

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/JMB/87/ 7/0 /2024 November 27th, 2024

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

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

Dear Sir,

We are enclosing herewith compliance report for the period **April-24 to September-24** for the EC granted vide letter no.- J-11015/91/2017-IA. II (M) dated- 11th July 2022 issued by Ministry of Environment, Forest and Climate Change, New Delhi.

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

Thanking you,

Yours faithfully,

Head (Planning) Jharia Division, Tata Steel Ltd.

Encl: As above.

Copy to: Member Secretary, CPCB, Eastern Zonal Office, Southend Conclave, 502, 5th Floor 1582, Rajdanga Main Road, Kolkata -700107.

Copy to: Member Secretary, JSPCB, T.A. Division Building (Ground Floor), H.E.C, Dhurwa, Ranchi - 834004.

Copy to: Regional Officer, JSPCB, HIG -1 Sardar Patel Nagar, Housing Colony, Hirapur, Dhanbad

TATA STEEL LIMITED

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

Your (Half Yearly Compliance Report) has been Submitted with following details			
Proposal No IA/JH/CMIN/109757/2019			
Compliance ID	111655127		
Compliance Number(For Tracking)	EC/M/COMPLIANCE/111655127/2024		
Reporting Year	2024		
Reporting Period	01 Dec(01 Apr - 30 Sep)		
Submission Date	29-11-2024		
RO/SRO Name	ARTATRANA MISHRA		
RO/SRO Email	jhk109@ifs.nic.in		
State	JHARKHAND		
RO/SRO Office Address	Integrated Regional Offices, Ranchi		
Note:- SMS and E-Mail has been sent to ARTATRANA MISH	IRA, JHARKHAND with Notification to Project Proponent.		



पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय Ministry of Environment, Forest and Climate Change









View Half Yearly Compliance Report at Project Proponent **Proposal Details Proposal No** IA/JH/CMIN/109757/2019 Category **Coal Mining** Name of Project Modernization of Jamadoba Underground coal mine of 0.34 MTPA in ML area of 927.17 Ha by M/s Tata Steel Limited at Jorapokhar, Puttiya Dungri village, Jharia, Tehsil, Dhanbad (Jharkhand) Plot / Survey/ Khasra No. Village(s) Sub-District(s) State JHARKHAND District DHANBAD **MoEF File No** J-11015/91/2017- IA.II (M) Name of the Entity/ **Corporate Office** Tata Steel Ltd. **Entity's PAN** ****2803M **Entity Name as per PAN** UTSAV KASHYAP Entity details mentioned above is correct? Agree **Covering Letter**

Covering Letter

Compliance Reporting Details

Reporting Year 2024 Reporting Period 01 Dec(01 Apr - 30 Sep)

Remark(if any)

Half Yearly Compliance Submission for April 2024 to September 2024.

Details of Production and Project Area

Date of Commencement of Project/Activity

01-01-1918

	Project Area as per EC Granted(ha.)	Actual Project Area in Possession(ha.)
Private	0	0
Revenue Land	0	0
Forest	0	0
Others	927.17	927.17
Total	927.17	927.17

Land Documents

NA

Sr.No.	Name of the Product	Units	As per EC Granted	As per CTO Granted	CTO ID	Valid Up To	Production during last financial year
1	Raw Coal	Million Tons per Annum (MTPA)	0.34			null	0.05

Conditions

Specific Conditions

Sr.No.	Condition	Condition	Status of Compliance	,Remarks / Reason and
	Heading	Details	Supporting Documer	nts
1	Statutory compliance	PP to obtain the CTO for 0.34 MTPA capacities	PPs Submission	Consent to Operate for the existing capacity has been obtained from the State PCB

		immediately after grant of EC.		on 14.11.2022 and is valid till 31.12.2024. The production from the mines have been discontinued since January 2024. Complied 29-11-2024 Attachment:NA
2	WATER QUALITY MONITORING AND PRESERVATION	PP to conserve the Kari jhore, Dungri jhore, Damodar River following within the core area of the project and the measure taken for its	PPs Submissi	on The conservation measures are ongoing, and the report shall be submitted to IRO, MoEFCC and SPCB as required. Complied 16-11-2024 Attachment:NA
		conservation to be furnished in every six-monthly compliance to be reported to respective IRO and SPCB.		
3	Statutory compliance	Since there is also Jamadoba Coal washery located within mine lease having separated EC vide Letter No J- 11015/203/2011- II-IA(M) dated 3rd March 2014 so the adequate EMP measure to	PPs Submissi	on There are existing environmental measures for the Jamadoba Coal preparation plant. The rejects like tailing, middling etc are utilized as per norms. The integrated EC shall be taken in case of washery expansion Complied 16-11-2024 Attachment:NA
		EMP measure to be adopted to minimize the cumulative impact, also the utilization of rejects generated from washery should be managed as per norms. PP shall obtain integrated EC for future coal/washery expansion.		
4	Statutory compliance	PP shall obtain No objection certificate from Ground water	PPs Submission	The renewal NOC from central Ground Water Authority for extraction of ground water has been

		Authority for extraction of ground water within six months and submit to IRO Ranchi.		granted vide NOC No. CGWA/NOC/MIN/REN/1/2024/1012 dated: 05.11.2024. Complied 29-11-2024 Attachment:NA
5	WASTE MANAGEMENT	PP Shall reduce river sand used for stowing and explore usage of sand segregated from OB dump from any nearest mine (either its own or any mine) and submit detailed report to IRO Ranchi.	PPs Submissi	ion We are in the process of technological exploration of sand from OB dump. Complied 16-11-2024 Attachment:NA
6	Statutory compliance	PP to accomplish the requirement of a full fledge qualified manpower with Environmental Engineer/Env. Science degree background in Environmental Management Cell etc. within six months and same shall be reported to IRO, MoEF&CC	PPs Submissio	ion We have a full-fledged Environment cell with Environment professionals and field monitoring staff. Complied 16-11-2024 Attachment:NA
7	PUBLIC HEARING	PP to fulfil all the commitment made to address the public hearing issued in time bound manner as committed in EIA EMP report in Chapter & table 7.1 and a progressive report to be furnished to IRO with six monthly compliance report	PPs Submissi	ion The commitment are in various levels of compliance The commitments made during the public hearing ar being complied in time bound manner. The report shall be furnished to IRO, Ranchi as required. Complied 29-11-2024 Attachment:NA
8	AIR QUALITY MONITORING	PP to maintain the transportation	PPs Submissio	ion The production from the mine has been discontinued

	AND PRESERVATION	road properly to minimize the dust emission. PP to also develop puce roads by seeking consent from the panchayat with widening of roads especially roads inters linking the villages within the study area of 10 Km radius buffer zone.		from January 2024. Transportation of coal from colliery to washery was done through covered conveyor belts. Road transportation is done through covered truck only. Complied 29-11-2024 Attachment:NA
9	Corporate Environmental Responsibility	PP to complete the estimated allocated budgetary expenditure for EMP capital cost is Rs.273.0 lakhs	PPs Submission	It is under progress. The completion within strict timeline shall be complied. Complied 16-11-2024 Attachment:NA
		& Recurring cost is Rs.1359.4 Lakhs per year as per its letter dated JMB/115/001339 dated 3rd September, 2021. Capital EMP budget shall be completed within strict timeline.		
10	WATER QUALITY MONITORING AND PRESERVATION	PP to monitor the water quality of the ground water and surface water body located	PPs Submission	It has been complied. Complied 16-11-2024 Attachment:NA
		within the core zone and 5 Km radius from the periphery of the mine boundary as per procedure laid down by CPCB.		
11	AIR QUALITY MONITORING AND PRESERVATION	PP to install More continuous ambient air quality stations at suitable locations preferably village side with consultation of SPCB. The real time data so	PPs Submission	A CAAQMS is being installed in Jamadoba group since 2014. A new CAAQMS has been installed recently in July 2022 and the data connectivity to SPCB, Jharkhand has been done. Complied

		generated shall be uploaded on company website and linked it with website of CPCB & SPCB. In addition, data should also be displayed digitally at entry and exit gate of mine lease for public display.		16-11-2024 Attachment:NA
12	WATER QUALITY MONITORING AND PRESERVATION	PP shall develop rainwater harvesting in Jamadoba coal washery as proposed by PP in vide Letter dated JMB/115/001339	PPs Submission	It shall be complied. Work has been initiated and under progress. Complied 16-11-2024 Attachment:NA
		dated 3rd September, 2021 & water harvesting ponds near the villages of suitable area as suggested by EAC in consultation with Gram Panchayat within year and with cultivation of Lotus.		
13	MISCELLANEOUS	PP must seek the input of experts for phytoremediation of Slurry and accordingly work on it with proper scientific approach.	PPs Submission	There is no generation of slurry during raw coal production. Complied 16-11-2024 Attachment:NA
14	GREENBELT	PP to plant additional 100,000 plants with three tier plantations along the transportation route, if not completed, and identified areas with consent to	PPs Submission	It is under progress. Plantation and green belt development is a continuous process. Green belt report has been attached as Annexure I. Complied 29-11-2024 Attachment: <u>Click to View</u>

		the gram panchayat within two year and plant for remaining within 2 years for their proper growth.		
15	ENERGY PRESERVATION MEASURES	PP to install solar lights along the road used for transportation of minerals to avoid the accidents at night and also seek its maintenance. PP	PPs Submission	Adequate lighting facilities have been installed along the roads. Several facilities under CSR, including lights have been provided in the area. Complied 29-11-2024 Attachment:NA
		is asked to also identify the rural areas for installation of solar light with in its maintenance within the study area of 10 km radius buffer zone within one year		
16	Human Health Environment	Proponent shall appoint an occupational Health Specialist for Regular and Periodical medical examination of the workers engaged in the project and	PPs Submission	It has been complied. Its a continuous process. There is fully developed Tata Central Hospital in Jamadoba to take care of all these types of concerns of community. Complied 16-11-2024 Attachment:NA
		maintain records accordingly also Occupational health check-up for workers having some ailments like BP, diabetes, habitual smoking etc. shall be undertaken once in six months and necessary redial/preventive measures taken accordingly. The recommendations of National		

		ensuring good occupational environment for mine workers shall be implemented. The prevention measure for burns, malaria and provision of anti-snake venom including all other paramedical safeguards may be ensured before initiating the mining activities.		
17	MISCELLANEOUS	Persons of nearby villages shall be given training on livelihood and skill development makes them employable with its proper records.	PPs Submission	It is a continuous process and has been complied. Separate training cell (JNTVTI) has been developed for skill based training of local youth. Complied 16-11-2024 Attachment:NA
18	Noise Monitoring & Prevention	The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may effects the health in the village located aloes tom mining operations. Habitations have a right for darkness and minimal noise levels at nights, PPs must ensure that the biological clock of the villages is not distributed by orienting the floodlights/masks	PPs Submission	It has been noted and shall be complied strictly. Complied 29-11-2024 Attachment:NA

		away from the villagers and keeping the noise levels well within the prescribed limits for day lights/night hours		
19	Statutory compliance	PP shall pay to farmers of agricultural land if there is any loss due to pollution found by concerned	PPs Submission	It has been noted and shall be complied. Complied 16-11-2024 Attachment:NA
		District Commissioner as per extent rules or norms.		
20	Statutory compliance	PP should establish in house (at project site) environment laboratory for measurement of environment parameter with	PPs Submission	We have a full-fledged Environment cell with Environment professionals and field monitoring staff. Complied 16-11-2024 Attachment:NA
		respect to air quality and water (surface and ground A dedicated team to oversee environment management shall be setup which should comprise of Environmental Engineer, Laboratory chemist and staff for monitoring of air , water quality parameters on routine basis. Any non-compliance or infringement should be reported to the concerned authority.		
21	MISCELLANEOUS	PP shall follow the recommendation of subsidence	PPs Submission	The subsidence is monitored regularly, and the recommendations are

degr subsi regu shall	tor the ee of dence arly and be iitted to IRO-		implemented. Report attached as Annexure IV. Complied 29-11-2024 Attachment: <u>Click to View</u>
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General Conditions

Sr.No.	Condition Heading	Condition Details	Status of Compliance Supporting Documer	
1	Statutory compliance	The Environmental clearance shall be subject orders of Hon'ble Supreme Court of India. Hon'ble High Courts, NGT and any other Court of Law, from	PPs Submission	It has been not Complied 16-11-2024 Attachment:NA
		time to time, and as applicable to the project.		
2	Statutory compliance		PPs Submission	It is not applica Complied 16-11-2024 Attachment:NA
		non- forest purpose involved in the project.		
3	Statutory compliance	The Project proponent shall obtain clearance from the National Board for Wildlife, if applicable.	PPs Submission	Not Applicable Complied 16-11-2024 Attachment:NA
4	Statutory compliance	The project proponent shall prepare a site-specific conservation plan/wildlife management Plan and approved by the Chief Wildlife Warden. The recommendation of the	PPs Submission	There is no Sch species in the s Complied 29-11-2024 Attachment:NA
		approved Site-Specific Conservation Plan/Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report (in case of the presence of schedule I species in the study area)		

5	Statutory compliance	The project proponent shall obtain Consent to Establish/Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and Water (Prevention & Control of Pollution) Act, 1974 from the Concerned State Pollution Control Board/Committee.	PPs Submissi	on	The CTE has be from JSPCB vid JSPCB/HO/RNC 14115974/2022 12.11.2022 and received from J No. JSPCB/HO/ 13955624/2022 14.11.2022. Complied 16-11-2024 Attachment:NA
6	Statutory compliance	The project proponent shall obtain the necessary permission from the Central Ground Water Authority.	PPs Submission	Autho water No. CGWA dated: Comp 29-11	
7	Statutory compliance	Solid Waste/Hazardous Waste generated in the mines needs to addressed in accordance to the Solid Waste Management Rules,2016/ Hazardous & Other Waste Management Rules,2016	PPs Submissi	on	It has been not be complied. Complied 16-11-2024 Attachment:NA
8	AIR QUALITY MONITORING AND PRESERVATION	Adequate ambient air quality monitoring stations shall be established in core zone as well as in the buffer zone for monitoring of pollutants, namely particulates ,SO2and NOx location of the Station shall be decided based on the metrological data, topographical features and environmentally and ecologically sensitive in consultation with the State Pollution Control Board. Monitoring of heavy metal such as Hg, As, Ni, Cd, Cr, etc. to be carried out at least once in six months. Online ambient air quality monitoring station may also be installed in addition to the regular air monitoring stations as per the requirement	PPs Submissi	on	It has been con Complied 16-11-2024 Attachment: C

		and /or in consultation with the SPCB.		
9	AIR QUALITY MONITORING AND PRESERVATION	The Ambient Air Quality monitoring in the core zone shall be carried out to ensure the coal Industry Standards notifies vide GSR 742 E dated 25.09.2000 and as amended from time to time by the Central Pollution Control Board. Data on ambient air quality and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly reported to the Ministry/Regional Office and to the CPCB/SPCB.	PPs Submission	Ambient air qu well as buffer z measures by in environmental well as third pa recognised lab. been attached Complied 29-11-2024 Attachment: <u>Cli</u>
10	AIR QUALITY MONITORING AND PRESERVATION	Transportation of coal, to the extent permitted by road shall be carried out by covered trucks/conveyors .Effective control measure such as regular water sprinkling /rain gun/mist sprinkling etc. shall be carried out in critical areas prone to air pollution with higher level of particulate matter all through the coal; transport roads., loading /Unloading and transfer points. Fugitive dust emissions from all	PPs Submission	The production mine has been from January 2 Transportation colliery to wash through covere belts. Road tran done through co only. Complied 29-11-2024 Attachment:NA
		sources shall be controlled regularly. It shall be ensured that the ambient air quality parameters conform to the norms prescribed by the Central/ State Pollution Control Board.		
11	AIR QUALITY MONITORING AND PRESERVATION	Major approach roads shall be black topped and properly maintained.	PPs Submission	It has been con Complied 16-11-2024 Attachment:NA

12	AIR QUALITY MONITORING AND PRESERVATION	The transportation of coal shall be carried out as per the provision and route proposed in the approved mining plan. Transportation of coal through the exiting road passing through any village shall be avoided. In case it is proposed to construct a bypass road it should be so constructed that the impact of sound, dust and accidents could be appropriately mitigated.	PPs Submission	The production mine has been from January 24 Transportation colliery to wash through covere belts. Road tran done through co only. Complied 29-11-2024 Attachment:NA
13	AIR QUALITY MONITORING AND PRESERVATION	Vehicular emissions shall be kept under control and regularly monitored. All the vehicles engaged in mining and allied activities shall operate only after obtaining PUC' certificate from the authorized pollution testing centres.	PPs Submission	It has been con Complied 16-11-2024 Attachment:NA
14	AIR QUALITY MONITORING AND PRESERVATION	Coal Stock pile/crusher/feeder and breaker material transfer points shall invariably be provided with dust suppression system. Belt conveyors shall be fully covered to avoid air borne dust Side cladding all along the conveyor gantry should be made to avoid air borne dust. Drills shall be wet operated or fitted with dust extractors.	PPs Submission	It has been con Complied 16-11-2024 Attachment:NA
15	AIR QUALITY MONITORING AND PRESERVATION	Coal handling plant shall be operated with effective control measures w.r.t various environmental parameters. Environmental friendly sustainable technology should be implemented for mitigating such parameters.	PPs Submission	CHP is being o dry fog system sprinklers, mist other various e control measur Complied 16-11-2024 Attachment:NA
16	WATER QUALITY MONITORING AND PRESERVATION	The effluent discharge(mine waste water, workshop effluent) shall be monitored in terms of the parameters notified under the Water Act, 1974 Coal Industry Standard vide GSR 742 E, dated 25.09.2000 an as amended from time to time by the Central Pollution Control Board .	PPs Submission	Water quality a discharge from effluent treatm sewage treatme done regularly. Complied 16-11-2024 Attachment:NA

17	WATER QUALITY MONITORING AND PRESERVATION	The Monitoring data shall be uploaded on the company's website and displayed at the project site at a suitable location. The Circular NO. J- 20012/1/2006-1A.11 (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regards for its compliance.	PPs Submission	Monitoring dat uploaded along yearly compliar Tata Steel Limit Complied 16-11-2024 Attachment:NA
18	WATER QUALITY MONITORING AND PRESERVATION	 water level and quality shall be carried out in and around the mine lease area by establishing a network of existing wells and 	PPs Submission	It is being com Complied 16-11-2024 Attachment:NA
		construction new piezometers during the mining operations. The monitoring of ground water levels shall be carried out four times in a year i.e, pre monsoon monsoon, post monsoon and winter. The ground water quality shall be monitored once a year, and the data thus collected shall be sent regularly to MoEFCC/RO.		
19	WATER QUALITY MONITORING AND PRESERVATION	Monitoring of Water quality upstream and downstream of water bodies shall be carried out once in six months and records of monitoring data shall be maintained and submitted to the Ministry of environment, Forest and Climate Change/ Regional	PPs Submission	Water quality u downstream of bodies are carr Complied 16-11-2024 Attachment:NA
		Office,		
20	WATER QUALITY MONITORING AND PRESERVATION	Ground Water, excluding mine water, shall not be used for mining operations rainwater harvesting shall be implemented for conservation and augmentation of ground water resources.	PPs Submission	It has been not be complied Complied 16-11-2024 Attachment:NA
21	WATER QUALITY MONITORING AND PRESERVATION	The Project proponent shall not alter major water channels around the site. Appropriate embankment shall be provided along the side of the river/nallah flowing near or adjacent to the	PPs Submission	It has been not to comply. Complied 16-11-2024 Attachment:NA
	mine. The embankment constructed along river/nallah boundary shall be suitable dimensions and critical patches shall be strengthened by stone pitching on the river front side,			

		Stabilized with plantation so as to withstand the peak water pressure preventing any chance of mine inundation.		
22	WATER QUALITY MONITORING AND PRESERVATION	Garland drains (of suitable size, gradient and length) around the critical areas i.e. mine shaft and low lying areas, shall be designed keeping at least 50% safety margin the mine sites. The sump capacity shall also provide adequate retention period to	PPs Submission	It is being com Complied 16-11-2024 Attachment:NA
		allow proper settling of slit material of the surface runoff.		
23	WATER QUALITY MONITORING AND PRESERVATION	The Water pumped out from the mine, after siltation, shall be utilized for industrial purpose viz. watering the mine area, roads green belt development etc. The drains shall be regularly distilled particularly after monsoon and maintained properly.	PPs Submission	The pumped w mine are being stowing, coal w sprinkling, gree development a treatment plant community. Complied 16-11-2024 Attachment:NA
24	WATER QUALITY MONITORING AND PRESERVATION	Industrial waste water from coal handling plant and mine water shall be properly collected and treated so as to conform to the standard prescribed under the Environment Protection Act, 1986 and the rules made thereunder, and as amended from time to time. Oil and grease trap shall be installed before discharge of workshop affluent. Sewage treatment plant of	PPs Submission	Industrial waste coal handing p collected, treate the coal washir activities. Complied 16-11-2024 Attachment:NA
		adequate capacity shall be installed for treatment of domestic waste water.		
25	WATER QUALITY MONITORING AND PRESERVATION	Adequate ground water recharge measure shall be taken up for augmentation of ground water. The project authorities shall meet water requirement of nearby villages in case the village wells go dry to dewatering of mine.	PPs Submission	Water recharge being construct renewed regula nearby villages. Complied 16-11-2024 Attachment:NA
26	WATER QUALITY MONITORING	The surface drainage plan including surface water conservation of area of influence	PPs Submission	It has been not be complied Complied

	AND PRESERVATION	affected by the said miming operations shall be prepared, considering the presence of any river/rivulet/pond/lake etc. with impact of mining activities on it. And implemented by the project proponent. The surface drainage plan and /or any diversion of natural water courses shall be as per the provisions of the approved Mining Plan /EIA/EMP submitted to this Ministry and the same should be as per the approved mining plan and as per the permission of DGMS.		16-11-2024 Attachment:NA
27	WATER QUALITY MONITORING AND PRESERVATION	The project proponent shall take all precautionary measure to ensure reverian/riparian ecosystem in and around the coal mine up to a distance of 5 km. a revarian/riparian ecosystem conservation and management plan should be prepared and implemented in consultation with the irrigation/water resources department in the state government.	PPs Submission	It has been not be complied. Complied 16-11-2024 Attachment:NA
28	Noise Monitoring & Prevention	Adequate measures shall be taken for control of noise levels below 85 db. (A) in the work environment. Workers engaged in underground mining operations of HEMM etc. shall be provided with personal protective equipment's (PPE) like ear plugs/muffs in conformity with the prescribed norms/guidelines in this regards. Progress in usage of such accessories to be monitored. Adequate awareness programme for users to be conducted.	PPs Submission	It has been con Complied 16-11-2024 Attachment:NA
29	Noise Monitoring & Prevention	The noise level survey shall be carried out as per the prescribed gridlines to assess noise exposure of the workmen at vulnerable points in the mines premises, and report in this regard shall be submitted to the Ministry/RO on six monthly basis.	PPs Submission	It has been cor report has bee Annexure-II. Complied 29-11-2024 Attachment: C
30	MINING PLAN	Mining shall be carried out under strict adherence to provisions of Mines Act 1952 and subordinate	PPs Submission	It has been no be complied.

		legislations made there under as applicable.		Complied 16-11-2024 Attachment:NA
31	MINING PLAN	No change in mining method i.e. UG to OC, calendar programme and scope of work shall be made without obtaining prior approval of the Ministry of Environment Forest, and Climate Change (MoEFCC)	PPs Submission	It has been not be complied. Complied 16-11-2024 Attachment:NA
32	MINING PLAN	Mining shall be carried out as per the approved mining plan (including mines closure plan) abiding by mining laws related to coal mining and the relevant circulars issued by Directorate General of Mines Safety (DGMS)	PPs Submission	It has been not be complied. Complied 16-11-2024 Attachment:NA
33	MINING PLAN	Underground work place environment conditions shall be rendered ergonomic and air breathable with adequate illumination in conformance with DGMS Standards.	PPs Submission	It has been con Complied 16-11-2024 Attachment:NA
34	MINING PLAN	No mining activity shall be carried out in forest land without forestry clearance as per forest (Conservations) Act, 1980 and also adhering to the Scheduled tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act,2006 read with provisions of Indian Forest Act,1927	PPs Submission	It has been not land involved. Complied 16-11-2024 Attachment:NA
35	MINING PLAN	Efforts should be made to reduce energy and fuel consumption by conservation, efficiency improvements and use of renewable energy.	PPs Submission	It has been not be complied Complied 16-11-2024 Attachment:NA
36	LAND RECLAMATION	Digital Survey of entire lease hold area/core zone using Satellite Remote Sensing survey shall be carried out at least once in three years for monitoring land use pattern and report in 1:50,000 scale or as notified by Ministry of Environment, Forest and Climate Change (MoEFCC) from time to time shall be	PPs Submission	It has been con LULC study was and the report to IRO, Ranchi Complied 16-11-2024 Attachment:NA

		submitted to MoEFCC/ Regional Office (RO)		
37	LAND RECLAMATION	Post mining I/Forestry purpose and shall be handled over to the respective State Government, as specified in the Guidelines for preparation of Mine closure Plan, issued by the Ministry of Coal dated 27th Auguust,2009 and subsequent amendments	PPs Submission	It has been not be complied Complied 16-11-2024 Attachment:NA
38	LAND RECLAMATION	Regular Monitoring of subsidence movement on the surface over and around the working areas and its impact on natural drainage pattern, water bodies, vegetation, structure, roads and surroundings shall be continued till movement ceases completely. In case of observation of any high rate of subsidence beyond the limit prescribed, appropriately effective mitigation measures shall be taken to avoid loss of life and materials. Cracks should be effectively plugged in with ballast and clay soil/suitable material.	PPs Submission	It has been con Complied 16-11-2024 Attachment:NA
39	LAND RECLAMATION	Fly ash shall be used for external dump of overburden, backfilling, or stowing of mines as per provision contained in clause (I)and (ii) of subparagraph (8) of fly ash notification issued vide SO 2804 E dated 3rd Nov. 2009 as amended from time to time. Efforts shall be made to utilize gypsum generated from flue Gas Desulfurization (FGD) if any along with fly ash for external dump of overburden, backfilling or stowing of mines. Compliance report shall be submitted to Regional office of MoEFCC, CPCB, and SPCB.	PPs Submission	lt is being com Complied 16-11-2024 Attachment:NA
40	LAND RECLAMATION	A separate team for subsidence monitoring and surface mitigation measures shall be constituted and continuous monitoring & implementation of mitigation measures be carried out.	PPs Submission	A separate tear surveyors has t continuous me and monitoring and implement measures. Complied

				16-11-2024 Attachment:NA
41	LAND RECLAMATION	Through inspection of the mines lease area of any cracks developed at the surface due to mining activities below ground shall be carried out to prevent inrush of water in the mine.	PPs Submission	It is being com Complied 16-11-2024 Attachment:NA
42	LAND RECLAMATION	Native tree species shall be selected and planted over areas affected by subsidence.	PPs Submission	Generally, no a much affected However, native planted for the reclamation. Complied 16-11-2024 Attachment:NA
43	LAND RECLAMATION	The Project proponent shall make necessary alternative arrangements, if grazing land is for livestock grazing, if any. In this context the project proponent shall implements the direction of Hon'ble Supreme Court with regards to acquiring	PPs Submission	Not applicable underground m Complied 16-11-2024 Attachment:NA
44	GREENBELT	grazing land. The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered flora/fauna, if any spotted/ reported in the study area. Action plan, in this regards if any shall be prepared and implemented in consultation with the State Forest and Wildlife Department.	PPs Submission	It has been not be complied Complied 16-11-2024 Attachment:NA
45	GREENBELT	Green belt, consisting of three - tier plantation, of which not less than 7.5 m shall be developed all along the mines lease area in a phased manner. The green belt comprising of a mix of natives species shall be developed all along the major roads/ coal transportation roads.	PPs Submission	It is an ongoinc Plantation is be out regularly. D attached as anr Complied 29-11-2024 Attachment: Cli

46	Human Health Environment	Adequate illumination shall be ensured in all mine location (as per DGMS standards) and monitored.	PPs Submission	Illumination mo done on regula DGMS norms. Complied 16-11-2024 Attachment:NA
47	Human Health Environment	The project proponent shall undertake occupational Health survey for initial and Periodical medical examination of the workers engaged in the project and maintain records accordingly as per the provision of the Mines Rule, 1995 and DGMS Circulars. Besides carrying out regular periodic health check-up of their workers, 20% of the workers	PPs Submission	IME and PME r regular basis th inhouse Tata C Complied 16-11-2024 Attachment:NA
		engaged in active mining operations shall be subjected to health check-up for occupational disease and hearing impairment, if any.		
48	Human Health Environment	Personal (including outsourcing employees) working in dusty area shall wear protective respiratory devices and shall also be provide with adequate training and information on safety and health aspects.	PPs Submission	Adequate on s job training and deployment of PPEs are being wear from safe environment p Complied 16-11-2024 Attachment:NA
49	PUBLIC HEARING	Skill training as per safety norms specified by DGMS shall be provided to all workmen including the outsourcing employees to ensure high safety standards in mines.	PPs Submission	Skill training al safety training before deployr employees to Complied 16-11-2024 Attachment:NA
50	PUBLIC HEARING	Effective arrangements shall be made to provide and maintain at suitable point's conveniently situated, a sufficient supply of drinking water for all the persons employed.	PPs Submission	Water treatme operated for sa water supply in community. Complied 16-11-2024 Attachment:N/

51	PUBLIC HEARING	Implementation of Action Plan on the issues raised during the public hearing shall be ensured. The Project Proponent shall undertake all the tasks as peer the Action Plan Submitted with budgetary provisions during the Public Hearing. Land outies shall	PPs Submission	It is under prog be complied. The action plans are stages of comp Complied 16-11-2024 Attachment:NA
		be compensated as per the norms laid out R&R Policy of the Company/or the National R&R Polity/R & R Policy of State Government as applicable.		
52	PUBLIC HEARING	The project proponent shall follow the mitigation measures provided in the Ministry's OM No. Z- 11013/5712014-IA.II (M) dated 29th October, 2014, titled 'Impact of mining activities on habitations issues related to the	PPs Submission	It has been not be complied Complied 16-11-2024 Attachment:NA
	mining projects where habitation and villages are the part of mines lease areas or habitations and villages are surrounded by the mine lease area'.			
53	53 Corporate Environmental Responsibility	The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures have proper checks and balances	PPs Submission	The company h down Environn Attached as An Complied 29-11-2024 Attachment: C
		and to bring in focus any infringements/deviation/violation of the environment/forest /wildlife norms/conditions. The company shall have defined system of reporting infringements /deviation/violation of their environment /forest/wildlife norms/conditions and /or shareholder/ stockholders. The copy of the board resolution in this regards shall be submitted		
54	Corporate	to MoEF&CC as a part of six monthly reports. A separate Environmental Cell	PPs Submission	It has been cor
	Environmental Responsibility	both at the project and company head quarter level, with qualified personal shall be set up under the control of senior Executive, who will directly to the head of		Complied 16-11-2024 Attachment:NA

55	Corporate Environmental Responsibility	Action Plan for implementation EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by	PPs Submission	It has been not be complied Complied 16-11-2024 Attachment:NA
		competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be providing for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the six Monthly Compliance Report.		
56	Corporate Environmental Responsibility	Self-Environmental audit shall be conducted annually. Every three year third party environmental audit shall be carried out.	PPs Submission	Self-audit is co annually and IF EMS 14001:201 conducted. Complied 29-11-2024 Attachment:NA
57	MISCELLANEOUS	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspaper of District or State of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the projects proponents website permanently.	PPs Submission	It has been con Complied 16-11-2024 Attachment:NA
58	MISCELLANEOUS	The copies of the environmental clearance shall be submitted by the projects proponents to the head of local bodies, panchayats and Municipal Bodies in addition to relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.	PPs Submission	It has been con Complied 16-11-2024 Attachment:NA
59	MISCELLANEOUS	The project proponent shall upload the status of compliance of the Stipulated environment	PPs Submission	It has been not be complied

		clearance conditions, including results of monitored data on their website and update the same on half yearly basis.		Complied 16-11-2024 Attachment:NA
60	MISCELLANEOUS	The project proponent shall monitor the criteria pollutants level namely; PM10, So2, NOx (ambient level) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for	PPs Submission	It has been con Complied 16-11-2024 Attachment:NA
		disclosure to public and put on the website of the company.		
61	MISCELLANEOUS	The project proponent shall submit six monthly monthly reports on the status of the compliance of stipulated environment conditions on the and Climate Change at environmental clearance portal.	PPs Submission	It has been not be complied Complied 16-11-2024 Attachment:NA
62	MISCELLANEOUS T f F N C	The project proponent shall follow the mitigation measure provided in this Ministry's OM No. Z-11013/5712014-IA.II (M) dated 29th October, 2014, Titled "Impact of mining activities on habitation - issues related to the mining projects wherein habitations and villages are the apart of mine lease areas or habitations and villages are surrounded by the mines lease area.	PPs Submission	It has been not be complied Complied 16-11-2024 Attachment:NA
63	MISCELLANEOUS	The project proponent shall submit the environmental statement for each financial year in FORM-V the concerned State pollution Control Board as prescribe under the Environment Rule, 1986 as amended subsequently and put on the Website of the company.	PPs Submission	Environmental been submitted the concerned vide letter no. JMB/ENV/ESSA on 27th Septen Complied 16-11-2024 Attachment:NA
64	MISCELLANEOUS	The project authorities shall inform to the regional Office of MoEF&CC regarding commencement of mining operations.	PPs Submission	The mining act ongoing since years. Complied 16-11-2024 Attachment:NA

65	MISCELLANEOUS	The project authorities must strictly adhere to the stipulation made by the State Pollution Control Board and the State Government.	PPs Submission	Shall be compl Complied 16-11-2024 Attachment:NA
66	MISCELLANEOUS	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during public hearing and also that during their presentation to the Expert Appraisal Committee.	PPs Submission	It has been not be complied Complied 16-11-2024 Attachment:NA
67	MISCELLANEOUS	Concealing factual data or submission of false /fabricated data may result in revocation of this environmental clearance and attract action under this provision of Environment (Protection) Act, 1986.	PPs Submission	It has been not Complied 16-11-2024 Attachment:NA
68	MISCELLANEOUS	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.	PPs Submission	It has been age Complied 16-11-2024 Attachment:N/
69	MISCELLANEOUS	The Ministry reserve the right to stipulate additional condition if found necessary .The company in a time bound manner shall implement these conditions.	PPs Submission	Agreed Complied 16-11-2024 Attachment:N/
70	MISCELLANEOUS	The Regional office of this Ministry shall monitor compliance of the stipulated conditions The project authorities should extend full cooperation to the officers of the Regional Office by furnishing the requisite data /information/monitoring reports.	PPs Submission	Agreed Complied 16-11-2024 Attachment:N
71	MISCELLANEOUS	The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1986, Hazardous and Other Waste (Managements and Trans- Boundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments	PPs Submission	It has been ag Complied 16-11-2024 Attachment:NA

		and Rules and any other orders by the Hon'ble Supreme Court of India/ High Court and any other Court of Law relating to the subject matter.		
72	MISCELLANEOUS	The Proponent shall abide by all the commitments and recommendation made in the EIA/EMP report and also that during presentation to the EAC. All the commitments made on the issues raised during public hearing shall also be implemented in letter and spirit.	PPs Submission	All the commit recommendatic per Public hear process of com Complied 16-11-2024 Attachment:NA
73	MISCELLANEOUS	The proponent shall obtain all necessary Clarence /approvals that may be required before the start of the project. The Ministry or any other competent authority may stipulate any further condition for environmental protection. Ministry or any other competent authority may stipulate any further condition for Environment protection.	PPs Submission	It has been agr Complied 16-11-2024 Attachment:NA
74	MISCELLANEOUS	Any appeal against this environmental clearance shall lie with the Green Tribunal if Preferred, with in a period of 30 day as prescribed under section 16 of the National Green Tribunal Act, 2010.	PPs Submission	Not required Complied 16-11-2024 Attachment:NA
75	MISCELLANEOUS	The coal company\/project proponent shall be liable to pay compensation against the illegal mining, if any, and raised by the respective state Government at any point of time in terms of the orders dated 2nd August, 2017 of Hon'ble Supreme Court in WP (Civil) No114/2014 in the matter of Common Cause Vs Union of India & others.	PPs Submission	Agreed Complied 16-11-2024 Attachment:NA
76	MISCELLANEOUS	The concerned State Government shall ensure no mining operations to commence till the entire compensation for illegal mining if any is paid by the project proponents through their respective Department Of Mining & Geology, in strict compliance of judgement of Hon'ble Supreme Court.	PPs Submission	It has been not Complied 16-11-2024 Attachment:NA

77	MISCELLANEOUS	This environmental clearance shall not be operational till time the project proponent complies with the above said judgement of Hon'ble Supreme Court, as applicable, and other statutory requirements.	PPs Submission	Agreed Complied 16-11-2024 Attachment:NA
78	MISCELLANEOUS	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change.	PPs Submission	It has been Agr Complied 16-11-2024 Attachment:NA

Document uploaded by the PP

Last Site Visit Report (if available) NA Last Site Visit Report Date (if available) Additional Attachment (if any) NA

Additional Remarks (if any)

I <u>'Tata Steel Ltd.</u>' hereby give undertaking that the data and information given in the filed compliance and enclosures are true to be best of my knowledge and belief and I am aware that if any part of the data and information found to be false or misleading at any stage, the clearance given to the project will be revoked at our risk and cost. In addition to above, I hereby give undertaking that no activity such as change in project layout, construction, expansion, etc. has been taken up without due approval.

