

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

Ref No. - JMB/ENV/ JCPP/38/255/2025. May 28<sup>th</sup>, 2025

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

# SUB: Half Yearly Compliance Status Report of Environment Clearance conditions issued by MoEFCC, New Delhi to Jamadoba Coal washery, Tata Steel Limited, Dhanbad for the period October-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-11015/203/2011-IA.II(M) dated-3<sup>rd</sup> March 2014 issued by Ministry of Environment, Forest and Climate Change, New Delhi.

We trust the information furnished is in line with your requirement.

Thanking you,

Yours faithfully,

Head (Planning) Jharia Division, Tata Steel Ltd.

Encl: As above.

- Copy to: Member Secretary, CPCB, Eastern Zonal Office, Southend Conclave, 502, 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/7813/2012		
Compliance ID	128011522		
Compliance Number(For Tracking)	EC/M/COMPLIANCE/128011522/2025		
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		
Notes CMC and C Mail has been cont to Chai Conthil Kunsa			

Note:- SMS and E-Mail has been sent to Shri Senthil Kumar Sampath, JHARKHAND with Notification to Project Proponent.

	2 01 Jun(01 (	ompliance Report 025 Oct - 31 Mar) ledgement			
Proposal Name		MTPA in 7 ha Area and 24 30 <b>�</b> N & 87 <b>�</b> 25 <b>�</b> 00	oal washery (1 MTPA to 2 4� 31� 30� to 24� 32� � to 87� 30� 00� E) of sil Jharia, dist. Dhanbad,		
Name of Entity / Corporat	Name of Entity / Corporate Office		Tata Steel Ltd.		
Village(s)		N/A			
District		DHANBAD			
Proposal No.	IA/JH/CMIN/7813/2012	Category	Coal Mining		
Plot / Survey / Khasra No.	N/A	Sub-District	N/A		
State	JHARKHAND	Entity's PAN	****2803M		
MoEF File No.	J-11015/203/2011- IA.II(M)	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
<b>Reporting Period</b>	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	07	7
Total	7	7

#### **Production Capacity**

Sr. no	Product Name	units	Valid Upto	Capacity	Production last year	Capacity as per CTO
1	Raw Coal	Million Tons per Annum (MTPA)	N/A	2	0.06	
Condit	ions					
ecific (	Conditions					
Sr.No.	Condition T	ype	Condition D	etails		
1	LAND RECI	AMATION			implemented for abar the original land use	
Action tailing		blied tailing ponds from eclaimed by backfil				Date: 30/05/2025
2	E WASTE MANAGEMENT WASTE MANAGEMENT WASTE MANAGEMENT Fly ash generated from the captive power plant of th utilized for house construction, roads and such uses, s complying to the timeline in the EIA Notification, 200 maintaining proper records.					trictly
		blied we have ceased the o	operation of our ca	nptive Jamadoba p	ower plant since	Date: 26/05/2025
3	WASTE MA	NAGEMENT	Transportatio covered trucks		done properly by me	chanically
	Submission: Comp not applicable as t	blied here is no fly ash be	eing generated sind	ce April-2015.		Date: 26/05/2025
4	Corporate En Responsibility	vironmental	over 30 village		ne activities undertak area over 15000 hou .4 lakh.	
<b>PPs Submission:</b> Complied CSR activities of TSRDS are managed by a team of experts who are dedicatedly involved in providing benefits and improving standard of living in over 30 villages. The list of activities are developed in consultation with the village representatives and implemented in a time-bound manner.						Date: 26/05/2025
5	Corporate En Responsibility	vironmental		t should be Rs 5 p sted as per the anr	per Tonnes of Coal proual inflation.	oduced which
The pro Once the implement	ne CSR budget for	blied diture for the entire company is fixed, a tivities at our Jharia	a share of that amo	ount is dedicated a	nd utilized for	Date: 26/05/2025
6	Corporate En Responsibility	vironmental	less than Rs. 50 costs incurred	03.00 lakhs. The s shall be regularly ional Office in the	tal protection measure tatus of implementation reported to this Minister region as part of the	ion including stry and its

The reg MoEF		ment protection and management are submitted to Statement and the status is uploaded on company S.	Date: 26/05/2025
7	GREENBELT	The slope of the embankment towards the river sh for stability and shall be stabilized with plantation u species selected from the study area	
	Submission: Complied ashery is about 1.5 kms away from the	Damodar River. Hence it is not applicable.	Date: 26/05/2025
8	GREENBELT	Top soil shall be stored in the earmarked area and year of its generation for green belt development and plantation/reclamation.	
	Submission: Complied are no topsoil dumps hence it is not app	plicable.	Date: 26/05/2025
9	MINING PLAN	No external OB dump shall be created for the expa Monitoring and management of existing reclaimed of continue until the vegetation becomes self-sustaining status shall be submitted to the Ministry of Environm and its respective Regional Office on yearly basis.	lumpsites shall g. Compliance
	Submission: Complied plicable as this is a washery project.		Date: 26/05/2025
10	MINING PLAN	Catch drains and siltation ponds of appropriate siz constructed to arrest silt and sediment flows from so mineral dumps. The water so collected shall be utilis the mine area, roads, green belt development, etc. The regularly desilted and maintained properly.	il, OB and sed for watering
<b>PPs</b> S There a	Submission: Complied	<ul><li>constructed to arrest silt and sediment flows from so mineral dumps. The water so collected shall be utilis the mine area, roads, green belt development, etc. The regularly desilted and maintained properly.</li><li>y premises. Only the by-products are stored in the</li></ul>	vil, OB and sed for watering he drains shall b Date:
There a	Submission: Complied are no soil or OB dumps in the washery	<ul><li>constructed to arrest silt and sediment flows from so mineral dumps. The water so collected shall be utilis the mine area, roads, green belt development, etc. The regularly desilted and maintained properly.</li><li>y premises. Only the by-products are stored in the</li></ul>	bil, OB and sed for watering he drains shall b Date: 26/05/2025 ap capacity shall ove the peak adjoining the
PPs S There a stockya 11 PPs S Garlan	Submission: Complied are no soil or OB dumps in the washer ards located in the washery premises w Risk Mitigation and Disaster Management Submission: Complied d drains of adequate size and gradient	<ul> <li>constructed to arrest silt and sediment flows from so mineral dumps. The water so collected shall be utilise the mine area, roads, green belt development, etc. The regularly desilted and maintained properly.</li> <li>y premises. Only the by-products are stored in the which are sold off within a week.</li> <li>Garland drains (size, gradient and length) and sum be designed keeping 50% safety margin over and ab sudden rainfall and maximum discharge in the area a mine site. Sump capacity shall also provide adequated and sum and the sum of the sum of</li></ul>	bil, OB and sed for watering he drains shall b Date: 26/05/2025 ove the peak adjoining the e retention period
PPs S There a stockya 11 PPs S Garlan	Submission: Complied are no soil or OB dumps in the washer ards located in the washery premises w Risk Mitigation and Disaster Management Submission: Complied d drains of adequate size and gradient	<ul> <li>constructed to arrest silt and sediment flows from so mineral dumps. The water so collected shall be utilise the mine area, roads, green belt development, etc. The regularly desilted and maintained properly.</li> <li>y premises. Only the by-products are stored in the which are sold off within a week.</li> <li>Garland drains (size, gradient and length) and sum be designed keeping 50% safety margin over and ab sudden rainfall and maximum discharge in the area are mine site. Sump capacity shall also provide adequate to allow proper settling of silt material.</li> </ul>	bil, OB and sed for watering he drains shall b Date: 26/05/2025 p capacity shall ove the peak adjoining the e retention period Date: 26/05/2025 Date: 26/05/2025
PPs \$ There a stockya 11 PPs \$ Garlan surface 12 PPs \$	Submission: Complied are no soil or OB dumps in the washery ards located in the washery premises w Risk Mitigation and Disaster Management Submission: Complied d drains of adequate size and gradient e runoff. The runoff is diverted to the ta Risk Mitigation and Disaster	<ul> <li>constructed to arrest silt and sediment flows from some mineral dumps. The water so collected shall be utilise the mine area, roads, green belt development, etc. The regularly desilted and maintained properly.</li> <li>y premises. Only the by-products are stored in the which are sold off within a week.</li> <li>Garland drains (size, gradient and length) and sum be designed keeping 50% safety margin over and ab sudden rainfall and maximum discharge in the area are mine site. Sump capacity shall also provide adequate to allow proper settling of silt material.</li> <li>already exist around the washery area to channelize the ailing ponds and clear water is utilized in the washery.</li> <li>Dimension of the retaining wall at the toe of the debenches within the mine to check run-off and siltation on the rainfall data.</li> </ul>	bil, OB and sed for watering he drains shall b Date: 26/05/2025 p capacity shall ove the peak adjoining the e retention period Date: 26/05/2025 Date: 26/05/2025

	PRESERVATION	emissions from crushing operations, conveyor system closed, haulage roads, transfer points, etc.	which shall be
The fo Enclos will pr is bein sprink	ures around crushers. iii) Belts have b otect the coal mass moving on belt fro g minimized. iv) Fixed water sprinkles lers are also being deployed on the roa	nted: i) Dry-fog system at all transfer points of CHP ii) een covered on top and both sides. These arrangements om blowing wind. In this way, the dust getting air borne rs on the haulage roads. v) In addition, movable water ds for dust suppression. vi) Dust Extraction System vii) viii) Concretization of working complex	Date: 26/05/2025
14	MISCELLANEOUS	Drills shall be wet operated only.	
	<b>Submission:</b> Complied plicable as this is coal beneficiation pl	lant	Date: 26/05/2025
15	Risk Mitigation and Disaster Management	Controlled blasting shall be practiced with use of de and only during daytime. The mitigative measures for ground vibrations and to arrest the fly rocks and bould implemented.	control of
	Submission: Complied plicable as this is coal beneficiation pl	lant.	Date: 26/05/2025
16	WATER QUALITY MONITORING AND PRESERVATION	The Washery shall be a zero-discharge and no wasted discharged from the washery into the drains/natural w groundwater shall be used for washery operations. Re- shall be used for development and maintenance of gre- the plant operations.	atercourses. N cycled water
Washe drains/ water 1	natural water systems. Only mine wat	harge principle. No wastewater is discharged into the ter is utilized for the washery operations as make up hin used for plant operations and green-belt	Date: 26/05/2025
	Risk Mitigation and Disaster	The raw coal, washed coal and middling and coal washall be stacked properly at earmarked site(s) within s	astes (rejects)
17	Management	fitted with wind breakers/shields. Adequate measures to ensure that the stored minerals do not catch fire. Th shall be not more than 2-3 days.	heds/stockyare shall be taken
The m establi	Management Submission: Complied aterial is being stacked properly at store	fitted with wind breakers/shields. Adequate measures to ensure that the stored minerals do not catch fire. Th	heds/stockyard shall be taken e storage perio Date:
<b>PPs</b> The m establi	Management Submission: Complied aterial is being stacked properly at stor shed system for disposal of rejects/ tai	fitted with wind breakers/shields. Adequate measures to ensure that the stored minerals do not catch fire. Th shall be not more than 2-3 days.	heds/stockyard shall be taken e storage perio Date: 26/05/2025 ash content of s along with thed every
PPs The m establi than 2- 18 18	Management Submission: Complied aterial is being stacked properly at stod shed system for disposal of rejects/ tai -3 days. Statutory compliance Submission: Complied	fitted with wind breakers/shields. Adequate measures to ensure that the stored minerals do not catch fire. The shall be not more than 2-3 days. ckyards located within the washery. We have a well- lings to consumers so that storage period is not more The proponent shall maintain proper records of the a raw (ROM) coal, clean coal, middling and coal rejects quantum of raw coal obtained and washed and dispatc month and the same shall be uploaded on the company	heds/stockyard shall be taken e storage period Date: 26/05/2025 ash content of s along with thed every

All the	<b>Submission:</b> Complied e internal roads have been concreted wl y for parking of trucks within the unit.	hile the approach roads are black topped. There is a	Date: 26/05/2025
20	Statutory compliance	Roads used for coal transportation to the linked DRL developed with 3-tier avenue plantation using a mix of The trucks used for coal transportation shall be high ca Drivers of trucks for coal transportation shall be engag past records of road safety and compliance of safety re shall be suitably sensitized about road safety and main vehicles to keep vehicular emissions to be within preso	f native specie spacity trucks. red based on gulations and tenance of
There from c premis covere are pro	aptive collieries Clean coal is dispate ses. The clean coal is kept in storage bi ed coal-conveying system As for the	ceived via underground coal conveyor belt network ched via rail from the Rail-yard situated on the washery ns and directly transferred to the rail wagons through trucks moving for transportation of tailings and rejects given provisions related to road safety and driver	Date: 26/05/2025
21	Statutory compliance	The roads (internal/approach and roads used for the p regularly cleaned with mechanical sweepers and with sprinklers. A 3-tier avenue plantation shall be developed major approach roads, internal roads and nearby roads company.	water ed along the
Fixed		stalled in the washery premises. Plantation along the tier green belt development is in progress	Date: 26/05/2025
22	GREENBELT	Green belt shall be developed along the areas such as unit, crushing unit, and stockyards and at transfer poin between mine operations and habitations.	
Green	<b>Submission:</b> Complied ery has been developed in many areas a d along the boundary of washery for gr	around the washery premises. Saplings have been reenbelt development.	Date: 26/05/2025
Green	ery has been developed in many areas a		26/05/2025 d and washery t extractors an ad operated missions from
Greend planted 23 PPs Dry-fc and tra interna	AIR QUALITY MONITORING AND PRESERVATION Submission: Complied og dust suppression system has been alfansfer points of belt conveyor systems. al roads of the washery. These are alwa	Hoppers of the coal crushing unit at the crushing she unit shall be fitted with high efficiency bag filters/Dus mist spray water sprinkling system shall be installed an effectively at all times of operation to check fugitive en crushing operations, transfer points of belt conveyor sy	26/05/2025 d and washery t extractors an ad operated missions from

	Submission: Complied bing followed.		Date: 6/05/2025
25	WATER QUALITY MONITORING AND PRESERVATION	Regular monitoring of groundwater level and quality levels of heavy metals such as Hg, Cd, Cr, Se, etc shall by establishing a network of existing wells and constru- peizometers. The monitoring for quantity and quality of as per IS: 10500 shall be done four times a year in pre- (May), monsoon (August), post-monsoon (November) (January) seasons. Proper records of the data thus colle maintained submitted to the Ministry of Environment of to the Central Pollution Control Board quarterly within monitoring.	l be carried ou action of new of ground wate monsoon and winter ected shall be & Forests and
The maground ground heavy	lwater quality report and groundwater	ality is done regularly as per the requirements. The level are provided in Annexure II. The monitoring of ne groundwater is done on quarterly basis by NABL provided in Annexure II.	Date: 26/05/2025
26	WATER QUALITY MONITORING AND PRESERVATION	As the entire mine water is proposed to be used for the washery operations, measures shall be taken for rechar water in and around the mine in the study area. A Plan conservation and recharge measures of ground water a budgetary provisions be prepared and implemented in with the Central/State Ground Water Board to mitigate impact of mining which may lead to depletion of ground area. The Company shall put up artificial groundwater measures for augmentation of groundwater resource in monitoring of groundwater levels indicate decline of w additional water requirement for mining operation shall rainwater use only. The project authorities shall meet w requirement of nearby village(s) in case the village we to dewatering of mine.	ging ground for water long with consultation the adverse ad water in the recharge case vater table. An l be met from vater
Some of mine for having water. natural mainta water l	for the purpose of stowing. Backfilling the porosity to hold the underground v Further, there are several ponds existin l reservoirs for recharging ground wate uned by our CSR department. As per th	ground mining activity is re-circulated back into the of mine voids by stowing is done using sand which is water thus helping aquifer to retain the underground ng on the surface of the mining lease which act as er. These ponds/ tanks are regularly cleaned and he hydro-geological report, the variation in the ground rement of the nearby villages is being met by the is being provided.	Date: 26/05/2025
		ETP shall also be provided for treatment of effluents	from
27	WATER QUALITY MONITORING AND PRESERVATION	workshop, CHP and an STP shall be provided in the co treated effluents shall be used for green belt developmer rainfall, if any, from the mine shall meet prescribed no water quality of such discharge including levels of hea as Hg, Cd, Cr., Se, etc shall be monitored at the exit por records maintained thereof and also uploaded on the co website. Online monitoring equipment shall be installed proponent to ensure that the water quality parameters of discharge are well within the General Discharge Stand Rules, 1986.	olony and the ent. Outflow of rms and the vy metals suc- bints and ompany d by the of mine water
<b>PPs</b> No eff	MONITORING AND PRESERVATION Submission: Complied luent is discharged outside of the wash	treated effluents shall be used for green belt developmer rainfall, if any, from the mine shall meet prescribed no water quality of such discharge including levels of hea as Hg, Cd, Cr., Se, etc shall be monitored at the exit por records maintained thereof and also uploaded on the co website. Online monitoring equipment shall be installed proponent to ensure that the water quality parameters of discharge are well within the General Discharge Stand	olony and the ent. Outflow rms and the vy metals suc- bints and ompany d by the of mine water

water	is used for gardening and other purpos		
28	Human Health Environment	Besides carrying out regular periodic health check-u workers, 10% of the workers identified from workford active mining operations shall be subjected to health c occupational diseases and hearing impairment, if any, recognised agency found in the district, and the results this Ministry and to DGMS.	the engaged in heck-up for through a
Not ap		blant. Though PME is done for washery workers tre. Records of the same has been furnished earlier.	Date: 26/05/2025
29	Statutory compliance	For monitoring land use pattern and for post mining series of landuse maps, based on satellite imagery (on 5000) of the core zone and buffer zone, from the start until end of mine life shall be prepared once in 3 years particular season which is consistent in the time series submitted to MOEF and its concerned Regional Office	a scale of 1: of the project s (for any one ), and the repo
It has   Steel I		been done in 2025 by Natural Resources Division, Tata 001 (A QCI-NABET Accredited Agency). Report is	Date: 30/05/2025
30	Statutory compliance	Land oustees shall be compensated as per the norms Policy of CIL or the National R&R Policy or R&R Po Government whichever is higher.	
	Submission: Complied		Date: 26/05/2025
31	MINING PLAN	A Final Mine Closure Plan along with details of Conbe submitted to the Ministry of Environment & Forest before mine closure for approval. Habitat Restoration mine area shall be carried out using a mix of native sp the original ecosystem, which were conserved in-situation and identified area within the lease for reintroduction in during mine reclamation and at the post mining stage restoration and for development of grasslands.	s five year Plan of the ecies found in and ex-situ in 1 the mine
	Submission: Complied		Date: 26/05/2025
32	Corporate Environmental Responsibility	Corporate Environment Responsibility: a) The Com a well laid down Environment Policy approved by the Directors. b) The Environment Policy shall prescribe to operating process/procedures to bring into focus any infringements/deviation/violation of the environmentat norms/conditions. c) The hierarchical system or Admi of the company to deal with environmental issues and compliance with the environmental clearance condition furnished. d) To have proper checks and balances, the have a well laid down system of reporting of non-	Board of for standard l or forest nistrative Orde for ensuring ns shall be

addresse Environ noticed notice of Manage OHSAS	es all the issues mentioned. The sta mental laws and regulations is regu is corrected at divisional level. If a f higher management. Moreover, J ment System: Quality Managemen	Policy approved by the Managing Director and it tus of adherence to the policy and compliance to alarly discussed at higher levels. Any non-compliance ny issue is beyond our control, it is brought to the amadoba Coal Washery is IMS (Integrated t System, Environment Management System and onment aspects, impacts and needs and expectation of ent protection.	Date: 30/05/2025
33	MISCELLANEOUS	No use of fly ash with sand will take place for stov underground mines.	ving in
	<b>ubmission:</b> Complied I be strictly followed for our captiv	ve underground mines.	Date: 26/05/2025
34	Corporate Environmental Responsibility	The proponent shall expedite and implement the proponent mine water into drinking/domestic water to to the population of Dhanbad and surrounding areas continue to carry out this activity.	supply the same
Mine wa Treatme capacity	ents Plants (located at Jamadoba, D	potable water by Tata Steel in our 4 nos. Water igwadih, Bhelatand and Malkera having cumulative d water is then supplied to our colonies and leasehold	Date: 30/05/2025
35	Corporate Environmental Responsibility	Tanks/ponds shall be regularly cleaned and mainta activities shall be intensified in the mine areas.	ined. Plantation
Tanks/ p every ye		intained by TSRDS. Plantation activities are undertaken eas. Further, TSRDS engages with the villagers for	Date: 26/05/2025
36	GREENBELT	Adequate green belt shall be provided around coal other areas.	handling and
		as around the washery premises. Since the expansion job being developed. Attached as Annexure I.	Date: 30/05/2025
Greener			lessehold area
Greener	Corporate Environmental Responsibility	The proponent shall connect all the villages in the with water pipeline connection.	leasenoid area
Greener has beer 37 <b>PPs S</b>	Responsibility ubmission: Complied villages in the leasehold areas are b		Date:
Greener has beer 37 <b>PPs S</b> All the v connection	Responsibility ubmission: Complied villages in the leasehold areas are b	with water pipeline connection.	
Greener has beer 37 <b>PPs S</b> All the v connection	Responsibility <b>ubmission:</b> Complied villages in the leasehold areas are b ion.	with water pipeline connection.	Date:

	Submission: Complied oints mentioned in the EC letter will be s	strictly followed.	Date: 26/05/2025
2	MISCELLANEOUS	No change in the calendar plan of production for q mineral coal shall be made.	uantum of
	Submission: Complied be strictly followed.		Date: 26/05/2025
3	AIR QUALITY MONITORING AND PRESERVATION	Four ambient air quality monitoring stations shall the core zone as well as in the buffer zone for PM10 and NOx monitoring. Location of the stations shall be on the meteorological data, topographical features are environmentally and ecologically sensitive targets in with the State Pollution Control Board. Monitoring of such as Hg, As, Ni, Cd, Cr, etc carried out at least or	, PM2.5, SO2 be decided based and consultation of heavy metals
The A Colon Kalim	ny, Jamadoba (Buffer Zone) (iii)Digwadi nandir area (Buffer Zone) Monitoring of	hadoba Group Office (Core Zone) (ii)New Village h 12 No. Colony (Buffer Zone) (iv)6 and 7 Pits heavy metals in ambient air is being performed by an and JSPCB). The results are enclosed as Annexure II.	Date: 26/05/2025
4	Statutory compliance	Data on ambient air quality (PM10, PM 2.5, SO2 a heavy metals such as Hg, As, Ni, Cd, Cr and other m shall be regularly submitted to the Ministry including Regional Office and to the State Pollution Control B Central Pollution Control Board once in six months. verification of samples through analysis from independent laboratories recognized under the EPA rules, 1986 st as part of compliance report.	onitoring data g its concerned oard and the Random endent
Ambio 2025 i JSPCI	is attached as Annexure II. Additionally, B and NABL accredited Laboratory for a	O2 and NOx) for the period from Oct-2024 to March - the third party monitoring is being done through a ambient air quality (PM10, PM 2.5, SO2, NOx, CO, Cr). The results are enclosed as Annexure II.	Date: 26/05/2025
5	Noise Monitoring & Prevention	Adequate measures shall be taken for control of no 85 dBA in the work environment. Workers engaged drilling operations, operation of HEMM, etc shall be ear plugs/muffs.	in blasting and
Regul	Submission: Complied ar noise survey is being conducted in the ded with ear-plugs/ muffs in high noise a	e underground work environment. Workers are reas.	Date: 26/05/2025
6	WATER QUALITY MONITORING AND PRESERVATION	Industrial wastewater (workshop and wastewater fr shall be properly collected, treated so as to conform prescribed under GSR 422 (E) dated 19th May 1993 December 1993 or as amended from time to time be Oil and grease trap shall be installed before discharg effluents.	to the standards and 31st fore discharge.
PPs	Submission: Complied		Date:

7	AIR QUALITY MONITORING AND PRESERVATION	Vehicular emissions shall be kept under control and monitored. Vehicles used for transporting the mineral covered with tarpaulins and optimally loaded.	
Only through		tes are being allowed to operate. Coal transportation es till washery and it is ensured that only optimally allowed into the washery premises.	Date: 26/05/2025
8	Monitoring of environmental quality parameters sha through establishment of adequate number and type of monitoring and analysis equipment in consultation wit data got analysed through a laboratory recognized und 1986.		
We hay and an	alysis is also done at regular intervals stalled a Continuous Ambient Air Qua	Laboratory with qualified personnel. The monitoring by a JSPCB and NABL recognized laboratory. We have lity Monitoring Station at Jamadoba for real time	Date: 26/05/2025
9	Human Health Environment	Personnel working in dusty areas shall wear protective devices and they shall also be provided with adequate information on safety and health aspects.	
Person		vided with dust masks and have been given awareness r PME (Periodic Medical Examinations) are being done.	Date: 26/05/2025
10	Human Health Environment	Occupational health surveillance programme of the w undertaken periodically to observe any contractions du to dust and to take corrective measures, if needed and m maintained thereof. The quality of environment due to and the health and safety issues of the outsourced man be addressed by the company while outsourcing.	e to exposure records outsourcing
The oc Occup Medica identif	ational Health Department, Tata Centr al Examination) centre approved by D ied from workforce engaged in active	nme of the workers is done regularly by our al Hospital, Jamadoba. We have a PME (Periodic GMS where annually 20 percentage of the workers mining operations are subjected to full medical checkup These results are regularly submitted to DGMS as per mination is also done by PME centre.	Date: 26/05/2025
11	MISCELLANEOUS	A separate environmental management cell with suit personnel shall be set up under the control of a Senior will report directly to the Head of the company.	
We ha	Submission: Complied ve a separate Environmental Managem nmental Cell is directly to General Ma	nent Cell with qualified personnel. The reporting of anager of the Division.	Date: 26/05/2025
12	Corporate Environmental Responsibility	The funds earmarked for environmental protection m be kept in separate account and shall not be diverted for purpose. Year-wise expenditure shall be reported to the its Regional Office at Bhubaneswar.	or other
The Er		r Environmental protection measures and for complying nental expenditure for the financial year 2023-24 is	Date: 26/05/2025
	Address: 14 Divisi	on. Ministry of Environment. Forest and Climate Change.	Page

	.36 lakhs.		
13	Statutory compliance	The Project authorities shall advertise at least in two newspapers widely circulated around the project, one of be in the vernacular language of the locality concerned days of the clearance letter informing that the project H accorded environmental clearance and a copy of the cl available with the State Pollution control Board and m at the website of the ministry of Environment & Fores http://envfor.nic.in.	of which shall I within seven has been earance letter ay also be see
	ubmission: Complied een complied with.		Date: 30/05/2025
14	Statutory compliance	A copy of the environmental clearance letter shall be concerned Panchayat/Zila Parishad, Municipal Corpor Local Body and local NGO, if any, from whom any suggestion/representation has been received while pro proposal. A copy of the clearance letter shall also be d company's website.	ation or Urba
	ubmission: Complied een complied with.		Date: 30/05/2025
15	Statutory compliance	A copy of the clearance letter shall be displayed on t the concerned State Pollution Control Board. The EC be displayed at the Regional Office, District Industry Collector's Office/Tehsildar's Office for 30 days.	etter shall als
	ubmission: Complied een complied with.		Date: 26/05/2025
16	Statutory compliance	The clearance letter shall be uploaded on the compare The compliance status of the stipulated EC conditions uploaded by the project authorities on their website an least once every six months so as to bring the same in domain. The monitoring data of environmental quality (air, water, noise and soil) and critical pollutants such PM2.5, SO2 and NOx (ambient and stack if any) and of parameters shall also be displayed at the entrance of the premises and mines office and in corporate office and company's website.	shall also be d updated at the public parameters as PM10, critical sectora e project
The clear yearly co		n the companies website. The compliance status (as Half- led in companies website. The display of information near	Date: 26/05/2025
17	Statutory compliance	The project proponent shall submit six monthly report of compliance of the stipulated environmental clearance (both in hard copy and in e-mail) to the respective Reg the MOEF, the respective Zonal offices of CPCB and	ce conditions gional Office of
	ubmission: Complied		Date:
	een complied with.		26/05/2025

		Regional	s shall extend full cooperation to the office Office by furnishing the requisite data/ on/monitoring reports.	e(s) of the
				Date:
	<b>ubmission:</b> Complied e complied with.			26/05/2025
19	Statutory compliance	March in proponent prescribed amended website al	ironmental statement for each financial ye Form-V is mandated to be submitted by th t tot the concerned State Pollution Control d under the Environment (Protection) Rule subsequently, shall also be uploaded on th long with the status of compliance of EC c ent to the respective Regional Offices of th	ne project Board as es, 1986, as e company's conditions and
The env Septemb company	per 2024 vide letter no. JMB/ENV	//ESSA/05/569/2	as been submitted to JSPCB on 27th 2024 and it is also uploaded on the nt is also sent to MOEF by email at	Date: 26/05/2025
		Visit R	emarks	
ast Site	Visit Report Date:		N/A	
			ed by project proponent. In no way is this of the project. This is strictly for the pro	
conside	area as conclusion on any action c	1	e purpose.	jeet proponent s

HALF YEARLY COMPLIANCE REPORT (PERIOD: OCTOBER'24 – MARCH'25)

## JAMADOBA COAL WASHERY (CAPACITY: EXPANSION FROM 1 TO 2 MTPA RAW COAL THROUGHPUT)

## TEHSIL: JHARIA, DIST: DHANBAD, JHARKHAND



## TATA STEEL LIMITED, JHARIA DIVISION

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

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

S. No.	Condition	Compliance Status
Specific (	Condition	<u> </u>
(i)	Adequate green belt shall be provided around coal handling and other areas.	Greenery has been developed in many areas around the washery premises. Since the expansion job has been completed, remaining area is also being developed. Attached as <b>Annexure I.</b>
(ii)	Action plan be developed and implemented for abandoned tailing ponds and for their restoration to the original land use.	Action plan for cut-off of tailing ponds from tailing management system is in place. Abandoned tailing ponds have been reclaimed by backfilling. Biological reclamation is going on by planting native species.
(iii)	Fly ash generated from the captive power plant of the washery be utilized for house construction, roads and such uses, strictly complying to the timeline in the EIA Notification, 2006 and maintaining proper records.	This is not applicable as we have ceased the operation of our captive Jamadoba power plant since April'15.
(iv)	No use of fly ash with sand will take place for stowing in underground mines.	This will be strictly followed for our captive underground mines.
( <b>v</b> )	Transportation of fly ash to be done properly by mechanically covered trucks.	This is not applicable as there is no fly ash being generated since April'15.
(vi)	The proponent shall connect all the villages in the leasehold area with water pipeline connection.	All the villages in the leasehold areas are being supplied safe drinking water through pipeline connection.
(vii)	The proponent shall expedite and implement the pilot plant to convert mine water into drinking/domestic water to supply the same to the population of Dhanbad and surrounding areas and shall continue to carry out this activity.	Mine water is already being converted into potable water by Tata Steel in our 4 nos. Water Treatments Plants (located at Jamadoba, Digwadih, Bhelatand and Malkera having cumulative capacity of around 9000 KL/D). The treated water is then supplied to our colonies and leasehold villages. This will continue in future too.

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

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

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		v) In addition, movable water sprinklers are
		also being deployed on the roads for dust
		suppression.
		vi) Dust Extraction System
		vii) Strengthening of tailing management
		system
		viii) Concretization of working complex
(	Drille shall be wat approved only	
(xix)	Drills shall be wet operated only.	Not applicable as this is coal beneficiation
		plant
(xx)	Controlled blasting shall be practiced	Not applicable as this is coal beneficiation
	with use of delay detonators and only	plant.
	during daytime. The mitigative	
	measures for control of ground	
	vibrations and to arrest the fly rocks and	
	boulders shall be implemented.	
(xxi)	The Washery shall be a zero-discharge	Washery is already operating on a zero-
	and no wastewater shall be discharged	discharge principle. No wastewater is
	from the washery into the drains/natural	discharged into the drains/ natural water
	watercourses. No groundwater shall be	systems. Only mine water is utilized for the
	used for washery operations. Recycled	washery operations as make up water
	water shall be used for development and	requirement. The recycled water is again
	-	
	maintenance of green belt and in the	used for plant operations and green-belt
( •• )	plant operations.	development.
(xxii)	The raw coal, washed coal and middling	The material is being stacked properly at
	and coal wastes (rejects) shall be stacked	stockyards located within the washery. We
	properly at earmarked site(s) within	have a well-established system for disposal
	sheds/stockyards fitted with wind	of rejects/ tailings to consumers so that
	breakers/shields. Adequate measures	storage period is not more than 2-3 days.
	shall be taken to ensure that the stored	
	minerals do not catch fire. The storage	
	period shall be not more than 2-3 days.	
(xxiii)	The proponent shall maintain proper	Proper records are being maintained and the
	records of the ash content of raw (ROM)	details are uploaded on the company website.
	coal, clean coal, middling and coal	
	rejects along with quantum of raw coal	
	obtained and washed and dispatched	
	every month and the same shall be	
	uploaded on the company website every	
	month.	
(xxiv)	All internal roads shall be concreted or	All the internal roads have been concreted
	black topped and the approach roads	while the approach roads are black topped.
1		
	used for the project shall be blacked topped. Facilities for parking of trucks	There is a facility for parking of trucks within the unit.

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	carrying raw coal from the linked	
	coalmines shall be created within the	
	Unit.	
(xxv)	Roads used for coal transportation to the	There is no linked DRI/TPP.
	linked DRI/TPP shall be developed with	- Raw coal is received via underground coal
	3-tier avenue plantation using a mix of	conveyor belt network from captive
	native species. The trucks used for coal	collieries.
	transportation shall be high capacity	contenes.
	trucks. Drivers of trucks for coal	- Clean coal is dispatched via rail from the
	transportation shall be engaged based on	Rail-yard situated on the washery premises.
	past records of road safety and	The clean coal is kept in storage bins and
	compliance of safety regulations and	directly transferred to the rail wagons
	shall be suitably sensitized about road	through covered coal-conveying system.
	safety and maintenance of vehicles to	- As for the trucks moving for transportation
	keep vehicular emissions to be within	of tailings and rejects are properly covered
	prescribed limits.	with tarpaulin. All the given provisions
	1	related to road safety and driver competence
		• •
(*)	The mode (intermediate the order of the	are being strictly complied with.
(xxvi)	The roads (internal/approach and roads	Fixed Water sprinklers have already been
	used for the project) shall be regularly	installed in the washery premises. Plantation
	cleaned with mechanical sweepers and	along the road-side is done wherever feasible.
	with water sprinklers. A 3-tier avenue	A three-tier green belt development is in
	plantation shall be developed along the	progress
	major approach roads, internal roads and	
	nearby roads used by the company.	
(xxvii)	Green belt shall be developed along the	Greenery has been developed in many areas
	areas such as the washery unit, crushing	around the washery premises. Saplings have
	unit, and stockyards and at transfer	been planted along the boundary of washery
	points and in between mine operations	for greenbelt development.
	and habitations.	
(xxviii)	Hoppers of the coal crushing unit at the	Dry-fog dust suppression system has been
	crushing shed and washery unit shall be	already installed to suppress the dust
	fitted with high efficiency bag	generated at CHP and transfer points of belt
	filters/Dust extractors and mist spray	conveyor systems. Fixed-type water
	water sprinkling system shall be installed	sprinklers are also installed on the internal
	and operated effectively at all times of	roads of the washery. These are always
	operation to check fugitive emissions	operated effectively to check the fugitive
	from crushing operations, transfer points	emissions.
	of belt conveyor systems which shall be	
	closed and from transportation roads.	Fugitive dust emission monitoring is done on
	r and the second provide second s	regularly. The values are within the stipulated
		norms.

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

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

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

Letter no		
	compliances/violations of environmental	
	norms to the Board of Directors of the	
	company and/or shareholders or	
	stakeholders at large.	

B.	GENERAL CONDITIONS				
(i)	No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests.	The points mentioned in the EC letter will be strictly followed.			
(ii)	No change in the calendar plan of production for quantum of mineral coal shall be made.	It will be strictly followed.			
(iii)	Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for PM10, PM2.5, SO2 and NOx monitoring. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc carried out at least once in six months.	<ul> <li>(i)Jamadoba Group Office (Core Zone)</li> <li>(ii)New Village Colony, Jamadoba (Buffer Zone)</li> <li>(iii)Digwadih 12 No. Colony (Buffer Zone)</li> <li>(iv)6&amp;7 Pits Kalimandir area (Buffer Zone)</li> <li>Monitoring of heavy metals in ambient air is being performed by an independent laboratory (recognised by NABL and JSPCB). The results are enclosed as Annexure II.</li> </ul>			
(iv)	Data on ambient air quality (PM10, PM 2.5, SO2 and NOx) and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly submitted to the Ministry including its concerned Regional Office and to the State Pollution Control Board and the Central Pollution Control Board once in six months. Random verification of samples through analysis from independent laboratories recognized under the EPA rules, 1986 shall be furnished as part of compliance report.	Ambient air quality report (PM10, PM 2.5, SO2 and NOx) for the period from Oct'24 to Mar'25 is attached as <b>Annexure II.</b> Additionally, the third party monitoring is being done through a JSPCB & NABL accredited Laboratory for ambient air quality (PM10, PM 2.5, SO2, NOx, CO, NH3, O3) and heavy metals (As, Ni, Cd and Cr). The results are enclosed as <b>Annexure II.</b>			
( <b>v</b> )	Adequate measures shall be taken for control of noise levels below 85 dBA	Regular noise survey is being conducted in the underground work environment. Workers are			

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	in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with ear plugs/muffs.	provided with ear-plugs/ muffs in high noise areas.
(vi)	Industrial wastewater (workshop and wastewater from the mine) shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May 1993 and 31st December 1993 or as amended from time to time before discharge. Oil and grease trap shall be installed before discharge of workshop effluents.	No waste-water is discharged outside the washery premises. 100% water is recirculated back for re-use in the washery. There is a central workshop and garage in Jamadoba Effluent Treatment Plant which includes oil and grease trap has been provided.
(vii)	Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transporting the mineral shall be covered with tarpaulins and optimally loaded.	Only the vehicles having valid PUC certificates are being allowed to operate. Coal transportation through trucks is done only from BCCL mines till washery and it is ensured that only optimally loaded trucks with proper tarpaulin cover are allowed into the washery premises.
(viii)	Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with SPCB and data got analysed through a laboratory recognized under EP Rules, 1986.	We have a fully equipped Environment Cell Laboratory with qualified personnel. The monitoring and analysis is also done at regular intervals by a JSPCB & NABL recognized laboratory. We have also installed a Continuous Ambient Air Quality Monitoring Station at Jamadoba for real time monitoring.
(ix)	Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects.	Persons working in dusty area have been provided with dust masks & have been given awareness training on safety & health aspects. Regular PME (Periodic Medical Examinations) are being done.
(x)	Occupational health surveillance programme of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed and records maintained thereof. The quality of environment due to outsourcing and the health and safety	The occupational health surveillance programme of the workers is done regularly by our Occupational Health Department, Tata Central Hospital, Jamadoba. We have a PME (Periodic Medical Examination) centre approved by DGMS where annually 20% of the workers identified from workforce engaged in active mining operations are

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	issues of the outsourced manpower	subjected to full medical checkup including						
	should be addressed by the company	hearing impairment checkup, etc. These						
	while outsourcing.	results are regularly submitted to DGMS as						
		per mines rules. Contractual workers health						
		examination is also done by PME centre.						
( <b>xi</b> )	A separate environmental management	We have a separate Environmental						
	cell with suitable qualified personnel	Management Cell with qualified personnel.						
	shall be set up under the control of a	The reporting of Environmental Cell is directly						
	Senior Executive, who will report	to General Manager of the Division.						
	directly to the Head of the company.							
(xii)	The funds earmarked for environmental	The Environment Cell has a separate fund for						
	protection measures shall be kept in	Environmental protection measures and for						
	separate account and shall not be	complying with legal requirements. The						
	diverted for other purpose. Year-wise	annual environmental expenditure for the						
	expenditure shall be reported to this	financial year 2023-24 is Rs.1134.36 lakhs.						
	Ministry and its Regional Office at							
	Bhubaneswar.							
(xiii)	The Project authorities shall advertise	It has been complied with.						
	at least in two local newspapers widely							
	circulated around the project, one of							
	which shall be in the vernacular							
	language of the locality concerned							
	within seven days of the clearance letter							
	informing that the project has been							
	accorded environmental clearance and							
	a copy of the clearance letter is							
	available with the State Pollution							
	control Board and may also be seen at							
	the website of the ministry of							
	Environment & Forests at							
	http://envfor.nic.in.							
(xiv)	A copy of the environmental clearance	It has been complied with.						
	letter shall be marked to concerned	-						
	Panchayat/Zila Parishad, Municipal							
	Corporation or Urban Local Body and							
	local NGO, if any, from whom any							
	suggestion/representation has been							
	received while processing the proposal.							
	A copy of the clearance letter shall also							
	be displayed on the company's website.							
(xv)	A copy of the clearance letter shall be	It has been complied with.						
(	displayed on the website of the	2 mil over compres man						
	alspinged on the website of the	the website of the						

Letter no	J-11015/203/2011-IA.II (M) dated Mar	cn 3, 2014			
	concerned State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industry Centre and Collector's Office/Tehsildar's Office for 30 days.				
(xvi)	The clearance letter shall be uploaded on the company's website. The compliance status of the stipulated EC conditions shall also be uploaded by the project authorities on their website and updated at least once every six months so as to bring the same in the public domain. The monitoring data of environmental quality parameters (air, water, noise and soil) and critical pollutants such as PM10, PM2.5, SO2 and NOx (ambient and stack if any) and critical sectoral parameters shall also be displayed at the entrance of the project premises and mines office and in corporate office and on the company's website.	company's website. The compliance status (as Half-yearly compliance report) is being uploaded in company's website. The display of information near the washery's office has been provided.			
(xvii)	The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) to the respective Regional Office of the MOEF, the respective Zonal offices of CPCB and the SPCB.	It has been complied with.			
(xviii)	The Regional Office of this Ministry located at Bhopal shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/ information/monitoring reports.	It will be complied with.			
(xix)	The environmental statement for each financial year ending 31st March in Form-V is mandated to be submitted by the project proponent tot the concerned State Pollution Control Board as	The environmental statement for financial year 2023-24 has been submitted to JSPCB on 27th September 2024 vide letter no. JMB/ENV/ESSA/05/569/2024 and it is also uploaded on the company website. The soft			

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

#### 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

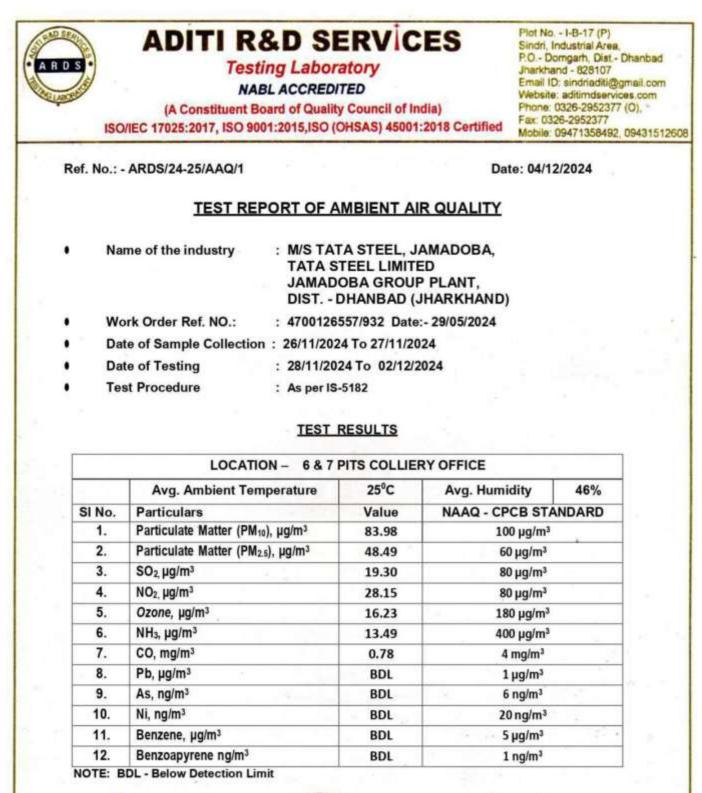
After





Before

After



Sr. Chemist Aditi R&D Services



Technical Manager Aditi R&D Services, Sindri

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	N	Sting Labor ABL ACCREDI Board of Quality	atory TED y Council of In	idia)	Plot No I-B-17 (P) Sindri, Industrial Area, P.O Domgarh, Dist - Dha Jharkhand - 828107 Email ID: sindriaditi@gma Website: aditimdservices. Phone: 0326-2952377 (O Fax: 0326-2952377 Mobile: 09471358492, 09	ail.com .com
Ref. No	o.: - ARDS/24-25/ AAQ/2			Date	: 04/12/2024	
	TEST R	EPORT OF A	MBIENT A	R QUALITY		
•	Name of the industry	TATA S	TA STEEL, J TEEL LIMITI OBA GROUI DHANBAD (J	ED		
	Work Order Ref. NO.:	: 4700126	557/932 Date	- 29/05/2024		
	Date of Sample Collecti	on : 26/11/202	4 to 27/11/2	024		
	Date of Testing		24 to 02/12/2			
	Test Procedure	: As per IS				
		TEST	RESULTS			
	LOCATION	- OFFICERS	COLONY, 12	NO. DIGWADIH		
	Avg. Ambient Te	emperature	25°C	Avg. Humidi	ty 46%	
SI N	o. Particulars		Value	NAAQ - CPC	B STANDARD	
- 1	. Particulate Matter (P	M10), µg/m3	76.58	100	µg/m³	
2	. Particulate Matter (P	M <sub>2.5</sub> ), µg/m <sup>3</sup>	41.36 6		50 μg/m <sup>3</sup>	
3	. SO <sub>2</sub> , µg/m <sup>3</sup>		18.73	80 µ	ig/m <sup>3</sup>	
4	. NO <sub>2,</sub> µg/m <sup>3</sup>	1.00	26.65	80 μ	ig/m <sup>3</sup>	
5	. Ozone, µg/m <sup>3</sup>		16.76	180	ug/m³	
6	. NH <sub>3</sub> , μg/m <sup>3</sup> .		13.78	400	µg/m³	
7	. CO, mg/m <sup>3</sup>		0.71	4 m	a/m <sup>3</sup>	

NOTE: BDL - Below Detection Limit

Benzene, µg/m3

Benzoapyrene ng/m<sup>3</sup>

Pb, µg/m<sup>3</sup>

As, ng/m3

Ni, ng/m<sup>3</sup>

8.

9.

10.

11.

12.





