2024.
viii	The project authorities shall inform to the regional Office of MoEF&CC regarding commencement of mining operations.	The mining activities are ongoing since more than 100 years.
ix	The project authorities must strictly adhere to the stipulation made by the State Pollution Control Board and the State Government.	Shall be complied
x	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during public hearing and also that during their	It has been noted and shall be complied

Compliance status of Jamadoba Underground Coal Mine 0.34 MTPA in ML Area of 927.17 ha by M/s Tata Steel Ltd. At village Jorapokhar, Pattiya Dungri, Tehsil Jharia, District- Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/91/2017-IA.II (M) dated July 11, 2022

	presentation to the Expert Appraisal Committee.	
xi	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change.	It has been Agreed
xii	Concealing factual data or submission of false /fabricated data may result in revocation of this environmental clearance and attract action under this provision of Environment (Protection) Act, 1986.	It has been noted
xiii	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.	It has been agreed
xiv	The Ministry reserve the right to stipulate additional condition if found necessary .The company in a time bound manner shall implement these conditions.	Agreed
xv	The Regional office of this Ministry shall monitor compliance of the stipulated conditions The project authorities should extend full cooperation to the officers of the Regional Office by furnishing the requisite data /information/monitoring reports.	Agreed
xvi	The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1986, Hazardous and Other Waste (Managements and Trans- Boundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders by the Hon'ble Supreme Court of India/ High Court and any other Court of Law relating to the subject matter.	It has been agreed
5	The Proponent shall abide by all the commitments and recommendation made in the EIA/EMP report and also that during presentation to the EAC. All the commitments made on the issues raised during public hearing shall also be implemented in letter and spirit.	All the commitment and recommendations made as per Public hearing are under process of completion.
6	The proponent shall obtain all necessary Clarence /approvals that may be required before the start of the project. The Ministry or any other competent authority may stipulate any further condition for environmental protection. Ministry or any other competent authority may stipulate any further condition for Environment protection.	It has been agreed

Compliance status of Jamadoba Underground Coal Mine 0.34 MTPA in ML Area of 927.17 ha by M/s Tata Steel Ltd. At village Jorapokhar, Pattiya Dungri, Tehsil Jharia, District- Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/91/2017-IA.II (M) dated July 11, 2022

7	Any appeal against this environmental clearance shall lie with the Green Tribunal if Preferred, with in a period of 30 day as prescribed under section 16 of the National Green Tribunal Act, 2010.	Not required
8	The coal company\/project proponent shall be liable to pay compensation against the illegal mining, if any, and raised by the respective state Government at any point of time in terms of the orders dated 2nd August, 2017 of Hon'ble Supreme Court in WP (Civil) No.-114/2014 in the matter of Common Cause Vs Union of India & others.	Agreed
9	The concerned State Government shall ensure no mining operations to commence till the entire compensation for illegal mining if any is paid by the project proponents through their respective Department Of Mining & Geology, in strict compliance of judgement of Hon'ble Supreme Court.	It has been noted
10	This environmental clearance shall not be operational till time the project proponent complies with the above said judgement of Hon'ble Supreme Court, as applicable, and other statutory requirements.	Agreed

Statement showing measures taken for increasing tree and forest cover

Plantation activities are carried out in the barren land of the colliery leasehold area to increase the green cover as well as in the washery premises. Care is taken to plant only the native species so that native ecosystem is preserved. Following are the details of mass plantation in our leasehold area of Jharia Division for greenery development.

Year	No. of trees planted
FY14	10195
FY15	15800
FY16	10000
FY17	10900
FY18	8500
FY19	10000
FY20	50235
FY21	3000
FY22	10005
FY23	25117
FY24	12452
FY25	12313

Glimpses of plantation activities for FY25:

Before

After

Before

After

Before

After

Before

After

Before

After

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/24-25/AAQ/1 Date: 04/12/2024

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.: : 4700126557/932 Date:- 29/05/2024
- Date of Sample Collection : 26/11/2024 To 27/11/2024
- Date of Testing : 28/11/2024 To 02/12/2024
- Test Procedure : As per IS-5182

TEST RESULTS

LOCATION – 6 & 7 PITS COLLIERY OFFICE				
	Avg. Ambient Temperature	25^{0}C	Avg. Humidity	46%
Sl No.	Particulars	Value	NAAQ - CPCB STANDARD	
1.	Particulate Matter (PM_{10}), µg/m^3	83.98	100 µg/m^3	
2.	Particulate Matter ($PM_{2.5}$), µg/m^3	48.49	60 µg/m^3	
3.	SO_2, µg/m^3	19.30	80 µg/m^3	
4.	NO_2, µg/m^3	28.15	80 µg/m^3	
5.	*Ozone*, µg/m^3	16.23	180 µg/m^3	
6.	NH_3, µg/m^3	13.49	400 µg/m^3	
7.	CO, mg/m^3	0.78	4 mg/m^3	
8.	Pb, µg/m^3	BDL	1 µg/m^3	
9.	As, ng/m^3	BDL	6 ng/m^3	
10.	Ni, ng/m^3	BDL	20 ng/m^3	
11.	Benzene, µg/m^3	BDL	5 µg/m^3	
12.	Benzoapyrene ng/m^3	BDL	1 ng/m^3	

NOTE: BDL - Below Detection Limit

Sr. Chemist
Aditi R&D Services

Technical Manager
Aditi R&D Services, Sindri

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/24-25/ AAQ/2 Date: 04/12/2024

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.: : 4700126557/932 Date:- 29/05/2024
- Date of Sample Collection : 26/11/2024 to 27/11/2024
- Date of Testing : 28/11/2024 to 02/12/2024
- Test Procedure : As per IS-5182

TEST RESULTS

LOCATION – OFFICERS COLONY, 12 NO. DIGWADIH				
	Avg. Ambient Temperature	25°C	Avg. Humidity	46%
Sl No.	Particulars	Value	NAAQ - CPCB STANDARD	
1.	Particulate Matter (PM_{10}), µg/m³	76.58	100 µg/m³	
2.	Particulate Matter ($PM_{2.5}$), µg/m³	41.36	60 µg/m³	
3.	SO_2, µg/m³	18.73	80 µg/m³	
4.	NO_2, µg/m³	26.65	80 µg/m³	
5.	*Ozone*, µg/m³	16.76	180 µg/m³	
6.	NH_3, µg/m³	13.78	400 µg/m³	
7.	CO, mg/m³	0.71	4 mg/m³	
8.	Pb, µg/m³	BDL	1 µg/m³	
9.	As, ng/m³	BDL	6 ng/m³	
10.	Ni, ng/m³	BDL	20 ng/m³	
11.	Benzene, µg/m³	BDL	5 µg/m³	
12.	Benzoapyrene ng/m³	BDL	1 ng/m³	

NOTE: BDL - Below Detection Limit

Sr. Chemist
Aditi R&D Services

Technical Manager
Aditi R&D Services, Sindri

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/24-25/ AAQ/3 Date: 04/12/2024

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. : 4700126557/932 Date:- 29/05/2024
- Date of Sample Collection : 25/11/2024 to 26/11/2024
- Date of Testing : 28/11/2024 to 02/12/2024
- Test Procedure : As per IS-5182

TEST RESULTS

LOCATION – CENTRAL WORKSHOP AREA , JAMADOBA				
	Avg. Ambient Temperature	25°C	Avg. Humidity	46%
Sl No.	Particulars	Value	NAAQ - CPCB STANDARD	
1.	Particulate Matter (PM_{10}), µg/m³	86.84	100 µg/m³	
2.	Particulate Matter ($PM_{2.5}$), µg/m³	49.26	60 µg/m³	
3.	SO_2, µg/m³	21.78	80 µg/m³	
4.	NO_2, µg/m³	29.96	80 µg/m³	
5.	*Ozone*, µg/m³	18.84	180 µg/m³	
6.	NH_3, µg/m³	16.76	400 µg/m³	
7.	CO, mg/m³	0.94	4 mg/m³	
8.	Pb, µg/m³	BDL	1 µg/m³	
9.	As, ng/m³	BDL	6 ng/m³	
10.	Ni, ng/m³	BDL	20 ng/m³	
11.	Benzene, µg/m³	BDL	5 µg/m³	
12.	Benzoapyrene ng/m³	BDL	1 ng/m³	

NOTE: BDL - Below Detection Limit

Sr. Chemist
Aditi R&D Services

Technical Manager
Aditi R&D Services, Sindri

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/24-25/ AAQ/4 Date: 04/12/2024

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.: : 4700126557/932 Date:- 29/05/2024
- Date of Sample Collection : 25/11/2024 To 26/11/2024
- Date of Testing : 28/11/2024 to 02/12/2024
- Test Procedure : As per IS-5182

TEST RESULTS

LOCATION – TATA CENTRAL HOSPITAL

	Avg. Ambient Temperature	25°C	Avg. Humidity	46%
Sl No.	Particulars	Value	NAAQ - CPCB STANDARD	
1.	Particulate Matter (PM_{10}), µg/m³	69.80	100 µg/m³	
2.	Particulate Matter ($PM_{2.5}$), µg/m³	38.75	60 µg/m³	
3.	SO_2, µg/m³	16.38	80 µg/m³	
4.	NO_2, µg/m³	26.58	80 µg/m³	
5.	*Ozone*, µg/m³	17.75	180 µg/m³	
6.	NH_3, µg/m³	15.63	400 µg/m³	
7.	CO, mg/m³	0.83	4 mg/m³	
8.	Pb, µg/m³	BDL	1 µg/m³	
9.	As, ng/m³	BDL	6 ng/m³	
10.	Ni, ng/m³	BDL	20 ng/m³	
11.	Benzene, µg/m³	BDL	5 µg/m³	
12.	Benzoapyrene ng/m³	BDL	1 ng/m³	

NOTE: BDL - Below Detection Limit

Sr. Chemist
Aditi R&D Services

Technical Manager
Aditi R&D Services, Sindri

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

TEST REPORT OF NOISE (AMBIENT) LEVEL MONITORING

Ref. No. & Date	NAME AND ADDRESS OF THE CLIENT			
ARDS/24-25/NOISE/1Date: 04/12/2024	M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED, JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)			
Date of Monitoring				
25/11/2024 To 27/11/2024	Avg. Ambient Temperature (°C)	Average Humidity (%)	Weather Condition	Status of the plant
Work Order 4700126557/932 Date:- 29/05/2024	25	49	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	
								Day Time	Night Time
LOCATION	JAMADOBA GROUP	MAX	MIN	AVG. dB(A) Leq	MAX	MIN	AVERAGE dB(A) Leq	Industrial Area	Industrial Area
1.	Central Workshop Area	57.9	54.3	56.46	49.6	42.1	47.3	75	70
2.	6 & 7 Pits Colliery Office	59.7	51.9	57.36	46.8	40.6	44.72		
								Residential Area	Residential Area
3.	Officer Colony 12 No. Digwadih	53.4	49.6	51.9	45.6	42.7	44.39	65	55
								Silence Zone	Silence Zone
4.	Tata Central Hospital	47.2	42.8	45.53	39.4	36.4	38.15	50	40

Sr. Chemist
Aditi R&D Services

Technical Manager
Aditi R&D Services, Sindri

Statements :

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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/24-25/MINER./1 **Date: 04/12/2024**

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.** : **4700126557/932 Date:- 29/05/2024**
- **Date of Sample Collection** : **26/11/2024 and 27/11/2024**
- **Date of Testing** : **28/11/2024 To 30/11/2024**

TEST RESULTS

Sl No.	Particulars	Mineralogical Composition (%)			
		SiO_2	FeO	Al_2O_3	CaO
1.	Central Work Shop Area, Jamadoba	1.90	0.14	1.41	2.8
2.	Officer Colony 12 No. Digwadih	1.87	0.12	1.35	2.36

Sr. Chemist
Aditi R&D Services

Technical Manager
Aditi R&D Services, Sindri

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/24-25/SW/1 Date: 04/12/2024

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.: : 4700126557/932 Date:- 29/05/2024
- Sample Code : 1. Damodar River Up Stream
  2. Damodar River Down Stream
- Date of Sample Collection: 27/11/2024
- Date of Testing : 28/11/2024 To 03/12/2024
- Test : pH, TDS, Turbidity, DO, BOD, Cl, F, SO_4

TEST RESULT

Sl. No.	PARAMETERS OF TEST	VALUE		Test Method
		Damodar River Up Stream	Damodar River Dn Stream	
1.	pH	7.2	7.3	IS-3025 (P-11): 1983
2.	Total Dissolved Solids, mg/l	410	428	IS-3025 (P-16): 1984
3.	Turbidity, NTU	2	2	IS-3025 (P-10):1984
4.	Dissolved Oxygen, mg/l	5.6	5.8	IS-3025 (P-38):1989
5.	Bio chemical Oxygen Demand, mg/l	1.6	1.9	IS-3025 (P-44):1994
6.	Chloride as Cl, mg/l	28	27.5	IS-3025 (P-32):1988
7.	Fluoride as F, mg/l	0.58	0.62	IS-3025 (P-60):2008
8.	Sulphate as SO_4, mg/l	65.0	60.4	IS-3025 (P-24):1986

Sr. Chemist
Aditi R&D Services

Technical Manager
Aditi R&D Services, Sindri

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/24-25/MWD/1 Date: 04/12/2024

TEST REPORT OF MINE WATER DISCHARGE

- Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700126557/932 Date:- 29/05/2024
- Sample Code :
  1. 2 Pit Jamadoba Colliery
  2. 3 Pit Jamadoba Colliery
  3. 6 & 7 Pits Colliery
  4. Digwadih Colliery
- Date of Sample Collection: 25/11/2024 To 26/11/2024
- Date of Testing : 28/11/2024 To 03/12/2024
- Test : pH, TDS, TSS, BOD, COD, OIL & GREASE.

TEST RESULT

Sl. No.	PARAMETERS OF TEST	VALUE				Test Method
		2 Pit Jamadoba Colliery	3 Pit Jamadoba Colliery	6 & 7 Pits Colliery	Digwadih Colliery	
1.	pH,	7.5	7.7	7.5	7.4	IS-3025 (P-11):1983
2.	Total Dissolved Solids, mg/l	865	839	915	790	IS-3025 (P-16):1984
3.	Total Suspended Solids, mg/l	39	42	46	38	IS-3025(P-17): 1984
4.	Bio chemical Oxygen Demand, mg/l	2.2	3.4	2.9	2.7	IS-3025 (P-4):1994
5.	Chemical Oxygen Demand, mg/l	66	72	62	69	IS-3025 (P-8):2006
6.	Oil & Grease, mg/l	BDL	0.9	0.8	BDL	IS-3025 (P-39):2021

Sr. Chemist
Aditi R&D Services

Technical Manager
Aditi R&D Services, Sindri

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/24-25/STP/1 Date: 04/12/2024

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.: : 4700126557/932 Date:- 29/05/2024
- Sample Code : 1. STP Outlet- Railway Colony
  2. STP Outlet -Digwadih 12 No Officers Colony
  3. STP Outlet -Digwadih 12 No. Supervisor flat
  4. STP Outlet- Jmb. Canteen
  5. STP Outlet- JCPP Canteen
- Date of Sample Collection: 25/11/2024 To 26/11/2024
- Date of Testing : 28/11/2024 To 03/12/2024
- Test : pH, TDS, TSS, BOD, COD, OIL & GREASE, and Fecal Coliform.

TEST RESULT

Sl. No.	PARAMETERS OF TEST	VALUE					Test Method
		STP Outlet Railway Colony	STP Outlet Digwadih 12 No Officers Colony	STP Outlet Digwadih 12 No. Supervisor flat	STP Outlet Jmb. Canteen	STP Outlet- JCPP Canteen	
1.	pH,	7.9	7.8	7.8	7.6	7.5	IS-3025(P-11):1983
2.	Total Dissolved Solids, mg/l	855	850	910	812	710	IS-3025(P-16):1984
3.	Total Suspended Solids, mg/l	39	42	46	38	42	IS-3025(P-17):1984
4.	Bio chemical Oxygen Demand, mg/l	3.2	5.9	7.4	2.8	6.4	IS-3025(P-44):1994
5.	Chemical Oxygen Demand, mg/l	88	79	90	65	70	IS-3025(P-58):2006
6.	Oil & Grease, mg/l	1.0	0.7	0.9	0.9	0.8	IS-3025(P-39):2021
7.	Fecal Coliform (FC) (MPN/100ml)	720	620	592	570	518	IS - 1622

Sr. Chemist
Aditi R&D Services

ADITI R&D SERVICES P.O. DOMGARH DHANBAD

Technical Manager
Aditi R&D Services, Sindri

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/24-25/ETP/1 Date: 04/12/2024

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.: : 4700126557/932 Date:- 29/05/2024
- Sample Code : 1. E.T.P. Outlet T.C.H.
  2. E.T.P. Outlet Garage
- Date of Sample Collection: 25/11/2024 To 26/11/2024
- Date of Testing : 28/11/2024 To 03/12/2024
- Test : pH, TDS, TSS, BOD, COD, OIL & GREASE.

TEST RESULT

Sl. No.	PARAMETERS OF TEST	VALUE		Test Method
		E.T.P. Outlet T.C.H.	E.T.P. Outlet Garage	
1.	pH,	8.2	8.0	IS-3025 (P-11): 1983
2.	Total Dissolved Solids, mg/l	788	895	IS-3025 (P-16): 1984
3.	Total Suspended Solids, mg/l	39	43	IS-3025(P-17) : 1984
4.	Bio chemical Oxygen Demand, mg/l	2.4	7.2	IS-3025 (P-44):1994
5.	Chemical Oxygen Demand, mg/l	58	89	IS-3025 (P-58):2006
6.	Oil & Grease, mg/l	0.9	2.4	IS-3025 (P-39):2021

Note : BDL - Below Detection Limit

Sr. Chemist
Aditi R&D Services

Technical Manager
Aditi R&D Services, Sindri

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/24-25/DW/1 Date: 04/12/2024

TEST REPORT OF DRINKING WATER

- Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700126557/932 Date:- 29/05/2024
- Sample Code : 1. Canteen- Jamadoba Colliery
  2. Canteen- Jamadoba Washery
  3. Canteen- Digwadih Colliery
  4. Canteen- 6&7 Pits Colliery
- Date of Sample Collection: 07.08.2024 To 09.08.2024
- Date of Testing : 10.08.2024 To 16.08.2024
- 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, Total Chromium, Mineral Oil, Alkalinity, Aluminium & Boron.

TEST RESULT

Sl. No	PARAMETERS OF TEST	VALUE				IS as per IS 10500:2012		Test Method
		Canteen-Jamadoba Colliery	Canteen-Jamadoba Washery	Canteen Digwadih Colliery	Canteen-6&7 Pits Colliery	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	1.0	0.8	0.2	3.0	1.0	5.0	IS 3025 (P-10):1984
5.	pH	7.52	7.76	7.92	7.80	6.5-8.5	No. Relax.	IS-3025 (P-11):1983
6.	Total Hardness as $CaCO_3$, mg/l	400	580	540	304	200	600	IS 3025 (P-21):2009
7.	Chloride as Cl, mg/l	65.77	80.81	67.65	33.82	250	1000	IS 3025 (P-32):1988
8.	Res. Free chlorine as Cl_2 mg/l	NIL	NIL	NIL	NIL	0.20	1.0	IS 3025 (P-26):2021
9.	Total Dissolved Solids, mg/l	535	540	595	280	500	2000	IS 3025 (P-16):1984
10.	Calcium as $CaCO_3$, mg/l	188	160	128	136	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

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Sl. No.	PARAMETERS OF TEST	VALUE				IS as per IS 10500:1991		Test Method
		Canteen-Jamadoba Colliery	Canteen Jamadoba Washery	Canteen Digwadih Colliery	Canteen - 6&7 Pits Colliery	Desirable	Permissible	
12.	Manganese as Mn, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.10	0.30	IS 3025 (P-59):2006
13.	Sulphate as SO_4, mg/l	48.10	41.70	51.4	42.6	200	400	IS 3025 (P-24):1986
14.	Nitrate as NO_3, mg/l	3.3	5.6	4.9	4.2	45	No. Relax	IS 3025 (P-34):1988
15.	Fluoride as F, mg/l	0.34	0.30	0.32	0.37	1.0	1.5	IS 3025 (P-60):2008
16.	Phenolic Compound as (C6H5OH) mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.001	0.002	IS 3025 (P-43):1992
17.	Mercury as Hg, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.001	No. Relax	IS 3025 (P-48):1994
18.	Cadmium as Cd, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.003	No. Relax	IS 3025 (P-41):1992
19.	Arsenic as As, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.01	No. Relax	IS 3025 (P-37):1988
20.	Cyanide as CN, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.05	No. Relax	IS 3025 (P-27):1986
21.	Lead as Pb, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.01	No. Relax	IS 3025 (P-47):1994
22.	Zinc as Zn, mg/l,	0.12	0.18	0.23	0.16	5	15	IS 3025 (P-42):1992
23.	Total Coliform, No./100ml	Absent	Absent	Absent	Absent	Absent	Absent	IS 3025 (P-49):1994
24.	Total Chromium as Cr, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.05	No. Relax	IS 3025 (P-52):2003
25.	Mineral Oil, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.5	No. Relax	IS 3025 (P-39):1989
26.	Alkalinity as $CaCO_3$, mg/l,	424	388	400	568	200	600	IS 3025 (P-23):1983
27.	Aluminium as Al, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.03	0.2	IS 3025 (P-55):2003
28.	Boron as B, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	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

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/24-25/GW/1 Date: 04/12/2024

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. : 4700126557/932 Date:- 29/05/2024
- Sample Code : 1. Purnadih (Jorapokhar)
  2. Digwadih 10 No F&J.
  3. Kali Mela Kali Mandir
  4. Upper Dungari
  5. Kenduadih Basti
  6. 6&7 Pits (Ayodhya Nagri)
- Date of Sample Collection : 25/11/2024 to 26/11/2024
- Date of Testing : 28/11/2024 To 04/12/2024
- 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, Chromium, Mineral Oil, Alkalinity, Aluminium & Boron.

