



To  
The Additional Principal Chief Conservator of Forest,  
Regional Office (Eastern Central Zone)  
Ministry of Environment, Forests and Climate Change, Govt. of India  
Bungalow No. A-2, Shyamali Colony,  
Ranchi – 834002, Jharkhand.

RefNo. - JMB/ENV/6&7/87/ 858 /2022

November 24, 2022

Ref.: Environmental Clearance letter no. - J-11015/91/2017-IA .II (M) dated- 11<sup>th</sup> 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'22 to September'22.**

Dear Sir,

We are enclosing herewith compliance report for the period **April'22 to September'22** for the EC granted vide letter no.- J-11015/91/2017-IA.II(M) dated- 11<sup>th</sup> July 2022 issued by Ministry of Environment, Forest and Climate Change, New Delhi.

Copy of the compliance report is also being sent in soft format through email at [ro.ranchi-mef@gov.in](mailto:ro.ranchi-mef@gov.in) for your kind perusal. We trust the information furnished is in line with your requirement.

Thanking you,

Yours faithfully,

**Head (Planning)**  
**Jharia Division, Tata Steel Ltd.**

Encl: As above.

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

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

Copy to: Head, Jamadoba Colliery

Copy to: Sr. Manager (Environment)

**TATA STEEL LIMITED**

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Tel 91 326 2320263/2320265/2320267 Fax 91 326 2320268  
Regd. Office Bombay House 24 Homi Mody Street Fort Mumbai 400 001  
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**HALF YEARLY COMPLIANCE REPORT**  
**(PERIOD: APRIL'22 – SEPTEMBER'22)**

**JAMADOBA UNDERGROUND COAL MINE**

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



**TATA STEEL LIMITED, JHARIA DIVISION**

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

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

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

<b>Sl. No.</b>	<b>Consent Condition</b>	<b>Compliance Status</b>
i	PP to obtain the CTO for 0.34 MTPA capacities immediately after grant of EC.	Consent to Operate for the existing capacity has been obtained from the State PCB on 14.11.2022 and is valid till 31.12.2024.
ii	PP to conserve the Kari jhore, Dungri jhore, Damodar River following within the core area of the project and the measure taken for its conservation to be furnished in every six-monthly compliance to be reported to respective IRO and SPCB.	The conservation measures are ensured, and the report shall be submitted to IRO, MoEFCC & SPCB as required.
iii	Since there is also Jamadoba Coal washery located within mine lease having separated EC vide Letter No.- J-11015/203/2011-II-IA(M) dated 3rd March 2014 so the adequate EMP measure to be adopted to minimize the cumulative impact, also the utilization of rejects generated from washery should be managed as per norms. PP shall obtain integrated EC for future coal/washery expansion.	There are existing environmental measures for the Jamadoba Coal preparation plant. The integrated EC shall be taken in case of washery expansion.
iv	PP shall obtain No objection certificate from Ground water Authority for extraction of ground water within six months and submit to IRO Ranchi.	The NOC from central Ground Water Authority for extraction of ground water has been granted vide NOC No. CGWA/NOC/MIN/ORIG/2021/1342 2; dated: 20/10/2021. The copy of NOC has been attached along with compliance report.
v	PP Shall reduce river sand used for stowing and explore usage of sand segregated from OB dump from any nearest mine (either its own or any mine) and submit detailed report to IRO Ranchi.	We are in the process of technological exploration of sand from OB dump.
vi	PP shall follow the recommendation of subsidence study and monitor the degree of subsidence regularly and shall be submitted to IRO- Ranchi.	The subsidence is monitored regularly, and the recommendations are implemented. The report shall be shared with IRO, Ranchi at the earliest.
vii	PP to accomplish the requirement of a full fledge qualified manpower with Environmental Engineer/Env. Science degree background in Environmental Management Cell etc. within six months and same shall be reported to IRO, MoEF&CC	We have a full-fledged Environment cell with Environment professionals and field monitoring staff. The report shall be shared with IRO, Ranchi at the earliest
viii	PP to fulfil all the commitment made to address	The commitment are in various

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	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	levels of compliance. 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.
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.	It shall be complied.
xiv	PP must seek the input of experts for phytoremediation of Slurry and accordingly work on it with proper scientific approach.	It shall be complied
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.	It is under progress. Plantation and green belt development is a continuous process
xvi	PP to install solar lights along the road used for	It shall be complied

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	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	
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.
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.
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. No illumination and sound at night is being ensured.
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	We have a full-fledged Environment cell with Environment professionals and field monitoring staff.

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

	routine basis. Any non-compliance or infringement should be reported to the concerned authority.	
4.1	The grant of Environment Compliance (EC) is further subject to compliance of the Standard EC Conditions as under:	
(a)	Statutory Compliance:	
i	The Environmental clearance shall be subject orders of Hon'ble Supreme Court of India. Hon'ble High Courts, NGT and any other Court of Law, from time to time, and as applicable to the project.	It has been noted.
ii	The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non- forest purpose involved in the project.	It is not applicable.
iii	The Project proponent shall obtain clearance from the National Board for Wildlife, if applicable.	Not Applicable
iv	The project proponent shall prepare a site specific conservation plan/wildlife management Plan and approved by the Chief Wildlife Warden. The recommendation of the approved Site Specific Conservation Plan/Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six monthly compliance report (in case of the presence of schedule I species in the study area)	Not Applicable
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. JSPCB/HO/RNC/CTO-13955624/2022/1601 dated 14.11.2022.
vi	The project proponent shall obtain the necessary permission from the Central Ground Water Authority.	NOC has been obtained from CGWA vide NOC No. CGWA/NOC/MIN/ORIG/2021/13422; dated: 20/10/2021
vii	Solid Waste/Hazardous Waste generated in the mines needs to addressed in accordance to the Solid Waste Management Rules,2016/ Hazardous & Other Waste Management Rules,2016	It has been noted and shall be complied.

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I.(a)	Air Quality Monitoring and Preservation	
i	Adequate ambient air quality monitoring stations shall be established in core zone as well as in the buffer zone for monitoring of pollutants, namely particulates ,SO <sub>2</sub> and NO <sub>x</sub> location of the Station shall be decided based on the metrological data, topographical features and environmentally and ecologically sensitive in consultation with the State Pollution Control Board. Monitoring of heavy metal such as Hg, As, Ni, Cd, Cr, etc. to be carried out at least once in six months. Online ambient air quality monitoring station may also be installed in addition to the regular air monitoring stations as per the requirement and /or in consultation with the SPCB.	Complied
ii	The Ambient Air Quality monitoring in the core zone shall be carried out to ensure the coal Industry Standards notifies vide GSR 742 E dated 25.09.2000 and as amended from time to time by the Central Pollution Control Board. Data on ambient air quality and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly reported to the Ministry/Regional Office and to the CPCB/SPCB.	It has been complied
iii	Transportation of coal, to the extent permitted by road shall be carried out by covered trucks/conveyors .Effective control measure such as regular water sprinkling /rain gun/mist sprinkling etc. shall be carried out in critical areas prone to air pollution with higher level of particulate matter all through the coal; transport roads., loading /Unloading and transfer points. Fugitive dust emissions from all sources shall be controlled regularly. It shall be ensured that the ambient air quality parameters conform to the norms prescribed by the Central/ State Pollution Control Board.	It has been complied
iv	Major approach roads shall be black topped and properly maintained.	It has been complied
v	The transportation of coal shall be carried out as per the provision and route proposed in the approved mining plan. Transportation of coal through the exiting road passing through any village shall be avoided. In case it is proposed to construct a bypass road it should be so constructed that the impact of sound, dust and accidents could be appropriately mitigated.	It has been complied

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vi	Vehicular emissions shall be kept under control and regularly monitored. All the vehicles engaged in mining and allied activities shall operate only after obtaining PUC' certificate from the authorized pollution testing centres.	It has been complied
vii	Coal Stock pile/crusher/feeder and breaker material transfer points shall invariably be provided with dust suppression system. Belt conveyors shall be fully covered to avoid air borne dust Side cladding all along the conveyor gantry should be made to avoid air borne dust. Drills shall be wet operated or fitted with dust extractors.	It has been complied
viii	Coal handling plant shall be operated with effective control measures w.r.t various environmental parameters. Environmental friendly sustainable technology should be implemented for mitigating such parameters.	It has been complied
<b>(b)</b>	<b>Water Quality Monitoring and Preservation</b>	
i	The effluent discharge(mine waste water, workshop effluent) shall be monitored in terms of the parameters notified under the Water Act, 1974 Coal Industry Standard vide GSR 742 E, dated 25.09.2000 an as amended from time to time by the Central Pollution Control Board .	It has been complied
ii	The Monitoring data shall be uploaded on the company's website and displayed at the project site at a suitable location. The Circular NO. J-20012/1/2006-1A.11 (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regards for its compliance.	It has been complied
iii	Regular monitoring of ground water level and quality shall be carried out in and around the mine lease area by establishing a network of existing wells and construction new piezometers during the mining operations. The monitoring of ground water levels shall be carried out four times in a year i.e, pre monsoon monsoon, post monsoon and winter. The ground water quality shall be monitored once a year, and the data thus collected shall be sent regularly to MoEFCC/RO.	It has been complied
vi	Monitoring of Water quality upstream and downstream of water bodies shall be carried out once in six months and records of monitoring data shall be maintained and submitted to the Ministry of environment, Forest and Climate Change/ Regional Office,	It has been complied



