



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.

Ref No. – JMB/ENV/DIG/37/370/2023

May 29, 2023

Ref.: Environmental Clearance letter No.-J-11015/372/2010-IA.II(M) dated-30<sup>th</sup> September 2013.

**Sub: Half Yearly Compliance Status Report of Environment Clearance conditions issued by MoEF&CC, New Delhi to Digwadih Colliery, Tata Steel Limited, Dhanbad for the period October'22 to March'23**

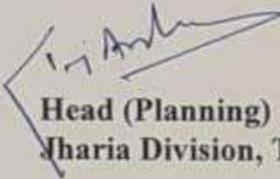
Dear Sir,

We are enclosing herewith compliance report for the period **October'22 to March'23** for the EC granted vide letter no.- J-11015/372/2010-IA.II(M) dated- 30th September 2013 issued by Ministry of Environment, Forest and Climate Change, New Delhi.

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

Thanking you,

Yours faithfully,

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

Encl: As above.

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

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

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

**HALF YEARLY COMPLIANCE REPORT**  
**(PERIOD: OCT'22 – MAR'23)**

**DIGWADIH COLLIERY**

**(CAPACITY: EXPANSION FROM 0.38 TO 0.6 MTPA RAW COAL)**  
**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-  
11015/372/2010-IA.II(M) DATED- 30.09.2013 ISSUED BY GOVT. OF INDIA,  
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE, NEW  
DELHI.**

**Compliance status of Digwadih Colliery of M/s Tata Steel Ltd. for (Expansion from 0.38 MTPA to 0.6 MTPA in ML area 314.57 ha), dist. Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/372/2010-IA.II (M) dated September 30, 2013**

| S. No.                    | Condition  | Compliance Status  |
|---------------------------|--|--|
| <b>Specific Condition</b> |  |  |
| (i)                       | The maximum production from the mines shall not exceed beyond that for which environmental clearance has been granted.   | It is being strictly followed. The EC capacity is for 0.6 MTPA raw coal while the raw coal production for Digwadih Colliery is well below the limit.   |
| (ii)                      | The impact on the Damodar river due to mining activity which is at a distance of 2 km be studied through a reputed 3 <sup>rd</sup> Party and submitted to the SPCB and the regional office of the MoEF for monitoring. | <p>The underground coal mines operated by Tata Steel Ltd are adjacent to the Damodar River. Other coal mines of BCCL &amp; SAIL are also in close proximity to the river basin. Major source of pollution of Damodar River is the flow of industrial effluents and untreated sewage water into the river. A number of OB dumps lie close to the river banks causing the flow of sediments into the river.</p> <p>As per the hydrology study conducted by Indian School of Mines, Dhanbad, the impact of the underground mines of Tata Steel Ltd is minimal. This is due to the following reasons</p> <ul style="list-style-type: none"> <li>• The mining activity does not require any diversion of river/streams or natural drain. As land profile does not change appreciably in case of underground mines with backfilling of mined out areas, there is no change in surface drainage till date and unlikely to occur in future.</li> <li>• Surface water quality also does not undergo any change, as there is no discharge to surface drainage in dry season. In Monsoon, the excess mine water discharged gets mixed with storm water.</li> <li>• Large settling tanks are available for storage and sedimentation of mine water before its discharge to conform to the norms. The industrial wastewater generated during vehicle washing from the central workshop catering to all the mines is treated in oil and grease trap followed by recycling of water.</li> </ul> |

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|       |  | <ul style="list-style-type: none"> <li>• The two coal washeries of Tata Steel are operating on Zero Liquid discharge (ZLD) principle.</li> <li>• Sewage water generated from our townships is treated in Soak pit and Septic tank arrangement. Now we are replacing it with Packaged Sewage Treatment Plant (PSTP). Already one STP of 200 KLD and another STP of 50 KLD has been installed in two colonies and remaining colonies are also proposed to be covered with STP.</li> </ul> |
| (iii) | Details of underground transportation of coal from mine to coal yard/ rail yard be submitted to the MoEF for record.                               | Coal from the mine is sent to the captive Jamadoba coal washery for beneficiation purpose through a network of underground conveyer belts. The detailed diagram of transportation network has already been submitted in earlier compliance reports.   |
| (iv)  | Adequate care be taken to prevent sand spillages from the trucks/tippers.  | The trucks that are being used for the transportation of sand are properly covered using tarpaulin sheets. Larger trucks have been engaged for reducing no of cycles. To ensure the compliance, every vehicle is checked as per vehicle checklist on PUC, Tyre /body condition, emission check at every entry point. Quality checks are done on trucks to ensure its health.  |
| (v)   | The test results of the study of leaching of heavy metals from bottom-ash be submitted to SPCB and the regional office of the MoEF for monitoring. | A study conducted in 2013, by Indian School of Mines, Dhanbad to assess the leachability characteristics of fly ash and bottom ash samples taken from us, has determined that the concentration of heavy metals in the leachates were invariably well below the permissible limits for discharge of effluents as per the Indian standards IS 2490 (1993). The test results have already been submitted in December'13 and also re-submitted in April'18.                                |
| (vi)  | The CSR activities shall be need based and detailed CSR plan be prepared for implementation.   | The CSR plan for each financial year is prepared by TSRDS (Tata Steel Rural Development Society) only after proper discussions to assess the needs have been held   |