TEST RESULT

Sl. No	PARAMETERS OF TEST	VALUE						IS as per IS 10500:1991		Test Method
		Purnadih	Digwadih 10 NoF&J.	Kali Mela KaliMandir	Upper Dungari	Kenduadih Basti	6 & 7Pit (Ayodhya Nagri)	Desir-able	Permi-ssible	
1.	Colour, (Hazen Unit)	2	1	2	2	1	1	5	15	IS 3025 (P-4):2021
2.	Temperature °C	25	24	25	24	25	24	-	-	-
3.	Electrical Conductivity, µmhos/cm	1414	1390	1070	590	780	810	-	-	-
4.	Total Dissolved Solids, mg/l	710	680	513	539	577	510	500	2000	IS 3025(P-16):1984
5.	pH	7.9	7.8	7.4	7.7	7.3	7.8	6.5-8.5	No Relax	IS-3025(P-11):1983
6.	Total Hardness as $CaCO_3$, mg/l	575	480	496	336	380	362	200	600	IS 3025(P-21):2009
7.	Calcium as Ca, mg/l	155.2	163.4	95	144	78	67.5	75	200	IS 3025(P-40):1991
8.	Magnesium as Mg, mg/l	50.4	20.2	62.8	48.2	43.5	48.4	30	100	IS 3025(P-46):1994
9.	Chloride as Cl, mg/l	347.69	199	107.12	30.02	35.70	57.2	250	1000	IS 3025(P-32):1988
10.	Fluoride as F, mg/l	0.42	0.32	0.39	0.50	0.40	0.38	1.0	1.5	IS 3025(P-60):2008

Continued on Page -2

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Sl. No.	PARAMETERS OF TEST	VALUE						IS as per IS 10500:1991		Test Method
		Purnadih	Digwadih 10 NoF&J.	KaliMela KaliMandir	Upper Dungari	Kenduadih Basti	6 & 7Pit (Ayodhya Nagri)	Desir-able	Perm is-sible	
11	Sulphate as SO_4, mg/l	47.2	53.4	59.0	52.0	54.80	39.2	200	400	IS 3025(P-24):1986
12.	Nitrate as NO_3, mg/l	7.2	7.9	8.4	7.5	8.0	7.8	45	No. Relax	IS 3025(P-34):1988
13.	Alkalinity as $CaCO_3$, mg/l,	15.0	16.0	5.8	4.8	7.0	418	200	600	IS 3025(P-23):1983
14.	Lead as Pb, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	B.D.L.	B.D.L.	0.01	No. Relax	IS 3025(P-47):1994
15.	Zinc as Zn, mg/l,	0.19	0.12	0.13	0.2	0.18	0.19	5	15	IS 3025(P-42):1992
16.	Iron a Fe, mg/l	0.13	0.20	0.24	0.22	0.25	0.12	1.0	No. Relax	IS 3025(P-53):2003
17.	Copper as Cu, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	B.D.L.	B.D.L.	0.05	1.5	IS3025 (P-42):1992
18.	Mercury as Hg, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	B.D.L.	B.D.L.	0.001	No. Relax	IS 3025(P-48):1994
19.	Cadmium as Cd, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	B.D.L.	B.D.L.	0.003	No. Relax	IS 3025(P-41):1992
20.	Nickel as Ni, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	B.D.L.	B.D.L.	0.02	No. Relax	IS 3025(P-37):1992
21.	Arsenic as As, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	B.D.L.	B.D.L.	0.01	No. Relax	IS 3025(P-37):1988
22.	Cyanide as CN, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	B.D.L.	B.D.L.	0.05	No. Relax	IS 3025(P-27):1986
23.	Total Chromium as Cr, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	B.D.L.	B.D.L.	0.05	No. Relax	IS 3025(P-52):2003

NOTE: BDL - Below Detection Limit

Sr. Chemist
Aditi R&D Services

Technical Manager
Aditi R&D Services, Sindri

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/24-25/AAQ/1 Date: 19/02/2025

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.: : 4700126557/932 Date:- 29/05/2024
- Date of Sample Collection : 12/02/2025 To 13/02/2025
- Date of Testing : 14/02/2025 To 18/02/2025
- Test Procedure : As per IS-5182

TEST RESULTS

LOCATION – 6 & 7 PITS COLLIERY OFFICE				
	Avg. Ambient Temperature	29°C	Avg. Humidity	28%
Sl No.	Particulars	Value	NAAQ - CPCB STANDARD	
1.	Particulate Matter (PM_{10}), µg/m³	79.78	100 µg/m³	
2.	Particulate Matter ($PM_{2.5}$), µg/m³	46.06	60 µg/m³	
3.	SO_2, µg/m³	18.33	80 µg/m³	
4.	NO_2, µg/m³	26.74	80 µg/m³	
5.	*Ozone*, µg/m³	15.42	180 µg/m³	
6.	NH_3, µg/m³	12.81	400 µg/m³	
7.	CO, mg/m³	0.74	4 mg/m³	
8.	Pb, µg/m³	BDL	1 µg/m³	
9.	As, ng/m³	BDL	6 ng/m³	
10.	Ni, ng/m³	BDL	20 ng/m³	
11.	Benzene, µg/m³	BDL	5 µg/m³	
12.	Benzoapyrene ng/m³	BDL	1 ng/m³	

NOTE: BDL - Below Detection Limit

Sr. Chemist
Aditi R&D Services

ADITI R&D SERVICES P.O.- DOMGARH DHANBAD INDUSTRIAL AREA

Technical Manager
Aditi R&D Services, Sindri

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/24-25/ AAQ/2 Date: 19/02/2025

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.: : 4700126557/932 Date:- 29/05/2024
- Date of Sample Collection : 12/02/2025 to 13/02/2025
- Date of Testing : 14/02/2025 to 18/02/2025
- Test Procedure : As per IS-5182

TEST RESULTS

LOCATION – OFFICERS COLONY, 12 NO. DIGWADIH				
	Avg. Ambient Temperature	29°C	Avg. Humidity	28%
Sl No.	Particulars	Value	NAAQ - CPCB STANDARD	
1.	Particulate Matter (PM_{10}), µg/m³	72.75	100 µg/m³	
2.	Particulate Matter ($PM_{2.5}$), µg/m³	39.29	60 µg/m³	
3.	SO_2, µg/m³	17.79	80 µg/m³	
4.	NO_2, µg/m³	25.32	80 µg/m³	
5.	*Ozone*, µg/m³	15.92	180 µg/m³	
6.	NH_3, µg/m³	13.09	400 µg/m³	
7.	CO, mg/m³	0.67	4 mg/m³	
8.	Pb, µg/m³	BDL	1 µg/m³	
9.	As, ng/m³	BDL	6 ng/m³	
10.	Ni, ng/m³	BDL	20 ng/m³	
11.	Benzene, µg/m³	BDL	5 µg/m³	
12.	Benzoapyrene ng/m³	BDL	1 ng/m³	

NOTE: BDL - Below Detection Limit

Sr. Chemist
Aditi R&D Services

Technical Manager
Aditi R&D Services, Sindri

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/24-25/ AAQ/3 Date: 19/02/2025

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. : 4700126557/932 Date:- 29/05/2024
- Date of Sample Collection : 11/02/2025 to 12/02/2025
- Date of Testing : 14/02/2025 to 18/02/2025
- Test Procedure : As per IS-5182

TEST RESULTS

LOCATION – CENTRAL WORKSHOP AREA , JAMADOBA				
	Avg. Ambient Temperature	29°C	Avg. Humidity	28%
Sl No.	Particulars	Value	NAAQ - CPCB STANDARD	
1.	Particulate Matter (PM_{10}), µg/m³	82.45	100 µg/m³	
2.	Particulate Matter ($PM_{2.5}$), µg/m³	46.79	60 µg/m³	
3.	SO_2, µg/m³	20.69	80 µg/m³	
4.	NO_2, µg/m³	28.46	80 µg/m³	
5.	*Ozone*, µg/m³	17.89	180 µg/m³	
6.	NH_3, µg/m³	15.92	400 µg/m³	
7.	CO, mg/m³	0.89	4 mg/m³	
8.	Pb, µg/m³	BDL	1 µg/m³	
9.	As, ng/m³	BDL	6 ng/m³	
10.	Ni, ng/m³	BDL	20 ng/m³	
11.	Benzene, µg/m³	BDL	5 µg/m³	
12.	Benzoapyrene ng/m³	BDL	1 ng/m³	

NOTE: BDL - Below Detection Limit

Sr. Chemist
Aditi R&D Services

ADITI R&D SERVICES P.O.: DOMGARH DHANBAD INDUSTRIAL AREA SINDRI

Technical Manager
Aditi R&D Services, Sindri

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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: aditimdservices.com
Phone: 0326-2952377 (O),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/24-25/ AAQ/4 Date: 19/02/2025

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.: : 4700126557/932 Date:- 29/05/2024
- Date of Sample Collection : 11/02/2025 To 12/02/2025
- Date of Testing : 14/02/2025 to 18/02/2025
- Test Procedure : As per IS-5182

TEST RESULTS

LOCATION – TATA CENTRAL HOSPITAL				
	Avg. Ambient Temperature	29°C	Avg. Humidity	28%
Sl No.	Particulars	Value	NAAQ - CPCB STANDARD	
1.	Particulate Matter (PM_{10}), µg/m³	66.31	100 µg/m³	
2.	Particulate Matter ($PM_{2.5}$), µg/m³	36.81	60 µg/m³	
3.	SO_2, µg/m³	15.56	80 µg/m³	
4.	NO_2, µg/m³	25.06	80 µg/m³	
5.	*Ozone*, µg/m³	16.86	180 µg/m³	
6.	NH_3, µg/m³	14.85	400 µg/m³	
7.	CO, mg/m³	0.79	4 mg/m³	
8.	Pb, µg/m³	BDL	1 µg/m³	
9.	As, ng/m³	BDL	6 ng/m³	
10.	Ni, ng/m³	BDL	20 ng/m³	
11.	Benzene, µg/m³	BDL	5 µg/m³	
12.	Benzoapyrene ng/m³	BDL	1 ng/m³	

NOTE: BDL - Below Detection Limit

Sr. Chemist
Aditi R&D Services

Technical Manager
Aditi R&D Services, Sindri

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

TEST REPORT OF NOISE (AMBIENT) LEVEL MONITORING

Ref. No. & Date	NAME AND ADDRESS OF THE CLIENT			
ARDS/24-25/NOISE/1Date: 19/02/2025	M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED, JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)			
Date of Monitoring				
11/02/2025 To 13/02/2025	Avg. Ambient Temperature (°C)	Average Humidity (%)	Weather Condition	Status of the plant
Work Order 4700126557/932 Date:- 29/05/2024	29	30	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	
								Day Time	Night Time
LOCATION	JAMADOBA GROUP	MAX	MIN	AVG. dB(A) Leq	MAX	MIN	AVERAGE dB(A) Leq	Industrial Area	Industrial Area
1.	Central Workshop Area	62.68	57.01	60.71	52.08	44.21	49.73	75	70
2.	6 & 7 Pits Colliery Office	60.79	54.49	58.69	49.14	42.63	47.01		
								Residential Area	Residential Area
3.	Officer Colony 12 No. Digwadih	56.07	58.87	57.69	47.88	44.83	46.62	65	55
								Silence Zone	Silence Zone
4.	Tata Central Hospital	48.56	49.5	49.06	41.37	38.22	40.07	50	40

Sr. Chemist
Aditi R&D Services

Technical Manager
Aditi R&D Services, Sindri

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/24-25/MINER./1 Date: 19/02/2025

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. : 4700126557/932 Date:- 29/05/2024
- Date of Sample Collection : 12/02/2025 and 13/02/2025
- Date of Testing : 14/02/2025 To 18/02/2025

TEST RESULTS

Sl No.	Particulars	Mineralogical Composition (%)			
		SiO_2	FeO	Al_2O_3	CaO
1.	6 & 7 Pits Colliery Office	1.81	0.13	1.34	2.70
2.	Tata Central Hospital	1.78	0.11	1.28	2.24

Sr. Chemist
Aditi R&D Services

Technical Manager
Aditi R&D Services, Sindri

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/24-25/SW/1 Date: 19/02/2025

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.: : 4700126557/932 Date:- 29/05/2024
- Sample Code : 1. Damodar River Up Stream
  2. Damodar River Down Stream
- Date of Sample Collection: 11/02/2025
- Date of Testing : 14/02/2025 To 18/02/2025
- Test : pH, TDS, Turbidity, DO, BOD, Cl, F, SO_4

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	7.6	6.5 -8.5	IS-3025 (P-11): 1983
2.	Total Dissolved Solids, mg/l	434	532	1500	IS-3025 (P-16): 1984
3.	Turbidity, NTU	1	1	-	IS-3025 (P-10):1984
4.	Dissolved Oxygen, mg/l	5.1	5.2	4.0 (Min)	IS-3025 (P-38):1989
5.	Bio chemical Oxygen Demand, mg/l	1.7	2.2	3.0	IS-3025 (P-44):1994
6.	Chloride as Cl, mg/l	44.6	36.8	600 (Max.)	IS-3025 (P-32):1988
7.	Fluoride as F, mg/l	0.4	0.4	1.5	IS-3025 (P-60):2008
8.	Sulphate as SO_4, mg/l	28.2	24.6	400	IS-3025 (P-24):1986

Sr. Chemist
Aditi R&D Services

ADITI R&D SERVICES P.O.: DOMGARH DHANBAD SINDRI INDUSTRIAL AREA

Technical Manager
Aditi R&D Services, Sindri

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/24-25/MWD/1 Date: 21/02/2025

TEST REPORT OF MINE WATER DISCHARGE

- Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700126557/932 Date:- 29/05/2024
- Sample Code : 1. 2 Pit Jamadoba Colliery
  2. 3 Pit Jamadoba Colliery
  3. 6 & 7 Pits Colliery
  4. Digwadih Colliery
- Date of Sample Collection: 11/02/2025 To 12/02/2025
- Date of Testing : 14/02/2025 To 18/02/2025
- Test : pH, TDS, TSS, BOD, COD, OIL & GREASE.

TEST RESULT

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	Digwadih Colliery		
1.	pH,	7.9	7.6	7.9	7.8	6.5-8.5	IS-3025 (P-11): 1983
2.	Total Dissolved Solids, mg/l	1209	897	624	987	-	IS-3025 (P-16): 1984
3.	Total Suspended Solids, mg/l	22	25	27	29	-	IS-3025(P-17) : 1984
4.	Bio chemical Oxygen Demand, mg/l	2.0	1.6	1.5	2.4	3	IS-3025 (P-44):1994
5.	Chemical Oxygen Demand, mg/l	96	84	78	110	-	IS-3025 (P-58):2006
6.	Oil & Grease, mg/l	2.1	1.9	1.6	1.2	-	IS-3025 (P-39):2021

Sr. Chemist
Aditi R&D Services

ADITI R&D SERVICES P.O.- DOMGARH DHANBAD INDUSTRIAL AREA

Technical Manager
Aditi R&D Services, Sindri

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/24-25/ETP/1 Date: 19/02/2025

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.: : 4700126557/932 Date:- 29/05/2024
- Sample Code : 1. E.T.P. Outlet T.C.H.
  2. E.T.P. Outlet Garage
- Date of Sample Collection: 11/02/2025 To 12/02/2025
- Date of Testing : 14/02/2025 To 18/02/2025
- Test : pH, TDS, TSS, BOD, COD, OIL & GREASE.

TEST RESULT

Sl. No.	PARAMETERS OF TEST	VALUE		General Standard for discharge of Environmental Pollutants , Inland Surface water by the MoEF&C	Test Method
		E.T.P. Outlet T.C.H.	E.T.P. Outlet Garage		
1.	pH,	8.5	8.3	5.5-9.0	IS-3025 (P-11): 1983
2.	Total Dissolved Solids, mg/l	845	715	-	IS-3025 (P-16): 1984
3.	Total Suspended Solids, mg/l	26	65	100	IS-3025(P-17) : 1984
4.	Bio chemical Oxygen Demand, mg/l	5.0	7.0	30	IS-3025 (P-44):1994
5.	Chemical Oxygen Demand, mg/l	40	56	250	IS-3025 (P-58):2006
6.	Oil & Grease, mg/l	1.6	3.2	10	IS-3025 (P-39):2021

Note : BDL - Below Detection Limit

Sr. Chemist
Aditi R&D Services

Technical Manager
Aditi R&D Services, Sindri

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/24-25/DW/1 Date: 21/02/2025

TEST REPORT OF DRINKING WATER

- Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700126557/932 Date:- 29/05/2024
- Sample Code : 1. Canteen- Jamadoba Colliery
  2. Canteen- Jamadoba Washery
  3. Canteen- Digwadih Colliery
  4. Canteen- 6&7 Pits Colliery
- Date of Sample Collection: 11/02/2025 To 12/02/2025
- Date of Testing : 14/02/2025 To 20/02/2025
- 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, Total Chromium, Mineral Oil, Alkalinity, Aluminium & Boron.

TEST RESULT

Sl. No	PARAMETERS OF TEST	VALUE				IS as per IS 10500:2012		Test Method
		Canteen-Jamadoba Colliery	Canteen-Jamadoba Washery	Canteen Digwadih Colliery	Canteen-6&7 Pits Colliery	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	2	2	1	1	1.0	5.0	IS 3025 (P-10):1984
5.	pH	7.8	7.7	7.9	7.9	6.5-8.5	No. Relax.	IS-3025 (P-11):1983
6.	Total Hardness as $CaCO_3$, mg/l	583.8	567.0	441.0	344.4	200	600	IS 3025 (P-21):2009
7.	Chloride as Cl, mg/l	71.8	74.0	75.0	40.7	250	1000	IS 3025 (P-32):1988
8.	Res. Free chlorine as Cl_2 mg/l	NIL	NIL	NIL	NIL	0.20	1.0	IS 3025 (P-26):2021
9.	Total Dissolved Solids, mg/l	792	840	752	418	500	2000	IS 3025 (P-16):1984
10.	Calcium as Ca, mg/l	80.6	65.5	57.1	68.8	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

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Sl. No.	PARAMETERS OF TEST	VALUE				IS as per IS 10500:1991		Test Method
		Canteen-Jamadoba Colliery	Canteen Jamadoba Washery	Canteen Digwadih Colliery	Canteen - 6&7 Pits Colliery	Desirable	Permissible	
12.	Manganese as Mn, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.10	0.30	IS 3025 (P-59):2006
13.	Sulphate as SO_4, mg/l	35.6	37.8	34.8	38.6	200	400	IS 3025 (P-24):1986
14.	Nitrate as NO_3, mg/l	5.4	5.3	5.2	5.0	45	No. Relax	IS 3025 (P-34):1988
15.	Fluoride as F, mg/l	0.3	0.4	0.2	0.2	1.0	1.5	IS 3025 (P-60):2008
16.	Phenolic Compound as (C6H5OH) mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.001	0.002	IS 3025 (P-43):1992
17.	Mercury as Hg, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.001	No. Relax	IS 3025 (P-48):1994
18.	Cadmium as Cd, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.003	No. Relax	IS 3025 (P-41):1992
19.	Arsenic as As, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.01	No. Relax	IS 3025 (P-37):1988
20.	Cyanide as CN, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.05	No. Relax	IS 3025 (P-27):1986
21.	Lead as Pb, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.01	No. Relax	IS 3025 (P-47):1994
22.	Zinc as Zn, mg/l,	2	3	2	2	5	15	IS 3025 (P-42):1992
23.	Total Coliform, No./100ml	Absent	Absent	Absent	Absent	Absent	Absent	IS 3025 (P-49):1994
24.	Total Chromium as Cr, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.05	No. Relax	IS 3025 (P-52):2003
25.	Mineral Oil, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.5	No. Relax	IS 3025 (P-39):1989
26.	Alkalinity as $CaCO_3$, mg/l,	448	424	400	184	200	600	IS 3025 (P-23):1983
27.	Aluminium as Al, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.03	0.2	IS 3025 (P-55):2003
28.	Boron as B, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	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

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

TEST REPORT OF STACK EMISSION

Ref. No & Dt.	NAME AND ADDRESS OF THE CLIENT			
ARDS/23-24/S/1 Date: 20/02/2025	**M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED, JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)**			
Date of Sample Collection **14/02/2025**				
Date of Testing	Nature of Sampling Collection: **ISO – KINETIC SAMPLING**			
17/02/2025 to 18/02/2025	Weather condition	Status of the Plant	Ambient Temperature (^{0}C)	R.Humidity (%)
	Clear	**Running**	**28**	**49**

GENERAL INFORMATION		
1.	Nature of the Plant	**M.S.**
2.	Capacity of DG Set	**2.0+2.0+2.0 MVA (6.0 MVA)**
3.	Location	**Central Workshop Area, Jamadoba**
4.	No. of Stack	**1**
5.	Stack Height from G.L. in Meter	**30**
6.	Inner Shape & Size of Stack (in meter)ϕ	**2.5**
7	Stack attached to	**DG Set**
8.	Type of Fuel used	**HSD**

GASEOUS EMISSION ANALYSIS RESULTS

Sl. No	Particulars	Method	Value	As per CPCB STANDARD mg/Nm^3
1.	Flue gas temperature (^{0}C)	IS : 11255 (Part–3)	**103**	–
2.	Velocity of flue gas (m/sec)	IS : 11255 (Part–3)	**9.2**	–
3.	Flow Rate of Flue gas (Nm^3/Hr)	IS : 11255 (Part–3)	**128903.11**	–
4.	Concentration of Particulate Matter (mg/ Nm^3) at 15% O_2	IS : 11255 (Part–1)	**62.36**	**75**
5.	Concentration of SOX as SO_2 (mg/ Nm^3) at 15% O_2	IS : 11255 (Part–2)	**54.76**	–
6.	Concentration of NOX as NO_2 (mg/ Nm^3) at 15% O_2	IS : 11255 (Part–7)	**126.41**	**360**
7.	Non Methane Hydrocarbon (NMHC) at 15% O_2	IS : 13270	**46.79**	**100**
8.	Carbon Monoxide (CO) (mg/Nm)^3	IS : 13270	**37.2**	**150**

Sr. Chemist
Aditi R&D Services

ADITI R&D SERVICES P.O.- DOMGARH DHANBAD SINDRI INDUSTRIAL AREA

Technical Manager
Aditi R&D Services, Sindri

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

TEST REPORT OF NOISE (AMBIENT) LEVEL MONITORING

Ref. No. & Date	NAME AND ADDRESS OF THE CLIENT			
ARDS/23-24/N/S/1 Date: 20/02/2025	M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED, JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)			
Date of Monitoring				
12/02/2025	Avg. Ambient Temperature (°C)	Average Humidity (%)	Weather Condition	Status of the plant
Work Order 4700092573/932 Dt. 20.07.2021	28	49	Clear	Running

MONITORING RESULTS

Sl. No	Place of Monitoring	Day Time (6 AM to 10 PM) 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	JAMADOBA GROUP	MAX	MIN	Industrial Area	Industrial Area
1	Central Workshop Area Jamadoba near DG Set	71.2	66.4	75	70

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

Sr. Technician
Aditi R&D Services

Technical Manager
Aditi R&D Services, Sindri

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/24-25/STP/1 Date: 21/02/2025

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.: : 4700126557/932 Date:- 29/05/2024
- Sample Code : 1. STP Outlet- Railway Colony
  2. STP Outlet -Digwadih 12 No Officers Colony
  3. STP Outlet -Digwadih 12 No. Supervisor flat
  4. STP Outlet- Jmb. Canteen
  5. STP Outlet- JCPP Canteen
- Date of Sample Collection: 11/02/2025 To 12/02/2025
- Date of Testing : 14/02/2025 To 18/02/205
- Test : pH, TDS, TSS, BOD, COD, OIL & GREASE, and Fecal Coliform, Total Nitrogen, Total Phosphorous.