BDL

BDL

BDL

BDL

BDL

Technical Manager Aditi R&D Services, Sindri

1 µg/m3

6 ng/m<sup>3</sup>

20 ng/m<sup>3</sup>

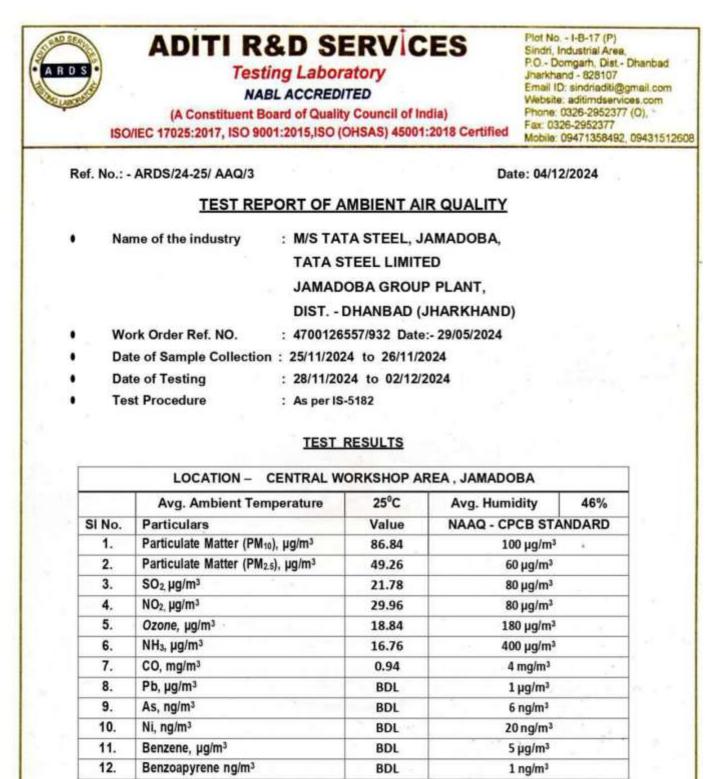
5 µg/m<sup>3</sup>

1 ng/m<sup>3</sup>

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NOTE: BDL - Below Detection Limit

Sr. Chemist Aditi R&D Services

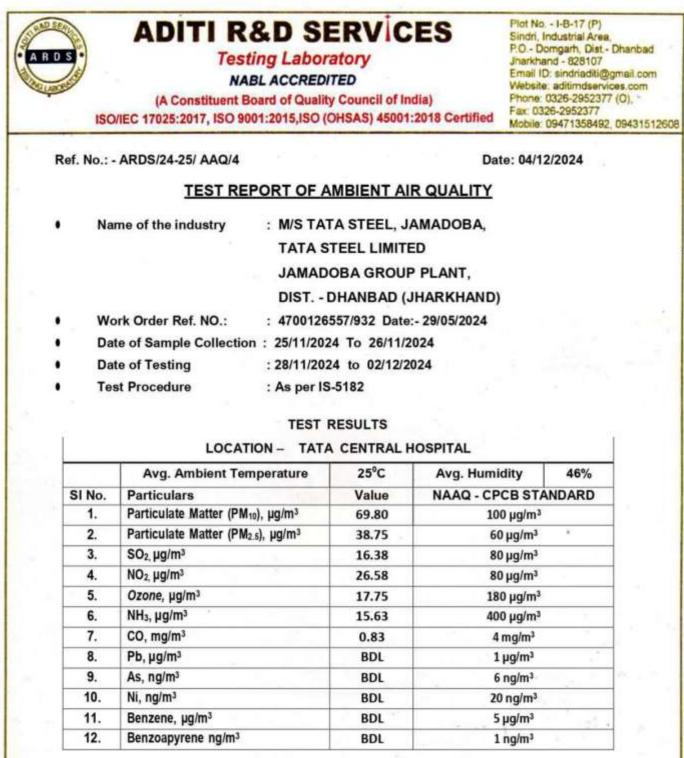


Technical Manager Aditi R&D Services, Sindri

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NOTE: BDL - Below Detection Limit





Technica anager Aditi R&D Services, Sindri

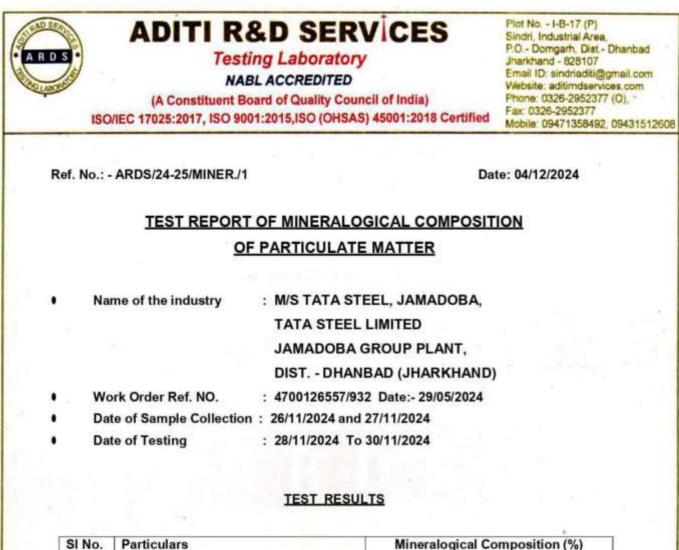
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2. The test results reported in this report are valid at the time of and under the stated condition of measurment.

DS	)	Constit	Test NAL	ing Lab	ality Cour	cil of	India)	P.O Don Jharkhan Email ID: Website: 0 Phone: 03 Fax: 0326	Justrial Area, ngarh, Dist Dhani d 828107 sindriaditi@gmail. aditimdservices.cc 126-2952377 (O), i-2952377 3471358492, 0943
								DNITORING	
_	Ref. No	. & Date			1	AME	AND ADDRE	SS OF THE CL	ENT
AR	DS/24-25/NOIS	E/1Date	: 04/12	/2024		M/S	TATA STEE	L, JAMADOB	A,
	Date of N	Ionitori	ng		TATA ST			MADOBA GR D (JHARKHAN	
	25/11/2024 1	To 27/11	/2024	Т	Avg. Average		Weather Condition	Status of the plant	
	Work Order 4				25		49	Clear	Running
	Date:- 2	9/05/202	4	MONI	TORING	RESU	ITS		
SI. No	Place of Monitoring	Day Time (6 AM to 10 PM) Avg. dB(A)		10 PM)	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) Leg		
								Day Time	Night Time
JAM	LOCATION ADOBA GROUP	MAX	MIN	AVG. dB( Leq	A) 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		
	. I	_			-	1		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
1	Sr. Chemi Aditi R&D		ey S				Tech Aditi R&	nical Manag D Services, S	er Sindri

The test results reported in this report are valid at the time of and under the stated condition of measurment.
 This particular test report cannot be reproduced except in full, without prior written permission of Quality Manager of the laboratory.



SI No.	Particulars	Mineralogical Composition (%)					
	그 가지 않는 것이 있는	SiO <sub>2</sub>	FeO	Al <sub>2</sub> O <sub>3</sub>	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		





Technical Aditi R&D Services, Sindri

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R D S		ing Lai BL ACCE	boratory REDITED uality Council	of India)	Plot No I-B-17 (P) Sindri, Industrial Area, P.O Domgarh, Dist Dhanbai Jharkhand - 828107 Email ID: sindriaditi@gmail.co Website: aditimdservices.com Phone: 0326-2952377 (O), Fax: 0326-2952377 Mobile: 09471358492, 094315
Ref. N	lo.: - ARDS/24-25/SW/1				Date: 04/12/2024
	TEST R	EPORT	OF SURF	ACE WATE	R
	Name of the industry	: M/S	TATA STEE	L, JAMADOE	3A,
		TAT	A STEEL LI	MITED	
		JAN	ADOBA GR	OUP PLANT	
				D (JHARKH	•
		DIS			
•	Work Order Ref. NO.:	:		932 Date:- 29	
•	Sample Code			River Up St River Down	
	Date of Sample Collecti	on:	27/11/2024	River Down	Stream
	Date of Testing	:		To 03/12/202	24
	Test	:	pH, TDS, Tu	urbidity, DO,	BOD, CI, F, SO4
		т	ST RESULT		
		1.	ST RESULT		
SI.	PARAMETERS OF TE	ST	VA	LUE	Test
No.	1.00		Damodar River Up Stream	Damodar River Dn Stream	Method
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, r	ng/l	5.6	5.8	IS-3025 (P-38):1989
5.	Bio chemical Oxyg Demand, mg/l	en	1.6	1.9	IS-3025 (P-44):1994
6.	Chloride as Cl, mg	g/l	28	27.5	IS-3025 (P-32):1988
7.	Fluoride as F, mg	/1	0.58	0.62	IS-3025 (P-60):2008





65.0

60.4

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

IS-3025 (P-24):1986

## Statements :

8.

1. The test report refers only to the particular item(s) submitted for testing.

Sulphate as SO<sub>4</sub>, mg/l

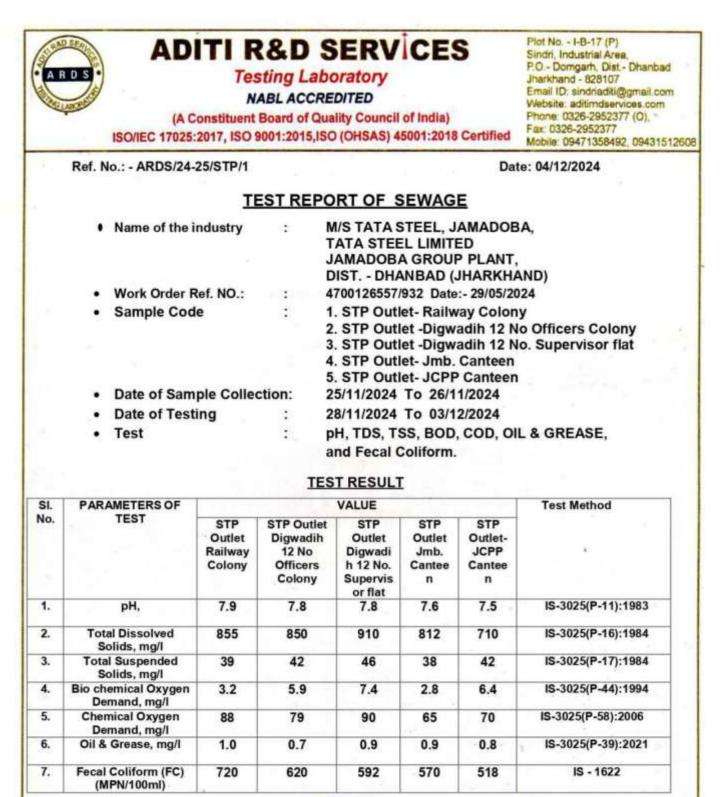
2. The test results reported in this report are valid at the time of and under the stated condition of measurment.

	a la	DITIR			CES	Plot No I-B-17 (P) Sindri, Industrial Area P.O Domgarh, Dist -	
A	RDS		sting Labo	and the second se		Jharkhand - 828107 Email ID: sindriaditi@	
Con a	LARCENCE		ABL ACCRE		-	Website: aditimdservi	ices.com
		A Constituent		the second s		Phone: 0326-295237 Fax: 0326-2952377	7 (0), -
	ISO/IEC 170	25:2017, ISO 9	001:2015,ISC	(OHSAS) 4	5001:2018 C	Mobile: 09471358492	094315126
	Ref. No.: - ARDS/2			-		Date: 04/12/2024	
	1	TEST REP	ORTOFN	INE WA	TER DISC	HARGE	
	Name of the second s	e industry	T J	I/S TATA S ATA STEE AMADOB/ IST DHA	A GROUP	)	
	<ul> <li>Work Orde</li> </ul>	r Ref. NO.:				29/05/2024	
	Sample C	ode			Jamadoba		
			2		Jamadoba		
			3		Pits Collie adih Collie		
	<ul> <li>Date of Sa</li> <li>Date of Te</li> <li>Test</li> </ul>	ample Collecter	: 2	5/11/2024 8/11/2024 H, TDS, TS	To 03/12/2	S. S	
SI.	<ul> <li>Date of Te</li> <li>Test</li> </ul>		: 2 : p	8/11/2024 H, TDS, TS <u>T RESULT</u>	To 03/12/2 SS, BOD, C	2024	
	Date of Te		: 2 : p <u>TES</u>	8/11/2024 H, TDS, TS <u>T RESULT</u>	To 03/12/2 SS, BOD, C	024 COD, OIL & GREASE.	
No.	Date of Te     Test PARAMETERS OF	2 Pit Jamadoba	: 2 : P <u>TES</u> VALU 3 Pit Jamadoba	8/11/2024 H, TDS, TS <u>T RESULT</u> E 6 & 7 Pits	To 03/12/2 SS, BOD, C	024 COD, OIL & GREASE.	
No. 1.	Date of Te     Test PARAMETERS OF TEST	2 Pit Jamadoba Colliery	: 2 : p <u>TES</u> VALU 3 Pit Jamadoba Colliery 7.7 839	8/11/2024 H, TDS, TS T RESULT E 6 & 7 Pits Colliery	To 03/12/2 SS, BOD, C Digwadih Colliery	2024 COD, OIL & GREASE. Test Method	
No. 1. 2.	Date of Te     Test PARAMETERS OF TEST  pH,  Total Dissolved Solids, mg/l Total Suspended	2 Pit Jamadoba Colliery 7.5	: 2 : p <u>TES</u> VALU 3 Pit Jamadoba Colliery 7.7	8/11/2024 H, TDS, TS T RESULT E 6 & 7 Pits Colliery 7.5	To 03/12/2 SS, BOD, C Digwadih Colliery 7.4	2024 COD, OIL & GREASE. Test Method IS-3025 (P-11):1983	
No. 1. 2. 3.	Date of Te     Test     PARAMETERS OF     TEST     pH,     Total Dissolved     Solids, mg/l     Total Suspended     Solids, mg/l     Bio chemical     Oxygen Demand,	2 Pit Jamadoba Colliery 7.5 865	: 2 : p <u>TES</u> VALU 3 Pit Jamadoba Colliery 7.7 839	8/11/2024 H, TDS, TS T RESULT E 6 & 7 Pits Colliery 7.5 915	To 03/12/2 SS, BOD, C Digwadih Colliery 7.4 790	2024 COD, OIL & GREASE. Test Method IS-3025 (P-11):1983 IS-3025 (P-16):1984	
SI. No. 1. 2. 3. 4. 5.	Date of Te     Test PARAMETERS OF TEST      pH,      Total Dissolved     Solids, mg/l      Total Suspended     Solids, mg/l      Bio chemical	2 Pit Jamadoba Colliery 7.5 865 39	: 2 : P <u>TES</u> VALU 3 Pit Jamadoba Colliery 7.7 839 42	8/11/2024 H, TDS, TS T RESULT E 6 & 7 Pits Colliery 7.5 915 46	To 03/12/2 SS, BOD, C Digwadih Colliery 7.4 790 38	2024 COD, OIL & GREASE. Test Method IS-3025 (P-11):1983 IS-3025 (P-16):1984 IS-3025(P-17): 1984	
No. 1. 2. 3. 4.	Date of Te     Test     PARAMETERS OF     TEST     PH,     Total Dissolved     Solids, mg/l     Total Suspended     Solids, mg/l     Bio chemical     Oxygen Demand,     mg/l     Chemical Oxygen	2 Pit Jamadoba Colliery 7.5 865 39 2.2	: 2 : p <u>TES</u> VALU 3 Pit Jamadoba Colliery 7.7 839 42 3.4	8/11/2024 H, TDS, TS T RESULT E 6 & 7 Pits Colliery 7.5 915 46 2.9	To 03/12/2 SS, BOD, C Digwadih Colliery 7.4 790 38 2.7	2024 COD, OIL & GREASE. Test Method IS-3025 (P-11):1983 IS-3025 (P-16):1984 IS-3025 (P-17): 1984 IS-3025 (P-4):1994	

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5 Sr. Chemist Aditi R&D Services



Technical Manager Aditi R&D Services, Sindri

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A R D	72	ng L	aboratory CREDITED	and the second second second		Piot No I-B-17 (P) Sindri, Industrial Area, P.O Domgarh, Dist - Dhanbad Jharkhand - 828107 Email ID: sindriadit@gmail.com Website: aditimdservices.com
¥	(A Constituent Bo ISO/IEC 17025:2017, ISO 900				artified	Phone: 0326-2952377 (0), * Fax: 0326-2952377
R	ef. No.: - ARDS/24-25/ETP/1	1.201	3,130 (011343)	45001.2010	- Contraction	Mobile: 09471358492, 09431512 te: 04/12/2024
	TES	RE	PORT OF	EFFLUEN	<u>1</u>	
	<ul> <li>Name of the industry</li> </ul>	:	TATA STI JAMADO	STEEL, JA EEL LIMITE BA GROUP IANBAD (JI	D PLANT,	
	Work Order Ref. NO.:	:	470012655	7/932 Date:-	29/05/20	24
	Sample Code	:	1. E.T.P. 0	Dutlet T.C.H		
			2. E.T.P. (	Dutlet Garag	ge	
	Date of Sample Collection	on:	25/11/202	4 To 26/11	2024	
	<ul> <li>Date of Testing</li> </ul>	:	28/11/202	4 To 03/12	/2024	
	Test	:	pH, TDS,	TSS, BOD,	COD, OI	L & GREASE.
		1	TEST RESU	I		
SI. No.	PARAMETERS OF TEST		VALUE			Test Method
NO.	-		E.T.P. Outlet T.C.H.	E.T.P. Outlet Garage		*
1.	pH,	-	8.2	8.0	IS-3025	5 (P-11): 1983
2.	Total Dissolved Solids, mg/	1	788	895	IS-3025	5 (P-16): 1984
3.	Total Suspended Solids, mg	n I	39	43	IS-3025	5(P-17) : 1984
4.	Bio chemical Oxygen Deman	d,	2.4	7.2	IS-302	5 (P-44):1994
5.	Chemical Oxygen Demand, m	g/l	58	89	IS-302	5 (P-58):2006
6.	Oil & Grease, mg/l	1.2	0.9	2.4	IS-302	5 (P-39):2021
N	ote : BDL - Below Detection Limit		ADI	95		
	Sr. Chemist Aditi R&D Services	(				Manager vices, Sindri

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D S	Ì		g Labora ACCREDIT	tory ED		Sind P.O. Jhar Ema Web	khand - 82 il ID: sindri site: aditim	l Area, Dist Dhant
	ISO/IEC 17025:2		and the second se		and the second se		0326-2952 ile: 094713	2377 58492, 0943
Ref	. No.: - ARDS/24-2		EPORT OF	DRINKING	WATER	Date: 04	1/12/2024	с.,
	Name of the i	5	JAMADO DIST D	EEL LIMIT	ed Plant, Jharkh	AND)		
	Work Order R     Sample Code		: 1. Ca	557/932 Da anteen- Ja anteen- Ja	madoba C	olliery		
			3. Ca 4. Ca	anteen- Di anteen- 68	gwadih Co 7 Pits Co	olliery		
	<ul> <li>Date of Samp</li> <li>Date of Testir</li> <li>Test</li> </ul>		22 SUD71	8.2024 To 8.2024 To		10583 -		
	Compound, Me	ercury, Cadmi	ium, Arsenie	c, Cyanide,				henolic
SI.		ercury, Cadmi	ium, Arsenio ity, Aluminiu	c, Cyanide, m & Boron. RESULT	Lead, Zin	litrate, Flu nc, Total	Coliform, per IS	henolic Total Test
SI. No	Compound, Me Chromium, Mine	ercury, Cadmi	ium, Arsenio ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba	c, Cyanide, m & Boron. RESULT	Lead, Zin	litrate, Flu ic, Total	Coliform, per IS	henolic Total Test
( T. S.	Compound, Me Chromium, Mine PARAMETERS	ercury, Cadmi eral Oil, Alkalin Canteen- Jamadoba	ium, Arsenie ity, Aluminiu <u>TEST R</u> VAL Canteen-	c, Cyanide, m & Boron. <u>RESULT</u> UE Canteen Digwadih	Lead, Zin Canteen- 6&7 Pits	litrate, Flu nc, Total IS as p 10500 Desirab	Coliform, per IS 2012 Permi	Total Total Test Metho IS 3025
No	Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour	Canteen- Jamadoba Colliery 1 Agreeable	ium, Arsenio ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba Washery 1 Agreeable	c, Cyanide, m & Boron. <u>ESULT</u> UE Canteen Digwadih Colliery 1 Agreeable	Lead, Zin Canteen- 6&7 Pits Colliery 1 Agreeable	litrate, Flu nc, Total IS as p 10500 Desirab Ie 5.00 Agreeabl e	Coliform, per IS 2012 Permi ssible 15.0° Agree able	Test Test Method (P-4):202 IS 3025 ( 5):2018
No 1.	Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit)	Canteen- Jamadoba Colliery	ium, Arsenio ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba Washery 1	c, Cyanide, Im & Boron. RESULT UE Canteen Digwadih Colliery 1	Lead, Zin Canteen- 6&7 Pits Colliery 1	litrate, Flu nc, Total IS as p 10500: Desirab le 5.00 Agreeabl e Agreeabl e	Coliform, per IS 2012 Permi ssible 15.0° Agree able	Test Test Method IS 3025 (P-4):202 IS 3025 ( 5):2018 IS 3025 ( 7):2017
No 1. 2.	Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour	Canteen- Jamadoba Colliery 1 Agreeable	ium, Arsenio ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba Washery 1 Agreeable	c, Cyanide, m & Boron. <u>ESULT</u> UE Canteen Digwadih Colliery 1 Agreeable	Lead, Zin Canteen- 6&7 Pits Colliery 1 Agreeable	litrate, Flu nc, Total IS as p 10500 Desirab le 5.00 Agreeabl e Agreeabl	Coliform, per IS 2012 Permi ssible 15.0° Agree able Agree	Test Test Metho (P-4):203 (5):2018 IS 3025 (7):2017 IS 3025
No 1. 2. 3.	Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste	Canteen- Jamadoba Colliery 1 Agreeable Agreeable	ium, Arsenio ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba Washery 1 Agreeable Agreeable	c, Cyanide, Im & Boron. ESULT UE Canteen Digwadih Colliery 1 Agreeable Agreeable	Lead, Zin Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable	litrate, Flu nc, Total IS as p 10500: Desirab le 5.00 Agreeabl e 1.0 6.5-8.5	Coliform, ber IS 2012 Permi ssible 15.0° Agree able Agree able	Test Total Test Metho (P-4):207 (S 3025 (5):2018 (S 3025 (7):2017 (S 3025 (7):2017 (S 3025 (7):2017 (S 3025) (11):198
No 1. 2. 3. 4.	Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU	Canteen- Jamadoba Colliery 1 Agreeable Agreeable	ium, Arsenio ity, Aluminiu <u>TEST F</u> VAL Canteen- Jamadoba Washery 1 Agreeable Agreeable 0.8	c, Cyanide, Im & Boron. ESULT UE Canteen Digwadih Colliery 1 Agreeable Agreeable 0.2	Lead, Zin Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable 3.0	litrate, Flu nc, Total IS as p 10500: Desirab le 5.00 Agreeabl e Agreeabl e 1.0	Coliform, ber IS 2012 Permi ssible 15.0° Agree able Agree able 5.0 No.	Test Total Test Metho (P-4):207 (S 3025 (7):2017 (S 3025 (7):2017 (S 3025 (7):2017 (S 3025 (7):2017 (S 3025 (11):198 (S 3025) (11):198
No 1. 2. 3. 4. 5.	Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU pH Total Hardness	Canteen- Jamadoba Colliery 1 Agreeable Agreeable 1.0 7.52	ium, Arsenio ity, Aluminiu <u>TEST F</u> VAL Canteen- Jamadoba Washery 1 Agreeable Agreeable 0.8 7.76	c, Cyanide, Im & Boron. ESULT UE Canteen Digwadih Colliery 1 Agreeable Agreeable 0.2 7.92	Lead, Zin Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable 3.0 7.80	litrate, Flu nc, Total IS as p 10500: Desirab le 5.00 Agreeabl e 1.0 6.5-8.5	Coliform, Der IS 2012 Permi ssible 15.0° Agree able Agree able 5.0 No. Relax.	Test Total Test Method IS 3025 (P-4):207 IS 3025 ( 5):2018 IS 3025 ( 7):2017 IS 3025 ( 11):198 IS-3025 ( 21):200 IS 3025 (
No 1. 2. 3. 4. 5. 6.	Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU pH Total Hardness as CaCO <sub>3</sub> , mg/l Chloride as Cl, mg/l Res. Free chlorine as Cl <sub>2</sub> mg/l	Canteen- Jamadoba Colliery 1 Agreeable Agreeable 1.0 7.52 400	ium, Arsenio ity, Aluminiu <u>TEST F</u> VAL Canteen- Jamadoba Washery 1 Agreeable 0.8 7.76 580 80.81 NIL	c, Cyanide, Im & Boron. ESULT UE Canteen Digwadih Colliery 1 Agreeable Agreeable 0.2 7.92 540	Lead, Zin Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable 3.0 7.80 304	litrate, Flu nc, Total IS as p 10500: Desirab le 5.00 Agreeabl e 1.0 6.5-8.5 200	Coliform, Der IS 2012 Permi ssible 15.0° Agree able Agree able 5.0 No. Relax. 600	henolic Total Total IS 3025 (P-4):207 IS 3025 (P-4):207 IS 3025 (5):2011 IS 3025 (7):2017 IS 3025 (11):198 IS-3025 (21):200 IS 3025 (32):198 IS 3025
No 1. 2. 3. 4. 5. 6. 7.	Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU pH Total Hardness as CaCO <sub>3</sub> , mg/l Chloride as Cl, mg/l Res. Free chlorine as Cl <sub>2</sub> mg/l Total Dissolved	Canteen- Jamadoba Colliery 1 Agreeable Agreeable 1.0 7.52 400 65.77	ium, Arsenio ity, Aluminiu <u>TEST F</u> VAL Canteen- Jamadoba Washery 1 Agreeable Agreeable 0.8 7.76 580 80.81	c, Cyanide, Im & Boron. ESULT UE Canteen Digwadih Colliery 1 Agreeable 0.2 7.92 540 67.65	Lead, Zin Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable 3.0 7.80 304 33.82	litrate, Flu nc, Total IS as p 10500: Desirab le 5.00 Agreeabl e 1.0 6.5-8.5 200 250	Coliform, Der IS 2012 Permi ssible 15.0° Agree able 5.0 No. Relax. 600 1000	henolic Total Total IS 3025 (P-4):207 IS 3025 (5):2017 IS 3025 (5):2017 IS 3025 (7):2017 IS 3025 (11):198 IS-3025 (21):200 IS 3025 (32):198 IS 3025 (26):202
No 1. 2. 3. 4. 5. 6. 7. 8.	Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU pH Total Hardness as CaCO <sub>3</sub> , mg/I Chloride as Cl, mg/I Res. Free chlorine as Cl <sub>2</sub> mg/I Total Dissolved Solids, mg/I Calcium as	Canteen- Jamadoba Colliery 1 Agreeable Agreeable 1.0 7.52 400 65.77 NIL	ium, Arsenio ity, Aluminiu <u>TEST F</u> VAL Canteen- Jamadoba Washery 1 Agreeable 0.8 7.76 580 80.81 NIL	c, Cyanide, Im & Boron. ESULT UE Canteen Digwadih Colliery 1 Agreeable 0.2 7.92 540 67.65 NIL	Lead, Zin Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable 3.0 7.80 304 33.82 NIL	litrate, Flu nc, Total IS as p 10500: Desirab le 5.00 Agreeabl e 1.0 6.5-8.5 200 250 0.20	Coliform, ber IS 2012 Permi ssible 15.0° Agree able 5.0 No. Relax. 600 1000 1.0	henolic Total Total IS 3025 (P-4):207 IS 3025 ( 5):2017 IS 3025 ( 5):2017 IS 3025 ( 11):198 IS 3025 ( 21):200 IS 3025 ( 32):198 IS 3025 ( 26):202 IS 3025 ( 16):198 IS 3025 ( 16):198
No 1. 2. 3. 4. 5. 6. 7. 8. 9.	Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU pH Total Hardness as CaCO <sub>3</sub> , mg/l Chloride as Cl, mg/l Res. Free chlorine as Cl <sub>2</sub> mg/l Total Dissolved Solids, mg/l	Canteen- Jamadoba Colliery 1 Agreeable 1.0 7.52 400 65.77 NIL 535	ium, Arsenio ity, Aluminiu <u>TEST F</u> VAL Canteen- Jamadoba Washery 1 Agreeable 0.8 7.76 580 80.81 NIL 540	c, Cyanide, Im & Boron. ESULT UE Canteen Digwadih Colliery 1 Agreeable 0.2 7.92 540 67.65 NIL 595	Lead, Zin Canteen- 6&7 Pits Colliery 1 Agreeable 3.0 7.80 304 33.82 NIL 280	litrate, Flu ic, Total IS as p 10500: Desirab le 5.00 Agreeabl e 1.0 6.5-8.5 200 250 0.20 500	Coliform, ber IS 2012 Permi ssible 15.0° Agree able 5.0 No. Relax. 600 1000 1.0 2000	Test Test Method IS 3025 (P-4):202 IS 3025 ( 5):2018 IS 3025 (