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|        |   | with the elected/ senior members of the communities where our CSR activities are to be undertaken.  |
| (vii)  | The detailed breakup of funds during 2012-13 be submitted to the MoEF for record. A social audit to be got done annually by a reputed institute and uploaded on the company's website.  | The detailed breakup has already been submitted to MOEF.<br>The Corporate Sustainability Reports viz. Integrated Reports are made annually for the company which is certified by an assurance agency. It also includes the Social Audit of the company. All the reports are uploaded on the Tata Steel website.<br>Further, an internal Social audit is also conducted once in five years |
| (viii) | There should be no OB dumps at the end of the mining.   | Since this is an underground mine, it is not applicable.  |
| (ix)   | Regular monitoring of subsidence movement on the surface over and around the working area and 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 movement, appropriate effective corrective measures shall be taken to avoid loss of life and material. Cracks shall be effectively plugged with ballast and clayey soil/suitable material. | Regular monitoring of subsidence is done by Central Institute for Mining and Fuel Research, Dhanbad. According to the subsidence reports, the impact of subsidence is negligible since the underground mine workings are now at great depth and proper filling of voids through sand stowing is being done.   |
| (x)    | If subsidence is found exceeding the permitted limits, then the landowners shall be adequately compensated with mutual agreement of the landowners.   | It will be strictly followed.   |
| (xi)   | Mining shall be carried out as per statuette at a safe distance from the river/nallah flowing adjacent to the lease boundary.   | Since this is an underground project, there is hardly any impact on the river/ nallah. The closest jore is at a distance of about 2kms from the mine office area. Therefore, no impact on the course of flow in the jore is anticipated.  |
| (xii)  | High root density tree species shall be selected and planted over areas likely to be affected by subsidence.  | Impact on land by subsidence has been found to be negligible as per the subsidence  |

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|        |  | monitoring reports prepared by CIMFR, Dhanbad.   |
| (xiii) | Coal extraction shall also be optimized in areas where agricultural production is continuing. Some pillars shall be left below the agricultural land. No depillaring & coal extraction should be carried out below habitation, H.T. Lines & beneath road, water bodies.  | It will be strictly followed.  |
| (xiv)  | Subsidence shall be monitored closely and if subsidence is found exceeding the permitted limits, then the landowners shall be adequately compensated with mutual agreement with the landowners.  | Regular monitoring of subsidence is being done by CIMFR, Dhanbad.  |
| (xv)   | 3-tier plantation should be developed 2 km stretch of road from the mine using native species.   | Plantation along stretches of road has been done. 3-tier plantation is not feasible due to presence of private land around the periphery of colliery. However, plantation has been done on vacant plots and areas  |
| (xvi)  | Garland drains (size, gradient and length) around the safety areas such as mine shaft and low lying areas and sump capacity shall be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine sites. Sump capacity shall also provide adequate retention period to allow proper settling of silt material.  | Garland drains of adequate size and gradient already exist around the colliery area to channelize the surface runoff. The details of size of garland drain mapped in surface plan has been submitted earlier in April'18.  |
| (xvii) | The locations of monitoring stations in the Jharia Coalfields should be finalized in consultation with the Jharkhand State Pollution Control Board. The smoke/dust emission varies from source to source (fuel wood, coal, flyash from TPPs, silica from natural dust, etc). Mineralogical composition study should be undertaken on the composition of the suspended particulate matter (PM10 and PM2.5) in Jharia Coalfields and also quantified. These studies would help | The locations of monitoring stations for our colliery have already been finalized in consultation with JSPCB, Dhanbad. The mineralogical composition study has been carried out by an independent laboratory (recognized by JSPCB and NABL) and the results are provided in <b>Annexure-II</b> . |