TEST RESULT

Sl. No.	PARAMETERS OF TEST	VALUE					As per MoEF&CC Notification for Sewage Treatment Plant	Test Method
		STP Outlet Railway Colony	STP Outlet Digwadih 12 No Officers Colony	STP Outlet Digwadih 12 No. Supervisor flat	STP Outlet Jmb. Canteen	STP Outlet- JCPP Canteen		
1.	pH,	7.6	8.1	7.8	7.6	8.3	5.5-9.0	IS-3025(P-11):1983
2.	Total Dissolved Solids, mg/l	1306.5	916.5	1144	1105	760.5	-	IS-3025(P-16):1984
3.	Total Suspended Solids, mg/l	12	10	20	15	19	20	IS-3025(P-17):1984
4.	Bio chemical Oxygen Demand, mg/l	8.2	6.5	8.0	9.0	9.8	10	IS-3025(P-44):1994
5.	Chemical Oxygen Demand, mg/l	30	45	48	48.8	47.6	50	IS-3025(P-58):2006
6.	Oil & Grease, mg/l	1.3	1.5	1.9	2.3	2.5	-	IS-3025(P-39):2021
7.	Fecal Coliform (FC) (MPN/100ml)	125	116	122	128	136	Desirable 100 & Permissible 230	IS - 1622
8.	Total Nitrogen as N, mg/l	8.2	7.7	8.9	7.8	8.0	10	IS – 3025 (P-34):1988
9.	Total Phosphorus as P, mg/l	0.68	0.65	0.69	0.74	0.71	10	IS – 3025 (P-31):1988

Sr. Chemist
Aditi R&D Services

ADITI R&D SERVICES P.O. DOMGARH DHANBAD SINDRI INDUSTRIAL AREA

Technical Manager
Aditi R&D Services, Sindri

Statements :

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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/23-24/GW/1

Date: 21/02/2025

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. : 4700126557/932 Date:- 29/05/2024
- Sample Code : 1. Jorapokhar Kustand
  2. Bhowra 13 No.
  3. Mohalbani Basti
  4. Lower Dungari
  5. Jamadoba 3 No.
- Date of Sample Collection : 11/02/2025 to 12/02/2025
- Date of Testing : 14/02/2025 to 20/02/2025
- Test : Colour, Odour, Taste, Turbidity, pH, Total Hardness, Iron, Chloride, Res. Free chlorine, Total Dissolved Solids, Calcium, Copper, Manganese, Sulphate, Nitrate, Fluoride, Phenolic Compou`nd, Mercury, Cadmium, Arsenic, Cyanide, Lead, Zinc, Total Coliform, Chromium, Mineral Oil, Alkalinity, Aluminium & Boron.

TEST RESULT

Sl. No	PARAME-TERS OF TEST	VALUE					IS as per IS 10500:1991		Test Method
		Jorapokhar Kustand	Bhowra 13 No.	Mohalbani Basti	Lower Dungari	Jamadoba 3 No	Desir-able	Permi-ssible	
1.	Colour, (Hazen Unit)	2	2	2	2	1	5	15	IS 3025 (P-4):2021
2.	Temperature ^{0}C	27	28	27	28	27	-	-	-
3.	Electrical Conductivity, µmhos/cm	2030	730	1030	660	840	-	-	-
4.	Total Dissolved Solids, mg/l	1308	460	650	415	546	500	2000	IS 3025(P-16):1984
5.	pH	7.8	7.5	7.1	6.7	7.3	6.5-8.5	No Relax	IS-3025(P-11):1983
6.	Total Hardness as $CaCO_3$, mg/l	399	281.4	340.2	298.2	310	200	600	IS 3025(P-21):2009
7.	Calcium as Ca, mg/l	124	86.6	116.0	67.2	80.4	75	200	IS 3025(P-40):1991
8.	Magnesium as Mg, mg/l	21.4	16.2	12.0	31.2	26.2	30	100	IS 3025(P-46):1994
9.	Chloride as Cl, mg/l	248	64	106.7	85.3	72.6	250	1000	IS 3025(P-32):1988
10.	Fluoride as F, mg/l	0.2	0.2	0.5	0.2	0.1	1.0	1.5	IS 3025(P-60):2008

Continued on Page -2

ADITI R&D SERVICES P.O. DOMGARH DHANBAD INDUSTRIAL AREA

Statements :

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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

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),
Fax: 0326-2952377
Mobile: 09471358492, 09431512608

2

Sl. No.	PARAMETERS OF TEST	VALUE					IS as per IS 10500:1991		Test Method
		Jorapokhar Kustand	Bhowra 13 No.	Mohalbani Basti	Lower Dungari	Jamadoba 3 No	Desir - able	Permis -sible	
11	Sulphate as SO_4, mg/l	45.5	40.6	50.6	45.2	56.4	200	400	IS 3025(P-24):1986
12.	Nitrate as NO_3, mg/l	4.9	4.8	5.6	4.8	4.9	45	No. Relax	IS 3025(P-34):1988
13.	Alkalinity as $CaCO_3$, mg/l,	676	252	236	168	268	200	600	IS 3025(P-23):1983
14.	Lead as Pb, mg/l	B.D.L	B.D.L	B.D.L	B.D.L.	B.D.L.	0.01	No. Relax	IS 3025(P-47):1994
15.	Zinc as Zn, mg/l,	3	3	3	2	2	5	15	IS 3025(P-42):1992
16.	Iron a Fe, mg/l	0.17	0.15	0.15	0.17	0.18	1.0	No. Relax	IS 3025(P-53):2003
17.	Copper as Cu, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	B.D.L.	0.05	1.5	IS3025 (P-42):1992
18.	Mercury as Hg, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	B.D.L.	0.001	No. Relax	IS 3025(P-48):1994
19.	Cadmium as Cd, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	B.D.L.	0.003	No. Relax	IS 3025(P-41):1992
20.	Nickel as Ni, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	B.D.L.	0.02	No. Relax	IS 3025(P-37):1992
21.	Arsenic as As, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	B.D.L.	0.01	No. Relax	IS 3025(P-37):1988
22.	Cyanide as CN, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	B.D.L.	0.05	No. Relax	IS 3025(P-27):1986
23.	Total Chromium as Cr, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	B.D.L.	0.05	No. Relax	IS 3025(P-52):2003

NOTE: BDL - Below Detection Limit

Sr. Chemist
Aditi R&D Services

ADITI R&D SERVICES SINDRI INDUSTRIAL AREA P.O. DOMGARH DHANBAD

Technical Manager
Aditi R&D Services, Sindri

Statements :
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 measurment.
3. This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Area. Manager, Digwadih Colliery
Area. Manager, 6 & 7 Pits Colliery
Head, Jamadoba Coal Washery
CMO, Tata Central Hospital, Jamadoba

Ref: JMB /ENV /LAB /02 / 687 / 24
Date: 12 / 11 / 2024

Re: AIR QUALITY REPORT

We wish to inform you that Air Quality Monitoring was carried out in **JAMADOBA GROUP** in the month of **OCTOBER'2024**. The results are as given below.

Core zone (as per Ambient Air quality standards for coal mines notified vide notification G.S.R. 742(E) dated-25.09.2000

S.No	Location	Latitude/ Longitude	Date of Sampling	Weather Condition	SPM 24 Hourly Limit-700 µg/m³	RSPM 24 Hourly Limit-300 µg/m³	SO_2 24 Hourly Limit-120 µg/m³	NOx 24 Hourly Limit-120 µg/m³
1	6&7 Pits Kalimandir area	23°43'15" N/ 86°24'12" E	04.10.24	Cloudy	190.7	66.3	17.8	20.5

Buffer zone (as per NAAQS 2009 for Ambient Air quality standards)

S.No	Location	Latitude/ Longitude	Date of Sampling	Weather Condition	PM_{10} 24 Hourly Limit-100 µg/m³	$PM_{2.5}$ 24 Hourly Limit- 60 µg/m³	SO_2 24 Hourly Limit-80 µg/m³	NOx 24 Hourly Limit-80 µg/m³
1	Jamadoba Group Office	23°42'15.3" N/ 86°24'11" E	03.10.24	Cloudy	70.6	35.8	16.5	19.2
2	Digwadih 12 No. Colony	23°41'42" N/ 86°24'45.3" E	07.10.24	Clear	86.3	42.8	17.2	20.8
3	New Village Colony, Jamadoba	23°41'51" N/ 86°23'19" E	08.10.24	Clear	80.1	40.7	18.6	21.1
4	Tata Central Hospital	23°42'36" N/ 86°24'10.4"E	09.10.24	Clear	76.2	38.5	15.4	18.3

Note: PM_{10} - Less than 10-micron Particulate Matter
$PM_{2.5}$ - Less than 2.5-micron Particulate Matter
µg - Microgram

This is for your information and necessary action please.

P.mahato
Lab. Assistant (Environment)

Area Manager (Environment)

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Area Manager, Jamadoba Colliery
Area. Manager, Digwadih Colliery
Area. Manager, 6 & 7 Pits Colliery
Head, Jamadoba Coal Washery
CMO, Tata Central Hospital, Jamadoba

Ref: JMB /ENV /LAB /02 / 770 / 24
Date: 09 / 12 / 2024

Re: AIR QUALITY REPORT

We wish to inform you that Air Quality Monitoring was carried out in **JAMADOBA GROUP** in the month of **NOVEMBER'2024**. The results are as given below.

Core zone (as per Ambient Air quality standards for coal mines notified vide notification G.S.R. 742(E) dated-25.09.2000

S.No	Location	Latitude/ Longitude	Date of Sampling	Weather Condition	**SPM** 24 Hourly Limit-700 µg/m³	**RSPM** 24 Hourly Limit-300 µg/m³	**SO_2** 24 Hourly Limit-120 µg/m³	**NOx** 24 Hourly Limit-120 µg/m³
1	6&7 Pits Kalimandir area	23°43'15" N/ 86°24'12" E	12.11.24	Clear	216.9	84.6	15.2	17.0

Buffer zone (as per NAAQS 2009 for Ambient Air quality standards)

S.No	Location	Latitude/ Longitude	Date of Sampling	Weather Condition	**PM_{10}** 24 Hourly Limit-100 µg/m³	**$PM_{2.5}$** 24 Hourly Limit- 60 µg/m³	**SO_2** 24 Hourly Limit-80 µg/m³	**NOx** 24 Hourly Limit-80 µg/m³
1	Jamadoba Group Office	23°42'15.3" N/ 86°24'11" E	12.11.24	Clear	90.2	54.6	19.7	22.3
2	Digwadih 12 No. Colony	23°41'42" N/ 86°24'45.3" E	12.11.24	Clear	82.5	41.3	16.1	18.4
3	New Village Colony, Jamadoba	23°41'51" N/ 86°23'19" E	13.11.24	Clear	78.4	37.5	17.8	20.4
4	Tata Central Hospital	23°42'36" N/ 86°24'10.4"E	13.11.24	Clear	80.6	39.2	18.3	21.7

Note: PM_{10} - Less than 10-micron Particulate Matter
$PM_{2.5}$ - Less than 2.5-micron Particulate Matter
µg - Microgram

This is for your information and necessary action please.

Lab. Assistant (Environment)

Manager (Environment)

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Area Manager, Jamadoba Colliery
Area. Manager, Digwadih Colliery
Area. Manager, 6 & 7 Pits Colliery
Head, Jamadoba Coal Washery
CMO, Tata Central Hospital, Jamadoba

Ref: JMB /ENV /LAB /02 / 910 / 24
Date: 31 / 12 / 2024

Re: AIR QUALITY REPORT

We wish to inform you that Air Quality Monitoring was carried out in **JAMADOBA GROUP** in the month of **DECEMBER'2024**. The results are as given below.

Core zone (as per Ambient Air quality standards for coal mines notified vide notification G.S.R. 742(E) dated-25.09.2000

S.No	Location	Latitude/ Longitude	Date of Sampling	Weather Condition	SPM 24 Hourly Limit-700 µg/m³	RSPM 24 Hourly Limit-300 µg/m³	SO_2 24 Hourly Limit-120 µg/m³	NOx 24 Hourly Limit-120 µg/m³
1	6&7 Pits Kalimandir area	23°43'15" N/ 86°24'12" E	06.12.24	Clear	248.9	82.5	16.8	18.3

Buffer zone (as per NAAQS 2009 for Ambient Air quality standards)

S.No	Location	Latitude/ Longitude	Date of Sampling	Weather Condition	PM_{10} 24 Hourly Limit-100 µg/m³	$PM_{2.5}$ 24 Hourly Limit- 60 µg/m³	SO_2 24 Hourly Limit-80 µg/m³	NOx 24 Hourly Limit-80 µg/m³
1	Jamadoba Group Office	23°42'15.3" N/ 86°24'11" E	06.12.24	Clear	88.7	47.5	17.2	19.1
2	Digwadih 12 No. Colony	23°41'42" N/ 86°24'45.3" E	06.12.24	Clear	80.6	39.7	18.2	20.3
3	New Village Colony, Jamadoba	23°41'51" N/ 86°23'19" E	10.12.24	Clear	76.2	32.1	15.9	17.2
4	Tata Central Hospital	23°42'36" N/ 86°24'10.4"E	10.12.24	Clear	92.5	51.8	19.7	22.4

Note: PM_{10} - Less than 10-micron Particulate Matter
$PM_{2.5}$ - Less than 2.5-micron Particulate Matter
µg - Microgram

This is for your information and necessary action please.

P mahato
Lab. Assistant (Environment)

Umesh
Manager (Environment)

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Area Manager, Jamadoba Colliery
Area. Manager, Digwadih Colliery
Area. Manager, 6 & 7 Pits Colliery
Head, Jamadoba Coal Washery
CMO, Tata Central Hospital, Jamadoba

Ref: JMB /ENV /LAB /02 / 44 / 25
Date: 31 / 01 / 2025

Re: AIR QUALITY REPORT

We wish to inform you that Air Quality Monitoring was carried out in **JAMADOBA GROUP** in the month of **JANUARY'2025**. The results are as given below.

Core zone (as per Ambient Air quality standards for coal mines notified vide notification G.S.R. 742(E) dated-25.09.2000

S.No	Location	Latitude/ Longitude	Date of Sampling	Weather Condition	SPM 24 Hourly Limit-700 µg/m³	RSPM 24 Hourly Limit-300 µg/m³	SO_2 24 Hourly Limit-120 µg/m³	NOx 24 Hourly Limit-120 µg/m³
1	6&7 Pits Kalimandir area	23°43'15" N/ 86°24'12" E	07.01.25	Clear	239.5	80.3	17.2	20.4

Buffer zone (as per NAAQS 2009 for Ambient Air quality standards)

S.No	Location	Latitude/ Longitude	Date of Sampling	Weather Condition	PM_{10} 24 Hourly Limit-100 µg/m³	$PM_{2.5}$ 24 Hourly Limit- 60 µg/m³	SO_2 24 Hourly Limit-80 µg/m³	NOx 24 Hourly Limit-80 µg/m³
1	Jamadoba Group Office	23°42'15.3" N/ 86°24'11" E	07.01.25	Clear	86.5	42.1	16.8	18.3
2	Digwadih 12 No. Colony	23°41'42" N/ 86°24'45.3" E	07.01.25	Clear	82.1	40.3	15.9	17.6
3	New Village Colony, Jamadoba	23°41'51" N/ 86°23'19" E	08.01.25	Clear	70.8	30.9	17.3	19.5
4	Tata Central Hospital	23°42'36" N/ 86°24'10.4"E	08.01.25	Clear	90.4	46.7	18.2	21.3

Note: PM_{10} - Less than 10-micron Particulate Matter
$PM_{2.5}$ - Less than 2.5-micron Particulate Matter
µg - Microgram

This is for your information and necessary action please.

Lab. Assistant (Environment)

Manager (Environment)

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Area Manager, Jamadoba Colliery
Area. Manager, Digwadih Colliery
Area. Manager, 6 & 7 Pits Colliery
Head, Jamadoba Coal Washery
CMO, Tata Central Hospital, Jamadoba

Ref: JMB /ENV /LAB /02 / 89 / 25
Date: 28/ 02 / 2025

Re: AIR QUALITY REPORT

We wish to inform you that Air Quality Monitoring was carried out in **JAMADOBA GROUP** in the month of **FEBRUARY'2025**. The results are as given below.

Core zone (as per Ambient Air quality standards for coal mines notified vide notification G.S.R. 742(E) dated-25.09.2000

S.No	Location	Latitude/ Longitude	Date of Sampling	Weather Condition	**SPM** 24 Hourly Limit-700 µg/m³	**RSPM** 24 Hourly Limit-300 µg/m³	**SO_2** 24 Hourly Limit-120 µg/m³	**NOx** 24 Hourly Limit-120 µg/m³
1	6&7 Pits Kalimandir area	23°43'15" N/ 86°24'12" E	11.02.25	Clear	231.7	84.6	18.3	21.7

Buffer zone (as per NAAQS 2009 for Ambient Air quality standards)

S.No	Location	Latitude/ Longitude	Date of Sampling	Weather Condition	**PM_{10}** 24 Hourly Limit-100 µg/m³	**$PM_{2.5}$** 24 Hourly Limit- 60 µg/m³	**SO_2** 24 Hourly Limit-80 µg/m³	**NOx** 24 Hourly Limit-80 µg/m³
1	Jamadoba Group Office	23°42'15.3" N/ 86°24'11" E	11.02.25	Clear	78.9	37.2	15.0	17.2
2	Digwadih 12 No. Colony	23°41'42" N/ 86°24'45.3" E	11.02.25	Clear	80.6	39.5	17.2	19.1
3	New Village Colony, Jamadoba	23°41'51" N/ 86°23'19" E	12.02.25	Clear	76.2	33.1	16.4	18.[illegible]
4	Tata Central Hospital	23°42'36" N/ 86°24'10.4"E	12.02.25	Clear	87.5	42.2	19.2	22.4

Note: PM_{10} - Less than 10-micron Particulate Matter
$PM_{2.5}$ - Less than 2.5-micron Particulate Matter
µg - Microgram

This is for your information and necessary action please.

Lab. Assistant (Environment)

Manager (Environment)

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Area Manager, Jamadoba Colliery
Area. Manager, Digwadih Colliery
Area. Manager, 6 & 7 Pits Colliery
Head, Jamadoba Coal Washery
CMO, Tata Central Hospital, Jamadoba

Ref: JMB /ENV /LAB /02 / 153 / 25
Date: 07 /04 / 2025

Re: AIR QUALITY REPORT

We wish to inform you that Air Quality Monitoring was carried out in **JAMADOBA GROUP** in the month of **MARCH'2025**. The results are as given below.

Core zone (as per Ambient Air quality standards for coal mines notified vide notification G.S.R. 742(E) dated-25.09.2000

S.No	Location	Latitude/ Longitude	Date of Sampling	Weather Condition	**SPM** 24 Hourly Limit-700 µg/m³	**RSPM** 24 Hourly Limit-300 µg/m³	**SO_2** 24 Hourly Limit-120 µg/m³	**NOx** 24 Hourly Limit-120 µg/m³
1	6&7 Pits Kalimandir area	23°43'15" N/ 86°24'12" E	05.03.25	Clear	247.6	86.2	19.1	22.6

Buffer zone (as per NAAQS 2009 for Ambient Air quality standards)

S.No	Location	Latitude/ Longitude	Date of Sampling	Weather Condition	**PM_{10}** 24 Hourly Limit-100 µg/m³	**$PM_{2.5}$** 24 Hourly Limit- 60 µg/m³	**SO_2** 24 Hourly Limit-80 µg/m³	**NOx** 24 Hourly Limit-80 µg/m³
1	Jamadoba Group Office	23°42'15.3" N/ 86°24'11" E	05.03.25	Clear	92.4	51.6	18.2	21.7
2	Digwadih 12 No. Colony	23°41'42" N/ 86°24'45.3" E	05.03.25	Clear	84.5	42.3	16.8	18.3
3	New Village Colony, Jamadoba	23°41'51" N/ 86°23'19" E	06.03.25	Clear	78.6	36.5	15.1	17.4
4	Tata Central Hospital	23°42'36" N/ 86°24'10.4"E	06.03.25	Clear	83.1	40.9	17.8	20.1

Note: PM_{10} - Less than 10-micron Particulate Matter
$PM_{2.5}$ - Less than 2.5-micron Particulate Matter
µg - Microgram

This is for your information and necessary action please.