Statements :

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2. The test results reported in this report are valid at the time of and under the stated condition of measurment.

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								3	
SI. No.	PARAMETERS OF TEST	Canteen-	VALI	JE Canteen	Canteen		per IS 0:1991	Test Method	
NO.	1231	Jamadoba Colliery	Jamadoba Washery	Digwadih Colliery	- 6&7 Pits Colliery	Desira ble	Permis sible	Method	
12.	Manganese as Mn, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.10	0.30	IS 3025 (I 59):2006	
13.	Sulphate as SO4, mg/l	48.10	41.70	51.4	42.6	200	400	IS 3025 (I 24):1986	
14.	Nitrate as NO <sub>3</sub> , mg/l	3.3	5.6	4.9	4.2	45	No. Relax	IS 3025 (I 34):1988	
15.	Fluoride as F, mg/l	0.34	0.30	0.32	0.37	1.0	1.5	IS 3025 (I 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 (I 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 (I 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 (I 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 (I 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 (I 27):1980	
21.	Lead as Pb, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.01	No. Relax	IS 3025 (I 47):1994	
22.	Zinc as Zn, mg/l,	0.12	0.18	0.23	0.16	5	15	IS 3025 (I 42):1992	
23.	Total Coliform, No./100ml	Absent B.D.L	Absent B.D.L	Absent	Absent	Absen t	Absent	IS 3025 (1 49):1994	
24.	Total Chromium as Cr, mg/l			B.D.L	B.D.L	0.05	No. Relax	IS 3025 (I 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 (I 39):1989	
26.	Alkalinity as CaCO <sub>3</sub> , mg/l,	424	388	400	568	200	600	IS 3025 (I 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 (1 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 (I 57):2005	

Sr. Chemist Aditi R&D Services



**Technical Manager** 

Aditi R&D Services, Sindri

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	Ref. No.: - A	RDS/24-2		TREPOR	TOFOE			Date: 0	4/12/202	24
	• Name	of the in		: M/ST TATA JAM/	TATA ST A STEEL ADOBA (	EEL, JAM/ LIMITED GROUP PL BAD (JHA	ADOBA,			
		Order R	ef. NO.	: 4700 :	126557/9 1. Purna 2. Digwa 3. Kali M 4. Upper	032 Date:- adih (Jorap adih 10 No Iela Kali M r Dungari uadih Bast	29/05/202 okhar) F&J. andir			
	Date	of Samn	le Collect		6. 6&7 P	its (Ayodh 24 to 26/1	ya Nagri)			
		of Testir		:	28/11/20	024 To 04/ Odour, Taste	12/2024	, pH, To	tal Hardr	1855,
	Date     Test PARAMETER			:	28/11/20 Colour, C Iron, Chk Solids, C Fluoride, Arsenic,	024 To 04/ Odour, Taste oride, Res. alcium, Cop Phenolic C Cyanide, Le m, Mineral (	12/2024 e, Turbidity Free chlori oper, Mang ompound, ad, Zinc, 1	ne, Tota ganese, Mercury Total Col ity, Alum	I Dissolv Sulphate /, Cadmin liform, ninium 8 per IS	red 9, Nitrate, um,
	• Date • Test			:	28/11/20 Colour, C Iron, Chlo Solids, C Fluoride, Arsenic, Chromiu ST RES	024 To 04/ Odour, Taste oride, Res. alcium, Cop Phenolic C Cyanide, Le m, Mineral (	12/2024 e, Turbidity Free chlori oper, Mang ompound, ad, Zinc, 1	ne, Tota ganese, Mercury Total Col ity, Alum	I Dissolv Sulphate /, Cadmin liform, hinium &	ed , Nitrate, um, & Boron.
No 1.	Date     Test PARAMETER S OF TEST Colour, (Hazen Unit)	Purnad ih 2	Digwadih 10 NoF&J. 1	: : <u>TE</u> V Kali Mela KaliMandir 2	28/11/20 Colour, C Iron, Chi Solids, C Fluoride, Arsenic, Chromiu <u>ST RES</u> /ALUE Upper Dungari 2	24 To 04/ Dour, Tastroride, Res. I salcium, Cop Phenolic C Cyanide, Le m, Mineral C <u>ULT</u> Kenduadih Basti 1	12/2024 e, Turbidity Free chlori oper, Mang ompound, ad, Zinc, 1 Dil, Alkalini 6 & 7Pit (Ayodhya Nagri) 1	ne, Tota janese, S Mercury Total Col ity, Alum IS as 1050 Desir - able 5	I Dissolv Sulphate 7, Cadmin liform, ninium 8 per IS 0:1991 Permi- ssible 15	red , Nitrate, um, & Boron. Test Method IS 3025 (P- 4):2021
No 1. 2.	Date     Test     PARAMETER S OF TEST     Colour,     (Hazen Unit)     Temperature "C     Electrical     Conductivity,	Purnad ih	Digwadih 10 NoF&J.	: : <u>TE</u> V Kali Mela KaliMandir	28/11/20 Colour, C Iron, Chk Solids, C Fluoride, Arsenic, Chromiu ST RES /ALUE Upper Dungari	24 To 04/ Odour, Taste oride, Res. alcium, Cop Phenolic C Cyanide, Le m, Mineral C ULT Kenduadih Basti	412/2024 e, Turbidity Free chlori oper, Mang ompound, ad, Zinc, 1 Dil, Alkalini 6 & 7Pit (Ayodhya Nagri)	ne, Tota ganese, S Mercury Total Col ity, Alum IS as 1050 Desir - able	I Dissolv Sulphate 7, Cadmin liform, ninium 8 per IS 0:1991 Permi- ssible	ed , Nitrate, um, & Boron. Test Method IS 3025 (P-
No 1. 2. 3.	• Date • Test • Test PARAMETER S OF TEST Colour, (Hazen Unit) Temperature "C Electrical Conductivity, µmhos/cm Total Dissolved	Purnad ih 2 25	Digwadih 10 NoF&J. 1 24	: : <u>TE</u> V Kali Mela Kali Mandir 2 25	28/11/20 Colour, C Iron, Chi Solids, C Fluoride, Arsenic, Chromiu ST RES /ALUE Upper Dungari 2 2	24 To 04/ Dodour, Taste oride, Res. I Salcium, Cop Phenolic C Cyanide, Le m, Mineral C SULT Kenduadih Basti 1 25	12/2024 e, Turbidity Free chlori oper, Mang ompound, ad, Zinc, 1 Dil, Alkalini 6 & 7Pit (Ayodhya Nagri) 1 24	ne, Tota janese, S Mercury Total Col ity, Alum IS as 1050 Desir - able 5	I Dissolv Sulphate 7, Cadmin liform, ninium 8 per IS 0:1991 Permi- ssible 15	ed , Nitrate, um, & Boron. Test Method IS 3025 (P- 4):2021
No 1. 2. 3. 4.	• Date • Test • Test PARAMETER S OF TEST Colour, (Hazen Unit) Temperature "C Electrical Conductivity, µmhos/cm	Purnad ih 2 25 1414	Digwadih 10 NoF&J. 1 24 1390	: : <u>TE</u> Kali Mela KaliMandir 2 25 1070	28/11/20 Colour, C Iron, Chi Solids, C Fluoride, Arsenic, Chromiu <u>ST RES</u> /ALUE Upper Dungari 2 24 590	24 To 04/ Dour, Tastroride, Res. I alcium, Cop Phenolic C Cyanide, Le m, Mineral G ULT Kenduadih Basti 1 25 780	(12/2024 e, Turbidity Free chlori oper, Mang ompound, ad, Zinc, 1 Dil, Alkalini 6 & 7Pit (Ayodhya Nagri) 1 24 810	ne, Tota janese, S Mercury fotal Col ity, Alum IS as 1050 Desir - able 5 -	I Dissolv Sulphate 7, Cadmin liform, ninium & per IS 0:1991 Permi- ssible 15 -	ed , Nitrate, um, & Boron. Test Method IS 3025 (P- 4):2021
No 1. 2. 3. 4. 5.	• Date • Test • Test PARAMETER S OF TEST Colour, (Hazen Unit) Temperature "C Electrical Conductivity, µmhos/cm Total Dissolved Solids, mg/l pH Total Hardness as CaCO <sub>3</sub> , mg/l	Purnad ih 2 25 1414 710 7.9 575	Digwadih 10 NoF&J. 1 24 1390 680 7.8 480	: : <u>TE</u> V Kali Mela KaliMandir 2 25 1070 513	28/11/20 Colour, C Iron, Chil Solids, C Fluoride, Arsenic, Chromiu ST RES /ALUE Upper Dungari 2 24 590 539	24 To 04/ Dour, Taste oride, Res. Lalcium, Cop Phenolic C Cyanide, Le m, Mineral G ULT Kenduadih Basti 1 25 780 577 7.3 380	12/2024 e, Turbidity Free chlori oper, Mang ompound, ead, Zinc, T Dil, Alkalini 6 & 7Pit (Ayodhya Nagri) 1 24 810 510 7.8 362	ne, Tota janese, S Mercury Total Col ity, Alum IS as 10500 Desir - able 5 - 500 6.5- 8.5 200	I Dissolv Sulphate 7, Cadmin liform, ninium 8 0:1991 Permi- ssible 15 - 2000 No	ed , Nitrate, um, & Boron. Test Method IS 3025 (P- 4):2021 - - IS 3025(P- 16):1984 IS-3025(P- 11):1983 IS 3025(P- 21):2009
No 1. 2. 3. 4. 5. 6. 7.	• Date • Test • Test PARAMETER S OF TEST Colour, (Hazen Unit) Temperature "C Electrical Conductivity, µmhos/cm Total Dissolved Solids, mg/l pH Total Hardness as CaCO <sub>3</sub> , mg/l Calcium as Ca, mg/l	of Testir Purnad ih 2 25 1414 710 7.9 575 155.2	Digwadih 10 NoF&J. 1 24 1390 680 7.8 480 163.4	: : Kali Mela Kali Mandir 2 25 1070 513 7.4 496 95	28/11/20 Colour, C Iron, Chi Solids, C Fluoride, Arsenic, Chromiu ST RES /ALUE Upper Dungari 2 24 590 539 7.7 336 144	24 To 04/ Dour, Taste oride, Res. I salcium, Cop Phenolic C Cyanide, Le m, Mineral G ULT Kenduadih Basti 1 25 780 577 7.3 380 78	12/2024 e, Turbidity Free chlori oper, Mang compound, ead, Zinc, 1 Dil, Alkalini 6 & 7Pit (Ayodhya Nagri) 1 24 810 510 7.8 362 67.5	ne, Tota janese, S Mercury Total Col ity, Alum IS as 10500 Desir - able 5 - 500 6.5- 8.5 200 75	I Dissolv Sulphate 7, Cadmin liform, ninium 8 per IS 0:1991 Permi- ssible 15 - 2000 No Relax 600 200	ed , Nitrate, um, & Boron. Test Method IS 3025 (P- 4):2021 - - IS 3025(P- 16):1984 IS-3025(P- 11):1983 IS 3025(P- 21):2009 IS 3025(P- 40):1991
No 1. 2. 3. 4. 5. 6. 7. 8.	• Date • Test • Test PARAMETER S OF TEST Colour, (Hazen Unit) Temperature "C Electrical Conductivity, µmhos/cm Total Dissolved Solids, mg/l PH Total Hardness as CaCO <sub>3</sub> , mg/l Calcium as Ca, mg/l Magnesium as Mg, mg/l	of Testir Purnad ih 2 25 1414 710 7.9 575 155.2 50.4	ng Digwadih 10 NoF&J. 1 24 1390 680 7.8 680 7.8 480 163.4 20.2	: : Kali Mela Kali Mandir 2 25 1070 513 7.4 496 95 62.8	28/11/20 Colour, C Iron, Chi Solids, C Fluoride, Arsenic, Chromiu ST RES /ALUE Upper Dungari 2 24 590 539 7.7 336 144 48.2	024 To 04/ Odour, Taste oride, Res. I salcium, Cop Phenolic C Cyanide, Le m, Mineral G <u>ULT</u> Kenduadih Basti 1 25 780 577 7.3 380 78 43.5	(12/2024 e, Turbidity Free chlori oper, Mang ompound, ad, Zinc, 1 Dil, Alkalini (Ayodhya Nagri) 1 24 810 510 7.8 362 67.5 48.4	ne, Tota janese, S Mercury Total Col ity, Alum IS as 10500 Desir - able 5 - 500 6.5- 8.5 200 75 30	I Dissolv Sulphate 7, Cadmin liform, ninium 8 per IS 0:1991 Permi- ssible 15 - 2000 No Relax 600 200 100	ed , Nitrate, um, & Boron. Test Method IS 3025 (P- 4):2021 - - - IS 3025(P- 16):1984 IS-3025(P- 11):1983 IS 3025(P- 21):2009 IS 3025(P- 21):2009 IS 3025(P- 40):1991 IS 3025(P- 46):1994
	• Date • Test • Test PARAMETER S OF TEST Colour, (Hazen Unit) Temperature "C Electrical Conductivity, µmhos/cm Total Dissolved Solids, mg/l pH Total Hardness as CaCO <sub>3</sub> , mg/l Calcium as Ca, mg/l Magnesium as	of Testir Purnad ih 2 25 1414 710 7.9 575 155.2	Digwadih 10 NoF&J. 1 24 1390 680 7.8 480 163.4	: : Kali Mela Kali Mandir 2 25 1070 513 7.4 496 95	28/11/20 Colour, C Iron, Chi Solids, C Fluoride, Arsenic, Chromiu ST RES /ALUE Upper Dungari 2 24 590 539 7.7 336 144	24 To 04/ Dour, Taste oride, Res. I salcium, Cop Phenolic C Cyanide, Le m, Mineral G ULT Kenduadih Basti 1 25 780 577 7.3 380 78	12/2024 e, Turbidity Free chlori oper, Mang compound, ead, Zinc, 1 Dil, Alkalini 6 & 7Pit (Ayodhya Nagri) 1 24 810 510 7.8 362 67.5	ne, Tota janese, S Mercury Total Col ity, Alum IS as 10500 Desir - able 5 - 500 6.5- 8.5 200 75	I Dissolv Sulphate 7, Cadmin liform, ninium 8 per IS 0:1991 Permi- ssible 15 - 2000 No Relax 600 200	ed , Nitrate, um, & Boron. Test Method IS 3025 (P- 4):2021 - - IS 3025 (P- 16):1984 IS-3025 (P- 11):1983 IS 3025 (P- 21):2009 IS 3025 (P- 40):1991 IS 3025 (P-

Statements :

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	R D S	(A Const	Testing NABL ituent Boar	D SE g Labora ACCREDIT d of Quality 2015,ISO (O	ED Council	of India)		Jharkhand Email ID: s Website: a Phone: 03 Fax: 0326-	ustrial Area garh, Dist. - 828107 indriaditi@ ditimdserv 26-295237 2952377	- Dhanbad gmail.com ices.com
					2.					
SI. No	PARAMETERS OF TEST			VAI	LUE			IS as 10500	per IS :1991	Test Method
		Purnadih	Digwadih 10 NoF&J.	KaliMela KaliMandir	Upper Dungari	Kenduadi h Basti	6 & 7Pit (Ayodhya Nagri)	Desir- able	Perm is- sible	1000000
11	Sulphate as SO <sub>4</sub> , 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 <sub>3</sub> , 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 <sub>3</sub> , 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	<sup>°</sup> 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