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v	Ground Water, excluding mine water, shall not be used for mining operation s rainwater harvesting shall be implemented for conservation and augmentation of ground water resources.	It has been complied
vi	The Project proponent shall not alter major water channels around the site. Appropriate embankment shall be provided along the side of the river/nallah flowing near or adjacent to the mine. The embankment constructed along river/nallah boundary shall be suitable dimensions and critical patches shall be strengthened by stone pitching on the river front side, Stabilized with plantation so as to withstand the peak water pressure preventing any chance of mine inundation.	It has been complied
vii	Garland drains (of suitable size, gradient and length) around the critical areas i.e. mine shaft and low lying areas, shall be designed keeping at least 50% safety margin the mine sites. The sump capacity shall also provide adequate retention period to allow proper settling of slit material of the surface runoff.	It has been complied
viii	The Water pumped out from the mine, after siltation, shall be utilized for industrial purpose viz. watering the mine area, roads green belt development etc. The drains shall be regularly distilled particularly after monsoon and maintained properly.	It has been complied
ix	Industrial waste water from coal handling plant and mine water shall be properly collected and treated so as to conform to the standard prescribed under the Environment Protection Act, 1986 and the rules made thereunder, and as amended from time to time. Oil and grease trap shall be installed before discharge of workshop affluent. Sewage treatment plant of adequate capacity shall be installed for treatment of domestic waste water.	It has been complied
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.	It has been complied
xi	The surface drainage plan including surface water conservation of area of influence affected by the said mining operations shall be prepared, considering the presence of any river/rivulet/pond/lake etc. with impact of	It has been complied

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	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.	
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)	<b>Noise and Vibration Monitoring and Prevention</b>	
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 <b>Annexure-I</b>
(d)	<b>Mining Plan</b>	
i	Mining shall be carried out under strict adherence to provisions of Mines Act 1952 and subordinate legislations made there under as applicable.	It has been complied
ii	No change in mining method i.e. UG to OC, calendar programme and scope of work shall be made without obtaining prior approval of the Ministry of Environment Forest, and Climate Change (MoEFCC)	It has been complied
iii	Mining shall be carried out as per the approved mining plan (including mines closure plan) abiding by mining laws related to coal mining and the relevant circulars issued by Directorate	It has been complied

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	General of Mines Safety (DGMS)	
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	Not applicable. No forest land available.
vi	Efforts should be made to reduce energy and fuel consumption by conservation, efficiency improvements and use of renewable energy.	It has been complied
<b>(e)</b>	<b>Land Reclamation</b>	
i	Digital Survey of entire lease hold area/core zone using Satellite Remote Sensing survey shall be carried out at least once in three years for monitoring land use pattern and report in 1:50,000 scale or as notified by Ministry of Environment, Forest and Climate Change (MoEFCC) from time to time shall be submitted to MoEFCC/ Regional Office (RO)	It has been complied. The LULC study was done in 2021 and the report was submitted to IRO, Ranchi
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 August,2009 and subsequent amendments	It has been 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 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.	It has been complied
iv	Fly ash shall be used for external dump of overburden, backfilling, or stowing of mines as per provision contained in clause (I )and (ii) of subparagraph (8) of fly ash notification issued vide SO 2804 E dated 3rd Nov. 2009 as amended from time to time. Efforts shall be made to utilize gypsum generated from flue Gas	It has been complied

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	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.	It has been complied
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 has been complied
vii	Native tree species shall be selected and planted over areas affected by subsidence.	It has been complied
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
<b>(f)</b>	<b>Green Belt</b>	
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 complied
ii	Green belt, consisting of three -tier plantation, of which not less than 7.5 m shall be developed all along the mines lease area in a phased manner. The green belt comprising of a mix of natives species shall be developed all along the major roads/ coal transportation roads.	It has been complied partially and work is under progress.
<b>(g)</b>	<b>Public Hearing and Human Health Issues</b>	
i	Adequate illumination shall be ensured in all mine location (as per DGMS standards) and monitored.	It has been complied
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	It has been complied

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	health check-up for occupational disease and hearing impairment, if any.	
iii	Personal (including outsourcing employees) working in dusty area shall wear protective respiratory devices and shall also be provided with adequate training and information on safety and health aspects.	It has been complied
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.	It has been complied
v	Effective arrangements shall be made to provide and maintain at suitable points conveniently situated, a sufficient supply of drinking water for all the persons employed.	It has been complied
vi	Implementation of Action Plan on the issues raised during the public hearing shall be ensured. The Project Proponent shall undertake all the tasks as per the Action Plan Submitted with budgetary provisions during the Public Hearing. Land outies shall be compensated as per the norms laid out R&R Policy of the Company/or the National R&R Policy/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 surrounded by the mine lease area'.	It shall be complied
<b>(h)</b>	<b>Corporate Environment Responsibility</b>	
i	The company shall have a well laid down environmental policy duly approved by the Board of Directors. The environmental policy should prescribe for standard operating procedures have proper checks and balances and to bring in focus any infringements/deviation/violation of the environment/forest /wildlife norms/conditions. The company shall have defined system of reporting infringements /deviation/violation of their environment /forest/wildlife norms/conditions and /or shareholder/stockholders. The copy of the board resolution in this regards shall be submitted to MoEF&CC as a part of six monthly reports.	It has been complied

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ii	A separate Environmental Cell both at the project and company head quarter level, with qualified personal shall be set up under the control of senior Executive, who will directly to the head of the organization.	It has been complied
iii	Action Plan for implementation EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be providing for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the six Monthly Compliance Report.	It has been complied
iv	Self-Environmental audit shall be conducted annually. Every three year third party environmental audit shall be carried out.	It has been noted and shall be complied
<b>Miscellaneous</b>		
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
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 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 reports on the status of the compliance	It shall be complied

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

	of stipulated environment conditions on the website of the Ministry of Environment, Forest and Climate Change at environmental clearance portal.	
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.	It shall be complied
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.	It has been complied
viii	The project authorities shall inform to the regional Office of MoEF&CC regarding commencement of mining operations.	Shall be complied
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 presentation to the Expert Appraisal Committee.	Shall be complied
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.	Shall be complied
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.	Agreed
xiii	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.	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	Agreed

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

	The project authorities should extend full cooperation to the officers of the Regional Office by furnishing the requisite data /information/monitoring reports.	
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.	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.	Agreed
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.	Agreed
7	Any appeal against this environmental clearance shall lie with the Green Tribunal if Preferred, with in a period of 30 day as prescribed under section 16 of the National Green Tribunal Act, 2010.	Not required
8	The coal company\project proponent shall be liable to pay compensation against the illegal mining, if any, and raised by the respective state Government at any point of time in terms of the orders dated 2nd August, 2017 of Hon'ble Supreme Court in WP (Civil) No.-114/2014 in the matter of Common Cause Vs Union of India & others.	Agreed
9	The concerned State Government shall ensure no mining operations to commence till the entire compensation for illegal mining if any is paid by the project proponents through their respective Department Of Mining & Geology, in strict compliance of judgement of Hon'ble Supreme	Not Applicable



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

	Court.	
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

**AIR QUALITY REPORT**

Core zone &amp; Buffer zone

Period- April'22 to June'22

No. of sampling points: 4

Core zone (as per Air quality standards for coal mines in EPA Notification, 1988)							
Location	Latitude/ Longitude	Date	Weather Condition	SPM 24 Hourly Limit- 700 $\mu\text{g}/\text{m}^3$	RSPM 24 Hourly Limit- 300 $\mu\text{g}/\text{m}^3$	SO <sub>2</sub> 24 Hourly Limit- 120 $\mu\text{g}/\text{m}^3$	NO <sub>x</sub> 24 Hourly Limit-120 $\mu\text{g}/\text{m}^3$
Jamadoba Group Office	23°42'15.3" N/ 86°24'11" E	18.04.22	Clear	233.4	89.5	13.2	14.6
		06.05.22	Cloudy	214.2	80.5	11.6	13.0
		10.06.22	Clear	210.6	77.5	13.3	14.8
Buffer zone (as per NAAQS 2009 for ambient air quality standards)							
Location	Latitude/ Longitude	Date	Weather Condition	PM10 24 Hourly Limit- 100 $\mu\text{g}/\text{m}^3$	PM2.5 24 Hourly Limit- 60 $\mu\text{g}/\text{m}^3$	SO <sub>2</sub> 24 Hourly Limit- 80 $\mu\text{g}/\text{m}^3$	NO <sub>2</sub> 24 Hourly Limit- 80 $\mu\text{g}/\text{m}^3$
Digwadih 12 No. Colony	23°41'42" N/ 86°24'45.3" E	13.04.22	Clear	78.3	36.6	13.7	14.9
		10.05.22	Cloudy	75.3	35.2	10.8	11.3
		08.06.22	Clear	78.4	40.2	11.5	12.7
New Village Colony, Jamadoba	23°41'51" N/ 86°23'19" E	15.04.22	Clear	88.7	45.1	12.5	13.5
		05.05.22	Cloudy	85.7	43.0	13.2	14.0
		06.06.22	Clear	82.7	42.8	12.3	13.1
6&7 Pits Kalimandir colony	23°43'15" N/ 86°24'12" E	11.04.22	Clear	84.4	42.3	13.1	15.2
		09.05.22	Clear	87.9	46.3	12.0	13.9
		07.06.22	Cloudy	75.2	36.4	12.4	14.6