Lab. Assistant (Environment)

Manager (Environment)

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Head, Jamadoba Colliery
Head, Jamadoba Coal Washery
Sr. Manager, Digwadih Colliery
Sr. Manager, 6 & 7 Pits Colliery

Ref : JMB/ ENV/ LAB/ 05/ 641 /24
Dated: 01 / 11 / 2024

Re: Ambient Noise Level Report

We wish to inform you that Ambient Noise Level Monitoring was carried out in **JAMADOBA GROUP** in the month of **OCTOBER'2024**. The results are as given below:

S.No	Monitoring Station	Date	Day (06.00 – 22.00 Hrs.)			Night (22.00-06.00 Hrs)		
			CPCB Standard- 55			**CPCB Standard- 45**		
	Residential Area (Buffer Zone)		Min.	Max.	Avg.	Min.	Max.	Avg.
1	Digwadih 12 No. Colony	24.10.24	42.2	44.5	43.4	34.3	36.7	35.5
2	New Village Colony, Jamadoba	24.10.24	43.5	45.7	44.6	35.7	37.8	36.8
3	6&7 Pits Kalimandir Colony	24.10.24	42.4	44.7	43.6	34.5	36.4	35.5
4	Digwadih 10 No. Colony	24.10.24	43.1	45.6	44.4	35.3	37.5	36.4

S.No	Monitoring Station	Date	Day (06.00 – 22.00 Hrs.)			Night (22.00-06.00 Hrs)		
			CPCB Standard- 75			**CPCB Standard- 70**		
	Industrial Area (Core Zone)		Min.	Max.	Avg.	Min.	Max.	Avg.
1	2 Pit Main Gate Security Post	24.10.24	53.4	56.7	55.1	45.2	48.4	46.8
2	2 Pit Top Kalimandir, Jamadoba	24.10.24	52.1	55.4	53.8	44.3	47.6	46.0
3	Weigh Bridge, Digwadih	24.10.24	49.7	52.6	51.2	41.5	44.7	43.1
4	Canteen Complex, Digwadih	24.10.24	46.4	47.7	47.1	38.1	40.3	39.2
5	Head Office Complex, Digwadih	24.10.24	46.2	48.5	47.4	38.4	40.6	39.5
6	Check Post Security Gate, 6&7 Pits	24.10.24	50.5	53.8	52.2	42.7	45.9	44.3
7	Canteen Complex, 6&7 Pits	24.10.24	46.3	47.6	47.0	38.5	40.7	39.6
8	Fan house- Nitrogen Plant, 6&7 Pits	24.10.24	72.3	73.5	72.9	64.2	65.6	64.9
9	Joota Gate, JCPP	24.10.24	58.8	61.9	60.4	50.6	53.4	52.0
10	Main Gate Stores, JCPP	24.10.24	53.6	56.4	55.0	45.4	48.6	47.0
11	Railway Siding Yard, JCPP	24.10.24	50.4	53.7	52.1	42.7	45.4	44.1

Analysis: All the values are within permissible limit.

This is for your information please.

Lab. Assistant (Environment)

Area Manager (Environment)

Copy to: Specialist (OH). TCH

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Head, Jamadoba Colliery
Head, Jamadoba Coal Washery
Sr. Manager, Digwadih Colliery
Sr. Manager, 6 & 7 Pits Colliery

Ref : JMB/ ENV/ LAB/ 05/ 731 /24
Dated: 04 /12/ 2024

Re: Ambient Noise Level Report

We wish to inform you that Ambient Noise Level Monitoring was carried out in **JAMADOBA GROUP** in the month of **NOVEMBER'2024**. The results are as given below:

S.No	Monitoring Station	Date	Day (06.00 – 22.00 Hrs.)			Night (22.00-06.00 Hrs)		
			CPCB Standard- 55			**CPCB Standard- 45**		
	Residential Area (Buffer Zone)		Min.	Max.	Avg.	Min.	Max.	Avg.
1	Digwadih 12 No. Colony	22.11.24	42.4	44.7	43.6	34.7	36.5	35.6
2	New Village Colony, Jamadoba	22.11.24	43.1	45.3	44.2	35.3	37.6	36.5
3	6&7 Pits Kalimandir Colony	22.11.24	42.3	44.5	43.4	34.5	36.3	35.4
4	Digwadih 10 No. Colony	22.11.24	43.5	45.7	44.6	35.2	37.4	36.3

S.No	Monitoring Station	Date	Day (06.00 – 22.00 Hrs.)			Night (22.00-06.00 Hrs)		
			CPCB Standard- 75			**CPCB Standard- 70**		
	Industrial Area (Core Zone)		Min.	Max.	Avg.	Min.	Max.	Avg.
1	2 Pit Main Gate Security Post	22.11.24	51.5	54.8	53.2	43.3	46.5	44.9
2	2 Pit Top Kalimandir, Jamadoba	22.11.24	50.3	53.5	51.9	42.4	45.7	44.1
3	Weigh Bridge, Digwadih	22.11.24	48.4	50.7	49.6	40.2	42.5	41.4
4	Canteen Complex, Digwadih	22.11.24	44.2	46.4	45.3	36.5	38.6	37.6
5	Head Office Complex, Digwadih	22.11.24	44.1	46.3	45.2	36.3	38.5	37.4
6	Check Post Security Gate, 6&7 Pits	22.11.24	50.4	52.6	51.5	42.6	44.8	43.7
7	Canteen Complex, 6&7 Pits	22.11.24	44.4	46.7	45.6	36.2	38.6	37.4
8	Fan house- Nitrogen Plant, 6&7 Pits	22.11.24	72.2	73.4	72.8	64.2	65.7	65.0
9	Joota Gate, JCPP	22.11.24	56.5	59.7	58.1	48.7	51.9	50.3
10	Main Gate Stores, JCPP	22.11.24	52.4	55.6	54.0	44.5	47.8	46.2
11	Railway Siding Yard, JCPP	22.11.24	50.1	53.3	51.7	42.3	45.4	43.9

Analysis: All the values are within permissible limit.

This is for your information please.

Lab. Assistant (Environment)

Manager (Environment)

Copy to: Specialist (OH). TCH

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Head, Jamadoba Colliery
Head, Jamadoba Coal Washery
Sr. Manager, Digwadih Colliery
Sr. Manager, 6 & 7 Pits Colliery

Ref : JMB/ ENV/ LAB/ 05/ 817 /24
Dated: 31 / 12/ 2024

Re: Ambient Noise Level Report

We wish to inform you that Ambient Noise Level Monitoring was carried out in **JAMADOBA GROUP** in the month of **DECEMBER'2024**. The results are as given below:

S.No	Monitoring Station	Date	Day (06.00 – 22.00 Hrs.)			Night (22.00-06.00 Hrs)		
			CPCB Standard- 55			**CPCB Standard- 45**		
	Residential Area (Buffer Zone)		Min.	Max.	Avg.	Min.	Max.	Avg.
1	Digwadih 12 No. Colony	20.12.24	42.2	44.5	43.4	34.4	36.7	35.6
2	New Village Colony, Jamadoba	20.12.24	44.3	45.7	45.0	36.5	38.8	37.7
3	6&7 Pits Kalimandir Colony	20.12.24	42.7	44.6	43.7	34.3	36.5	35.4
4	Digwadih 10 No. Colony	20.12.24	43.1	45.3	44.2	35.6	37.9	36.8

S.No	Monitoring Station	Date	Day (06.00 – 22.00 Hrs.)			Night (22.00-06.00 Hrs)		
			CPCB Standard- 75			**CPCB Standard- 70**		
	Industrial Area (Core Zone)		Min.	Max.	Avg.	Min.	Max.	Avg.
1	2 Pit Main Gate Security Post	20.12.24	52.2	55.6	53.9	44.5	47.8	46.2
2	2 Pit Top Kalimandir, Jamadoba	20.12.24	50.5	53.7	52.1	42.1	45.5	43.8
3	Weigh Bridge, Digwadih	20.12.24	48.2	50.4	49.3	40.3	42.6	41.5
4	Canteen Complex, Digwadih	20.12.24	44.7	45.6	45.2	36.2	38.4	37.3
5	Head Office Complex, Digwadih	20.12.24	44.4	46.5	45.5	36.5	38.7	37.6
6	Check Post Security Gate, 6&7 Pits	20.12.24	51.3	53.2	52.3	43.1	45.3	44.2
7	Canteen Complex, 6&7 Pits	20.12.24	44.6	45.4	45.0	36.4	38.7	37.6
8	Fan house- Nitrogen Plant, 6&7 Pits	20.12.24	72.3	73.5	72.9	64.4	65.6	65.0
9	Joota Gate, JCPP	20.12.24	57.4	60.7	59.1	49.5	52.8	51.2
10	Main Gate Stores, JCPP	20.12.24	51.6	54.9	53.3	43.2	46.5	44.9
11	Railway Siding Yard, JCPP	20.12.24	50.3	53.6	52.0	42.5	45.7	44.1

Analysis: All the values are within permissible limit.

This is for your information please.

Lab. Assistant (Environment)

13.01.25
Manager (Environment)

Copy to: Specialist (OH). TCH

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Head, Jamadoba Colliery
Head, Jamadoba Coal Washery
Sr. Manager, Digwadih Colliery
Sr. Manager, 6 & 7 Pits Colliery

Ref : JMB/ ENV/ LAB/ 05/ 51 /25
Dated: 31 /01 / 2025

Re: Ambient Noise Level Report

We wish to inform you that Ambient Noise Level Monitoring was carried out in **JAMADOBA GROUP** in the month of **JANUARY'2025**. The results are as given below:

S.No	Monitoring Station	Date	Day (06.00 – 22.00 Hrs.)			Night (22.00-06.00 Hrs)		
			CPCB Standard- 55			**CPCB Standard- 45**		
	Residential Area (Buffer Zone)		Min.	Max.	Avg.	Min.	Max.	Avg.
1	Digwadih 12 No. Colony	13.01.25	41.7	43.4	42.6	33.5	35.8	34.7
2	New Village Colony, Jamadoba	13.01.25	42.5	44.6	43.6	34.3	36.5	35.4
3	6&7 Pits Kalimandir Colony	13.01.25	42.3	44.5	43.4	34.6	36.8	35.7
4	Digwadih 10 No. Colony	13.01.25	43.6	45.8	44.7	35.4	37.6	36.5

S.No	Monitoring Station	Date	Day (06.00 – 22.00 Hrs.)			Night (22.00-06.00 Hrs)		
			CPCB Standard- 75			**CPCB Standard- 70**		
	Industrial Area (Core Zone)		Min.	Max.	Avg.	Min.	Max.	Avg.
1	2 Pit Main Gate Security Post	13.01.25	52.6	55.8	54.2	44.5	47.7	46.1
2	2 Pit Top Kalimandir, Jamadoba	13.01.25	51.4	54.6	53.0	43.2	46.4	44.8
3	Weigh Bridge, Digwadih	13.01.25	49.7	51.5	50.6	41.6	43.8	42.7
4	Canteen Complex, Digwadih	13.01.25	45.2	47.5	46.4	37.3	39.6	38.5
5	Head Office Complex, Digwadih	13.01.25	44.8	46.6	45.7	36.5	38.7	37.6
6	Check Post Security Gate, 6&7 Pits	13.01.25	52.5	54.8	53.7	44.7	46.8	45.8
7	Canteen Complex, 6&7 Pits	13.01.25	44.1	46.3	45.2	36.3	38.5	37.4
8	Fan house- Nitrogen Plant, 6&7 Pits	13.01.25	72.4	73.6	73.0	64.5	65.7	65.1
9	Joota Gate, JCPP	13.01.25	56.7	59.9	58.3	48.4	51.6	50.0
10	Main Gate Stores, JCPP	13.01.25	52.5	55.7	54.1	44.2	47.5	45.9
11	Railway Siding Yard, JCPP	13.01.25	51.4	54.5	53.0	43.5	46.7	45.1

Analysis: All the values are within permissible limit.

This is for your information please.

Lab. Assistant (Environment)

Manager (Environment)

Copy to: Specialist (OH). TCH

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Head, Jamadoba Colliery
Head, Jamadoba Coal Washery
Sr. Manager, Digwadih Colliery
Sr. Manager, 6 & 7 Pits Colliery

Ref : JMB/ ENV/ LAB/ 05/ 102 /25
Dated: 28 /02/ 2025

Re: Ambient Noise Level Report

We wish to inform you that Ambient Noise Level Monitoring was carried out in **JAMADOBA GROUP** in the month of **FEBRUARY'2025**. The results are as given below:

S.No	Monitoring Station	Date	Day (06.00 – 22.00 Hrs.)			Night (22.00-06.00 Hrs)		
			CPCB Standard- 55			**CPCB Standard- 45**		
	Residential Area (Buffer Zone)		Min.	Max.	Avg.	Min.	Max.	Avg.
1	Digwadih 12 No. Colony	26.02.25	44.8	46.5	45.7	36.4	38.6	37.5
2	New Village Colony, Jamadoba	26.02.25	42.4	44.6	43.5	34.6	36.8	35.7
3	6&7 Pits Kalimandir Colony	26.02.25	48.4	50.2	49.3	40.3	42.5	41.4
4	Digwadih 10 No. Colony	26.02.25	45.6	47.7	46.7	37.5	39.8	38.7

S.No	Monitoring Station	Date	Day (06.00 – 22.00 Hrs.)			Night (22.00-06.00 Hrs)		
			CPCB Standard- 75			**CPCB Standard- 70**		
	Industrial Area (Core Zone)		Min.	Max.	Avg.	Min.	Max.	Avg.
1	2 Pit Main Gate Security Post	26.02.25	56.5	59.7	58.1	48.3	51.5	49.9
2	2 Pit Top Kalimandir, Jamadoba	26.02.25	52.2	55.1	53.7	44.5	47.7	46.1
3	Weigh Bridge, Digwadih	26.02.25	50.4	52.6	51.5	42.2	44.5	43.4
4	Canteen Complex, Digwadih	26.02.25	48.6	50.4	49.5	40.4	42.7	41.6
5	Head Office Complex, Digwadih	26.02.25	43.2	45.5	44.4	35.5	37.6	36.6
6	Check Post Security Gate, 6&7 Pits	26.02.25	50.1	53.3	51.7	42.3	45.5	43.9
7	Canteen Complex, 6&7 Pits	26.02.25	47.4	49.6	48.5	39.6	41.8	40.7
8	Fan house- Nitrogen Plant, 6&7 Pits	26.02.25	61.7	63.8	62.8	53.4	52.6	53.0
9	Joota Gate, JCPP	26.02.25	59.3	62.5	60.9	51.2	54.4	52.8
10	Main Gate Stores, JCPP	26.02.25	54.6	57.7	56.2	46.4	49.5	48.0
11	Railway Siding Yard, JCPP	26.02.25	52.1	55.3	53.7	44.5	47.7	46.1

Analysis: All the values are within permissible limit.

This is for your information please.

Lab. Assistant (Environment)

Manager (Environment)

Copy to: Specialist (OH). TCH

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Head, Jamadoba Colliery
Head, Jamadoba Coal Washery
Sr. Manager, Digwadih Colliery
Sr. Manager, 6 & 7 Pits Colliery

Ref : JMB/ ENV/ LAB/ 05/ 149 /25
Dated: 07 /04/ 2025

Re: Ambient Noise Level Report

We wish to inform you that Ambient Noise Level Monitoring was carried out in **JAMADOBA GROUP** in the month of **MARCH'2025**. The results are as given below:

S.No	Monitoring Station	Date	Day (06.00 – 22.00 Hrs.)			Night (22.00-06.00 Hrs)		
			CPCB Standard- 55			**CPCB Standard- 45**		
	Residential Area (Buffer Zone)		Min.	Max.	Avg.	Min.	Max.	Avg.
1	Digwadih 12 No. Colony	24.03.25	42.3	44.6	43.5	34.5	36.7	35.6
2	New Village Colony, Jamadoba	24.03.25	43.5	45.8	44.7	35.3	37.5	36.4
3	6&7 Pits Kalimandir Colony	24.03.25	46.7	48.5	47.6	38.4	40.7	39.6
4	Digwadih 10 No. Colony	24.03.25	44.5	46.7	45.6	36.7	38.9	37.8

S.No	Monitoring Station	Date	Day (06.00 – 22.00 Hrs.)			Night (22.00-06.00 Hrs)		
			CPCB Standard- 75			**CPCB Standard- 70**		
	Industrial Area (Core Zone)		Min.	Max.	Avg.	Min.	Max.	Avg.
1	2 Pit Main Gate Security Post	24.03.25	57.2	60.5	58.9	49.4	52.7	51.1
2	2 Pit Top Kalimandir, Jamadoba	24.03.25	51.4	54.7	53.1	43.1	46.3	44.7
3	Weigh Bridge, Digwadih	24.03.25	49.8	51.6	50.7	41.5	43.7	42.6
4	Canteen Complex, Digwadih	24.03.25	48.3	50.2	49.3	40.4	42.5	41.5
5	Head Office Complex, Digwadih	24.03.25	42.6	44.7	43.7	34.3	36.6	35.5
6	Check Post Security Gate, 6&7 Pits	24.03.25	50.3	52.5	51.4	42.5	44.8	43.7
7	Canteen Complex, 6&7 Pits	24.03.25	48.2	50.1	49.2	40.1	42.4	41.3
8	Fan house- Nitrogen Plant, 6&7 Pits	24.03.25	58.4	60.3	59.4	50.6	52.7	51.7
9	Joota Gate, JCPP	24.03.25	60.2	63.5	61.9	52.4	55.6	54.0
10	Main Gate Stores, JCPP	24.03.25	52.7	55.6	54.2	44.5	47.8	46.2
11	Railway Siding Yard, JCPP	24.03.25	52.4	54.7	53.6	44.2	46.5	45.4

Analysis: All the values are within permissible limit.

This is for your information please.

Lab. Assistant (Environment)

Manager (Environment)

Copy to: Specialist (OH). TCH

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Area Manager, Jamadoba Colliery
Area Manager, Digwadih Colliery
Area Manager,6&7 Pits Colliery

Ref. No. - JMB / ENV / LAB / 03 / 681 / 2024
Dated - 12 / 11 / 2024

Sub: MINE WATER ANALYSIS REPORT.

We wish to inform you that Trade Effluent Sampling was carried out in **JAMADOBA GROUP** in the month of **OCTOBER'2024**. The results are as given below:

S. No	Location (Final Discharge Point) (Mine's Water)	Sampling Date	Sampling Time	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
				< 40°C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/l	250 mg/l	10 mg/l
1	2 Pit Jamadoba Colliery	24.10.24	05:05 PM	30	7.7	20	773	2.4	68	0.5
2	3 Pit Jamadoba Colliery	24.10.24	04:50 PM	31	7.2	16	793	2.5	56	0.3
3	2 Incline Jamadoba Colliery	24.10.24	04:15 PM	No Discharge						
4	6 & 7 Pits Colliery	24.10.24	02:20 PM	30	7.3	14	724	2.8	92	0
5	Digwadih Colliery	24.10.24	02:40 PM	No Discharge						

All the parameters are within the limit, and you are requested to maintain the same.

This is for your information and necessary action please.

Lab.Assistant (Environment)

Area Manager (Environment)

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Head, Jamadoba Coal Preparation Plant
Area Manager Jamadoba Colliery
Area Manager Digwadih Colliery

Ref. No. - JMB / ENV / LAB / 03 / 680 / 2024
Dated - 12/11/2024

Sub: STP WATER ANALYSIS REPORT.

We wish to inform you that Trade Effluent Sampling was carried out in **JAMADOBA GROUP** in the month of **OCTOBER'2024**. The results are as given below:

S. No	Location (Final Discharge Point)	Sampling Date	Sampling Time	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
				< 40°C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/l	250 mg/l	10 mg/l
1	STP, Jmb. Canteen- Inlet	24.10.24	12:30 PM	27	7.8	145	1024	31.8	290	2.5
2	STP, Jmb. Canteen- Outlet	24.10.24	12:35 PM	26	7.5	24	726	7.0	84	0.7
3	STP, JCPP Canteen- Inlet	24.10.24	01:40 PM	27	7.9	137	924	32.9	306	3.7
4	STP, JCPP Canteen- Outlet	24.10.24	01:45 PM	26	7.6	20	654	5.2	70	0.4
5	STP, Railway Colony- Inlet	24.10.24	03:45 PM	28	8.4	178	1067	34.8	319	3.1
6	STP, Railway Colony-Outlet	24.10.24	03;50 PM	27	8.1	36	953	6.9	52	1.4
7	STP, Digwadih 12 No. Officer's colony-Inlet	24.10.24	03:15 PM	27	8.0	117	921	33.7	284	2.9
8	STP, Digwadih 12 No. Officer's colony- Outlet	24.10.24	03:20 PM	26	7.7	39	637	4.6	102	1.3
9	STP,Digwadih 12 No. Supervisor flat – Inlet	24.10.24	02:55 PM	27	7.8	122	974	29.8	332	3.2
10	STP,Digwadih 12 No. Supervisor flat -Outlet	24.10.24	03:00 PM	26	7.6	18	735	6.2	64	0.9

All the parameters are within the limit, and you are requested to maintain the same.

This is for your information and necessary action please.

Pmahato.
Lab.Assistant (Environment)

Area Manager (Environment)

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Head, Jamadoba Coal Preparation Plant
Area Manager Jamadoba Colliery
C.M.O, TCH, Jamadoba

Ref. No. - JMB / ENV / LAB / 03 / 682 / 2024
Dated - 12 / 11 / 2024

Sub: ETP WATER ANALYSIS REPORT.

We wish to inform you that Trade Effluent Sampling was carried out in **JAMADOBA GROUP** in the month of **OCTOBER'2024**. The results are as given below:

S. No	Location (Final Discharge Point)	Sampling Date	Sampling Time	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
				< 40°C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/l	250 mg/l	10 mg/l
1	ETP, TCH- Inlet	24.10.24	02:00 PM	27	8.3	98	742	28.2	260	1.5
2	ETP, TCH- Outlet	24.10.24	02:05 PM	26	8.1	19	675	6.4	52	0.3
3	ETP, Garage- Inlet	24.10.24	12:45 PM	27	8.2	161	972	31.2	326	3.8
4	ETP, Garage- Outlet	24.10.24	12:50 PM	26	7.8	34	816	7.2	94	1.6
5	Final Settling Pond JCPP	24.10.24	04:35 PM	Dry Pond						

All the parameters are within the limit, and you are requested to maintain the same.
This is for your information and necessary action please.

Lab.Assistant (Environment)

Area Manager (Environment)

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Head, Jamadoba Coal Preparation Plant
Area Manager Jamadoba Colliery
C.M.O, TCH, Jamadoba

Ref. No. - JMB / ENV / LAB / 03 / 766 / 2024
Dated - 09/12 / 2024

Sub: ETP WATER ANALYSIS REPORT.

We wish to inform you that Trade Effluent Sampling was carried out in **JAMADOBA GROUP** in the month of **NOVEMBER'2024**. The results are as given below:

S. No	Location (Final Discharge Point)	Sampling Date	Sampling Time	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
				< 40°C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/l	250 mg/l	10 mg/l
1	ETP, TCH- Inlet	22.11.24	12:25 PM	28	8.4	116	736	27.8	294	1.8
2	ETP, TCH- Outlet	22.11.24	12:30 PM	27	8.2	26	658	5.2	48	0.7
3	ETP, Garage- Inlet	22.11.24	01:30 PM	27	8.1	139	928	29.1	316	4.1
4	ETP, Garage- Outlet	22.11.24	01:35 PM	26	7.9	27	821	6.9	102	1.7
5	Final Settling Pond JCPP	22.11.24	09:55 AM	Dry Pond						

All the parameters are within the limit, and you are requested to maintain the same.
This is for your information and necessary action please.

P mahato

Lab.Assistant (Environment)

Manager (Environment)

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Area Manager, Jamadoba Colliery
Area Manager, Digwadih Colliery
Area Manager,6&7 Pits Colliery

Ref. No. - JMB / ENV / LAB / 03 / 768 / 2024
Dated - 09 /12 / 2024

Sub: MINE WATER ANALYSIS REPORT.