Sr. Chemist Aditi R&D Services



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

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ISO/II	ADITI R&D SE Testing Labora NABL ACCREDIT (A Constituent Board of Quality CC 17025:2017, ISO 9001:2015,ISO (O	tory ED Council of Inc	dia) 2018 Certified	Plot No I-B-17 (P Sindri, Industrial Ar P.O Domgarh, Dis Jharkhand - 82810 Email ID: sindriadit Website: aditimdse Phone: 0326-2952377 Mobile: 094713584	rea, st - Dhanbad 17 Il@gmail.com srvices.com 377 (O), * 7
Ref. No.:	- ARDS/24-25/AAQ/1		Dat	e: 19/02/2025	
	TEST REPORT OF		IR QUALITY		
	TATA S JAMAD DIST	OBA GROU			
W	ork Order Ref. NO.: : 4700126	557/932 Dat	e:- 29/05/2024		
Da	te of Sample Collection : 12/02/20	25 To 13/02/2	025		
	te of Testing : 14/02/20 st Procedure : As per IS	25 To 18/02/3 -5182	2025		
	st Procedure : As per IS <u>TEST</u>	-5182 RESULTS			
	st Procedure : As per IS TEST LOCATION - 6 & 7	-5182 RESULTS PITS COLLIE	RY OFFICE		
Te	st Procedure : As per IS <u>TEST</u> LOCAT/ON - 6 & 7 Avg. Ambient Temperature	-5182 RESULTS PITS COLLIE 29 <sup>0</sup> C	RY OFFICE Avg. Humid		
Te SI No.	st Procedure : As per IS <u>TEST</u> LOCATION - 6 & 7 Avg. Ambient Temperature Particulars	-5182 RESULTS PITS COLLIE 29 <sup>0</sup> C Value	RY OFFICE Avg. Humid NAAQ - CPC	BSTANDARD	
Te SI No. 1.	st Procedure : As per IS <u>TEST</u> LOCATION - 6 & 7 Avg. Ambient Temperature Particulars Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	-5182 RESULTS PITS COLLIE 29 <sup>0</sup> C Value 79.78	RY OFFICE Avg. Humid NAAQ - CPC 100	B STANDARD	
Te SI No.	st Procedure : As per IS <u>TEST</u> LOCAT/ON - 6 & 7 Avg. Ambient Temperature Particulars Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup> Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	-5182 RESULTS PITS COLLIE 29°C Value 79.78 46.06	RY OFFICE Avg. Humid NAAQ - CPC 100 60	B STANDARD µg/m <sup>3</sup> µg/m <sup>3</sup>	
Te SI No. 1. 2. 3.	st Procedure : As per IS <u>TEST</u> LOCATION - 6 & 7 Avg. Ambient Temperature Particulars Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup> Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> SO <sub>2</sub> , µg/m <sup>3</sup>	-5182 RESULTS PITS COLLIE 29 <sup>0</sup> C Value 79.78 46.06 18.33	RY OFFICE Avg. Humid NAAQ - CPC 100 60 80	B STANDARD µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup>	
Te SI No. 1. 2. 3. 4.	st Procedure : As per IS <u>TEST</u> LOCATION - 6 & 7 Avg. Ambient Temperature Particulars Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup> Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> SO <sub>2</sub> , µg/m <sup>3</sup> NO <sub>2</sub> , µg/m <sup>3</sup>	-5182 RESULTS PITS COLLIE 29 <sup>0</sup> C Value 79.78 46.06 18.33 26.74	RY OFFICE Avg. Humid NAAQ - CPC 100 60 80 80	B STANDARD µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup>	
Te SI No. 1. 2. 3. 4. 5.	st Procedure : As per IS <u>TEST</u> LOCAT/ON - 6 & 7 Avg. Ambient Temperature Particulars Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup> Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> SO <sub>2</sub> , µg/m <sup>3</sup> NO <sub>2</sub> , µg/m <sup>3</sup> Ozone, µg/m <sup>3</sup>	-5182 RESULTS PITS COLLIE 29°C Value 79.78 46.06 18.33 26.74 15.42	RY OFFICE Avg. Humid NAAQ - CPC 100 60 80 80 180	B STANDARD µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup>	
Te SI No. 1. 2. 3. 4. 5. 6.	st Procedure : As per IS <u>TEST</u> LOCAT/ON - 6 & 7 Avg. Ambient Temperature Particulars Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup> Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> SO <sub>2</sub> , µg/m <sup>3</sup> NO <sub>2</sub> , µg/m <sup>3</sup> Ozone, µg/m <sup>3</sup> NH <sub>3</sub> , µg/m <sup>3</sup>	-5182 RESULTS PITS COLLIE 29°C Value 79.78 46.06 18.33 26.74 15.42 12.81	RY OFFICE Avg. Humid NAAQ - CPC 100 60 80 80 180 400	B STANDARD µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup>	
Te SI No. 1. 2. 3. 4. 5. 6. 7.	st Procedure : As per IS <u>TEST</u> LOCATION - 6 & 7 Avg. Ambient Temperature Particulars Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup> Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> SO <sub>2</sub> , µg/m <sup>3</sup> NO <sub>2</sub> , µg/m <sup>3</sup> Ozone, µg/m <sup>3</sup> NH <sub>3</sub> , µg/m <sup>3</sup> CO, mg/m <sup>3</sup>	-5182 RESULTS PITS COLLIE 29°C Value 79.78 46.06 18.33 26.74 15.42 12.81 0.74	RY OFFICE Avg. Humid NAAQ - CPC 100 60 80 80 180 400 4 m	EB STANDARD µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup>	
Te SI No. 1. 2. 3. 4. 5. 6.	st Procedure : As per IS <u>TEST</u> LOCAT/ON - 6 & 7 Avg. Ambient Temperature Particulars Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup> Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> SO <sub>2</sub> , µg/m <sup>3</sup> NO <sub>2</sub> , µg/m <sup>3</sup> Ozone, µg/m <sup>3</sup> NH <sub>3</sub> , µg/m <sup>3</sup> CO, mg/m <sup>3</sup> Pb, µg/m <sup>3</sup>	-5182 RESULTS PITS COLLIE 29°C Value 79.78 46.06 18.33 26.74 15.42 12.81 0.74 BDL	RY OFFICE Avg. Humid NAAQ - CPC 100 60 80 80 180 400 4 n 1 µ	EB STANDARD µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup> ng/m <sup>3</sup>	
Te SI No. 1. 2. 3. 4. 5. 6. 7. 8.	st Procedure : As per IS <u>TEST</u> LOCATION - 6 & 7 Avg. Ambient Temperature Particulars Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup> Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> SO <sub>2</sub> , µg/m <sup>3</sup> NO <sub>2</sub> , µg/m <sup>3</sup> Ozone, µg/m <sup>3</sup> NH <sub>3</sub> , µg/m <sup>3</sup> CO, mg/m <sup>3</sup> Pb, µg/m <sup>3</sup> As, ng/m <sup>3</sup>	-5182 RESULTS PITS COLLIE 29°C Value 79.78 46.06 18.33 26.74 15.42 12.81 0.74 BDL BDL	RY OFFICE Avg. Humid NAAQ - CPC 100 60 80 80 180 400 4 m 1 µ 6 m	B STANDARD µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup>	
Te SI No. 1. 2. 3. 4. 5. 6. 7. 8. 9.	st Procedure : As per IS <u>TEST</u> LOCAT/ON - 6 & 7 Avg. Ambient Temperature Particulars Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup> Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> SO <sub>2</sub> , µg/m <sup>3</sup> NO <sub>2</sub> , µg/m <sup>3</sup> Ozone, µg/m <sup>3</sup> NH <sub>3</sub> , µg/m <sup>3</sup> CO, mg/m <sup>3</sup> Pb, µg/m <sup>3</sup>	-5182 RESULTS PITS COLLIE 29°C Value 79.78 46.06 18.33 26.74 15.42 12.81 0.74 BDL	RY OFFICE Avg. Humid NAAQ - CPC 100 60 80 80 180 400 4 m 1 µ 6 m 20	EB STANDARD µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup> µg/m <sup>3</sup> ng/m <sup>3</sup>	

Sr. Aditi R&D Services



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

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R D S		ADITI R&D SE Testing Laborat NABL ACCREDIT (A Constituent Board of Quality 17025:2017, ISO 9001:2015,ISO (Of	tory ED Council of Ind	P.O Jhari Emai Web Vieb 018 Certified Fax:	No I-B-17 (P) i, Industrial Area, Domgarh, Dist Dhanbad chand - 828107 I ID: sindriaditi@gmail.com site: aditimdservices.com le: 0326-2952377 (O), 0326-2952377 le: 09471358492, 0943151260
	Ref. No.:	- ARDS/24-25/ AAQ/2		Date: 1	9/02/2025
		TEST REPORT OF			
	• Da	DIST ork Order Ref. NO.: : 4700126 te of Sample Collection : 12/02/20	6557/932 Dat 025 to 13/02/ 025 to 18/02/	JHARKHAND) e:- 29/05/2024 2025	
			RESULTS		
	-	LOCATION - OFFICERS		Concernence of the output of the	
	01.01	Avg. Ambient Temperature	29°C	Avg. Humidity	28%
	SI No.	Particulars	Value	NAAQ - CPCB	
	2.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	72.75	100 µg	
	3.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> SO <sub>2</sub> µg/m <sup>3</sup>	39.29	60 µg/	
	4.	NO <sub>2</sub> , µg/m <sup>3</sup>	17.79	80 µg/	
	5.	Ozone, µg/m <sup>3</sup>	25.32	80 µg/i	
	6.	NH <sub>3</sub> , µg/m <sup>3</sup>	15.92 13.09	180 µg	
	7.	CO, mg/m <sup>3</sup>	0.67	400 µg/ 4 mg/n	
				-	
	8.	Pb, µg/m <sup>3</sup>	BDL	1 µg/n	13

Sr. Chemist

Aditi R&D Service

As, ng/m<sup>3</sup>

Ni, ng/m<sup>3</sup>

Benzene, µg/m3

NOTE: BDL - Below Detection Limit

Benzoapyrene ng/m<sup>3</sup>

9.

10.

11.

12.



BDL

BDL

BDL

BDL

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

6 ng/m<sup>3</sup>

20 ng/m3

5 µg/m<sup>3</sup>

1 ng/m<sup>3</sup>

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ARDS	Testing NABL A (A Constituent Board	D SERVICES Laboratory ACCREDITED of Quality Council of India) 015,ISO (OHSAS) 45001:2018 Certified	Plot No I-B-17 (P) Sindri, Industrial Area, P.O Dorngarh, Dist Dhanbad Jharkhand - 828107 Email ID: sindriaditi@gmail.com Website: aditimdservices.com Phone: 0326-2952377 (O), Fax: 0326-2952377 Mobile: 09471358492, 0943151260
F	ef. No.: - ARDS/24-25/ AAQ/3	D	ate: 19/02/2025
	TEST REPO	ORT OF AMBIENT AIR QUALITY	
	Name of the industry	: M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST DHANBAD (JHARKHAND	2)
	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 - CE	ENTRAL WORKSHOP AREA , JAMAD	OPA

	Avg. Ambient Temperature	29°C	Avg. Humidity	28%
SI No.	Particulars	Value	NAAQ - CPCB STAND	ARD
1.	Particulate Matter (PM10), µg/m3	82.45	100 µg/m <sup>3</sup>	
2.	Particulate Matter (PM2.5), µg/m3	46.79	60 µg/m <sup>3</sup>	1
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	20.69	80 µg/m <sup>3</sup>	
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	28.46	80 µg/m <sup>3</sup>	
5.	Ozone, µg/m³	17.89	180 µg/m <sup>3</sup>	
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	15.92	400 µg/m <sup>3</sup>	
7.	CO, mg/m <sup>3</sup>	0.89	4 mg/m <sup>3</sup>	
8.	Pb, µg/m <sup>3</sup>	BDL	1 µg/m <sup>3</sup>	-
9.	As, ng/m <sup>3</sup>	BDL	6 ng/m <sup>3</sup>	
10.	Ni, ng/m <sup>3</sup>	BDL	20 ng/m <sup>3</sup>	
11.	Benzene, µg/m <sup>3</sup>	BDL	5 µg/m <sup>3</sup>	
12.	Benzoapyrene ng/m <sup>3</sup>	BDL	1 ng/m <sup>3</sup>	-

NOTE: BDL - Below Detection Limit

Sr. Chemist Aditi R&D Service



Technical Manager Aditi R&D Services, Sindri

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AN S		ADITI R&D SE Testing Laborat NABL ACCREDITI (A Constituent Board of Quality O C 17025:2017, ISO 9001:2015,ISO (OH	ED Council of Ind	ia)	P.O Dom Jharkhand Email ID: s Website: a Phone: 03 Fax: 0326	ustrial Årea, garh, Dist Dr I - 828107 sindriaditi@gm ditimdservices 26-2952377 ((	nail.com s.com O), L
	Ref. No.: ·	ARDS/24-25/ AAQ/4		Da	te: 19/02	/2025	
		TEST REPORT OF A	MBIENT A	R QUALITY			
		ork Order Ref. NO.: : 4700126		JHARKHAND) e:- 29/05/2024	8		
	• Da	st Procedure : As per IS	25 to 18/02/: 3-5182 RESULTS	2025			
	• Da	te of Testing : 14/02/20 st Procedure : As per IS <u>TEST I</u> LOCATION - TATA	25 to 18/02/2 5-5182 RESULTS A CENTRAL F	2025 HOSPITAL		201/	
	• Da • Te:	te of Testing : 14/02/20 st Procedure : As per IS <u>TEST I</u> LOCATION – TATA Avg. Ambient Temperature	25 to 18/02/2 5-5182 RESULTS CENTRAL 1 29°C	2025 HOSPITAL Avg. Humi	State State State State	28%	
	Da     Tes     SI No.	te of Testing : 14/02/20 st Procedure : As per IS <u>TEST I</u> LOCATION – TATA Avg. Ambient Temperature Particulars	25 to 18/02/2 5-5182 RESULTS A CENTRAL H 29°C Value	10SPITAL Avg. Humi NAAQ - CP	CB STAN		
	Da   Tes   SI No.   1.	te of Testing : 14/02/20 st Procedure : As per IS <u>TEST I</u> LOCATION – TATA Avg. Ambient Temperature Particulars Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	25 to 18/02/2 S-5182 RESULTS CENTRAL 1 29°C Value 66.31	AVG. Humi NAAQ - CP	CB STAN 0 µg/m³	NDARD	
	<ul> <li>Da</li> <li>Tes</li> <li>SI No.</li> <li>1.</li> <li>2.</li> </ul>	te of Testing : 14/02/20 st Procedure : As per IS <u>TEST</u> LOCATION – TATA Avg. Ambient Temperature Particulars Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup> Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	25 to 18/02/2 S-5182 RESULTS CENTRAL H 29°C Value 66.31 36.81	10SPITAL Avg. Humi NAAQ - CP 10	CB STAN 0 µg/m <sup>3</sup> 0 µg/m <sup>3</sup>		
	Da   Tes   SI No.   1.	te of Testing : 14/02/202 st Procedure : As per IS <u>TEST I</u> LOCATION - TATA Avg. Ambient Temperature Particulars Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup> Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> SO <sub>2</sub> , µg/m <sup>3</sup>	25 to 18/02/2 S-5182 RESULTS CENTRAL 1 29°C Value 66.31	HOSPITAL Avg. Humi NAAQ - CP 10 60 80	CB STAN O µg/m <sup>3</sup> O µg/m <sup>3</sup> O µg/m <sup>3</sup>	NDARD	
	<ul> <li>Da</li> <li>Tes</li> <li>SI No.</li> <li>1.</li> <li>2.</li> <li>3.</li> <li>4.</li> </ul>	te of Testing : 14/02/20 st Procedure : As per IS <u>TEST I</u> LOCATION - TATA Avg. Ambient Temperature Particulars Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup> Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> SO <sub>2</sub> , µg/m <sup>3</sup> NO <sub>2</sub> , µg/m <sup>3</sup>	25 to 18/02/2 S-5182 RESULTS CENTRAL 1 29°C Value 66.31 36.81 15.56 25.06	Avg. Humi NAAQ - CP 10 60 80 80 80	CB STAN O µg/m <sup>3</sup> O µg/m <sup>3</sup> O µg/m <sup>3</sup> O µg/m <sup>3</sup>	NDARD	
	<ul> <li>Da</li> <li>Tes</li> <li>SI No.</li> <li>1.</li> <li>2.</li> <li>3.</li> </ul>	te of Testing : 14/02/202 st Procedure : As per IS <u>TEST I</u> LOCATION – TATA Avg. Ambient Temperature Particulars Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup> Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> SO <sub>2</sub> , µg/m <sup>3</sup> NO <sub>2</sub> , µg/m <sup>3</sup> Ozone, µg/m <sup>3</sup>	25 to 18/02/2 S-5182 A CENTRAL M 29°C Value 66.31 36.81 15.56	HOSPITAL Avg. Humi NAAQ - CP 10 60 80 80 80 80 80 80 80 80 80 80 80 80 80	CB STAN 0 µg/m <sup>3</sup> 0 µg/m <sup>3</sup> 0 µg/m <sup>3</sup> 0 µg/m <sup>3</sup> 0 µg/m <sup>3</sup>	NDARD	
	<ul> <li>Da</li> <li>Tes</li> <li>SI No.</li> <li>1.</li> <li>2.</li> <li>3.</li> <li>4.</li> <li>5.</li> </ul>	te of Testing : 14/02/20 st Procedure : As per IS <u>TEST I</u> LOCATION - TATA Avg. Ambient Temperature Particulars Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup> Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> SO <sub>2</sub> , µg/m <sup>3</sup> NO <sub>2</sub> , µg/m <sup>3</sup>	25 to 18/02/2 S-5182 A CENTRAL M 29°C Value 66.31 36.81 15.56 25.06 16.86	2025 HOSPITAL Avg. Humi NAAQ - CP 10 60 80 80 80 80 80 80 80 80 80 80 80 80 80	CB STAN O µg/m <sup>3</sup> O µg/m <sup>3</sup> O µg/m <sup>3</sup> O µg/m <sup>3</sup>	NDARD	
	<ul> <li>Da</li> <li>Tes</li> <li>SI No.</li> <li>1.</li> <li>2.</li> <li>3.</li> <li>4.</li> <li>5.</li> <li>6.</li> </ul>	te of Testing : 14/02/20 st Procedure : As per IS <u>TEST I</u> LOCATION - TATA Avg. Ambient Temperature Particulars Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup> Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> SO <sub>2</sub> , µg/m <sup>3</sup> NO <sub>2</sub> , µg/m <sup>3</sup> NO <sub>2</sub> , µg/m <sup>3</sup> NH <sub>3</sub> , µg/m <sup>3</sup>	25 to 18/02/2 S-5182 RESULTS CENTRAL H 29°C Value 66.31 36.81 15.56 25.06 16.86 14.85	2025 HOSPITAL Avg. Humi NAAQ - CP 10 60 80 80 80 80 80 80 80 80 80 80 80 80 80	CB STAN 0 µg/m <sup>3</sup> 0 µg/m <sup>3</sup> 0 µg/m <sup>3</sup> 0 µg/m <sup>3</sup> 0 µg/m <sup>3</sup> 0 µg/m <sup>3</sup>	NDARD	
	<ul> <li>Da</li> <li>Tes</li> <li>SI No.</li> <li>1.</li> <li>2.</li> <li>3.</li> <li>4.</li> <li>5.</li> <li>6.</li> <li>7.</li> </ul>	te of Testing : 14/02/20 st Procedure : As per IS <u>TEST I</u> LOCATION - TATA Avg. Ambient Temperature Particulars Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup> Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> SO <sub>2</sub> , µg/m <sup>3</sup> NO <sub>2</sub> , µg/m <sup>3</sup> Ozone, µg/m <sup>3</sup> NH <sub>3</sub> , µg/m <sup>3</sup> CO, mg/m <sup>3</sup>	25 to 18/02/2 S-5182 RESULTS CENTRAL 1 29°C Value 66.31 36.81 15.56 25.06 16.86 14.85 0.79	2025 HOSPITAL Avg. Humi NAAQ - CP 10 60 80 80 80 80 80 80 80 80 80 80 80 80 80	CB STAN 0 µg/m <sup>3</sup> 0 µg/m <sup>3</sup> 0 µg/m <sup>3</sup> 0 µg/m <sup>3</sup> 0 µg/m <sup>3</sup> 0 µg/m <sup>3</sup> mg/m <sup>3</sup>	NDARD	
	<ul> <li>Da</li> <li>Tes</li> <li>SI No.</li> <li>1.</li> <li>2.</li> <li>3.</li> <li>4.</li> <li>5.</li> <li>6.</li> <li>7.</li> <li>8.</li> </ul>	te of Testing : 14/02/20 st Procedure : As per IS <u>TEST I</u> LOCATION - TATA Avg. Ambient Temperature Particulars Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> SO <sub>2</sub> , µg/m <sup>3</sup> NO <sub>2</sub> , µg/m <sup>3</sup> Ozone, µg/m <sup>3</sup> NH <sub>3</sub> , µg/m <sup>3</sup> CO, mg/m <sup>3</sup> Pb, µg/m <sup>3</sup>	25 to 18/02/2 S-5182 RESULTS CENTRAL 1 29°C Value 66.31 36.81 15.56 25.06 16.86 14.85 0.79 BDL	2025 HOSPITAL Avg. Humi NAAQ - CP 10 60 80 80 80 80 80 80 80 80 80 80 80 80 80	CB STAN 0 µg/m <sup>3</sup> 0 µg/m <sup>3</sup> 0 µg/m <sup>3</sup> 0 µg/m <sup>3</sup> 0 µg/m <sup>3</sup> mg/m <sup>3</sup> µg/m <sup>3</sup>	NDARD	
	<ul> <li>Da</li> <li>Tes</li> <li>SI No.</li> <li>1.</li> <li>2.</li> <li>3.</li> <li>4.</li> <li>5.</li> <li>6.</li> <li>7.</li> <li>8.</li> <li>9.</li> </ul>	te of Testing : 14/02/20 st Procedure : As per IS <u>TEST I</u> LOCATION - TATA Avg. Ambient Temperature Particulars Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup> Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> SO <sub>2</sub> , µg/m <sup>3</sup> NO <sub>2</sub> , µg/m <sup>3</sup> Ozone, µg/m <sup>3</sup> NH <sub>3</sub> , µg/m <sup>3</sup> CO, mg/m <sup>3</sup> Pb, µg/m <sup>3</sup> As, ng/m <sup>3</sup>	25 to 18/02/3 S-5182 RESULTS CENTRAL 1 29°C Value 66.31 36.81 15.56 25.06 16.86 14.85 0.79 BDL BDL	2025 HOSPITAL Avg. Humi NAAQ - CP 10 60 80 80 80 80 80 80 80 80 80 80 80 80 80	CB STAN 0 µg/m <sup>3</sup> 0 µg/m <sup>3</sup> 0 µg/m <sup>3</sup> 0 µg/m <sup>3</sup> 0 µg/m <sup>3</sup> mg/m <sup>3</sup> i ng/m <sup>3</sup>	NDARD	

emis Aditi R&D Services



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

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S	(A C ISO/IEC 17025:	onstitu 2017, IS	NABL ent Boar SO 9001		DIT ality 0 (OI	tory ED Counc HSAS)	il of Inc 45001:	lia) 2018 Certifi	P.O Domy Jharkhand Email ID: s Website: a Phone: 032 Fax: 0326-	ustrial Area, garh, Dist Dhant - 828107 indriaditi@gmail. ditImdservices.co 26-2952377 (O), 2952377 471358492, 0943
-	Ref. N	o. & Dat	e		-		NAME		SS OF THE CL	IENT
AR	DS/24-25/NOIS	E/1Dat	e: 19/02	/2025	-	-10	No. of Concession, Name of Street, or other		L, JAMADOB	
	Date of	Monitor	ing		TA	TA ST		and the second	MADOBA GR	OUP PLANT,
	11/02/2025	To 13/0	2/2025	,	An Temp	Avg. nbient peratu (°C)	H	Average lumidity (%)	Weather Condition	Status of the plant
	Work Order			8		29		30	Clear	Running
-	Date:- /	29/05/20	24	MON	ITO	RING	RESU	TS		
SI. No	Place of Monitoring		Day Ti (6 AM to Avg. d	10 PM)			Night (10 PM t Avg. d	o 6 AM)	for Industr CPCB No (Regulatio (Amendme notified vio Dt. 2	Ambient standar rial Area as per oise Pollution in and Control) nt) Rules, 2000 de S.O. 1046(E) 2.11.2020 n dB(A) Leg
									Day	Night
JAN	LOCATION MADOBA GROUP	MAX	MIN	AVG. dB Leq	(A)	MAX	MIN	AVERAGE dB(A) Leq	Industrial Area	Industrial
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		10
						ti			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
		sty	49.5	49.06	(= p. p. p. )=	41.37	38.22			40 Hager

			Annexure-
A R D S	Testin NABL (A Constituent Boa	ACCREDITED rd of Quality Council of India) :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
Re	f. No.: - ARDS/24-25/MINER./1	D	ate: 19/02/2025
	TEST REPORT	T OF MINERALOGICAL COMPOSI	TION
	<u>0</u>	F 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	·*··
•	and a second second second second	n : 12/02/2025 and 13/02/2025	
•	Date of Testing	: 14/02/2025 To 18/02/2025	
		TEST RESULTS	
	SI No. Particulars	Mineralogical C	omposition (%)

SI No.	Particulars	Mineralogical Composition				
		SiO <sub>2</sub>	FeO	Al <sub>2</sub> O <sub>3</sub>	ĊaO	
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