**Sr. Manager (Environment)**

**AIR QUALITY REPORT**  
Core zone & Buffer zone

Period- July'22 to September'22

No. of sampling points: 4

Core zone (as per Air quality standards for coal mines in EPA Notification, 1988)							
Location	Latitude/ Longitude	Date	Weather Condition	SPM 24 Hourly Limit- 700 $\mu\text{g}/\text{m}^3$	RSPM 24 Hourly Limit- 300 $\mu\text{g}/\text{m}^3$	SO <sub>2</sub> 24 Hourly Limit- 120 $\mu\text{g}/\text{m}^3$	NO <sub>x</sub> 24 Hourly Limit-120 $\mu\text{g}/\text{m}^3$
Jamadoba Group Office	23°42'15.3" N/ 86°24'11" E	22.07.22	Cloudy	186.4	69.5	11.3	13.7
		11.08.22	Cloudy	188.7	70.2	12.0	13.4
		02.09.22	Clear	192.3	72.3	13.8	15.6
Buffer zone (as per NAAQS 2009 for ambient air quality standards)							
Location	Latitude/ Longitude	Date	Weather Condition	PM10 24 Hourly Limit- 100 $\mu\text{g}/\text{m}^3$	PM2.5 24 Hourly Limit- 60 $\mu\text{g}/\text{m}^3$	SO <sub>2</sub> 24 Hourly Limit- 80 $\mu\text{g}/\text{m}^3$	NO <sub>2</sub> 24 Hourly Limit- 80 $\mu\text{g}/\text{m}^3$
Digwadih 12 No. Colony	23°41'42" N/ 86°24'45.3" E	20.07.22	Clear	70.3	36.2	12.2	13.5
		09.08.22	Cloudy	65.3	32.5	11.2	12.9
		05.09.22	Cloudy	67.2	34.4	12.5	13.7
New Village Colony, Jamadoba	23°41'51" N/ 86°23'19" E	18.07.22	Cloudy	68.4	34.6	10.8	11.5
		12.08.22	Clear	76.8	38.4	13.6	14.3
		07.09.22	Clear	75.1	40.8	11.8	12.2
6&7 Pits Kalimandir colony	23°43'15" N/ 86°24'12" E	21.07.22	Clear	71.3	37.1	11.5	12.2
		08.08.22	Cloudy	67.1	33.7	12.5	13.6
		06.09.22	Cloudy	69.5	36.1	12.9	14.3



Sr. Manager (Environment)

**Ground Water Quality Analysis (Hand Pump & Dung Well)  
(Pre- Monsoon Season- May'2022)**

S.No	Date	Location	Time	Depth in meter	pH	Electrical Conductivity, $\mu\text{S/m}$
1	10.05.22	Purnadih (Jorapokhar)	12:10 PM	6.98	7.6	812
2	10.05.22	Bhowra 13 No	12:45 PM	4.26	7.5	758
3	10.05.22	Mohalbani Basti	01:10 PM	7.12	7.4	910
4	10.05.22	Digwadih 12 No	01:30 PM	5.14	7.6	799
5	10.05.22	Digwadih 10 No F & J	01:50 PM	4.25	7.3	956
6	10.05.22	Kalimela Shivmandir	11:15 AM	3.10	7.5	820
7	10.05.22	Kalimela Kalimandir	11:35 AM	4.28	7.6	935
8	10.05.22	Lower Dungari	10:50 AM	5.62	7.5	768
9	10.05.22	Upper Dungari	10:20 AM	4.38	7.4	884
10	10.05.22	Pattia Basti	09:55 AM	5.10	7.6	858
11	10.05.22	Kenduadih Basti	09:30 AM	3.36	7.5	812
12	10.05.22	Jorapokhar Kushtand	03:00 PM	5.78	7.6	836
13	10.05.22	Jamadoba 3 No	04:10 PM	5.84	7.7	794
14	10.05.22	6&7 Pits (Ayodhya Nagri)	02:20 PM	4.23	7.4	786



**Sr. Manager (Environment)**

**Ground Water Quality Analysis (Hand Pump & Dung Well)  
(Monsoon Season- August'2022)**

S.No	Date	Location	Time	Depth in meter	pH	Electrical Conductivity $\mu\text{S/m}$
1	12.08.22	Purnadih (Jorapokhar)	12:00 PM	2.48	7.1	719
2	12.08.22	Bhowra 13 No	12:25 PM	1.98	7.2	698
3	12.08.22	Mohalbani Basti	12:50 PM	3.68	7.0	726
4	12.08.22	Digwadih 10 No F & J	01:10 PM	2.84	7.3	721
5	12.08.22	Kalimela Shivmandir	01:30 PM	1.24	7.2	994
6	12.08.22	Kalimela Kalimandir	10:55 AM	2.29	7.2	824
7	12.08.22	Lower Dungari	11:10 AM	3.32	7.3	782
8	12.08.22	Upper Dungari	10:40 AM	2.98	7.4	710
9	12.08.22	Pattia Basti	10:20 AM	2.64	7.1	714
10	12.08.22	Kenduadih Basti	09:55 AM	1.96	7.2	738
11	12.08.22	Jorapokhar Kushtand	09:35 AM	1.24	7.1	824
12	12.08.22	Jamadoba 3 No	11:40 AM	2.48	7.3	748
13	12.08.22	6&7 Pits (Ayodhya Nagri)	02:25 PM	1.98	7.2	732
14	12.08.22	Jorapokhar Basti Chhattand	01:50 PM	1.68	7.1	698

**Sr. Manager (Environment)**



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Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/22-23/495

Date: 23.05.2022


## TEST REPORT OF AMBIENT AIR QUALITY

- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 18.05.2022 to 19.05.2022
- Date of Testing : 20.05.2022 to 21.05.2022
- Test Procedure : As per IS-5182

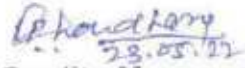
### TEST RESULTS

LOCATION - 6 & 7 PITS COLLOIERY OFFICE			
	Avg. Ambient Temperature	35 <sup>o</sup> C	Avg. Humidity
Sl No.	Particulars	Value	50% NAAQ - CPCB STANDARD
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	81.69	100 µg/m <sup>3</sup>
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	44.71	60 µg/m <sup>3</sup>
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	20.37	80 µg/m <sup>3</sup>
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	28.92	80 µg/m <sup>3</sup>
5.	Ozone, µg/m <sup>3</sup>	20.38	180 µg/m <sup>3</sup>
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	18.88	400 µg/m <sup>3</sup>
7.	CO, mg/m <sup>3</sup>	1.16	4 mg/m <sup>3</sup>
8.	Pb, µg/m <sup>3</sup>	BDL	1 µg/m <sup>3</sup>
9.	As, ng/m <sup>3</sup>	BDL	6 ng/m <sup>3</sup>
10.	Ni, ng/m <sup>3</sup>	BDL	20 ng/m <sup>3</sup>
11.	Benzene, µg/m <sup>3</sup>	BDL	5 µg/m <sup>3</sup>
12.	Benzoapyrene ng/m <sup>3</sup>	BDL	1 ng/m <sup>3</sup>

NOTE: BDL - Below Detection Limit

  
Sr. Chemist  
Aditi R&D Services



  
Quality Manager  
Aditi R&D Services, Sindri

#### Statements:

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Ref. No.: - ARDS/22-23/496

Date: 23.05.2022


## TEST REPORT OF AMBIENT AIR QUALITY

- Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED, JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 18.05.2022 to 19.05.2022
- Date of Testing : 20.05.2022 to 21.05.2022
- Test Procedure : As per IS-5182

### TEST RESULTS

LOCATION – OFFICERS COLONY, 12 NO. DIGWADIH					
Avg. Ambient Temperature		33°C	Avg. Humidity		51%
Sl No.	Particulars	Value	NAAQ - CPCB STANDARD		
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	75.32	100 µg/m <sup>3</sup>		
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	42.14	60 µg/m <sup>3</sup>		
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	16.72	80 µg/m <sup>3</sup>		
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	26.61	80 µg/m <sup>3</sup>		
5.	Ozone, µg/m <sup>3</sup>	18.84	180 µg/m <sup>3</sup>		
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	16.38	400 µg/m <sup>3</sup>		
7.	CO, mg/m <sup>3</sup>	0.69	4 mg/m <sup>3</sup>		
8.	Pb, µg/m <sup>3</sup>	BDL	1 µg/m <sup>3</sup>		
9.	As, ng/m <sup>3</sup>	BDL	6 ng/m <sup>3</sup>		
10.	Ni, ng/m <sup>3</sup>	BDL	20 ng/m <sup>3</sup>		
11.	Benzene, µg/m <sup>3</sup>	BDL	5 µg/m <sup>3</sup>		
12.	Benzoapyrene ng/m <sup>3</sup>	BDL	1 ng/m <sup>3</sup>		

NOTE: BDL - Below Detection Limit

  
Sr. Chemist  
Aditi R&D Services



  
Quality Manager  
Aditi R&D Services, Sindri

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Ref. No.: - ARDS/22-23/497

Date: 23.05.2022

## TEST REPORT OF AMBIENT AIR QUALITY

- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 18.05.2022 To 19.05.2022
- Date of Testing : 20.05.2022 To 21.05.2022
- Test Procedure : As per IS-5182

### TEST RESULTS

LOCATION - CENTRAL WORKSHOP AREA, JAMADOBA

SI No.	Avg. Ambient Temperature	35°C	Avg. Humidity	49%
	Particulars	Value	NAAQ - CPCB STANDARD	
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	78.84	100 µg/m <sup>3</sup>	
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	43.93	60 µg/m <sup>3</sup>	
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	17.86	80 µg/m <sup>3</sup>	
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	25.79	80 µg/m <sup>3</sup>	
5.	Ozone, µg/m <sup>3</sup>	16.42	180 µg/m <sup>3</sup>	
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	18.50	400 µg/m <sup>3</sup>	
7.	CO, mg/m <sup>3</sup>	0.96	4 mg/m <sup>3</sup>	
8.	Pb, µg/m <sup>3</sup>	BDL	1 µg/m <sup>3</sup>	
9.	As, ng/m <sup>3</sup>	BDL	6 ng/m <sup>3</sup>	
10.	Ni, ng/m <sup>3</sup>	BDL	20 ng/m <sup>3</sup>	
11.	Benzene, µg/m <sup>3</sup>	BDL	5 µg/m <sup>3</sup>	
12.	Benzoapyrene ng/m <sup>3</sup>	BDL	1 ng/m <sup>3</sup>	