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|        | ascertain source and extent of the air pollution, based on which appropriate mitigative measures could be taken.   |  |
| (xix)  | Water sprinkling system shall be provided to check fugitive emissions from loading operations, conveyor system, haulage roads, transfer points, etc. Major approach roads shall be black topped and properly maintained.   | Water spraying arrangement is present in the underground mines at all transfer points. Water spraying via tankers is done on sand transportation routes. Major approach roads have been black-topped and maintained regularly.   |
| (xx)   | Transportation of coal from the mine to railway siding should be by 20T mechanically covered trucks.   | Not applicable due to transportation of coal via underground belt conveyor network system directly to washery.   |
| (xxi)  | A progressive afforestation plan shall be prepared and implemented over the mine lease area acquired and shall include areas under green belt development, areas along roads, infrastructure, along ML boundary and township etc, by planting native species in consultation with the local DFO/Agriculture Department.  | Tree plantation activities are carried out every year on the barren/ degraded areas, areas along road-side, infrastructure, etc of the colliery leasehold. Apart from these, fruit plants are distributed to employees and also to villagers, schools, institutions, etc. The environment department is responsible for implementing the afforestation plan which is prepared along with the mine management. High root density trees of native species are planted under annual plantation program and around 25093 Nos of saplings were planted in the FY23. |
| (xxii) | Regular monitoring of groundwater level and quality shall be carried out by establishing a network of existing wells and construction of new piezometers. The monitoring for quantity shall be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality in May. Data thus collected shall be submitted to the MoEF&CC and to the CPCB quarterly within one month of monitoring. | The regular monitoring of groundwater level and quality is done as per the requirement. The groundwater quality report & groundwater level reports are provided in <b>Annexure-II</b> .  |

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| (xxiii) | Acid Water Treatment Plant, volume of water to be treated and disposal of brine should be provided.   | Not applicable.   |
| (xxiv)  | Mine discharge water outside the ML shall be monitored, particularly for TDS and treated to conform to prescribed levels before discharge into the natural environment.   | There is one mine-water outlet point in the colliery which is regularly monitored by the Environmental Laboratory.  |
| (xxv)   | The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource, in case water table shows a declining trend. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.  | Most of the water pumped out during underground mining activity is re-circulated back into the mine for the purpose of stowing. Backfilling of mine voids by stowing is done using sand which is having the porosity to hold the underground water thus helping aquifer to retain the underground water. Further, there are a number of ponds existing on the surface of the mining lease which act as natural reservoirs for recharging ground water. These ponds/ tanks are regularly cleaned and maintained by our CSR department. As per the hydro-geological report, the variation in the ground water level is only seasonal. The water requirement of the nearby villages is being met by the company already. Now piped drinking water is being provided. |
| (xxvi)  | Besides carrying out regular periodic health checkup of their workers, 10% of the workers identified from workforce engaged in active mining operations shall be subjected to health checkup for occupational diseases and hearing impairment, if any, through an agency such as NIOH, Ahmedabad within a period of one year and the results reported to this Ministry and to DGMS. | The periodic health checkup of the workers is done regularly by our Occupational Health Department, Tata Central Hospital, Jamadoba. We have a PME (Periodic Medical Examination) Centre approved by DGMS where 20 % of the workers identified from workforce engaged in active mining operations are subjected to full medical checkup including hearing impairment checkup, etc. These results are regularly submitted to DGMS as per mines rules. Some sample reports and as well as past records have been submitted in previous compliance reports.  |
| (xxvii) | The mining in the existing mines would be phased out after expiry of the current  | It is not applicable in our case.   |