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IS	ADITI R&D Testing La NABL ACC (A Constituent Board of C O/IEC 17025:2017, ISO 9001:2015,I	boratory REDITED tuality Counc	il of India)	P.O - Jhan Emai Web Phon	No I-B-17 (P) ri, Industrial Area, Domgarh, Dist Dhanbai chand - 828107 il ID: sindriaditi@gmail.com site: aditimdservices.com re: 0326-2952377 (O), 0326-2952377 Ile: 09471358492, 094315
Ref.	No.: - ARDS/24-25/SW/1			Date: 1	9/02/2025
	TEST REPO	RT OF SU	RFACE V	VATER	
	Name of the industry : N	S TATA ST	TEEL, JAM	ADOBA,	
	т	ATA STEE	L LIMITED		
	J	AMADOBA	GROUP P	LANT,	
	D	IST DHAN	NBAD (JHA	RKHAND)	
	Work Order Ref. NO.: :	4700126	557/932 Da	te:- 29/05/2024	
		24 2000000	dar River I	Jp Stream	
•	Sample Code :			and the second se	
•		2. Damo	dar River	own Stream	
•	Date of Sample Collection: Date of Testing :	2. Damo 11/02/20 14/02/20	dar River I 25 25 To 18/0	own Stream 2/2025	5.00
•	Date of Sample Collection: Date of Testing : Test :	2. Damo 11/02/20 14/02/20 pH, TDS TEST RESI	odar River E 125 125 To 18/0 9, Turbidity, <u>ULT</u>	own Stream 2/2025 DO, BOD, CI,	, F, SO₄
SI. No.	Date of Sample Collection: Date of Testing :	2. Damo 11/02/20 14/02/20 pH, TDS TEST RESI VAI Damodar River Up	odar River E 25 25 To 18/0 5, Turbidity, ULT LUE Damodar River Dn	own Stream 2/2025	F, SO₄ Test Method
10000000	Date of Sample Collection: Date of Testing : Test :	2. Damo 11/02/20 14/02/20 pH, TDS <u>TEST RESI</u> VAI Damodar	odar River E 25 25 To 18/0 5, Turbidity, ULT LUE Damodar	2/2025 DO, BOD, CI, Limit as per IS 2296	Test Method
No.	Date of Sample Collection: Date of Testing : Test : PARAMETERS OF TEST	2. Damo 11/02/20 14/02/20 pH, TDS TEST RESI VAI Damodar River Up Stream	odar River D 25 25 To 18/0 5, Turbidity, ULT LUE Damodar River Dn Stream	2/2025 DO, BOD, CI, Limit as per IS 2296 Class - C	Test Method IS-3025 (P-11): 1983
No. 1.	Date of Sample Collection: Date of Testing : Test : PARAMETERS OF TEST PH	2. Damo 11/02/20 14/02/20 pH, TDS TEST RESI VAI Damodar River Up Stream 7.9	odar River E 25 25 To 18/03 5, Turbidity, ULT LUE Damodar River Dn Stream 7.6	Limit as per IS 2296 Class - C 6.5 -8.5	Test Method IS-3025 (P-11): 1983 IS-3025 (P-16): 1984
No. 1. 2.	Date of Sample Collection: Date of Testing : Test : PARAMETERS OF TEST pH Total Dissolved Solids, mg/I	2. Damo 11/02/20 14/02/20 pH, TDS TEST RESI VAI Damodar River Up Stream 7.9 434	odar River E 25 25 To 18/0 5, Turbidity, ULT LUE Damodar River Dn Stream 7.6 532	Limit as per IS 2296 Class - C 6.5 -8.5	Test Method IS-3025 (P-11): 1983 IS-3025 (P-16): 1984 IS-3025 (P-10):1984
No. 1. 2. 3.	Date of Sample Collection: Date of Testing : Test : PARAMETERS OF TEST PH Total Dissolved Solids, mg/l Turbidity, NTU	2. Damo 11/02/20 14/02/20 pH, TDS TEST RESI VAI Damodar River Up Stream 7.9 434 1	odar River E 25 25 To 18/03 5, Turbidity, ULT LUE Damodar River Dn Stream 7.6 532 1	2/2025 DO, BOD, CI, Limit as per IS 2296 Class - C 6.5 -8.5 1500	Test
No. 1. 2. 3. 4.	Date of Sample Collection: Date of Testing : Test : PARAMETERS OF TEST PH Total Dissolved Solids, mg/l Turbidity, NTU Dissolved Oxygen, mg/l Bio chemical Oxygen	2. Damo 11/02/20 14/02/20 pH, TDS TEST RESI VAI Damodar River Up Stream 7.9 434 1 5.1	odar River E 25 25 To 18/0 5, Turbidity, ULT Damodar River Dn Stream 7.6 532 1 5.2	2/2025 DO, BOD, CI, Limit as per IS 2296 Class - C 6.5 -8.5 1500 -	Test Method IS-3025 (P-11): 1983 IS-3025 (P-16): 1984 IS-3025 (P-10):1984 IS-3025 (P-38):1989 IS-3025 (P-44):1994
No. 1. 2. 3. 4. 5.	Date of Sample Collection: Date of Testing : Test : PARAMETERS OF TEST PH Total Dissolved Solids, mg/l Turbidity, NTU Dissolved Oxygen, mg/l Bio chemical Oxygen Demand, mg/l	2. Damo 11/02/20 14/02/20 pH, TDS TEST RESI VAI Damodar River Up Stream 7.9 434 1 5.1 1.7	odar River D 25 25 To 18/03 5, Turbidity, ULT LUE Damodar River Dn Stream 7.6 532 1 5.2 2.2	2/2025 DO, BOD, CI, Limit as per IS 2296 Class - C 6.5 -8.5 1500 - 4.0 (Min) 3.0	Test Method IS-3025 (P-11): 1983 IS-3025 (P-16): 1984 IS-3025 (P-10):1984 IS-3025 (P-38):1989

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R D	5	NAE onstituent Bo	ng Labora BL ACCREDI and of Quality	atory TED Council of	f India)	S P. J. E V P	lot No I-B-17 (P) indri, Industrial Area, O Domgarh, Dist Dhanba harkhand - 828107 mail ID: sindriaditi@gmail.co /ebsite: aditimdservices.com hone: 0326-2952377 (O), ax: 0326-2952377 lobile: 09471358492, 094315	m
	Ref. No.: - ARDS/	24-25/MWD/1				Date	: 21/02/2025	
		TEST REP	ORTOF	INE WA	TER DIS	CHARG	E	
	Name of th		T J D	I/S TATA S ATA STEI AMADOB/ IST DHA	EL LIMITE A GROUP ANBAD (JI	ED PLANT, HARKHAI	ND)	
	<ul> <li>Work Orde</li> <li>Sample C</li> </ul>	r Ref. NO.: ode	: 4 : 1 2 3 4	. 3 Pit . 6 & 7	Jamadob Jamadob Pits Colli	a Colliery a Colliery ery		
			-	. Digw	adih Colli	ery		
	<ul> <li>Date of Sa</li> <li>Date of Te</li> <li>Test</li> </ul>	ample Colle esting	ction: 1 : 1 : p	1/02/2025 4/02/2025 H, TDS, TS	To 12/02/ To 18/02/ SS, BOD, 0	2025 2025	& GREASE.	
51	<ul> <li>Date of Te</li> <li>Test</li> </ul>		ction: 1 : 1 : p <u>TES</u>	1/02/2025 4/02/2025 H, TDS, TS <u>T RESULT</u>	To 12/02/ To 18/02/ SS, BOD, 0	2025 2025 COD, OIL		
SI. No.	Date of Te		ction: 1 : 1 : p	1/02/2025 4/02/2025 H, TDS, TS <u>T RESULT</u>	To 12/02/ To 18/02/ SS, BOD, 0	2025 2025	& GREASE. Test Method	
	Date of Te     Test     PARAMETERS OF	2 Pit Jamadoba	ction: 1 : 1 : p <u>TES</u> VALU 3 Pit Jamadoba	1/02/2025 4/02/2025 H, TDS, TS <u>T RESULT</u> E 6 & 7 Pits	To 12/02/ To 18/02/ SS, BOD, 0	2025 2025 COD, OIL Limit as per IS-2296 Class B (For	Test	
No.	Date of Te     Test PARAMETERS OF TEST  PH, Total Dissolved Solids, mg/l	2 Pit Jamadoba Colliery	ction: 1 : 1 : p <u>TES</u> VALU 3 Pit Jamadoba Colliery 7.6	1/02/2025 4/02/2025 H, TDS, TS <u>T RESULT</u> E 6 & 7 Pits Colliery	To 12/02/ To 18/02/ SS, BOD, 0	2025 2025 COD, OIL Limit as per IS-2296 Class B (For Bathing)	Test Method IS-3025 (P-11):	
No. 1. 2. 3.	Date of Te     Test     PARAMETERS OF     TEST     pH,     Total Dissolved     Solids, mg/l     Total Suspended     Solids, mg/l	2 Pit Jamadoba Colliery 7.9 1209 22	ction: 1 : 1 : p <u>TES</u> VALU <u>3 Pit</u> Jamadoba Colliery 7.6 897 25	1/02/2025 4/02/2025 H, TDS, TS <u>T RESULT</u> E 6 & 7 Pits Colliery 7.9 624 27	To 12/02/ To 18/02/ SS, BOD, 0 Digwadih Colliery 7.8 987 29	2025 2025 COD, OIL Limit as per IS-2296 Class B (For Bathing) 6.5-8.5	Test Method IS-3025 (P-11): 1983 IS-3025 (P-16): 1984 IS-3025(P-17) : 1984	
No. 1. 2.	Date of Te     Test PARAMETERS OF TEST  PH,  Total Dissolved Solids, mg/l Total Suspended	2 Pit Jamadoba Colliery 7.9 1209	ction: 1 : 1 : p <u>TES</u> VALU 3 Pit Jamadoba Colliery 7.6	1/02/2025 4/02/2025 H, TDS, TS <u>T RESULT</u> E 6 & 7 Pits Colliery 7.9 624	To 12/02/ To 18/02/ SS, BOD, 0 Digwadih Colliery 7.8 987	2025 2025 COD, OIL Limit as per IS-2296 Class B (For Bathing) 6.5-8.5	Test Method IS-3025 (P-11): 1983 IS-3025 (P-16): 1984 IS-3025(P-17)	
No. 1. 2. 3.	Date of Te     Test     PARAMETERS OF     TEST     PH,     Total Dissolved     Solids, mg/l     Total Suspended     Solids, mg/l     Bio chemical     Oxygen Demand,	2 Pit Jamadoba Colliery 7.9 1209 22	ction: 1 : 1 : p <u>TES</u> VALU <u>3 Pit</u> Jamadoba Colliery 7.6 897 25	1/02/2025 4/02/2025 H, TDS, TS <u>T RESULT</u> E 6 & 7 Pits Colliery 7.9 624 27	To 12/02/ To 18/02/ SS, BOD, 0 Digwadih Colliery 7.8 987 29	2025 2025 COD, OIL Limit as per IS-2296 Class B (For Bathing) 6.5-8.5	Test Method IS-3025 (P-11): 1983 IS-3025 (P-16): 1984 IS-3025 (P-17) : 1984 IS-3025 (P-	



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R D S		Laborate ACCREDITE	D D	dia)	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, 094315126
	Ref. No.: - ARDS/24-25/ETP/1			D	ate: 19/02/2025
	TEST	REPORT	OF EF	FLUENT	
	Name of the industry	TA	TA STEEL	EEL, JAMADO LIMITED GROUP PLAN IBAD (JHARKH	т,
	Work Order Ref. NO.:	: 470	0126557/93	32 Date:- 29/05/	2024
	Sample Code	: 1.6	E.T.P. Out	et T.C.H.	
	<ul> <li>Date of Sample Collection</li> <li>Date of Testing</li> <li>Test</li> </ul>	: 14/ : pH	02/2025 T	o 12/02/2025 o 18/02/2025 S, BOD, COD, C	DIL & GREASE.
SI.	PARAMETERS OF TEST	VAL	States -	Canami	Test
No.	PARAMETERS OF TEST	E.T.P. Outlet T.C.H.	E.T.P. Outlet Garage	General Standard for discharge of Environmental Pollutants, Inland Surface water by the MoEF&C	Method
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

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	ADIT				ES	Sindri, I P.O D		rea, st Dhanbad
•)		Testing L	aborato	ry			and - 8281( D: sindriadi	)7 ti@gmail.com
/			CREDITED			Website		ervices.com
	(A Constit	tuent Board o	f Quality Co	uncil of Ind	ia)	Emr 07	26-295237	7
15	SO/IEC 17025:2017,	ISO 9001:201	5,ISO (OHS/	AS) 45001.2	ora cerune	Mobile	09471300	492, 0943151
Ref.	. No.: - ARDS/24-2			-		Date: 21	/02/2025	
		TESTR	EPORT OF	DRINKING	WATER			
	<ul> <li>Name of the in</li> </ul>	ndustry	JAMADO	BA GROU				
	• Work Order R	ef. NO.:	: 4700126					
	<ul> <li>Sample Code</li> </ul>		2. Ca	anteen- Ja	madoba C madoba V gwadih Co	Vashery		
	<ul> <li>Date of Samp</li> <li>Date of Testin</li> </ul>		n: 11/0		7 Pits Col 12/02/20	25		
SI.	Test Colour, Odour, T Dissolved Solid Compound, Me Chromium, Mine PARAMETERS	Taste, Turbidii Is, Calcium, Ircury, Cadm Iral Oil, Alkalir	: y, pH, Total Copper, M ium, Arsenid ity, Aluminiu <u>TEST R</u> VAL	Hardness, li langanese, c, Cyanide, im & Boron. <u>RESULT</u> UE	ron, Chlorid Sulphate, M Lead, Zir	e, Res. Fre Nitrate, Flu nc, Total	oride, P Coliform	henolic , Total Test
	<ul> <li>Test Colour, Odour, 1 Dissolved Solid Compound, Me Chromium, Mine</li> </ul>	Taste, Turbidit Is, Calcium, rcury, Cadm	: y, pH, Total Copper, M ium, Arsenid ity, Aluminiu TEST R	Hardness, li anganese, c, Cyanide, im & Boron. RESULT UE Canteen	ron, Chlorid Sulphate, M Lead, Zir	e, Res. Fre Nitrate, Flu nc, Total	oride, P Coliform	henolic , Total
SI. No	Test Colour, Odour, T Dissolved Solid Compound, Me Chromium, Mine PARAMETERS OF TEST	Taste, Turbidit Is, Calcium, Froury, Cadm Fral Oil, Alkalin Canteen- Jamadoba Colliery	: y, pH, Total Copper, M ium, Arsenid ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba Washery	Hardness, li anganese, c, Cyanide, im & Boron. <u>RESULT</u> UE Canteen Digwadih Colliery	ron, Chlorid Sulphate, M Lead, Zir Canteen- 6&7 Pits Colliery	e, Res. Fre Nitrate, Flu nc, Total IS as p 10500: Desirab Ie	er IS 2012 Permi ssible	henolic , Total Test Method
SI.	Test Colour, Odour, T Dissolved Solid Compound, Me Chromium, Mine PARAMETERS	Taste, Turbidii Is, Calcium, Frcury, Cadm Fral Oil, Alkalin Canteen- Jamadoba	: y, pH, Total Copper, M ium, Arsenid ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba	Hardness, li anganese, c, Cyanide, im & Boron. RESULT UE Canteen Digwadih	ron, Chlorid Sulphate, M Lead, Zir Canteen- 6&7 Pits	e, Res. Fre Nitrate, Flu nc, Total IS as p 10500: Desirab	er IS 2012 Permi	henolic , Total Test Method IS 3025 (P-4):2021
SI. No	Test Colour, Odour, T Dissolved Solid Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen	Taste, Turbidit Is, Calcium, Froury, Cadm Fral Oil, Alkalin Canteen- Jamadoba Colliery	: y, pH, Total Copper, M ium, Arsenid ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba Washery	Hardness, li anganese, c, Cyanide, im & Boron. <u>RESULT</u> UE Canteen Digwadih Colliery	ron, Chlorid Sulphate, M Lead, Zir Canteen- 6&7 Pits Colliery	e, Res. Fre Nitrate, Flu nc, Total IS as p 10500: Desirab Ie	er IS 2012 Permi ssible	henolic , Total Test Method IS 3025 (P-4):2021 IS 3025 (P- 5):2018
SI. No 1.	Test Colour, Odour, T Dissolved Solid Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit)	Taste, Turbidit Is, Calcium, ercury, Cadm eral Oil, Alkalin Canteen- Jamadoba Colliery 1	: copper, M ium, Arsenid ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba Washery 1	Hardness, li anganese, c, Cyanide, im & Boron. <u>RESULT</u> UE Canteen Digwadih Colliery 1	ron, Chlorid Sulphate, M Lead, Zir Canteen- 6&7 Pits Colliery 1	e, Res. Fre Nitrate, Flu nc, Total IS as p 10500: Desirab Ie 5.00 Agreeabl	er IS 2012 Permi ssible 15.0	henolic , Total Test Method IS 3025 (P-4):2021 IS 3025 (P- 5):2018 IS 3025 (P-
SI. No 1. 2.	Test Colour, Odour, <sup>1</sup> Dissolved Solid Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour	Taste, Turbidit Is, Calcium, Ircury, Cadm Irral Oil, Alkalin Canteen- Jamadoba Colliery 1 Agreeable	: y, pH, Total Copper, M ium, Arsenid ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba Washery 1 Agreeable	Hardness, II anganese, c, Cyanide, im & Boron. <u>RESULT</u> UE Canteen Digwadih Colliery 1 Agreeable	ron, Chlorid Sulphate, M Lead, Zir Canteen- 6&7 Pits Colliery 1 Agreeable	e, Res. Fre Nitrate, Flu nc, Total IS as p 10500: Desirab Ie 5.00 Agreeabl e Agreeabl	er IS 2012 Permi ssible 15.0 Agree able Agree	henolic , Total Test Method IS 3025 (P-4):2021 IS 3025 (P- 5):2018 IS 3025 (P- 7):2017 IS 3025 (P- 7):2017
SI. No 1. 2. 3.	Test Colour, Odour, T Dissolved Solid Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste	Taste, Turbidit Is, Calcium, Ircury, Cadm Iral Oil, Alkalin Canteen- Jamadoba Colliery 1 Agreeable Agreeable	: y, pH, Total Copper, M ium, Arseniu ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba Washery 1 Agreeable Agreeable	Hardness, Ir anganese, c, Cyanide, im & Boron. <u>RESULT</u> UE Canteen Digwadih Colliery 1 Agreeable Agreeable	ron, Chlorid Sulphate, M Lead, Zir Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable	e, Res. Fre Nitrate, Flu nc, Total IS as p 10500: Desirab Ie 5.00 Agreeabl e Agreeabl e	er IS 2012 Permi ssible 15.0 Agree able Agree able 5.0 No.	henolic , Total Test Method IS 3025 (P-4):2021 IS 3025 (P- 5):2018 IS 3025 (P- 7):2017 IS 3025 (P- 10):1984 IS-3025 (P-
SI. No 1. 2. 3.	Test Colour, Odour, T Dissolved Solid Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU pH Total Hardness	Taste, Turbidit Is, Calcium, incury, Cadm ral Oil, Alkalin Canteen- Jamadoba Colliery 1 Agreeable Agreeable 2	: y, pH, Total Copper, M ium, Arseniu ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba Washery 1 Agreeable Agreeable 2	Hardness, Ir anganese, c, Cyanide, im & Boron. <u>RESULT</u> UE Canteen Digwadih Colliery 1 Agreeable Agreeable	ron, Chlorid Sulphate, M Lead, Zir Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable	e, Res. Fre Nitrate, Flu nc, Total IS as p 10500: Desirab Ie 5.00 Agreeabl e Agreeabl e 1.0	er IS 2012 Permi ssible 15.0 Agree able 5.0	henolic , Total Test Method IS 3025 (P-4):2021 IS 3025 (P- 5):2018 IS 3025 (P- 7):2017 IS 3025 (P- 10):1984 IS-3025 (P- 11):1983 IS 3025 (P-
SI. No 1. 2. 3. 4. 5.	Test Colour, Odour, Dissolved Solid Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU pH Total Hardness as CaCO <sub>3</sub> , mg/l Chloride as CI,	Taste, Turbidit Is, Calcium, ercury, Cadmeral Oil, Alkalin Canteen- Jamadoba Colliery 1 Agreeable Agreeable 2 7.8	: y, pH, Total Copper, M ium, Arseniu ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba Washery 1 Agreeable Agreeable 2 7.7	Hardness, II anganese, c, Cyanide, im & Boron. <u>RESULT</u> UE Canteen Digwadih Colliery 1 Agreeable Agreeable	ron, Chlorid Sulphate, M Lead, Zir Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable 1 7.9	e, Res. Fre Nitrate, Flu nc, Total IS as p 10500: Desirab Ie 5.00 Agreeabl e Agreeabl e 1.0 6.5-8.5	er IS 2012 Permi ssible 15.0 Agree able Agree able 5.0 No. Relax.	henolic , Total Test Method IS 3025 (P-4):2021 IS 3025 (P- 5):2018 IS 3025 (P- 7):2017 IS 3025 (P- 10):1984 IS-3025 (P- 11):1983 IS 3025 (P- 21):2009
SI. No 1. 2. 3. 4. 5. 6.	Test Colour, Odour, T Dissolved Solid Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU pH Total Hardness as CaCO <sub>3</sub> , mg/l Chloride as Cl, mg/l Res. Free chlorine as Cl <sub>2</sub>	Taste, Turbidit Is, Calcium, ircury, Cadm irral Oil, Alkalin Ganteen- Jamadoba Colliery 1 Agreeable Agreeable 2 7.8 583.8	: y, pH, Total Copper, M ium, Arsenid ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba Washery 1 Agreeable 2 7.7 567.0	Hardness, Ir anganese, c, Cyanide, im & Boron. <u>RESULT</u> UE Canteen Digwadih Colliery 1 Agreeable Agreeable 1 7.9 441.0	ron, Chlorid Sulphate, M Lead, Zir Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable 1 7.9 344.4	e, Res. Fre Nitrate, Flu nc, Total IS as p 10500: Desirab Ie 5.00 Agreeabl e Agreeabl e 1.0 6.5-8.5 200	er IS 2012 Permi ssible 15.0 Agree able Agree able 5.0 No. Relax. 600	henolic , Total Test Method IS 3025 (P-4):2021 IS 3025 (P- 5):2018 IS 3025 (P- 7):2017 IS 3025 (P- 10):1984 IS 3025 (P- 11):1983 IS 3025 (P- 21):2009 IS 3025 (P- 32):1988
SI. No 1. 2. 3. 4. 5. 6. 7.	Test Colour, Odour, T Dissolved Solid Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU pH Total Hardness as CaCO <sub>3</sub> , mg/l Chloride as Cl, mg/l Res. Free chlorine as Cl <sub>2</sub> mg/l Total Dissolved	Taste, Turbidit Is, Calcium, ircury, Cadm irral Oil, Alkalin Ganteen- Jamadoba Colliery 1 Agreeable 2 7.8 583.8 71.8	: y, pH, Total Copper, M ium, Arseniu ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba Washery 1 Agreeable 2 7.7 567.0 74.0	Hardness, II anganese, c, Cyanide, im & Boron <u>RESULT</u> UE Canteen Digwadih Colliery 1 Agreeable Agreeable 1 7.9 441.0 75.0	ron, Chlorid Sulphate, M Lead, Zir Canteen- 6&7 Pits Colliery 1 Agreeable 1 7.9 344.4 40.7	e, Res. Fre Nitrate, Flu Ic, Total IS as p 10500: Desirab le 5.00 Agreeabl e 1.0 6.5-8.5 200 250 0.20	er IS 2012 Permi ssible 15.0 Agree able Agree able 5.0 No. Relax. 600	henolic , Total Test Method IS 3025 (P-4):2021 IS 3025 (P- 5):2018 IS 3025 (P- 7):2017 IS 3025 (P- 10):1984 IS 3025 (P- 21):2009 IS 3025 (P- 21):2009 IS 3025 (P- 32):1988 IS 3025 (P- 32):1988
SI. No 1. 2. 3. 4. 5. 6. 7. 8.	Test Colour, Odour, T Dissolved Solid Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU pH Total Hardness as CaCO <sub>3</sub> , mg/l Chloride as Cl, mg/l Res. Free chlorine as Cl <sub>2</sub> mg/l	Taste, Turbidit Is, Calcium, ircury, Cadmeral Oil, Alkalin Canteen- Jamadoba Colliery 1 Agreeable 2 7.8 583.8 71.8 NIL	: y, pH, Total Copper, M ium, Arseniu ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba Washery 1 Agreeable 2 7.7 567.0 74.0 NIL	Hardness, II anganese, c, Cyanide, im & Boron. <u>RESULT</u> UE Canteen Digwadih Colliery 1 Agreeable 1 7.9 441.0 75.0 NIL	ron, Chlorid Sulphate, M Lead, Zir Canteen- 6&7 Pits Colliery 1 Agreeable 1 7.9 344.4 40.7 NIL	e, Res. Fre Nitrate, Flu nc, Total IS as p 10500: Desirab le 5.00 Agreeabl e 1.0 6.5-8.5 200 250 0.20	er IS 2012 Permi ssible 15.0 Agree able Agree able 5.0 No. Relax. 600 1000	henolic , Total Test Method IS 3025 (P-4):2021 IS 3025 (P- 5):2018 IS 3025 (P- 7):2017 IS 3025 (P- 10):1984 IS-3025 (P- 11):1983 IS 3025 (P- 21):2009 IS 3025 (P- 26):2021 IS 3025 (P- 26):2021