NOTE: BDL - Below Detection Limit

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



*Pratibha*  
23.05.22  
Quality Manager  
Aditi R&D Services, Sindri

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Ref. No.: - ARDS/22-23/498

Date: 23.05.2022

## TEST REPORT OF AMBIENT AIR QUALITY

- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 18.05.2022 To 19.05.2022
- Date of Testing : 20.05.2022 To 21.05.2022
- Test Procedure : As per IS-5182

### TEST RESULTS

#### LOCATION - TATA CENTRAL HOSPITAL

SI No.	Particulars	Avg. Ambient Temperature	35°C	Avg. Humidity	49%
		Value		NAAQ - CPCB STANDARD	
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	86.99		100 µg/m <sup>3</sup>	
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	48.16		60 µg/m <sup>3</sup>	
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	22.37		80 µg/m <sup>3</sup>	
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	29.92		80 µg/m <sup>3</sup>	
5.	Ozone, µg/m <sup>3</sup>	21.54		180 µg/m <sup>3</sup>	
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	20.16		400 µg/m <sup>3</sup>	
7.	CO, mg/m <sup>3</sup>	1.01		4 mg/m <sup>3</sup>	
8.	Pb, µg/m <sup>3</sup>	BDL		1 µg/m <sup>3</sup>	
9.	As, ng/m <sup>3</sup>	BDL		6 ng/m <sup>3</sup>	
10.	Ni, ng/m <sup>3</sup>	BDL		20 ng/m <sup>3</sup>	
11.	Benzene, µg/m <sup>3</sup>	BDL		5 µg/m <sup>3</sup>	
12.	Benzoapyrene ng/m <sup>3</sup>	BDL		1 ng/m <sup>3</sup>	

NOTE: BDL - Below Detection Limit

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



*P. K. Choudhary*  
23.05.22  
Quality Manager  
Aditi R&D Services, Sindri

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## TEST REPORT OF NOISE (AMBIENT) LEVEL MONITORING

Ref. No. & Date	NAME AND ADDRESS OF THE CLIENT			
ARDS/22-23/465 Date: 20.05.2022	M/S TATA STEEL, JAMADOBA,			
Date of Monitoring	TATA STEEL LIMITED, JAMADOBA GROUP PLANT,			
	DIST. - DHANBAD (JHARKHAND)			
18.05.2022 TO 19.05.2022	Avg. Ambient Temperature (°C)	Average Humidity (%)	Weather Condition	Status of the plant
Work Order 4700092573/932 Dt. 20.07.2021	35	49	Clear	Running

### MONITORING RESULTS

Sl. No	Place of Monitoring	Day Time (6 AM to 10 PM) Avg. dB(A)			Night Time (10 PM to 6 AM) Avg. dB(A)			Noise level (Ambient standard) for Industrial Area as per CPCB Noise Pollution (Regulation and Control) (Amendment) Rules, 2000 notified vide S.O. 1048(E) Dt. 22.11.2020 Limit in dB(A) Leq	
		MAX	MIN	AVG. dB(A) Leq	MAX	MIN	AVERAGE dB(A) Leq	Day Time	Night Time
	LOCATION							Industrial Area	Industrial Area
	JAMADOBA GROUP								
1.	Central Workshop	56	49	53.78	49	42	46.78	75	70
2.	6&7 Pits Colliery Office	52	49	50.75	44	41	42.75		
								Residential Area	Residential Area
3.	Officer Colony 12 No. Digwadih	53	48	51.18	44	40	42.45	65	55
								Silence Zone	Silence Zone
4.	Tata Central Hospital	49	46	47.75	36	32	34.45	50	40

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



Pradyumn  
20.05.22  
Quality Manager  
Aditi R&D Services, Sindri

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Mobile: 09471358492, 09431512808

Ref. No.: - ARDS/22-23/499

Date: 23.05.2022

## TEST REPORT OF MINERALOGICAL COMPOSITION OF PARTICULATE MATTER

- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 19.05.2022
- Date of Testing : 20.05.2022 - 21.05.2022

### TEST RESULTS

Sl No.	Particulars	Mineralogical Composition (%)			
		SiO <sub>2</sub>	FeO	Al <sub>2</sub> O <sub>3</sub>	CaO
1.	Officer's Colony, 12 No, Digwadih	1.47	0.12	1.22	2.6
2.	Central Workshop Area Jamadoba	1.89	0.19	1.31	2.59

*S. D. Roy*  
Sr. Chemist  
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*U. Phouchar*  
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Ref. No.: - ARDS/22-23/555

Date: 28.05.2022

## TEST REPORT OF SURFACE WATER

- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Sample Code : 1. Damodar River Up Stream  
2. Damodar River Down Stream
- Date of Sample Collection: 18.05.2022 To 19.05.2022
- Date of Testing : 20.05.2022 to 27.05.2022
- Test : pH, TDS, Turbidity, DO, BOD, Cl, F, SO<sub>4</sub>

### TEST RESULT

Sl. No.	PARAMETERS OF TEST	VALUE		Limit as per IS 2296 Class - C	Test Method
		Damodar River Up Stream	Damodar River Dn Stream		
1.	pH	7.71	7.80	6.5 - 8.5	IS-3025 (P-11): 1983
2.	Total Dissolved Solids, mg/l	570	605	1500	IS-3025 (P-16): 1984
3.	Turbidity, NTU	9.8	11.4	-	IS-3025 (P-10):1984
4.	Dissolved Oxygen, mg/l	5.9	6.2	4.0	IS-3025 (P-38):1989
5.	Bio chemical Oxygen Demand, mg/l	1.4	1.6	3.0	IS-3025 (P-44):1994
6.	Chloride as Cl, mg/l	53	58	-	IS-3025 (P-32):1988
7.	Fluoride as F, mg/l	0.52	0.56	1.5	IS-3025 (P-60):2008
8.	Sulphate as SO <sub>4</sub> , mg/l	40	52	400	IS-3025 (P-24):1986

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Ref. No.: - ARDS/22-23/556

Date: 28.05.2022

## TEST REPORT OF MINE WATER DISCHARGE

- Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Sample Code : 1. 2 Pit Jamadoba Colliery  
2. 3 Pit Jamadoba Colliery  
3. 2 Incline Jamadoba Colliery  
4. 6 & 7 Pits Colliery  
5. Digwadih Colliery
- Date of Sample Collection: 18.05.2022 to 19.05.2022
- Date of Testing : 20.05.2022 to 27.05.2022
- Test : pH, TDS, TSS, BOD, COD, OIL & GREASE.

### TEST RESULT

Sl. No.	PARAMETERS OF TEST	VALUE					Limit as per IS-2296 Class B (For Bathing)	Test Method
		2 Pit Jamadoba Colliery	3 Pit Jamadoba Colliery	2 Incline Jamadoba Colliery	6 & 7 Pits Colliery	Digwadih Colliery		
1.	pH,	7.6	7.7	7.8	7.6	7.2	6.5-8.5	IS-3025 (P-11): 1983
2.	Total Dissolved Solids, mg/l	657	666	584	670	645	-	IS-3025 (P-16): 1984
3.	Total Suspended Solids, mg/l	18	16	22	18	23	-	IS-3025(P-17): 1984
4.	Bio chemical Oxygen Demand, mg/l	2.2	1.8	1.7	1.7	1.9	3	IS-3025 (P-44):1994
5.	Chemical Oxygen Demand, mg/l	46.08	38.4	61.44	38.8	53.76	-	IS-3025 (P-58):2006
6.	Oil & Grease, mg/l	BDL	BDL	BDL	BDL	1.1	-	IS-3025 (P-39):2021

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



*Pranab Kumar*  
28.05.2022  
Quality Manager  
Aditi R&D Services, Sindri

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Ref. No.: - ARDS/22-23/557

Date: 28.05.2022

## TEST REPORT OF EFFLUENT

- Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED, JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Sample Code : J.C.P.P. Final Setting Pond
- Date of Sample Collection: 18.05.2022 to 19.05.2022
- Date of Testing : 20.05.2022 to 27.05.2022
- Test : pH, TDS, TSS, BOD, COD, OIL & GREASE.

### TEST RESULT

Sl. No.	PARAMETERS OF TEST	VALUE	Limit as per IS-2296 Class B (For Bathing)	Test Method
		J.C.P.P. Final Settling Pond		
1.	pH,	DRY POND	6.5-8.5	IS-3025 (P-11): 1983
2.	Total Dissolved Solids, mg/l		-	IS-3025 (P-16): 1984
3.	Total Suspended Solids, mg/l		-	IS-3025(P-17): 1984
4.	Bio chemical Oxygen Demand, mg/l		3	IS-3025 (P-44):1994
5.	Chemical Oxygen Demand, mg/l		-	IS-3025 (P-58):2006
6.	Oil & Grease, mg/l		-	IS-3025 (P-39):2021

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



*A. Phani*  
Quality Manager  
Aditi R&D Services, Sindri

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Ref. No.: - ARDS/22-23/562

Date: 28.05.2022

## TEST REPORT OF SEWAGE

- Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED, JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Sample Code : 1. S.T.P. Outlet Jamadoba Canteen  
2. S.T.P. Outlet J.C.P.P. Canteen  
3. S.T.P. Outlet Railway Colony
- Date of Sample Collection: 18.05.2022 To 19.05.2022
- Date of Testing : 20.05.2022 To 27.05.2022
- Test : pH, TDS, TSS, BOD, COD, OIL & GREASE.