Cover Letter From RO/SRO

Cover Letter From RO/SRO

Back

HALF YEARLY COMPLIANCE REPORT (PERIOD: APRIL'24 – SEPTEMBER'24)

JAMADOBA UNDERGROUND COAL MINE

(CAPACITY: 0.34 MTPA) TEHSIL: JHARIA, DIST: DHANBAD, JHARKHAND



TATA STEEL LIMITED, JHARIA DIVISION

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

ENVIRONMENTAL CLEARANCE GRANTED VIDE LETTER NO. J-11015/91/2017-IA.II (M) dated July 11, 2022 ISSUED BY GOVT. OF INDIA, MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE, NEW DELHI.

Sl. No.	Consent Condition	Compliance Status
	PP to obtain the CTO for 0.34 MTPA capacities	Consent to Operate for the existing
	immediately after grant of EC.	capacity has been obtained from the
;		State PCB on 14.11.2022 and is valid
i		till 31.12.2024. The production from
		the mines have been discontinued
		since January 2024.
	PP to conserve the Kari jhore, Dungri jhore,	Garland drains have been
	Damodar River following within the core area of	constructed around the boundary
ii	the project and the measure taken for its	premises of the mines. Several other
11	conservation to be furnished in every six-	conservation measures are ongoing,
	monthly compliance to be reported to respective	and the report shall be submitted to
	IRO and SPCB.	IRO, MoEFCC & SPCB as required.
	Since there is also Jamadoba Coal washery	There are existing environmental
	located within mine lease having separated EC	measures for the Jamadoba Coal
	vide Letter No J-11015/203/2011-II-IA(M)	preparation plant. The rejects like
	dated 3rd March 2014 so the adequate EMP	tailing, middling etc are utilized as
iii	measure to be adopted to minimize the	per norms. The integrated EC shall
	cumulative impact, also the utilization of rejects	be taken in case of washery
	generated from washery should be managed as	expansion.
	per norms. PP shall obtain integrated EC for	
	future coal/washery expansion.	
	PP shall obtain No objection certificate from	The NOC from central Ground
	Ground water Authority for extraction of ground	Water Authority for extraction of
iv	water within six months and submit to IRO	ground water was granted vide NOC
	Ranchi.	No. CGWA/NOC/MIN/REN/1/2024/101
		24; dated: 05.11.2024.
	PP Shall reduce river sand used for stowing and	We are in the process of
	explore usage of sand segregated from OB dump	technological exploration of sand
v	from any nearest mine (either its own or any	from OB dump.
	mine) and submit detailed report to IRO Ranchi.	nom ob dump.
	PP shall follow the recommendation of	The subsidence is monitored
	subsidence study and monitor the degree of	regularly, and the recommendations
vi	subsidence regularly and shall be submitted to	are implemented. Report attached as
	IRO- Ranchi.	Annexure IV.
	PP to accomplish the requirement of a full fledge	We have a full-fledged Environment
	qualified manpower with Environmental	cell with Environment professionals
	Engineer/Env. Science degree background in	and field monitoring staff.
vii	Environmental Management Cell etc. within six	č
	months and same shall be reported to IRO,	
	MoEF&CC	
	WIDEFALL	

	July 11, 2022	
viii	PP to fulfil all the commitment made to address the public hearing issued in time bound manner as committed in EIA EMP report in Chapter & table 7.1 and a progressive report to be furnished to IRO with six monthly compliance report	The commitment are in various levels of compliance. The commitments made during the public hearing are being complied in time bound manner. The report shall be furnished to IRO, Ranchi as required.
ix	PP to maintain the transportation road properly to minimize the dust emission. PP to also develop puce roads by seeking consent from the panchayat with widening of roads especially roads inters linking the villages within the study area of 10 Km radius buffer zone.	The transportation roads in core and buffer zones are maintained properly to minimize the dust emission. The construction of roads in nearby villages are continuous process in consent with panchayat.
x	PP to complete the estimated allocated budgetary expenditure for EMP capital cost is Rs.273.0 lakhs & Recurring cost is Rs.1359.4 Lakhs per year as per its letter dated JMB/115/001339 dated 3rd September, 2021. Capital EMP budget shall be completed within strict timeline.	It is under progress. The completion within strict timeline shall be complied. The expenditure against environment management activity for FY24 was INR 408.92 Lakhs.
xi	PP to monitor the water quality of the ground water and surface water body located within the core zone and 5 Km radius from the periphery of the mine boundary as per procedure laid down by CPCB.	It has been complied.
xii	PP to install More continuous ambient air quality stations at suitable locations preferably village side with consultation of SPCB. The real time data so generated shall be uploaded on company website and linked it with website of CPCB & SPCB. In addition, data should also be displayed digitally at entry and exit gate of mine lease for public display.	A CAAQMS is being installed in Jamadoba group since 2014. A new CAAQMS has been installed recently in July 2022 and the data connectivity to SPCB, Jharkhand has been done.
xiii	PP shall develop rainwater harvesting in Jamadoba coal washery as proposed by PP in vide Letter dated JMB/115/001339 dated 3rd September, 2021 & water harvesting ponds near the villages of suitable area as suggested by EAC in consultation with Gram Panchayat within year and with cultivation of Lotus.	There are a number of ponds developed on the surface of the mining lease which act as natural reservoirs for recharging ground water. These ponds/ tanks are regularly cleaned and maintained by our CSR department. As per the hydro-geological report, the variation in the ground water level is only seasonal. Rain water harvesting structure inside the washery premises shall be complied. Work has been initiated and under progress.

uattu	July 11, 2022	
xiv	PP must seek the input of experts for phytoremediation of Slurry and accordingly work on it with proper scientific approach.	There is no generation of slurry during raw coal production.
XV	PP to plant additional 100,000 plants with three tier plantations along the transportation route, if not completed, and identified areas with consent to the gram panchayat within two year and plant for remaining within 2 years for their proper growth.	Plantation and green belt development is a continuous process. For FY 24, around 12452 saplings have been planted. For FY25 12263 saplings have been planted till September 2024. Green belt report has been attached as Annexure-I.
xvi	PP to install solar lights along the road used for transportation of minerals to avoid the accidents at night and also seek its maintenance. PP is asked to also identify the rural areas for installation of solar light with in its maintenance within the study area of 10 km radius buffer zone within one year	Adequate lighting facilities have been installed along the roads. Several facilities under CSR, including lights have been provided in the area.
xvii	Proponent shall appoint an occupational Health Specialist for Regular and Periodical medical examination of the workers engaged in the project and maintain records accordingly also Occupational health check-up for workers having some ailments like BP, diabetes, habitual smoking etc. shall be undertaken once in six months and necessary redial/preventive measures taken accordingly. The recommendations of National Institute for ensuring good occupational environment for mine workers shall be implemented. The prevention measure for burns, malaria and provision of anti-snake venom including all other paramedical safeguards may be ensured before initiating the mining activities.	It has been complied. It's a continuous process. There is fully developed Tata Central Hospital in Jamadoba to take care of all these types of concerns of community.
xviii	Persons of nearby villages shall be given training on livelihood and skill development makes them employable with its proper records.	It is a continuous process and has been complied. Separate training cell (JNTVTI) has been developed for skill based training of local youth.
xix	The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may effects the health in the village located aloes tom mining operations. Habitations have a right for darkness and minimal noise levels at nights, PPs must ensure that the biological clock of the villages is not distributed by orienting the floodlights/masks away from the villagers and keeping the noise levels well within the prescribed limits for day lights/night hours	It has been noted and shall be complied strictly.

uattu	l July 11, 2022	
xx	PP shall pay to farmers of agricultural land if there is any loss due to pollution found by concerned District Commissioner as per extent rules or norms.	It has been noted and shall be complied.
xxi	PP should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground A dedicated team to oversee environment management shall be setup which should comprise of Environmental Engineer, Laboratory chemist and staff for monitoring of air , water quality parameters on routine basis. Any non-compliance or infringement should be reported to the concerned authority.	We have a full-fledged Environment cell with Environment professionals and field monitoring staff.
4.1	The grant of Environment Compliance (EC) is Standard EC Conditions as under:	further subject to compliance of the
(a)	Statutory Compliance:	
i	The Environmental clearance shall be subject orders of Hon'ble Supreme Court of India. Hon'ble High Courts, NGT and any other Court of Law, from time to time, and as applicable to the project.	It has been noted.
ii	The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non- forest purpose involved in the project.	It is not applicable.
iii	The Project proponent shall obtain clearance from the National Board for Wildlife, if applicable.	Not Applicable
iv	The project proponent shall prepare a site- specific conservation plan/wildlife management Plan and approved by the Chief Wildlife Warden. The recommendation of the approved Site-Specific Conservation Plan/Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report (in case of the presence of schedule I species in the study area)	There is no Schedule-I species in the study area.
v	The project proponent shall obtain Consent to Establish/Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and Water (Prevention & Control of Pollution) Act, 1974 from the Concerned State Pollution Control Board/Committee.	The CTE has been obtained from JSPCB vide letter no. JSPCB/HO/RNC/CTE- 14115974/2022/523 dated 12.11.2022 & CTO has been received from JSPCB with Ref No.

ualtu	July 11, 2022	
		JSPCB/HO/RNC/CTO-
		13955624/2022/1601 dated
		14.11.2022.
		The NOC from central Ground
		Water Authority for extraction of
vi		ground water was granted vide NOC
VI	The project proponent shall obtain the necessary	No.
	permission from the Central Ground Water	CGWA/NOC/MIN/REN/1/2024/101
	Authority.	24; dated: 05.11.2024.
	Solid Waste/Hazardous Waste generated in the	It has been noted and shall be
	mines needs to addressed in accordance to the	complied.
vii	Solid Waste Management Rules, 2016/	•
	Hazardous & Other Waste Management	
	Rules,2016	
I. (a)	Air Quality Monitoring and Preservation	
	Adequate ambient air quality monitoring stations	It has been complied
	shall be established in core zone as well as in the	
	buffer zone for monitoring of pollutants, namely	
	particulates ,SO2and NOx location of the Station	
	shall be decided based on the metrological data,	
	topographical features and environmentally and	
	ecologically sensitive in consultation with the	
i	State Pollution Control Board. Monitoring of	
	heavy metal such as Hg, As, Ni, Cd, Cr, etc. to	
	be carried out at least once in six months. Online	
	ambient air quality monitoring station may also	
	be installed in addition to the regular air	
	monitoring stations as per the requirement and	
	/or in consultation with the SPCB.	
	The Ambient Air Quality monitoring in the core	Ambient air quality of core as well as
	zone shall be carried out to ensure the coal	buffer zone are measures by inhouse
	Industry Standards notifies vide GSR 742 E	environmental laboratory as well as
	dated 25.09.2000 and as amended from time to	-
		third party NABL recognised lab. Report has been attached as
ii	time by the Central Pollution Control Board. Data on ambient air quality and heavy metals	Report has been attached as Annexure-II.
	such as Hg, As, Ni, Cd, Cr and other monitoring	Annexure-n.
	•	
	Ministry/Regional Office and to the CPCB/SPCB.	
		The production from the mine has
	Transportation of coal, to the extent permitted by road shall be carried out by covered	1
	5	been discontinued from January
	trucks/conveyors .Effective control measure such	2024. Transportation of appl from colliers
	as regular water sprinkling /rain gun/mist	Transportation of coal from colliery
iii	sprinkling etc. shall be carried out in critical	to washery was done through
	areas prone to air pollution with higher level of	covered conveyor belts. Road
	particulate matter all through the coal; transport	transportation is done through
	roads., loading /Unloading and transfer points.	covered truck only.
	Fugitive dust emissions from all sources shall be	

uateu	1 July 11, 2022	
	controlled regularly. It shall be ensured that the	
	ambient air quality parameters conform to the norms prescribed by the Central/ State Pollution	
	Control Board.	
in	Major approach roads shall be black topped and	It has been complied
iv	properly maintained.	
	The transportation of coal shall be carried out as	The production from the mine has
	per the provision and route proposed in the	been discontinued from January
	approved mining plan. Transportation of coal through the exiting road passing through any	2024. Transportation of coal from colliery
V	village shall be avoided. In case it is proposed to	to washery was done through
	construct a bypass road it should be so	covered conveyor belts. Road
	constructed that the impact of sound, dust and	transportation is done through
	accidents could be appropriately mitigated.	covered truck only.
	Vehicular emissions shall be kept under control	It has been complied
	and regularly monitored. All the vehicles	
vi	engaged in mining and allied activities shall	
	operate only after obtaining PUC' certificate from the authorized pollution testing centres.	
	Coal Stock pile/crusher/feeder and breaker	It has been complied
	material transfer points shall invariably be	n nus seen complied
	provided with dust suppression system. Belt	
vii	conveyors shall be fully covered to avoid air	
VII	borne dust Side cladding all along the conveyor	
	gantry should be made to avoid air borne dust.	
	Drills shall be wet operated or fitted with dust extractors.	
	Coal handling plant shall be operated with	CHP is being operated using dry fog
	effective control measures w.r.t various	system, water sprinklers, mist canons
viii	environmental parameters. Environmental	and other various effective dust
	friendly sustainable technology should be	control measures.
	implemented for mitigating such parameters.	
(b)	Water Quality Monitoring and Preservation	
	The effluent discharge(mine waste water, workshop effluent) shall be monitored in terms	Water quality analysis discharge from mine sump, effluent treatment
-	of the parameters notified under the Water Act,	plants, sewage treatment plants are
i	1974 Coal Industry Standard vide GSR 742 E,	done regularly.
	dated 25.09.2000 an as amended from time to	
	time by the Central Pollution Control Board .	
	The Monitoring data shall be uploaded on the	Monitoring data are being uploaded
	company's website and displayed at the project	along with the half yearly
ii	site at a suitable location. The Circular NO. J- 20012/1/2006 1A 11 (M) dated 27.05.2009	compliance report on Tata Steel Limited website.
11	20012/1/2006-1A.11 (M) dated 27.05.2009 issued by Ministry of Environment, Forest and	Linneu website.
	Climate Change shall also be referred in this	
	regards for its compliance.	
iii	Regular monitoring of ground water level and	It is being complied.
	quality shall be carried out in and around the	

uattu	July 11, 2022	[]
	mine lease area by establishing a network of	
	existing wells and construction new piezometers	
	during the mining operations. The monitoring of	
	ground water levels shall be carried out four	
	times in a year i.e, pre monsoon monsoon, post	
	monsoon and winter. The ground water quality	
	shall be monitored once a year, and the data thus	
	collected shall be sent regularly to MoEFCC/RO.	
vi		Water quality unstream and
VI	Monitoring of Water quality upstream and	Water quality upstream and
	downstream of water bodies shall be carried out	downstream of the water bodies are
	once in six months and records of monitoring	carried out.
	data shall be maintained and submitted to the	
	Ministry of environment, Forest and Climate	
	Change/ Regional Office,	
v	Ground Water, excluding mine water, shall not	It has been noted and shall be
	be used for mining operation s rainwater	complied
	harvesting shall be implemented for conservation	-
	and augmentation of ground water resources.	
vi	The Project proponent shall not alter major water	It has been noted and agreed to
	channels around the site. Appropriate	comply.
	embankment shall be provided along the side of	compry.
	the river/nallah flowing near or adjacent to the	
	e	
	river/nallah boundary shall be suitable	
	dimensions and critical patches shall be	
	strengthened by stone pitching on the river front	
	side, Stabilized with plantation so as to	
	withstand the peak water pressure preventing any	
	chance of mine inundation.	
vii	Garland drains (of suitable size, gradient and	It is being complied
	length) around the critical areas i.e. mine shaft	
	and low lying areas, shall be designed keeping at	
	least 50% safety margin the mine sites. The	
	sump capacity shall also provide adequate	
	retention period to allow proper settling of slit	
	material of the surface runoff.	
viii	The Water pumped out from the mine, after	The pumped water from the mine are
VIII		
	siltation, shall be utilized for industrial purpose	being utilized for stowing, coal
	viz. watering the mine area, roads green belt	washing, sprinkling, green belt
	development etc. The drains shall be regularly	development and water treatment
	distilled particularly after monsoon and	plant for community.
	maintained properly.	
ix	Industrial waste water from coal handling plant	Industrial wastewater from coal
	and mine water shall be properly collected and	handing plants are collected, treated
	treated so as to conform to the standard	and used in the coal washing and
	prescribed under the Environment Protection	stowing activities.
	Act, 1986 and the rules made thereunder, and as	
	amended from time to time. Oil and grease trap	
L	minerated from time to time. On and grease trap	1

ualtu	July 11, 2022	1 1
	shall be installed before discharge of workshop affluent. Sewage treatment plant of adequate capacity shall be installed for treatment of domestic waste water.	
x	Adequate ground water recharge measure shall be taken up for augmentation of ground water. The project authorities shall meet water requirement of nearby villages in case the village wells go dry to dewatering of mine.	Water recharge structures are being constructed and renewed regularly in the nearby villages.
xi	The surface drainage plan including surface water conservation of area of influence affected by the said miming operations shall be prepared, considering the presence of any river/rivulet/pond/lake etc. with impact of mining activities on it. And implemented by the project proponent. The surface drainage plan and /or any diversion of natural water courses shall be as per the provisions of the approved Mining Plan /EIA/EMP submitted to this Ministry and the same should be as per the approved mining plan and as per the permission of DGMS.	It has been noted and shall be complied
xii	The project proponent shall take all precautionary measure to ensure reverian/riparian ecosystem in and around the coal mine up to a distance of 5 km. a revarian/riparian ecosystem conservation and management plan should be prepared and implemented in consultation with the irrigation/water resources department in the state government.	It has been noted and shall be complied
(c)	Noise and Vibration Monitoring and Prevention	
i	Adequate measures shall be taken for control of noise levels below 85 db. (A) in the work environment. Workers engaged in underground mining operations of HEMM etc. shall be provided with personal protective equipment's (PPE) like ear plugs/muffs in conformity with the prescribed norms/guidelines in this regards. Progress in usage of such accessories to be monitored. Adequate awareness programme for users to be conducted.	It has been complied
ii	The noise level survey shall be carried out as per the prescribed gridlines to assess noise exposure of the workmen at vulnerable points in the mines premises, and report in this regard shall be submitted to the Ministry/RO on six monthly basis.	It has been complied. The report has been attached in Annexure-II.

	I JUIY 11, 2022	
(d)	Mining Plan	
i	Mining shall be carried out under strict adherence to provisions of Mines Act 1952 and subordinate legislations made there under as	It has been noted and shall be complied.
	applicable.	
ii	No change in mining method i.e. UG to OC, calendar programme and scope of work shall be made without obtaining prior approval of the Ministry of Environment Forest, and Climate	It has been noted and shall be complied.
	Change (MoEFCC)	It has been noted and shall be
iii	Mining shall be carried out as per the approved mining plan (including mines closure plan) abiding by mining laws related to coal mining and the relevant circulars issued by Directorate General of Mines Safety (DGMS)	It has been noted and shall be complied.
iv	Underground work place environment conditions shall be rendered ergonomic and air breathable with adequate illumination in conformance with DGMS Standards.	It has been complied
V	No mining activity shall be carried out in forest land without forestry clearance as per forest (Conservations) Act, 1980 and also adhering to the Scheduled tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act,2006 read with provisions of Indian Forest Act,1927	It has been noted. No forest land involved.
vi	Efforts should be made to reduce energy and fuel consumption by conservation, efficiency improvements and use of renewable energy.	It has been noted and shall be complied
(e)	Land Reclamation	
i	Digital Survey of entire lease hold area/core zone using Satellite Remote Sensing survey shall be carried out at least once in three years for monitoring land use pattern and report in 1:50,000 scale or as notified by Ministry of Environment, Forest and Climate Change (MoEFCC) from time to time shall be submitted to MoEFCC/ Regional Office (RO)	study was done in 2021 and the
ii	Post mining l/Forestry purpose and shall be handled over to the respective State Government, as specified in the Guidelines for preparation of Mine closure Plan, issued by the Ministry of Coal dated 27th Auguust,2009 and subsequent amendments	It has been noted and shall be complied
iii	Regular Monitoring of subsidence movement on the surface over and around the working areas and its impact on natural drainage pattern, water bodies, vegetation, structure, roads and	It has been complied

ualtu	July 11, 2022	
	surroundings shall be continued till movement ceases completely. In case of observation of any high rate of subsidence beyond the limit prescribed, appropriately effective mitigation measures shall be taken to avoid loss of life and	
	materials. Cracks should be effectively plugged	
iv	in with ballast and clay soil/suitable material. Fly ash shall be used for external dump of	It is being complied.
	overburden, backfilling, or stowing of mines as per provision contained in clause (I)and (ii) of subparagraph (8) of fly ash notification issued vide SO 2804 E dated 3rd Nov. 2009 as amended from time to time. Efforts shall be made to utilize gypsum generated from flue Gas Desulfurization (FGD) if any along with fly ash for external dump of overburden, backfilling or stowing of mines. Compliance report shall be submitted to Regional office of MoEFCC,	
	CPCB, and SPCB.	
V	A separate team for subsidence monitoring and surface mitigation measures shall be constituted and continuous monitoring & implementation of mitigation measures be carried out.	A separate team including surveyors has been made for continuous measurement and monitoring subsidence and implement mitigation measures.
vi	Through inspection of the mines lease area of any cracks developed at the surface due to mining activities below ground shall be carried out to prevent inrush of water in the mine.	It is being complied
vii	Native tree species shall be selected and planted over areas affected by subsidence.	Generally, no areas are as much affected by subsidence. However, native species are planted for the land reclamation.
viii	The Project proponent shall make necessary alternative arrangements, if grazing land is for livestock grazing, if any. In this context the project proponent shall implements the direction of Hon'ble Supreme Court with regards to acquiring grazing land.	Not applicable as it is an underground mine
(f)	Green Belt	
i	The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered flora/fauna, if any spotted/ reported in the study area. Action plan, in this regards if any shall be prepared and implemented in consultation with the State Forest and Wildlife Department.	It has been noted and shall be complied
ii	Green belt, consisting of three -tier plantation, of which not less than 7.5 m shall be developed all	It is an ongoing process. Plantation is being carried out regularly. Details

uated	l July 11, 2022	7
	along the mines lease area in a phased manner.	attached as annexure.
	The green belt comprising of a mix of natives	
	species shall be developed all along the major	
	roads/ coal transportation roads.	
(g)	Public Hearing and Human Health Issues	
i	Adequate illumination shall be ensured in all mine location (as per DGMS standards) and monitored.	Illumination monitoring is done on regular basis as per DGMS norms.
ii	The project proponent shall undertake occupational Health survey for initial and Periodical medical examination of the workers engaged in the project and maintain records accordingly as per the provision of the Mines Rule, 1995 and DGMS Circulars. Besides carrying out regular periodic health check-up of their workers, 20% of the workers engaged in active mining operations shall be subjected to health check-up for occupational disease and hearing impairment, if any.	IME and PME rase done on regular basis through our inhouse Tata Central Hospital.
iii	Personal (including outsourcing employees) working in dusty area shall wear protective respiratory devices and shall also be provide with adequate training and information on safety and health aspects.	Adequate on site and off-site job training are given before deployment of employees. PPEs are being ensured to wear from safety and environment point of view.
iv	Skill training as per safety norms specified by DGMS shall be provided to all workmen including the outsourcing employees to ensure high safety standards in mines.	Skill training along with basis safety training are done before deployment of employees to work.
v	Effective arrangements shall be made to provide and maintain at suitable point's conveniently situated, a sufficient supply of drinking water for all the persons employed.	Water treatment plants are operated for safe drinking water supply in nearby community.
vi	Implementation of Action Plan on the issues raised during the public hearing shall be ensured. The Project Proponent shall undertake all the tasks as peer the Action Plan Submitted with budgetary provisions during the Public Hearing. Land outies shall be compensated as per the norms laid out R&R Policy of the Company/or the National R&R Polity/R & R Policy of State Government as applicable.	It is under progress and shall be complied. The various action plans are in various stages of compliance.
vii	The project proponent shall follow the mitigation measures provided in the Ministry's OM No. Z- 11013/5712014-IA.II (M) dated 29th October, 2014, titled 'Impact of mining activities on habitations issues related to the mining projects where habitation and villages are the part of mines lease areas or habitations and villages are	It has been noted and shall be complied

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

	July 11, 2022	
ii	The copies of the environmental clearance shall be submitted by the projects proponents to the head of local bodies, panchayats and Municipal Bodies in addition to relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.	It has been complied
iii	The project proponent shall upload the status of compliance of the Stipulated environment clearance conditions, including results of monitored data on their website and update the same on half yearly basis.	It has been noted and shall be complied
iv	The project proponent shall monitor the criteria pollutants level namely; MP10, So2, NOx (ambient level) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to public and put on the website of the company.	It has been complied
v	The project proponent shall submit six monthly monthly reports on the status of the compliance of stipulated environment conditions on the website of the Ministry of Environment, Forest and Climate Change at environmental clearance portal.	It has been noted and shall be complied
vi	The project proponent shall follow the mitigation measure provided in this Ministry's OM No. Z- 11013/5712014-IA.II (M) dated 29th October, 2014, Titled "Impact of mining activities on habitation - issues related to the mining projects wherein habitations and villages are the apart of mine lease areas or habitations and villages are surrounded by the mines lease area.	Adequate mitigation measures are in place for any impact on surrounding environment/ habitations.
vii	The project proponent shall submit the environmental statement for each financial year in FORM-V the concerned State pollution Control Board as prescribe under the Environment Rule, 1986 as amended subsequently and put on the Website of the company.	Environmental Statement has been submitted on time to the concerned authorities. vide letter no. JMB/ENV/ESSA/05/564/2024 on 27th September 2024.
viii	The project authorities shall inform to the regional Office of MoEF&CC regarding commencement of mining operations.	The mining activities are ongoing since more than 100 years.
ix	The project authorities must strictly adhere to the stipulation made by the State Pollution Control Board and the State Government.	Shall be complied
X	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during public hearing and also that during their	It has been noted and shall be complied

uatet	1 July 11, 2022	
	presentation to the Expert Appraisal Committee.	
xi	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change.	It has been Agreed
xii	Concealing factual data or submission of false /fabricated data may result in revocation of this environmental clearance and attract action under this provision of Environment (Protection) Act, 1986.	It has been noted
xiii	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.	It has been agreed
xiv	The Ministry reserve the right to stipulate additional condition if found necessary .The company in a time bound manner shall implement these conditions.	Agreed
XV	The Regional office of this Ministry shall monitor compliance of the stipulated conditions The project authorities should extend full cooperation to the officers of the Regional Office by furnishing the requisite data /information/monitoring reports.	Agreed
xvi	The above conditions shall be enforced, inter- alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1986, Hazardous and Other Waste (Managements and Trans- Boundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders by the Hon'ble Supreme Court of India/ High Court and any other Court of Law relating to the subject matter.	It has been agreed
5	The Proponent shall abide by all the commitments and recommendation made in the EIA/EMP report and also that during presentation to the EAC. All the commitments made on the issues raised during public hearing shall also be implemented in letter and spirit.	All the commitment and recommendations made as per Public hearing are under process of completion.
6	The proponent shall obtain all necessary Clarence /approvals that may be required before the start of the project. The Ministry or any other competent authority may stipulate any further condition for environmental protection. Ministry or any other competent authority may stipulate any further condition for Environment protection.	It has been agreed

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7	Any appeal against this environmental clearance shall lie with the Green Tribunal if Preferred, with in a period of 30 day as prescribed under section 16 of the National Green Tribunal Act, 2010.	Not required
8	The coal company//project proponent shall be liable to pay compensation against the illegal mining, if any, and raised by the respective state Government at any point of time in terms of the orders dated 2nd August, 2017 of Hon'ble Supreme Court in WP (Civil) No114/2014 in the matter of Common Cause Vs Union of India & others.	Agreed
9	The concerned State Government shall ensure no mining operations to commence till the entire compensation for illegal mining if any is paid by the project proponents through their respective Department Of Mining & Geology, in strict compliance of judgement of Hon'ble Supreme Court.	It has been noted
10	This environmental clearance shall not be operational till time the project proponent complies with the above said judgement of Hon'ble Supreme Court, as applicable, and other statutory requirements.	Agreed

ANNEXURE-I

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	12263

Glimpses of plantation activities for FY25:















Annexure- I Greenbelt Development Report

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



Picture: Existing Green Belt around JCPP

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



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



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

Annexure- Greenbelt Development Report

Glimpses of already existing green belt and plantation activities done in this monsoon season in and around Digwadih colliery premises to enhance the green cover have been depicted in the pictures below:



Picture: Plantation done in this monsoon season in and around Digwadih Colliery premises



Picture: Developed Green belt in and around Digwadih Colliery premises



Picture: Developed Green belt in and around Digwadih Colliery premises

ANNEXURE-II

Ambient Air Quality, Ambient Noise Quality, Effluent Water and Groundwater Quality Report (Period- April'24 to September'24)

TATA STEEL LIMITED TATA STEEL LIMITED JHARIA DIVISION

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

Ref: JMB /ENV /LAB /02 / 258 / 24 Date: 08 / 05 / 2024

Re: AIR QUALITY REPORT

We wish to inform you that Air Quality Monitoring was carried out in JAMADOBA GROUP in the month of APRIL'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 ³	RSPM 24 Hourly Limit-300 µg/m ³	SO2 24 Hourly Limit-120 µg/m ²	NOx 24 Hourly Limit-120 µg/m ³
1	6&7 Pits Kalimandir area	23°43'15" N/ 86°24'12" E	05.04.24	Clear	245.2	92.6	18.1	22.7

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 ³	PM 2.5 24 Hourly Limit- 60 µg/m ³	SO2 24 Hourly Limit-80 µg/m ³	NOx 24 Hourly Limit-80 µg/m ³
1	Jamadoba Group Office	23°42'15.3" N/ 86°24'11" E	03,04.24	Clear	85.1	45.7	16.8	19.4
2	Digwadih 12 No. Colony	23°41'42" N/ 86°24'45.3" E	04.04.24	Clear	87.9	47.4	17.0	20,3
3	New Village Colony, Jamadoba	23°41'51" N/ 86°23'19" E	09.04.24	Clear	73.5	32.6	18.1	21.7
4	Tata Central Hospital	23°42'36" N/ 86°24'10.4"E	08.04.24	Clear	70.2	29.8	15,9	18.6

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.

Enahet .

Lab. Assistant (Environment)

Area 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

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

Ref: JMB /ENV /LAB /02 / 330 / 24 Date: 03/06 / 2024

Re: AIR QUALITY REPORT

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

Core zone (as per Ambien	t Air quality standards for coal mines notified vi	de 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 ³	RSPM 24 Hourly Limit-300 µg/m ³	SO2 24 Hourly Limit-120 µg/m ³	NOx 24 Hourly Limit-120 µg/m ³
1	6&7 Pits Kalimandir area	23°43'15" N/ 86°24'12" E	10.05.24	Clear	237.9	89.3	17.8	19.4

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 ³	PM 2.5 24 Hourly Limit- 60 µg/m ³	SO2 24 Hourly Limit-80 µg/m ³	NOx 24 Hourly Limit-80 µg/m ³
1	Jamadoba Group Office	23°42'15.3" N/ 86°24'11" E	16.05.24	Clear	78.4	37.2	19.3	21.5
2	Digwadih 12 No. Colony	23°41'42" N/ 86°24'45.3" E	13.05.24	Clear	80.6	40.1	18.2	22.1
3	New Village Colony, Jamadoba	23°41'51" N/ 86°23'19" E	14.05.24	Clear	70.1	30.3	15.9	17.8
4	Tata Central Hospital	23°42'36" N/ 86°24'10.4"E	15.05.24	Clear	72.9	32.6	14.7	17.2

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.

Emchato.

Lab. Assistant (Environment)

Area Manager (Environment)

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

TATA STEEL LIMITED JHARIA DIVISION

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

Ref: JMB /ENV /LAB /02 / 397 / 24 Date: 03 / 07 / 2024

Re: AIR QUALITY REPORT

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

Core zone (as per Ambient Air qua	lity standards for coa	l 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 ³	RSPM 24 Hourly Limit-300 µg/m ³	SO2 24 Hourly Limit-120 µg/m ³	NOx 24 Hourly Limit-120 µg/m ³
1	6&7 Pits Kalimandir area	23°43'15" N/ 86°24'12" E	04.06.24	Clear	241.7	87.1	18.7	21.9

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 ³	PM 2.5 24 Hourly Limit- 60 µg/m ³	SO2 24 Hourly Limit-80 µg/m ³	NOx 24 Hourly Limit-80 µg/m ³
1	Jamadoba Group Office	23°42'15.3" N/ 86°24'11" E	07.06.24	Clear	94.2	51.8	20.8	22.1
2	Digwadih 12 No. Colony	23°41'42" N/ 86°24'45.3" E	05.06.24	Clear	86.2	45.9	17.2	20.8
3	New Village Colony, Jamadoba	23°41'51" N/ 86°23'19" E	06.06.24	Clear	82.4	43.6	16.8	19.5
4	Tata Central Hospital	23°42'36" N/ 86°24'10.4"E	10.06.24	Clear	90.8	48.5	15.2	18.6

Note: PM 10 - Less than 10-micron Particulate Matter

PM_{2.5} - Less than 2.5-micron Particulate Matter µg - Microgram

This is for your information and necessary action please.

Emphato.

Lab. Assistant (Environment)

Area Manager (Environment)

ENVIRONMENT CELL LABORATORY, JAMADOBA AUTHORIZED VIDE LETTER NO. B – 3922 DATED- 30,08.2012 BY JHARKHAND STATE POLLUTION CONTROL BOARD, RANCHI.

TATA STEEL LIMITED JHARIA DIVISION

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

Ref: JMB /ENV /LAB /02 / 465 / 24 01/08/2024 Date:

Re: AIR QUALITY REPORT

We wish to inform you that Air Quality Monitoring was carried out in JAMADOBA GROUP in the month of JULY'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 ³	RSPM 24 Hourly Limit-300 µg/m ³	SO2 24 Hourly Limit-120 µg/m ³	NOx 24 Hourly Limit-120 µg/m ³
1	6&7 Pits Kalimandir area	23°43'15" N/ 86°24'12" E	03.07.24	Cloudy	186.7	67.2	15.9	18.4

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 ³	PM 2.5 24 Hourly Limit- 60 µg/m ³	SO ₂ 24 Hourly Limit-80 μg/m ³	NOx 24 Hourly Limit-80 µg/m ³
1	Jamadoba Group Office	23°42'15.3" N/ 86°24'11" E	05.07.24	Clear	86.5	44.3	18.2	21.6
2	Digwadih 12 No. Colony	23°41'42" N/ 86°24'45.3" E	04.07.24	Cloudy	65.9	30.2	14.8	16.2
3	New Village Colony, Jamadoba	23°41'51" N/ 86°23'19" E	08.07.24	Cloudy	68.2	31.0	17.5	20.3
4	Tata Central Hospital	23°42'36" N/ 86°24'10.4"E	09.07.24	Clear	72.4	33.1	16.8	19.5

Note: PM 10 - Less than 10-micron Particulate Matter PM2.5 - Less than 2.5-micron Particulate Matter

- Microgram μg

This is for your information and necessary action please.

Area Manager (Environment)

Ponahat.

Lab. Assistant (Environment)

Ambient Air Quality, Ambient Noise Quality, Effluent Water and Groundwater Quality Report (Period- April'24 to September'24)

Annexure- II

TATA STEEL LIMITED JHARIA DIVISION

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

Ref: JMB /ENV /LAB /02 / 5-2/ / 24 Date: 02 / 09 / 2024

Re: AIR QUALITY REPORT

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

Core zone (as per Ambient Air quality standards for coal mines notified vide notificatio	n 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 ³	RSPM 24 Hourly Limit-300 µg/m ³	SO2 24 Hourly Limit-120 µg/m ³	NOx 24 Hourly Limit-120 µg/m ³
1	6&7 Pits Kalimandir area	23°43'15" N/ 86°24'12" E	16.08.24	Clear	201.9	70.8	16.8	19.7

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 ³	PM 2.5 24 Hourly Limit- 60 µg/m ³	SO2 24 Hourly Limit-80 µg/m ³	NOx 24 Hourly Limit-80 µg/m ³
1	Jamadoba Group Office	23°42°15.3" N/ 86°24'11" E	12.08.24	Clear	74.2	36.2	16.5	18.3
2	Digwadih 12 No. Colony	23°41'42" N/ 86°24'45.3" E	13.08.24	Cloudy	57.1	24.0	15.4	17.8
3	New Village Colony, Jamadoba	23°41'51" N/ 86°23'19" E	20.08.24	Cloudy	69.4	32.1	12.7	14.1
4	Tata Central Hospital	23°42'36" N/ 86°24'10.4"E	19.08.24	Cloudy	64.2	29.5	14.6	16.7

Note: PM 10 - Less than 10-micron Particulate Matter

PM_{2.5} - Less than 2.5-micron Particulate Matter µg - Microgram

This is for your information and necessary action please.

Emahate.