We wish to inform you that Trade Effluent Sampling was carried out in **JAMADOBA GROUP** in the month of **NOVEMBER'202** The results are as given below:

S. No	Location (Final Discharge Point) (Mine's Water)	Sampling Date	Sampling Time	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
				< 40°C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/l	250 mg/l	10 mg/l
1	2 Pit Jamadoba Colliery	22.11.24	09:25 AM	No Discharge						
2	3 Pit Jamadoba Colliery	22.11.24	09:40 AM	30	7.5	23	806	2.9	68	0.6
3	2 Incline Jamadoba Colliery	22.11.24	10:15 AM	No Discharge						
4	6 & 7 Pits Colliery	22.11.24	12:10 PM	31	7.7	32	789	2.6	74	0.4
5	Digwadih Colliery	22.11.24	11:50 AM	No Discharge						

All the parameters are within the limit, and you are requested to maintain the same.

This is for your information and necessary action please.

P.mahato

Lab.Assistant (Environment)

Manager (Environment)

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Head, Jamadoba Coal Preparation Plant
Area Manager Jamadoba Colliery
Area Manager Digwadih Colliery

Ref. No. - JMB / ENV / LAB / 03 / 767 / 2024
Dated - 09 / 12 / 2024

Sub: STP WATER ANALYSIS REPORT.

We wish to inform you that Trade Effluent Sampling was carried out in **JAMADOBA GROUP** in the month of **NOVEMBER'202**
The results are as given below:

S. No	Location (Final Discharge Point)	Sampling Date	Sampling Time	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
				< 40°C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/l	250 mg/l	10 mg/l
1	STP, Jmb. Canteen- Inlet	22.11.24	01:10 PM	27	8.0	137	916	34.6	316	2.6
2	STP, Jmb. Canteen- Outlet	22.11.24	01:15 PM	26	7.7	31	694	6.9	72	0.5
3	STP, JCPP Canteen- Inlet	22.11.24	12:50 PM	27	8.1	126	896	33.1	294	3.4
4	STP, JCPP Canteen- Outlet	22.11.24	12:55 PM	26	7.8	34	672	6.2	108	0.6
5	STP, Railway Colony- Inlet	22.11.24	10:35 AM	28	8.2	156	1025	33.2	332	2.9
6	STP, Railway Colony-Outlet	22.11.24	10:40 AM	27	8.0	27	876	7.1	85	1.3
7	STP, Digwadih 12 No. Officer's colony-Inlet	22.11.24	11:05 AM	28	8.1	124	936	34.1	310	3.2
8	STP, Digwadih 12 No. Officer's colony- Outlet	22.11.24	11:10 AM	27	7.8	21	716	5.4	54	1.0
9	STP,Digwadih 12 No. Supervisor flat – Inlet	22.11.24	11:25 AM	27	8.0	167	963	32.5	296	3.5
10	STP,Digwadih 12 No. Supervisor flat -Outlet	22.11.24	11:30 AM	26	7.7	26	769	5.8	78	1.2

All the parameters are within the limit, and you are requested to maintain the same.

This is for your information and necessary action please.

Lab.Assistant (Environment)

Manager (Environment)

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Well Water Quality Report of Jamadoba Group for the month of NOVEMBER'2024

JAMADOBA GROUP

S.No	Date	Location	Time	Depth in meter	pH	Electrical Conductivity µS/m
1	22.11.24	Purnadih (Jorapokhar)	01:15 PM	4.13	7.3	1243
2	22.11.24	Bhowra 13 No	12:55 PM	1.27	7.4	1014
3	22.11.24	Mohalbani Basti	02:25 PM	2.13	7.3	1041
4	22.11.24	Digwadih 10 No F & J	12:10 PM	1.52	7.1	1639
5	22.11.24	Kalimela Shivmandir	11:05 AM	0.98	7.2	917
6	22.11.24	Kalimela Kalimandir	11:20 AM	3.13	7.5	1358
7	22.11.24	Lower Dungari	10:45 AM	3.67	7.3	725
8	22.11.24	Upper Dungari	10:25 AM	1.72	7.2	756
9	22.11.24	Pattia Basti	10:00 AM	3.48	7.0	894
10	22.11.24	Kenduadih Basti	09:35 AM	1.32	7.2	972
11	22.11.24	Jorapokhar Kushtand	01:55 PM	3.84	7.4	1637
12	22.11.24	6&7 Pits (Ayodhya Nagri)	11:45 AM	1.76	7.2	1242
13	22.11.24	Jorapokhar Basti Chhattand	12:25 PM	1.13	7.4	1384
14	22.11.24	Jorapokhar Babu Basa	01:30 PM	2.11	7.1	1169

Lab.Assistant (Environment)

Manager (Environment)

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Head, Jamadoba Coal Preparation Plant
Area Manager Jamadoba Colliery
C.M.O, TCH, Jamadoba

Ref. No. - JMB / ENV / LAB / 03 / 212 / 2024
Dated - 31 / 12 / 2024

Sub: ETP WATER ANALYSIS REPORT.

We wish to inform you that Trade Effluent Sampling was carried out in **JAMADOBA GROUP** in the month of **DECEMBER'2024**. The results are as given below:

S. No	Location (Final Discharge Point)	Sampling Date	Sampling Time	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
				< 40°C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/l	250 mg/l	10 mg/l
1	ETP, TCH- Inlet	20.12.24	12:30 PM	26	8.3	164	816	29.1	264	1.4
2	ETP, TCH- Outlet	20.12.24	12:35 PM	25	8.1	39	786	4.9	54	0.5
3	ETP, Garage- Inlet	20.12.24	01:35 PM	25	8.3	142	941	30.5	310	3.6
4	ETP, Garage- Outlet	20.12.24	01:40 PM	24	8.0	32	894	7.1	88	1.6
5	Final Settling Pond JCPP	20.12.24	09:55 AM	Dry Pond						

All the parameters are within the limit, and you are requested to maintain the same.
This is for your information and necessary action please.

Prakash.
Lab.Assistant (Environment)

Umesh
Manager (Environment)

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Area Manager, Jamadoba Colliery
Area Manager, Digwadih Colliery
Area Manager,6&7 Pits Colliery

Ref. No. - JMB / ENV / LAB / 03 / / 2024
Dated - / / 2024

Sub: MINE WATER ANALYSIS REPORT.

We wish to inform you that Trade Effluent Sampling was carried out in **JAMADOBA GROUP** in the month of **DECEMBER'2024**
The results are as given below:

S. No	Location (Final Discharge Point) (Mine's Water)	Sampling Date	Sampling Time	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
				< 40°C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/l	250 mg/l	10 mg/l
1	2 Pit Jamadoba Colliery	20.12.24	09:30 AM	No Discharge						
2	3 Pit Jamadoba Colliery	20.12.24	09:45 AM	32	7.7	36	837	3.4	42	0.9
3	2 Incline Jamadoba Colliery	20.12.24	10:20 AM	No Discharge						
4	6 & 7 Pits Colliery	20.12.24	12:15 PM	30	7.5	21	912	2.8	68	0.8
5	Digwadih Colliery	20.12.24	11:55 AM	No Discharge						

All the parameters are within the limit, and you are requested to maintain the same.

This is for your information and necessary action please.

Lab.Assistant (Environment) **Manager (Environment)**

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Head, Jamadoba Coal Preparation Plant
Area Manager Jamadoba Colliery
Area Manager Digwadih Colliery

Ref. No. - JMB / ENV / LAB / 03 / 813 / 2024
Dated - 31 / 12 / 2024

Sub: STP WATER ANALYSIS REPORT.

We wish to inform you that Trade Effluent Sampling was carried out in **JAMADOBA GROUP** in the month of **DECEMBER'2024**
The results are as given below:

S. No	Location (Final Discharge Point)	Sampling Date	Sampling Time	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
				< 40°C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/l	250 mg/l	10 mg/l
1	STP, Jmb. Canteen- Inlet	20.12.24	01:15 PM	25	7.9	126	924	35.7	338	2.9
2	STP, Jmb. Canteen- Outlet	20.12.24	01:20 PM	24	7.6	34	810	4.8	65	0.9
3	STP, JCPP Canteen- Inlet	20.12.24	12:55 PM	25	8.0	135	873	32.4	284	3.5
4	STP, JCPP Canteen- Outlet	20.12.24	01:00 PM	24	7.5	29	712	6.4	72	0.8
5	STP, Railway Colony- Inlet	20.12.24	10:40 AM	26	8.1	143	987	30.1	294	3.5
6	STP, Railway Colony-Outlet	20.12.24	10:45 AM	25	7.9	22	855	5.2	87	1.0
7	STP, Digwadih 12 No. Officer's colony-Inlet	20.12.24	11:10 AM	26	8.0	167	987	36.4	316	3.7
8	STP, Digwadih 12 No. Officer's colony- Outlet	20.12.24	11:15 AM	25	7.7	36	845	5.9	79	0.8
9	STP,Digwadih 12 No. Supervisor flat – Inlet	20.12.24	11:30 AM	25	8.2	128	1016	34.0	284	3.7
10	STP,Digwadih 12 No. Supervisor flat -Outlet	20.12.24	11:35 AM	24	7.8	31	910	7.2	90	0.9

All the parameters are within the limit, and you are requested to maintain the same.

This is for your information and necessary action please.

Prahlad.
Lab.Assistant (Environment)

Umesh
Manager (Environment)

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Head, Jamadoba Coal Preparation Plant
Area Manager Jamadoba Colliery
C.M.O, TCH, Jamadoba

Ref. No. - JMB / ENV / LAB / 03 / 31 / 2025
Dated - 31 / 01 / 2025

Sub: ETP WATER ANALYSIS REPORT.

We wish to inform you that Trade Effluent Sampling was carried out in **JAMADOBA GROUP** in the month of **JANUARY'2025.** The results are as given below:

S. No	Location (Final Discharge Point)	Sampling Date	Sampling Time	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
				< 40°C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/l	250 mg/l	10 mg/l
1	ETP, TCH- Inlet	13.01.25	10:45 AM	27	8.2	108	824	28.6	276	1.6
2	ETP, TCH- Outlet	13.01.25	10:50 AM	26	8	32	774	5.1	72	0.4
3	ETP, Garage- Inlet	13.01.25	01:20 PM	26	8.1	135	976	31.3	284	3.8
4	ETP, Garage- Outlet	13.01.25	01:25 PM	25	7.9	29	872	6.8	76	1.2
5	Final Settling Pond JCPP	13.01.25	09:50 AM	Dry Pond						

All the parameters are within the limit, and you are requested to maintain the same.
This is for your information and necessary action please.

Lab.Assistant (Environment)

Manager (Environment)

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Area Manager, Jamadoba Colliery
Area Manager, Digwadih Colliery
Area Manager,6&7 Pits Colliery

Ref. No. - JMB / ENV / LAB / 03 / 30 / 2025
Dated - 31 / 01 / 2025

Sub: MINE WATER ANALYSIS REPORT.

We wish to inform you that Trade Effluent Sampling was carried out in **JAMADOBA GROUP** in the month of **JANUARY'2025.** The results are as given below:

S. No	Location (Final Discharge Point) (Mine's Water)	Sampling Date	Sampling Time	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
				< 40°C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/l	250 mg/l	10 mg/l
1	2 Pit Jamadoba Colliery	13.01.25	09:20 AM	No Discharge						
2	3 Pit Jamadoba Colliery	13.01.25	09:35 AM	32	7.6	23	796	3.2	72	0.7
3	2 Incline Jamadoba Colliery	13.01.25	10:05 AM	No Discharge						
4	6 & 7 Pits Colliery	13.01.25	11:10 AM	30	7.7	21	874	2.5	62	0.5
5	Digwadih Colliery	13.01.25	12:15 PM	32	7.8	36	916	2.7	80	0

All the parameters are within the limit, and you are requested to maintain the same.

This is for your information and necessary action please.

Lab.Assistant (Environment)

Manager (Environment)

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Head, Jamadoba Coal Preparation Plant
Area Manager Jamadoba Colliery
Area Manager Digwadih Colliery

Ref. No. - JMB / ENV / LAB / 03 / 29 / 2025
Dated - 31 / 01 / 2025

Sub: STP WATER ANALYSIS REPORT.

We wish to inform you that Trade Effluent Sampling was carried out in **JAMADOBA GROUP** in the month of **JANUARY'2025.** The results are as given below:

S. No	Location (Final Discharge Point)	Sampling Date	Sampling Time	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
				< 40°C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/l	250 mg/l	10 mg/l
1	STP, Jmb. Canteen- Inlet	13.01.25	01:05 PM	26	8.1	122	918	34.8	332	3.1
2	STP, Jmb. Canteen- Outlet	13.01.25	01:10 PM	25	7.8	25	779	4.5	84	0.7
3	STP, JCPP Canteen- Inlet	13.01.25	12:40 PM	26	7.9	164	857	31.2	296	3.2
4	STP, JCPP Canteen- Outlet	13.01.25	12:45 PM	25	7.6	26	772	5.7	102	0.3
5	STP, Railway Colony- Inlet	13.01.25	10:25 AM	27	8.3	128	971	32.2	319	3.8
6	STP, Railway Colony-Outlet	13.01.25	10:30 AM	26	8.0	36	832	5.8	98	1.2
7	STP, Digwadih 12 No. Officer's colony-Inlet	13.01.25	11:30 AM	27	8.0	141	974	34.2	260	3.5
8	STP, Digwadih 12 No. Officer's colony- Outlet	13.01.25	11:35 AM	26	7.6	34	836	5.7	62	0.2
9	STP,Digwadih 12 No. Supervisor flat – Inlet	13.01.25	11:50 AM	26	8.1	152	987	33.6	324	3.8
10	STP,Digwadih 12 No. Supervisor flat -Outlet	13.01.25	11:55 AM	25	7.9	22	896	6.9	106	0.7

All the parameters are within the limit, and you are requested to maintain the same.

This is for your information and necessary action please.

Lab.Assistant (Environment)

Manager (Environment)

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Well Water Quality Report of Jamadoba Group for the month of JANUARY'2025

JAMADOBA GROUP

S.No	Date	Location	Time	Depth in meter	pH	Electrical Conductivity µS/m
1	24.01.25	Purnadih (Jorapokhar)	09:55 AM	4.45	7.2	1236
2	24.01.25	Bhowra 13 No	10:15 AM	1.82	7.3	1024
3	24.01.25	Mohalbani Basti	02:10 PM	2.46	7.4	1082
4	24.01.25	Digwadih 10 No F & J	10:40 AM	1.95	7.5	1726
5	24.01.25	Kalimela Shivmandir	01:30 PM	1.13	7.3	908
6	24.01.25	Kalimela Kalimandir	01:45 PM	3.47	7.4	1339
7	24.01.25	Lower Dungari	01:10 PM	3.85	7.2	762
8	24.01.25	Upper Dungari	12:45 PM	1.98	7.4	768
9	24.01.25	Pattia Basti	12:25 PM	3.72	7.2	905
10	24.01.25	Kenduadih Basti	12:05 PM	1.67	7.3	968
11	24.01.25	Jorapokhar Kushtand	11:20 AM	4.15	7.2	1708
12	24.01.25	6&7 Pits (Ayodhya Nagri)	11:40 AM	1.97	7.3	1216
13	24.01.25	Jorapokhar Basti Chhattand	10:55 AM	1.27	7.2	1372
14	24.01.25	Jorapokhar Babu Basa	09:40 AM	2.21	7.4	1176

Lab.Assistant (Environment)

Manager (Environment)

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Head, Jamadoba Coal Preparation Plant
Area Manager Jamadoba Colliery
C.M.O, TCH, Jamadoba

Ref. No. - JMB / ENV / LAB / 03 / 87 / 2025
Dated - 28 /02_ / 2025

Sub: ETP WATER ANALYSIS REPORT.

We wish to inform you that Trade Effluent Sampling was carried out in **JAMADOBA GROUP** in the month of **FEBRUARY'2025**. The results are as given below:

S. No	Location (Final Discharge Point)	Sampling Date	Sampling Time	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
				< 40°C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/l	250 mg/l	10 mg/l
1	ETP, TCH- Inlet	26.02.25	10:50 AM	28	8.2	135	914	29.8	294	1.3
2	ETP, TCH- Outlet	26.02.25	10:55 AM	27	7.9	29	846	5.6	72	1.0
3	ETP, Garage- Inlet	26.02.25	01:25 PM	27	8.0	163	872	30.2	306	3.1
4	ETP, Garage- Outlet	26.02.25	01:30 PM	26	7.8	33	715	7.2	74	1.7
5	Final Settling Pond JCPP	26.02.25	09:55 AM	Dry Pond						

All the parameters are within the limit, and you are requested to maintain the same.
This is for your information and necessary action please.

P mahato
Lab.Assistant (Environment)

Manager (Environment)

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Area Manager, Jamadoba Colliery
Area Manager, Digwadih Colliery
Area Manager,6&7 Pits Colliery

Ref. No. - JMB / ENV / LAB / 03 / 85 / 2025
Dated - 28/02/2025

Sub: MINE WATER ANALYSIS REPORT.

We wish to inform you that Trade Effluent Sampling was carried out in **JAMADOBA GROUP** in the month of **FEBRUARY'202** The results are as given below:

S. No	Location (Final Discharge Point) (Mine's Water)	Sampling Date	Sampling Time	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
				< 40°C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/l	250 mg/l	10 mg/l
1	2 Pit Jamadoba Colliery	26.02.25	09:25 AM	No Discharge						
2	3 Pit Jamadoba Colliery	26.02.25	09:40 AM	30	7.5	20	896	2.1	86	1.2
3	2 Incline Jamadoba Colliery	26.02.25	10:10 AM	No Discharge						
4	6 & 7 Pits Colliery	26.02.25	11:15 AM	No Discharge						
5	Digwadih Colliery	26.02.25	12:20 PM	No Discharge						

All the parameters are within the limit, and you are requested to maintain the same.

This is for your information and necessary action please.

Lab.Assistant (Environment)

Manager (Environment)

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Head, Jamadoba Coal Preparation Plant
Area Manager Jamadoba Colliery
Area Manager Digwadih Colliery

Ref. No. - JMB / ENV / LAB / 03 / 86 / 2025
Dated - 28 / 02 / 2025

Sub: STP WATER ANALYSIS REPORT.

We wish to inform you that Trade Effluent Sampling was carried out in **JAMADOBA GROUP** in the month of **FEBRUARY'2025**
The results are as given below:

S. No	Location (Final Discharge Point)	Sampling Date	Sampling Time	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
				< 40°C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/l	250 mg/l	10 mg/l
1	STP, Jmb. Canteen- Inlet	26.02.25	01:10 PM	27	8.0	154	998	36.1	320	?
2	STP, Jmb. Canteen- Outlet	26.02.25	01:15 PM	26	7.6	38	906	8.7	98	1.4
3	STP, JCPP Canteen- Inlet	26.02.25	12:45 PM	28	8.1	132	836	33.4	327	2.9
4	STP, JCPP Canteen- Outlet	26.02.25	12:50 PM	27	7.8	25	760	7.4	144	1.7
5	STP, Railway Colony- Inlet	26.02.25	10:30 AM	28	8.0	167	1036	35.4	336	3.4
6	STP, Railway Colony-Outlet	26.02.25	10:35 AM	27	7.6	41	996	8.9	82	1.5
7	STP, Digwadih 12 No. Officer's colony-Inlet	26.02.25	11:35 AM	28	8.2	127	1016	33.1	290	3.8
8	STP, Digwadih 12 No. Officer's colony- Outlet	26.02.25	11:40 AM	27	8.0	32	910	6.5	68	1.3
9	STP,Digwadih 12 No. Supervisor flat – Inlet	26.02.25	11:55 AM	27	8.2	173	1038	31.9	296	2.9
10	STP,Digwadih 12 No. Supervisor flat -Outlet	26.02.25	12:05 PM	26	7.8	39	987	7.8	84	1.9

All the parameters are within the limit, and you are requested to maintain the same.
This is for your information and necessary action please.

Lab.Assistant (Environment)

Manager (Environment)

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Head, Jamadoba Coal Preparation Plant
Area Manager Jamadoba Colliery
C.M.O, TCH, Jamadoba

Ref. No. - JMB / ENV / LAB / 03 / 145 / 2025
Dated - 07 / 04 / 2025

Sub: ETP WATER ANALYSIS REPORT.

We wish to inform you that Trade Effluent Sampling was carried out in **JAMADOBA GROUP** in the month of **MARCH'2025**. The results are as given below:

S. No	Location (Final Discharge Point)	Sampling Date	Sampling Time	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
				< 40°C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/l	250 mg/l	10 mg/l
1	ETP, TCH- Inlet	24.03.25	02:00 PM	27	8.3	147	935	31.7	286	2.1
2	ETP, TCH- Outlet	24.03.25	02:05 PM	26	8.0	39	822	5.2	98	1.2
3	ETP, Garage- Inlet	24.03.25	12:45 PM	27	8.1	163	867	29.5	316	3.5
4	ETP, Garage- Outlet	24.03.25	12:50 PM	26	7.9	24	754	6.8	106	1.3
5	Final Settling Pond JCPP	24.03.25	04:35 PM	Dry Pond						

All the parameters are within the limit, and you are requested to maintain the same.
This is for your information and necessary action please.

Lab.Assistant (Environment)

Manager (Environment)

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Area Manager, Jamadoba Colliery
Area Manager, Digwadih Colliery
Area Manager,6&7 Pits Colliery

Ref. No. - JMB / ENV / LAB / 03 / 147 / 2025
Dated - 07 / 04 / 2025

Sub: MINE WATER ANALYSIS REPORT.

We wish to inform you that Trade Effluent Sampling was carried out in **JAMADOBA GROUP** in the month of **MARCH'2025**. The results are as given below:

S. No	Location (Final Discharge Point) (Mine's Water)	Sampling Date	Sampling Time	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
				< 40°C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/l	250 mg/l	10 mg/l
1	2 Pit Jamadoba Colliery	24.03.25	05.05 PM	No Discharge						
2	3 Pit Jamadoba Colliery	24.03.25	04:50 PM	32	7.6	26	874	2.3	84	1.4
3	2 Incline Jamadoba Colliery	24.03.25	04:15 PM	No Discharge						
4	6 & 7 Pits Colliery	24.03.25	02:20 PM	No Discharge						
5	Digwadih Colliery	24.03.25	02:40 PM	No Discharge						

All the parameters are within the limit, and you are requested to maintain the same.