### TEST RESULT

Sl. No	PARAMETERS OF TEST	VALUE			MoEF&C Notification 1 <sup>st</sup> Jan.2016 Permissible Max. Desirable Limit	Test Method
		S.T.P. Outlet Jamadoba Canteen	S.T.P. Outlet J.C.P.P. Canteen	S.T.P. Outlet Railway Colony		
1.	pH,	7.7	7.9	7.8	6.0-9.0	IS-3025 (P-11):1983
2.	Total Dissolved Solids, mg/l	624	648	690	2100	IS-3025 (P-16):1984
3.	Total Suspended Solids, mg/l	25	29	26	100	IS-3025(P-17):1984
4.	Bio chemical Oxygen Demand, mg/l	12.3	13.1	13.5	30	IS-3025 (P-44):1994
5.	Chemical Oxygen Demand, mg/l	61.44	53.76	58	250	IS-3025 (P-58):2006
6.	Oil & Grease, mg/l	B.D.L	B.D.L	B.D.L	10	IS-3025 (P-39):2021

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



*Chhotanay*  
28.05.22  
Quality Manager  
Aditi R&D Services, Sindri

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Ref. No.: - ARDS/22-23/563

Date: 28.05.2022

## TEST REPORT OF EFFLUENT

- Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED, JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Sample Code : 1. E.T.P. Outlet Garage  
2. E.T.P. Outlet T.C.H.
- Date of Sample Collection: 18.05.2022 To 19.05.2022
- Date of Testing : 20.05.2022 To 27.05.2022
- Test : pH, TDS, TSS, BOD, COD, OIL & GREASE.

### TEST RESULT

Sl. No.	PARAMETERS OF TEST	VALUE		MoEF&C Notification 1 <sup>st</sup> Jan.2016 Permissible Max. Desirable Limit	Test Method
		E.T.P. Outlet T.C.H	E.T.P. Outlet Garage		
1.	pH,	8.1	8.2	6.0-9.0	IS-3025 (P-11): 1983
2.	Total Dissolved Solids, mg/l	672	680	2100	IS-3025 (P-16): 1984
3.	Total Suspended Solids, mg/l	22	24	100	IS-3025(P-17) : 1984
4.	Bio chemical Oxygen Demand, mg/l	8.2	7.9	30	IS-3025 (P-44):1994
5.	Chemical Oxygen Demand, mg/l	38.4	46	250	IS-3025 (P-58):2006
6.	Oil & Grease, mg/l	B.D.L	B.D.L	10	IS-3025 (P-39):2021

  
Sr. Chemist  
Aditi R&D Services



  
Quality Manager  
Aditi R&D Services, Sindri

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Ref. No.: - ARDS/22-23/564

Date: 28.05.2022

### TEST REPORT OF DRINKING WATER

- Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED, JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Sample Code : 1. Canteen Jamadoba Colliery  
2. Canteen Jamadoba Washery  
3. Canteen Digwadih Colliery  
4. Canteen 6&7 Pit Colliery
- Date of Sample Collection: 18.05.2022 To 19.05.2022
- Date of Testing : 20.05.2022 To 27.05.2022
- Test :

Colour, Odour, Taste, Turbidity, pH, Total Hardness, Iron, Chloride, Res. Free chlorine, Total Dissolved Solids, Calcium, Copper, Manganese, Sulphate, Nitrate, Fluoride, Phenolic Compound, Mercury, Cadmium, Arsenic, Cyanide, Lead, Zinc, Total Coliform, Hexavalent Chromium, Mineral Oil, Alkalinity, Aluminium & Boron.

### TEST RESULT

Sl. No	PARAMETERS OF TEST	VALUE				IS as per IS 10500:2012		Test Method
		Canteen Jamadoba Colliery	Canteen Jamadoba Washery	Canteen Digwadih Colliery	Canteen 6&7 Pit Colliery	Desirable	Permissible	
1.	Colour, (Hazen Unit)	1	1	1	1	5.00	15.0	IS 3025 (P-4):2021
2.	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	IS 3025 (P-5):2018
3.	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	IS 3025 (P-7):2017
4.	Turbidity, NTU	1	1	1	1	1.0	5.0	IS 3025 (P-10):1984
5.	pH	7.5	7.7	7.6	7.2	6.5-8.5	No. Relax.	IS-3025 (P-11):1983
6.	Total Hardness as CaCO <sub>3</sub> , mg/l	321.44	329.28	301.84	278.32	200	600	IS 3025 (P-21):2009
7.	Chloride as Cl, mg/l	51.61	55.58	47.64	31.76	250	1000	IS 3025 (P-32):1988
8.	Res. Free chlorine as Cl <sub>2</sub> mg/l	NIL	NIL	NIL	NIL	0.20	1.0	IS 3025 (P-26):2021
9.	Total Dissolved Solids, mg/l	590	545	530	445	500	2000	IS 3025 (P-16):1984
10.	Calcium as CaCO <sub>3</sub> , mg/l	94.08	98	82.32	58.8	75	200	IS 3025 (P-40):1991
11.	Copper as Cu, mg/l	BDL	BDL	BDL	BDL	0.05	1.5	IS 3025 (P-42):1992

Continued on Page 2

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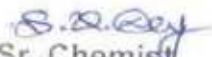
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- 2 -

Sl. No.	PARAMETERS OF TEST	VALUE				IS as per IS 10500:1991		Test Method
		Jamadoba Canteen Colliery	Jamadoba Canteen Washery	Canteen Digwadih Colliery	Canteen 6&7 Pit Colliery	Desirable	Permissible	
12.	Manganese as Mn, mg/l	BDL	BDL	BDL	BDL	0.10	0.30	IS 3025 (P-59):2006
13.	Sulphate as SO <sub>4</sub> , mg/l	64	66	76	60	200	400	IS 3025 (P-24):1986
14.	Nitrate as NO <sub>3</sub> , mg/l	2.8	3.4	3.2	2.6	45	No. Relax	IS 3025 (P-34):1988
15.	Fluoride as F, mg/l	0.26	0.38	0.29	0.30	1.0	1.5	IS 3025 (P-60):2008
16.	Phenolic Compound as (C <sub>6</sub> H <sub>5</sub> OH) mg/l	BDL	BDL	BDL	BDL	0.001	0.002	IS 3025 (P-43):1992
17.	Mercury as Hg, mg/l	BDL	BDL	BDL	BDL	0.001	No. Relax	IS 3025 (P-48):1994
18.	Cadmium as Cd, mg/l	BDL	BDL	BDL	BDL	0.003	No. Relax	IS 3025 (P-41):1992
19.	Arsenic as As, mg/l	BDL	BDL	BDL	BDL	0.01	No. Relax	IS 3025 (P-37):1988
20.	Cyanide as CN, mg/l	BDL	BDL	BDL	BDL	0.05	No. Relax	IS 3025 (P-27):1986
21.	Lead as Pb, mg/l	BDL	BDL	BDL	BDL	0.01	No. Relax	IS 3025 (P-47):1994
22.	Zinc as Zn, mg/l,	0.13	0.1	0.14	0.12	5	15	IS 3025 (P-42):1992
23.	Total Coliform, No./100ml	Absent	Absent	Absent	Absent	Absent	Absent	IS 3025 (P-49):1994
24.	Hexavalent Chromium as Cr, mg/l	BDL	BDL	BDL	BDL	0.05	No. Relax	IS 3025 (P-52):2003
25.	Mineral Oil, mg/l	BDL	BDL	BDL	BDL	0.5	No. Relax	IS 3025 (P-39):1989
26.	Alkalinity as CaCO <sub>3</sub> , mg/l,	460	456	428	376	200	600	IS 3025 (P-23):1983
27.	Aluminium as Al, mg/l	BDL	BDL	BDL	BDL	0.03	0.2	IS 3025 (P-55):2003
28.	Boran as B, mg/l	BDL	BDL	BDL	BDL	0.5	1.0	IS 3025 (P-57):2005

NOTE: BDL - Below Detection Limit

  
Sr. Chemist  
Aditi R&D Services



  
Quality Manager  
Aditi R&D Services, Sindri

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Ref. No.: - ARDS/22-23/565

Date: 28.05.2022

### TEST REPORT OF GROUND WATER

- Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO. : 4700092573/932 Dt. 20.07.2021
- Sample Code :
  - Purnadih Jorapokhar
  - Digwadih 10 No. F&S
  - Kalimela Kalimandir
  - Upper Dungri
  - Kenduadih Basti
  - 6 & 7 Pit Ayodhya Nagari
- Date of Sample Collection : 18.05.2022 To 19.05.2022
- Date of Testing : 20.05.2022 To 27.05.2022
- Test : Colour, Odour, Taste, Turbidity, pH, Total Hardness, Iron, Chloride, Res. Free chlorine, Total Dissolved Solids, Calcium, Copper, Manganese, Sulphate, Nitrate, Fluoride, Phenolic Compound, Mercury, Cadmium, Arsenic, Cyanide, Lead, Zinc, Total Coliform, Hexavalent Chromium, Mineral Oil, Alkalinity, Aluminium & Boron.