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|          | mining lease and after reclamation of mined over area. The operating mines may be analyzed and monitored for compliance of conditions, having bearing with movement of wild life until such time they are closed/ phased out.   |  |
| (xxviii) | Project specific CSR for an amount of Rs 5/Tonne of coal production should be provided for the activities under CSR undertaken for the neighboring villages shall be for not less than Rs 10 per tonne of coal and the progress made thereon shall be uploaded by the company annually on the company website. Monitoring of the impacts of activities under CSR shall be carried out periodically. | <p>The proposed CSR expenditure for the entire company is decided as per the new Company Rules. Once the CSR budget for company is fixed, a share of that amount is dedicated and utilized for implementing the CSR activities at our Jharia Division level. The CSR expenditure for FY23 is Rs. 11.84 crores.</p> <p>CSR data submitted is for Jharia Division which comprises all 5 collieries and 2 washeries. Jamadoba Washery, Digwadih Colliery and 6&amp;7 Pits Colliery are adjacent to each other and fall under same leasehold area i.e. Jamadoba group of collieries. The core zone and buffer zone of all above units overlap to each other and in many cases, the villages are same where CSR work is going on. Therefore, we have a central budget for CSR which is managed by a team of experts who are dedicatedly involved in providing benefits and improving standard of living in over 50+ villages and municipal wards. Hence, separate CSR expenditure for individual unit cannot be estimated. For calculation/ statutory reporting purpose, the consolidated CSR expenditure can be divided into unit-wise based on size of leasehold area of individual units.</p> <p>The progress report is uploaded every year on the company website. Internal social audits are carried out regularly to assess the impact of CSR activities.</p> |
| (xxix)   | A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests 5 years in  | Mine Closure Plan has been approved by Ministry of Coal, New Delhi. Details on deposition of closure cost in escrow account along with expenditure incurred for  |

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|       | advance of final mine closure for approval.   | progressive closure is regularly submitted to Office of Coal controller. Final mine closure along with details of corpus fund will be submitted to MoEF&CC 5 years in advance.  |
| (xxx) | <p>Corporate Environment Responsibility:</p> <p>a)The Company shall have a well laid down Environment Policy approved by the Board of Directors.</p> <p>b)The Environment Policy shall prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.</p> <p>c)The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions shall be furnished.</p> <p>d) To have proper checks and balances, the company shall have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.</p> | <p>The Company already has an Environment Policy approved by the Managing Director and it addresses all the issues mentioned.</p> <p>The status of adherence to the policy and compliance to Environmental laws and regulations is regularly discussed at higher levels. Any non-compliance noticed is corrected at divisional level. If any issue is beyond our control, it is brought to the notice of higher management.</p> <p>Moreover, Digwadih Colliery is IMS (Integrated Management System: Quality Management System, Environment Management System and OHSAS) certified unit addressing all environment aspects, impacts and needs and expectation of interested parties with respect to environment protection.</p> |

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| <b>B.</b> | <b>GENERAL CONDITIONS</b>  |  |
| (i)       | No change in technology and scope of working shall be made without prior approval of the MoEF.           | It is being strictly followed. Board and Pillar method is being used for mining. |
| (ii)      | No change in the calendar plan including quantum of mineral coal and waste being produced shall be made. | It will be strictly followed.  |
| (iii)     | Four ambient air quality monitoring stations shall be established in the core                            | The Air quality monitoring stations are:   |

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|      | <p>zone as well as in the buffer zone for monitoring PM10, PM2.5, SO2 and NOx. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, in RSPM etc. shall be carried out at least once in six months.</p>                             | <p>(i)Jamadoba Group Office (Core Zone)<br/>(ii)New Village Colony, Jamadoba (Buffer Zone)<br/>(iii)Digwadih 12 No. Colony (Buffer Zone)<br/>(iv)6&amp;7 Pits Kalimandir area (Buffer Zone)</p> <p>Monitoring of heavy metals in ambient air is being performed by an independent laboratory (recognized by JSPCB &amp; NABL) on quarterly basis. The results are enclosed as <b>Annexure-II.</b></p> |
| (iv) | <p>Data on ambient air quality (PM10, PM2.5, SO2 and NOx and heavy metals such as Hg, As, Ni, Cr, etc) and other monitoring data shall be regularly submitted to the Ministry including its Regional Office at Bhubaneswar and to the SPCB and the CPCB once in six months. Random verification of samples through analysis from independent laboratories recognised under the EP Rules, 1986 shall be furnished as part of the compliance report.</p> | <p>Ambient air quality report (PM10, PM 2.5, SO2 and NOx) for the period from Oct'22 to Mar'23 is attached as <b>Annexure-II.</b> Additionally, third party monitoring is being done through a JSPCB and NABL recognized Laboratory for PM10, PM 2.5, SO2, NOx, CO, NH3, O3 and heavy metals (As, Ni, Cd and Cr). The results are enclosed as <b>Annexure-II.</b></p>                                 |
| (v)  | <p>Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with ear plugs/muffs.</p>  | <p>Regular noise survey is being conducted in the underground work environment. Workers are provided with ear-plugs/ muffs in high noise areas.</p>   |
| (vi) | <p>Industrial wastewater (workshop and wastewater from the mine) shall be properly collected, and treated so as to conform to the standards including for heavy metals before discharge prescribed under GSR 422 (E) dated 19th May 1993 and 31st December 1993 or as amended from time to time. Oil and grease trap shall be installed</p>  | <p>No industrial wastewater is generated in Digwadih Colliery premises. There is a central workshop and garage in Jamadoba where Effluent Treatment Plant having oil and grease trap facility has been provided.</p>  |