This is for your information and necessary action please.

Lab.Assistant (Environment)

Manager (Environment)

Annexure- II

TATA STEEL LIMITED
JHARIA DIVISION

Head, Jamadoba Coal Preparation Plant
Area Manager Jamadoba Colliery
Area Manager Digwadih Colliery

Ref. No. - JMB / ENV / LAB / 03 / 146 / 2025
Dated - 07/04 / 2025

Sub: STP WATER ANALYSIS REPORT.

We wish to inform you that Trade Effluent Sampling was carried out in **JAMADOBA GROUP** in the month of **MARCH'2025**. The results are as given below:

S. No	Location (Final Discharge Point)	Sampling Date	Sampling Time	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
				< 40°C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/l	250 mg/l	10 mg/l
1	STP, Jmb. Canteen- Inlet	24.03.25	12:30 PM	28	7.9	133	954	35.2	316	3.9
2	STP, Jmb. Canteen- Outlet	24.03.25	12:35 PM	27	7.5	28	872	7.2	116	0.8
3	STP, JCPP Canteen- Inlet	24.03.25	01:40 PM	28	8.0	143	824	35.1	298	3.5
4	STP, JCPP Canteen- Outlet	24.03.25	01:45 PM	27	7.7	31	728	6.9	112	1.4
5	STP, Railway Colony- Inlet	24.03.25	03:45 PM	27	8.1	141	936	36.8	328	3.6
6	STP, Railway Colony-Outlet	24.03.25	03:50 PM	26	7.7	21	872	8.2	86	1.0
7	STP, Digwadih 12 No. Officer's colony-Inlet	24.03.25	03:15 PM	27	8.0	164	974	35.5	312	2.9
8	STP, Digwadih 12 No. Officer's colony- Outlet	24.03.25	03:20 PM	26	7.8	27	873	6.4	114	1.5
9	STP,Digwadih 12 No. Supervisor flat – Inlet	24.03.25	02:55 PM	27	7.9	135	1024	33.1	260	2.5
10	STP,Digwadih 12 No. Supervisor flat -Outlet	24.03.25	03:00 PM	26	7.6	34	946	7.3	94	1.2

All the parameters are within the limit, and you are requested to maintain the same.
This is for your information and necessary action please.

Pmahato
Lab.Assistant (Environment)

Umesh
Manager (Environment)

Land Use & Land Cover Study of Jamadoba Colliery

Applicant:

Tata Steel
Jharia Division

TATA

TATA STEEL

Prepared by:

Manish Kamal
Project Coordinator – MPPA
Natural Resources Division
Tata Steel Limited
Jamashedpur, Jharkhand – 831001
(A QCI-NABET Accredited Agency)
Certificate No: NABET/APA-MPPA/RA/011

Index

List of Figures

List of Tables

LAND USE & LAND COVER STUDY OF JAMADOBA COLLIERY

1. Introduction:

1.1 Location

Jamadoba colliery is in the south-eastern part of Jharia Coalfield and is a part of Jamadoba Mining lease owned by Tata Steel Limited. Jamadoba Mining lease is a part of Jamadoba Mouza in Dhanbad district of the state of Jharkhand. Total leasehold area of Jamadoba colliery is 927.17 Ha and it lies in the Survey of India Toposheet no.73-I/6. The nearest railway station is Bhaga which is situated at a distance of 3 km from Jamadoba colliery. Jharia is the nearest town located at a distance of 6 km and district town Dhanbad is about 12 km away from the block.

Digwadih Colliery, owned by Tata Steel Limited is falling along the eastern boundary of the lease. In all other directions, this lease is surrounded with several leases/ collieries of Bharat Coking Coal Limited (BCCL).

1.2 Objective of the study

The purpose of this study is to understand and predict, Land Use and Land Cover (LULC) change using remote sensing and GIS techniques in core zone of Jamadoba Group of Collieries (Combined mining lease area of Jamadoba Colliery, Digwadih Colliery and 6&7 Pit Colliery: 1410 ha) and buffer zone (10 km from the mining lease boundary). The Jamadoba Group consists of three units, namely -

i) Jamadoba Colliery and Washery
ii) Digwadih Colliery and
iii) 6&7 Pits Colliery

All these collieries are adjacent to each other for which separate LULC report are being submitted.

1.3 Physiography and Drainage

Topography of the lease area is mildly undulating. Surface elevation varies from the highest at 178 m to the lowest at 140 m above Mean Sea Level (MSL). General slope is grading towards Southerly and Westerly as per the meandering flow of Damodar River.

There are two jores – Kari/ Puttiya and Dungri jore. Kari/ Puttiya jore flows through North-East part of the lease and falls into Damodar River. Dungri jore flows centrally from the north side of the lease to south side where it meet Damodar River near Bhowrah North Colliery boundary.

1.4 Climate, Temperature and Rainfall

The climate of Jharia coalfield is typical monsoon type with maximum precipitation in the month of June to September. Annual rainfall varied from 772 mm to 1704 mm during 1992 - 2010. Average annual rainfall during this period is ~ 1200 mm. The lowest recorded temperature is 5^{o} – 7^{o} during winter (December-January) and the highest temperature is 46^{o} – 48^{o} during peak summer (May-June). Predominant wind direction is Westerly and North-westerly other than monsoon season.

2. Remote Sensing Concepts and Methodology:

2.1 Remote sensing

Remote sensing is the science and art of obtaining information about an object or area through the analysis of data acquired by a device that is not in physical contact with the object or area under investigation. The term remote sensing is commonly restricted to methods that employ electro-magnetic energy (such as light, heat and radio waves) as the means of detecting and measuring object characteristics. All physical objects on the earth surface continuously emit electromagnetic radiation because of the oscillations of their atomic particles. Remote sensing is largely concerned with the measurement of electro-magnetic energy from the SUN, which is reflected, scattered, or emitted by the objects on the surface of the earth.

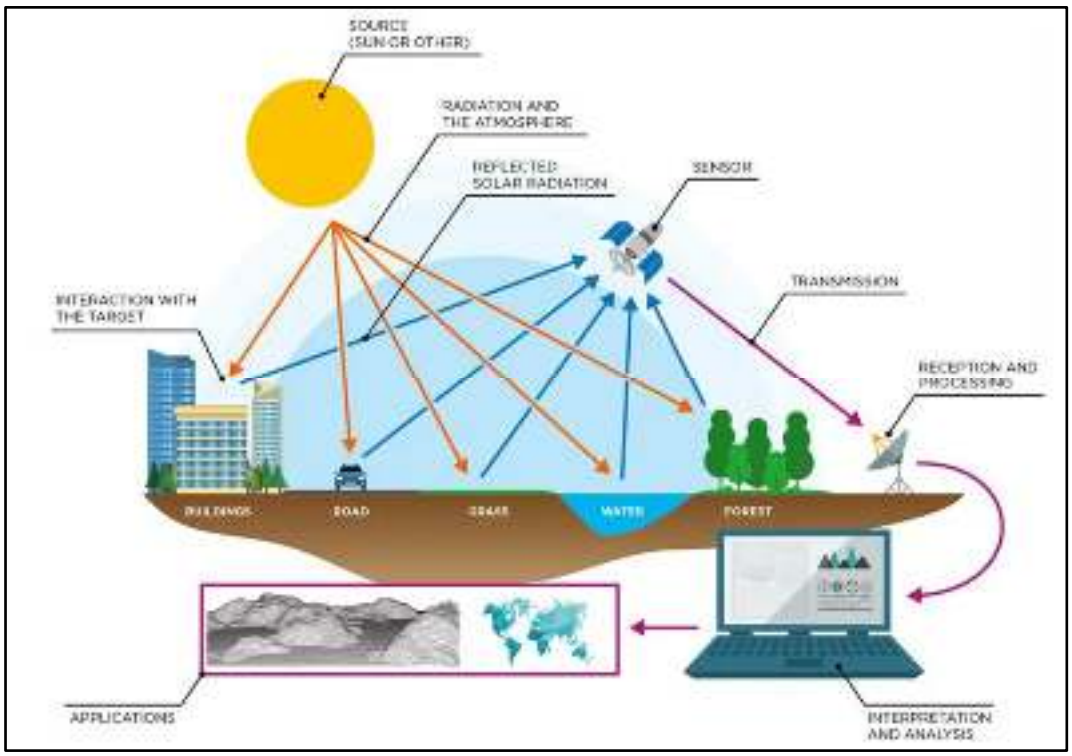

Figure 2.1: Radiation System

2.2 Electromagnetic Spectrum

The electromagnetic (EM) spectrum is the continuum of energy that ranges from meters to nanometres in wavelength and travels at the speed of light. Different objects on the earth surface reflect different amounts of energy in various wavelengths of the EM spectrum. The EM spectrum ranges from the very short wavelengths of the gamma-ray region to the long wavelengths of the radio region. The visible region (0.4-0.7µm wavelengths) occupies only a small portion of the entire EM spectrum. Energy reflected from the objects on the surface of the earth is recorded as a function of wavelength. During daytime, the maximum amount of energy is reflected at 0.5µm wavelengths, which corresponds to the green band of the visible region and is called the reflected energy peak (Figure 2.2). The earth also radiates energy both day and night, with the maximum energy 9.7µm wavelength. This radiant energy peak occurs in the thermal band of the IR region.

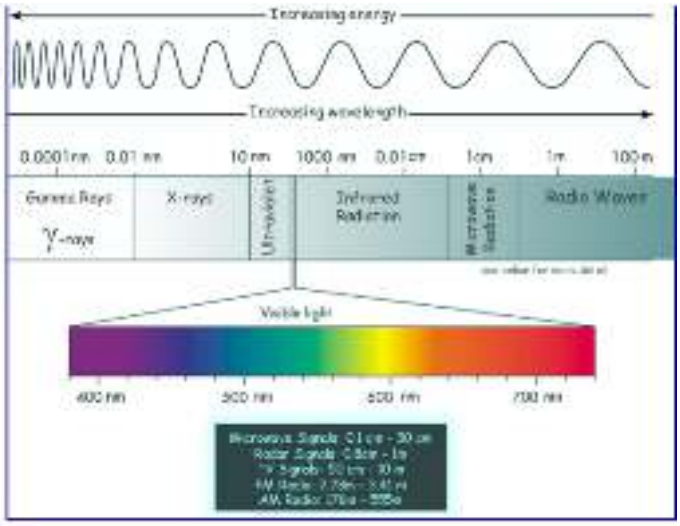

Figure 2.1: Electromagnetic spectrum

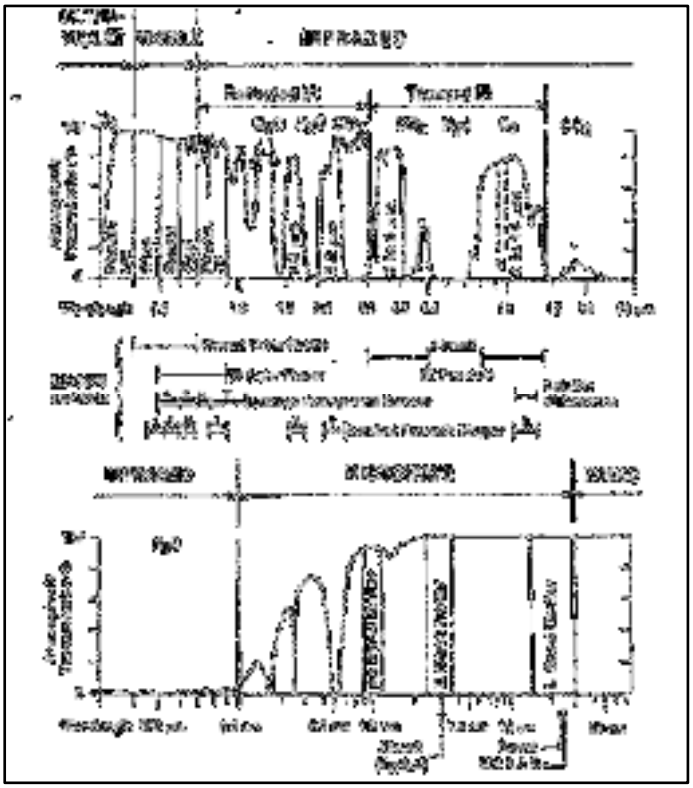

Figure 2.1: Expanded diagram of the visible and infrared regions (upper) and the microwave regions (lower) showing atmospheric windows.Wavelength bands commonly used remote sensing system are indicated. Gases responsible for atmospheric absorption are shown.

Table 2.1: Electromagnetic Spectral Regions

Region	Wavelength	Remarks
Gamma ray	< 0.03 nm	Incoming radiation is completely absorbed by the upper atmosphere and is not available for remote sensing.
X-ray	0.03 to 3.00 nm	Completely absorbed by atmosphere. Not employed in remote sensing.

Region	Wavelength	Remarks
Ultraviolet	0.03 to 0.40 um	Incoming wavelengths less than 0.3mm are completely absorbed by Ozone in the upper atmosphere.
Photographic UV band	0.30 to 0.40 um	Transmitted through atmosphere. Detectable with film and photo detectors, but atmospheric scattering is severe.
Visible	0.40 to 0.70 um	Imaged with film and photo detectors. Includes reflected energy peak of earth at 0.5mm.
Infrared	0.70 to 100.00 um	Interaction with matter varies with wavelength. Absorption bands separate atmospheric transmission windows.
Reflected IR band	0.70 to 3.00 um	Reflected solar radiation that contains no information about thermal properties of materials. The band from 0.7-0.9 mm is detectable with film and is called the photographic IR band.
Thermal IR band	3.00 to 5.00 um 8.00 to 14.00 um	Principal atmospheric windows in the thermal region. Images at these wavelengths are acquired by optical-mechanical scanners and special Videocon systems but not by film.
Microwave	0.10 to 30.00 cm	Longer wavelengths can penetrate clouds, fog, and rain. Images may be acquired in the active or passive mode.
Radar	0.10 to 30.00 cm	Active form of microwave remote sensing
Radio	>30.00 cm	Longest wavelength portion of electromagnetic spectrum. Some classified radar with very long wavelength operate in this region.

The earth's atmosphere absorbs energy in the gamma-ray, X-ray and most of the ultraviolet (UV) region; therefore, these regions are not used for remote sensing. Wavelength regions with high transmission are called atmospheric windows and are used to acquire remote sensing data. Detection and measurement of the recorded energy enables identification of surface objects (by their characteristic wavelength patterns or spectral signatures), both from air-borne and space-borne platforms.

2.3 Scanning System

The sensing device in a remotely placed platform (aircraft/satellite) records EM radiation using a scanning system. In scanning system, a sensor, with a narrow field of view is employed; this sweeps across the terrain to produce an image. The sensor receives electromagnetic energy radiated or reflected from the terrain and converts them into signal that is recorded as numerical data. In a remote sensing satellite, multiple arrays of linear sensors are used, with each array recording simultaneously a separate band of EM energy. The array of sensors employs a spectrometer to disperse the incoming energy into a spectrum. Sensors (or detectors) are positioned to record specific wavelength bands of energy. The information received by the sensor is suitably manipulated and transported back to the ground receiving station. The data are reconstructed on ground into digital images. The digital image data on magnetic/optical media consist of picture elements arranged in regular rows and columns. The position of any picture element, pixel, is determined on a x-y co-ordinate system. Each pixel has a numeric value, called digital number (DN) that records the intensity of electromagnetic energy measured for the ground resolution cell represented by that pixel. The range of digital numbers in an image data is controlled by the radiometric resolution of the satellite's sensor system. The digital image data are further processed to produce master images of the study area. By analysing the digital data/imagery,

digitally/visually, it is possible to detect, identify and classify various objects and phenomenon on the earth surface.

Remote sensing technique (airborne/satellite) in conjunction with traditional techniques harbours in an efficient, speedy, and cost-effective method for natural re-source management due to its inherited capabilities of being multispectral, repetitive, and synoptic areal coverage. Generation of environmental 'Data Base' on land use, soil, forest, surface and subsurface water, topography and terrain characteristics, settlement, and transport network, etc., and their monitoring in near real - time is very useful for environmental management planning; this is possible only with remote sensing data.

2.4 Data Source

- **Primary Data**
  Remote Sensing Satellite data viz. Resourcesat-2A of February 2025 having 5.0 m. spatial resolution was used in the present study.

- **Secondary Data**
  Secondary (ancillary) and ground data constitute important baseline information in remote sensing, as they improve the interpretation accuracy and reliability of remotely sensed data by enabling verification of the interpreted details and by supplementing it with the information that cannot be obtained directly from the remotely sensed data. For Jamadoba colliery, Survey of India toposheet no. 73I/5 (F45C5), 73I/6 (F45C6), 73I/9 (F45C9) & 73I/10 (F45C10) have been utilised for lease as well as Buffer zone of 10 km.

2.5 Characteristics of Satellite/Sensor

The basic properties of a satellite's sensor system can be summarised as:

(a) Spectral coverage/resolution, i.e., band locations/width;

(b) spectral dimensionality: number of bands;

(c) radiometric resolution: quantisation;

(d) spatial resolution/instantaneous field of view or IFOV; and

(e) temporal resolution.

Table 2.2: Table illustrates the basic properties of Resourcesat-2A satellite sensor that was used in the present study.

Table 2.2 Characteristics of the satellite/sensor used in the present project work

Platform	Sensor	Spectral Bands in µm	Radiometric Resolution	Spatial Resolution	Temporal Resolution	Country
Resourcesat-2	LISS-IV	B2 0.52 - 0.59 Green B3 0.62 - 0.68 Red B4 0.77 - 0.86 NIR	16-bit	5.0 m	24 days	India

NIR: Near Infra-Red

2.6 Data Processing

The details of data processing carried out in the present study are shown in Figure 2.4. The processing methodology involves the following major steps:

a) Geometric correction, rectification and geo-referencing
b) Image enhancement
c) Training set selection
d) Signature generation and classification
e) Creation/overlay of vector database
f) Validation of classified image
g) Final thematic map preparation

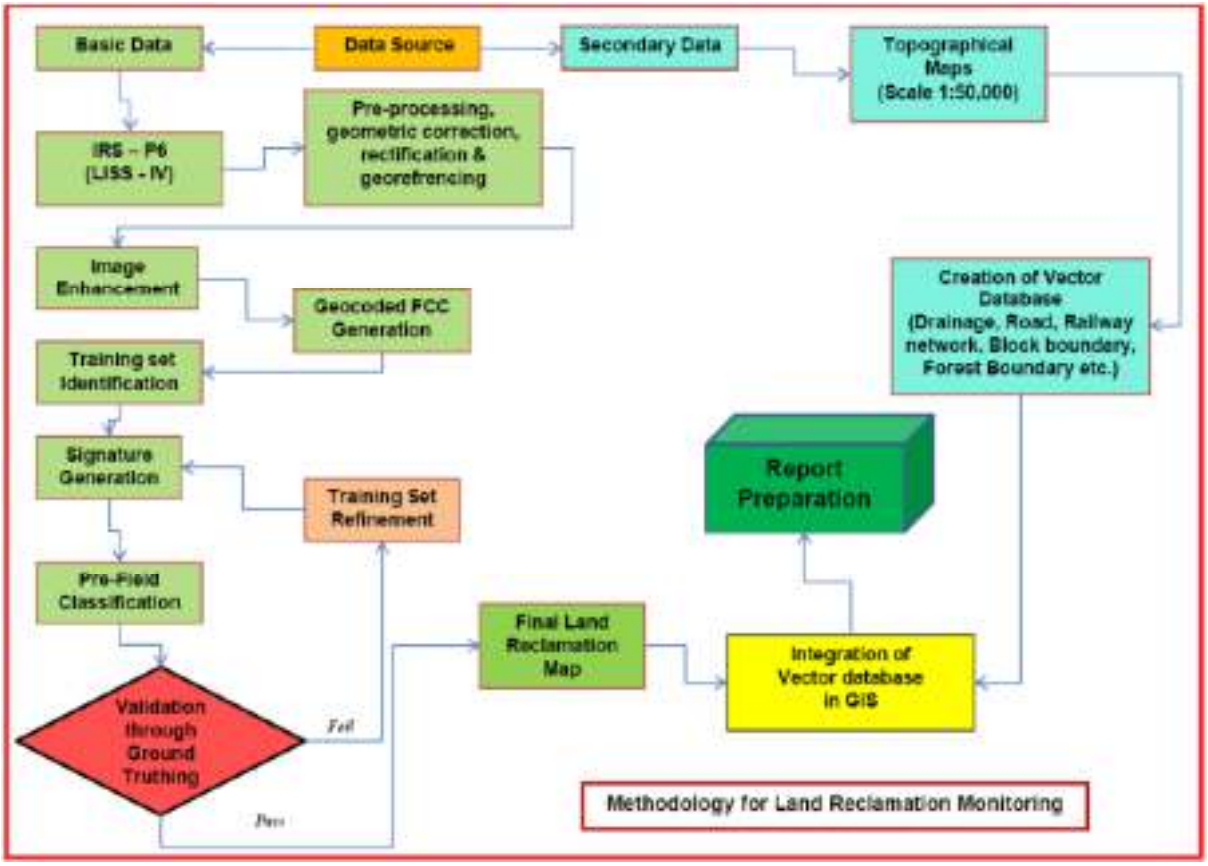

Figure 2.1: Data processing flowchart

2.6.1 Geometric correction, rectification, and geo-referencing

Inaccuracies in digital imagery may occur due to 'systematic errors' attributed to earth curvature and rotation as well as 'non-systematic errors' attributed to intermittent sensor malfunctions, etc. Systematic errors are corrected at the satellite receiving station itself while non-systematic errors/ random errors are corrected in pre-processing stage. In spite of 'System / Bulk correction' carried out at supplier end; some residual errors in respect of attitude attributes remains even after correction. Therefore, fine tuning is required for correcting the image geometrically using ground control points (GCP).

Raw digital images contain geometric distortions, which make them unusable as maps. A map is defined as a flat representation of part of the earth's spheroidal surface that should conform to an internationally accepted type of cartographic projection, so that any measurements made on the map will be accurate with those made on the ground. Any map has two basic characteristics: (a) scale and (b) projection. While scale is the ratio between reduced depiction of geographical features on a map and the

geographical features in the real world, projection is the method of transforming map information from a sphere (round Earth) to a flat (map) sheet. Therefore, it is essential to transform the digital image data from a generic co-ordinate system (i.e., from line and pixel co-ordinates) to a projected co-ordinate system. In the present study georeferencing was done with the help of Survey of India (SoI) topo-sheets so that information from various sources can be compared and integrated on a GIS platform, if required.