### TEST RESULT

Sl. No	PARAMETERS OF TEST	VALUE						IS as per IS 10500:1991		Test Method
		Purnadih Jorapokhar	Digwadih 10 No. F&S	Kalimela Kalimandir	Upper Dungri	Kenduadih Basti	6&7 Pit Ayodhya Nagari	Desirable	Permissible	
1.	Colour, (Hazen Unit)	2	1	2	2	1	2	5	15	IS 3025 (P-4):2021
2.	Temperature °C	34	36	35	34	36	35	-	-	-
3.	Electrical Conductivity, $\mu\text{mhos/cm}$	810	950	935	980	795	790	-	-	-
4.	Total Dissolved Solids, mg/l	524	615	605	635	515	510	-	-	IS 3025(P-16):1984
5.	pH	7.7	7.8	7.5	7.4	7.6	7.7	6.5-8.5	No Relax	IS-3025(P-11):1983
6.	Total Hardness as CaCO <sub>3</sub> , mg/l	415.52	423.36	411.6	427.28	399.84	388.08	200	600	IS 3025(P-21):2009
7.	Calcium as Ca, mg/l	90.94	92.51	84.67	89.38	81.54	78.40	75	200	IS 3025(P-40):1991
8.	Magnesium as Mg, mg/l	43.84	44.75	44.58	47.49	45.67	44.75	30	100	IS 3025(P-46):1994
9.	Chloride as Cl, mg/l	83.37	79.40	75.43	87.35	71.47	63.53	250	1000	IS 3025(P-32):1988
10.	Fluoride as F, mg/l	0.32	0.42	0.38	0.44	0.48	0.40	1.0	1.5	IS 3025(P-60):2008

Continued on Page -2

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Mobile: 09471358492, 09431512608

2

Sl. No	PARAMETERS OF TEST	VALUE						IS as per IS 10500:1991		Test Method
		Purnadi h Jorapok har	Digwadih 10 No. F&5	Kalimela Kaliman dir	Upper Dungri	Kendua- dih Basti	6&7 Pit Ayodh ya Nagri	Desir -able	Permi -sible	
11	Sulphate as SO <sub>4</sub> , mg/l	48	62	68	58	52	66	200	400	IS 3025(P-24):1986
12	Nitrate as NO <sub>3</sub> , mg/l	11.4	14.6	8.2	10.4	10.5	12.2	45	No. Relax	IS 3025(P-34):1988
13	Alkalinity as CaCO <sub>3</sub> , mg/l,	390	410	380	430	370	365	200	600	IS 3025(P-23):1983
14	Lead as Pb, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	0.01	No. Relax	IS 3025(P-47):1994
15	Zinc as Zn, mg/l,	0.18	0.16	0.19	0.11	0.12	0.15	5	15	IS 3025(P-42):1992
16	Iron a Fe, mg/l	0.16	0.11	0.10	0.14	0.13	0.17	0.3	No. Relax	IS 3025(P-53):2003
17	Copper as Cu, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	0.05	1.5	IS3025 (P-42):1992
18	Mercury as Hg, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	0.001	No. Relax	IS 3025(P-48):1994
19	Cadmium as Cd, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	0.003	No. Relax	IS 3025(P-41):1992
20	Nickel as Ni, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	0.02	No. Relax	IS 3025(P-37):1992
21	Arsenic as As, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	0.01	No. Relax	IS 3025(P-37):1988
22	Cyanide as CN, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	0.05	No. Relax	IS 3025(P-27):1986
23	Total Chromium as Cr, mg/l	BDL	BDL	BDL	BDL	BDL	BDL	0.05	No. Relax	IS 3025(P-52):2003

NOTE: BDL - Below Detection Limit

  
Sr. Chemist  
Aditi R&D Services



  
Quality Manager  
Aditi R&D Services, Sindri

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Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/22-23/1450

Date: 29.08.2022

## TEST REPORT OF AMBIENT AIR QUALITY

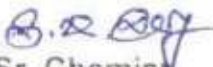
- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 24.08.2022 to 25.08.2022
- Date of Testing : 26.08.2022 to 27.08.2022
- Test Procedure : As per IS-5182

### TEST RESULTS

LOCATION - 6 & 7 PITS COLLOIERY OFFICE

Sl No.	Particulars	Value	NAAQ - CPCB STANDARD
	Avg. Ambient Temperature	30°C	Avg. Humidity
			83%
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	77.20	100 µg/m <sup>3</sup>
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	38.65	60 µg/m <sup>3</sup>
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	18.80	80 µg/m <sup>3</sup>
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	25.00	80 µg/m <sup>3</sup>
5.	Ozone, µg/m <sup>3</sup>	16.45	180 µg/m <sup>3</sup>
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	15.60	400 µg/m <sup>3</sup>
7.	CO, mg/m <sup>3</sup>	1.10	4 mg/m <sup>3</sup>
8.	Pb, µg/m <sup>3</sup>	BDL	1 µg/m <sup>3</sup>
9.	As, ng/m <sup>3</sup>	BDL	6 ng/m <sup>3</sup>
10.	Ni, ng/m <sup>3</sup>	BDL	20 ng/m <sup>3</sup>
11.	Benzene, µg/m <sup>3</sup>	BDL	5 µg/m <sup>3</sup>
12.	Benzoapyrene ng/m <sup>3</sup>	BDL	1 ng/m <sup>3</sup>

NOTE: BDL - Below Detection Limit

  
Sr. Chemist  
Aditi R&D Services



  
Technical Manager  
Aditi R&D Services, Sindri

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Ref. No.: - ARDS/22-23/1451

Date: 29.08.2022

## TEST REPORT OF AMBIENT AIR QUALITY

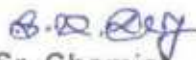
- Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 24.08.2022 to 25.08.2022
- Date of Testing : 26.08.2022 to 27.08.2022
- Test Procedure : As per IS-5182

### TEST RESULTS

LOCATION – OFFICERS COLONY, 12 NO. DIGWADIH

SI No.	Particulars	Value	NAAQ - CPCB STANDARD
	Avg. Ambient Temperature	30°C	Avg. Humidity 83%
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	70.20	100 µg/m <sup>3</sup>
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	38.84	60 µg/m <sup>3</sup>
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	14.10	80 µg/m <sup>3</sup>
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	22.65	80 µg/m <sup>3</sup>
5.	Ozone, µg/m <sup>3</sup>	15.10	180 µg/m <sup>3</sup>
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	12.65	400 µg/m <sup>3</sup>
7.	CO, mg/m <sup>3</sup>	0.5	4 mg/m <sup>3</sup>
8.	Pb, µg/m <sup>3</sup>	BDL	1 µg/m <sup>3</sup>
9.	As, ng/m <sup>3</sup>	BDL	6 ng/m <sup>3</sup>
10.	Ni, ng/m <sup>3</sup>	BDL	20 ng/m <sup>3</sup>
11.	Benzene, µg/m <sup>3</sup>	BDL	5 µg/m <sup>3</sup>
12.	Benzoapyrene ng/m <sup>3</sup>	BDL	1 ng/m <sup>3</sup>

NOTE: BDL - Below Detection Limit

  
Sr. Chemist  
Aditi R&D Services



  
Technical Manager  
Aditi R&D Services, Sindri

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Ref. No.: - ARDS/22-23/1452

Date: 29.08.2022

## TEST REPORT OF AMBIENT AIR QUALITY

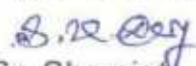
- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO. : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 24.08.2022 To 25.08.2022
- Date of Testing : 26.08.2022 To 27.08.2022
- Test Procedure : As per IS-5182

### TEST RESULTS

LOCATION - CENTRAL WORKSHOP AREA, JAMADOBA

SI No.	Particulars	Value	NAAQ - CPCB STANDARD
	Avg. Ambient Temperature	29°C	Avg. Humidity 84%
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	81.69	100 µg/m <sup>3</sup>
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	39.65	60 µg/m <sup>3</sup>
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	15.20	80 µg/m <sup>3</sup>
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	22.40	80 µg/m <sup>3</sup>
5.	Ozone, µg/m <sup>3</sup>	13.20	180 µg/m <sup>3</sup>
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	15.65	400 µg/m <sup>3</sup>
7.	CO, mg/m <sup>3</sup>	0.72	4 mg/m <sup>3</sup>
8.	Pb, µg/m <sup>3</sup>	BDL	1 µg/m <sup>3</sup>
9.	As, ng/m <sup>3</sup>	BDL	6 ng/m <sup>3</sup>
10.	Ni, ng/m <sup>3</sup>	BDL	20 ng/m <sup>3</sup>
11.	Benzene, µg/m <sup>3</sup>	BDL	5 µg/m <sup>3</sup>
12.	Benzoapyrene ng/m <sup>3</sup>	BDL	1 ng/m <sup>3</sup>

NOTE: BDL - Below Detection Limit

  
Sr. Chemist  
Aditi R&D Services



  
Technical Manager  
Aditi R&D Services, Sindri

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Ref. No.: - ARDS/22-23/1453

Date: 29.08.2022

## TEST REPORT OF AMBIENT AIR QUALITY


- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 24.08.2022 To 25.08.2022
- Date of Testing : 26.08.2022 To 27.08.2022
- Test Procedure : As per IS-5182

### TEST RESULTS

#### LOCATION – TATA CENTRAL HOSPITAL

SI No.	Particulars	Value	NAAQ - CPCB STANDARD
	Avg. Ambient Temperature	29°C	Avg. Humidity 84%
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	79.58	100 µg/m <sup>3</sup>
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	42.51	60 µg/m <sup>3</sup>
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	19.66	80 µg/m <sup>3</sup>
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	21.54	80 µg/m <sup>3</sup>
5.	Ozone, µg/m <sup>3</sup>	18.31	180 µg/m <sup>3</sup>
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	15.86	400 µg/m <sup>3</sup>
7.	CO, mg/m <sup>3</sup>	0.82	4 mg/m <sup>3</sup>
8.	Pb, µg/m <sup>3</sup>	BDL	1 µg/m <sup>3</sup>
9.	As, ng/m <sup>3</sup>	BDL	6 ng/m <sup>3</sup>
10.	Ni, ng/m <sup>3</sup>	BDL	20 ng/m <sup>3</sup>
11.	Benzene, µg/m <sup>3</sup>	BDL	5 µg/m <sup>3</sup>
12.	Benzoapyrene ng/m <sup>3</sup>	BDL	1 ng/m <sup>3</sup>