## 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.

	Te	sting La	uality Coun	cil of India	)	Sind P.O. Jhan Ema Web Pho	khand - 828 II ID: sindria site: aditimo ne: 0326-29 0326-2952	Area, Dist Dhanbad 1107 Iditi@gmail.con dservices.com 52377 (O),
			- 2	! -				
SI.	PARAMETERS OF		VAL	JE		IS as	per IS	Test
No.	TEST	Canteen-	Canteen	Canteen	Canteen	1050	10500:1991	Method
		Jamadoba Colliery	Jamadoba Washery	Digwadih Colliery	- 6&7 Pits Colliery	Desira ble	Permis sible	
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 <sub>4</sub> , mg/l	35.6	37.8	34.8	38.6	200	400	IS 3025 (P 24):1986
14.	Nitrate as NO <sub>3</sub> , 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	Absen t	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 <sub>3</sub> , 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

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Technical' Manager Aditi R&D Services, Sindri

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Testing La NABL ACC (A Constituent Board of C	boratory REDITED Quality Council of	India)	Jharkhand - Email ID: sir Website: adi Phone: 0326 Fax: 0326-2	strial Area, arh, Dist Dhanba 828107 ndriaditi@gmail.co itimdservices.com 8-2952377 (O),
TEST REPO	RT OF STAC	K EMISSIC	<u>N</u>	
Ref. No & Dt.	NAI	ME AND ADDR	ESS OF THE CL	IENT
RDS/23-24/S/1 Date: 20/02/2025 Date of Sample Collection 14/02/2025	TATA STEE	L LIMITED, J	JAMADOBA GR	OUP PLANT,
Date of Testing	Nature of Sam	pling Collection	ISO - KINETIC	SAMPLING
17/02/2025 to 18/02/2025	Weather condition	Status of the Plant	Ambient Temperature ( <sup>0</sup> C)	R.Humidity (%)
the second s	Clear	Running	28	49
GE	NERAL INFORMA	TION		
Nature of the Plant		1000	M.S.	
Capacity of DG Set		2.0+;	2.0+2.0 MVA (6.	0 MVA)
Location		Central V	Vorkshop Area	, Jamadoba
No. of Stack			1	
Stack Height from G.L. in Meter			30	
Inner Shape & Size of Stack (in meter	er)ø		2.5	
Stack attached to	State - 1997	man an in	DG Set	
Type of Fuel used			HSD	
SEOUS EMISSION ANALYSIS R	ESULTS		1	
	Particulars Method Value			
	Testing La         NABL ACC         (A Constituent Board of C         O/IEC 17025:2017, ISO 9001:2015,         Internation of Constituent Board of C         O/IEC 17025:2017, ISO 9001:2015,         Internation of Constituent Board of C         O/IEC 17025:2017, ISO 9001:2015,         Internation of Constituent Board of C         Internation of Constituent Board of C         Inter of Sample Collection         14/02/2025         Date of Testing         Inter of the Plant         Capacity of DG Set         Location         No. of Stack         Stack Height from G.L. in Meter         Inner Shape & Size of Stack (in meter         Stack attached to         Type of Fuel used	Testing Laboratory NABL ACCREDITED         (A Constituent Board of Quality Council of O/IEC 17025:2017, ISO 9001:2015,ISO (OHSAS) 4500         TEST REPORT OF STACC Ref. No & Dt.         Ref. No & Dt.       NAU         RDS/23-24/S/1       Date: 20/02/2025       M         Date of Sample Collection       TATA STEE         14/02/2025       M         Date of Testing       Nature of Sam         17/02/2025 to 18/02/2025       Weather condition         Clear         SENERAL INFORMA         Nature of the Plant       Capacity of DG Set         Location       No. of Stack       Stack Height from G.L. in Meter         Inner Shape & Size of Stack (in meter)        Stack attached to	NABL ACCREDITED         (A Constituent Board of Quality Council of India)         O/IEC 17025:2017, ISO 9001:2015,ISO (OHSAS) 45001:2018 Certific         DIST COLSPAND         NAME AND ADDR         Ref. No & Dt.         NAME AND ADDR         RDS/23-24/S/1 Date: 20/02/2025         Date of Sample Collection         TATA STEEL LIMITED, .         Date of Testing         Nature of Sampling Collection         14/02/2025 to 18/02/2025         Date of Testing         Nature of Sampling Collection         17/02/2025 to 18/02/2025         ORERAL INFORMATION         Nature of the Plant         Celear         Central V         No. of Stack         Stack of the Plant         Central V         No. of Stack         Stack Height from G.L. in Meter         Inner Shape & Size of Stack (in meter)         Stack attached to         Transition         Central V         No. of Stack	Testing Laboratory NABL ACCREDITED       P.ODomg Jharkhand         MABL ACCREDITED       Starkhand         MABL ACCREDITED       Email ID: si Website: ad Phone: 032         OJEC 17025:2017, ISO 9001:2015,ISO (OHSAS) 45001:2018 Certified       Test report of starking         Mobile: 094       TEST REPORT OF STACK EMISSION         Ref. No & Dt.       NAME AND ADDRESS OF THE CL         RDS/23-24/S/1       Date: 20/02/2025         Date of Sample Collection       TATA STEEL LIMITED, JAMADOBA GR DIST DHANBAD (JHARKHAI)         Date of Testing       Nature of Sampling Collection: ISO – KINETIC         17/02/2025       Weather condition       Status of the Plant       Ambient Temperature (°C)         17/02/2025       Clear       Running       28         GENERAL INFORMATION         Nature of the Plant       M.S.         Capacity of DG Set       2.0+2.0+2.0 MVA (6.         Location       Central Workshop Area         No. of Stack       1         Stack Height from G.L. in Meter       30         Inner Shape & Size of Stack (in meter))       2.5         Stack attached to       DG Set         Type of Fuel used       HSD

51. NO	Particulars	Method	Value	As per CPCB STANDARD mg/Nm <sup>3</sup>
1.	Flue gas temperature ( <sup>0</sup> 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 <sup>3</sup> /Hr)	IS: 11255 (Part-3)	128903.11	
4.	Concentration of Particulate Matter (mg/ Nm <sup>3</sup> ) at 15% O <sub>2</sub>	IS: 11255 (Part-1)	62.36	75
5.	Concentration of SOX as SO <sub>2</sub> (mg/ Nm <sup>3</sup> ) at 15% O <sub>2</sub>	IS : 11255 (Part-2)	54.76	
6.	Concentration of NOX as NO <sub>2</sub> (mg/ Nm <sup>3</sup> ) at 15% O <sub>2</sub>	IS: 11255 (Part-7)	126.41	360
7.	Non Methane Hydrocarbon (NMHC) at 15% O <sub>2</sub>	IS : 13270	46.79	100
8.	Carbon Monoxide (CO) (mg/Nm)3	IS: 13270	37.2	150

Sr Cl emis Aditi R&D Services



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

# Statements :

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- 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 Plot No. - I-B-17 (P) Sindri, Industrial Area, P.O.- Domgarh, Dist.- Dhanbad ARD Testing Laboratory Jharkhand - 828107 Email ID: sindriaditi@gmail.com NABL ACCREDITED Website: aditimdservices.com (A Constituent Board of Quality Council of India) Phone: 0326-2952377 (O). Fax: 0326-2952377 ISO/IEC 17025:2017, ISO 9001:2015,ISO (OHSAS) 45001:2018 Certified 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, Date of Monitoring DIST. - DHANBAD (JHARKHAND) Avg. Average Weather Status of Humidity (%) 12/02/2025 Ambient Condition the plant Temperature (°C) Work Order 4700092573/932 28 49 Clear Running Dt. 20.07.2021 MONITORING RESULTS Noise level (Ambient standard) SI. Place of for Industrial Area as per CPCB **Day Time** No Monitoring Noise Pollution (Regulation and Control) (Amendment) Rules . (6 AM to 10 PM) 2000 notified vide S.O. 1046(E) dB(A) Dt. 22.11.2020 Limit in dB(A) Leq Day Time **Night Time** LOCATION MAX JAMADOBA GROUP MIN Industrial Area **Industrial Area** Central Workshop Area 71.2 66.4 Jamadoba near DG Set 75 70 Remarks: Noise level is well within the standard specified limit for Industrial Area. Sr. Technician Technic al-Manager Aditi R&D Service Aditi R&D Services, Sindri Statements :

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.

RD	lin		&D SI		CES		Plot No I-B-17 (P Sindri, Industrial An P.O Domgarh, Dis Jharkhand - 82810	ea, et Dhanbad 7
-	13	NA	BL ACCRED	TED			Email ID: sindriaditi Website: aditimdse	
GLABOR	(A Co	nstituent Bo	oard of Quality	y Council o	f India)		Phone: 0326-29523	377 (O).
	ISO/IEC 17025:2		01:2015,ISO (	OHSAS) 450	001:2018 0	Certified	Fax: 0326-2952377 Mobile: 094713584	
	Ref. No.: - ARD6/24		EST REPO	RT OF S	SEWAG	0.000	te: 21/02/2025	
	<ul> <li>Name of the</li> </ul>	1.1	: N T J	I/S TATA S ATA STE AMADOB/ IST DHA	STEEL, J El limit A grouf	amadoe Ted P plant	;	
	Work Order	Ref NO .		700126557/	1		and the second se	
	Sample Co		SC 52	. STP Out				
	Date of San	nple Colle	3 4 5	STP Outl STP Outl STP Outl STP Outl 1/02/2025	let -Digw let- Jmb. let- JCPP	adih 12 N Canteen Canteer		lony flat
	<ul> <li>Date of Tes</li> </ul>	ting	: 1	4/02/2025	To 18/0	2/205		
	• Test		a P	nd Fecal C hosphoro	Coliform, us.		IL & GREASE, trogen, Total	
			IES	T RESULT	<u>1</u>			
SI.	PARAMETERS OF		and the second se	VALUE			As per	Test
SI. No.	PARAMETERS OF TEST	STP Outlet Railway Colony	and the second se	VALUE STP Outlet Digwadi h 12 No. Supervis	STP Outlet Jmb. Cantee n	STP Outlet- JCPP Cantee n	As per MoEF&CC Notification for Sewage Treatment Plant	Test Method
222/22		Outlet Railway	STP Outlet Digwadih 12 No Officers	VALUE STP Outlet Digwadi h 12 No.	STP Outlet Jmb. Cantee	Outlet- JCPP Cantee	MoEF&CC Notification for Sewage Treatment	Method IS-3025(P-
No.	PH, Total Dissolved	Outlet Railway Colony	STP Outlet Digwadih 12 No Officers Colony	VALUE STP Outlet Digwadi h 12 No. Supervis or flat	STP Outlet Jmb. Cantee n	Outlet- JCPP Cantee n	MoEF&CC Notification for Sewage Treatment Plant	Method IS-3025(P- 11):1983 IS-3025(P-
No.	TEST pH,	Outlet Railway Colony 7.6	STP Outlet Digwadih 12 No Officers Colony 8.1	VALUE STP Outlet Digwadi h 12 No. Supervis or flat 7.8	STP Outlet Jmb. Cantee n 7.6	Outlet- JCPP Cantee n 8.3	MoEF&CC Notification for Sewage Treatment Plant	Method IS-3025(P- 11):1983
No. 1. 2.	PH, Total Dissolved Solids, mg/l Total Suspended Solids, mg/l Bio chemical Oxygen Demand, mg/l	Outlet Railway Colony 7.6 1306.5	STP Outlet Digwadih 12 No Officers Colony 8.1 916.5	VALUE STP Outlet Digwadi h 12 No. Supervis or flat 7.8 1144	STP Outlet Jmb. Cantee n 7.6 1105 15 9.0	Outlet- JCPP Cantee n 8.3 760.5 19 9.8	MoEF&CC Notification for Sewage Treatment Plant 5.5-9.0. - 20 10	Method IS-3025(P- 11):1983 IS-3025(P- 16):1984 IS-3025(P- 17):1984 IS-3025(P- 44):1994
No. 1. 2. 3.	PH, PH, Total Dissolved Solids, mg/l Total Suspended Solids, mg/l Bio chemical Oxygen Demand, mg/l Chemical Oxygen Demand, mg/l	Outlet Railway Colony 7.6 1306.5 12 8.2 30	STP Outlet Digwadih 12 No Officers Colony 8.1 916.5 10 6.5 45	VALUE STP Outlet Digwadi h 12 No. Supervis or flat 7.8 1144 20 8.0 48	STP Outlet Jmb. Cantee n 7.6 1105 15 9.0 48.8	Outlet- JCPP Cantee n 8.3 760.5 19 9.8 47.6	MoEF&CC Notification for Sewage Treatment Plant 5.5-9.0- - 20	Method IS-3025(P- 11):1983 IS-3025(P- 16):1984 IS-3025(P- 17):1984 IS-3025(P- 44):1994 IS-3025(P- 58):2006
No. 1. 2. 3. 4. 5. 6.	PH, PH, Total Dissolved Solids, mg/l Total Suspended Solids, mg/l Bio chemical Oxygen Demand, mg/l Chemical Oxygen Demand, mg/l Oil & Grease, mg/l	Outlet Railway Colony 7.6 1306.5 12 8.2 30 1.3	STP Outlet Digwadih 12 No Officers Colony 8.1 916.5 10 6.5 45 1.5	VALUE STP Outlet Digwadi h 12 No. Supervis or flat 7.8 1144 20 8.0 8.0 48 1.9	STP Outlet Jmb. Cantee n 7.6 1105 15 9.0 48.8 2.3	Outlet- JCPP Cantee n 8.3 760.5 19 9.8 47.6 2.5	MoEF&CC Notification for Sewage Treatment Plant 5.5-9.0. - 20 10 50	Method IS-3025(P- 11):1983 IS-3025(P- 16):1984 IS-3025(P- 17):1984 IS-3025(P- 44):1994 IS-3025(P- 58):2006 IS-3025(P- 39):2021
No. 1. 2. 3. 4. 5.	PH, PH, Total Dissolved Solids, mg/l Total Suspended Solids, mg/l Bio chemical Oxygen Demand, mg/l Chemical Oxygen Demand, mg/l	Outlet Railway Colony 7.6 1306.5 12 8.2 30	STP Outlet Digwadih 12 No Officers Colony 8.1 916.5 10 6.5 45	VALUE STP Outlet Digwadi h 12 No. Supervis or flat 7.8 1144 20 8.0 48	STP Outlet Jmb. Cantee n 7.6 1105 15 9.0 48.8 2.3 128	Outlet- JCPP Cantee n 8.3 760.5 19 9.8 47.6	MoEF&CC Notification for Sewage Treatment Plant 5.5-9.0. - 20 10	Method IS-3025(P- 11):1983 IS-3025(P- 16):1984 IS-3025(P- 17):1984 IS-3025(P- 44):1994 IS-3025(P- 58):2006 IS-3025(P- 39):2021 IS - 1622
No. 1. 2. 3. 4. 5. 6.	PH, PH, Total Dissolved Solids, mg/l Total Suspended Solids, mg/l Bio chemical Oxygen Demand, mg/l Chemical Oxygen Demand, mg/l Oil & Grease, mg/l Fecal Coliform (FC) (MPN/100ml) Total Nitrogen as N, mg/l	Outlet Railway Colony 7.6 1306.5 12 8.2 30 1.3 1.3 125 8.2	STP Outlet Digwadih 12 No Officers Colony 8.1 916.5 10 6.5 45 1.5 116 7.7	VALUE STP Outlet Digwadi h 12 No. Supervis or flat 7.8 1144 20 8.0 48 1.9 122 8.9	STP Outlet Jmb. Cantee n 7.6 1105 15 9.0 48.8 2.3 128 7.8	Outlet- JCPP Cantee n 8.3 760.5 19 9.8 47.6 2.5 136 8.0	MoEF&CC Notification for Sewage Treatment Plant 5.5-9.0- - 20 10 50 - Desirable 100 & Permissible 230 10	Method IS-3025(P- 11):1983 IS-3025(P- 16):1984 IS-3025(P- 17):1984 IS-3025(P- 44):1994 IS-3025(P- 58):2006 IS-3025(P- 39):2021 IS - 1622 IS - 3025 (P-34):1988
No. 1. 2. 3. 4. 5. 6. 7.	PH, PH, Total Dissolved Solids, mg/l Total Suspended Solids, mg/l Bio chemical Oxygen Demand, mg/l Chemical Oxygen Demand, mg/l Oil & Grease, mg/l Fecal Coliform (FC) (MPN/100ml) Total Nitrogen as N,	Outlet Railway Colony 7.6 1306.5 12 8.2 30 1.3 1.3	STP Outlet Digwadih 12 No Officers Colony 8.1 916.5 10 6.5 45 1.5 116	VALUE STP Outlet Digwadi h 12 No. Supervis or flat 7.8 1144 20 8.0 48 1.9 1.9	STP Outlet Jmb. Cantee n 7.6 1105 15 9.0 48.8 2.3 128	Outlet- JCPP Cantee n 8.3 760.5 19 9.8 47.6 2.5 136	MoEF&CC Notification for Sewage Treatment Plant 5.5-9.0- - 20 10 50 - Desirable 100 & Permissible 230	Method IS-3025(P- 11):1983 IS-3025(P- 16):1984 IS-3025(P- 17):1984 IS-3025(P- 44):1994 IS-3025(P- 58):2006 IS-3025(P- 39):2021 IS - 1622 IS - 3025

# 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 Plot No. - I-B-17 (P) Sindri, Industrial Area. P.O.- Domgarh, Dist.- Dhanbad Testing Laboratory ARD Jharkhand - 828107 Email ID: sindriaditi@gmail.com NABL ACCREDITED Website: aditimdservices.com (A Constituent Board of Quality Council of India) Phone: 0326-2952377 (O). Fax: 0326-2952377 ISO/IEC 17025:2017, ISO 9001:2015,ISO (OHSAS) 45001:2018 Certified 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, 1 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 SI. PARAME-TERS VALUE IS as per IS Test No OF TEST 10500:1991 Method Jorapokhar Bhowra 13 Mohalbani Lower Jama Desir-Permi-Kustand No. Basti Dungari doba able ssible 3 No 1. Colour, 2 2 2 2 5 1 15 IS 3025 (P-(Hazen Unit) 4):2021 Temperature <sup>®</sup>C 2. 27 28 27 28 27 3. Electrical 2030 730 1030 660 840 Conductivity, µmhos/cm 4. Total Dissolved 1308 460 650 415 546 500 2000 IS 3025(P-Solids, mg/l 16):1984 5. pH 7.8 7.5 7.1 6.7 7.3 6 5-No IS-3025(P-11):1983 8.5 Relax 6. **Total Hardness** 399 281.4 340.2 298.2 310 200 600 IS 3025(Pas CaCO3, mg/l 21):2009 7. Calcium as Ca, 124 86.6 116.0 67.2 80.4 75 200 IS 3025(Pmg/l 40):1991 8. Magnesium as 21.4 16.2 12.0 31.2 26.2 30 100 IS 3025(P-Mg, mg/l 46):1994 9. Chloride as CI, 248 64 106.7 85.3 72.6 250 1000 IS 3025(P mg/l 32):1988 10. Fluoride as F, 0.2 0.2 0.5 0.2 0.1 1.0 1.5 IS 3025(Pmg/l 60):2008 Continued on Page -2

## Statements :

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R D	S)		ABL ACCR	EDITED	il of India)		Sindi P.O Jhan Ema Web Phor	khand - 828 II ID: sindra site: aditim re: 0326-29 0326-2952	Area, Dist Dhanbad 107 aditi@gmail.con dservices.com 152377 (O),
SI. No	PARAMETERS OF TEST			VALUE				per IS 0:1991	Test Metho
• •	UF TEST	Jorapokhar Kustand	Bhowra 13 No.	Mohalbani Basti	Lower Dungari	Jamado ba 3 No	Desir - able	Permis -sible	
11	Sulphate as SO <sub>4</sub> , mg/l	45.5	40.6	50.6	45.2	56.4	200	400	IS 3025(P- 24):1986
12.	Nitrate as NO <sub>3</sub> , mg/l	4.9	4.8	5.6	4.8	4.9	45	No. Relax	IS 3025(P- 34):1988
13.	Alkalinity as CaCO <sub>3</sub> , 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. nist 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.

# 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/m <sup>3</sup>	RSPM 24 Hourly Limit-300 µg/m <sup>3</sup>	SO2 24 Hourly Limit-120 µg/m <sup>3</sup>	NOx 24 Hourly Limit-120 µg/m <sup>3</sup>
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/m <sup>3</sup>	PM 2.5 24 Hourly Limit- 60 µg/m <sup>3</sup>	SO <sub>2</sub> 24 Hourly Limit-80 μg/m <sup>3</sup>	NOx 24 Hourly Limit-80 µg/m <sup>3</sup>
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 PM2.5 - Less than 2.5-micron Particulate Matter

μg - Microgram

This is for your information and necessary action please.

Ponahato

Lab. Assistant (Environment)

Area Manager (Environment)

Ambient Air Quality, Ambient Noise Quality, Effluent Water and Groundwater Quality Report (Period- October'24 to March'25)

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/m <sup>3</sup>	RSPM 24 Hourly Limit-300 µg/m <sup>3</sup>	SO2 24 Hourly Limit-120 µg/m <sup>3</sup>	NOx 24 Hourly Limit-120 µg/m <sup>3</sup>
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/m <sup>3</sup>	PM 2.5 24 Hourly Limit- 60 µg/m <sup>3</sup>	SO <sub>2</sub> 24 Hourly Limit-80 µg/m <sup>3</sup>	NOx 24 Hourly Limit-80 µg/m <sup>3</sup>
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

PM2.5 - Less than 2.5-micron Particulate Matter

μg - Microgram

This is for your information and necessary action please.

Emahats Lab. Assistant (Environment)

Manager (Environment)

ENVIRONMENT CELL LABORATORY, JAMADOBA AUTHORIZED VIDE LETTER NO. B – 3922 DATED- 30.08.2012 BY JHARKHAND STATE POLLUTION CONTROL BOARD, RANCHL

# 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 / \$10 / 24 Date: \$1/ 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/m <sup>3</sup>	RSPM 24 Hourly Limit-300 µg/m <sup>3</sup>	SO2 24 Hourly Limit-120 µg/m <sup>3</sup>	NOx 24 Hourly Limit-120 µg/m <sup>3</sup>
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/m <sup>3</sup>	PM 2.5 24 Hourly Limit- 60 µg/m <sup>3</sup>	SO2 24 Hourly Limit-80 µg/m <sup>3</sup>	NOx 24 Hourly Limit-80 µg/m <sup>3</sup>
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

PM2.5 - Less than 2.5-micron Particulate Matter

μg - Microgram

This is for your information and necessary action please.