Lab. Assistant (Environment)

Area Manager (Environment)

Ambient Air Quality, Ambient Noise Quality, Effluent Water and Groundwater Quality Report (Period- April'24 to September'24)

Annexure- II

TATA STEEL LIMITED JHARIA DIVISION

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

Ref: JMB/ENV/LAB/02/58//24 Date: 01/10/2024

Re: AIR QUALITY REPORT

We wish to inform you that Air Quality Monitoring was carried out in JAMADOBA GROUP in the month of SEPTEMBER'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 ³	RSPM 24 Hourly Limit-300 µg/m ³	SO2 24 Hourly Limit-120 µg/m ³	NOx 24 Hourly Limit-120 µg/m ³
1	6&7 Pits Kalimandir area	23°43'15" N/ 86°24'12" E	05.09.24	Cloudy	195.6	68.4	15.7	17.2

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 ³	PM 2.5 24 Hourly Limit- 60 µg/m ³	SO2 24 Hourly Limit-80 µg/m ³	NOx 24 Hourly Limit-80 µg/m ³
1	Jamadoba Group Office	23°42'15.3" N/ 86°24'11" E	06.09.24	Clear	90.6	52.7	17.4	20.1
2	Digwadih 12 No. Colony	23°41'42" N/ 86°24'45.3" E	03.09.24	Clear	72.6	38.1	18.7	21.0
3	New Village Colony, Jamadoba	23°41'51" N/ 86°23'19" E	04.09.24	Clear	70.4	35.2	16.9	19.5
4	Tata Central Hospital	23°42'36" N/ 86°24'10.4"E	07.09.24	Cloudy	65.4	28.9	14.8	16.2

Note: PM 10 - Less than 10-micron Particulate Matter

PM_{2.5} - Less than 2.5-micron Particulate Matter µg - Microgram

This is for your information and necessary action please.

Emphat.

Lab. Assistant (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/ 2 28 /24 Dated: 0 2/ 0 \$7 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 APRIL'2024. The results are as given below:

	Marianian Station	Dete	Day (06.00 – 22.00 Hrs.) CPCB Standard- 55 Min. Max. Avg.	00 Hrs.)	Night ((22.00-06.)	00 Hrs)	
S.No	Monitoring Station	Date	CPCI	CPCB Standard- 55		CPCB Standard- 45		
	Residential Area (Buffer Zone)		Min.	Max.	Avg.	Min.	Max.	Avg.
1	Digwadih 12 No. Colony	25.04.24	43.7	45.5	44.6	35.4	37.7	36.6
2	New Village Colony, Jamadoba	25.04.24	41.3	43.6	42.5	33.6	35.4	34.5
3	6&7 Pits Kalimandir Colony	25.04.24	43.2	45.4	44.3	35.5	37.8	36.7
4	Digwadih 10 No. Colony	25.04.24	44.5	46.7	45.6	36.2	38.5	37.4

0.11	Maria de Station	Date	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	25.04.24	57.4	60.7	59.1	49.3	51.5	50.4
2	2 Pit Top Kalimandir, Jamadoba	25.04.24	53.1	56.4	54.8	45.6	47.9	46.8
3	Weigh Bridge, Digwadih	25.04.24	48.6	51.3	50.0	40.4	42.7	41.6
4	Canteen Complex, Digwadih	25.04.24	49.2	50.6	49.9	41.7	43.5	42.6
5	Head Office Complex, Digwadih	25.04.24	48.6	50.4	49.5	40.2	42.6	41.4
6	Check Post Security Gate, 6&7 Pits	25.04.24	49.3	51.7	50.5	41.1	43.4	42.3
7	Canteen Complex, 6&7 Pits	25.04.24	48.5	49.2	48.9	40.3	41.5	40.9
8	Fan house- Nitrogen Plant, 6&7 Pits	25.04.24	72.3	73.5	72.9	64.2	65.4	64.8
9	Joota Gate, JCPP	25.04.24	67.7	70.9	69.3	59.5	62.2	60.9
10	Main Gate Stores, JCPP	25.04.24	54.2	57.5	55.9	46.5	48.7	47.6
11	Railway Siding Yard, JCPP	25.04.24	50.4	52.7	51.6	42.3	44.5	43.4

Analysis: All the values are within permissible limit.

This is for your information please.

Beh to

Lab. Assistant (Environment)

Copy to: Specialist (OH). TCH

Sr. 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/ 3 07 /24 Dated: 03 /26/ 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 MAY'2024. The results are as given below:

	Manda - Conting	Dete	42.7 44.5 43.6	00 Hrs.)	Night (22.00-06.	00 Hrs)	
S.No	Monitoring Station	Date	CPCI	CPCB Standard- 55		CPCB Standard- 45		
	Residential Area (Buffer Zone)		Min.	Max.	Avg.	Min.	Max.	Avg.
1	Digwadih 12 No. Colony	09.05.24	44.2	46.5	45.4	36.4	38.7	37.6
2	New Village Colony, Jamadoba	09.05.24	42.7	44.5	43.6	34.5	36.8	35.7
3	6&7 Pits Kalimandir Colony	09.05.24	44.5	46.7	45.6	36.7	38.5	37.6
4	Digwadih 10 No. Colony	09.05.24	42.3	44.8	43.6	34.2	36.5	35.4

0.31	Mania - Section	Dete	Day (0	6.00 - 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	09.05.24	56.6	59.3	58.0	48.4	51.1	49.8
2	2 Pit Top Kalimandir, Jamadoba	09.05.24	52.3	54.5	53.4	44.5	46.7	45.6
3	Weigh Bridge, Digwadih	09.05.24	48.2	50.5	49.4	40.3	42.5	41.4
4	Canteen Complex, Digwadih	09.05.24	48.5	50.7	49.6	40.7	42.9	41.8
5	Head Office Complex, Digwadih	09.05.24	46.1	48.3	47.2	38.3	40.6	39.5
6	Check Post Security Gate, 6&7 Pits	09.05.24	48.3	51.2	49.8	40.5	42.7	41.6
7	Canteen Complex, 6&7 Pits	09.05.24	47.2	48.6	47.9	39.4	41.5	40.5
8	Fan house- Nitrogen Plant, 6&7 Pits	09.05.24	72.2	73.6	72.9	64.4	65.5	65.0
9	Joota Gate, JCPP	09.05.24	68.4	71.7	70.1	60.2	63.4	61.8
10	Main Gate Stores, JCPP	09.05.24	53.5	56.8	55.2	45.7	48.5	47.1
11	Railway Siding Yard, JCPP	09.05.24	51.2	53.4	52.3	43.5	45.8	44.7

Analysis: All the values are within permissible limit.

This is for your information please.

Pohto

Lab. Assistant (Environment)

Copy to: Specialist (OH). TCH

Area 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/ 372-/24 Dated: 01 / 07/ 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 JUNE'2024. The results are as given below:

0.11	Manitanian Contan	Data	Day (00	5.00 - 22.	00 Hrs.)	Night (22.00-06.	00 Hrs)
S.No	Monitoring Station	Date	CPCB Standard- 55			CPCB Standard- 45		
	Residential Area (Buffer Zone)		Min.	Max.	Avg.	Min.	Max.	Avg.
1	Digwadih 12 No. Colony	28.06.24	42.7	44.5	43.6	34.5	36.3	35.4
2	New Village Colony, Jamadoba	28.06.24	41.5	43.8	42.7	33.2	35.4	34.3
3	6&7 Pits Kalimandir Colony	28.06.24	43.2	45.5	44.4	35.4	37.6	36.5
4	Digwadih 10 No. Colony	28.06.24	42.6	44.9	43.8	34.7	36.5	35.6

	N (10.1) (10.1)		Day (0	Day (06.00 - 22.00 Hrs.)		ay (06.00 - 22.00 Hrs.)		Night (22.00-06.00 Hr		00 Hrs)
S.No	Monitoring Station	Date	CPCI	B Standa	rd- 75	CPCB Standard- 70				
	Industrial Area (Core Zone)		Min.	Max.	Avg.	Min.	Max.	Avg.		
1	2 Pit Main Gate Security Post	28.06.24	54.4	57.7	56.1	46.1	49.5	47.8		
2	2 Pit Top Kalimandir, Jamadoba	28.06.24	52.7	55.5	54.1	44.3	47.6	46.0		
3	Weigh Bridge, Digwadih	28.06.24	49.5	52.8	51.2	41.7	44.5	43.1		
4	Canteen Complex, Digwadih	28.06.24	48.8	50.6	49.7	40.4	42.7	41.6		
5	Head Office Complex, Digwadih	28.06.24	45.3	47.5	46.4	37.6	39.9	38.8		
6	Check Post Security Gate, 6&7 Pits	28.06.24	49.5	52.7	51.1	41.2	44.7	43.0		
7	Canteen Complex, 6&7 Pits	28.06.24	47.6	49.4	48.5	39.5	41.3	40.4		
8	Fan house- Nitrogen Plant, 6&7 Pits	28.06.24	72.3	73.7	73.0	64.3	65.5	64.9		
9	Joota Gate, JCPP	28.06.24	66.7	69.5	68.1	58.6	61.8	60.2		
10	Main Gate Stores, JCPP	28.06.24	52.4	55.6	54.0	44.2	47.5	45.9		
11	Railway Siding Yard, JCPP	28.06.24	51.5	53.8	52.7	43.7	45.4	44.6		

Analysis: All the values are within permissible limit.

This is for your information please.

and

Lab. Assistant (Environment)

Copy to: Specialist (OH). TCH

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/ 444/24 Dated: 01/08/2024

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 JULY'2024. The results are as given below:

S.No	Manitania - Station	Data	Day (0	6.00 - 22.	00 Hrs.)	Night	(22.00-06.	00 Hrs)			
5.110	Monitoring Station	Date	CPCB Standar			Date CPCB Standard		rd- 55	CPC	B Standa	rd- 45
	Residential Area (Buffer Zone)		Min.	Max.	Avg.	Min.	Max.	Avg.			
1	Digwadih 12 No. Colony	26.07.24	42.3	44.7	43.5	34.5	36.7	35.6			
2	New Village Colony, Jamadoba	26.07.24	43.1	45.4	44.3	35.3	37.7	36.5			
3	6&7 Pits Kalimandir Colony	26.07.24	42.5	44.8	43.7	34.7	36.5	35.6			
4	Digwadih 10 No. Colony	26.07.24	41.8	43.3	42.6	33.4	35.6	34.5			

	Marchard Constru	Du	Day (0	Day (06.00 - 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	26.07.24	52.8	55.6	54.2	44.6	46.5	45.6
2	2 Pit Top Kalimandir, Jamadoba	26.07.24	53.5	56.3	54.9	45.2	47.4	46.3
3	Weigh Bridge, Digwadih	26.07.24	48.4	50.7	49.6	40.6	42.9	41.8
4	Canteen Complex, Digwadih	26.07.24	46.6	48.4	47.5	38.4	40.7	39.6
5	Head Office Complex, Digwadih	26.07.24	46.3	49.7	48.0	38.1	40.3	39.2
6	Check Post Security Gate, 6&7 Pits	26.07.24	48.7	51.5	50.1	40.5	45.1	42.8
7	Canteen Complex, 6&7 Pits	26.07.24	46.5	48.6	47.6	38.3	40.5	39.4
8	Fan house- Nitrogen Plant, 6&7 Pits	26.07.24	72.2	73.5	72.9	64.4	65.6	65.0
9	Joota Gate, JCPP	26.07.24	64.7	67.3	66.0	56.2	59.5	57.9
10	Main Gate Stores, JCPP	26.07.24	55.1	58.4	56.8	47.4	49.9	48.7
11	Railway Siding Yard, JCPP	26.07.24	52.4	55.7	54.1	44.1	47.3	45.7

Analysis: All the values are within permissible limit.

This is for your information please.

BLID

Lab. Assistant (Environment)

Copy to: Specialist (OH). TCH

anager (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/ 507/24 Dated: 02/09/2024

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 AUGUST'2024. The results are as given below:

C Ma	Manitarian Station	Data	Day (0	5.00 - 22.	00 Hrs.)	Night	(22.00-06.	00 Hrs)
S.No	Monitoring Station	Date	CPCI	CPCB Standard- 55		CPCB Standard- 45		
	Residential Area (Buffer Zone)		Min.	Max.	Avg.	Min.	Max.	Avg.
1	Digwadih 12 No. Colony	27.08.24	42.7	44.9	43.8	34.3	36.5	35.4
2	New Village Colony, Jamadoba	27.08.24	43.5	45.6	44.6	35.6	37.8	36.7
3	6&7 Pits Kalimandir Colony	27.08.24	43.2	45.5	44.4	35.4	37.6	36.5
4	Digwadih 10 No. Colony	27.08.24	42.4	44.7	43.6	34.5	36.8	35.7

C. N	Manitanian Station	Dete	Day (0	Day (06.00 - 22.00 Hrs.)		Night	(22.00-06.	00 Hrs)
S.No	Monitoring Station	Date	CPCB Standard- 75			CPCB Standard- 70		
	Industrial Area (Core Zone)	1.25	Min.	Max.	Avg.	Min.	Max.	Avg.
1	2 Pit Main Gate Security Post	27.08.24	52.4	55.7	54.1	44.6	47.8	46.2
2	2 Pit Top Kalimandir, Jamadoba	27.08.24	53.1	56.5	54.8	45.2	48.4	46.8
3	Weigh Bridge, Digwadih	27.08.24	49.3	51.7	50.5	40.5	42.9	41.7
4	Canteen Complex, Digwadih	27.08.24	46.7	48.9	47.8	38.4	40.7	39.6
5	Head Office Complex, Digwadih	27.08.24	47.5	50.3	48.9	39.7	42.6	41.2
6	Check Post Security Gate, 6&7 Pits	27.08.24	49.4	52.7	51.1	41.5	44.7	43.1
7	Canteen Complex, 6&7 Pits	27.08.24	46.3	48.5	47.4	38.1	40.4	39.3
8	Fan house- Nitrogen Plant, 6&7 Pits	27.08.24	72.3	73.6	73.0	64.4	65.8	65.1
9	Joota Gate, JCPP	27.08.24	61.5	64.2	62.9	53.2	56.5	54.9
10	Main Gate Stores, JCPP	27.08.24	53.3	56.6	55.0	45.6	48.7	47.2
11	Railway Siding Yard, JCPP	27.08.24	50.6	53.8	52.2	42.3	45.5	43.9

Analysis: All the values are within permissible limit.

This is for your information please.

Boht

Lab. Assistant (Environment)

Copy to: Specialist (OH). TCH

Ambient Air Quality, Ambient Noise Quality, Effluent Water and Groundwater Quality Report (Period- April'24 to September'24)

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/ 589/24 Dated: 01//0/2024

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 SEPTEMBER'2024. The results are as given below:

S.No	Manitaning Station	Date	Day (0	5.00 - 22.	00 Hrs.)	Night (22.00-06.00 Hrs) CPCB Standard- 45		
	Monitoring Station		CPCI	B Standa	rd- 55			
	Residential Area (Buffer Zone)		Min.	Max.	Avg.	Min.	Max.	Avg.
1	Digwadih 12 No. Colony	22.09.24	42.4	44.7	43.6	34.2	36.5	35.4
2	New Village Colony, Jamadoba	22.09.24	43.3	45.5	44.4	35.4	37.7	36.6
3	6&7 Pits Kalimandir Colony	22.09.24	43.7	45.9	44.8	35.6	37.9	36.8
4	Digwadih 10 No. Colony	22.09.24	42.8	44.6	43.7	34.5	36.8	35.7

S.No	Monitorino Station	Deta	Day (0	5.00 - 22.	00 Hrs.)	Night	22.00-06.	00 Hrs)	
5.NO	Monitoring Station	Date	CPCI	3 Standa	rd- 75	CPCB Standard- 70			
	Industrial Area (Core Zone)		Min.	Max.	Avg.	Min.	Max.	Avg.	
1	2 Pit Main Gate Security Post	22.09.24	52.7	55.9	54.3	44.5	47.8	46.2	
2	2 Pit Top Kalimandir, Jamadoba	22.09.24	53.3	56.7	55.0	45.1	48.4	46.8	
3	Weigh Bridge, Digwadih	22.09.24	49.5	51.9	50.7	41.4	43.6	42.5	
4	Canteen Complex, Digwadih	22.09.24	46.6	48.7	47.7	38.3	40.5	39.4	
5	Head Office Complex, Digwadih	22.09.24	47.3	50.6	49.0	39.5	42.7	41.1	
6	Check Post Security Gate, 6&7 Pits	22.09.24	49.7	52.9	51.3	41.5	44.8	43.2	
7	Canteen Complex, 6&7 Pits	22.09.24	46.1	48.4	47.3	38.4	40.6	39.5	
8	Fan house- Nitrogen Plant, 6&7 Pits	22.09.24	72.4	73.7	73.1	64.3	65.7	65.0	
9	Joota Gate, JCPP	22.09.24	60.1	63.4	61.8	52.6	55.7	54.2	
10	Main Gate Stores, JCPP	22.09.24	52.7	55.6	54.2	44.4	47.3	45.9	
11	Railway Siding Yard, JCPP	22.09.24	50.3	53.5	51.9	42.5	45.7	44.1	

Analysis: All the values are within permissible limit.

This is for your information please.

W ah

Lab. Assistant (Environment)

Copy to: Specialist (OH). TCH

TATA STEEL LIMITED JHARIA DIVISION

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

Ref. No. - JMB / ENV / LAB / 03 / 253 / 2024 Dated - 08 / 05 / 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 APRIL'2024. The results are as given below:

S. No	Location	Sampling	Sampling	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
3. ND	(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	25.04.24	12:50 PM	26	8.2	132	978	26.5	260	1.6
2	ETP, TCH- Outlet	25.04.24	12:55 PM	25	7.7	26	732	5.4	72	0.5
3	ETP, Garage- Inlet	25.04.24	01:50 PM	27	8.0	158	910	28.9	236	3.6
4	ETP, Garage- Outlet	25.04.24	01:55 PM	26	7.8	23	742	7.3	84	1.4
5	Final Settling Pond JCPP	25.04.24	10:05 AM				Dry Pond			

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

Emphato.

Lab.Assistant (Environment)

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Ambient Air Quality, Ambient Noise Quality, Effluent Water and Groundwater Quality Report (Period- April'24 to September'24)

Annexure- II

TATA STEEL LIMITED JHARIA DIVISION

Sr. Manager, Jamadoba Colliery Sr. Manager, Digwadih Colliery Sr. Manager, 6&7 Pits Colliery

Ref. No. - JMB / ENV / LAB / 03 / -25/ / 2024 Dated - 08/05 / 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 APRIL'2024. The results are as given below:

S. No	Location (Final Discharge Point)	Sampling	Sampling	Temp	pH	TSS	TDS	BOD	COD	Oil & Greas
- 3. 190	(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	25.04.24	09:35 AM	31	7.6	36	740	2.5	64	1.4
2	3 Pit Jamadoba Colliery	25.04.24	09:50 AM			N	o Dischar	ge		
3	2 Incline Jamadoba Colliery	25.04.24	10:25 AM			N	o Dischar	ge		
4	6 & 7 Pits Colliery	25.04.24	12:35 PM	32	7.5	14	784	2.1	74	0
5	Digwadih Colliery	25.04.24	11:20 AM	32	7.6	23	1024	2.6	54	0

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

This is for your information and necessary action please.

Emohato . Lab.Assistant (Environment)

Area Manager (Environment)

TATA STEEL LIMITED JHARIA DIVISION

Sr. Manager Jamadoba Colliery Head, Jamadoba Coal Preparation Plant Sr. Manager Digwadih Colliery

Ref. No. - JMB / ENV / LAB / 03 / 252 / 2024 Dated - 08/05 / 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 APRIL'2024. The results are as given below:

a	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	25.04.24	01:30 PM	27	7.8	106	982	33.1	326	2.8
2	STP, Jmb. Canteen- Outlet	25.04.24	01:35 PM	26	7.4	24	722	6.2	74	0.7
3	STP, JCPP Canteen- Inlet	25.04.24	01:10 PM	27	7.9	122	879	32.9	284	2.3
4	STP, JCPP Canteen- Outlet	25.04.24	01:15 PM	26	7.2	34	687	6.9	54	0.4
5	STP, Railway Colony- Inlet	25.04.24	10:45 AM	27	8.1	144	1036	36.2	310	3.4
6	STP, Railway Colony-Outlet	25.04.24	10:50 AM	26	7.5	28	725	6.4	94	0.8
7	STP, Digwadih 12 No. Officer's colony-Inlet	25.04.24	11:40 AM		8.2	136	1024	30.5	320	2.8
8	STP, Digwadih 12 No. Officer's colony- Outlet	25.04.24	11:45 AM	25	7.4	37	684	5.7	86	1.2
9	STP,Digwadih 12 No. Supervisor flat – Inlet	25.04.24	12:05 PM	27	7.8	137	974	34.8	326	3.1
10	STP,Digwadih 12 No. Supervisor flat -Outlet	25.04.24	12:10 PM	26	7.6	18	736	5.2	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.

Emahato

Lab.Assistant (Environment)

Area Manager (Environment)

TATA STEEL LIMITED JHARIA DIVISION

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

Ref. No. - JMB / ENV / LAB / 03 / 328 / 2024 Dated - 03 / 06 / 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 MAY'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/1	250 mg/l	10 mg/l
1	ETP, TCH- Inlet	09.05.24	11:00 AM	27	8.5	98	798	23.5	210	1.2
2	ETP, TCH- Outlet	09.05.24	11:05 AM	26	8.3	46	716	6.9	66	0.3
3	ETP, Garage- Inlet	09.05.24	01:30 PM	26	8.4	106	890	33.1	310	4.2
4	ETP, Garage- Outlet	09.05.24	01:35 PM	25	8.0	49	814	7.8	112	1.8
5	Final Settling Pond JCPP	09.05.24	12:05 PM				Dry Pond	A	No	

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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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Area Manager (Environment)

Emolet .

Lab.Assistant (Environment)

TATA STEEL LIMITED JHARIA DIVISION

Sr. Manager, Jamadoba Colliery Sr. Manager, Digwadih Colliery Sr. Manager, 6&7 Pits Colliery

Ref. No. - JMB / ENV / LAB / 03 / 3-26 / 2024 Dated - 03 / 06 / 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 MAY'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/l	250 mg/l	10 mg/l
1	2 Pit Jamadoba Colliery	09.05.24	12:55 PM			N	o Discharg	e		
2	3 Pit Jamadoba Colliery	09.05.24	12:20 PM	31	7.8	36	862	2.1	66	0
3	2 Incline Jamadoba Colliery	09.05.24	11:50 AM			N	o Discharg	e		
4	6 & 7 Pits Colliery	09.05.24	10:45 AM	32	7.2	21	927	2.5	80	0.4
5	Digwadih Colliery	09.05.24	10:20 AM	30	8.0	17	958	2.4	58	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.

Emahato.

Lab.Assistant (Environment)

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TATA STEEL LIMITED JHARIA DIVISION

Sr. Manager Jamadoba Colliery Head, Jamadoba Coal Preparation Plant Sr. Manager Digwadih Colliery

Ref. No. - JMB / ENV / LAB / 03 / 327 / 2024 Dated - 03 / 06 / 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 MAY'2024. The results are as given below:

S. No	Location	Sampling	Sampling	Temp	рН	TSS	TDS	BOD	COD	Oil & Grease
3. 010	(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	09.05.24	01:10 PM	26	7.5	84	893	31.9	316	2.5
2	STP, Jmb. Canteen- Outlet	09.05.24	01:15 PM	25	7.3	22	819	7.3	82	0.8
3	STP, JCPP Canteen- Inlet	09.05.24	12:35 PM	26	8.2	118	1058	33.4	290	2.7
4	STP, JCPP Canteen- Outlet	09.05.24	12:40 PM	25	7.8	19	922	5.2	72	0.9
5	STP, Railway Colony- Inlet	09.05.24	11:25 AM	27	8.3	129	1122	35.7	320	3.6
6	STP, Railway Colony-Outlet	09.05.24	11:30 AM	26	8.0	25	1048	7.8	73	1.0
7	STP, Digwadih 12 No. Officer's colony-Inlet	09.05.24	09:40 AM	a 27	8.4	158	987	34.9	317	3.2
8	STP, Digwadih 12 No. Officer's colony- Outlet	09.05.24	09:45 AM	26	7.9	24	747	6.8	64	1.6
9	STP,Digwadih 12 No. Supervisor flat – Inlet	09.05.24	10:00 AM	26	8,1	148	1428	35.2	348	3.9
10	STP,Digwadih 12 No. Supervisor flat -Outlet	09.05.24	10:05 AM	25	7.8	46	1216	8.4	110	2.1

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

This is for your information and necessary action please.

Ponahate

Lab.Assistant (Environment)

TATA STEEL LIMITED JHARIA DIVISION

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

S.No	Date	Location	Time	Depth in meter	рН	Electrical Conductivity µS/m
1	10.05.24	Purnadih (Jorapokhar)	11:45 AM	6.38	7.3	1226
2	10.05.24	Bhowra 13 No	12:20 PM	3.85	7.1	1017
3	10.05.24	Mohalbani Basti	02:30 PM	8.24	7.2	1085
4	10.05.24	Digwadih 10 No F & J	01:10 PM	5.10	7.3	1560
5	10.05.24	Kalimela Shivmandir	11:00 AM	11.00	7.2	846
6	10.05.24	Kalimela Kalimandir	11:15 AM	11.15	7.0	1395
7	10.05.24	Lower Dungari	10:35 AM	10.35	7.1	840
8	10.05.24	Upper Dungari	10:10 AM	10.10	7.5	878
9	10.05.24	Pattia Basti	09:30 AM	9.30	7.3	987
10	10.05.24	Kenduadih Basti	09:50 AM	9.50	7.4	1028
11	10.05.24	Jorapokhar Kushtand	11:25 AM	11.25	7.6	1583
12	10.05.24	6&7 Pits (Ayodhya Nagri)	02:00 PM	2.00	7.2	984
13	10.05.24	Jorapokhar Basti Chhattand	01:30 PM	2.30	7.3	1412
14	10.05.24	Jorapokhar Babu Basa	12:05 PM	12.00	7.1	1240

JAMADOBA GROUP

Emphato.

Lab.Assistant (Environment)

Ambient Air Quality, Ambient Noise Quality, Effluent Water and Groundwater Quality Report (Period- April'24 to September'24)

Annexure- II

TATA STEEL LIMITED JHARIA DIVISION

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

Ref. No. - JMB / ENV / LAB / 03 / 3 93 / 2024 Dated - 03 / 07 / 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 JUNE'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°C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/l	250 mg/l	Grease 10 mg/l 1.5 0.6 4.6
1	ETP, TCH- Inlet	28.06.24	12:25 PM	27	8.1	126	983	26.5	246	1.5
2	ETP, TCH- Outlet	28.06.24	12:30 PM	26	7.8	42	859	4.6	68	0.6
3	ETP, Garage- Inlet	28.06.24	01:25 PM	26	8.3	164	996	30.7	324	4.6
4	ETP, Garage- Outlet	28.06.24	01:30 PM	25	7.6	38	768	7.4	102	1.6
5	Final Settling Pond JCPP	28.06.24	10:15 AM				Dry Pond			

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

This is for your information and necessary action please.

Emphate.

Lab.Assistant (Environment)

Area Manager (Environment)

Annexure- II

TATA STEEL LIMITED JHARIA DIVISION

Sr. Manager, Jamadoba Colliery Sr. Manager, Digwadih Colliery Sr. Manager, 6&7 Pits Colliery

Ref. No. - JMB / ENV / LAB / 03 / 39/ / 2024 Dated - 03 / 67 / 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 JUNE'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/l	250 mg/l	10 mg/l
1	2 Pit Jamadoba Colliery	28.06.24	09:30 AM			N	o Discharg	e		
2	3 Pit Jamadoba Colliery	28.06.24	09:45 AM	31	7.6	29	784	2.3	72	0
3	2 Incline Jamadoba Colliery	28.06.24	10:05 AM			N	o Discharg	e		à
4	6 & 7 Pits Colliery	28.06.24	12:10 PM	30	7.7	17	932	2.9	54	0
5	Digwadih Colliery	28,06.24	11:45 AM	1 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.

Conchat Lab.Assistant (Environment)

Area Manager (Environment)

TATA STEEL LIMITED JHARIA DIVISION

Sr. Manager Jamadoba Colliery Head, Jamadoba Coal Preparation Plant Sr. Manager Digwadih Colliery

Ref. No. - JMB / ENV / LAB / 03 / 392 / 2024 Dated - 03/ 07-/ 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 JUNE'2024. The results are as given below:

S. No	Location (Final Discharge Point)	Sampling	Sampling	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
5. 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	28.06.24	01:10 PM	27	8.0	123	1028	34.8	320	2.9
2	STP, Jmb. Canteen- Outlet	28.06.24	01:15 PM	26	7.5	41	836	5.9	68	0.3
3	STP, JCPP Canteen- Inlet	28.06.24	12:50 PM	27	8.3	157	1027	32.1	260	3.1
4	STP, JCPP Canteen- Outlet	28.06.24	12:55 PM	26	8.0	35	832	4.8	84	0.5
5	STP, Railway Colony- Inlet	28.06.24	10:30 AM	27	8.4	164	1137	35.8	336	2.9
6	STP, Railway Colony-Outlet	28.06.24	10:35 AM	26	8.1	54	987	6.2	76	1.3
7	STP, Digwadih 12 No. Officer's colony-Inlet	28.06.24	11:05 AM	a 26	8.3	131	996	33.7	332	3.4
8	STP, Digwadih 12 No. Officer's colony- Outlet	28.06.24	11:10 AM	25	7,8	46	892	5.2	96	1.8
9	STP,Digwadih 12 No. Supervisor flat – Inlet	28.06.24	11:25 AM	27	8.2	146	1219	36.8	284	3.4
10	STP,Digwadih 12 No. Supervisor flat -Outlet	28.06.24	11:30 AM	26	7.9	52	1124	8.9	117	1.5

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

Lab.Assistant (Environment)

Area Manager (Environment)

TATA STEEL LIMITED JHARIA DIVISION

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

Ref. No. - JMB / ENV / LAB / 03 / 455 / 2024 Dated - 0/ / 08 / 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 JULY'2024. The results are as given below:

S. No	Location		Sampling	Тетр	pН	TSS	TDS	BOD	COD	Oil & Grease
S. No	(Final Discharge Point)	Date	Time	< 40 ⁰ C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/l	250 mg/l	10 mg/l
1	ETP, TCH- Inlet	26.07.24	12:20 PM	28	8.4	148	836	28.3	256	1.7
2	ETP, TCH- Outlet	26.07.24	12:25 PM	27	8.2	25	707	4.9	76	0.2
3	ETP, Garage- Inlet	26.07.24	01:20 PM	28	8.5	137	816	29.1	316	4.5
4	ETP, Garage- Outlet	26.07.24	01:25 PM	27	8.2	16	774	6.7	97	1.8
5	Final Settling Pond JCPP	26.07.24	10:05 AM				Dry Pond	D.		

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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.

Area Manager (Environment)

Erschat .

Lab.Assistant (Environment)

TATA STEEL LIMITED JHARIA DIVISION

Sr. Manager, Jamadoba Colliery Sr. Manager, Digwadih Colliery Sr. Manager, 6&7 Pits Colliery

Ref. No. - JMB / ENV / LAB / 03 / 453 / 2024 Dated - 01 / 08 / 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 JULY'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/l	250 mg/l	10 mg/l
1	2 Pit Jamadoba Colliery	26.07.24	09:20 AM	30	7.4	29	790	2.9	67	0.8
2	3 Pit Jamadoba Colliery	26.07.24	09:35 AM	30	7.5	28	816	2.6	58	0
3	2 Incline Jamadoba Colliery	26.07.24	09:50 AM	184		No	Discharge			
4	6 & 7 Pits Colliery	26.07.24	12:05 PM	32	7.8	21	926	3.1	68	0
5	Digwadih Colliery	26.07.24	10:50 AM	-	10	No	Discharg	C .		

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)

2.08.24 Area Manager (Environment)

Annexure- II

TATA STEEL LIMITED JHARIA DIVISION

Head, Jamadoba Coal Preparation Plant Sr. Manager Jamadoba Colliery Sr. Manager Digwadih Colliery

Ref. No. - JMB / ENV / LAB / 03 / 4 54 / 2024 Dated - 01 / 08 / 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 JULY'2024. The results are as given below:

S. No	Location	Sampling	Sampling	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
5. NO	(Final Discharge Point)	Date	Time	< 40°C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/l	250 mg/i	10 mg/l
1	STP, Jmb. Canteen- Inlet	26.07.24	01:05 PM	28	7.8	117	936	35.1	332	2.4
2	STP, Jmb. Canteen- Outlet	26.07.24	01:10 PM	27	7.2	23	814	5.4	76	0.5
3	STP, JCPP Canteen- Inlet	26.07.24	12:45 PM	27	8.2	154	934	31.7	294	2.8
4	STP, JCPP Canteen- Outlet	26.07.24	12:50 PM	26	7,9	27	846	6.4	54	0.3
5	STP, Railway Colony- Inlet	26.07.24	10:20 AM	28	8.1	179	1145	34.9	342	2.1
6	STP, Railway Colony-Outlet	26.07.24	10:25 AM	27	7.8	22	958	5.8	84	1.5
7	STP, Digwadih 12 No. Officer's colony-Inlet	26.07.24	11:40 AM	27	8.0	191	1025	31.2	310	2.3
8	STP, Digwadih 12 No. Officer's colony- Outlet	26.07.24	11:45 AM	26	7.7	18	986	4.7	68	1.0
9	STP,Digwadih 12 No. Supervisor flat – Inlet	26.07.24	11:20 AM	27	8.3	119	1226	35.3	346	3.5
10	STP,Digwadih 12 No. Supervisor flat -Outlet	26.07.24	11:25 AM	26	7.8	63	919	7.1	99	1.6

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 Sr. Manager Jamadoba Colliery C.M.O, TCH, Jamadoba

Ref. No. - JMB / ENV / LAB / 03 / 527 / 2024 Dated - 02/09 / 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 AUGUST'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°C	5.5 - 9.0	100 mg/l	2100 mg/l	30 mg/l	250 mg/l	10 mg/l
1	ETP, TCH- Inlet	27.08.24	10:45 AM	28	8.3	129	725	27.4	264	1.6
2	ETP, TCH- Outlet	27.08.24	10:50 AM	27	8.0	38	624	5.1	84	0.4
3	ETP, Garage- Inlet	27.08.24	01:20 PM	27	8.4	152	967	28.1	254	4.1
4	ETP, Garage- Outlet	27.08.24	01:25 PM	26	8,1	28	846	8.4	116	1.2
5	Final Settling Pond JCPP	27.08.24	09;50 AM				Dry Pond	i i		

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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.

Emphate.

Lab.Assistant (Environment)

Area Manager (Environment)

Annexure- II

TATA STEEL LIMITED JHARIA DIVISION

Sr. Manager, Jamadoba Colliery Sr. Manager, Digwadih Colliery Sr. Manager, 6&7 Pits Colliery

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Ref. No. - JMB / ENV / LAB / 03 / 525/2024 Dated - 02/09 / 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 AUGUST'2024. The results are as given below:

	Location	Sampling	Sampling	Temp	pН	TSS	TDS	BOD	COD	Oil & Grease
S. No	(Final Discharge Point) (Mine's Water)	Date	Time	< 40 ⁰ C	5.5 - 9.0	100 mg/1	2100 mg/l	30 mg/l	250 mg/l	10 mg/l
1	2 Pit Jamadoba Colliery	27.08.24	09:20 AM			No	Discharg	÷		
2	3 Pit Jamadoba Colliery	27.08.24	09:35 AM	31	7.7	24	742	2.4	68	0
3	2 Incline Jamadoba Colliery	27.08.24	10:05 AM			No	Discharg	ə'		
4	6 & 7 Pits Colliery	27.08.24	11:10 AM	30	7.5	32	872	2.7	72	0
5	Digwadih Colliery	27.08.24	12:15 PM	No Discharge						

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

This is for your information and necessary action please.

Emphate.

Lab.Assistant (Environment)

Area Manager (Environment)

Annexure- II

TATA STEEL LIMITED JHARIA DIVISION

Head, Jamadoba Coal Preparation Plant Sr. Manager Jamadoba Colliery Sr. Manager Digwadih Colliery

Ref. No. - JMB / ENV / LAB / 03 / 5-26 / 2024 Dated - 02 / 09 / 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 AUGUST'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	27.08.24	01:05 PM	27	7.6	110	879	32.9	290	2.8
2	STP, Jmb. Canteen- Outlet	27.08.24	01:10 PM	26	7.3	20	592	7.2	48	0.9
3	STP, JCPP Canteen- Inlet	27.08.24	12:40 PM	27	8.0	137	910	33.7	316	3.6
4	STP, JCPP Canteen- Outlet	27.08.24	12:45 PM	26	7.5	29	676	6.1	76	0.8
5	STP, Railway Colony- Inlet	27.08.24	10:25 AM	28	8.2	158	1039	36.1	315	2.3
6	STP, Railway Colony-Outlet	27.08.24	10:30 AM	26	7.9	34	932	7.5	69	1.0
7	STP, Digwadih 12 No. Officer's colony-Inlet	27.08.24	11:30 AM	27	7.9	117	1064	30.1	260	2.5
8	STP, Digwadih 12 No. Officer's colony- Outlet	27.08.24	11:35 AM	26	7.4	47	954	4.9	46	0.6
9	STP,Digwadih 12 No. Supervisor flat – Inlet	27.08.24	11:50 AM	28	7.8	168	987	34.6	327	2.9
10	STP,Digwadih 12 No. Supervisor flat -Outlet	27.08.24	11:55 AM	27	7.5	30	796	5.7	94	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.