NOTE: BDL - Below Detection Limit

  
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Aditi R&D Services



  
Technical Manager  
Aditi R&D Services, Sindri

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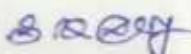
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### TEST REPORT OF NOISE (AMBIENT) LEVEL MONITORING

Ref. No. & Date		NAME AND ADDRESS OF THE CLIENT							
ARDS/22-23/1435 Date: 26.08.2022		M/S TATA STEEL, JAMADOBA,							
Date of Monitoring		TATA STEEL LIMITED, JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)							
24.08.2022 TO 25.08.2022		Avg. Ambient Temperature (°C)		Average Humidity (%)		Weather Condition		Status of the plant	
Work Order 4700092573/932 Dt. 20.07.2021		29		84		Cloudy		Running	
MONITORING RESULTS									
Sl. No	Place of Monitoring	Day Time (6 AM to 10 PM) Avg. dB(A)			Night Time (10 PM to 6 AM) Avg. dB(A)			Noise level (Ambient standard) for Industrial Area as per CPCB Noise Pollution (Regulation and Control) (Amendment) Rules, 2000 notified vide S.O. 1046(E) Dt. 22.11.2020 Limit in dB(A) Leq	
		MAX	MIN	AVG. dB(A) Leq	MAX	MIN	AVERAGE dB(A) Leq	Day Time	Night Time
LOCATION								Industrial Area	Industrial Area
JAMADOBA GROUP									
1.	Central Workshop	59	50	56.50	47	33	44.16		
2.	6 & 7 Pits Colliery Office	52	48	50.45	39	31	36.63	75	70
								Residential Area	Residential Area
3.	Officer Colony 12 No. Digwadih	58	53	56.18	44	34	41.40	65	55
								Silence Zone	Silence Zone
4.	Tata Central Hospital	48	42	45.96	37	33	35.45	50	40

  
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Aditi R&D Services, Sindri

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Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/22-23/1454


Date: 29.08.2022

## TEST REPORT OF MINERALOGICAL COMPOSITION OF PARTICULATE MATTER

- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO. : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 25.08.2022
- Date of Testing : 26.08.2022 - 27.08.2022

### TEST RESULTS

Sl No.	Particulars	Mineralogical Composition (%)			
		SiO <sub>2</sub>	FeO	Al <sub>2</sub> O <sub>3</sub>	CaO
1.	6 & 7 Pits Colliery Officer	1.62	0.13	1.16	2.01
2.	Tata Central Hospital	1.31	0.06	1.09	1.9

  
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Aditi R&D Services



  
Technical Manager  
Aditi R&D Services, Sindri

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Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/22-23/1503

Date: 03.09.2022

## TEST REPORT OF SURFACE WATER

- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Sample Code : 1. Damodar River Up Stream  
2. Damodar River Down Stream
- Date of Sample Collection: 24.08.2022 To 25.08.2022
- Date of Testing : 26.08.2022 To 02.09.2022
- Test : pH, TDS, Turbidity, DO, BOD, Cl, F, SO<sub>4</sub>

### TEST RESULT

Sl. No.	PARAMETERS OF TEST	VALUE		Limit as per IS 2296 Class - C	Test Method
		Damodar River Up Stream	Damodar River Dn Stream		
1.	pH	7.2	7.2	6.5 - 8.5	IS-3025 (P-11): 1983
2.	Total Dissolved Solids, mg/l	228	220	1500	IS-3025 (P-16): 1984
3.	Turbidity, NTU	12.5	14.8	-	IS-3025 (P-10): 1984
4.	Dissolved Oxygen, mg/l	4.1	4.6	4.0	IS-3025 (P-38): 1989
5.	Bio chemical Oxygen Demand, mg/l	2.7	2.8	3.0	IS-3025 (P-44): 1994
6.	Chloride as Cl, mg/l	14	16	-	IS-3025 (P-32): 1988
7.	Fluoride as F, mg/l	0.46	0.36	1.5	IS-3025 (P-60): 2008
8.	Sulphate as SO <sub>4</sub> , mg/l	42	60	400	IS-3025 (P-24): 1986

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



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

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Ref. No.: - ARDS/22-23/1504

Date: 03.09.2022

## TEST REPORT OF MINE WATER DISCHARGE

- Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Sample Code : 1. 2 Pit Jamadoba Colliery  
2. 3 Pit Jamadoba Colliery  
3. 2 Incline Jamadoba Colliery  
4. 6 & 7 Pits Colliery  
5. Digwadih Colliery
- Date of Sample Collection: 24.08.2022 to 25.08.2022
- Date of Testing : 26.08.2022 to 02.09.2022
- Test : pH, TDS, TSS, BOD, COD, OIL & GREASE.

### TEST RESULT

Sl. No.	PARAMETERS OF TEST	VALUE					Limit as per IS-2296 Class B (For Bathing)	Test Method
		2 Pit Jamadoba Colliery	3 Pit Jamadoba Colliery	2 Incline Jamadoba Colliery	6 & 7 Pits Colliery	Digwadih Colliery		
1.	pH,	7.8	7.8	7.9	7.5	8.1	6.5-8.5	IS-3025 (P-11): 1983
2.	Total Dissolved Solids, mg/l	565	678	566	682	616	-	IS-3025 (P-16): 1984
3.	Total Suspended Solids, mg/l	28	22	32	34	38	-	IS-3025(P-17): 1984
4.	Bio chemical Oxygen Demand, mg/l	1.8	2.5	2.4	2.5	2.1	3	IS-3025 (P-44):1994
5.	Chemical Oxygen Demand, mg/l	32	64	36	38	42	-	IS-3025 (P-58):2006
6.	Oil & Grease, mg/l	BDL	BDL	BDL	BDL	1.2	-	IS-3025 (P-39):2021

Sr. Chemist  
Aditi R&D Services



Technical Manager  
Aditi R&D Services, Sindri

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Ref. No.: - ARDS/22-23/1505

Date: 04.09.2022

## TEST REPORT OF EFFLUENT

- Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Sample Code : 1. E.T.P. Outlet Garage  
2. E.T.P. Outlet T.C.H.
- Date of Sample Collection: 24.08.2022 To 25.08.2022
- Date of Testing : 26.08.2022 To 02.09.2022
- Test : pH, TDS, TSS, BOD, COD, OIL & GREASE.

### TEST RESULT

Sl. No.	PARAMETERS OF TEST	VALUE		MoEF&C Notification 1 <sup>st</sup> Jan.2016 Permissible Max. Desirable Limit	Test Method
		E.T.P. Outlet T.C.H	E.T.P. Outlet Garage		
1.	pH,	8.6	8.8	6.0-9.0	IS-3025 (P-11): 1983
2.	Total Dissolved Solids, mg/l	584	690	2100	IS-3025 (P-16): 1984
3.	Total Suspended Solids, mg/l	36	28	100	IS-3025(P-17) : 1984
4.	Bio chemical Oxygen Demand, mg/l	19	12	30	IS-3025 (P-44):1994
5.	Chemical Oxygen Demand, mg/l	80	48	250	IS-3025 (P-58):2006
6.	Oil & Grease, mg/l	B.D.L	B.D.L	10	IS-3025 (P-39):2021

*B.R. Bery*  
Sr. Chemist  
Aditi R&D Services



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

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Ref. No.: - ARDS/22-23/1506

Date: 04.09.2022

## TEST REPORT OF DRINKING WATER

- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Sample Code : 1. Canteen Jamadoba Colliery  
2. Canteen Jamadoba Washery  
3. Canteen Digwadih Colliery  
4. Canteen 6&7 Pit Colliery
- Date of Sample Collection: 24.08.2022 To 25.08.2022
- Date of Testing : 26.08.2022 To 02.09.2022
- Test :  
Colour, Odour, Taste, Turbidity, pH, Total Hardness, Iron, Chloride, Res. Free chlorine, Total Dissolved Solids, Calcium, Copper, Manganese, Sulphate, Nitrate, Fluoride, Phenolic Compound, Mercury, Cadmium, Arsenic, Cyanide, Lead, Zinc, Total Coliform, Hexavalent Chromium, Mineral Oil, Alkalinity, Aluminium & Boron.