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|        | before discharge of workshop effluents.  |  |
| (vii)  | Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transportation of the mineral shall be covered with tarpaulins and optimally loaded.  | Only the vehicles having valid PUC certificates are being allowed to operate for sand transportation. Coal transportation is done through underground belt network. Only sand transportation is done through trucks which are covered with tarpaulins as well as optimally loaded.                           |
| (viii) | Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with SPCB and data got analysed through a laboratory recognised under EP Rules, 1986.   | We have a fully equipped Environment Cell Laboratory with qualified personnel. The monitoring and analysis is also done at regular intervals by a JSPCB & NABL accredited laboratory<br><br>We have also installed a Continuous Ambient Air Quality Monitoring Station at Jamadoba for real time monitoring. |
| (ix)   | Monitoring of outlet points should be carried out and records of same should be maintained and submitted to the Regional Office of the MOEF as part of the Compliance Report.  | There is one mine-water outlet point in the colliery which is regularly monitored by the Environmental Laboratory. The analysis results have been provided as <b>Annexure-1</b>  |
| (x)    | Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects. Occupational health surveillance programme of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed. | Persons working in dusty area have been provided with dust masks & have been given awareness training on safety & health aspects. Regular PME (Periodic Medical Examinations) are being done.  |
| (xi)   | A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior Executive, who will report directly to the Head of the company.   | We have a separate Environmental Management Cell with qualified personnel . The reporting of Environmental Cell is directly to General Manager of the Division. Environment policy has been attached as Annexure-III.  |
| (xii)  | The funds earmarked for environmental protection measures  | The Environment Cell has a separate fund for Environmental protection measures and for   |

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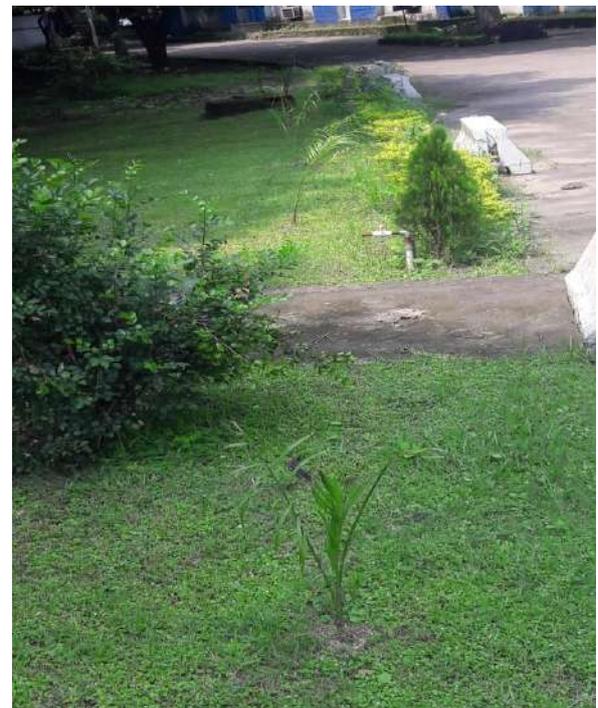
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|        | shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its Regional Office at Bhubaneswar.   | complying with legal requirements. The annual environmental expenditure for the financial year 2021-2022 is Rs. 252.10 lakhs.  |
| (xiii) | The Project authorities shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution control Board and may also be seen at the website of the ministry of Environment & Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a> . | It has been complied with. Attached as Annexure-IV.  |
| (xiv)  | A copy of the environmental clearance letter shall be marked to concerned Panchayat/Zila Parishad, Municipal Corporation or Urban Local Body and local NGO, if any, from whom any suggestion/representation has been received while processing the proposal. A copy of the clearance letter shall also be displayed on the company's website.   | It has been complied with. Attached as Annexure-IV.  |
| (xv)   | A copy of the clearance letter shall be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industry Centre and Collector's Office/Tehsildar's Office for 30 days.  | It has been complied with.   |
| (xvi)  | The clearance letter shall be uploaded on the company's website. The compliance status of the stipulated EC conditions shall also be uploaded by the project authorities on their website and updated at least once every six months so as to bring the same in the public  | The clearance letter has been uploaded on the company's website. The compliance status (as Half-yearly compliance report) is being uploaded in company's website. The display of information near the mine's office has been done. |