Prohate

Lab.Assistant (Environment)

Area Manager (Environment)

TATA STEEL LIMITED JHARIA DIVISION

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

S.No	Date	Location	Time	Depth in meter	рН	Electrical Conductivity µS/m
1	27.08.24	Purnadih (Jorapokhar)	04:10 PM	3.92	7.2	1232
2	27.08.24	Bhowra 13 No	03:45 PM	1.04	7.0	1022
3	27.08.24	Mohalbani Basti	12:30 PM	1.16	7.4	1036
4	27.08.24	Digwadih 10 No F & J	02:35 PM	1.37	7.2	1816
5	27.08.24	Kalimela Shivmandir	06:15 PM	0.84	7.0	898
6	27.08.24	Kalimela Kalimandir	06:00 PM	2.04	7.2	1350
7	27.08.24	Lower Dungari	05:45 PM	1.82	7.5	610
8	27.08.24	Upper Dungari	05:25 PM	0.95	7.3	746
9	27.08.24	Pattia Basti	05:10 PM	2.98	7.2	872
10	27.08.24	Kenduadih Basti 🌙	04:50 PM	0.93	7.0	946
11	27.08.24	Jorapokhar Kushtand	03:20 PM	2.16	7.3	1530
12	27.08.24	6&7 Pits (Ayodhya Nagri)	02:15 PM	1.45	7.4	1161
13	27.08.24	Jorapokhar Basti Chhattand	02:55 PM	0.59	7.2	1397
14	27.08.24	Jorapokhar Babu Basa	04:25 PM	1.02	7.3	1020

JAMADOBA GROUP

Emahato . Lab.Assistant (Environment)

Area Manager (Environment)

Annexure- II

.

TATA STEEL LIMITED JHARIA DIVISION

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

Ref. No. - JMB / ENV / LAB / 03 / 577 / 2024 Dated - 01 / 10 / 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 SEPTEMBER'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	22.09.24	12:20 PM	27	8.2	168	736	29.8	284	1.2
2	ETP, TCH- Outlet	22.09.24	12:25 PM	26	7.9	25	632	5.3	72	0.5
3	ETP, Garage- Inlet	22.09.24	01:30 PM	27	8.3	143	935	30.2	310	4.2
4	ETP, Garage- Outlet	22.09.24	01:35 PM	26	8.0	23	834	7.6	106	1.4
5	Final Settling Pond JCPP	22.09.24	10:05 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"

Lab.Assistant (Environment)

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Area 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 / S75 / 2024 Dated - 01 / 10 / 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 SEPTEMBER'2024. The results are as given below:

	Location	Sampling	Sampling	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
S. N	o (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	22.09.24	09:35 AM	30	7.5	18	754	2.6	52	0
2	3 Pit Jamadoba Colliery	22.09.24	09:50 AM	32	7.6	22	810	2.8	76	0.6
3	2 Incline Jamadoba Colliery	22.09.24	10:25 AM	1		No	Discharge			
4	6 & 7 Pits Colliery	22.09.24	12:05 PM	30	7.4	24	867	2,1	84	0.5
5	Digwadih Colliery	22.09.24	11:55 AM	30	7.9	20	1064	2.5	54	0.8

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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.

Emahato . Lab.Assistant (Environment)

Area Manager (Environment)

Annexure- II

TATA STEEL LIMITED JHARIA DIVISION

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

Ref. No. - JMB / ENV / LAB / 03 / S75 / 2024 Dated - 01 / 10 / 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 SEPTEMBER'2024. The results are as given below:

	Location	Sampling	Sampling	Temp	pH	TSS	TDS	BOD	COD	Oil & Grease
S. N	o (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	22.09.24	09:35 AM	30	7.5	18	754	2.6	52	0
2	3 Pit Jamadoba Colliery	22.09.24	09:50 AM	32	7.6	22	810	2.8	76	0.6
3	2 Incline Jamadoba Colliery	22.09.24	10:25 AM	1		No	Discharge			
4	6 & 7 Pits Colliery	22.09.24	12:05 PM	30	7.4	24	867	2,1	84	0.5
5	Digwadih Colliery	22.09.24	11:55 AM	30	7.9	20	1064	2.5	54	0.8

a

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

Emahato . Lab.Assistant (Environment)

Area Manager (Environment)

AD S	ADITI R&D SI Testing Labor NABL ACCREDI (A Constituent Board of Quality IEC 17025:2017, ISO 9001:2015,ISO (0	atory TED y Council of Ir	P.O Jha Em We Idia) Pho	t No I-8-17 (P) dri, Industrial Area, I- Domgarh, Dist Dhanbad rkhand - 828107 ail ID: sindriaditi@gmail.com bsite: aditimdservices.com one: 0326-2952377 (O), c: 0326-2952377 bile: 09471358492, 0943151260
Ref. No.:	- ARDS/24-25/ AAQ/2		Date: 1	5.05.2024
	TEST REPORT OF A	MBIENT A	IR QUALITY	
• N	TATA S JAMAD	STEEL LIMI		
• w	ork Order Ref. NO.: : 4700092	573/932 Dt.	20.07.2021	
• Da	ate of Sample Collection : 09.05.20	24 to 10.05	2024	
		24 to 15.05.		
• 10	est Procedure : As per IS	-5182		
• 16	<u>TEST</u>	RESULTS		
• 16		RESULTS	NO. DIGWADIH	
• 16	<u>TEST</u>	RESULTS	NO. DIGWADIH Avg. Humidity	28%
SI No.	TEST LOCATION – OFFICERS Avg. Ambient Temperature Particulars	RESULTS COLONY, 12		
SI No. 1.	TEST LOCATION – OFFICERS Avg. Ambient Temperature Particulars Particulate Matter (PM ₁₀), µg/m ³	COLONY, 12	Avg. Humidity	TANDARD
SI No. 1. 2.	TEST LOCATION – OFFICERS Avg. Ambient Temperature Particulars Particulate Matter (PM ₁₀), µg/m ³ Particulate Matter (PM _{2.5}), µg/m ³	RESULTS COLONY, 12 40°C Value	Avg. Humidity NAAQ - CPCB S	TANDARD n ³
SI No. 1. 2. 3.	TEST LOCATION – OFFICERS Avg. Ambient Temperature Particulars Particulate Matter (PM10), µg/m3 Particulate Matter (PM2.5), µg/m3 SO2, µg/m3	RESULTS COLONY, 12 40°C Value 75.86 43.60 17.38	Avg. Humidity NAAQ - CPCB S 100 µg/n 60 µg/n 80 µg/n	TANDARD n ³ 1 ³
SI No. 1. 2. 3. 4.	TEST LOCATION – OFFICERS Avg. Ambient Temperature Particulars Particulate Matter (PM10), µg/m3 Particulate Matter (PM2.5), µg/m3 SO2, µg/m3 NO2, µg/m3	RESULTS COLONY, 12 40°C Value 75.86 43.60 17.38 26.54	Avg. Humidity NAAQ - CPCB S 100 µg/n 60 µg/n 80 µg/n 80 µg/n	TANDARD m ³ p ² p ²
SI No. 1. 2. 3. 4. 5.	TEST LOCATION – OFFICERS Avg. Ambient Temperature Particulars Particulate Matter (PM10), µg/m3 Particulate Matter (PM2.5), µg/m3 SO2, µg/m3 NO2, µg/m3 Ozone, µg/m3	RESULTS COLONY, 12 40°C Value 75.86 43.60 17.38 26.54 17.66	Avg. Humidity NAAQ - CPCB S 100 µg/n 60 µg/n 80 µg/n 80 µg/n 180 µg/n	TANDARD m ³ 1 ³ 1 ³ 1 ³ 1 ³
SI No. 1. 2. 3. 4. 5. 6.	TEST LOCATION – OFFICERS Avg. Ambient Temperature Particulars Particulate Matter (PM10), µg/m3 Particulate Matter (PM2.5), µg/m3 SO2, µg/m3 NO2, µg/m3 Ozone, µg/m3 NH3, µg/m3	RESULTS COLONY, 12 40°C Value 75.86 43.60 17.38 26.54 17.66 14.90	Avg. Humidity NAAQ - CPCB S 100 µg/n 60 µg/n 80 µg/n 80 µg/n	TANDARD m ³ 1 ³ 1 ³ 1 ³ 1 ³
SI No. 1. 2. 3. 4. 5. 6. 7.	<u>TEST</u> LOCATION – OFFICERS Avg. Ambient Temperature Particulars Particulate Matter (PM ₁₆), μg/m ³ Particulate Matter (PM _{2.5}), μg/m ³ SO ₂ , μg/m ³ NO ₂ , μg/m ³ Ozone, μg/m ³ NH ₃ , μg/m ³ CO, mg/m ³	RESULTS COLONY, 12 40°C Value 75.86 43.60 17.38 26.54 17.66 14.90 0.60	Avg. Humidity NAAQ - CPCB S 100 µg/n 60 µg/n 80 µg/n 180 µg/n 180 µg/n 400 µg/n 400 µg/n	TANDARD m ³ h ³
SI No. 1. 2. 3. 4. 5. 6. 7. 8.	<u>TEST</u> LOCATION - OFFICERS Avg. Ambient Temperature Particulars Particulate Matter (PM ₁₀), μg/m ³ Particulate Matter (PM _{2.5}), μg/m ³ SO ₂ , μg/m ³ NO ₂ , μg/m ³ Ozone, μg/m ³ NH ₃ , μg/m ³ CO, mg/m ³ Pb, μg/m ³	RESULTS COLONY, 12 40°C Value 75.86 43.60 17.38 26.54 17.66 14.90 0.60 BDL	Avg. Humidity NAAQ - CPCB S 100 µg/n 60 µg/n 80 µg/n 180 µg/n 180 µg/n 400 µg/n 4 mg/m 1 µg/m	TANDARD m ³ p ³ p ³ p ³ n ³ n ³
SI No. 1. 2. 3. 4. 5. 6. 7. 8. 9.	TEST LOCATION – OFFICERS Avg. Ambient Temperature Particulars Particulate Matter (PM10), µg/m³ Particulate Matter (PM2.5), µg/m³ SO2, µg/m³ NO2, µg/m³ Ozone, µg/m³ NH3, µg/m³ CO, mg/m³ Pb, µg/m³ As, ng/m³	RESULTS COLONY, 12 40°C Value 75.86 43.60 17.38 26.54 17.66 14.90 0.60 BDL BDL	Avg. Humidity NAAQ - CPCB S 100 µg/n 60 µg/n 80 µg/n 180 µg/n 180 µg/n 400 µg/n 400 µg/n 1 µg/m 1 µg/m 6 ng/m	TANDARD m³ n³ n³ n³ n³ n³ n³ n³ n³ n³
SI No. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	TEST LOCATION - OFFICERS Avg. Ambient Temperature Particulars Particulate Matter (PM10), µg/m³ Particulate Matter (PM2.5), µg/m³ SO2, µg/m³ NO2, µg/m³ Ozone, µg/m³ NH3, µg/m³ CO, mg/m³ Pb, µg/m³ As, ng/m³ Ni, ng/m³	RESULTS COLONY, 12 40°C Value 75.86 43.60 17.38 26.54 17.66 14.90 0.60 BDL BDL BDL BDL	Avg. Humidity NAAQ - CPCB S 100 µg/n 60 µg/n 80 µg/n 80 µg/n 180 µg/n 400 µg/n 4 mg/m 1 µg/m 6 ng/m	TANDARD m ³ a ² a ² a ³ n ³ a a a
SI No. 1. 2. 3. 4. 5. 6. 7. 8. 9.	TEST LOCATION – OFFICERS Avg. Ambient Temperature Particulars Particulate Matter (PM10), µg/m³ Particulate Matter (PM2.5), µg/m³ SO2, µg/m³ NO2, µg/m³ Ozone, µg/m³ NH3, µg/m³ CO, mg/m³ Pb, µg/m³ As, ng/m³	RESULTS COLONY, 12 40°C Value 75.86 43.60 17.38 26.54 17.66 14.90 0.60 BDL BDL	Avg. Humidity NAAQ - CPCB S 100 µg/n 60 µg/n 80 µg/n 180 µg/n 180 µg/n 400 µg/n 400 µg/n 1 µg/m 1 µg/m 6 ng/m	TANDARD m³ m³

Sr. Chemist Aditi R&D Services



Technical Manager Aditi R&D Services, Sindri

Statements :

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

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

A R D S	ISO/II		ard of Quality	atory TED Council of In	idia)	Plot No I-B-17 (P) Sindri, Industrial Area, P.O Domgarh, Dist Jharkhand - 828107 Email ID: sindriaditi@ Website: aditirndservi Phone: 0326-2952377 Fax: 0326-2952377 Mobile: 09471358492	Dhanbad gmail.com ces.com ' (O),
R	ef. No.:	- ARDS/24-25/ AAQ/3			Date	16.05.2024	
		TEST RE	PORT OF A	MBIENT A	R QUALITY		
•	Da Da	ork Order Ref. NO. te of Sample Collectio te of Testing st Procedure	TATA S JAMAD DIST : 4700092 n : 09.05.20 : 11.05.20 : As per IS	OBA GROU OBA GROU DHANBAD (573/932 Dt. 24 to 10.05. 24 to 15.05.	P PLANT, JHARKHAND) 20.07.2021 2024		
ľ		LOCATION -	CENTRAL W	ORKSHOP A	REA, JAMADOBA	4	
		Avg. Ambient Ter	nperature	40°C	Avg. Humidit	y 28%	
	SI No.	Particulars		Value	NAAQ - CPCE	STANDARD	
-		Particulate Matter (PM	J unlas		100 1	unim]	
	1.	Farticulate Matter (PM	(0), µg/m ~	88.46	1001	Jy/m-	
	1. 2.	Particulate Matter (PM		88.46 52.64	60 µ		
				200000	the second se	g/m ³ •	
	2.	Particulate Matter (PM		52.64	60 µ	g/m ³ •	
	2. 3. 4. 5.	Particulate Matter (PM SO ₂ , µg/m ³ NO ₂ , µg/m ³ Ozone, µg/m ³		52.64 22.82	60 µ 80 µ	g/m ³ • g/m ³ • g/m ³	
	2. 3. 4.	Particulate Matter (PM SO ₂ , µg/m ³ NO ₂ , µg/m ³		52.64 22.82 32.64	ע 60 ע 80 ע 80	g/m ³ • g/m ³ g/m ³ ug/m ³	

		and the second se	
8.	Pb, µg/m ³	BDL	
9.	As, ng/m ³	BDL	
10.	Ni, ng/m ³	BDL	
11.	Benzene, µg/m ³	BDL	
12.	Benzoapyrene ng/m ³	BDL	
NOTE: F	DI - Below Detection Limit		

OTE: BDL - Below Detection Limit

Sr. Chemist

Aditi R&D Services



Technical Manager Aditi R&D Services, Sindri

1 μg/m³ 6 ng/m³ 20 ng/m³ 5 μg/m³ 1 ng/m³

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.

ISO/	ADITI R&D S Testing Labor NABL ACCRED (A Constituent Board of Qualit EC 17025:2017, ISO 9001:2015,ISO (0	atory ITED y Council of In	idia)	Plot No I-B-17 (P) Sindri, Industrial Area, P.O Domgarh, Dist Jharkhand - 828107 Email ID: sindriaditi@ Website: aditimdservi Phone: 0326-2952377 Fax: 0326-2952377 Mobile: 09471358492	Dhanbad gmail.com ces.com 7 (O),
Ref. No.:	- ARDS/24-25/ AAQ/4		Date:	16.05.2024	
	TEST REPORT OF	AMBIENT A	IR QUALITY		
• W • Da • Da	TATA JAMAE DIST ork Order Ref. NO.: : 470009 ite of Sample Collection : 09.05.20	2573/932 Dt. 024 To 10.05. 024 To 15.05.	TED P PLANT, JHARKHAND) 20.07.2021 2024		
		RESULTS			
		RESULTS	HOSPITAL		
	TEST	RESULTS	HOSPITAL Avg. Humidit	ty 28%	
SI No.	TEST LOCATION – TAT Avg. Ambient Temperature Particulars	RESULTS			
1.	TEST LOCATION – TAT Avg. Ambient Temperature Particulars Particulate Matter (PM ₁₀), µg/m ³	RESULTS A CENTRAL I 40°C	Avg. Humidit	STANDARD	
1. 2.	TEST LOCATION – TAT Avg. Ambient Temperature Particulars Particulate Matter (PM ₁₀), µg/m ³ Particulate Matter (PM _{2.5}), µg/m ³	RESULTS A CENTRAL I 40°C Value	Avg. Humidit NAAQ - CPCE	3 STANDARD	
1. 2. 3.	TEST LOCATION – TAT Avg. Ambient Temperature Particulars Particulate Matter (PM ₁₀), µg/m ³ Particulate Matter (PM _{2.5}), µg/m ³ SO ₂ , µg/m ³	RESULTS A CENTRAL I 40°C Value 70.08	Avg. Humidit NAAQ - CPCE 100 p	a STANDARD	
1. 2. 3. 4.	TEST LOCATION – TAT Avg. Ambient Temperature Particulars Particulate Matter (PM ₁₀), µg/m ³ Particulate Matter (PM _{2.5}), µg/m ³ SO ₂ , µg/m ³ NO ₂ , µg/m ³	RESULTS A CENTRAL I 40°C Value 70.08 40.57	Avg. Humidit NAAQ - CPCE 100 µ 60 µ	B STANDARD ug/m ³ g/m ³	
1. 2. 3. 4. 5.	TEST LOCATION – TAT Avg. Ambient Temperature Particulars Particulate Matter (PM10), µg/m3 Particulate Matter (PM2.5), µg/m3 SO2, µg/m3 NO2, µg/m3 Ozone, µg/m3	RESULTS 40°C Value 70.08 40.57 16.18 25.80 16.32	Avg. Humidit NAAQ - CPCE 100 µ 60 µ 80 µ	B STANDARD µg/m ³ µg/m ³ µg/m ³	
1. 2. 3. 4. 5. 6.	<u>TEST</u> LOCATION – TAT Avg. Ambient Temperature Particulars Particulate Matter (PM ₁₀), μg/m ³ Particulate Matter (PM _{2.5}), μg/m ³ SO ₂ , μg/m ³ NO ₂ , μg/m ³ Ozone, μg/m ³ NH ₃ , μg/m ³	RESULTS 40°C Value 70.08 40.57 16.18 25.80	Avg. Humidit NAAQ - CPCE 100 µ 60 µ 80 µ 80 µ 180 µ 400 µ	B STANDARD µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³	
1. 2. 3. 4. 5. 6. 7.	TEST LOCATION – TAT Avg. Ambient Temperature Particulars Particulate Matter (PM10), µg/m³ Particulate Matter (PM2.5), µg/m³ SO2, µg/m³ SO2, µg/m³ Ozone, µg/m³ NO2, µg/m³ Ozone, µg/m³ NH3, µg/m³ CO, mg/m³	RESULTS 40°C Value 70.08 40.57 16.18 25.80 16.32 17.57 0.88	Avg. Humidit NAAQ - CPCE 100 µ 60 µ 80 µ 80 µ 180 µ	B STANDARD µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³	
1. 2. 3. 4. 5. 6. 7. 8.	TEST LOCATION – TAT Avg. Ambient Temperature Particulars Particulate Matter (PM10), µg/m3 Particulate Matter (PM2.5), µg/m3 SO2, µg/m3 NO2, µg/m3 Ozone, µg/m3 NH3, µg/m3 CO, mg/m3 Pb, µg/m3	RESULTS A CENTRAL 1 40°C Value 70.08 40.57 16.18 25.80 16.32 17.57 0.88 BDL	Avg. Humidit NAAQ - CPCE 100 µ 60 µ 80 µ 80 µ 180 µ 400 µ	B STANDARD µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³	
1. 2. 3. 4. 5. 6. 7. 8. 9.	TEST LOCATION – TAT Avg. Ambient Temperature Particulars Particulate Matter (PM10), µg/m³ Particulate Matter (PM2.5), µg/m³ SO2, µg/m³ NO2, µg/m³ Ozone, µg/m³ NH3, µg/m³ CO, mg/m³ Pb, µg/m³ As, ng/m³	RESULTS 40°C Value 70.08 40.57 16.18 25.80 16.32 17.57 0.88	Avg. Humidit NAAQ - CPCE 100 µ 60 µ 80 µ 80 µ 180 µ 400 µ 4 mg 1 µg 6 ng	B STANDARD µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³ g/m ³ g/m ³ g/m ³	
1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	TEST LOCATION – TAT Avg. Ambient Temperature Particulars Particulate Matter (PM10), µg/m3 Particulate Matter (PM2.5), µg/m3 SO2, µg/m3 SO2, µg/m3 Ozone, µg/m3 NU2, µg/m3 Ozone, µg/m3 NH3, µg/m3 CO, mg/m3 Pb, µg/m3 As, ng/m3 Ni, ng/m3 Ni, ng/m3	RESULTS A CENTRAL 1 40°C Value 70.08 40.57 16.18 25.80 16.32 17.57 0.88 BDL	Avg. Humidit NAAQ - CPCE 100 µ 60 µ 80 µ 180 µ 180 µ 400 µ 4 mg	B STANDARD µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³ g/m ³ g/m ³ g/m ³	
1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.	TEST LOCATION – TAT Avg. Ambient Temperature Particulars Particulate Matter (PM10), µg/m3 Particulate Matter (PM2.5), µg/m3 SO2, µg/m3 NO2, µg/m3 Ozone, µg/m3 OZone, µg/m3 CO, mg/m3 Pb, µg/m3 As, ng/m3 Ni, ng/m3 Benzene, µg/m3	RESULTS 40°C 40°C Value 70.08 40.57 16.18 25.80 16.32 17.57 0.88 BDL	Avg. Humidit NAAQ - CPCE 100 µ 60 µ 80 µ 80 µ 180 µ 400 µ 4 mg 1 µg 6 ng	B STANDARD µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³ ŋ/m ³ ŋ/m ³ g/m ³	
1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.	TEST LOCATION – TAT Avg. Ambient Temperature Particulars Particulate Matter (PM10), µg/m3 Particulate Matter (PM2.5), µg/m3 SO2, µg/m3 SO2, µg/m3 Ozone, µg/m3 NU2, µg/m3 Ozone, µg/m3 NH3, µg/m3 CO, mg/m3 Pb, µg/m3 As, ng/m3 Ni, ng/m3 Ni, ng/m3	RESULTS 40°C 40°C Value 70.08 40.57 16.18 25.80 16.32 17.57 0.88 BDL BDL BDL	Avg. Humidit NAAQ - CPCE 100 µ 60 µ 80 µ 80 µ 180 µ 400 µ 400 µ 4 mg 1 µg 6 ng 20 m	B STANDARD ug/m ³ ug/m ³ ug/m ³ ug/m ³ ug/m ³ g/m ³ g/m ³ g/m ³ g/m ³ g/m ³	

- 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.

ISO	ADITI R&D SI Testing Labor NABL ACCREDI (A Constituent Board of Quality IEC 17025:2017, ISO 9001:2015,ISO (0	atory ITED y Council of In	ndia)	Piot No I-B-17 (Sindri, Industrial A P.O Domgarh, D Jharkhand - 8281 Email ID: sindriad Website: adtimds Phone: 0326-295 Fax: 0326-29523 Mobile: 09471358	Aréa, Dist Dhanbad 107 fitl@gmail.com services.com 2377 (O), 77
Ref. No.:	- ARDS/24-25/AAQ/1		Date	: 16.05.2024	
	TEST REPORT OF A	MBIENT A	IR QUALITY		
• Da	ork Order Ref. NO.: : 4700092 ate of Sample Collection : 09.05.20	573/932 Dt. 24 To 10.05.2	2024		
• Te	st Procedure : As per IS	24 To 15.05.2 -5182 <u>RESULTS</u>	2024		
• Te	st Procedure : As per IS	RESULTS			
• Te	st Procedure : As per IS	RESULTS		ty 28%	
SI No.	st Procedure : As per IS TEST LOCATION - 6 & 7	-5182 <u>RESULTS</u> PITS COLLIE	RY OFFICE Avg, Humidi	ty 28% 3 STANDARD	
SI No. 1.	st Procedure : As per IS <u>TEST</u> LOCATION - 6 & 7 Avg. Ambient Temperature	RESULTS PITS COLLIE 40 ⁰ C	RY OFFICE Avg, Humidi	B STANDARD	
SI No. 1. 2.	st Procedure : As per IS <u>TEST</u> LOCATION - 6 & 7 Avg. Ambient Temperature Particulars Particulate Matter (PM ₁₀), µg/m ³ Particulate Matter (PM _{2.5}), µg/m ³	RESULTS PITS COLLIE 40°C Value	RY OFFICE Avg. Humidi NAAQ - CPCI 100	B STANDARD	
SI No. 1. 2. 3.	Est Procedure : As per IS <u>TEST</u> LOCATION - 6 & 7 Avg. Ambient Temperature Particulars Particulate Matter (PM ₁₀), µg/m ³ Particulate Matter (PM _{2.5}), µg/m ³ SO ₂ , µg/m ³	RESULTS PITS COLLIE 40°C Value 89.38	RY OFFICE Avg. Humidi NAAQ - CPCI 100 60 µ	B STANDARD	
SI No. 1. 2. 3. 4.	st Procedure : As per IS <u>TEST</u> LOCATION - 6 & 7 Avg. Ambient Temperature Particulars Particulate Matter (PM ₁₀), µg/m ³ Particulate Matter (PM _{2.5}), µg/m ³	RESULTS PITS COLLIE 40°C Value 89.38 52.81	RY OFFICE Avg. Humidit NAAQ - CPCI 100 60 µ 80 µ	B STANDARD µg/m ³ ig/m ³	
SI No. 1. 2. 3. 4. 5.	Est Procedure : As per IS <u>TEST</u> LOCATION - 6 & 7 Avg. Ambient Temperature Particulars Particulate Matter (PM ₁₀), µg/m ³ Particulate Matter (PM _{2.5}), µg/m ³ SO ₂ , µg/m ³ NO ₂ , µg/m ³	PITS COLLIE 40°C Value 89.38 52.81 23.15	RY OFFICE Avg. Humidi NAAQ - CPCI 100 60 µ 80 µ 80 µ	B STANDARD µg/m ³ µg/m ³	
SI No. 1. 2. 3. 4. 5. 6.	st Procedure : As per IS <u>TEST</u> LOCATION - 6 & 7 Avg. Ambient Temperature Particulars Particulate Matter (PM ₁₀), µg/m ³ Particulate Matter (PM _{2.5}), µg/m ³ SO ₂ , µg/m ³ NO ₂ , µg/m ³ NO ₂ , µg/m ³ NH ₃ , µg/m ³	RESULTS PITS COLLIE 40°C Value 89.38 52.81 23.15 28.46	RY OFFICE Avg. Humidii NAAQ - CPCF 100 µ 60 µ 80 µ 80 µ	B STANDARD µg/m ³ µg/m ³ µg/m ³	
SI No. 1. 2. 3. 4. 5. 6. 7.	Est Procedure : As per IS <u>TEST</u> LOCATION - 6 & 7 Avg. Ambient Temperature Particulars Particulate Matter (PM ₁₀), µg/m ³ Particulate Matter (PM _{2.5}), µg/m ³ SO ₂ , µg/m ³ NO ₂ , µg/m ³	-5182 RESULTS PITS COLLIE 40°C Value 89.38 52.81 23.15 28.46 17.83	RY OFFICE Avg. Humidi NAAQ - CPCI 100 60 µ 80 µ 80 µ 180 µ 400 µ	B STANDARD µg/m ³ ig/m ³ ig/m ³ ig/m ³	
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 ₁₀), µg/m ³ Particulate Matter (PM _{2.5}), µg/m ³ SO ₂ , µg/m ³ NO ₂ , µg/m ³ NO ₂ , µg/m ³ NH ₃ , µg/m ³	RESULTS PITS COLLIE 40°C Value 89.38 52.81 23.15 28.46 17.83 14.88	RY OFFICE Avg. Humidii NAAQ - CPCI 100 µ 60 µ 80 µ 80 µ 180 µ 400 µ	B STANDARD µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³	
SI No. 1. 2. 3. 4. 5. 6. 7. 8. 9.	st Procedure : As per IS <u>TEST</u> LOCATION - 6 & 7 Avg. Ambient Temperature Particulars Particulate Matter (PM ₁₀), µg/m ³ Particulate Matter (PM _{2.5}), µg/m ³ SO ₂ , µg/m ³ NO ₂ , µg/m ³ NO ₂ , µg/m ³ NH ₃ , µg/m ³ CO, mg/m ³	-5182 <u>RESULTS</u> PITS COLLIE 40°C Value 89.38 52.81 23.15 28.46 17.83 14.88 0.82	RY OFFICE Avg. Humidii NAAQ - CPCI 100 µ 60 µ 80 µ 80 µ 180 µ 400 µ	B STANDARD µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³ g/m ³	
SI No. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	st Procedure : As per IS <u>TEST</u> LOCATION - 6 & 7 Avg. Ambient Temperature Particulars Particulate Matter (PM ₁₀), µg/m ³ Particulate Matter (PM _{2.5}), µg/m ³ SO ₂ , µg/m ³ NO ₂ , µg/m ³ Ozone, µg/m ³ Ozone, µg/m ³ CO, mg/m ³ Pb, µg/m ³ As, ng/m ³	-5182 RESULTS PITS COLLIE 40°C Value 89.38 52.81 23.15 28.46 17.83 14.88 0.82 BDL	RY OFFICE Avg. Humidit NAAQ - CPCI 100 j 60 µ 80 µ 80 µ 180 j 400 j 400 j 4 m	B STANDARD µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³ ŋ/m ³ ŋ/m ³	
SI No. 1. 2. 3. 4. 5. 6. 7. 8. 9.	st Procedure : As per IS <u>TEST</u> LOCATION - 6 & 7 Avg. Ambient Temperature Particulars Particulate Matter (PM ₁₀), µg/m ³ Particulate Matter (PM _{2.5}), µg/m ³ SO ₂ , µg/m ³ NO ₂ , µg/m ³ NO ₂ , µg/m ³ Co, mg/m ³ Pb, µg/m ³ As, ng/m ³	-5182 RESULTS PITS COLLIE 40°C Value 89.38 52.81 23.15 28.46 17.83 14.88 0.82 BDL BDL	RY OFFICE Avg. Humidii NAAQ - CPCI 100 p 60 µ 80 µ 80 µ 180 p 400 p 400 p 4 m 1 µg 6 ng	B STANDARD µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³ g/m ³ g/m ³ g/m ³ g/m ³	

NOTE: BDL - Below Detection Limit

Sr. Chemist

Aditi R&D Services



Technical Manager Aditi R&D Services, Sindri

Statements :

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								Annexure
A R D S	ISO/IE	NAB	ng Laboratory LACCREDITED ard of Quality Cour	ncil of India)		Sindri, P.O D Jharkhi Email I Website Phone: Fax: 03	0 I-B-17 (P) Industrial Area, longarh, Dist and - 828107 D. sindriaditi@ e: adltimdservi 0326-2952377 226-2952377 09471358492	Dhanbad gmail.com ces.com ' (O),
Re	f. No.: ·	ARDS/24-25/MINER./1			D	ate: 14.0	5.2024	
		TEST REPORT	OF MINERALC	OGICAL C	OMPOSI	TION		
		<u>0</u>	FPARTICULAT	E MATTE	R			
	Na	me of the industry	: M/S TATA ST TATA STEE JAMADOBA	L LIMITED)			121
			DIST DHAN	NBAD (JHA	RKHAN))		
•	1400	ork Order Ref. NO.	: 4700092573/9	32 Dt. 20.0	07.2021			
•		te of Sample Collection						
·	Da	te of Testing	: 11.05.2024 To	5 13.05.2024	•			
			TEST RESU	ILTS				
[3	SI No.	Particulars		Miner	alogical C	ompositi	ion (%)	
				SiO ₂	FeO	Al ₂ O ₃	CaO	
	1.	Central Workshop A	rea, Jamadoba	1.88	0.10	1.36	2.5	

Sr. Chemist Aditi R&D Services

2.