An understanding of the basics of projection system is required before selecting any transformation model. While maps are flat surfaces, Earth however is an irregular sphere, slightly flattened at the poles and bulging at the Equator. Map projections are systemic methods for "flattening the orange peel" in measurable ways. When transferring the Earth and its irregularities onto the plane surface of a map, the following three factors are involved: (a) geoid (b) ellipsoid and (c) projection. Figure 2.5 illustrates the relationship between these three factors. The geoid is the rendition of the irregular spheroidal shape of the Earth; here the variations in gravity are considered. The observation made on the geoid is then transferred to a regular geometric reference surface, the ellipsoid. Finally, the geographical relationships of the ellipsoid (in 3-D form) are transformed into the 2-D plane of a map by a transformation process called map projection. As shown in the Figure 2.5 most projections are based upon cones, cylinders and planes.

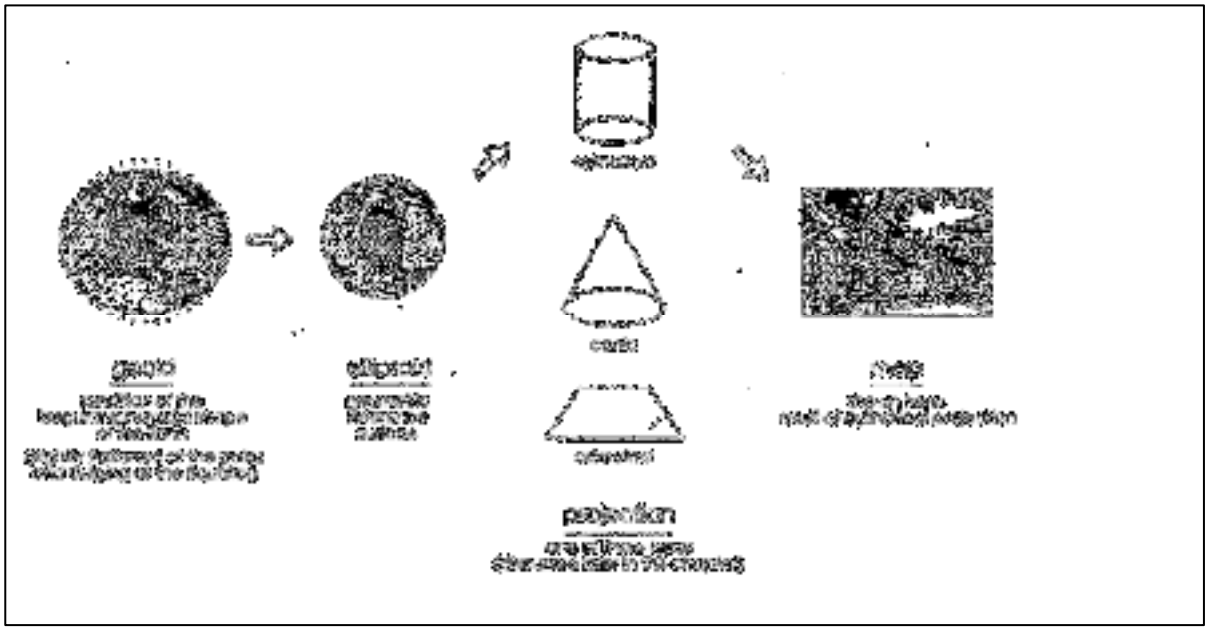

Figure 2.1: Geoid – Ellipsoid – Projection Relationship

In the present study, *UTM projection* along with *WGS 1984 Coordinate system* was used to prepare the map compatible with the SoI topo-sheets. Maps prepared using these projections are a compromise of many properties; it is neither conformal perspective nor equal area. Distances, areas, and shapes are true only along central meridian. Distortion increases away from central meridian. Image transformation from generic co-ordinate system to a projected co-ordinate system was carried out using IMAGINE v.2022 digital image processing system.

2.6.2 Image enhancement

To improve the interpretability of the raw data, image enhancement is necessary. Most of the digital image enhancement techniques are categorised as either point or local operations. Point operations modify the value of each pixel in the image data independently. However, local operations modify the value of each pixel based on brightness value of neighbouring pixels. Contrast manipulations/ stretching technique based on local operation was applied on the image data using IMAGINE s/w.

Training set selection

The image data were analysed based on the interpretation keys. These keys are evolved from certain fundamental image-elements such as tone/colour, size, shape, texture, pattern, location, association and shadow. Based on the image-elements and other geo-technical elements like landform, drainage pattern and physiography; training sets were selected/identified for each land use/cover class. Field survey was carried out by taking selective traverses to collect the ground information (or reference data) so that training sets are selected accurately in the image. This was intended to serve as an aid for classification. Based on the variability of land use/cover condition and terrain characteristics and accessibility, nearly 150 points were selected to generate the training sets.

2.6.3 Signature generation and classification

Image classification was carried out using the maximum likelihood algorithm. The classification proceeds through the following steps:

- Calculation of statistics [i.e., signature generation] for the identified training areas, and
- The decision boundary of maximum probability based on the mean vector, variance, covariance and correlation matrix of the pixels.

After evaluating the statistical parameters of the training sets, reliability test of training sets was conducted by measuring the statistical separation between the classes that resulted from computing divergence matrix. The overall accuracy of the classification was finally assessed with reference to ground truth data. The aerial extent of each land use class in the coalfield was determined using ERDAS IMAGINE s/w. The Land use / Land Cover map of core zone and buffer zone of Jamadoba Colliery for the year 2025 for are shown in Figure no. 3.1 and 3.5 respectively.

2.6.4 Creation/overlay of vector database

Plan showing coal block boundary are superimposed on the image as vector layer in the Arc GIS database. Road network, rail network and drainage network are also digitised on Arc GIS database and superimposed on the classified image.

2.6.5 Final land use/land cover map preparation

Final land use/land cover map of core zone and buffer zone of Jamadoba Colliery was printed using HP Design jet 4500 Colour Plotter. The maps are prepared on 1:5000 scale but plotted on scale “Fit to A3 Size”.

3. Detailed Land Use and Land Cover estimation of Jamadoba Collieries:

3.1 Introduction:

It is expected that by understanding the spatial phenomenon of Land Use-Land Cover (LULC) and developing and applying techniques to detect and predict changes in LULC using remote sensing and GIS, it will be possible to reduce the misallocation of resources and mismanagement of land use in the study area. It is anticipated that this study will be great assistance in formulation of polices that will help in improving land use planning and land resources management in study area. It is being carried out reveal how much of a region is covered by forests, wetlands, impervious surfaces, agriculture, and other land and water types. As explained above, Land use and land cover map of Jamadoba Colliery comprises of Jamadoba mining lease area including Jamadoba Coal washery of Tata Steel Limited in Jharkhand state. The detailed objectives of this study area are as follows:

1) Preparation of land use land cover classification report with likely land uses such as -
   - Agriculture;
   - Forest;
   - Mining/ Built-up area:
   - Wasteland with and without vegetation,
   - Waterlogged (inland wetland));
   - Habitation (Urban area delineation with approx. buffer zone) and water body (including rivers and streams), roads and other distinctly visible feature classes if any.
2) To detect and determine land use-land cover change dynamics using remote sensing techniques by preparation of time series land use map.
3) To analyze the spatial dimension of LULC change dynamics associated with demographic pressure, economic and physical environment.
4) Generation of shape files of all units for submission.
5) To comply specific condition no. 26 of EC conditions that states “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 to MoEF and its concerned Regional office.

The broad classification alongwith the description is given in Table 3.1, as per the of framework of Land Use Land Cover by NRSC/ ISRO. The areas under each of these classes shall be estimated on the basis of the pixel grid cell process in Erdas Imagine software following the rules of NRSC/ISRO Land Use and Cover Monitoring.

Table 3.1: Descriptions of land use and land cover classes (Source- NRSC/ISRO)

Sl. No.	Description - 1	Description - 2	Remarks
1	Built-up area	Urban	Residential, mixed built up, Public / Semi Public, Communication, Public utilities /facility, Commercial, Transportation, Reclaimed land, Vegetated Area, Recreational, Industrial, Industrial / Mine dump, Ash/ Cooling pond.
		Rural	Rural
		Mining	Mine / Quarry, Abandoned Mine Pit, Land fill area

Sl. No.	Description - 1	Description - 2	Remarks
2	Agriculture land	Crop land	Kharif, Rabi, Zaid, Two cropped, More than two cropped
		Plantation	Plantation-Agricultural, Horticultural, Agro Horticultural.
		Fallow	Current and Long Fallow
		Current Shifting Cultivation	Current Shifting cultivation.
3	Forest Land	Evergreen/Semi evergreen	Dense / Closed and Open category of Evergreen / Semi evergreen.
		Deciduous	Dense / Closed and Open category of Deciduous and Tree Clad Area.
		Forest Plantation	Forest Plantation
		Scrub Forest	Scrub Forest, Forest Blank, Current & Abandoned Shifting Cultivation.
		Swamp/Mangroves	Dense / Closed & Open Mangrove
4	Grass/ grazing	Grass/ grazing	Grassland: Alpine / Sub-Alpine, Temperate / Sub tropical, Tropical / Desertic
5	Barren/ uncultivable/ Waste land	Salt affected land	Slight, Moderate & Strong Salt Affected Land
		Scrub land	Dense. Closed and Open category of scrub land
		Sandy area	Desertic, Coastal, Riverine sandy area.
		Barren rocky	Barren rocky
		Rann	Rann
6	Wetlands/ Water bodies	Inland wetland	Inland Natural and Inland Manmade wetland
		Coastal wetland	Coastal Natural and Coastal Manmade wetland
		River / Stream / canals	Perennial & Dry River/stream and line & unlined canal/ drain
		Water bodies	Perennial, Dry, Kharif, Rabi &Zaid extent of lake/pond and reservoir and tanks

Definitions of all the major classes are mentioned below:

- **Built-up land**:

  It is an area of human habitation developed due to non-agricultural use and that has a cover of buildings, transport and communication, utilities in association with water, vegetation and vacant land. LULC map consists of 3 classes under built-up viz., urban, rural and mining.

- **Agricultural land**:

  These are the lands primarily used for farming and for production of food, fiber, and other commercial and horticultural crops. Agricultural Land may be defined broadly as land used primarily for production of food and fiber. These are the areas with standing crop as on the date of Satellite overpass. Cropped areas appear in bright red to red in colour with varying shape and size in a contiguous to non-contiguous pattern. They are widely distributed indifferent terrains; prominently appear in the irrigated are as irrespective of the source of irrigation. It includes Kharif, Rabi and Zaid croplands along with areas under double or triple crops.

- **Forest**:

  The term forest is used to refer to land with a tree canopy cover of more than 10 percent and area of more than 0.5 ha. Forests are determined by both the presence of trees and the absence of other predominant land uses. The trees should be able to reach a minimum height of 5 m. The two categories i.e., open forest and dense forest is predominant in Jamadoba Colliery.

- **Wetland**:

  Wetlands are those areas where the water table is at, near, or above the land surface for a significant part of most years. The hydrologic regime is such that aquatic or hydrophyte vegetation usually is established, although alluvial and tidal flats may be no vegetated. Wastelands frequently are associated and topographic lows, even in mountainous regions.

- **Water body**:

  This category comprises areas with surface water in the form of ponds, river, lakes, tanks and reservoirs. Rivers/streams are natural course of water flowing on the land surface along a definite channel/slope regularly or intermittently towards a sea in most cases or into a lake or an inland basin in desert areas or a marsh or another river. Canals are artificial watercourse constructed for irrigation, navigation or to drain out excess water from agricultural lands.

3.2 Land use and Land cover mapping of Jamadoba Colliery:

Land use and land cover mapping for the year 2025 -

The Jamadoba colliery (927.17 ha) was classified for land use and land cover mapping by using supervised classification technique. Six classes are identified over the study area namely built-up (195.378 ha), mining (65.633 ha), grazing/scrub land (25.143 ha), agricultural land (469.857 ha), water body (86.425 ha) and barren land/waste land (74.884 ha) shown in Figure 3.1 below.

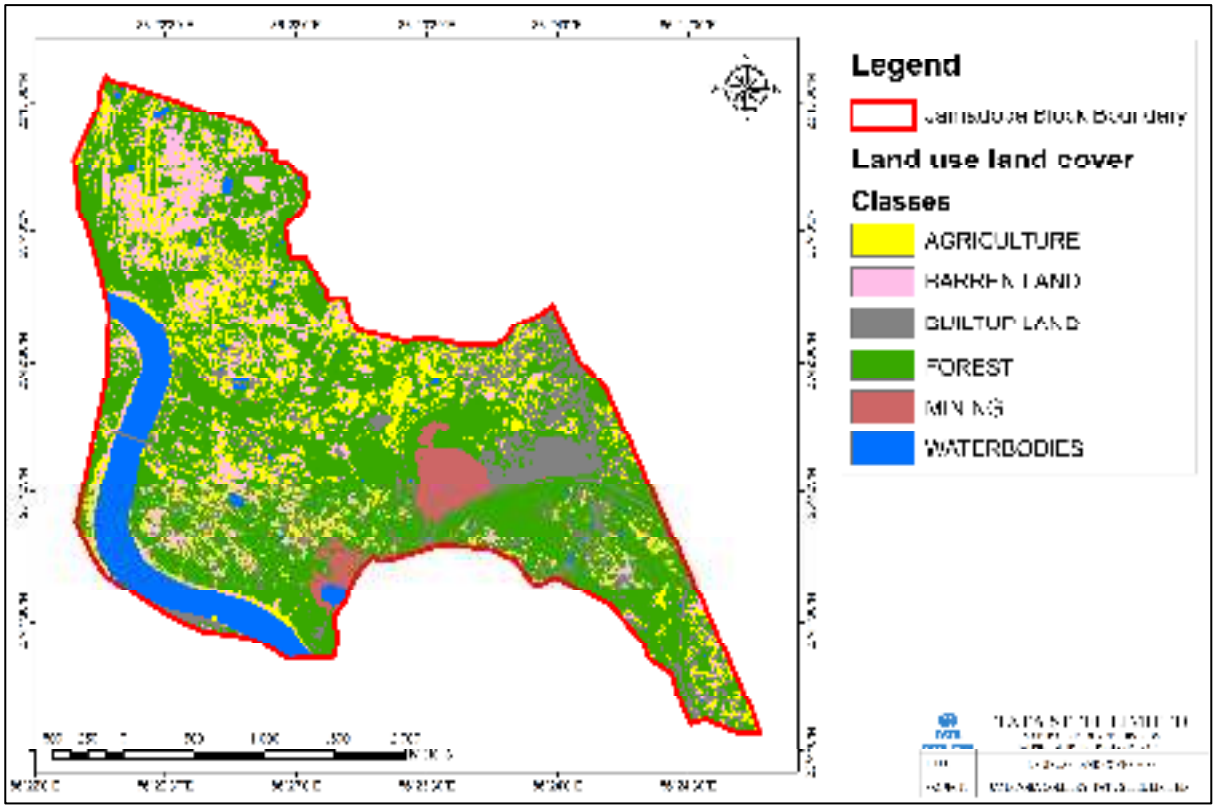

Figure 3.1: LULC map of Jamadoba Colliery including Jamadoba Washery in year 2025

Table 3.2: Assessment of Land use/Land cover of Jamadoba colliery on yearly basis

Sl. no.	Description	Year – 2018*	Year – 2021*	Year - 2025
1	Built-up land	204.200	205.166	195.378
2	Built-up Mining land	65.633	65.633	65.633
3	Dense forest	0.000	0.000	0.000
4	Grazing/Scrub land	37.743	24.677	25.143
5	Agriculture land	404.204	450.874	469.857
6	Agricultural Fallow land	18.581	8.812	9.850
7	Water Body/ River	81.120	81.120	86.425
8	Barren land/waste land	115.689	90.888	74.884
Total		**927.17**	**927.17**	**927.17**

*Study report prepared by Indian Institute of Technology - ISM in March'2021

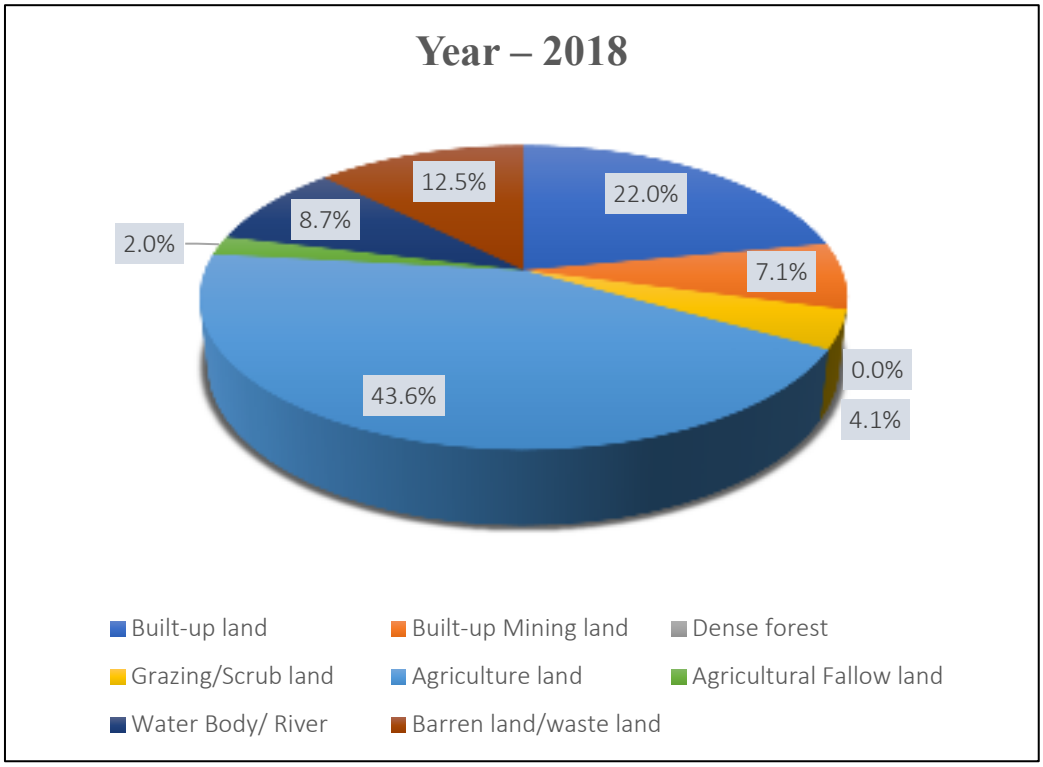

Figure 3.2: LULC distribution of Jamadoba colliery (Year 2018)

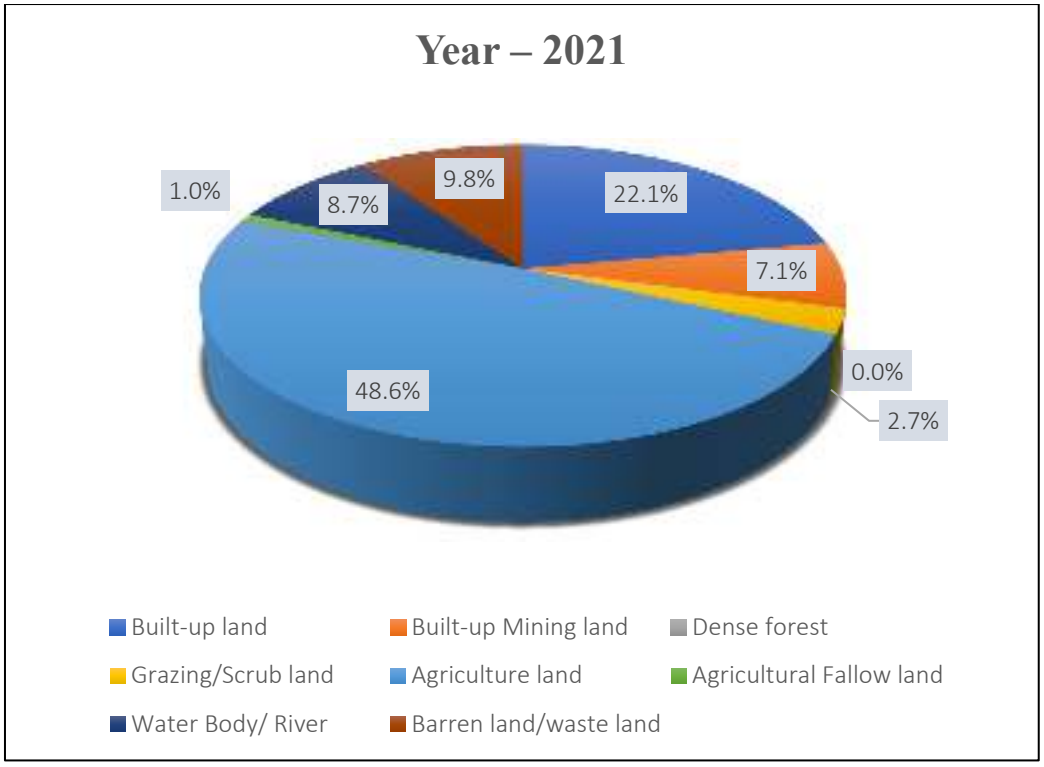

Figure 3.3: LULC distribution of Jamadoba colliery (Year 2021)

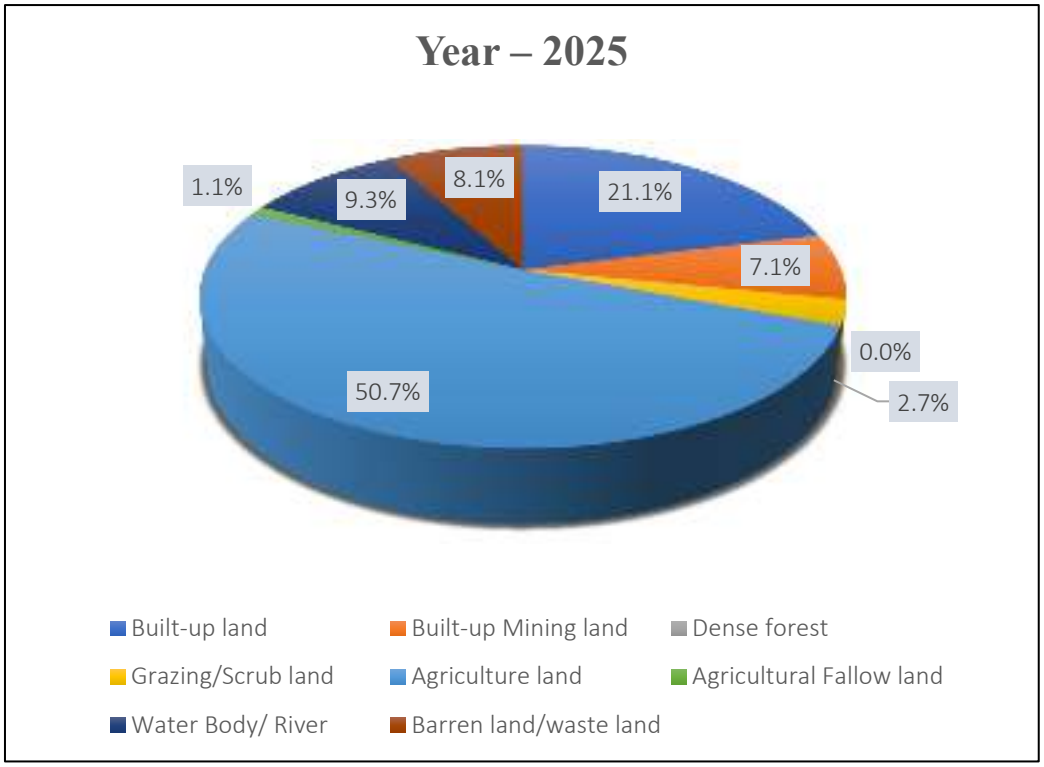

Figure 2.1: LULC distribution of Jamadoba colliery (Year 2025)

3.3 Land use and Land cover mapping of Jamadoba colliery with 10 km buffer zone:

Land use and land cover map for the year 2025 –
The Jamadoba colliery with 10 km buffer zone (47358.068 ha) was classified for land use and land cover mapping by using supervised classification technique. Nine classes are identified over the study area namely built-up (7655.100 ha), mining (4256.855 ha), dense forest (6700.195 ha), open forest (2328.085 ha), grazing/scrub land (1417.223 ha), agricultural land (15125.053 ha), agricultural fallow land (3504.380 ha), water body (1019.935 ha) and barren land/waste land (5351.243 ha). The land use/ land cover map of Jamadoba colliery with 10KM buffer zone is shown in Figure-3.5.