Pmahato

Lab. Assistant (Environment)

Manager (Environment)

# 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 / 4/4 / 25 Date: 3/ / 0/ / 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 coa	I mines notified vide notification G.S.R.
	742(E) dated-25.09.2	000

S.No	Location	Latitude/ Longitude	Date of Sampling	Weather Condition	SPM 24 Hourly Limit-700 µg/m <sup>3</sup>	RSPM 24 Hourly Limit-300 µg/m <sup>3</sup>	SO2 24 Hourly Limit-120 µg/m <sup>3</sup>	NOx 24 Hourly Limit-120 µg/m <sup>3</sup>
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/m <sup>3</sup>	PM 2.5 24 Hourly Limit- 60 µg/m <sup>3</sup>	SO2 24 Hourly Limit-80 µg/m <sup>3</sup>	NOx 24 Hourly Limit-80 µg/m <sup>3</sup>
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<sub>2.5</sub> - Less than 2.5-micron Particulate Matter µg - Microgram

This is for your information and necessary action please.

Crechet.

Lab. Assistant (Environment)

Manager (Environment)

# 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 / 29 / 25 Date: 28/ 92 / 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/m <sup>3</sup>	RSPM 24 Hourly Limit-300 µg/m <sup>3</sup>	SO2 24 Hourly Limit-120 µg/m <sup>3</sup>	NOx 24 Hourly Limit-120 µg/m <sup>3</sup>
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/m <sup>3</sup>	PM 2.5 24 Hourly Limit- 60 µg/m <sup>3</sup>	SO2 24 Hourly Limit-80 µg/m <sup>3</sup>	NOx 24 Hourly Limit-80 µg/m <sup>3</sup>
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.
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

PM2.5 - Less than 2.5-micron Particulate Matter

μg - Microgram

This is for your information and necessary action please.

Lab. Assistant (Environment)



Ambient Air Quality, Ambient Noise Quality, Effluent Water and Groundwater Quality Report (Period- October'24 to March'25)

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.
747(F) datad-25.09.2000

S.No	Location	Latitude/ Longitude	Date of Sampling	Weather Condition	SPM 24 Hourly Limit-700 μg/m <sup>3</sup>	RSPM 24 Hourly Limit-300 µg/m <sup>3</sup>	SO2 24 Hourly Limit-120 µg/m <sup>3</sup>	NOx 24 Hourly Limit-120 µg/m <sup>3</sup>
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/m <sup>3</sup>	PM 2.5 24 Hourly Limit- 60 µg/m <sup>3</sup>	SO2 24 Hourly Limit-80 µg/m <sup>3</sup>	NOx 24 Hourly Limit-80 µg/m <sup>3</sup>
I	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

PM2.5 - Less than 2.5-micron Particulate Matter μg - Microgram

This is for your information and necessary action please.

Emphal.

Lab. Assistant (Environment)

Manager (Environment)

# 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/ 64/ /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 (0	6.00 - 22.	00 Hrs.)	Night (22.00-06.00 Hrs)		
S.No	Monitoring Station		CPCB Standard- 55			CPCB Standard- 4		
	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

0.51-	Manitanian Station	Data	Day (0	5.00 - 22.	00 Hrs.)	Night	(22.00-06.	00 Hrs)
S.No	Monitoring Station	Date	CPCI	3 Standa	rd- 75	CPCB Standard- 70		
	Industrial Area (Core Zone)	1.2	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)

Copy to: Specialist (OH). TCH

Area Manager (Environment)

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ENVIRONMENT CELL LABORATORY, JAMADOBA AUTHORIZED VIDE LETTER NO. B – 3922 DATED- 30.08,2012 BY JHARKHAND STATE POLLUTION CONTROL BOARD, RANCHI.

1.4

# 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:

	Monitoring Station	Date	Day (06.00 - 22.00 Hrs.) CPCB Standard- 55			Night (22.00-06.00 Hrs) CPCB Standard- 45		
S.No								
	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

		Dista	Day (00	5.00 - 22.	00 Hrs.)	Night (22.00-06.00 Hrs)		
S.No	Monitoring Station	Date	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.

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Lab. Assistant (Environment)

Copy to: Specialist (OH). TCH

Manager Environment)

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ENVIRONMENT CELL LABORATORY, JAMADOBA AUTHORIZED VIDE LETTER NO. B – 3922 DATED- 30.08.2012 BY JHARKHAND STATE POLLUTION CONTROL BOARD, RANCHI. Ambient Air Quality, Ambient Noise Quality, Effluent Water and Groundwater Quality Report (Period- October'24 to March'25)

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:

		Date	Day (0	6.00 - 22.	00 Hrs.)	Night (22.00-06.00 Hrs)		
S.No	Monitoring Station		CPCB Standard- 55			CPCB Standard- 4		
	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

	Martin Charles	Dete	Day (0	5.00 - 22.	00 Hrs.)	Night (	22.00-06.	00 Hrs)
S.No	Monitoring Station	Date	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.

Co

Lab. Assistant (Environment)

Copy to: Specialist (OH). TCH

Manager (Environment)

# 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/ 57/ /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	Manitarian Station	Dete	Day (0	6.00 - 22.	00 Hrs.)	Night	(22.00-06.	00 Hrs)
5.NO	Monitoring Station	Date	CPCI	3 Standa	rd- 55	CPC	B Standa	rd- 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

C Ma	Monitoring Station	Data	Day (0	6.00 - 22.	00 Hrs.)	Night	(22.00-06.	00 Hrs)
S.No	Monitoring Station	Date	CPCI	B Standa	rd- 75	CPCB Standard- 70		
	Industrial Area (Core Zone)	1.2	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.

alto

Lab. Assistant (Environment)

Copy to: Specialist (OH). TCH

Manager (Environment)

ENVIRONMENT CELL LABORATORY, JAMADOBA AUTHORIZED VIDE LETTER NO. B – 3922 DATED- 30.08.2012 BY JHARKHAND STATE POLLUTION CONTROL BOARD, RANCHI. Ambient Air Quality, Ambient Noise Quality, Effluent Water and Groundwater Quality Report (Period- October'24 to March'25)

Annexure- II

10.14

# 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/ / 0 ユ /25 Dated: . 2. g / 0 ユ / 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 Residential Area (Buffer Zone)	Date	Day (06.00 - 22.00 Hrs.) CPCB Standard- 55			Night (22.00-06.00 Hrs) CPCB Standard- 45		
			1	Digwadih 12 No. Colony	26.02.25	44.8	46.5	45.7
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 Industrial Area (Core Zone)	Date	Day (06.00 - 22.00 Hrs.) CPCB Standard- 75			Night (22.00-06.00 Hrs) CPCB Standard- 70		
			1	2 Pit Main Gate Security Post	26.02.25	56.5	59.7	58.1
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.

at

Lab. Assistant (Environment)

Copy to: Specialist (OH). TCH

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/ 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:

	Manifestine Station	Dete	Day (0	5.00 - 22.	00 Hrs.)	Night (22.00-06.00 Hrs			
S.No	Monitoring Station	Date	CPCI	3 Standa	rd- 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	

	a contraction design	Du	Day (0	5.00 - 22.	00 Hrs.)	Night (22.00-06.00 Hrs) CPCB Standard- 70		
S.No	Monitoring Station	Date	CPCI	3 Standa	rd- 75			
	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)

Copy to: Specialist (OH). TCH

Manager (Environment)

Annexure- II

192

# 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:

	Location	Sampling	Sampling	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
S. No	(Final Discharge Point) (Mine's Water)	Date	Time	< 40°C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/1	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	2		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	8		

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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:

1227	Location	Sampling	Sampling	Temp	pН	TSS	TDS	BOD	COD	Oil & Grease
S. No	(Final Discharge Point)	Date	Time	< 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.

Emphato.

Area Manager (Environment)

Annexure- II

10.00

# 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:

	Location		Sampling	Sampling	Temp	pН	TSS	TDS	BOD	COD	Oil & Grease
S. No	(Final Discharge Point)	Date	Time	< 40 <sup>0</sup> C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/1	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				

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

This is for your information and necessary action please.

Conchato

Lab.Assistant (Environment)

Area Manager (Environment)

Annexure- II

10.04

# 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:

	Location	Sampling	Sampling	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
S. No	(Final Discharge Point)	Date	Time	< 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			

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

This is for your information and necessary action please.

Emphato

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)	Sampling	Sampling		Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
3, 140	(Mine's Water)	Date	Time	< 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	ł.		No	I Discharg	e			
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			1	

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

Enchado ' Lab.Assistant (Environment)

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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'2024 The results are as given below:

	Location	Sampling	Sampling	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
S. No	(Final Discharge Point)	Date	Time	< 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.

Emchat . Lab.Assistant (Environment)

Manager (Environment)

Annexure- II

20.52

# TATA STEEL LIMITED JHARIA DIVISION

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

S.No	Date	Location	Time	Depth in meter	рН	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

## JAMADOBA GROUP

Lab.Assistant (Environment)

Manager (Environment)

Annexure- II

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# 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 / 2/2 / 2024 Dated - 3/ / /2 / 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:

	Location	Sampling	Sampling	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
S. No	(Final Discharge Point)	Date	Time	< 40 <sup>0</sup> 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			

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

This is for your information and necessary action please.

Conchat .

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:

. N	Location (Final Discharge Point)	(Final Discharge Point) Sa	Sampling	Sampling	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
S. No	(Final Discharge Point) (Mine's Water)	Date	Time	< 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	1			
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	Discharg	e			
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.

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

Annexure- II

1.14

# TATA STEEL LIMITED JHARIA DIVISION

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

Ref. No. - JMB / ENV / LAB / 03 / *\$13* / 2024 Dated - *31* / / 2. / 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:

	Location	Sampling	Sampling	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
S. No	(Final Discharge Point)	Date	Time	< 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.

Enchato.

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 / 61 / 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:

	Location	Sampling	Sampling	Temp	pН	TSS	TDS	BOD	COD	Oil & Grease
S. No	(Final Discharge Point)	Date	Time	<40 <sup>®</sup> 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			

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

This is for your information and necessary action please.

Ems hel

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:

6 N-	Location	Sampling	Sampling	Тетр	pH TSS		TDS	BOD	COD	Oil & Grease
S. No	(Final Discharge Point) (Mine's Water)	Date	Time	< 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	8		
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

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

Manager (Environment)

Annexure- II

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## 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:

6 N.	Location	Sampling	Sampling	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
S. No	(Final Discharge Point)	Date	Time	< 40°C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/1	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.

Pm

Manager (Environment)

Annexure- II

## TATA STEEL LIMITED JHARIA DIVISION

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

S.No	Date	Location	Time	Depth in meter	рН	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

## JAMADOBA GROUP

Emphalo. Lab.Assistant (Environment)

Manager (Environment)

Annexure- II

10.5

# 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 / \$7 / 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:

	Location	Sampling	Sampling	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
S. No	(Final Discharge Point)	Date	Time	< 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			

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

This is for your information and necessary action please.

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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:

0 N.	Location	Sampling	Sampling	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
S. No	(Final Discharge Point) (Mine's Water)	Date	Time	< 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						

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

heto Lab.Assistant (Environment)

Manager (Environment)

Annexure- II

10.04

## 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	Sampling	Sampling	Temp	рН	TSS	TDS	BOD	COD	Oil & Grease
	(Final Discharge Point)	Date	Time	< 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
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.

Ponchate

Manager (Environment)

Annexure- II

1.1.1

# 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:

	Location	Sampling	Sampling	Тетр	pН	TSS	TDS	BOD	COD	Oil & Grease
S. No	(Final Discharge Point)	Date	Time	< 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)

5

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:

	Location	Sampling	Sampling	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
S. No	(Final Discharge Point) (Mine's Water)	Date	Time	< 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						

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

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:

22223	Location	Sampling	Sampling	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
S. No	(Final Discharge Point)	Date	Time	< 40°C	5.5 - 9.0	100 mg/1	2100 mg/l	30 mg/1	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.

4

This is for your information and necessary action please.

Emahado . Lab.Assistant (Environment)

Manager (Environment)

ENVIRONMENT CELL LABORATORY, JAMADOBA AUTHORIZED VIDE LETTER NO. B – 3922 DATED- 30.08.2012 BY JHARKHAND STATE POLLUTION CONTROL BOARD, RANCHI.

5

# Land Use & Land Cover Study of Jamadoba Colliery



Applicant: Tata Steel Jharia Division



# **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

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# 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  $5^{\circ} - 7^{\circ}$  during winter (December-January) and the highest temperature is  $46^{\circ} - 48^{\circ}$  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.

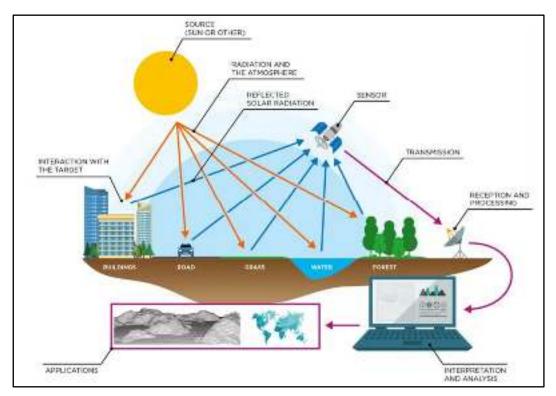


Figure 2.1: Radiation System

# 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.

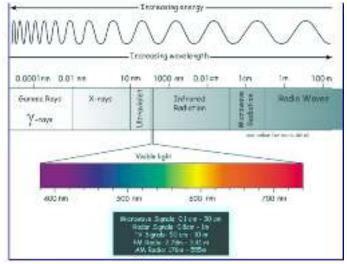


Figure 2.1: Electromagnetic spectrum

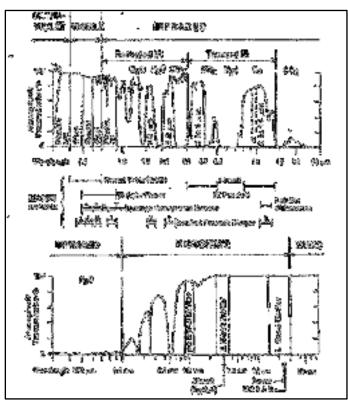


Figure 2.1: Expanded diagram of the visible and infrared regions (upper) and the microwave regions (lower) showing atmospheric windows.Wavelength bands commonly used remote sensing system are indicated. Gases responsible for atmospheric absorption are shown.

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 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.

Platform	Sensor	Spectral Bands in µm	Radiometric Res-	Spatial Resolution	Temporal Resolution	Country
Re- source- sat- 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

# 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

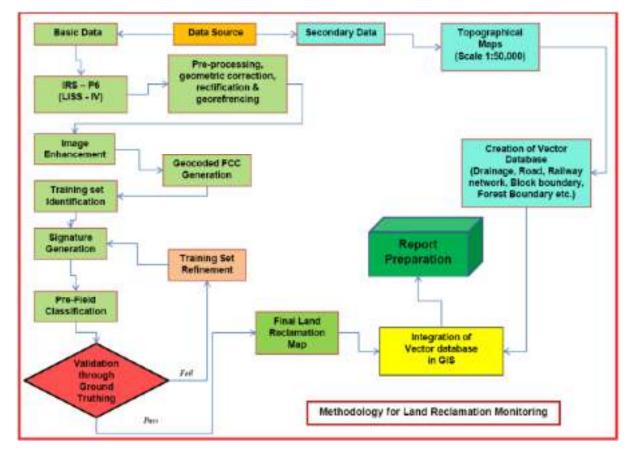


Figure 2.1: Data processing flowchart

# 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.

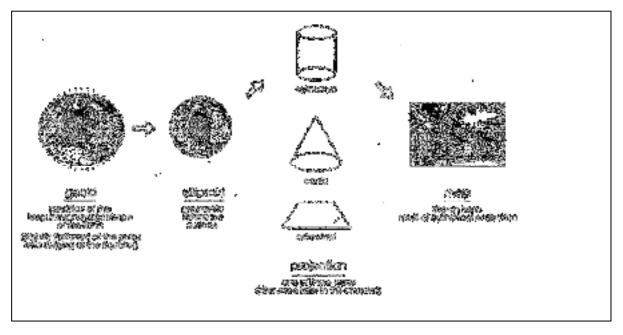


Figure 2.1: Geoid – Ellipsoid – Projection Relationship

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.

SI. 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

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

SI. No.	Description - 1	Description - 2	Remarks		
2	Agriculture landCrop landKharif, Rabi, Zaid, Two crop cropped		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	Dense / Closed and Open category of Evergreen / Semi		
		evergreen	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/	Salt affected land	Slight, Moderate & Strong Salt Affected Land		
	uncultivable/	Scrub land	Dense. Closed and Open category of scrub land		
	Waste land	Sandy area	Desertic, Coastal, Riverine sandy area.		
		Barren rocky	Barren rocky		
		Rann	Rann		
6	Wetlands/	Inland wetland	Inland Natural and Inland Manmade wetland		
	Water bodies	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/pon 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.

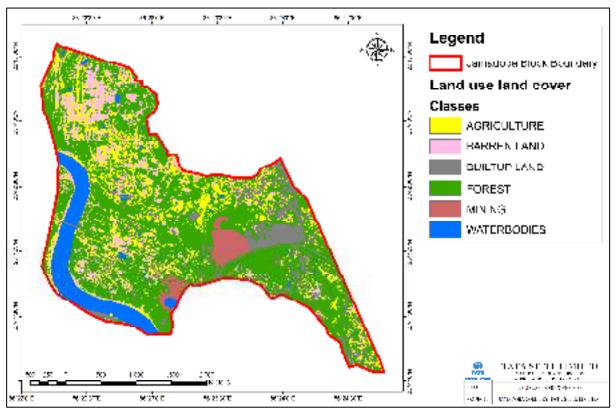
# • Water body:

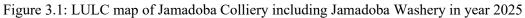
This category comprises areas with surface water in the form of ponds, river, lakes, tanks and reservoirs. Rivers/streams are natural course of water flowing on the land surface along a definite channel/slope regularly or intermittently towards a sea in most cases or into a lake or an inland basin in 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.





SI.	Description	Year – 2018*	Year - 2021*	Year - 2025
no.				
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

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

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

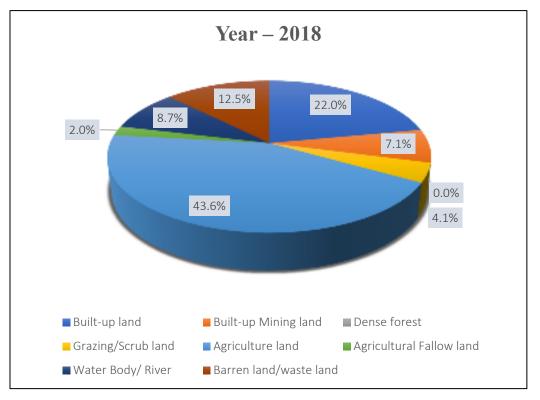


Figure 3.2: LULC distribution of Jamadoba colliery (Year 2018)

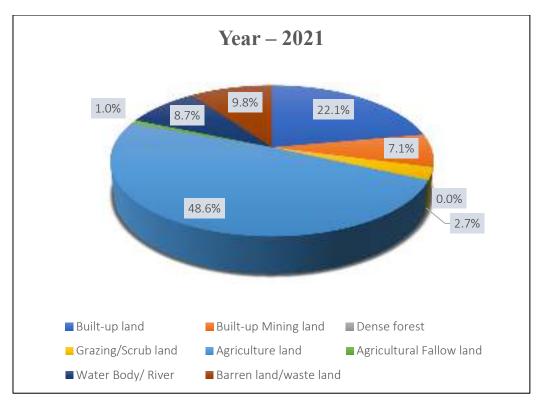


Figure 3.3: LULC distribution of Jamadoba colliery (Year 2021)

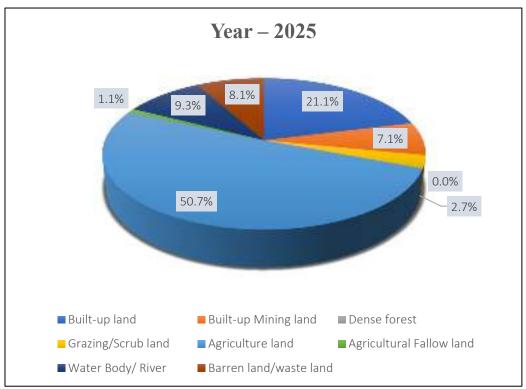


Figure 2.1: LULC distribution of Jamadoba colliery (Year 2025)

## 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.

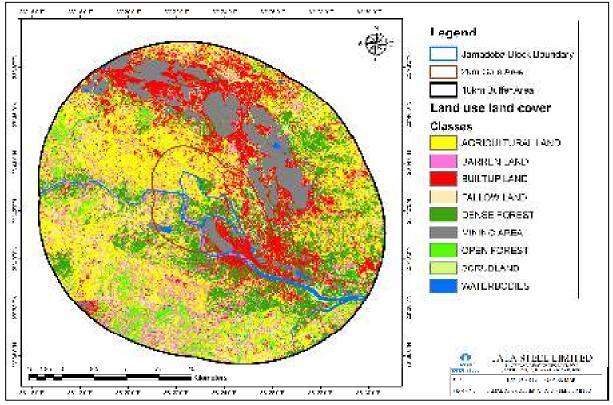
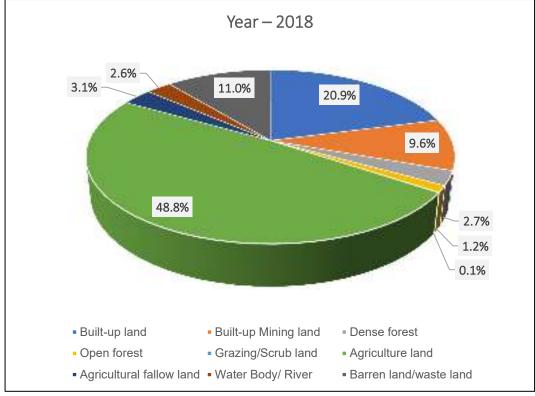


Figure 2.1: LULC map of Jamadoba colliery including Jamadoba Washery with 10km buffer zone in year 2025

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

Sl.	Description	Year – 2018*	Year - 2021*	Year - 2025
no.				
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)

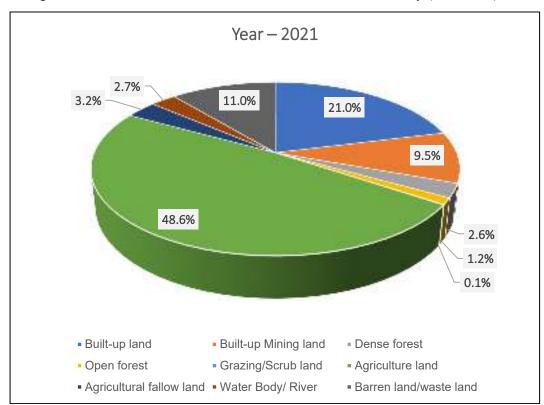


Figure 2.1: LULC distribution of Buffer Zone of Jamadoba colliery (Year 2021)

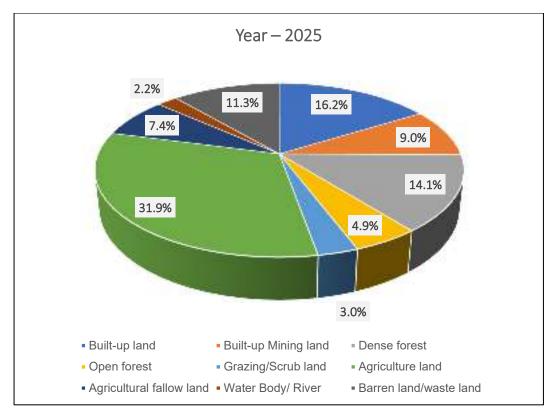


Figure 2.1: LULC distribution of Buffer Zone of Jamadoba colliery (Year 2025)

# **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 waterbodies 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.