2.08

0.12

Technical Manager Aditi R&D Services, Sindri

1.39

2.63

Statements :

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Officer's Colony, 12 No Digwadih

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

S		ng La BL ACC ard of	aboratory CREDITED Quality Cour	ncil of India)	F J B	Not No I-B-17 (P) indri, Industrial Area, O Domgarh, Dist Dhanbad harkhand - 828107 imail ID: sindriaditi@gmail.com Vebsite: aditirndservices.com None: 0326-2952377 (O), ax: 0326-2952377 (O), ax: 0326-2952377
Ref.	No.: - ARDS/24-25/SW/1				Date:	17.05.2024
	TEST RI	EPOF	RT OF SU	RFACE V	VATER	
:	 Name of the industry Work Order Ref. NO.: Sample Code 	T. Ji		GROUP P	LANT, RKHAND) . 20.07.2021	
	Date of Sample Collect Date of Testing Test	:	10.05.20 11.05.20	odar River D 24 24 To 16.09 5, Turbidity,	own Stream	
SL	Date of Testing Test		10.05.20 11.05.20 pH, TDS <u>TEST RES</u>	odar River D 124 124 To 16.09 5, Turbidity, ULT	5.2024 DO, BOD, C	I, F, SO₄
SI. No.	Date of Testing		10.05.20 11.05.20 pH, TDS <u>TEST RES</u>	odar River D 24 24 To 16.09 5, Turbidity,	Down Stream	I, F, SO₄ Test
	Date of Testing Test		10.05.20 11.05.20 pH, TDS TEST RESI VAI Damodar River Up	dar River D 24 24 To 16.05 5, Turbidity, ULT LUE Damodar River Dn	5.2024 DO, BOD, C Limit as per IS 2296	I, F, SO₄ Test
No.	Date of Testing Test PARAMETERS OF TES	: : ST	10.05.20 11.05.20 pH, TDS TEST RESI VAI Damodar River Up Stream	24 To 16.09 24 To 16.09 5, Turbidity, ULT LUE Damodar River Dn Stream	5.2024 DO, BOD, C Limit as per IS 2296 Class - C	I, F, SO₄ Test Method
No.	Date of Testing Test PARAMETERS OF TES pH	: : ST	10.05.20 11.05.20 pH, TDS TEST RESI VAI Damodar River Up Stream 7.8	dar River D 24 24 To 16.05 5, Turbidity, ULT LUE Damodar River Dn Stream 8.0	5.2024 DO, BOD, C Limit as per IS 2296 Class - C 6.5 -8.5	I, F, SO₄ Test Method IS-3025 (P-11): 1983
No. 1. 2.	Date of Testing Test PARAMETERS OF TES pH Total Dissolved Solids,	: : ST mg/l	10.05.20 11.05.20 pH, TDS TEST RESI VAI Damodar River Up Stream 7.8 410	dar River D 24 24 To 16.05 5, Turbidity, ULT LUE Damodar River Dn Stream 8.0 432	5.2024 DO, BOD, C Limit as per IS 2296 Class - C 6.5 -8.5 1500	I, F, SO₄ Test Method IS-3025 (P-11): 1983 IS-3025 (P-16): 1984
No. 1. 2. 3.	Date of Testing Test PARAMETERS OF TES pH Total Dissolved Solids, Turbidity, NTU	: : ST mg/l	10.05.20 11.05.20 pH, TDS TEST RESI VAI Damodar River Up Stream 7.8 410 2.0	dar River D 24 24 To 16.05 5, Turbidity, ULT LUE Damodar River Dn Stream 8.0 432 2.4	Down Stream 5.2024 DO, BOD, C Limit as per IS 2296 Class - C 6.5 -8.5 1500	I, F, SO₄ 5 Test Method IS-3025 (P-11): 1983 IS-3025 (P-16): 1984 IS-3025 (P-10):1984
No. 1. 2. 3. 4.	Date of Testing Test PARAMETERS OF TES pH Total Dissolved Solids, Turbidity, NTU Dissolved Oxygen, my Bio chemical Oxygen	: : ST mg/l n	10.05.20 11.05.20 pH, TDS TEST RESI VAI Damodar River Up Stream 7.8 410 2.0 4.2	dar River D 24 24 To 16.05 5, Turbidity, ULT LUE Damodar River Dn Stream 8.0 432 2.4 4.0	Down Stream 5.2024 DO, BOD, C Limit as per IS 2296 Class - C 6.5 -8.5 1500 - 4.0 (Min)	I, F, SO4 Test Method IS-3025 (P-11): 1983 IS-3025 (P-16): 1984 IS-3025 (P-38):1989 IS-3025 (P-38):1989 IS-3025 (P-44):1994
No. 1. 2. 3. 4. 5.	Date of Testing Test PARAMETERS OF TES pH Total Dissolved Solids, Turbidity, NTU Dissolved Oxygen, my Bio chemical Oxygen Demand, mg/l	: ST mg/l n	10.05.20 11.05.20 pH, TDS TEST RESI VAI Damodar River Up Stream 7.8 410 2.0 4.2 1.6	dar River D 24 24 To 16.05 5, Turbidity, ULT LUE Damodar River Dn Stream 8.0 432 2.4 4.0 2.0	Down Stream 5.2024 DO, BOD, C Limit as per IS 2296 Class - C 6.5 -8.5 1500 - 4.0 (Min) 3.0	I, F, SO4 Test Method IS-3025 (P-11): 1983 IS-3025 (P-16): 1984 IS-3025 (P-38):1989 IS-3025 (P-38):1989 IS-3025 (P-44):1994

Sr. Chemist, Aditi R&D Services

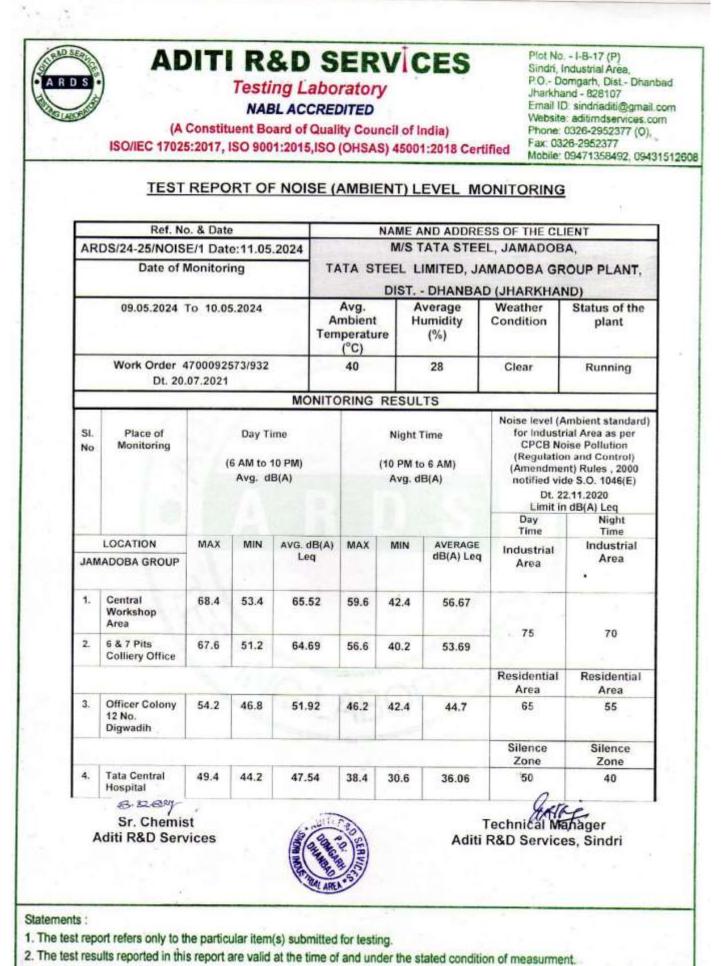


Technicar Manager Aditi R&D Services, Sindri

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A R D S		ting Labo ABL ACCRE Board of Qua	DITED lity Council	of India)		Plot No I-B-17 (P) Sindri, Industrial Area, P.O Domgarh, Dist Dha Jharkhand - 828107 Email ID: sindnaditi@gma Website: aditimdaervices. Phone: 0326-2952377 (O) Fax: 0326-2952377 Mobile: 09471358492, 094	com
Ref. No.: - ARDS	/24-25/MWD/1	I			Date	e: 16.05.2024	
	TEST REP	ORT OF	MINE WA	TER DIS	CHARG	Έ.	
•	he industry er Ref. NO.: Code	1 5 1 2 1	. 3 Pit	EL LIMIT A GROUP ANBAD (J	ED PLANT, HARKHA 20.07.2021 a Colliery a Colliery iery	ND)	đ
 Date of S Date of T Test 	ample Colle esting	: 1 : p		To 15.05. SS, BOD,	2024	& GREASE.	
 Date of T Test 		: 1 : p <u>TES</u>	1.05.2024 H, TDS, TS <u>T RESULT</u>	To 15.05. SS, BOD,	2024	& GREASE.	
Date of T Test SI. PARAMETERS OF No. TEST	esting 2 Pit Jamadoba Colliery	: 1 : p	1.05.2024 H, TDS, TS <u>T RESULT</u>	To 15.05. SS, BOD,	2024 COD, OIL Limit as per IS-2296 Class B (For	& GREASE. Test Method	
Date of T Test SI. PARAMETERS OF TEST 1. pH,	2 Pit Jamadoba Colliery 8.2	: 1 : p <u>TES</u> VALU ^{3 Pit} Jamadoba	1.05.2024 H, TDS, TS <u>T RESULT</u> E 6 & 7 Pits	To 15.05. SS, BOD, Digwadih	2024 COD, OIL Limit as per IS-2296 Class B	Test	
Date of T Test SI. PARAMETERS OF TEST PH, PH, Z. Total Dissolved Solids, mg/l	esting 2 Pit Jamadoba Colliery	: 1 : p <u>TES</u> VALU ^{3 Pit} Jamadoba Colliery	1.05.2024 H, TDS, TS <u>T RESULT</u> E 6 & 7 Pits Colliery	To 15.05. SS, BOD, Digwadih Colliery	2024 COD, OIL Limit as per IS-2296 Class B (For Bathing)	Test Method IS-3025 (P-11): 1983 IS-3025 (P-16):	
Date of T Test Test SI. PARAMETERS OF TEST PH, Dissolved Solids, mg/l Total Suspended Solids, mg/l	2 Pit Jamadoba Colliery 8.2	: 1 : P <u>TES</u> VALU 3 Pit Jamadoba Colliery 7.8	1.05.2024 H, TDS, TS <u>T RESULT</u> E 6 & 7 Pits Colliery 8.3	To 15.05. SS, BOD, Digwadih Colliery 8.0	2024 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)	
 Date of T Test SI. PARAMETERS OF TEST 1. pH, 2. Total Dissolved Solids, mg/l 3. Total Suspended Solids, mg/l 4. Bio chemical Oxygen Demand, mg/l 	esting 2 Pit Jamadoba Colliery 8.2 865	: 1 : P <u>TES</u> VALU 3 Pit Jamadoba Colliery 7.8	1.05.2024 H, TDS, TS <u>T RESULT</u> E 6 & 7 Pits Colliery 8.3 980	To 15.05. SS, BOD, Digwadih Colliery 8.0 907	2024 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	
Date of T Test Test SI. PARAMETERS OF TEST TEST PH, Dissolved Solids, mg/l Solids, mg/l Bio chemical Oxygen Demand,	esting 2 Pit Jamadoba Colliery 8.2 865 38	: 1 : p <u>TES</u> VALU ^{3 Pit} Jamadoba Colliery 7.8 860 40	1.05.2024 H, TDS, TS <u>T RESULT</u> E 6 & 7 Pits Colliery 8.3 980 42	To 15.05. SS, BOD, a Digwadih Colliery 8.0 907 35	2024 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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No LA	D S	Tes N onstituent	ting Labo ABL ACCRE Board of Qua	DITED	l of India)		Jharkhand - 8 Email ID: sind Website: aditi Phone: 0326- Fax: 0326-29	ial Áréa, h, Dist - Dhanbad 28107 Iriaditi@gmail.com mdservices.com 2952377 (O),
	Ref. No.: - ARDS/24-	25/STP/1				Da	ate: 16.05.2024	ų.
		T	EST REPO	ORT OF	SEWAG	E		8
	 Name of the i Work Order F Sample Cod Date of Sam 	Ref. NO.: le	T J : 4 : 1 2 3 4 5	STP Out STP Out STP Out	EL LIMI A GROU ANBAD (/932 Dt. let- Railw let -Digw let -Digw let- JCPF	TED P PLAN JHARKH 20.07.202 vay Color adih 12 M adih 12 M Canteen Canteen	T, IAND) 21 ny No Officers C No. Superviso	
	Date of Sam	0°		9.05.2024				
	 Date of Test Test 	ing		0.05.2024			IL & GREASE	2
				nd Fecal (in a stinite	-,
			TES	TRESULT		31		
	PARAMETERS OF		TES			3	As per	Test
й. о.	TEST	STP Outlet Railway Colony	STP Outlet Digwadih 12 No Officers Colony			STP Outlet- JCPP Cantee n	As per MoEF&CC Notification dated 13 th Oct. 2017 for. Sewage Treatment Plant	Test Method
		Outlet Railway	STP Outlet Digwadih 12 No Officers	VALUE STP Outlet Digwadi h 12 No. Supervis	STP Outlet Jmb. Cantee	STP Outlet- JCPP Cantee	MoEF&CC Notification dated 13 th Oct. 2017 for. Sewage Treatment	Method IS-3025(P-
o. I.	TEST pH, Total Dissolved Solids, mg/l	Outlet Railway Colony 8.5 1170	STP Outlet Digwadih 12 No Officers Colony 8.3 892	VALUE STP Outlet Digwadi h 12 No. Supervis or flat 7.9 1415	STP Outlet Jmb. Cantee n 7.4 1020	STP Outlet- JCPP Cantee n 8.0 1105	MoEF&CC Notification dated 13 th Oct. 2017 for. Sewage Treatment Plant	Method
o.	TEST pH, Total Dissolved Solids, mg/l Total Suspended Solids, mg/l	Outlet Railway Colony 8.5	STP Outlet Digwadih 12 No Officers Colony 8.3 892 46	VALUE STP Outlet Digwadi h 12 No. Supervis or flat 7.9 1415 48	STP Outlet Jmb. Cantee n 7.4	STP Outlet- JCPP Cantee n 8.0	MoEF&CC Notification dated 13 th Oct. 2017 for. Sewage Treatment Plant	Method IS-3025(P- 11):1983 IS-3025(P-
0. 1. 2. 3.	TEST pH, Total Dissolved Solids, mg/l Total Suspended Solids, mg/l Bio chemical Oxygen Demand, mg/l	Outlet Railway Colony 8.5 1170 54 6.6	STP Outlet Digwadih 12 No Officers Colony 8.3 892	VALUE STP Outlet Digwadi h 12 No. Supervis or flat 7.9 1415	STP Outlet Jmb. Cantee n 7.4 1020	STP Outlet- JCPP Cantee n 8.0 1105	MoEF&CC Notification dated 13 th Oct. 2017 for. Sewage Treatment Plant 6.5-9.0	Method IS-3025(P- 11):1983 IS-3025(P- 16):1984 IS-3025(P-
0. 1. 2. 3. 4.	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 8.5 1170 54 6.6 88	STP Outlet Digwadih 12 No Officers Colony 8.3 892 46 8.4 95	VALUE STP Outlet Digwadi h 12 No. Supervis or flat 7.9 1415 48	STP Outlet Jmb. Cantee n 7.4 1020 39	STP Outlet- JCPP Cantee n 8.0 1105 40	MoEF&CC Notification dated 13 th Oct. 2017 for. Sewage Treatment Plant 6.5-9.0	Method IS-3025(P- 11):1983 IS-3025(P- 16):1984 IS-3025(P- 17):1984 IS-3025(P-
0. 1. 2. 3.	PH, Total Dissolved Solids, mg/l Total Suspended Solids, mg/l Bio chemical Oxygen Demand, mg/l Chemical Oxygen	Outlet Railway Colony 8.5 1170 54 6.6	STP Outlet Digwadih 12 No Officers Colony 8.3 892 46 8.4	VALUE STP Outlet Digwadi h 12 No. Supervis or flat 7.9 1415 48 9.0	STP Outlet Jmb. Cantee n 7.4 1020 39 2.4	STP Outlet- JCPP Cantee n 8.0 1105 40 4.8	MoEF&CC Notification dated 13 th Oct. 2017 for. Sewage Treatment Plant 6.5-9.0	Method IS-3025(P- 11):1983 IS-3025(P- 16):1984 IS-3025(P- 17):1984 IS-3025(P- 44):1994 IS-3025(P-

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R D S	NAB	ng Labora LACCREDI	atory TED		Plot No I-B-17 (P) Sindri, Industrial Area, P.O Domgarh, Dist Dhanbar Jharkhand - 828107 Email ID; sindriaditi@gmail.co Website: aditimdservices.com Phone: 0326-2952377 (O),
- 15	(A Constituent Bo ISO/IEC 17025:2017, ISO 900			and the second se	Eav: 0326.2052377
	Ref. No.: - ARDS/24-25/ETP/1			Di	ate: 16.05.2024
	TES	T REPORT	OF EF	FLUENT	8
	Name of the industry	TA' JAI	TA STEEL	EEL, JAMADO LIMITED GROUP PLAN IBAD (JHARKH	т,
	Work Order Ref. NO.:	: 470	0092573/93	32 Dt. 20.07.20	21
	Sample Code		T.P. Out	et T.C.H. et Garage	
	Date of Sample Collecti Date of Testing			o 10.05.2024	
	 Date of Sample Collecti Date of Testing Test 	: 10. : pH	05.2024 T	o 15.05.2024	OIL & GREASE.
SI.	Date of Testing	: 10. : pH	05.2024 T , TDS, TSS <u>RESULT</u>	o 15.05.2024	DIL & GREASE.
SI. No.	Date of TestingTest	: 10. : pH <u>TEST</u>	05.2024 T , TDS, TSS <u>RESULT</u>	o 15.05.2024 3, BOD, COD, C	
	Date of TestingTest	: 10. : pH <u>TEST</u> VAI E.T.P. Outlet	05.2024 T , TDS, TSS RESULT .UE E.T.P. Outlet	General Standard for discharge of Environmental Pollutants , Inland Surface water by the	Test
No.	Date of Testing Test PARAMETERS OF TEST	: 10. : pH <u>TEST</u> VAI E.T.P. Outlet T.C.H.	05.2024 T TDS, TSS RESULT UE E.T.P. Outlet Garage	General Standard for discharge of Environmental Pollutants , Inland Surface water by the MoEF&C	Test Method
No.	Date of Testing Test PARAMETERS OF TEST pH,	: 10. : pH <u>TEST</u> VAI E.T.P. Outlet T.C.H. 8.6	05.2024 T , TDS, TSS RESULT .UE E.T.P. Outlet Garage 8.4	General Standard for discharge of Environmental Pollutants , Inland Surface water by the MoEF&C	Test Method IS-3025 (P-11): 1983
No. 1. 2.	Date of Testing Test PARAMETERS OF TEST pH, Total Dissolved Solids, mg/l Bio chemical Oxygen Demand, mg/l	: 10. : pH <u>TEST</u> VAI E.T.P. Outlet T.C.H. 8.6 859 43 3.0	05.2024 T TDS, TSS RESULT UE E.T.P. Outlet Garage 8.4 990 48 7.8	General Standard for discharge of Environmental Pollutants , Inland Surface water by the MoEF&C 5.5-9.0	Test 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.	Date of Testing Test PARAMETERS OF TEST pH, Total Dissolved Solids, mg/l Total Suspended Solids, mg/l Bio chemical Oxygen Demand,	: 10. : pH <u>TEST</u> VAI E.T.P. Outlet T.C.H. 8.6 859 43	05.2024 T , TDS, TSS RESULT UE E.T.P. Outlet Garage 8.4 990 48	General Standard for discharge of Environmental Pollutants , Inland Surface water by the MoEF&C 5.5-9.0	Test Method IS-3025 (P-11): 1983 IS-3025 (P-16): 1984 IS-3025(P-17) : 1984

Sr. Chemist 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.
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		NABL A	Laborate ACCREDITE of Quality C	ory D council of In	dia)	Sind P.O. Jhan Ema Web Phot	khand - 82 il ID: sindri site: aditim ne: 0326-29 0326-295	al Àrea, , Dist Dhanbad 8107 aditi@gmail.com dservices.com 952377 (O),
Ref.	No.: - ARDS/24-25		PORT OF	DRINKING	WATER	Date: 16	.05.2024	e a
	Name of the in Work Order Re		JAMADO	EEL LIMI BA GROU HANBAD (TED P PLANT, JHARKHA	ND)		
8	Sample Code	ei. NO	1. Ca 2. Ca 3. Ca	inteen- Jai inteen- Jai inteen- Dig inteen- 6&	madoba C madoba W gwadih Co	olliery /ashery Iliery		
	 Test 		MANNEL APPROVE	ALCONTRACTOR	and a market with the second	Company of the party	Contraction of the second	Takes 1
	Colour, Odour, 1 Dissolved Solid Compound, Me Chromium, Mine	ls, Calcium, rcury, Cadmi	Copper, M um, Arsenie ity, Aluminiu <u>TEST R</u>	anganese, 5 c, Cyanide, m & Boron. RESULT	Sulphate, N Lead, Zir	itrate, Flu ic, Total	Coliform	nenolic
SI. No	Colour, Odour, 1 Dissolved Solid Compound, Me	ls, Calcium, rcury, Cadmi ral Oil, Alkalin Canteen- Jamadoba	Copper, M um, Arsenid ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba	anganese, c, Cyanide, m & Boron. <u>ESULT</u> UE Canteen Digwadih	Sulphate, N Lead, Zir Canteen- 6&7 Pits	IS as p 10500: Desirab	oride, P Coliform er IS 2012 Permi	, Total
SI.	Colour, Odour, 1 Dissolved Solid Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen	ls, Calcium, rcury, Cadmi ral Oil, Alkalin Canteen-	Copper, M um, Arsenid ity, Aluminiu <u>TEST R</u> VAL Canteen-	anganese, 5 c, Cyanide, m & Boron. <u>ESULT</u> UE Canteen	Sulphate, N Lead, Zir Canteen-	Is as p 10500	oride, P Coliform er IS 2012	Test
SI. No	Colour, Odour, 1 Dissolved Solid Compound, Me Chromium, Mine PARAMETERS OF TEST	ls, Calcium, rcury, Cadmi ral Oil, Alkalin Canteen- Jamadoba Colliery	Copper, M um, Arsenia ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba Washery	anganese, c, Cyanide, m & Boron. <u>RESULT</u> UE Canteen Digwadih Colliery	Canteen- 6&7 Pits Colliery 1 Agreeable	Is as p 10500; Desirab le 5.00 Agreeabl e	Permi ssible 15.0 Agree , able	Test Method IS 3025 (P-4):2021 IS 3025 (P- 5):2018
SI. No 1.	Colour, Odour, 1 Dissolved Solid Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit)	is, Calcium, rcury, Cadmi ral Oil, Alkalin Canteen- Jamadoba Colliery 1 Agreeable Agreeable	Copper, M um, Arsenie ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba Washery 1 Agreeable Agreeable	anganese, c, Cyanide, m & Boron. <u>RESULT</u> UE Canteen Digwadih Colliery 1 Agreeable Agreeable	Sulphate, N Lead, Zir Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable	Is as p 10500; Desirab le 5.00 Agreeabl e Agreeabl e	Per IS 2012 Permi ssible 15.0 Agree able Agree able	Test Method IS 3025 (P-4):2021 IS 3025 (P- 5):2018 IS 3025 (P- 7):2017
SI. No 1. 2. 3. 4.	Colour, Odour, 1 Dissolved Solid Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU	is, Calcium, Groury, Cadmi rear Oil, Alkalin Canteen- Jamadoba Colliery 1 Agreeable Agreeable NIL	Copper, M um, Arsenia ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba Washery 1 Agreeable Agreeable 2.0	anganese, c, Cyanide, m & Boron. <u>RESULT</u> UE Canteen Digwadih Colliery 1 Agreeable Agreeable NIL	Sulphate, N Lead, Zir Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable NIL	Is as p 10500; Desirab le 5.00 Agreeabl e 1.0	Permi ssible 15.0 Agree able 5.0	Test Method IS 3025 (P-4):2021 IS 3025 (P- 5):2018 IS 3025 (P- 7):2017 IS 3025 (P- 10):1984
SI. No 1. 2. 3. 4. 5.	Colour, Odour, 1 Dissolved Solid Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU pH	Is, Calcium, Groury, Cadmi real Oil, Alkalin Canteen- Jamadoba Colliery 1 Agreeable Agreeable NIL 8.4	Copper, M um, Arsenie ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba Washery 1 Agreeable Agreeable 2.0 8.2	anganese, c, Cyanide, m & Boron. <u>RESULT</u> UE Canteen Digwadih Colliery 1 Agreeable Agreeable NIL 8.2	Sulphate, N Lead, Zir Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable NIL 8.1	Is as p 10500: Desirab le 5.00 Agreeabl e 1.0 6.5-8.5	Per IS 2012 Permi ssible 15.0 Agree able Agree able 5.0 No. Relax.	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
SI. No 1. 2. 3. 4. 5. 6.	Colour, Odour, 1 Dissolved Solid Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU pH Total Hardness as CaCO ₃ , mg/l	Is, Calcium, Groury, Cadmi rear Oil, Alkalin Canteen-Jamadoba Colliery 1 Agreeable Agreeable NIL 8.4 308	Copper, M um, Arsenie ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba Washery 1 Agreeable 2.0 8.2 300	anganese, c, Cyanide, m & Boron. RESULT UE Canteen Digwadih Colliery 1 Agreeable Agreeable NIL 8.2 304	Sulphate, N Lead, Zir Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable NIL 8.1 220	Is as p 10500: Desirab le 5.00 Agreeabl e 1.0 6.5-8.5 200	Perni Scoliform Permi Ssible 15.0 Agree able Agree able 5.0 No. Relax. 600	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. 7.	Colour, Odour, 1 Dissolved Solid Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU pH Total Hardness as CaCO ₃ , mg/l Chloride as Cl, mg/l	Is, Calcium, Groury, Cadmi rear Oil, Alkalin Canteen-Jamadoba Colliery 1 Agreeable Agreeable NIL 8.4 308 71.8	Copper, M um, Arsenia ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba Washery 1 Agreeable 2.0 8.2 300 67.88	anganese, c, Cyanide, m & Boron. RESULT UE Canteen Digwadih Colliery 1 Agreeable Agreeable NIL 8.2 304 73.7	Sulphate, N Lead, Zir Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable NIL 8.1 220 27.2	Is as p 10500: Desirab le 5.00 Agreeabl e 1.0 6.5-8.5 200 250	Permi ssible 15.0 Agree able 5.0 No. Relax. 600	Test Method IS 3025 (P-4):2021 IS 3025 (P- 5):2018 IS 3025 (P- 7):2017 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.	Colour, Odour, 1 Dissolved Solid Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU pH Total Hardness as CaCO ₃ , mg/l Chloride as Cl, mg/l Res. Free chlorine as Cl ₂	Is, Calcium, Groury, Cadmi rear Oil, Alkalin Canteen-Jamadoba Colliery 1 Agreeable Agreeable NIL 8.4 308	Copper, M um, Arsenie ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba Washery 1 Agreeable 2.0 8.2 300	anganese, c, Cyanide, m & Boron. RESULT UE Canteen Digwadih Colliery 1 Agreeable Agreeable NIL 8.2 304	Sulphate, N Lead, Zir Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable NIL 8.1 220 27.2 NIL	Is as p 10500: Desirab le 5.00 Agreeabl e 1.0 6.5-8.5 200 250 0.20	Perni ssible 15.0 Agree able 5.0 No. Relax. 600 1000 1.0	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 IS 3025 (P- 26):2021
SI. No 1. 2. 3. 4. 5. 6. 7.	Colour, Odour, T Dissolved Solid Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU pH Total Hardness as CaCO ₃ , mg/l Chloride as Cl, mg/l Res. Free	Is, Calcium, Groury, Cadmi rear Oil, Alkalin Canteen-Jamadoba Colliery 1 Agreeable Agreeable NIL 8.4 308 71.8	Copper, M um, Arsenia ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba Washery 1 Agreeable 2.0 8.2 300 67.88	anganese, c, Cyanide, m & Boron. ESULT UE Canteen Digwadih Colliery 1 Agreeable Agreeable NIL 8.2 304 73.7 NIL 605	Sulphate, N Lead, Zir Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable NIL 8.1 220 27.2 NIL 310	Is as p 10500: Desirab le 5.00 Agreeabl e 1.0 6.5-8.5 200 250 0.20 500	Per IS 2012 Permi ssible 15.0 Agree able 5.0 No. Relax. 600 1000 1.0 2000	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- 22):1988 IS 3025 (P- 26):2021 IS 3025 (P- 26):2021
SI. No 1. 2. 3. 4. 5. 6. 7. 8.	Colour, Odour, 1 Dissolved Solid Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU pH Total Hardness as CaCO ₃ , mg/l Chloride as Cl, mg/l Res. Free chlorine as Cl ₂ mg/l Total Dissolved Solids, mg/l Calcium as	Is, Calcium, Greury, Cadmi rear Oil, Alkalin Canteen-Jamadoba Colliery 1 Agreeable Agreeable NIL 8.4 308 71.8 NIL 580 67.2	Copper, M um, Arsenia ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba Washery 1 Agreeable 2.0 8.2 300 67.88 NIL 584 60.8	anganese, c, Cyanide, m & Boron. <u>RESULT</u> UE Canteen Digwadih Colliery 1 Agreeable Agreeable NIL 8.2 304 73.7 NIL 605 72	Sulphate, N Lead, Zir Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable NIL 8.1 220 27.2 NIL 310 44.8	Itrate, Fit c, Total IS as p 10500: Desirab le 5.00 Agreeabl e 1.0 6.5-8.5 200 250 0.20 500 500 75	oride, P Coliform 2012 Permi ssible 15.0 Agree able 5.0 No. Relax. 600 1000 1.0 2000 200	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 IS 3025 (P- 16):1984 IS 3025 (P- 16):1984
SI. No 1. 2. 3. 4. 5. 6. 7. 8. 9.	Colour, Odour, 1 Dissolved Solid Compound, Me Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU pH Total Hardness as CaCO ₃ , mg/l Chloride as Cl, mg/l Res. Free chlorine as Cl ₂ mg/l Total Dissolved Solids, mg/l Calcium as CaCO ₃ , mg/l	Is, Calcium, Greury, Cadmi rear Oil, Alkalin Canteen-Jamadoba Colliery 1 Agreeable Agreeable NIL 8.4 308 71.8 NIL 580	Copper, M um, Arsenia ity, Aluminiu <u>TEST R</u> VAL Canteen- Jamadoba Washery 1 Agreeable 2.0 8.2 300 67.88 NIL 584	anganese, c, Cyanide, m & Boron. ESULT UE Canteen Digwadih Colliery 1 Agreeable Agreeable NIL 8.2 304 73.7 NIL 605	Sulphate, N Lead, Zir Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable NIL 8.1 220 27.2 NIL 310	Itrate, Fit c, Total IS as p 10500: Desirab le 5.00 Agreeabl e 1.0 6.5-8.5 200 250 0.20 500 500 575 0.05	Per IS 2012 Permi ssible 15.0 Agree able 5.0 No. Relax. 600 1000 1.0 2000	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 IS 3025 (P- 16):1984 IS 3025 (P- 40):1991 IS 3025 (P- 42):1992

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D S .	(A Constitut ISO/IEC 17025:2017, IS	NABL AC	Aborato CREDITEL f Quality Co 5,ISO (OHS)	ry uncil of Inc	lia)	S P J E V P F	harkhand - mail ID: sir Vebsite: ad hone: 0326 ax: 0326-2	strial Área, arh, Dist Dhanb 828107 ndriaditi@gmail.c itimdservices.cor 5-2952377 (O),
SI.			VAL	10		15 26	per IS	Treat
No.	PARAMETERS OF TEST	Canteen-	VAL	Canteen	Canteen		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 (P- 59):2006
13.	Sulphate as SO ₄ , mg/l	50.14	57.6	59.7	37.9	200	400	IS 3025 (P- 24):1986
14.	Nitrate as NO ₃ , mg/l	4.6	6.2	4.2	3.7	45	No. Relax	IS 3025 (P- 34):1988
15.	Fluoride as F, mg/l	0.40	0.32	0.28	0.35	1.0	1.5	IS 3025 (P- 60):2008
16.	Phenolic Compound as (C6H5OH) mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.001	0.002	IS 3025 (P- 43):1992
17.	Mercury as Hg, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.001	No. Relax	IS 3025 (P- 48):1994
18.	Cadmium as Cd, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.003	No. Relax	IS 3025 (P- 41):1992
19.	Arsenic as As, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.01	No. Relax	IS 3025 (P- 37):1988
20.	Cyanide as CN, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.05	No. Relax	IS 3025 (P- 27):1986
21.	Lead as Pb, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.01	No. Relax	IS 3025 (P- 47):1994
22.	Zinc as Zn, mg/l,	0.18	0.22	0.20	0.12	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 ₃ , mg/l,	499.2	489.6	518.4	196.8	200	600	IS 3025 (P- 23):1983
27.	Aluminium as Al, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.03	0.2	IS 3025 (P- 55):2003
28.	Boron as B, mg/l	B.D.L	B.D.L	B.D.L	B.D.L	0.5	1.0	IS 3025 (P- 57):2005

NOTE: BDL - Below Detection Limit

Sr. Chemist Aditi R&D Services

Technical Manager Aditi R&D Services, Sindri



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	R D S	(A Cons 17025:201	NABI tituent Boa 7, ISO 9001	g Labor ACCRED	natory DITED ity Council	cil of Inc	fia)		P.O Dom Jherkhand Email ID: Website: 0 Phone: 0 Fax: 0326	lustrial Àrea, Ingarh, Dist Dha d - 828107 sindriaditi@gma aditimdservices. 326-2952377 0-2952377 0-471358492, 094	il.com com
			TEST	REPORT	OF GRO	DUND	NATER	1/2/2/93			
	 Work Samp Date 	of Sample		JAMAI DIST : 470009 : 1. 2. 3. 4. 5. 6.	STEEL DOBA G DHANB 2573/93 Purnad Digwad Kendua Upper I Kalimel 6&7 Pit 0.05.202	LIMITEI ROUP AD (JH. 2 Dt. 3 ih (Jor ih 10 N ih 10 N i	D PLANT, ARKHAN 20.07.202 apokhar) o F & J sti handir Ihya Nag	ID) 21			;
	• Date • Test	of Testing		: Ci In Si Fi Ai Hi Ai	on, Chlor olids, Cal luoride, P rsenic, C exavalent luminium	our, Tas ide, Res cium, Co henolic yanide, I t Chrom & Boro	ste, Turbio . Free chl opper, M Compour Lead, Zino ium, Mino	dity, pH, orine, T anganes nd, Merc c, Total	otal Diss se, Sulph cury, Cad Coliform,	olved ate, Nitrate, mium,	
S1.		of Testing	3	: Ci Si Fi Ai Hi AI TES	olour, Od on, Chlor olids, Cal luoride, P rsenic, C exavalent luminium T RESU	our, Tas ide, Res cium, Co henolic yanide, I t Chrom & Boro	ste, Turbio . Free chl opper, M Compour Lead, Zino ium, Mino	dity, pH, orine, T anganes nd, Merc c, Total eral Oil,	otal Disse se, Sulph cury, Cad Coliform, Alkalinity	olved ate, Nitrate, mium, /,	1
1000	• Test	Purnadih (Jorapok har)	Digwadih 10 No F&J	: Ci In Si Fi Ai Hi Ai	olour, Od on, Chlor olids, Cal luoride, P rsenic, C exavalent luminium T RESU	our, Tas ide, Res cium, Co henolic yanide, I t Chrom & Boro	ete, Turbio . Free chl opper, M Compour Lead, Zino ium, Mino n. 6&7 Pits (Ayodh ya	dity, pH, orine, T anganes nd, Merc c, Total eral Oil, IS as	otal Diss se, Sulph cury, Cad Coliform,	olved ate, Nitrate, mium,	
No	Test PARAME-TERS OF TEST Colour,	Purnadih (Jorapok	Digwadih	: Co In Sc FI An Hi Al TES VALUE	olour, Od on, Chlor olids, Cal luoride, P rsenic, C exavaleni luminium T RESU Upper Dunga	our, Tas ide, Res cium, Ca henolic yanide, I t Chrom & Boro LT Kalim ela Kalim	ete, Turbic . Free chl opper, M Compour Lead, Zinc nium, Mino on. 6&7 Pits (Ayodh	dity, pH, orine, T anganes nd, Merc c, Total eral Oil, IS as 1050 Desir-	otal Diss se, Sulph cury, Cad Coliform, Alkalinity per IS 0:1991 Permi-	olved ate, Nitrate, mium, /, Test Method • IS 3025 (P-	
1.	Test PARAME-TERS OF TEST	Purnadih (Jorapok har) 2	Digwadih 10 No F&J 2	: Ci Iri Si Fi Ai Hi Al <u>TES</u> VALUE Kenduadi h Basti	olour, Od on, Chlor olids, Cal luoride, P rsenic, C exavaleni luminium T RESU Upper Dunga ri 1	our, Tas ide, Res cium, Co henolic yanide, I t Chrom & Boro LT Kalim ela Kalim andir 1	ete, Turbid . Free chl opper, M Compour Lead, Zinn hium, Minn m. 6&7 Pits (Ayodh ya Nagri) 2	dity, pH, orine, T anganes nd, Merc c, Total eral Oil, IS as 1050 Desir- able 5	otal Diss se, Sulph cury, Cad Coliform, Alkalinity per IS 0:1991 Permi- ssible 15	olved ate, Nitrate, mium, /, Test Method	
1. 2.	Test PARAME-TERS OF TEST Colour, (Hazen Unit)	Purnadih (Jorapok har)	Digwadih 10 No F&J	: Ci Iri Si Fi Ai Hi AI TES VALUE Kenduadi h Basti	olour, Od on, Chlor olids, Cal luoride, P rsenic, C exavalent luminium T RESU Upper Dunga ri	our, Tas ide, Res cium, Ce henolic yanide, I t Chrom & Borc LT Kalim ela Kalim andir	ete, Turbio . Free chl opper, M Compour Lead, Zino ium, Mino on. 6&7 Pits (Ayodh ya Nagri)	dity, pH, orine, T anganes nd, Merc c, Total eral Oil, IS as 1050 Desir- able	otal Diss se, Sulph cury, Cad Coliform, Alkalinity per IS 0:1991 Permi- ssible	olved ate, Nitrate, mium, /, Test Method • IS 3025 (P-	
1. 2. 3.	• Test PARAME-TERS OF TEST Colour, (Hazen Unit) Temperature [®] C Electrical Conductivity, µmhos/cm Total Dissolved	Purnadih (Jorapok har) 2 29	Digwadih 10 No F&J 2 30	: Ci Iri Si Fi Ai Hi Al <u>TES</u> VALUE Kenduadi h Basti	olour, Od on, Chlor olids, Cal luoride, P rsenic, Cy exavalent luminium T RESU Upper Dunga ri 1 28	our, Tas ide, Res cium, Ca henolic yanide, I t Chrom & Boro LT Kalim ela Kalim andir 1 29	ete, Turbic . Free chl opper, M Compour Lead, Zinn num, Minn num, Minn	dity, pH, orine, T anganes nd, Merc c, Total eral Oil, IS as 1050 Desir- able 5 -	otal Diss se, Sulph cury, Cad Coliform, Alkalinity per IS 0:1991 Permi- ssible 15	olved ate, Nitrate, mium, /, Test Method IS 3025 (P- 4):2021	
No 1. 2. 3.	• Test PARAME-TERS OF TEST Colour, (Hazen Unit) Temperature ⁸ C Electrical Conductivity, µmhos/cm	Purnadih (Jorapok har) 2 29 1140	Digwadih 10 No F&J 2 30 1107	: C- Ira Sa Fl An Ha Al <u>TES</u> VALUE Kenduadi h Basti 1 30 780	olour, Od on, Chlor olids, Cal luoride, P rsenic, C exavaleni luminium T RESU Upper Dunga ri 1 28 880	our, Tas ide, Res cium, Ca henolic yanide, I t Chrom & Borc LT Kalim ela Kalim andir 1 29 950	ete, Turbic . Free chl opper, M Compour Lead, Zinc ium, Mino on. 6&7 Pits (Ayodh ya Nagri) 2 29 860	dity, pH, orine, T anganes nd, Merc c, Total eral Oil, IS as 1050 Desir- able 5 - 500 6.5-	otal Disse se, Sulph cury, Cad Coliform, Alkalinity per IS 0:1991 Permi- ssible 15 - 2000 No	olved ate, Nitrate, mium, /, Test Method IS 3025 (P- 4):2021 IS 3025(P- 16):1984 IS-3025(P-	
No 1. 2. 3. 4.	• Test PARAME-TERS OF TEST Colour, (Hazen Unit) Temperature ^a C Electrical Conductivity, µmhos/cm Total Dissolved Solids, mg/l pH Total Hardness	Purnadih (Jorapok har) 2 29 1140 740	Digwadih 10 No F&J 2 30 1107 720	: Constant Index Selection International Constant Constant International	olour, Od on, Chlor olids, Cal luoride, P rsenic, C exavalent luminium T RESU Upper Dunga ri 1 28 880 570	our, Tas ide, Res cium, Ca henolic yanide, I t Chrom & Boro LT Kalim ela Kalim andir 1 29 950 620	ete, Turbid . Free chil Compour Lead, Zind ium, Mindon. 6&7 Pits (Ayodh ya Nagri) 2 29 860 560	dity, pH, orine, T anganes nd, Merc c, Total (eral Oil, IS as 1050 Desir- able 5 -	otal Diss se, Sulph cury, Cad Coliform, Alkalinity per IS 0:1991 Permi- ssible 15 - - 2000	olved ate, Nitrate, mium, /, Test Method IS 3025 (P- 4):2021 IS 3025(P- 16):1984 IS-3025(P- 11):1983 IS 3025(P-	
No 1. 2. 3. 4. 5.	• Test PARAME-TERS OF TEST OF TEST Colour, (Hazen Unit) Temperature ⁸ C Electrical Conductivity, µmhos/cm Total Dissolved Solids, mg/l pH Total Hardness as CaCO ₃ , mg/l Calcium as Ca,	Purnadih (Jorapok har) 2 29 1140 740 7.7	Digwadih 10 No F&J 2 30 1107 720 7.5	: C- Ird Sci Fi An Hi Al TES VALUE Kenduadi h Basti 1 30 780 508 7.7	olour, Od on, Chlor olids, Cal luoride, P resenic, C exavalent luminium T RESU Upper Dunga ri 1 28 880 570 7.5	our, Tas ide, Res cium, Ca henolic yanide, I t Chrom & Boro LT Kalim ela Kalim andir 1 29 950 620 7.1	ete, Turbid . Free chil copper, M Compour Lead, Zind ium, Mindon 6&7 Pits (Ayodh ya Nagri) 2 29 860 560 7.9	dity, pH, orine, T anganes ad, Merc c, Total (eral Oil, IS as 1050 Desir- able 5 - 500 6.5- 8.5	otal Disse se, Sulph cury, Cad Coliform, Alkalinity per IS 0:1991 Permi- ssible 15 - 2000 No Relax	olved ate, Nitrate, mium, /, Test Method	
No 1. 2. 3. 4. 5. 6. 7.	• Test PARAME-TERS OF TEST Colour, (Hazen Unit) Temperature ^a C Electrical Conductivity, µmhos/cm Total Dissolved Solids, mg/l pH Total Hardness as CaCO ₃ , mg/l	Purnadih (Jorapok har) 2 29 1140 740 7.7 580	Digwadih 10 No F&J 2 30 1107 720 7.5 472	: Cirilian Signal File An TES VALUE Kenduadi h Basti 1 30 780 508 7.7 356	olour, Od on, Chlor olids, Cal luoride, P rsenic, C exavalent luminium T RESU Upper Dunga ri 1 28 880 570 7.5 336	our, Tas ide, Res cium, Ca henolic yanide, I t Chrom & Boro LT Kalim ela Kalim andir 1 29 950 620 7.1 304	ste, Turbic . Free chl opper, M Compour Lead, Zinn ium, Minnon 6&7 Pits (Ayodh ya Nagri) 2 29 860 560 7.9 392	dity, pH, orine, T anganess nd, Merc c, Total i eral Oil, IS as 1050 Desir- able 5 - - 500 6.5- 8.5 200	otal Disse se, Sulph: cury, Cad Coliform, Alkalinity per IS 0:1991 Permi- ssible 15 - 2000 No Relax 600	olved ate, Nitrate, mium, /, Test Method	
SI. No 1. 2. 3. 4. 5. 6. 7. 8. 9.	• Test PARAME-TERS OF TEST OF TEST Colour, (Hazen Unit) Temperature ^a C Electrical Conductivity, µmhos/cm Total Dissolved Solids, mg/l pH Total Hardness as CaCO ₃ , mg/l Calcium as Ca, mg/l Magnesium as	Purnadih (Jorapok har) 2 29 1140 740 7.7 580 150.4	Digwadih 10 No F&J 2 30 1107 720 7.5 472 161.6	: C- Ira Si FI Ara Ha All <u>TES</u> VALUE Kenduadi h Basti 1 30 780 508 7.7 356 57.6	olour, Od on, Chlor olids, Cal uoride, P rsenic, Cy exavalent luminium T RESU Upper Dunga ri 1 28 880 570 7.5 336 60.8	our, Tas ide, Res cium, Ca henolic yanide, I t Chrom & Boro LT Kalim ela Kalim andir 1 29 950 620 7.1 304 56	ete, Turbic . Free chil opper, M Compour Lead, Zinn ium, Minn m. 6&7 Pits (Ayodh ya Nagri) 2 29 860 560 7.9 392 70.4	dity, pH, orine, T anganes and, Merc , Total i eral Oil, IS as 1050 Desir- able 5 - 5 - 500 6.5- 8.5 200 75	otal Disse se, Sulph: cury, Cad Coliform, Alkalinity per IS 0:1991 Permi- ssible 15 2000 No Relax 600 200	olved ate, Nitrate, mium, /, Test Method	

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.