## TEST RESULT

Sl. No	PARAMETERS OF TEST	VALUE				IS as per IS 10500:2012		Test Method
		Canteen Jamadoba Colliery	Canteen Jamadoba Washery	Canteen Digwadih Colliery	Canteen 6&7 Pit Colliery	Desirable	Permissible	
1.	Colour, (Hazen Unit)	1	1	1	1	5.00	15.0	IS 3025 (P-4):2021
2.	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	IS 3025 (P-5):2018
3.	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	IS 3025 (P-7):2017
4.	Turbidity, NTU	1	1	1	1	1.0	5.0	IS 3025 (P-10):1984
5.	pH	8.0	8.2	8.3	8.0	6.5-8.5	No. Relax.	IS-3025 (P-11):1983
6.	Total Hardness as CaCO <sub>3</sub> , mg/l	380	372	405	362	200	600	IS 3025 (P-21):2009
7.	Chloride as Cl <sub>2</sub> , mg/l	58	60	62	52	250	1000	IS 3025 (P-32):1988
8.	Res. Free chlorine as Cl <sub>2</sub> mg/l	NIL	NIL	NIL	NIL	0.20	1.0	IS 3025 (P-26):2021
9.	Total Dissolved Solids, mg/l	767	825	773	767	500	2000	IS 3025 (P-16):1984
10.	Calcium as CaCO <sub>3</sub> , mg/l	104	96	96	90	75	200	IS 3025 (P-40):1991
11.	Copper as Cu, mg/l	BDL	BDL	BDL	BDL	0.05	1.5	IS 3025 (P-42):1992

Continued on Page 2

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*[Signature]*



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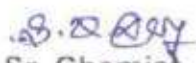
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- 2 -

Sl. No.	PARAMETERS OF TEST	VALUE				IS as per IS 10500:1991		Test Method
		Jamadoba Canteen Colliery	Jamadoba Canteen Washery	Canteen Digwadih Colliery	Canteen 6&7 Pit Colliery	Desirable	Permissible	
12.	Manganese as Mn, mg/l	BDL	BDL	BDL	BDL	0.10	0.30	IS 3025 (P-59):2006
13.	Sulphate as SO <sub>4</sub> , mg/l	69	62	79	66	200	400	IS 3025 (P-24):1986
14.	Nitrate as NO <sub>3</sub> , mg/l	2.6	3.2	2.9	2.8	45	No. Relax	IS 3025 (P-34):1988
15.	Fluoride as F, mg/l	0.29	0.32	0.33	0.34	1.0	1.5	IS 3025 (P-60):2008
16.	Phenolic Compound as (C <sub>6</sub> H <sub>5</sub> OH) mg/l	BDL	BDL	BDL	BDL	0.001	0.002	IS 3025 (P-43):1992
17.	Mercury as Hg, mg/l	BDL	BDL	BDL	BDL	0.001	No. Relax	IS 3025 (P-48):1994
18.	Cadmium as Cd, mg/l	BDL	BDL	BDL	BDL	0.003	No. Relax	IS 3025 (P-41):1992
19.	Arsenic as As, mg/l	BDL	BDL	BDL	BDL	0.01	No. Relax	IS 3025 (P-37):1988
20.	Cyanide as CN, mg/l	BDL	BDL	BDL	BDL	0.05	No. Relax	IS 3025 (P-27):1986
21.	Lead as Pb, mg/l	BDL	BDL	BDL	BDL	0.01	No. Relax	IS 3025 (P-47):1994
22.	Zinc as Zn, mg/l,	0.12	0.14	0.18	0.15	5	15	IS 3025 (P-42):1992
23.	Total Coliform, No./100ml	Absent	Absent	Absent	Absent	Absent	Absent	IS 3025 (P-49):1994
24.	Hexavalent Chromium as Cr, mg/l	BDL	BDL	BDL	BDL	0.05	No. Relax	IS 3025 (P-52):2003
25.	Mineral Oil, mg/l	BDL	BDL	BDL	BDL	0.5	No. Relax	IS 3025 (P-39):1989
26.	Alkalinity as CaCO <sub>3</sub> , mg/l,	496	492	496	348	200	600	IS 3025 (P-23):1983
27.	Aluminium as Al, mg/l	BDL	BDL	BDL	BDL	0.03	0.2	IS 3025 (P-55):2003
28.	Boran as B, mg/l	BDL	BDL	BDL	BDL	0.5	1.0	IS 3025 (P-57):2005

NOTE: BDL - Below Detection Limit

  
Sr. Chemist  
Aditi R&D Services



  
Technical Manager  
Aditi R&D Services, Sindri

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Ref. No.: - ARDS/22-23/1507

Date: 04.09.2022

## TEST REPORT OF GROUND WATER

- Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO. : 4700092573/932 Dt. 20.07.2021
- Sample Code :
  1. Bhowra 13 No.
  2. Mohalbani Basti
  3. Lower Dungi
  4. Jorapokhar Khustand
  5. Jamadoba 3 No.
- Date of Sample Collection : 24.08.2022 To 25.08.2022
- Date of Testing : 26.08.2022 To 02.09.2022
- Test : Colour, Odour, Taste, Turbidity, pH, Total Hardness, Iron, Chloride, Res. Free chlorine, Total Dissolved Solids, Calcium, Copper, Manganese, Sulphate, Nitrate, Fluoride, Phenolic Compound, Mercury, Cadmium, Arsenic, Cyanide, Lead, Zinc, Total Coliform, Hexavalent Chromium, Mineral Oil, Alkalinity, Aluminium & Boron.

### TEST RESULT

Sl No	PARAMETERS OF TEST	VALUE					IS as per IS 10500:1991		Test Method
		Bhowra 13 No.	Mohalbani Basti	Lower Dungi	Jorapokhar Khustand	Jamadoba 3 No.	Desirable	Permissible	
1.	Colour, (Hazen Unit)	2	1	2	2	1	5	15	IS 3025 (P-4):2021
2.	Temperature °C	28	29	28	29	28	-	-	-
3.	Electrical Conductivity, µmhos/cm	880	1030	1270	865	1370	-	-	-
4.	Total Dissolved Solids, mg/l	572	669	825	562	890	-	-	IS 3025(P-16):1984
5.	pH	7.0	7.3	6.9	7.6	7.6	6.5-8.5	No Relax	IS-3025(P-11):1983
6.	Total Hardness as CaCO <sub>3</sub> , mg/l	276	388	424	576	344	200	600	IS 3025(P-21):2009
7.	Calcium as Ca, mg/l	78.4	97.6	110.2	132.8	84.8	75	200	IS 3025(P-40):1991
8.	Magnesium as Mg, mg/l	19.2	39.4	34.58	56.85	30.8	30	100	IS 3025(P-46):1994
9.	Chloride as Cl, mg/l	64	54	82	42	94	250	1000	IS 3025(P-32):1988
10.	Fluoride as F, mg/l	0.33	0.40	0.42	0.43	0.46	1.0	1.5	IS 3025(P-60):2008

Continued on Page -2

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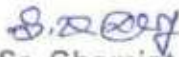
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2

Sl. No	PARAMETERS OF TEST	VALUE					IS as per IS 10500:1991		Test Method
		Bhowra 13 No.	Mohalbani Basti	Lower Dungi	Jorap okhar Khust and	Jamado ba 3 No.	Desir -able	Permis -sible	
11	Sulphate as SO <sub>4</sub> , mg/l	52	66	70	62	58	200	400	IS 3025(P-24):1986
12	Nitrate as NO <sub>3</sub> , mg/l	11.2	13.8	9.5	11.2	10.3	45	No. Relax	IS 3025(P-34):1988
13	Alkalinity as CaCO <sub>3</sub> , mg/l,	304	500	408	285	295	200	600	IS 3025(P-23):1983
14	Lead as Pb, mg/l	BDL	BDL	BDL	BDL	BDL	0.01	No. Relax	IS 3025(P-47):1994
15	Zinc as Zn, mg/l,	0.13	0.18	0.15	0.14	0.16	5	15	IS 3025(P-42):1992
16	Iron a Fe, mg/l	0.15	0.2	0.15	0.25	0.18	0.3	No. Relax	IS 3025(P-53):2003
17	Copper as Cu, mg/l	BDL	BDL	BDL	BDL	BDL	0.05	1.5	IS3025 (P-42):1992
18	Mercury as Hg, mg/l	BDL	BDL	BDL	BDL	BDL	0.001	No. Relax	IS 3025(P-48):1994
19	Cadmium as Cd, mg/l	BDL	BDL	BDL	BDL	BDL	0.003	No. Relax	IS 3025(P-41):1992
20	Nickel as Ni, mg/l	BDL	BDL	BDL	BDL	BDL	0.02	No. Relax	IS 3025(P-37):1992
21	Arsenic as As, mg/l	BDL	BDL	BDL	BDL	BDL	0.01	No. Relax	IS 3025(P-37):1988
22	Cyanide as CN, mg/l	BDL	BDL	BDL	BDL	BDL	0.05	No. Relax	IS 3025(P-27):1986
23	Total Chromium as Cr, mg/l	BDL	BDL	BDL	BDL	BDL	0.05	No. Relax	IS 3025(P-52):2003

NOTE: BDL - Below Detection Limit

  
Sr. Chemist  
Aditi R&D Services



  
Technical Manager  
Aditi R&D Services, Sindri

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Ref. No.: - ARDS/22-23/1506


Date: 03.09.2022

## TEST REPORT OF SEWAGE

- Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Sample Code : 1. S.T.P. Outlet Jamadoba Canteen  
2. S.T.P. Outlet Railway Colony
- Date of Sample Collection: 24.08.2022 To 25.08.2022
- Date of Testing : 26.08.2022 To 02.09.2022
- Test : pH, TDS, TSS, BOD, COD, OIL & GREASE.

### TEST RESULT

Sl. No	PARAMETERS OF TEST	VALUE		MoEF&C Notification 1 <sup>st</sup> Jan.2016 Permissible Max. Desirable Limit	Test Method
		S.T.P. Outlet Jamadoba Canteen	S.T.P. Outlet Railway Colony		
1.	pH,	7.6	8.0	6.0 - 9.0	IS-3025 (P-11):1983
2.	Total Dissolved Solids, mg/l	648	698	2100	IS-3025 (P-16):1984
3.	Total Suspended Solids, mg/l	37	29	100	IS-3025(P-17):1984
4.	Bio chemical Oxygen Demand, mg/l	14	16	30	IS-3025 (P-44):1994
5.	Chemical Oxygen Demand, mg/l	56	64	250	IS-3025 (P-58):2006
6.	Oil & Grease, mg/l	B.D.L	B.D.L	10	IS-3025 (P-39):2021

  
Sr. Chemist  
Aditi R&D Services



  
Technical Manager  
Aditi R&D Services, Sindri

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