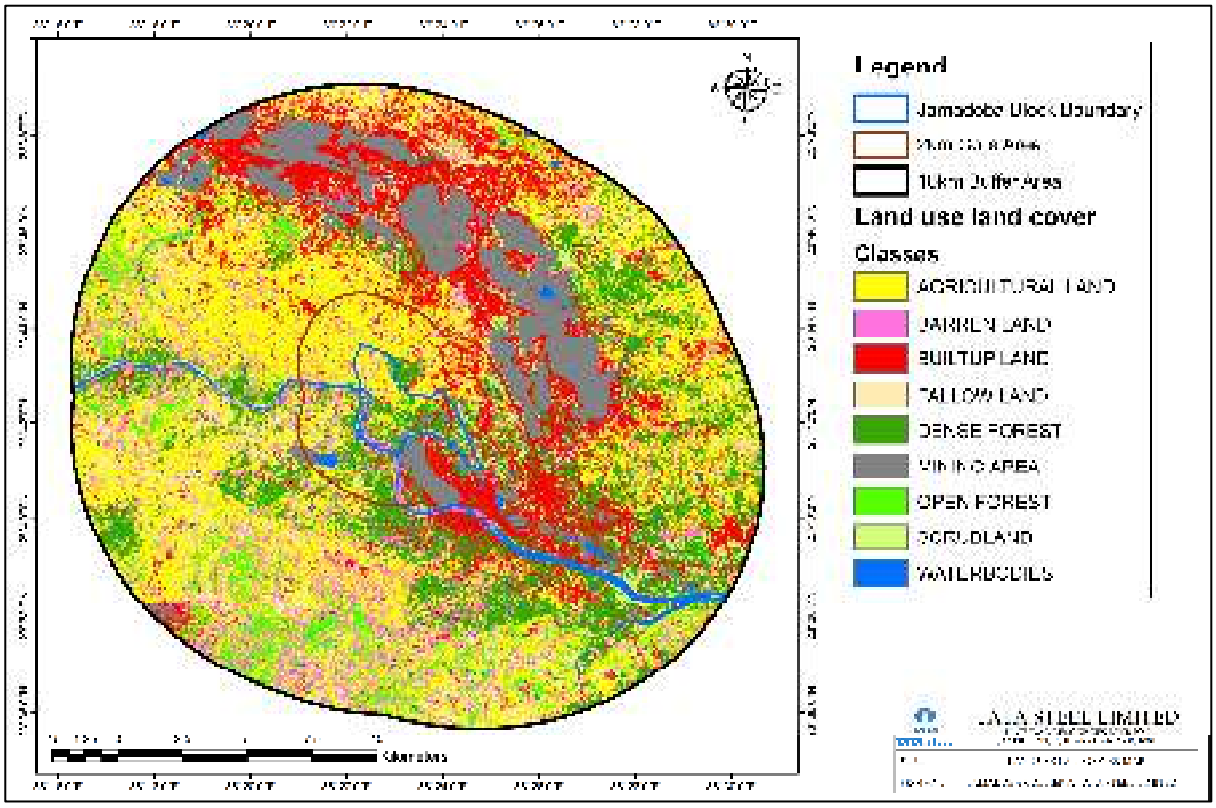

Figure 2.1: LULC map of Jamadoba colliery including Jamadoba Washery with 10km buffer zone in year 2025

Table 3.3: Assessment of Land use/Land cover with the Buffer Zone of Jamadoba colliery on yearly basis

Sl. no.	Description	Year – 2018*	Year – 2021*	Year - 2025
1	Built-up land	9899.919	9955.544	7655.100
2	Built-up Mining land	4526.092	4513.832	4256.855
3	Dense forest	1259.534	1227.004	6700.195
4	Open forest	568.416	564.446	2328.085
5	Grazing/Scrub land	37.743	44.767	1417.2225
6	Agriculture land	23130.762	23033.217	15125.053
7	Agricultural fallow land	1477.343	1533.789	3504.380
8	Water Body/ River	1249.206	1257.946	1019.935
9	Barren land/waste land	5206.498	5224.968	5351.2425
Total		**47355.513**	**47355.513**	**47358.068**

*Study report prepared by Indian Institute of Technology - ISM in March'2021

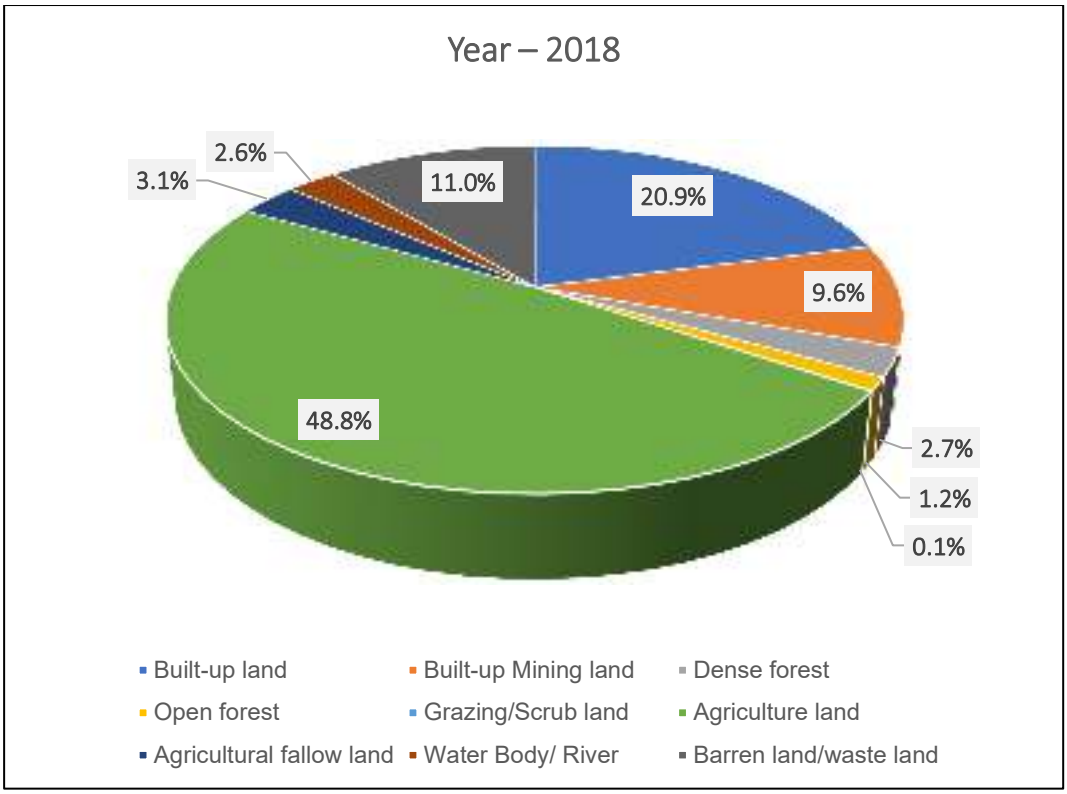

Figure 2.1: LULC distribution of Buffer Zone of Jamadoba colliery (Year 2018)

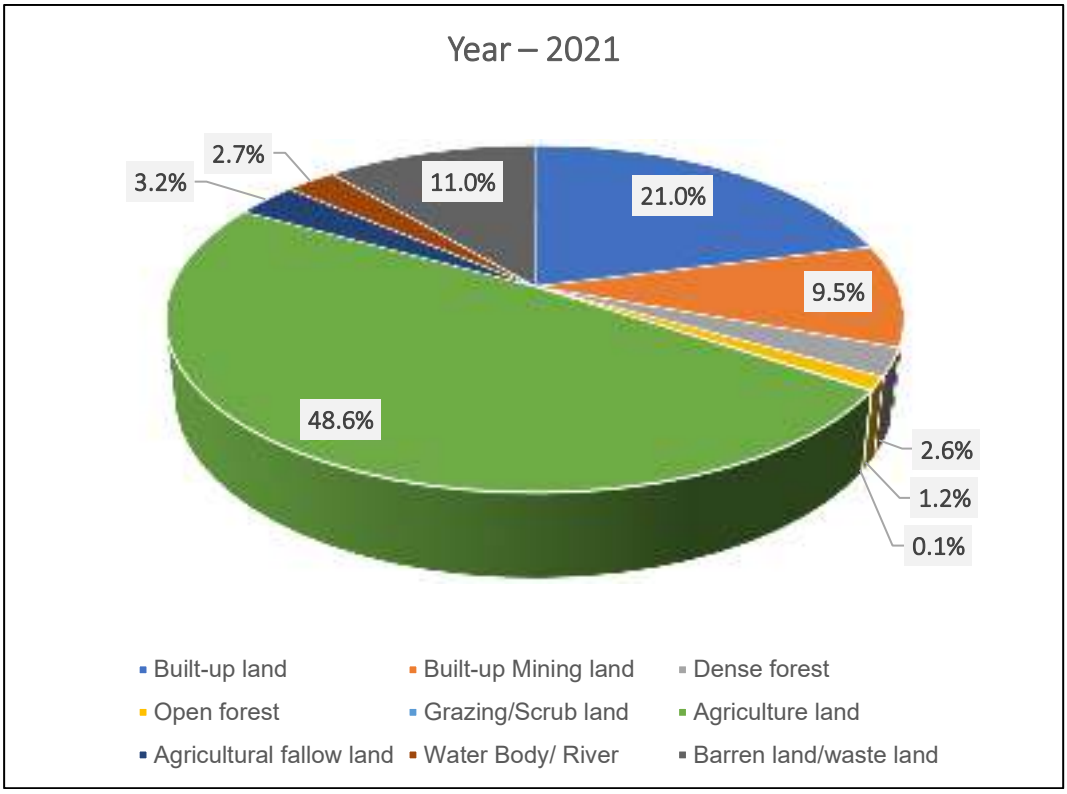

Figure 2.1: LULC distribution of Buffer Zone of Jamadoba colliery (Year 2021)

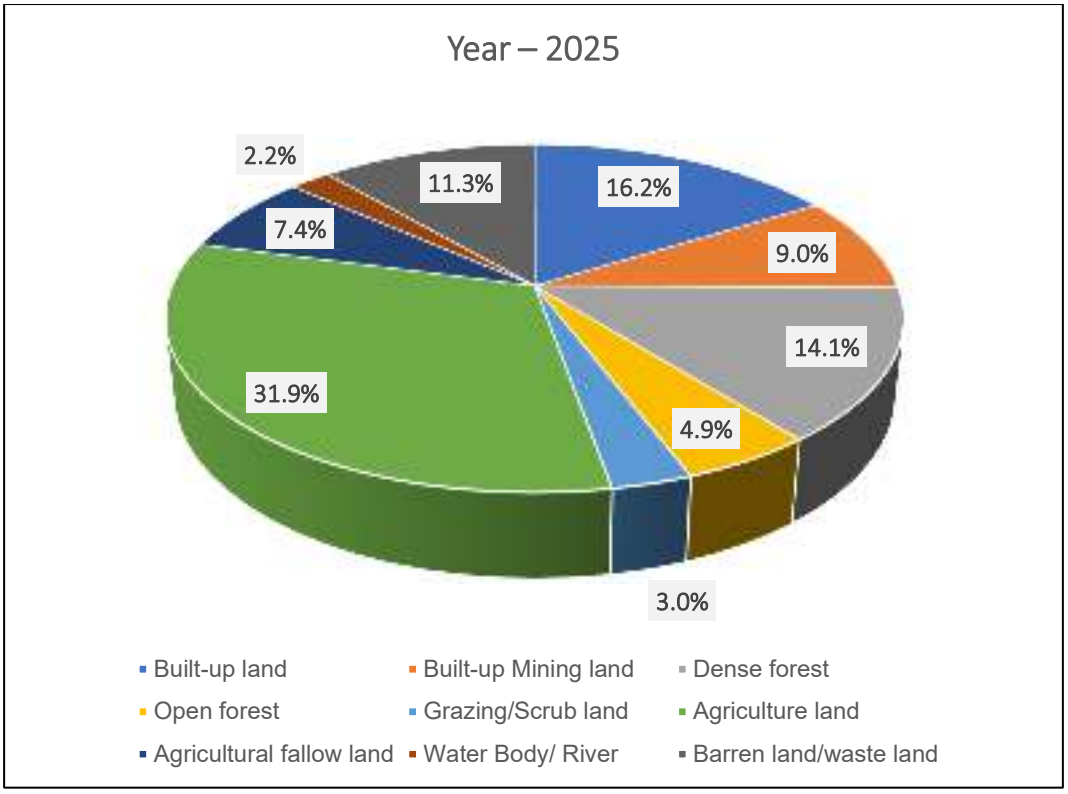

Figure 2.1: LULC distribution of Buffer Zone of Jamadoba colliery (Year 2025)

3.4 Change Detection:

In the core zone of Jamadoba collieries overall built-up area is reduced from 205.166 Ha to 195.378 Ha. No change on Built-up area of Mining land is observed. Small amount of enhancement over grazing land has observed from 24.677 Ha to 25.143 Ha. Agricultural land is also observed to be increased from 450.874 Ha to 469.857 Ha. Increase over waterbody area is observed from 81.120 ha to 86.425 ha. Reduction in Barren/ Waste land is observed from 90.888 Ha to 74.884 Ha.

In the buffer zone of Jamadoba collieries Built-up land is observed to be reduced from 9955.5 Ha to 7655.1 Ha; Mining built-up area has been reduced from 4513.83 Ha to 4256.85 Ha; Dense forest has been increased from 1227.0 Ha to 6700.19 Ha; Open forest also has been increased significantly from 564.44 Ha to 2328.08 Ha; Grazing/ Scrub land increased from 44.76 Ha to 1417.22 Ha; Agricultural land has been reduced from 23033.217 Ha to 15125.05 Ha; Small amount of reduction over water-bodies is observed from 1257.94 Ha to 1019.935 Ha and meagre enhancement over barren land is observed from 5224.96 Ha to 5351.24 Ha.

4. Conclusions:

- In the present study, land use/ vegetation cover mapping has been carried out based on Resourcesat 2A satellite sensor data of February'2025 in order to monitor the impact of coal mining on land environment which may help in formulating the mitigation measures required, if any.
- Technical limitation of the analysis process lies with the resolution of the Satellite image which is usually available at 5m resolution. Therefore, sometimes it is difficult to assess the land classification remotely in case of Agricultural land with low vegetation Scrub land or Barren land through False Colour Composite (FCC) of remote sensing.

PH ACTION PLAN

Annexure - IV

Issues raised by Public	Commitment by the Proponent/ Action Plan	Timeline	Financial provisions	Status
Tree Plantation and increase in green cover .	We will ensure maximum tree plantation and its care. Saplings will be made available for planting in available lands in nearby villages.	Continuous	10 lakhs per annum	Ongoing as per the commitment
Measures for controlling underground mine temperature and dust	Underground mine is regularly and continuously ventilated. Sufficient water is sprinkled at underground mine. Transportation of coal will be done through underground conveyor belt. Apart from this, temperature, dust and other parameters are regularly being checked in suitable periodicals and these are kept in controlling with in the specified standards.	Continuous	4.09 Crores per annum (for operation and maintenance)	Completed. Mines operation has been suspended since January 2024.
Water sprinkling arrangements to check dust pollution.	Regular water sprinkling is done on approach roads , village roads etc to check air pollution and this shall be increased as per requirement. Further, avenue plantation shall be enhanced.	Continuous	7.20 Lakhs per annum	Ongoing as per the commitment
Solid Waste Management (Domestic Waste)	A dedicated work contract is there to take care of the solid waste generated from domestic sources, horticultural wastes etc. Solid waste is disposed as per the provisions of Solid Waste Management Rules, 2016.	Continuous	11.76 lakhs per annum	Ongoing as per the commitment
Mine Water Management	Mine water after proper sedimentation in the water reservoirs are provided to the villages for irrigation and other purposes. For this TATA Steel Rural Development Society (TSRDS) has constructed irrigation channels.	FY 21-22 (Patiya) FY22-23 (Lower Dungri)	Irrigation channels at Patiya (100m) and Lower Dungri (125 m)- 4.50 lakhs	Completed

PH ACTION PLAN

Issues raised by Public	Commitment by the Proponent/ Action Plan	Timeline	Financial provisions	Status
Provision of employment to local people & contractors	Local people are given jobs as per the rules and regulations of the Company. Apart from this, young local people are associated with employment opportunities through various programmes for their skill development. • Coordinating and facilitating for attending the Govt. assistance programmes for youths (30-40persons/year) such as Chef training, training on hospitality management etc • TATA Vocational Training Institute(JNTVTI) is in already operation in Jharia for Industrial Training. • Training in fishery is being imparted to those people who are involved in fishery.	Continuous	1 Lakh per annum for facilitation cost	Ongoing as per the commitment. Skill development training has been started in collaboration with NIIT foundation covering 300 youths annually – 7.5 lakhs is ongoing since FY 20-21 onwards till today
Provision of basic amenities like drinking water, free electricity	The mine water is treated and converted into drinking water and supplied to the colonies through pipe line. Around 5700 meter pipe line was laid in the last 5 years, for supplying water through Tata Steel Rural Development Society (TSRDS). Around, 1500 houses are linked through this. Extension of 160 m pipe line to Niche Tola , Jhajtand shall be done • Electricity works will be taken up with the help of Jharkand State Electricity Board (JSEB). Infrastructural support for rural electrification (poles and wires) shall be provided in Petiya area	FY 21-22	Extension of pipeline - 2.5 lakhs Infrastructural support for rural electrification– 1.5 lakhs	Commitment fulfilled. FY 21-22 Extension of pipeline (775 m) to Niche Tola, Jahajtand- 3.3 lakhs. Infrastructural support provided for rural electrification at Petiya and Lahargora and with support of JSEB– 1.56 lakhs.
Provision for education of children from poorer families, assistance in providing books and study materials	Company extends co-operation for the education of children of poorest families. Every year around 3000 poorest family children are given pre-matric coaching in the field of education. Apart from this, 240 children are given Jyothi Fellowship every year, along with providing text books and note books.	Continuous	12.00 Lakhs	Ongoing as per the commitment. Pre matriculation coaching and jyoti fellowship for needy students- 25.00 laks every year from (FY20-21 to FY 24-25)
Assistance to SHGs	Self help groups have been formed for needy women groups and free training is being imparted for employment. Women groups will be connected with Government programmes like National Rural Livelihood Mission (NRLM) and National Urban livelihood Mission (NULM) so that they can get more assistance. Trainings were imparted on mushroom cultivation, vegetable cultivation etc 4 batches of 50 women each are imparted training every year	Continuous	Mushroom cultivation-0.5 lakhs	Ongoing as per the commitment .

PH ACTION PLAN

Issues raised by Public	Commitment by the Proponent/ Action Plan	Timeline	Financial provisions	Status
Construction of village roads	Company constructed 4367 mtr PCC road, 593 metre Paber Block road, and 680 mtr., Bitumen Road in the last 5 years. These type of constructions will be continued in future also.	FY 22-23	Construction of 100 meter approach road at Patiya basti- 3.00 Lakhs	Commitment fulfilled. Approach road 75.50 Mtr. Aam Tola Patia and 556 Mtr. At Suyankanali has been completed.
Construction of new ponds, bathing ghats and renovation of old ponds	Around 28 ponds for rain water harvesting have been constructed during the last 5 years and new ponds shall be constructed in villages • Every year cleaning of ponds is being taken up under planned programme. • Company has constructed 15 Ghatts during the last 5 years and two new ghats shall be developed at Petiya and Lahargora	FY 21-22 Continuous FY 20-21 FY21-22	New pond-4.00 Lakh Cleaning of old ponds -1.5 Lakh/annum Bathing ghat at Petiya-0.5 Lakh Bathing ghat at Lahargora-0.5 Lakh	Completed as per the commitment made. Construction and renovation of pond is taken up every year in the nearby villages.
Sports and extra curricular activities	Training is provided for football, archery and athletics. Dedicated coaches are available to train the children. • Sports equipment along with nutritious supplement/snacks are also provided to children. • Regular events are organized to create awareness on the fitness and coordination is also done for participants in state and national levels	Continuous	10 Lakhs per Annum	Ongoing as per the commitment
Provision of Medical facility to villagers	Company is operating a Mobile Medical Unit. (MMU) to meet the medical requirements in surrounding villages. This will be more expanded. Other medical services are also provided such as SPARSH (leprosy treatment) and related illness. Further every year cataract camps are organized and nearly 300 patients are treated for cataract	Continuous	12 Lakhs/annum-MMU 24 Lakhs/annum-SPARSH 18 lakhs/annum-Cataract treatment	Ongoing as per the commitment