2

Annexure- II



ADITI R&D SERVICES

Testing Laboratory

NABL ACCREDITED

(A Constituent Board of Quality Council of India) ISO/IEC 17025:2017, ISO 9001:2015,ISO (OHSAS) 45001:2018 Certified Plot No. - I-B-17 (P) Sindri, Industrial Area, P.O.- Domgarh, Dist.- Dhanbad Jharkhand - 828107 Email ID: sindriaditi@gmail.com Website: aditirndservices.com Phone: 0326-2952377 (O), Fax: 0326-2952377 Mobile: 09471358492, 09431512608

SI. No	PARAMETERS OF TEST			VALUE					per IS 0:1991	Test Method
		Purnadih (Jorapok har)	Digwadih 10 No F&J	Kenduadih Basti	Upper Dungari	Kalim ela Kalim andir	6&7 Pits (Ayo dhya Nagr i)	Desir - able	Permis -sible	z
11	Sulphate as SO ₄ , mg/l	52.8	63.6	65.2	62.8	59.98	49.9 8	200	400	IS 3025(P- 24):1986
12.	Nitrate as NO ₃ , mg/l	9.6	9.2	9.7	8.3	11.9	9.0	45	No. Relax	IS 3025(P- 34):1988
13.	Alkalinity as CaCO ₃ , mg/l,	456	427.2	345.6	441.6	374.4	432	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.	BD.L	BDL	0.01	No. Relax	IS 3025(P- 47):1994
15.	Zinc as Zn, mg/l,	0.28	0.18	0.20	0.22	0.32	0.24	5	15	IS 3025(P- 42):1992
16.	Iron a Fe, mg/l	0.2	0.24	0.29	0.28	0.26	0.14	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	BDL	BDL	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	BDL	BDL	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	BDL	BDL	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	BDL	B.D.	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.	B.D.	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.	B.D.	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.	B.D.	0.05	No. Relax	IS 3025(P- 52):2003

OTE: BDL - Below Detection Limit

Sr. Chemist Aditi R&D Services



Technical Manager 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.

S	ADITI R				Plot No I-B-17 (P) Sindri, Industrial Area, P.O Domgarh, Dist - Dhanbi
JA		ing Labora			Iharkhand - 828107
D)		the second s		1	Email ID: sindriaditi@gmail.co Website: aditimdservices.com
ISO/	(A Constituent Bo IEC 17025:2017, ISO 900			ia)	Phone: 0326-2952377 (O) Mobile: 09471358492, 09431
	- ARDS/24-25/AAQ/1				e: 14.08.2024
	TEST RE	PORT OF A	MBIENT AI	R QUALITY	
	-				
● Na	nme of the industry	TATA S	TA STEEL, J TEEL LIMIT OBA GROUI DHANBAD (ED	
• w	ork Order Ref. NO.:	: 4700126	557/932 Date	:- 29/05/2024	
• Da	te of Sample Collectio	on : 07/08/202	4 To 08/08/20	24	
	te of Testing		24 To 13/08/2		
• •	le of resultio	: 10/08/20	24 10 13/00/2		
	st Procedure	: As per IS			
	st Procedure	: As per IS	-5182 RESULTS		
	st Procedure	: AsperIS <u>TEST</u> ION – 6&71	-5182 RESULTS		ity 75%
	st Procedure	: AsperIS <u>TEST</u> ION – 6&71	-5182 RESULTS PITS COLLIE	RY OFFICE Avg. Humid	ity 75%
• Te	st Procedure LOCAT Avg. Ambient Te	: As per IS <u>TEST</u> ION - 6 & 7 I mperature	-5182 RESULTS PITS COLLIE 32ºC	RY OFFICE Avg. Humid NAAQ - CPC	
• Te	LOCAT Avg. Ambient Te Particulars	: As per IS <u>TEST</u> ION – 6 & 7 I mperature I ₁₀), µg/m ³	-5182 RESULTS PITS COLLIE 32ºC Value	RY OFFICE Avg. Humid NAAQ - CPC 100	BSTANDARD
• Te SI No. 1.	LOCAT Avg. Ambient Te Particulars Particulate Matter (PM	: As per IS <u>TEST</u> ION – 6 & 7 I mperature I ₁₀), µg/m ³	-5182 RESULTS PITS COLLIE 32ºC Value 76.72	RY OFFICE Avg. Humid NAAQ - CPC 100 60	EB STANDARD μg/m ³
• Te SI No. 1. 2.	LOCAT Avg. Ambient Te Particulars Particulate Matter (PM Particulate Matter (PM	: As per IS <u>TEST</u> ION – 6 & 7 I mperature I ₁₀), µg/m ³	-5182 RESULTS PITS COLLIE 32°C Value 76.72 44.61	RY OFFICE Avg. Humid NAAQ - CPC 100 60 80	CB STANDARD μg/m ³ μg/m ^{3**}
• Te SI No. 1. 2. 3.	LOCAT Avg. Ambient Te Particulars Particulate Matter (PM Particulate Matter (PM SO ₂ , µg/m ³	: As per IS <u>TEST</u> ION – 6 & 7 I mperature I ₁₀), µg/m ³	-5182 RESULTS PITS COLLIE 32°C Value 76.72 44.61 17.13	RY OFFICE Avg. Humid NAAQ - CPC 100 60 80 80	EB STANDARD μg/m ³ μg/m ³ μg/m ³
• Te SI No. 1. 2. 3. 4.	LOCAT Avg. Ambient Te Particulars Particulate Matter (PM Particulate Matter (PM SO ₂ , µg/m ³ NO ₂ , µg/m ³	: As per IS <u>TEST</u> ION – 6 & 7 I mperature I ₁₀), µg/m ³	-5182 RESULTS PITS COLLIE 32°C Value 76.72 44.61 17.13 25.66	RY OFFICE Avg. Humid NAAQ - CPC 100 60 80 80 180	EB STANDARD µg/m ³ µg/m ³ µg/m ³ µg/m ³
• Te SI No. 1. 2. 3. 4. 5.	LOCAT Avg. Ambient Te Particulars Particulate Matter (PM Particulate Matter (PM SO ₂ , µg/m ³ NO ₂ , µg/m ³ Ozone, µg/m ³	: As per IS <u>TEST</u> ION – 6 & 7 I mperature I ₁₀), µg/m ³	-5182 RESULTS PITS COLLIE 32°C Value 76.72 44.61 17.13 25.66 15.24	RY OFFICE Avg. Humid NAAQ - CPC 100 60 80 80 180 400	EB STANDARD µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³
• Te SI No. 1. 2. 3. 4. 5. 6.	LOCAT Avg. Ambient Te Particulars Particulate Matter (PM Particulate Matter (PM SO ₂ , µg/m ³ NO ₂ , µg/m ³ NH ₃ , µg/m ³	: As per IS <u>TEST</u> ION – 6 & 7 I mperature I ₁₀), µg/m ³	-5182 RESULTS PITS COLLIE 32°C Value 76.72 44.61 17.13 25.66 15.24 14.10	RY OFFICE Avg. Humid NAAQ - CPC 100 60 80 80 180 400 4 n	EB STANDARD µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³
• Te SI No. 1. 2. 3. 4. 5. 6. 7.	LOCAT Avg. Ambient Te Particulars Particulate Matter (PM Particulate Matter (PM SO ₂ , µg/m ³ NO ₂ , µg/m ³ NO ₂ , µg/m ³ NH ₃ , µg/m ³ CO, mg/m ³	: As per IS <u>TEST</u> ION – 6 & 7 I mperature I ₁₀), µg/m ³	-5182 RESULTS PITS COLLIE 32°C Value 76.72 44.61 17.13 25.66 15.24 14.10 0.77	RY OFFICE Avg. Humid NAAQ - CPC 100 60 80 80 180 400 41 1	EB STANDARD µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³
• Te SI No. 1. 2. 3. 4. 5. 6. 7. 8.	LOCAT Avg. Ambient Te Particulars Particulate Matter (PM Particulate Matter (PM SO ₂ , µg/m ³ NO ₂ , µg/m ³ NH ₃ , µg/m ³ CO, mg/m ³ Pb, µg/m ³	: As per IS <u>TEST</u> ION – 6 & 7 I mperature I ₁₀), µg/m ³	-5182 RESULTS PITS COLLIE 32°C Value 76.72 44.61 17.13 25.66 15.24 14.10 0.77 BDL	RY OFFICE Avg. Humid NAAQ - CPC 100 60 80 80 180 400 4 n 1 µ 6 r	EB STANDARD µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³
• Te SI No. 1. 2. 3. 4. 5. 6. 7. 8. 9.	LOCAT Avg. Ambient Te Particulars Particulate Matter (PM Particulate Matter (PM SO ₂ , µg/m ³ NO ₂ , µg/m ³ Ozone, µg/m ³ NH ₃ , µg/m ³ CO, mg/m ³ Pb, µg/m ³ As, ng/m ³	: As per IS <u>TEST</u> ION – 6 & 7 I mperature I ₁₀), µg/m ³	-5182 RESULTS PITS COLLIE 32°C Value 76.72 44.61 17.13 25.66 15.24 14.10 0.77 BDL BDL	RY OFFICE Avg. Humid NAAQ - CPC 100 60 80 80 180 400 400 4 n 1 µ 6 r 20	EB STANDARD µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³ µg/m ³ ng/m ³ ng/m ³

Technical Manager Aditi R&D Services, Sindri

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Statements :

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Sr. Chemist

Aditi R&D Services

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DS		& D SE ing Labora BL ACCREDIT	tory	ES	Plot No I-B-1 Sindri, Industria P.O Domgarh, Jharkhand - 82 Email ID: sindri	I Area, Dist - Dhanbao 8107 aditi@gmail.cor
ISO/	(A Constituent Bo IEC 17025:2017, ISO 900	and the second se		and the second se	Website aditim Phone 0326-29 Mobile: 094713	952377 (O)
Ref. No.:	- ARDS/24-25/ AAQ/2			Dat	e: 14.08.202	24
	TEST RE	PORT OF A	MBIENT AI	R QUALITY		
• Na	nme of the industry	TATA S	TA STEEL, J TEEL LIMITI OBA GROUI DHANBAD (J	ED		
• W	ork Order Ref. NO.:	: 4700126	557/932 Date	:- 29/05/2024		
• Da	te of Sample Collectio	on : 08.08.202	4 to 09.08.2	024		
	te of Testing		24 to 13.08.2			
	st Procedure	: As per IS				
	139		RESULTS			
		TEST	RESULTS	NO. DIGWADIH		
		TEST	RESULTS	NO. DIGWADIH Avg. Humid		5%
SI No.	LOCATION	TEST	RESULTS COLONY, 12	Avg. Humi		- 20 D C C C
SI No. 1.	LOCATION Avg. Ambient Te	TEST	RESULTS COLONY, 12 32 ⁰ C	Avg. Humid NAAQ - CP	dity 7	- 20 D C C C
	LOCATION Avg. Ambient Te Particulars	<u>TEST</u>	RESULTS COLONY, 12 32ºC Value	Avg. Humid NAAQ - CP 100	dity 7 CB STANDA	- 20 D C C C
1.	LOCATION Avg. Ambient Te Particulars Particulate Matter (PM	<u>TEST</u>	RESULTS COLONY, 12 32 ⁰ C Value 70.35	Avg. Humid NAAQ - CP 100 60	dity 7 CB STANDA 0 µg/m³	
1. 2.	LOCATION Avg. Ambient Te Particulars Particulate Matter (PM Particulate Matter (PM	<u>TEST</u>	RESULTS COLONY, 12 32°C Value 70.35 39.28	Avg. Humid NAAQ - CP 100 60 80	dity 7 CB STANDA Dµg/m ³ Pµg/m ³	- 20 D C C C
1. 2. 3. 4. 5.	LOCATION Avg. Ambient Te Particulars Particulate Matter (PM Particulate Matter (PM SO ₂ , µg/m ³	<u>TEST</u>	RESULTS COLONY, 12 32°C Value 70.35 39.28 18.14	Avg. Humid NAAQ - CP 100 60 80 80	dity 7 CB STANDA 0 µg/m ³ 0 µg/m ³ 0 µg/m ³	
1. 2. 3. 4.	LOCATION Avg. Ambient Te Particulars Particulate Matter (PM Particulate Matter (PM SO ₂ , µg/m ³	<u>TEST</u>	RESULTS COLONY, 12 32°C Value 70.35 39.28 18.14 29.13	Avg. Humid NAAQ - CP 100 60 80 80 80	dity 7 CB STANDA 0 µg/m ³ 0 µg/m ³ 0 µg/m ³	
1. 2. 3. 4. 5.	LOCATION Avg. Ambient Te Particulars Particulate Matter (PM Particulate Matter (PM SO ₂ , µg/m ³ NO ₂ , µg/m ³	<u>TEST</u>	RESULTS COLONY, 12 32°C Value 70.35 39.28 18.14 29.13 16.65	Avg. Humid NAAQ - CP 100 60 80 80 180 40	dity 7 CB STANDA 0 µg/m ³ 0 µg/m ³ 0 µg/m ³ 0 µg/m ³	
1. 2. 3. 4. 5. 6.	LOCATION Avg. Ambient Te Particulars Particulate Matter (PM Particulate Matter (PM SO ₂ , µg/m ³ NO ₂ , µg/m ³ Ozone, µg/m ³ NH ₃ , µg/m ³	<u>TEST</u>	RESULTS COLONY, 12 32°C Value 70.35 39.28 18.14 29.13 16.65 14.10	Avg. Humid NAAQ - CP 100 60 80 80 180 400 40 4	dity 7 CB STANDA 0 µg/m ³ 0 µg/m ³ 0 µg/m ³ 0 µg/m ³ 0 µg/m ³	
1. 2. 3. 4. 5. 6. 7.	LOCATION Avg. Ambient Te Particulars Particulate Matter (PM Particulate Matter (PM SO ₂ , µg/m ³ NO ₂ , µg/m ³ NO ₂ , µg/m ³ NH ₃ , µg/m ³ CO, mg/m ³	<u>TEST</u>	RESULTS COLONY, 12 32°C Value 70.35 39.28 18.14 29.13 16.65 14.10 0.40	Avg. Humid NAAQ - CP 100 60 80 80 180 400 4	dity 7 CB STANDA 0 µg/m ³ 0 µg/m ³ 0 µg/m ³ 0 µg/m ³ 0 µg/m ³ 0 µg/m ³ 0 µg/m ³	
1. 2. 3. 4. 5. 6. 7. 8.	LOCATION Avg. Ambient Te Particulars Particulate Matter (PM Particulate Matter (PM SO ₂ , µg/m ³ NO ₂ , µg/m ³ Ozone, µg/m ³ NH ₃ , µg/m ³ CO, mg/m ³	<u>TEST</u>	RESULTS COLONY, 12 32°C Value 70.35 39.28 18.14 29.13 16.65 14.10 0.40 BDL	Avg. Humid NAAQ - CP0 100 60 80 80 180 400 40 40 40 6	dity 7 CB STANDA 0 µg/m ³ 0 µg/m ³ 0 µg/m ³ 0 µg/m ³ 0 µg/m ³ mg/m ³ µg/m ³	
1. 2. 3. 4. 5. 6. 7. 8. 9.	LOCATION Avg. Ambient Te Particulars Particulate Matter (PM Particulate Matter (PM SO ₂ , µg/m ³ NO ₂ , µg/m ³ Ozone, µg/m ³ NH ₃ , µg/m ³ CO, mg/m ³ Pb, µg/m ³ As, ng/m ³	<u>TEST</u>	RESULTS COLONY, 12 32°C Value 70.35 39.28 18.14 29.13 16.65 14.10 0.40 BDL BDL	Avg. Humid NAAQ - CP 100 60 80 80 180 400 41 1 6 20	dity 7 CB STANDA 0 µg/m ³ 0 µg/m ³ 0 µg/m ³ 0 µg/m ³ 0 µg/m ³ mg/m ³ µg/m ³ ng/m ³	

Sr. Chemist Aditi R&D Services



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Technical Manager 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 measurement.
- 3. This particular test report cannot be reproduced except in full without prior permission of Quality Manager of the laboratory.

R D S			ing Labora	tory ED		Plot No I-B-17 (P) Sindri, Industrial Area, P.O Domgarh, Dist - Dhanba Jharkhand - 828107 Email ID: sindriadit@gmail.co Website: aditirndservices.com
	ISO/I	EC 17025:2017, ISO 90				Phone: 0326-2952377 (O) Mobile: 09471358492, 09431
Re	ef. No.: -	ARDS/24-25/ AAQ/3			Da	te: 14.08.2024
		TEST RE	PORT OF A	MBIENT AI	R QUALITY	
•	Nar	me of the industry	TATA S JAMAD	TEEL LIMITI OBA GROUI	19755-0000-20	
:	Dat	ork Order Ref. NO. te of Sample Collectio te of Testing	: 4700126 on : 08.08.202	557/932 Date	:- 29/05/2024 024	
•	Tes	st Procedure	: As per IS	-5182 RESULTS		
Ē						
ļ		LOCATION -			REA , JAMADO	
	CI N-	Avg. Ambient Te		32ºC	Avg. Hum	idity 75%
	SI No.	Avg. Ambient Te Particulars	mperature	32ºC Value	Avg. Hum NAAQ - CF	idity 75% PCB STANDARD
	1.	Avg. Ambient Te Particulars Particulate Matter (PM	mperature M10), μg/m ³	32ºC Value 76.48	Avg. Hum NAAQ - CF 10	idity 75% PCB STANDARD 00 μg/m ³
	1. 2.	Avg. Ambient Te Particulars Particulate Matter (PM Particulate Matter (PM	mperature M10), μg/m ³	32°C Value 76.48 50.14	Avg. Hum NAAQ - CF 10 6	idity 75% PCB STANDARD 00 μg/m ³ 0 μg/m ³
	1. 2. 3.	Avg. Ambient Te Particulars Particulate Matter (PM Particulate Matter (PM SO ₂ , µg/m ³	mperature M10), μg/m ³	32°C Value 76.48 50.14 14.90	Avg. Hum NAAQ - CF 10 6 8	idity 75% PCB STANDARD 00 μg/m ³ 0 μg/m ³ 0 μg/m ³
	1. 2. 3. 4.	Avg. Ambient Te Particulars Particulate Matter (PM Particulate Matter (PM SO ₂ , µg/m ³ NO ₂ , µg/m ³	mperature M10), μg/m ³	32°C Value 76.48 50.14 14.90 23.25	Avg. Hum NAAQ - CF 10 6 8 8	idity 75% PCB STANDARD 00 μg/m ³ 0 μg/m ³ 0 μg/m ³
	1. 2. 3.	Avg. Ambient Te Particulars Particulate Matter (PM Particulate Matter (PM SO ₂ , µg/m ³ NO ₂ , µg/m ³ Ozone, µg/m ³	mperature M10), μg/m ³	32°C Value 76.48 50.14 14.90 23.25 16.38	Avg. Hum NAAQ - CF 10 6 8 8 8	idity 75% PCB STANDARD 00 µg/m ³ 0 µg/m ³ 0 µg/m ³ 0 µg/m ³
	1. 2. 3. 4. 5.	Avg. Ambient Te Particulars Particulate Matter (PM Particulate Matter (PM SO ₂ , µg/m ³ NO ₂ , µg/m ³	mperature M10), μg/m ³	32°C Value 76.48 50.14 14.90 23.25	Avg. Hum NAAQ - CF 10 6 8 8 8 11 12 40	idity 75% PCB STANDARD 00 μg/m ³ 0 μg/m ³ 0 μg/m ³

12. Benzoapyrene ng/m³ NOTE: BDL - Below Detection Limit

Benzene, µg/m3

As, ng/m³

Ni, ng/m³

Sr. Chemist

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11.

Aditi R&D Services



BDL

BDL

BDL

BDL

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Technical Manager Aditi R&D Services, Sindri

6 ng/m³

20 ng/m³

5 µg/m³

1 ng/m³

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 measurement.

S .		ng Laborat	tory ED		Jharkhand - Email ID sir Website: ad	strial Area, iarh, Dist - Dhanbad - 828107 ndriaditi@gmail.com itirndservices.com
ISO/I	EC 17025:2017, ISO 9001	ADDRESS OF THE PARTY OF THE PARTY OF		Contraction of the second s		6-2952377 (O) 71358492, 0943151260
Ref. No.:	ARDS/24-25/ AAQ/4			Da	ite: 14.08.2	2024
	TEST REF	PORT OF A	MBIENT AI	R QUALITY		
Wa	me of the industry ork Order Ref. NO.: te of Sample Collection	TATA S1 JAMADO DIST D : 47001265	TEEL LIMITE DBA GROUE DHANBAD (. 557/932 Date	P PLANT, JHARKHAND :- 29/05/2024)	
	te of Testing st Procedure LOCATI	: As per IS-	RESULTS			
	st Procedure	: As per IS TEST F ON – TATA	-5182 RESULTS		idity	75%
	st Procedure	: As per IS TEST F ON – TATA	-5182 RESULTS CENTRAL H	IOSPITAL	1012250	. 1 Par 65/
Te	t Procedure LOCATI Avg. Ambient Tem	: As per IS- TEST F ON – TATA operature	-5182 RESULTS CENTRAL H 32°C	HOSPITAL Avg. Hum NAAQ - CP	1012250	. 1 Par 65/
Te: SI No.	LOCATI Avg. Ambient Tem Particulars	: As per IS- TEST F ON – TATA perature), µg/m ³	-5182 RESULTS CENTRAL H 32ºC Value	IOSPITAL Avg. Hum NAAQ - CF 10	CB STAN	. 1 Par 65/
Te: SI No. 1.	LOCATI Avg. Ambient Tem Particulars Particulate Matter (PM10	: As per IS- TEST F ON – TATA perature), µg/m ³	-5182 RESULTS CENTRAL H 32°C Value 64.06	HOSPITAL Avg. Hum NAAQ - CP 10 6	PCB STAN 00 µg/m ³	. 1 Par 65/
Te: SI No. 1. 2.	LOCATI Avg. Ambient Tem Particulars Particulate Matter (PM10 Particulate Matter (PM2	: As per IS- TEST F ON – TATA perature), µg/m ³	-5182 RESULTS CENTRAL H 32°C Value 64.06 36.38	HOSPITAL Avg. Hum NAAQ - CP 10 6 8	РСВ STAN 00 µg/m ³ 0 µg/m ³	. 1 Par 65/
SI No. 1. 2. 3.	LOCATI Avg. Ambient Tem Particulars Particulate Matter (PM ₂ , SO ₂ , µg/m ³	: As per IS- TEST F ON – TATA perature), µg/m ³	-5182 RESULTS CENTRAL H 32°C Value 64.06 36.38 15.92	HOSPITAL Avg. Hum NAAQ - CP 10 6 8 8	РСВ STAN 00 µg/m ³ 0 µg/m ³ 0 µg/m ³	. 1 Par 65/
Tes SI No. 1. 2. 3. 4.	LOCATI Avg. Ambient Tem Particulars Particulate Matter (PM ₁₀ Particulate Matter (PM ₂ SO ₂ , µg/m ³	: As per IS- TEST F ON – TATA perature), µg/m ³	-5182 RESULTS CENTRAL H 32°C Value 64.06 36.38 15.92 23.07	IOSPITAL Avg. Hum NAAQ - CF 10 6 8 8 8	РСВ STAN 00 µg/m ³ 0 µg/m ³ 0 µg/m ³ 0 µg/m ³	. 1 Par 65/
Tes SI No. 1. 2. 3. 4. 5.	LOCATI Avg. Ambient Tem Particulars Particulate Matter (PM ₁₀ Particulate Matter (PM ₂ . SO ₂ , µg/m ³ NO ₂ , µg/m ³ Ozone, µg/m ³	: As per IS- TEST F ON – TATA perature), µg/m ³	-5182 RESULTS CENTRAL H 32°C Value 64.06 36.38 15.92 23.07 14.36	HOSPITAL Avg. Hum NAAQ - CP 10 6 8 8 8 18 18	PCB STAN 00 µg/m ³ 0 µg/m ³ 0 µg/m ³ 0 µg/m ³ 0 µg/m ³	. 1 Par 65/
Tes SI No. 1. 2. 3. 4. 5. 6.	LOCATI Avg. Ambient Tem Particulars Particulate Matter (PM ₁₀ Particulate Matter (PM ₂ SO ₂ , µg/m ³ NO ₂ , µg/m ³ Ozone, µg/m ³ NH ₃ , µg/m ³	: As per IS- TEST F ON – TATA perature), µg/m ³	-5182 RESULTS CENTRAL H 32°C Value 64.06 36.38 15.92 23.07 14.36 13.98	HOSPITAL Avg. Hum NAAQ - CP 10 6 8 8 8 18 40 40 4	РСВ STAN 20 µg/m ³ 0 µg/m ³ 0 µg/m ³ 0 µg/m ³ 30 µg/m ³ 20 µg/m ³	. 1 Par 65/
Tes SI No. 1. 2. 3. 4. 5. 6. 7.	LOCATI Avg. Ambient Tem Particulars Particulate Matter (PM ₁₀ Particulate Matter (PM ₂ SO ₂ , µg/m ³ NO ₂ , µg/m ³ Ozone, µg/m ³ NH ₃ , µg/m ³ CO, mg/m ³	: As per IS- TEST F ON – TATA perature), µg/m ³	-5182 RESULTS CENTRAL H 32°C Value 64.06 36.38 15.92 23.07 14.36 13.98 0.76	HOSPITAL Avg. Hum NAAQ - CP 10 6 8 8 8 18 40 40 4	PCB STAN 00 µg/m ³ 0 µg/m ³ 0 µg/m ³ 0 µg/m ³ 00 µg/m ³ 00 µg/m ³	. 1 Par 65/
Tes SI No. 1. 2. 3. 4. 5. 6. 7. 8.	LOCATI Avg. Ambient Tem Particulars Particulate Matter (PM ₁₀ Particulate Matter (PM ₂ SO ₂ , µg/m ³ NO ₂ , µg/m ³ Ozone, µg/m ³ NH ₃ , µg/m ³ CO, mg/m ³ Pb, µg/m ³	: As per IS- TEST F ON – TATA perature), µg/m ³	-5182 RESULTS CENTRAL H 32°C Value 64.06 36.38 15.92 23.07 14.36 13.98 0.76 BDL	HOSPITAL Avg. Humi NAAQ - CF 10 6 8 8 8 18 40 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	РСВ STAN 20 µg/m ³ 0 µg/m ³ 0 µg/m ³ 0 µg/m ³ 30 µg/m ³ 20 µg/m ³ 1 mg/m ³ 1 µg/m ³	. 1 Par 65/
Tes SI No. 1. 2. 3. 4. 5. 6. 7. 8. 9.	LOCATI Avg. Ambient Tem Particulars Particulate Matter (PM ₁₀ Particulate Matter (PM ₂ SO ₂ , µg/m ³ NO ₂ , µg/m ³ Ozone, µg/m ³ NH ₃ , µg/m ³ CO, mg/m ³ Pb, µg/m ³ As, ng/m ³	: As per IS- TEST F ON – TATA perature), µg/m ³	-5182 RESULTS CENTRAL H 32°C Value 64.06 36.38 15.92 23.07 14.36 13.98 0.76 BDL BDL	HOSPITAL Avg. Hum NAAQ - CP 10 6 8 8 8 18 40 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	PCB STAN 20 µg/m ³ 0 µg/m ³ 0 µg/m ³ 0 µg/m ³ 30 µg/m ³ 30 µg/m ³ 1 mg/m ³ 1 mg/m ³ 1 µg/m ³	. 1 Par 65/

NOTE: BDL - Below Detection Limi

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Technical Manager Aditi R&D Services, Sindri

Statements :

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		Constitu	NABI ent Boa	L ACCF ard of Q	aboratory CREDITED Quality Council of India) i,ISO (OHSAS) 45001:2018 Certified				Email ID: s Website a Phone 032	Jharkhand - 828107 Email ID sindriediti@gmail (Website: aditirndservices.co Phone: 0326-2952377 (O) Mobile: 09471358492, 0943	
	TEST	REPO	RT OF	NOIS	E (A	MBIE	NT)	LEVEL MC	NITORING		
	Ref. No	. & Date	& Date			NAME AND ADDRESS OF THE CLIENT					
AR	DS/24-25/NOISI	E/1Date	: 14.08	.2024			M/S	TATA STEE	L, JAMADOB	А,	
	Date of N	Ionitori	ng		ТА	TA ST			MADOBA GR) (JHARKHAN		
	07.08.2024 1	To 09.08.2024		-	Avg. Ambient Temperature (°C)			Average Humidity (%)	Weather Condition	Status of the plant	
	Work Order 4 Date:- 2					32		75	Clear	Running	
		1.1		MO	NITO	RING	RESL	JLTS			
SI. No	Place of Monitoring	Day Time (6 AM to 10 PM) Avg. dB(A)			Night Time (10 PM to 6 AM) Avg. dB(A)			to 6 AM)	for Industrial Area as per CPCB Noise Pollution (Regulation and Control) (Amendment) Rules , 200 notified vide S.O. 1046(E Dt. 22.11.2020 Limit in dB(A) Leq Day Night		
						MAX			Day Time	Night Time Industrial	
JAN	LOCATION MADOBA GROUP	MAX	MIN	AVG. d		MAX	MIN	AVERAGE dB(A) Leq	Industrial Area	Industria Area	
1.	Central Workshop Area	70.4	60.8	67.8	84	58.4	47.3	55.71	75	70	
2.	6 & 7 Pits Colliery Office	68.7	55.2	65.8	65.88	56.8	46.5	5.5 54.18		8.64	
						_			Residential Area	Residentia Area	
3.	Officer Colony 12 No. Digwadih	63.9	50.6	61.0	9	51.2	40.8	48.57	65	55	
									Silence Zone	Silence Zone	
4.	Tata Central Hospital	50.5	46.7	49.0	00	39.6	36.4	38.29	50	40	
,	Sr. Chemis				(LI PI DOMO	O. ARH		Jacilia Technical Ma R&D Service		

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



	Test NA (A Constituent B	&D SERVICES ing Laboratory BL ACCREDITED oard of Quality Council of India) 01:2015,ISO (OHSAS) 45001:2018 Certified	Piot 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) Mobile: 09471358492, 09431512608
Ref.	No.: - ARDS/24-25/MINER./	1 C)ate: 14.08.2024
	TEST REPOR	T OF MINERALOGICAL COMPOSI	TION
	2	OF PARTICULATE MATTER	
•	Name of the industry	: M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT,	
		DIST DHANBAD (JHARKHANI	D)
•	Work Order Ref. NO.	: 4700126557/932 Date:- 29/05/2024	
	Date of Sample Collection	on : 09.08.2024	
•	Date of Testing	: 12.08.2024 To 14.08.2024	
		TEST RESULTS	

SI No.	Particulars	Mineralogical Composition (%)					
		SiO ₂	FeO	Al ₂ O ₃	CaO		
1.	6 & 7 pits colliery office	1.98	0.14	1.38	2.68		
2.	Tata Central Hospital	2.16	0.18	1.34	2.84		

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Statements :

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DS	ADITI R&D Testing La NABL ACC (A Constituent Board of (ISO/IEC 17025:2017, ISO 9001:2015,	REDITED	cil of India)	P.O Jhan Emai Web Phon	No I-B-17 (P) n. Industrial Area, Doingarh, Dist - Dhanbad chand - 828107 I ID: sindriaditi/@gmail.com site: aditim/dservices.com le: 0326-2952377 (O) le: 09471358492, 0943151
Ref.	No.: - ARDS/24-25/SW/1			Date: 1	7.08.2024
	TEST REPOR	RT OF SU	RFACE W	ATER	
•	T/ J/ D Work Order Ref. NO.: : Sample Code :	1. Damo	GROUP PL GROUP PL NBAD (JHA 557/932 Dat odar River L	.ANT, RKHAND) e:- 29/05/2024	
• •		pH, TDS <u>TEST RESI</u>	24 To 16.08 5, Turbidity, <u>ULT</u>	, DO, BOD, CI,	
SI. No.	Date of Testing : Test :	10 08.20 pH, TDS <u>TEST RESI</u> VAI Damodar River Up	24 To 16.08 5, Turbidity, ULT LUE Damodar River Dn		F, SO₄ Test Method
0.000	Date of Testing : Test :	10 08.20 pH, TDS <u>TEST RESI</u> VAI Damodar	24 To 16.08 5, Turbidity, <u>ULT</u> LUE Damodar	Limit as	Test
No.	Date of Testing : Test : PARAMETERS OF TEST	10 08.20 pH, TDS <u>TEST RESI</u> VAI Damodar River Up Stream	24 To 16.08 5, Turbidity, ULT LUE Damodar River Dn Stream	Limit as per IS 2296 Class - C	Test Method IS-3025 (P-11): 1983
No.	Date of Testing : Test : PARAMETERS OF TEST pH	10 08.20 pH, TDS TEST RESI VAI Damodar River Up Stream 7.6	24 To 16.08 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 Testing : Test : PARAMETERS OF TEST PH Total Dissolved Solids, mg/l	10 08.20 pH, TDS TEST RESI VAI Damodar River Up Stream 7.6 397	24 To 16.08 5, Turbidity, ULT Damodar River Dn Stream 7.6 431	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
No. 1. 2. 3.	Date of Testing : Test : PARAMETERS OF TEST PH Total Dissolved Solids, mg/I Turbidity, NTU	10 08.20 pH, TDS TEST RESI VAI Damodar River Up Stream 7.6 397 5	24 To 16.08 5, Turbidity, ULT Damodar River Dn Stream 7.6 431 5	Limit as per IS 2296 Class - C 6.5 -8.5 1500	Test Method
No. 1. 2. 3. 4.	Date of Testing : Test : PARAMETERS OF TEST PH Total Dissolved Solids, mg/l Turbidity, NTU Dissolved Oxygen, mg/l Bio chemical Oxygen	10 08.20 pH, TDS TEST RESI VAI Damodar River Up Stream 7.6 397 5 4.8	24 To 16.03 5, Turbidity, ULT Damodar River Dn Stream 7.6 431 5 4.9	Limit as per IS 2296 Class - C 6.5 -8.5 1500 - 4.0 (Min)	Test Method IS-3025 (P-11): 1983 IS-3025 (P-16): 1984 IS-3025 (P-10):1984 IS-3025 (P-38):1989
No. 1. 2. 3. 4. 5.	Date of Testing : Test : PARAMETERS OF TEST PH Total Dissolved Solids, mg/l Dissolved Oxygen, mg/l Bio chemical Oxygen Demand, mg/l	10 08.20 pH, TDS TEST RESI VAI Damodar River Up Stream 7.6 397 5 4.8 1.5	24 To 16.08 5, Turbidity, ULT Damodar River Dn Stream 7.6 431 5 4.9 3.0	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 IS-3025 (P-44):1994

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Technical Manager Aditi R&D Services, Sindri

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

1	D S		ting Labo BL ACCRED loard of Quali	ratory NTED ty Council o	f India)	P J E V P	fot No I-B-17 (P) lindri, Industrial Area, 10 Domgarh, Dist Dhanbad harkhand - 828107 imail ID: sindriaditi@gmail.com Vebsite: aditirndservices.com thone: 0326-2952377 (O) fobile: 09471358492, 094315126
	Ref. No.: - ARDS/	24-25/MWD/1				Date	: 17.08.2024
	;	TEST REP	ORT OF N	INE WA	TER DIS	CHARG	E
	Name of the second s	ne industry	T J D	NS TATA S ATA STEE AMADOBA NST DHA	EL LIMITE A GROUP ANBAD (JI	D PLANT, HARKHAI	ND)
	 Work Orde 	r Ref. NO.:	: 4	700126557/	932 Date:-	29/05/202	4
	Sample C	ode	: 1 2 3	. 3 Pit	Jamadob Jamadob Pits Colli	a Colliery	
	Date of St	ample Colle	4	. Digw 7.08.2024	adih Colli	•	
	 Date of Te 	and the state of second and		0.08.2024			
	 Test 	Joung					& GREASE.
			TES	T RESULT			
SI.	PARAMETERS OF		VALU	E		Limit as	Test
No.	TEST	2 Pit Jamadoba Colliery	3 Pit Jamadoba Colliery	6 & 7 Pits Colliery	Digwadih Colliery	per IS-2296 Class B (For Bathing)	Method
1.	pH,	8.2	8.3	7.9	8.2	6.5-8.5	IS-3025 (P-11): 1983
2.	Total Dissolved Solids, mg/l	790	770	649	698		IS-3025 (P-16): 1984
3.	Total Suspended Solids, mg/l	30.0	28	24	26		IS-3025(P-17) : 1984
4.	Bio chemical Oxygen Demand, mg/l	2.3	3.0	2.8	3.0	3	IS-3025 (P- 44):1994
5.	Chemical Oxygen	122	49	91	79	•	IS-3025 (P- 58):2006

Oil & Grease, mg/l

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0.2

0.2

IS-3025 (P-39):2021

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Statements :

6.

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

0.8

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

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1	D S	Test NA Instituent B	&DS ting Labor BL ACCRED loard of Quali 001:2015,ISO	natory DITED Ity Council o	of India)		Plot No I-B-17 Sindri, Industrial / P.O Domgarh, D. Jharkhand - 8281 Email ID sindriad Website: aditirnde Phone: 0326-295 Mobile: 09471358	Area, Dist - Dhanbad D7 diti@gmail.com services.com 2377 (O)
	Ref. No.: - ARDS/24-	25/STP/1				Da	te: 17.08.2024	
		I	EST REPO	RTOF	SEWAG	E		
	 Name of the i Work Order R 		T J C	M/S TATA S ATA STER AMADOB DIST DHA 700126557	A GROUI	ED P PLANT JHARKH	, AND)	
	 Sample Cod Date of Sam Date of Test Test 	ple Colle	2 3 4 5 5 5 5 5 5 7 7 8 8 8 8 8 9 8 8 8 9 8 8 9 8 9 8 9 8	. STP Out . STP Out . STP Out 7.08.2024 0.08.2024 H, TDS, T and Fecal (let -Digw let -Digw let- Jmb. let- JCPF To 09.0 To 16.0 SS, BOD Coliform.	adih 12 M adih 12 M Canteen Canteer 8.2024 8.2024 , COD, O	lo Officers C lo. Superviso	or flat
~	DADAMETERS OF		TES	T RESULT		_		
SI. No.	PARAMETERS OF TEST	STP 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	STP Outlet- JCPP Cantee n	As per MoEF&CC Notification dated 13 th Oct. 2017 for Sewage Treatment Plant	Test Method
1.	pH,	7.9	7.5	7.4	7.3	7.5	6.5-9.0	IS-3025(P- 11):1983
2.	Total Dissolved Solids, mg/l	939.0	952	791	592	547	•	IS-3025(P- 16):1984
3.	Total Suspended Solids, mg/l	40.0	28.0	30.0	35.0	38.0	100	IS-3025(P- 17):1984
4.	Bio chemical Oxygen Demand, mg/l	9.0	4.2	3.5	8.0	7.0	30	IS-3025(P- 44):1994
5.	Chemical Oxygen	54.7	36.5	24.3	48.6	42.6	250	IS-3025(P- 58):2006

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Oil & Grease, mg/l

Fecal Coliform (FC)

(MPN/100ml)



0.6

450

0.8

560

0.9

470

.

<1000

MPN/100ml

IS-3025(P-

39):2021

IS - 1622

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Statements :

6.

7.

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

1.0

580

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

0.8

460

AD HEA	ADITI R&	D SE	RVIC	CES	Plot No I-B-17 (P) Sindri, Industrial Area,
RD	S · Testin	g Labora	torv		P.O Domgarh, Dist - Dhanbad
-	NABL ACCREDITED				Jharkhand - 828107 Email ID: sindriaditi@gmail.com
	(A Constituent Boar	d of Quality	Council of I	ndia)	Website: aditimdservices.com Phone: 0326-2952377 (O)
	ISO/IEC 17025:2017, ISO 9001:	2015,ISO (O	HSAS) 4500	1:2018 Certified	Mobile: 09471358492, 094315126
F	Ref. No.: - ARDS/24-25/ETP/1			D	ate: 17.08.2024
	TEST	REPORT	OF EF	FLUENT	
	Name of the industry	TA JAI	TA STEEL	EEL, JAMADO LIMITED GROUP PLANT IBAD (JHARKH	Γ.
	Work Order Ref. NO.:	: 470	0126557/93	32 Date:- 29/05/2	2024
	Sample Code	: 1.E	T.P. Outl	et T.C.H.	
		2. E	T.P. Outl	et Garage	
		2012-01 No.22207			
	 Date of Sample Collection Date of Testing Test 	: 10. : pH	08.2024 T , TDS, TSS	o 08.08.2024 o 16.08.2024 s, BOD, COD, C	DIL & GREASE.
	Date of TestingTest	: 10. : pH, <u>TEST</u>	08.2024 T , TDS, TSS <u>RESULT</u>	o 16.08.2024 5, BOD, COD, C	
	Date of Testing	: 10. : pH	08.2024 T , TDS, TSS <u>RESULT</u>	General Standard for discharge of Environmental Pollutants, Inland Surface water by the	DIL & GREASE.
o.	Date of TestingTest	: 10. : pH, <u>TEST</u> VAL E.T.P. Outlet	08.2024 T , TDS, TSS <u>RESULT</u> .UE E.T.P. Outlet	General Standard for discharge of Environmental Pollutants, Inland Surface	Test Method
lo. 1.	Date of Testing Test PARAMETERS OF TEST	: 10. : pH <u>TEST</u> VAL E.T.P. Outlet T.C.H.	08.2024 T , TDS, TSS <u>RESULT</u> .UE E.T.P. Outlet Garage	General Standard for discharge of Environmental Pollutants, Inland Surface water by the MoEF&C	Test Method
lo. 1. 2.	Date of Testing Test PARAMETERS OF TEST pH,	: 10. : pH <u>TEST</u> VAL E.T.P. Outlet T.C.H. 8.4	08.2024 T , TDS, TSS RESULT UE E.T.P. Outlet Garage	General Standard for discharge of Environmental Pollutants, Inland Surface water by the MoEF&C 5.5-9.0	Test Method
ši. lo. 1. 2. 3.	Date of Testing Test PARAMETERS OF TEST pH, Total Dissolved Solids, mg/l	: 10. : pH <u>TEST</u> VAL E.T.P. Outlet T.C.H. 8.4 589.0	08.2024 T , TDS, TSS RESULT UE E.T.P. Outlet Garage 8.3 842.0	General Standard for discharge of Environmental Pollutants, Inland Surface water by the MoEF&C 5.5-9.0	Test Method IS-3025 (P-11): 1983 IS-3025 (P-16): 1984
lo. 1. 2. 3.	Date of Testing Test PARAMETERS OF TEST pH, Total Dissolved Solids, mg/l Total Suspended Solids, mg/l Bio chemical Oxygen Demand,	: 10. : pH, <u>TEST</u> VAL E.T.P. Outlet T.C.H. 8.4 589.0 22.0	08.2024 T , TDS, TSS RESULT UE E.T.P. Outlet Garage 8.3 842.0 30.0	o 16.08.2024 5, BOD, COD, C General Standard for discharge of Environmental Pollutants , Inland Surface water by the MoEF&C 5.5-9.0	Test Method IS-3025 (P-11): 1983 IS-3025 (P-16): 1984 IS-3025(P-17) : 1984
lo. 1. 2. 3. 4.	Date of Testing Test PARAMETERS OF TEST PH, Total Dissolved Solids, mg/l Total Suspended Solids, mg/l Bio chemical Oxygen Demand, mg/l	: 10. : pH, <u>TEST</u> VAL E.T.P. Outlet T.C.H. 8.4 589.0 22.0 3.0	08.2024 T , TDS, TSS RESULT UE E.T.P. Outlet Garage 8.3 842.0 30.0 18.0	o 16.08.2024 , BOD, COD, C General Standard for discharge of Environmental Pollutants, Inland Surface water by the MoEF&C 5.5-9.0 - 100 30	Test Method IS-3025 (P-11): 1983 IS-3025 (P-16): 1984 IS-3025 (P-17) : 1984 IS-3025 (P-44):1994

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DS)	Characterization and Company	Laborat	ory		P.O Jhark Email Webs	hand - 828 ID sindria ite aditimo	Dist - Dhanb 107 diti@gmail.c services.cor
	ISO/IEC 17025:20		And the second second second		State Construction of the		e: 0326-295 e: 0947135	52377 (O) 8492, 09431
Ret	f. No.: - ARDS/24-2					Date: 17	7.08.2024	
		TEST R	EPORT OF	DRINKING	WATER			
	 Name of the i 	ndustry	JAMADO	A STEEL, EEL LIMIT BA GROU HANBAD	ED PLANT,			
	Work Order R		: 4700126	557/932 D	ate:- 29/05	/2024		
	Sample Code		2. C	anteen- Ja anteen- Ja anteen- Di anteen- 68	madoba V gwadih Co	Vashery olliery		
	Date of Samp	le Collection		8.2024 To		0.01.01.1. 		
	 Date of Testin Test 			8.2024 To	16.08.20	24		
					Leau, LI	ic, iotai		, iotai
SI.	Chromium, Mine	eral Oil, Alkalin	iity, Aluminiu <u>TEST R</u> VAL	m & Boron. RESULT UE		IS as p	per IS	Test
SI. No	Chromium, Mine		ity, Aluminiu <u>TEST F</u>	m & Boron. RESULT UE Canteen Digwadih	Canteen- 6&7 Pits		per IS	Test
No 1.	Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit)	Canteen- Jamadoba Colliery	TEST F VAL Canteen- Jamadoba Washery	Marka Boron. RESULT UE Canteen Digwadih Colliery 1	Canteen- 6&7 Pits Colliery 1	IS as p 10500: Desirab Ie 5.00	er IS 2012 Permi ssible 15.0	Test Metho IS 302 (P-4):20
No	Chromium, Mine PARAMETERS OF TEST Colour, (Hazen	Canteen- Jamadoba Colliery	TEST F VAL Canteen- Jamadoba Washery	ESULT UE Canteen Digwadih Colliery	Canteen- 6&7 Pits Colliery	IS as p 10500: Desirab Ie	er IS 2012 Permi ssible	Test Metho IS 302 (P-4):20 IS 3025
No 1.	Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit)	Canteen- Jamadoba Colliery	TEST F VAL Canteen- Jamadoba Washery	Marka Boron. RESULT UE Canteen Digwadih Colliery 1	Canteen- 6&7 Pits Colliery 1	IS as p 10500: Desirab Ie 5.00 Agreeabl	per IS 2012 Permi ssible 15.0 Agree	Test Metho IS 302 (P-4):20 IS 3025 5):201 IS 3025
No 1. 2.	Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour	Canteen- Jamadoba Colliery 1 Agreeable	TEST F VAL Canteen- Jamadoba Washery 1 Agreeable	RESULT UE Canteen Digwadih Colliery 1 Agreeable	Canteen- 6&7 Pits Colliery 1 Agreeable	IS as p 10500: Desirab le 5.00 Agreeabl e Agreeabl	Permi ssible 15.0 Agree able Agree	Test Metho IS 302 (P-4):20 IS 3025 5):201 IS 3025 7):201 IS 3025
No 1. 2. 3.	Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste	Canteen- Jamadoba Colliery 1 Agreeable Agreeable	TEST F VAL Canteen- Jamadoba Washery 1 Agreeable Agreeable	Marken & Boron. RESULT UE Canteen Digwadih Colliery 1 Agreeable Agreeable	Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable	IS as p 10500: Desirab le 5.00 Agreeabl e Agreeabl e	Permi ssible 15.0 Agree able Agree able 5.0 No.	Test Metho IS 302 (P-4):20 IS 3025 5):201 IS 3025 7):201 IS 3025 10):198 IS-3025
No 1. 2. 3. 4.	Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU pH Total Hardness	Canteen- Jamadoba Colliery 1 Agreeable Agreeable	ity, Aluminiu <u>TEST F</u> VAL Canteen- Jamadoba Washery 1 Agreeable Agreeable	m & Boron. <u>RESULT</u> UE Canteen Digwadih Colliery 1 Agreeable Agreeable 1	Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable	IS as p 10500: Desirab le 5.00 Agreeabl e Agreeabl e 1.0	Permi ssible 15.0 Agree able Agree able 5.0	Test Metho IS 302 (P-4):20 IS 3025 5):201 IS 3025 7):201 IS 3025 10):194 IS-3025 11):194 IS 3025
No 1. 2. 3. 4. 5.	Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU pH Total Hardness as CaCO ₃ , mg/l Chloride as Cl,	Canteen- Jamadoba Colliery 1 Agreeable Agreeable 1 7.7	ity, Aluminiu <u>TEST F</u> VAL Canteen- Jamadoba Washery 1 Agreeable Agreeable 1 7.6	m & Boron. <u>RESULT</u> UE Canteen Digwadih Colliery 1 Agreeable Agreeable 1 7.6	Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable 1 7.5	IS as p 10500: Desirab le 5.00 Agreeabl e 1.0 6.5-8.5	Permi ssible 15.0 Agree able 5.0 No. Relax.	Test Metho IS 302 (P-4):20 IS 3025 5):201 IS 3025 7):201 IS 3025 10):194 IS-3025 11):194 IS 3025 21):200 IS 3025
No 1. 2. 3. 4. 5. 6.	Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU pH Total Hardness as CaCO ₃ , mg/i	Canteen- Jamadoba Colliery 1 Agreeable Agreeable 1 7.7 400	ity, Aluminiu <u>TEST F</u> VAL Canteen- Jamadoba Washery 1 Agreeable Agreeable 1 7.6 450	m & Boron. <u>RESULT</u> UE Canteen Digwadih Colliery 1 Agreeable Agreeable 1 7.6 445	Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable 1 7.5 180	IS as p 10500: Desirab le 5.00 Agreeabl e 1.0 6.5-8.5 200	Permi ssible 15.0 Agree able 5.0 No. Relax. 600	Test Metho IS 302 (P-4):20 IS 3025 5):201 IS 3025 7):201 IS 3025 10):194 IS 3025 21):200 IS 3025 32):194 IS 3025 32):194
No 1. 2. 3. 4. 5. 6. 7.	Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU PH Total Hardness as CaCO ₃ , mg/l Chloride as Cl, mg/l Res. Free chlorine as Cl ₂	Canteen- Jamadoba Colliery 1 Agreeable Agreeable 1 7.7 400 82.5	Aluminiu TEST F VAL Canteen- Jamadoba Washery 1 Agreeable Agreeable 1 7.6 450 74.8	m & Boron. <u>RESULT</u> UE Canteen Digwadih Colliery 1 Agreeable Agreeable 1 7.6 445 85	Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable 1 7.5 180 25	IS as p 10500: Desirab le 5.00 Agreeabl e 1.0 6.5-8.5 200 250	Permi ssible 15.0 Agree able 5.0 No. Relax. 600 1000	Test Metho IS 302 (P-4):20 IS 3025 5):201 IS 3025 7):201 IS 3025 10):194 IS 3025 21):200 IS 3025 32):194 IS 3025 26):202 IS 3025
No 1. 2. 3. 4. 5. 6. 7. 8.	Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU PH Total Hardness as CaCO ₃ , mg/l Chloride as Cl, mg/l Res. Free chlorine as Cl ₂ mg/l Total Dissolved Solids, mg/l	Canteen-Jamadoba Colliery 1 Agreeable Agreeable 1 7.7 400 82.5 N.T. 770 80	ity, Aluminiu <u>TEST F</u> VAL Canteen- Jamadoba Washery 1 Agreeable Agreeable 1 7.6 450 74.8 N.T. 760 105	m & Boron. RESULT UE Canteen Digwadih Colliery 1 Agreeable Agreeable 1 7.6 445 85 N.T. 750 85	Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable 1 7.5 180 25 N.T. 246 55	IS as p 10500: Desirab le 5.00 Agreeabl e 1.0 6.5-8.5 200 250 0.20 500 75	Per IS 2012 Permi ssible 15.0 Agree able 5.0 No. Relax. 600 1000 1.0 2000 200	Test Metho IS 302 (P-4):20 IS 3025 5):201 IS 3025 7):201 IS 3025 10):194 IS 3025 21):200 IS 3025 32):194 IS 3025 26):202 IS 3025 16):194 IS 3025 16):194 IS 3025 16):194
No 1. 2. 3. 4. 5. 6. 7. 8. 9.	Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU PH Total Hardness as CaCO ₃ , mg/l Chloride as Cl, mg/l Res. Free chlorine as Cl ₂ mg/l Total Dissolved Solids, mg/l Calcium as CaCO ₃ , mg/l	Canteen-Jamadoba Colliery 1 Agreeable Agreeable 1 7.7 400 82.5 N.T. 770	Aluminiu <u>TEST F</u> VAL Canteen- Jamadoba Washery 1 Agreeable Agreeable 1 7.6 450 74.8 N.T. 760	m & Boron. RESULT UE Canteen Digwadih Colliery 1 Agreeable Agreeable 1 7.6 445 85 N.T. 750	Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable 1 7.5 180 25 N.T. 246	IS as p 10500: Desirab le 5.00 Agreeabl e 1.0 6.5-8.5 200 250 0.20 500	Permi ssible 15.0 Agree able 5.0 No. Relax. 600 1000 1.0 2000	Test Metho IS 302 (P-4):20 IS 3025 5):201 IS 3025 7):201 IS 3025 10):198 IS 3025 21):200 IS 3025 32):198 IS 3025 26):202 IS 3025 16):198 IS 3025 16):198 IS 3025 16):198 IS 3025 16):198 IS 3025
No 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	Chromium, Mine PARAMETERS OF TEST Colour, (Hazen Unit) Odour Taste Turbidity, NTU pH Total Hardness as CaCO ₃ , mg/l Chloride as Cl, mg/l Res. Free chlorine as Cl ₂ mg/l Total Dissolved Solids, mg/l Calcium as CaCO ₃ , mg/l	Canteen-Jamadoba Colliery 1 Agreeable Agreeable 1 7.7 400 82.5 N.T. 770 80	ity, Aluminiu <u>TEST F</u> VAL Canteen- Jamadoba Washery 1 Agreeable Agreeable 1 7.6 450 74.8 N.T. 760 105	m & Boron. RESULT UE Canteen Digwadih Colliery 1 Agreeable Agreeable 1 7.6 445 85 N.T. 750 85	Canteen- 6&7 Pits Colliery 1 Agreeable Agreeable 1 7.5 180 25 N.T. 246 55	IS as p 10500: Desirab le 5.00 Agreeabl e 1.0 6.5-8.5 200 250 0.20 500 75	Per IS 2012 Permi ssible 15.0 Agree able 5.0 No. Relax. 600 1000 1.0 2000 200 1.5	Test Metho IS 302 (P-4):20 IS 3025 5):201 IS 3025 7):201 IS 3025 10):194 IS 3025 21):200 IS 3025 32):194 IS 3025 26):202 IS 3025 16):194 IS 3025 40):194 IS 3025 40):194

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NOTE: BDL - Below Detection Limit

Sr. Chemist

Aditi R&D Services



1

Technical Manager Aditi R&D Services, Sindri

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	R D S		ADITI R&D SERVICES Testing Laboratory NABL ACCREDITED (A Constituent Board of Quality Council of India) /IEC 17025:2017, ISO 9001:2015,ISO (OHSAS) 45001:2018 Certified					S P J E V P	Plot No I-8-17 (P) Sindri, Industrial Area, P.O Doingarh, Dist - Dhanbad Jharkhand - 828107 Email ID: sindriaditi@gmail.com Website: aditimdservices.com Phone: 0326-2952377 (O) Mobile: 09471358492, 0943151260		
	Ref. No.:	: - AF	RDS/23-24/G	- 935 (st. 140 Atl And	PORT OF	CROUN		Date	: 17.08.2	2024	
	• N	lame	of the indus	stry :	M/S TATA STEE TATA STEE JAMADOB/ DIST DHA	STEEL, J El limite A grouf	AMADOBA ED P PLANT,				
	• s	Samp	Order Ref. N le Code of Sample C	10. : :	470012655 1. Jon 2. Bho 3. Mol 4. Lov 5. Jan	7/932 Da apokhar owra 13 N halbani B ver Dung hadoba 3	ite:-29/05/2 Kustand No. Basti gari	024			
			of Testing				16.08.202				
SI		est	3		Iron, C Solids Fluorid Arseni Chrom <u>TEST R</u>	hloride, R , Calcium, de, Pheno ic, Cyanid ium, Mine	Taste, Turbic Res. Free chl , Copper, M lic Compour e, Lead, Zin eral Oil, Alka	orine, T anganes nd, Merc c, Total linity, A	otal Disso se, Sulpha cury, Cadi Coliform, luminium	olved ate, Nitrate, mium, & Boron.	
	• T PARAME-TEI OF TEST	RS	Jorapokhar Kustand	Bhowra 13 No.	Iron, C Solids Fluorid Arseni Chron	hloride, R , Calcium, de, Pheno ic, Cyanid ium, Mine	tes. Free chl , Copper, M lic Compour e, Lead, Zin	orine, T anganes nd, Merc c, Total linity, A IS as	otal Disso se, Sulpha sury, Cada Coliform,	olved ate, Nitrate, mium,	
No 1.	PARAME-TEI OF TEST Colour, (Hazen Unit)	RS	Kustand 2	Bhowra 13 No. 4	Iron, C Solids Fluorid Arseni Chrom <u>TEST RI</u> VALUE Mohalbani Basti 4	chloride, R , Calcium, de, Pheno ic, Cyanid nium, Mine <u>ESULT</u> Lower Dungari 3	Res. Free chl , Copper, M lic Compour e, Lead, Zin- eral Oil, Alka Jamadoba 3 No. 2	orine, T anganes nd, Merc c, Total linity, A IS as 1050 Desir-	otal Disso se, Sulpha cury, Cadi Coliform, luminium per IS 0:1991 Permi-	olved ate, Nitrate, mium, & Boron. Test	
No 1.	PARAME-TEI OF TEST Colour, (Hazen Unit) Temperature Electrical Conductivity,	RS ®C	Kustand	Bhowra 13 No.	Iron, C Solids Fluoric Arseni Chrom <u>TEST RI</u> VALUE Mohalbani Basti	chloride, R , Calcium, de, Pheno ic, Cyanid nium, Mine <u>ESULT</u> Lower Dungari	Res. Free chl , Copper, M lic Compour e, Lead, Zin- eral Oil, Alka Jamadoba 3 No.	orine, To anganes nd, Merc c, Total linity, A IS as 1050 Desir- able	otal Disso se, Sulpha cury, Cadi Coliform, luminium per IS 0:1991 Permi- ssible 15 -	olved ate, Nitrate, mium, & Boron. Test Method IS 3025 (P-	
No 1. 2. 3.	PARAME-TEI OF TEST Colour, (Hazen Unit) Temperature Electrical Conductivity, µmhos/cm Total Dissolve	RS ⁰ C	Kustand 2 27	Bhowra 13 No. 4 27	Iron, C Solids Fluoric Arseni Chrom <u>TEST RI</u> VALUE Mohalbani Basti 4 27	chloride, R , Calcium, de, Pheno ic, Cyanid nium, Mine <u>ESULT</u> Lower Dungari 3 27	Res. Free chl , Copper, M lic Compour e, Lead, Zimeral Oil, Alka Jamadoba 3 No. 2 27	orine, Ta anganes nd, Merc c, Total linity, A IS as 1050 Desir- able 5	otal Disso se, Sulpha cury, Cadi Coliform, luminium per IS 0:1991 Permi- ssible 15	olved ate, Nitrate, mium, & Boron. Test Method IS 3025 (P- 4):2021 - -	
No 1. 2. 3. 4.	PARAME-TEI OF TEST Colour, (Hazen Unit) Temperature Electrical Conductivity, µmhos/cm	RS ⁰ C	Kustand 2 27 1530	Bhowra 13 No. 4 27 1340	Iron, C Solids Fluorid Arseni Chrom <u>TEST Rf</u> VALUE Mohalbani Basti 4 27 1000	chloride, R , Calcium, de, Pheno ic, Cyanid nium, Mine ESULT Lower Dungari 3 27 570	Res. Free chl , Copper, M lic Compour e, Lead, Zin- eral Oil, Alka Jamadoba 3 No. 2 27 960	orine, To anganes nd, Merc c, Total linity, A IS as 1050 Desir- able 5 -	otal Disso se, Sulpha cury, Cadi Coliform, luminium per IS 0:1991 Permi- ssible 15 - - 2000 No	olved ate, Nitrate, mium, & Boron. Test Method IS 3025 (P- 4):2021	
No 1. 2. 3. 4. 5.	PARAME-TEI OF TEST Colour, (Hazen Unit) Temperature Electrical Conductivity, µmhos/cm Total Dissolvo Solids, mg/l	RS °C ed ss	Kustand 2 27 1530 858	Bhowra 13 No. 4 27 1340 745	Iron, C Solids Fluoric Arseni Chrom <u>TEST RF</u> VALUE Mohalbani Basti 4 27 1000	chloride, R , Calcium, de, Pheno ic, Cyanid hium, Mine SULT Lower Dungari 3 27 570 320	Res. Free chl , Copper, M lic Compour e, Lead, Zimeral Oil, Alka Jamadoba 3 No. 2 27 960 537	orine, Tanganes and, Merc c, Total linity, A IS as 10500 Desir- able 5 - - 500 6.5-	otal Disso se, Sulpha cury, Cadi Coliform, luminium per IS 0:1991 Permi- ssible 15 - - - 2000	olved ate, Nitrate, mium, & Boron. Test Method IS 3025 (P- 4):2021 - - - IS 3025(P- 16):1984 IS-3025(P-	
No 1. 2. 3. 4. 5. 6. 7.	PARAME-TEI OF TEST Colour, (Hazen Unit) Temperature Electrical Conductivity, µmhos/cm Total Dissolve Solids, mg/l pH Total Hardnes as CaCO ₃ , mg Calcium as Campyl	est RS °C ed ss y/l a,	Kustand 2 27 1530 858 7.4 552 112	Bhowra 13 No. 4 27 1340 745 7.5 550 140	Iron, C Solids Fluoric Arseni Chrom <u>TEST RI</u> VALUE Mohalbani Basti 4 27 1000 5555 7.5 572 120	chloride, R , Calcium, de, Pheno ic, Cyanid ium, Mine <u>ESULT</u> Lower Dungari 3 27 570 320 7.6 229 40	Res. Free chl , Copper, M lic Compour e, Lead, Zimeral Oil, Alka Jamadoba 3 No. 2 27 960 537 7.8 452 112	orine, Tanganes and, Merco c, Total linity, A IS as 10500 Desir- able 5 - - 500 6.5- 8.5 200 75	otal Disso se, Sulpha cury, Cadi Coliform, luminium per IS 0:1991 Permi- ssible 15 - - 2000 No Relax 600 200	olved ate, Nitrate, mium, & 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.	PARAME-TEI OF TEST Colour, (Hazen Unit) Temperature Electrical Conductivity, µmhos/cm Total Dissolve Solids, mg/l pH Total Hardnes as CaCO ₃ , mg Calcium as C mg/l Magnesium a Mg, mg/l	est RS °C ed ss g/ a, is	Kustand 2 27 1530 858 7.4 552 112 67.9	Bhowra 13 No. 4 27 1340 745 7.5 550 140 50.0	Iron, C Solids Fluoric Arseni Chrom <u>TEST RI</u> VALUE Mohalbani Basti 4 27 1000 5555 7.5 572 120 68	chloride, R , Calcium, de, Pheno ic, Cyanid ium, Mine SULT Lower Dungari 3 27 570 320 7.6 229 40 32.1	Res. Free chl , Copper, M lic Compour e, Lead, Zimeral Oil, Alka Jamadoba 3 No. 2 27 960 537 7.8 452 112 43	orine, Tanganes and, Merc c, Total linity, A IS as 10500 Desir- able 5 - 500 6.5- 8.5 200 75 30	otal Disso se, Sulpha cury, Cadi Coliform, luminium per IS 0:1991 Permi- ssible 15 - - 2000 No Relax 600 200 100	olved ate, Nitrate, mium, & Boron. Test Method IS 3025 (P- 4):2021 - - - - - - - - - - - - - - - - - - -	
SI. No 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	PARAME-TEI OF TEST Colour, (Hazen Unit) Temperature Electrical Conductivity, µmhos/cm Total Dissolve Solids, mg/l pH Total Hardnes as CaCO ₃ , mg Calcium as C mg/l Magnesium a	est RS °C ed ss g/l a, is 21,	Kustand 2 27 1530 858 7.4 552 112	Bhowra 13 No. 4 27 1340 745 7.5 550 140	Iron, C Solids Fluoric Arseni Chrom <u>TEST RI</u> VALUE Mohalbani Basti 4 27 1000 5555 7.5 572 120	chloride, R , Calcium, de, Pheno ic, Cyanid ium, Mine <u>ESULT</u> Lower Dungari 3 27 570 320 7.6 229 40	Res. Free chl , Copper, M lic Compour e, Lead, Zimeral Oil, Alka Jamadoba 3 No. 2 27 960 537 7.8 452 112	orine, Tanganes and, Merco c, Total linity, A IS as 10500 Desir- able 5 - - 500 6.5- 8.5 200 75	otal Disso se, Sulpha cury, Cadi Coliform, luminium per IS 0:1991 Permi- ssible 15 - - 2000 No Relax 600 200	olved ate, Nitrate, mium, & 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-	

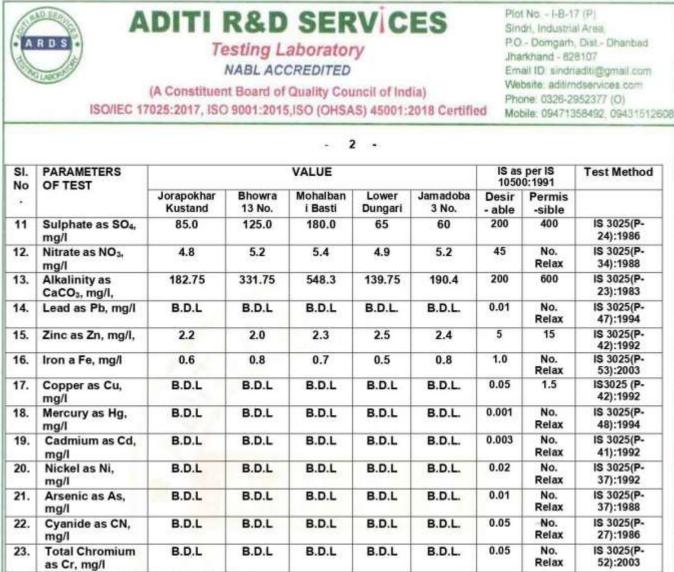


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NOTE: BDL - Below Detection Limit

Sr. Chemist Aditi R&D Services



Technical Manager Aditi R&D Services, Sindri

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1

TATA STEEL



ENVIRONMENTAL POLICY

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

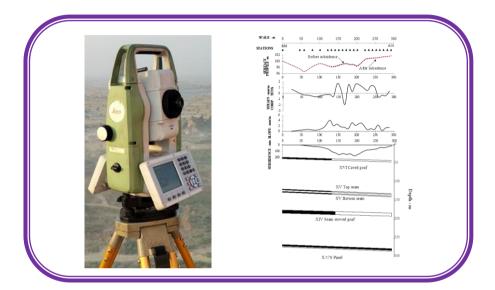
- 1. We are committed to deal proactively with Climate Change issue by efficient use of natural resources & energy; reducing and preventing pollution; promoting waste avoidance and recycling measures; and product stewardship.
- We shall identify, assess and manage our environment impact.
- We shall regularly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

Date: November 1, 2017

TV Narendran CEO & Managing Director

रिपोर्ट /REPORT ऑन /ON

झरिया कोलफील्ड की टाटा स्टील कोलियरियों में डिपिलरिंग पैनलों पर सबसिडेंस मूवमेंट्स के कारण सतह आकृतियाँ और ढांचाओं का सुरक्षा मूल्यांकन SAFETY EVALUATION OF SURFACE FEATURES AND STRUCTURES DUE TO SUBSIDENCE MOVEMENTS OVER DEPILLARING PANELS AT TATA STEEL COLLIERIES OF JHARIA COALFIELD





March, 2023

खान धंसान एवं सर्वेक्षण सीएसआईआर-केंद्रीय खनन एवं ईंधन अनुसंधान संस्थान (वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद) बरवा रोड, धनबाद - 826 015, झारखंड

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Project No. SSP/690/2022-23

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CONTENTS

	Page no.
EXECUTIVE SUMMARY	iv
1.0 INTRODUCTION	1
2.0 GEO-MINING DETAILS OF EXTRACTION	1
3.0 METHODOLOGY	10
4.0 RESULT OF SUBSIDENCE INVESTIGATIONS	11
4.1 Non-Effective Width	12
4.2 Maximum Subsidence	12
4.3 Maximum Slope and Strains	12
4.4 Subsidence Characteristics	12
5.0 IMPACT OF SUBSIDENCE MOVEMENTS	24
6.0 CONCLUSIONS	24
7.0 RECOMMENDATIONS	25

EXECUTIVE SUMMARY

Subsidence investigations were conducted over 5 stowed panels during March, 2021 and December, 2021 at Jamadoba 2&3 Pit, Sijua and Bhelatand collieries of Tata Steel in Jharia Coalfield for the safety evaluation of different surface features and structures. All the panels were extracted by Bord & Pillar method of mining with 70-80 percent of coal extraction in conjunction with hydraulic sand stowing. Depillaring operations were carried out at depths ranging from 137 m to 273.8 m. The width-depth ratio of the panels varied between 0.41 and 0.73, i.e., all the panels were under sub-critical width condition. All these panels were extracted under multi-seam mining condition with overlying old stowed and caved goaves. X/17S panel of Sijua colliery and XIV/4S panel of Bhelatand colliery were completed during the study period. The important surface features over most of the panels include plantations, barren land, cultivated land, road and village. The study conducted during the above period led to the following conclusion and recommendation:

- Maximum subsidence movement was 2.56% of extraction thicknesses over the 17S panel of X seam at Sijua colliery amounting to 172 mm and the depillaring operation was completed.
- Maximum slope, compressive and tensile strains observed over measured panels was 4.30 mm/m, 1.91 mm/m and 1.68 mm/m respectively.
- 3. Subsidence, slope and strains profiles were influenced by the overlying old goaves, position of goaf edges, inclination of the seam, topography of the surface profiles as well as left out stooks/ribs in the overlying seams worked by bord & pillar method of mining. Hence, the profiles were not symmetric.
- 4. Subsidence movements did not cause any adverse impact on surface features and structures.
- It is recommended to erect subsidence monitoring stations at least one month before the commencement of depillaring over new panels. Layout of subsidence monitoring stations should be made as proposed.
- 6. It is also recommended to extend subsidence monitoring stations outside the panel boundary equal to panel depth for proper evaluation of extent of subsidence.
- It is recommended to continue subsidence investigations for the safety evaluation of different surface features and structures lying over different on-going and future depillaring panels.

1.0 INTRODUCTION

Subsidence investigation is being carried out continuously since 1982, on yearly sponsorship at different collieries of Tata Steel (erstwhile TISCO) in Jharia Coalfield. The mine management of Tata Steel Jharia division requested Director, CSIR-Central Institute of Mining and Fuel Research (CIMFR), Dhanbad to conduct subsidence investigation over depillaring panels in the collieries of Jharia Coalfield for the period between March, 2021 and December, 2021. Subsidence investigations were conducted in three collieries, namely, Jamadoba 2&3 Pit, Sijua and Bhelatand of Tata Steel. Mining leasehold areas of these collieries have important surface features and structures like railway lines, quarters, hospital, roads, forest land, high tension line, nallah, agricultural land, water tank, buildings, etc. The main objectives of this study are to evaluate the stability and safety of different surface features and structures lying above the depillaring panels. It was proposed to conduct surface ground movement studies over 5 stowed panels from March, 2021 to December, 2021, located in the above-mentioned three collieries. The report covers outcome of subsidence investigations conducted over 5 panels at Tata Steel collieries in Jharia Coalfield during March, 2021 to December, 2021.

2.0 GEO-MINING DETAILS OF EXTRACTION

Jamadoba 2&3 Pit colliery is located in the eastern limb whereas Sijua and Bhelatand collieries are located in the western limb of Jharia Coalfield as depicted in Fig. 1. Geomining details of different panels are shown in Table 1. The width-depth ratio of the panels varied between 0.41 - 0.73, i.e., all the panels were under sub-critical width condition. The low value of width-depth ratios of the panels were maintained to minimize the magnitude of subsidence movements for the protection of important surface features and structures. All the stowed panels were under multi-seam working condition. Layouts of monitoring stations with overlying workings and surface features are shown in figures 2 through 6. Hindrances in the field restricted systematic erection of subsidence monitoring stations over and around the panels. Hence, at places monitoring stations were laid as per the site situation. Borehole sections of three collieries with lithology and strata thickness are shown in figures 7 to 9.

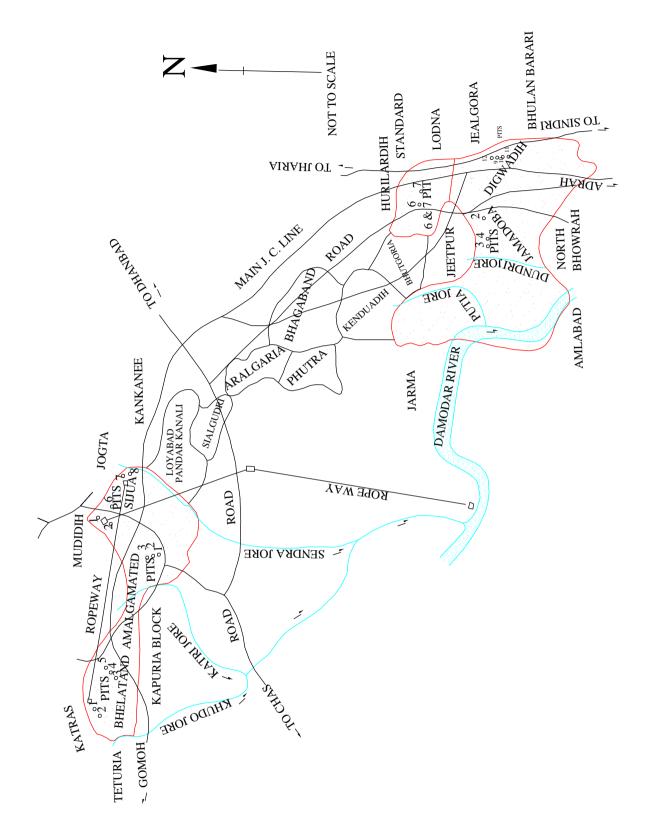


Fig. 1: Location of Tata Steel collieries in Jharia Coalfield

Sl. No.	Colliery	Seam/dip of seam/panel	Extraction thickness (m)	Average depth of extraction (m)	Panel size (m x m)	Mining method / extraction percentage (%) / Overburden sandstone (%)	Extraction period	Overlying goaf	Surface properties
1	Jamadoba 2&3 Pit	XV/1 in 5/4S	3.00	137.00	245x100	B&P/70/60	02/2020 to cont.	Caved goaf in 16,15A, 15 Partly virgin and mostly standing on pillars	Barren land
2	Sijua	X/1 in 4.6/ 17S	6.71	290.11	150X280	B&P /75/65	03/2019 to 30/09/2021	16 seam, 15 (top and bottom) seams caved goaf and 14 seam stowed goaf	Plantation
3	Sijua	IX/1 in 5.07/1S (Ext.)	3.05	295.945	120X120	B&P/75/65	09/2020 to cont.	12 seam, 13 seam ,14 seam and 16 seam caved goaf	Barren land and plantation
4	Sijua	X/1 in 4.67/15S	6.71	310.850	150X300	B&P/80/65	20/02/2021 to cont.	14 seam, 15 seam (bottom), 15 seam (top) and 16 seam caved goaf	Barren land and cultivated land
5	Bhelatand	XIV(E)/1 in 5.40/4S	3.00	373.80	188X240	B&P/75/63	05/2019 to 01/08/2021	17 seam caved goaf, 16 seam standing on pillar,15 seam partly caved and partly virgin	village and road

Table 1: Geo-mining details of extraction in different collieries of Tata Steel in Jharia Coalfield

B&P = Bord & Pillar, S = Stowing

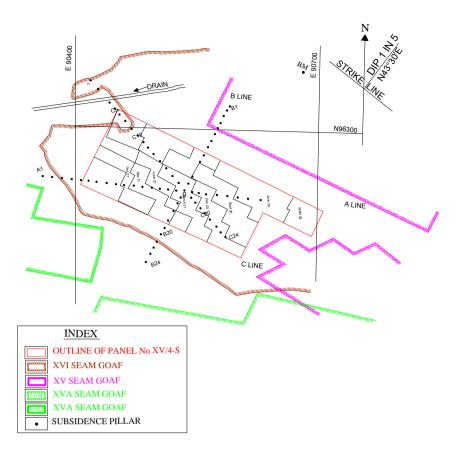


Fig. 2: Layout of monitoring stations over 4S panel of XV seam with overlying goaves at Jamadoba 2&3 Pit

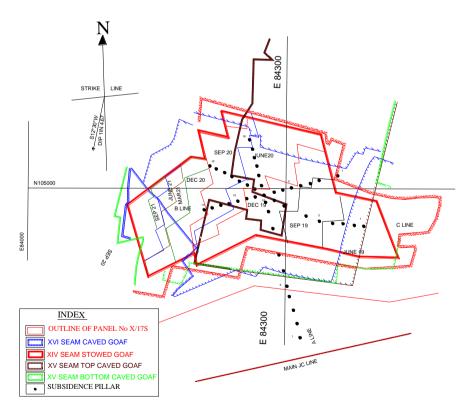


Fig. 3: Layout of monitoring stations over 17S panel of X seam with overlying goaves at Sijua colliery

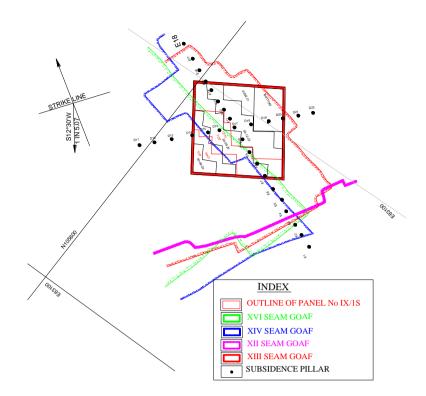


Fig. 4: Layout of monitoring stations over 1S panel of IX seam with overlying goaves at Sijua colliery

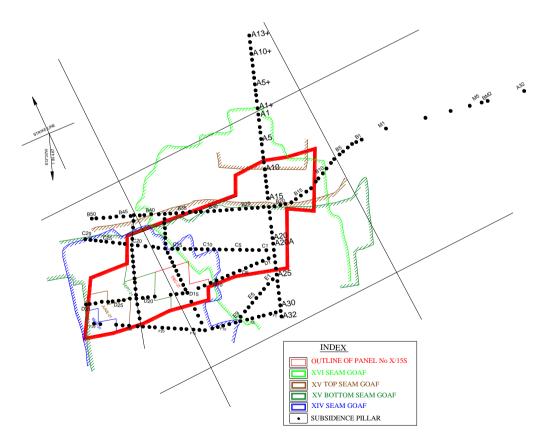


Fig. 5: Layout of monitoring stations over 15S panel of X seam with overlying goaves at Sijua colliery

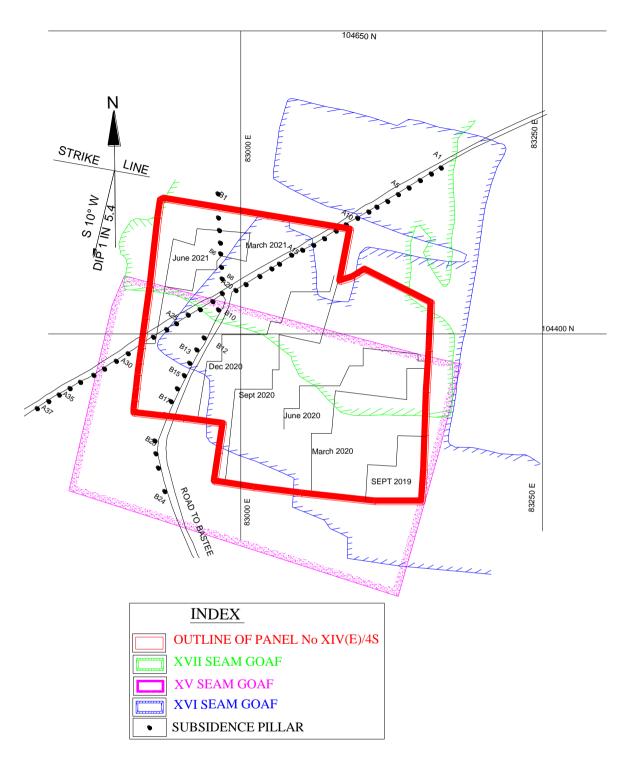


Fig. 6: Layout of monitoring stations over 4S panel of XIV seam with overlying goaves at Bhelatand colliery

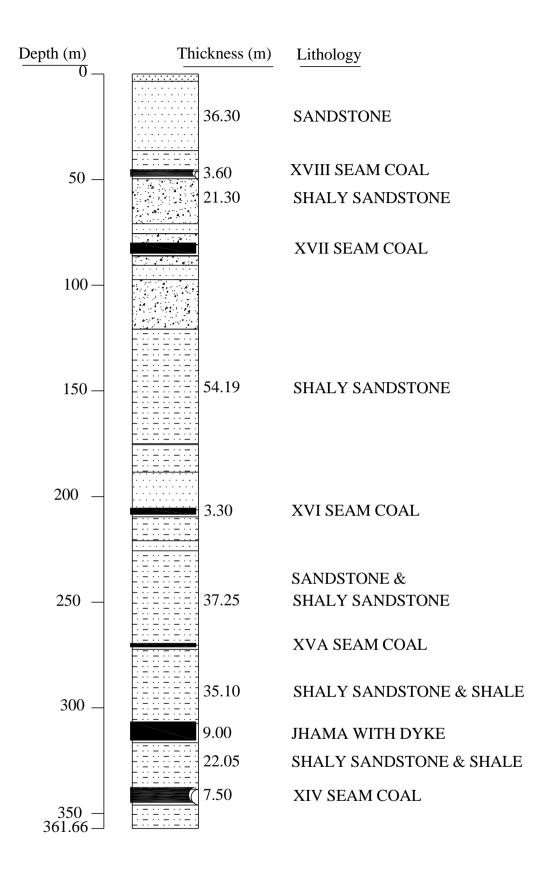


Fig. 7: Section of borehole no. J3 of Jamadoba 2&3 Pit

$\frac{\text{Depth}(m)}{\alpha}$	Thio	ckness (m)	Lithology
0			SANDSTONE & SHALE 16 SEAM
	4	11.12	SANDSTONE, SHALE & COAL
50 —		76.68	SANDSTONE & SHALE
100 —		2.13 2.13	XV TOP SEAM XV BOTTOM SEAM
		24.98	SANDSTONE & SHALE
	4	6.73	SANDSTONE
150 —		21.70	JHAMA, CARBONACEOUS
		8.95	SANDSTONE & SHALE
		8.40 5.79	XIV SEAM XIII SEAM
200 —		15.90	SANDSTONE & SHALE
		3.45	XII SEAM
		15.93 3.65	SANDSTONE & SHALE XI SEAM
250 —		44.0	SANDSTONE & SHALE
		2.40	10 SEAM
300 —		2.20	9A SEAM
500 —		45.05	SANDSTONE
350 —		3.05 3.05 2.20	9 SEAM (TOP) 9 SEAM (MIDDLE) 9 SEAM (BOTTOM)

Fig. 8: Section of 2 Pit of Sijua colliery

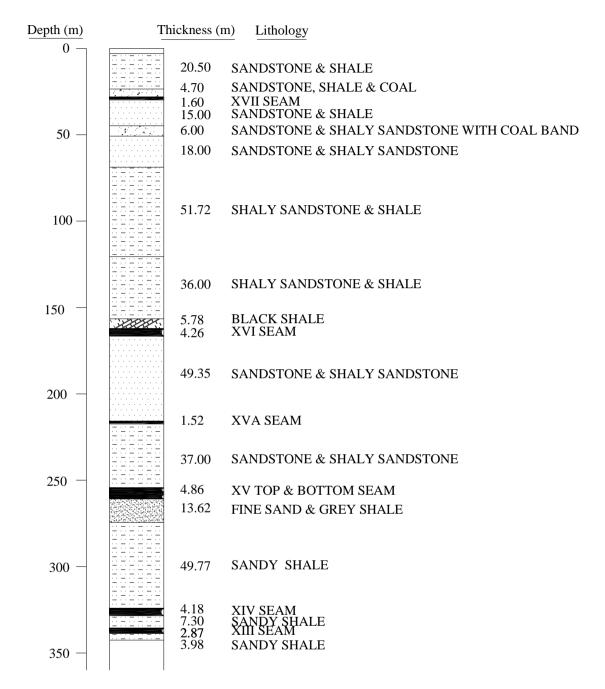


Fig. 9: Section of borehole no. B in Bhelatand colliery

The general lithologies of the overburden in all the three collieries comprise sandstone, shale, shaly sandstone, sandy shale, carbonaceous shale and coal seams. Sandstone and shale are the dominant rock types in the overburden. Percentage of sandstone lying over the working panels varied from 60 to 65%. The gradient of seam varied from 1 in 4.67 to 1 in 5.4. All the coal seams lie in Barakar formation of Lower Gondwana. Depillaring was

completed in XV/4S panel of Jamadoba 2&3 Pit and X/17S panel of Sijua colliery. Depillaring was in progress in the remaining three panels. Most of the panels lie below the barren land and plantation area (Table 1).

3.0 METHODOLOGY

Monitoring stations are fixed on the ground as per the designed layout at regular interval covering the entire area of interest. Subsidence measurement is carried out from a reference station/Bench Mark (B.M.) fixed beyond the influence of ground movement. Total Station is used to conduct subsidence investigations in all the panels.

Total Station, an outgrowth of theodolite, is used for measuring Reduced Level of subsidence monitoring stations and horizontal distance between the adjacent monitoring stations in the field (Fig. 10). This aids in computing subsidence (vertical displacement), strain (horizontal displacement) and slope of the subsidence. The key specification of Total Station is given in Table 2. Therefore, Missing Line Measurement (MLM) mode is adopted for subsidence investigation, as it calculates the horizontal distance, slope distance and difference in elevation between two target prisms as illustrated in Fig. 11.



Fig. 10: Total Station

Parameter	Specification		
Make	Leica		
Model	TS07		
Measurement Range (1 prism)	3500 m		
Linear accuracy	$\pm (1mm + 1.5 \text{ ppm x D})$		
Linear Least count	1 mm		
Angular accuracy	1"		
Angular Least count	0.1"		

Table 2: Specification of Total Station

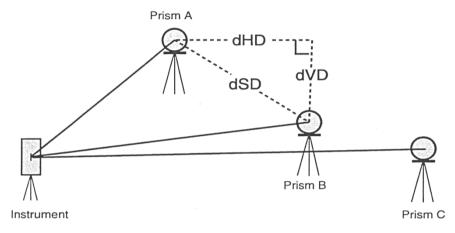


Fig. 11: Concept of Missing Line Measurement

4.0 RESULT OF SUBSIDENCE INVESTIGATIONS

Surface subsidence investigations were conducted over 5 stowed panels (1 panel at Jamadoba 2&3 Pit, 3 panels at Sijua colliery and 1 panel at Bhelatand colliery) of Tata Steel collieries in Jharia Coalfield. Depillaring in X/17S panel of Jamadoba 2&3 Pit and XIV/4S panel of Bhelatand colliery were completed in September, 2021 and August, 2021 respectively. Two readings were taken over the X/15S panel of Sijua colliery and the magnitude of subsidence was negligible till last measurement. Initial reading was taken over a new IX/3S panel of Sijua colliery. Hence, no subsidence profile was prepared for these two panels.

Total Station is proved to be useful in congested and highly undulating topographical areas for subsidence monitoring. Fixing of subsidence monitoring stations over few panels were not possible as per the desired layout owing to surface constraints like paddy field, built-up areas, building etc. Table 3 shows the outcome of subsidence investigations conducted over 5 panels whereas figures 12 to 20 depict respective surface, strain, slope and subsidence profiles along different lines of monitoring stations erected over the studied panels. A brief description of the outcome of this study is illustrated below.

4.1 Non-Effective Width

One new panel was started during the study period at Sijua. Computation of non-effective width (NEW) of extraction, expressed in terms of average depth of extraction, was not possible due to improper layout of subsidence monitoring stations due to surface constraints.

4.2 Maximum Subsidence

Maximum subsidence movements over different stowed panels varied between 8 and 172 mm. The maximum subsidence over completed stowed panel was 2.56% of extraction height. The factors influencing the magnitude of subsidence movements include thickness of extraction, status of working over and around the panel, inclination of seam, type of goaf support, percentage of extraction, panel dimension etc.

4.3 Maximum Slope and Strains

Maximum slope, compressive and tensile strains measured over stowed panels were 4.30 mm/m, 1.91 mm/m and 1.68 mm/m respectively as depicted in Table 3.

4.4 Subsidence Characteristics

The characteristics of subsidence profiles observed along different lines of monitoring stations are as follows:

1. The shapes of the subsidence profiles were asymmetric in nature. This characteristic was primarily attributed due to the combined influence of irregular overlapping of overlying caved and stowed goaves, left out coal rib pillars in the seams of overlying panels, goaf edge effects and inclination of seams as well as varied panel geometry (Figs. 12 through 20). Maximum subsidence of 172 mm was observed over X/17S panel of Sijua colliery with a subsidence factor of 2.56. The width of the panel was 150 m with a width to depth ratio of 0.51 i.e. panel width was under sub-critical condition. However, some cumulative impact of overlying three caved panels in XVI, XV Top and XV Bottom seams and one stowed panel of XIV seam could have caused additional influence to subsidence.

- 2. Slope and strain profiles were also not regular. These were influenced by irregular overlying goaves, seam inclination, topography of ground surface and left out stooks/ribs in Bord & Pillar mining (Figs. 12 to 20).
- 3. No remarkable change was observed in ground slope and surface profiles due to underground mining with stowing as the magnitude of subsidence was low due to small width-depth ratios of the panels. All the panels were kept under sub-critical condition i.e. width-to-depth ratio of panels were from 0.41 to 0.73 resulting in generation of low strain and slope values.
- 4. Goaf treatment by method of stowing was adopted for all the panels with an objective to minimize ground deformation at the surface.

Sl. No.	Colliery/Panel	Width/depth ratio	Maximum subsidence (S)		Maximum slope	Maximum compressive	Maximum tensile strain	Remarks	
			(mm)	(%)	(mm/m)	strain (mm/m)	(mm/m)		
1	Jamadoba 2&3 XV/4S	0.73	90	3	2.26	1.48	1.34	Extraction in progress	
2	Sijua X/17S	0.51	172	2.56	4.30	1.91	1.68	Extraction completed	
3	Sijua IX/1S (Ext.)	0.41	36	1.18	1.02	0.78	0.96	Extraction in progress	
4	Sijua X/15S	0.48	8	0.12	0.546	0.76	0.72	Extraction in progress	
5	Bhelatand XIV(E)/4S	0.50	70	2.33	2.59	1.51	1.36	Extraction completed	

Table 3: Result of subsidence investigations at different collieries of Tata Steel in Jharia Coalfield

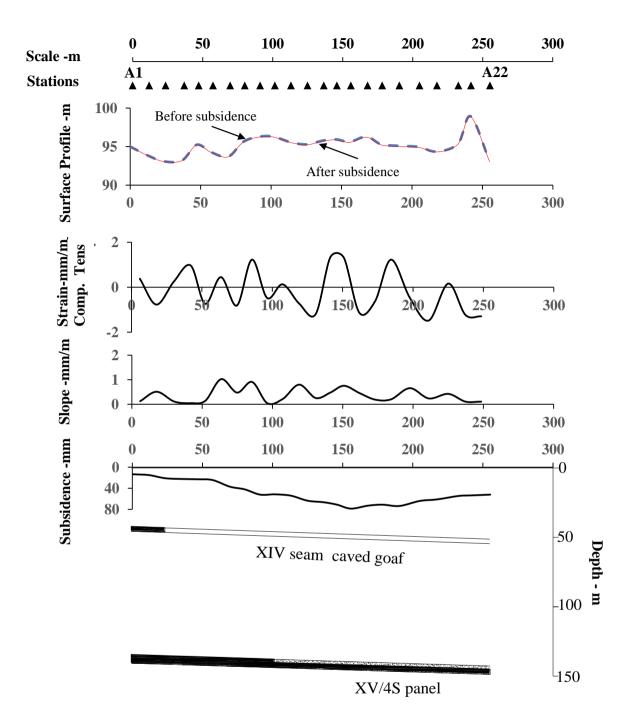


Fig. 12: Surface, strain, slope and subsidence profiles along A-line of monitoring stations over 4S panel in XV seam at Jamadoba 2&3 Pit colliery

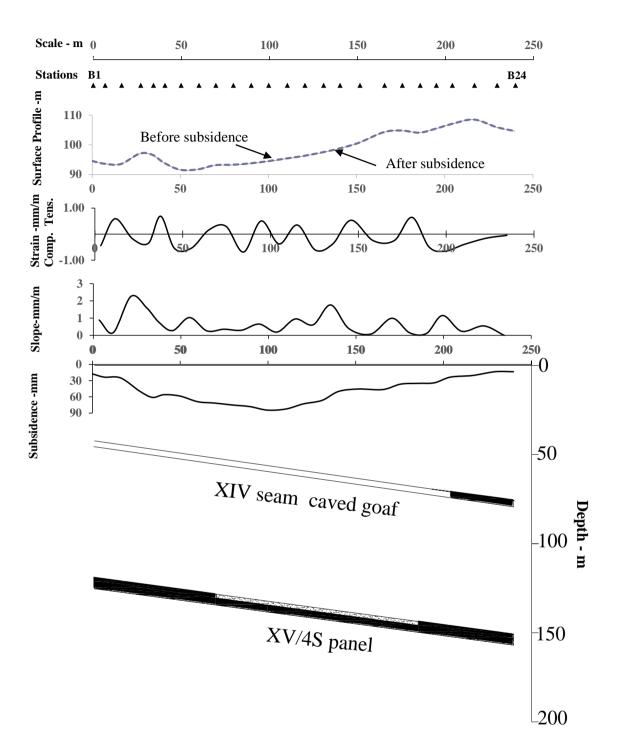


Fig. 13: Surface, strain, slope and subsidence profiles along B-line of monitoring stations over 4S panel in XV seam at Jamadoba 2&3 Pit colliery

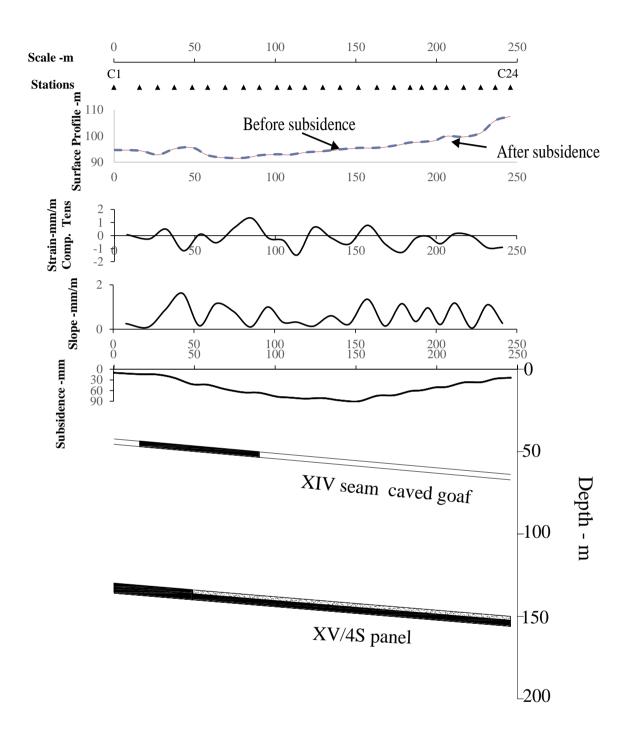
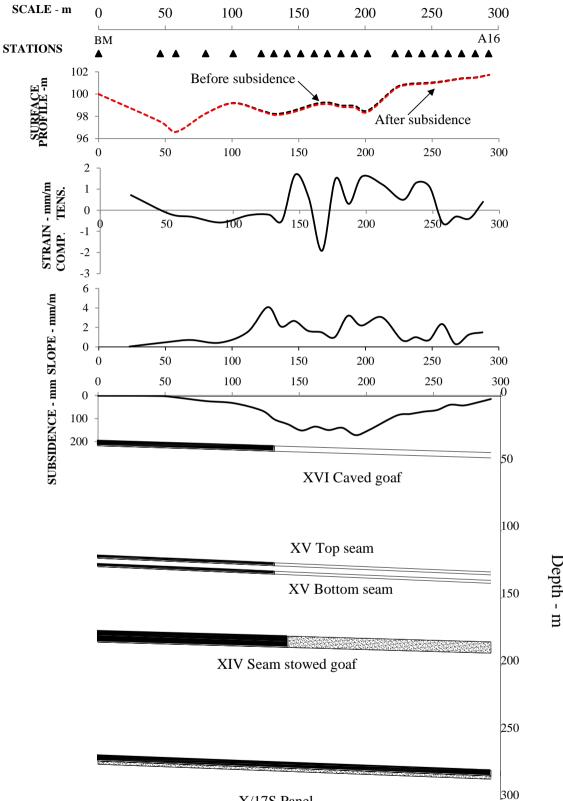
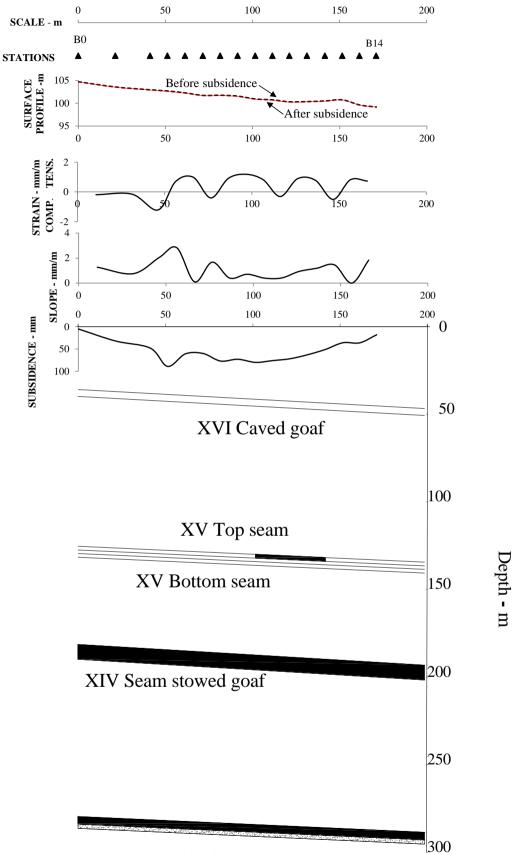


Fig. 14: Surface, strain, slope and subsidence profiles along C-line of monitoring stations over 4S panel in XV seam at Jamadoba 2&3 Pit colliery



X/17S Panel

Fig. 15: Surface, strain, slope and subsidence profiles along A-line of monitoring stations over 17S panel in X seam at Sijua colliery



X/17S Panel

Fig. 16: Surface, strain, slope and subsidence profiles along B-line of monitoring stations over 17S panel in X seam at Sijua colliery

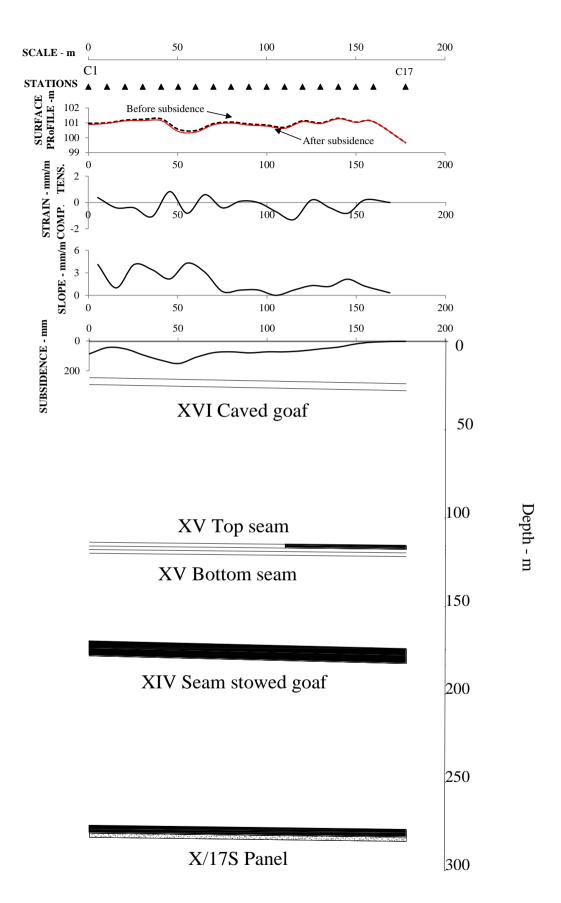


Fig. 17: Surface, strain, slope and subsidence profiles along C-line of monitoring stations over 17S panel in X seam at Sijua colliery

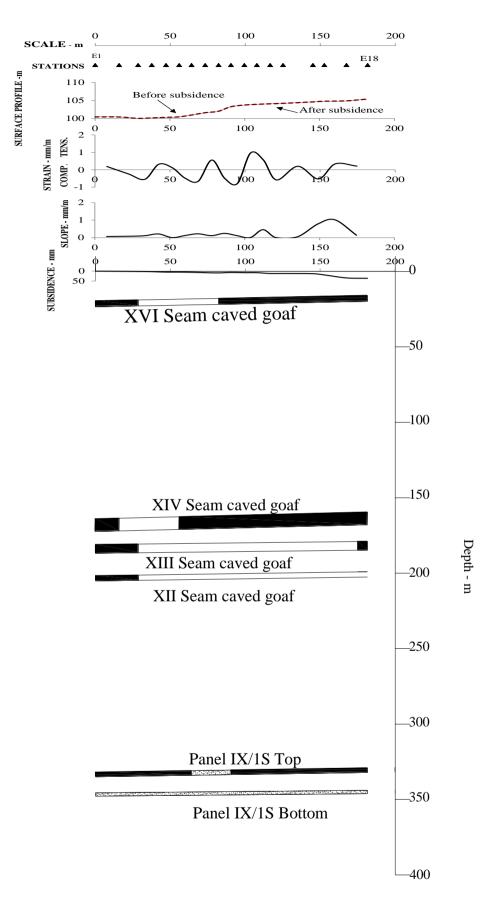


Fig. 18: Surface, strain, slope and subsidence profiles along E-line of monitoring stations over 1S (Ext.) panel in IX seam at Sijua colliery

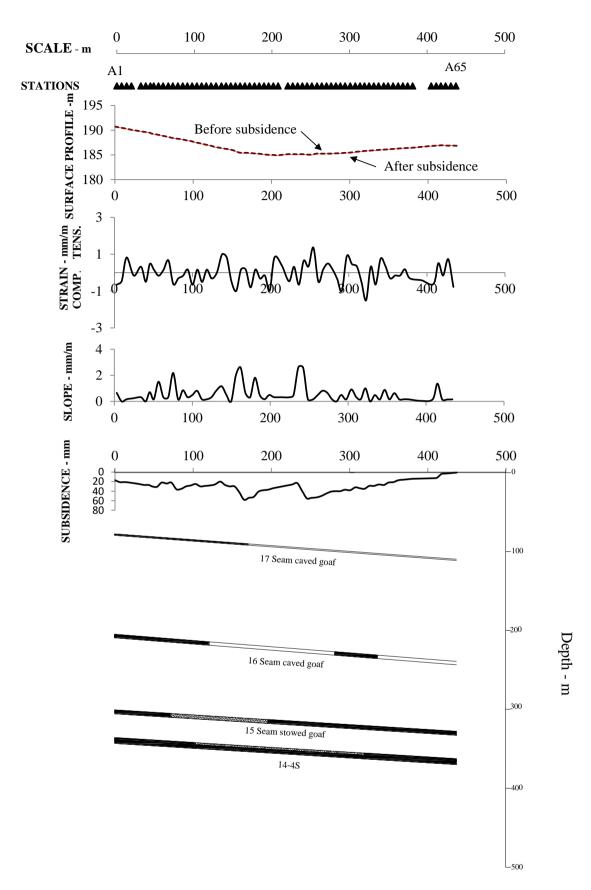


Fig. 19: Surface, strain, slope and subsidence profiles along A-line of monitoring stations over 4S panel in XIV(E) seam at Bhelatand colliery

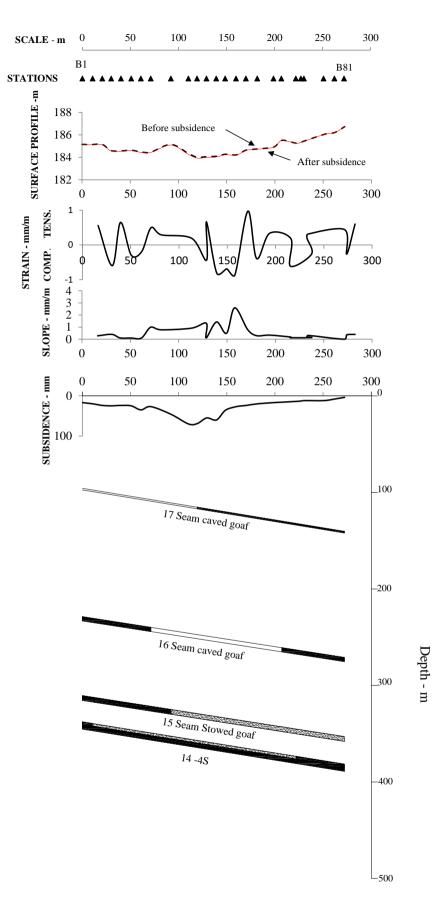


Fig. 20: Surface, strain, slope and subsidence profiles along B-line of monitoring stations over 4S panel in XIV(E) seam at Bhelatand colliery

Profile was not prepared for D-line of 1S (Ext.) panel of IX seam, Sijua, as most of the pillars were damaged. The subsidence, slope and strain measured over five panels with reference to the mining parameters i.e. depth and width-to-depth ratio are summarized in Fig. 21.

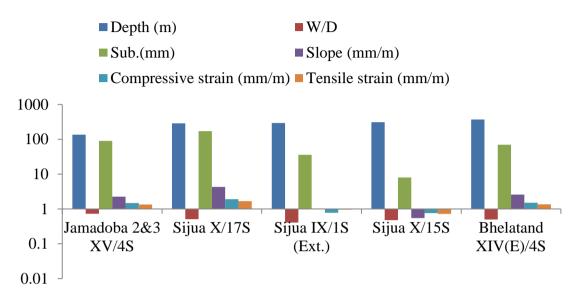


Fig. 21: Subsidence, slope and strain with respect to mining parameters

5.0 IMPACT OF SUBSIDENCE MOVEMENTS

Surface subsidence movements did not cause any adverse impact on surface features and structures as the magnitude of strains were within safe limit of 3 mm/m (Table 3). No surface cracks were noticed during the course of measurement. The overall surface topography was intact.

6.0 CONCLUSIONS

Subsidence investigations conducted over 5 stowed panels during March, 2021 to December, 2021 at Jamadoba 2&3 Pit, Sijua and Bhelatand collieries of the Tata Steel in Jharia Coalfield led to the following conclusions:

- Maximum subsidence movement was 2.56% of extraction thicknesses over the 17S panel of X seam at Sijua colliery amounting to 172 mm and the depillaring operation was completed.
- Maximum slope, compressive and tensile strains observed over measured panels was 4.30 mm/m, 1.91 mm/m and 1.68 mm/m respectively.
- 3. Subsidence, slope and strains profiles were influenced by the overlying old goaves, position of goaf edges, inclination of the seam, topography of the surface profiles as

well as left out stooks/ribs in the overlying seams worked by bord & pillar method of mining. Hence, the profiles were not symmetric.

4. Subsidence movements did not cause any adverse impact on surface features and structures.

7.0 RECOMMENDATIONS

The following recommendations are proposed for effective subsidence investigations over the Tata Steel collieries of Jharia Coalfield:

- It is recommended to erect subsidence monitoring stations at least one month before the commencement of depillaring over new panels. Layout of subsidence monitoring stations should be made as proposed.
- 2. It is also recommended to extend subsidence monitoring stations outside the panel boundary equal to panel depth for proper evaluation of extent of subsidence.
- 3. It is recommended to continue subsidence investigations for the safety evaluation of different surface features and structures lying over different on-going and future depillaring panels.