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|                | domain. The monitoring data of environmental quality parameters (air, water, noise and soil) and critical pollutants such as PM10, PM2.5, SO2 and NOx (ambient and stack if any) and critical sectoral parameters shall also be displayed at the entrance of the project premises and mines office and in corporate office and on the company's website.  |  |
| <b>(xvii)</b>  | The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) to the respective Regional Office of the MOEF, the respective Zonal offices of CPCB and the SPCB.   | It is being complied   |
| <b>(xviii)</b> | The Regional Office of this Ministry located at Bhopal shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/information/monitoring reports.  | It will be complied with.  |
| <b>(xix)</b>   | The environmental statement for each financial year ending 31st March in Form-V is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be uploaded on the company's website along with the status of compliance of EC conditions and shall be sent to the respective Regional Offices of the MOEF by E-mail. | The environmental statement for financial year 2020-21 has been submitted to JSPCB vide letter no. JMB/ENV/ESSA/05/715/2022 on 28 <sup>th</sup> September 2022 and it is also uploaded on the company website. The soft copy of Environment Statement is also sent to MOEF by email at ro.ranchi-mef@gov.in. |

## 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

## Ambient Air Quality and Groundwater Quality Report (Period- October'22 to March'23)

**AIR QUALITY REPORT**

Core zone &amp; Buffer zone

Period- October'22 to December'22

No. of sampling points: 4

| Core zone (as per Air quality standards for coal mines in EPA Notification, 1988) |                                  |          |                      |   |   |  |   |
|---|----------------------------------|----------|----------------------|---|---|--|---|
| Location  | Latitude/<br>Longitude           | Date     | Weather<br>Condition | SPM<br>24 Hourly<br>Limit- 700<br>$\mu\text{g}/\text{m}^3$  | RSPM<br>24 Hourly<br>Limit- 300<br>$\mu\text{g}/\text{m}^3$ | SO <sub>2</sub><br>24 Hourly<br>Limit- 120<br>$\mu\text{g}/\text{m}^3$ | NO <sub>x</sub><br>24 Hourly<br>Limit-120<br>$\mu\text{g}/\text{m}^3$ |
| Jamadoba<br>Group Office  | 23°42'15.3"<br>N/ 86°24'11"<br>E | 20.10.22 | Clear                | 208.9   | 76.3  | 14.8   | 16.2  |
|   |                                  | 10.11.22 | Clear                | 236.7   | 88.2  | 15.8   | 17.3  |
|   |                                  | 12.12.22 | Clear                | 242.3   | 94.5  | 14.8   | 16.9  |
| Buffer zone (as per NAAQS 2009 for ambient air quality standards)                 |                                  |          |                      |   |   |  |   |
| Location  | Latitude/<br>Longitude           | Date     | Weather<br>Condition | PM10<br>24 Hourly<br>Limit-<br>100 $\mu\text{g}/\text{m}^3$ | PM2.5<br>24 Hourly<br>Limit-<br>60 $\mu\text{g}/\text{m}^3$ | SO <sub>2</sub><br>24 Hourly<br>Limit-<br>80 $\mu\text{g}/\text{m}^3$  | NO <sub>2</sub><br>24 Hourly<br>Limit-<br>80 $\mu\text{g}/\text{m}^3$ |
| Digwadih 12<br>No. Colony   | 23°41'42" N/<br>86°24'45.3" E    | 18.10.22 | Clear                | 74.6  | 38.2  | 12.4   | 14.7  |
|   |                                  | 08.11.22 | Clear                | 80.2  | 46.5  | 13.7   | 14.1  |
|   |                                  | 07.12.22 | Clear                | 86.3  | 44.2  | 12.7   | 14.8  |
| New Village<br>Colony,<br>Jamadoba  | 23°41'51" N/<br>86°23'19" E      | 17.10.22 | Clear                | 77.3  | 42.6  | 13.1   | 15.8  |
|   |                                  | 03.11.22 | Clear                | 89.4  | 49.2  | 14.8   | 16.2  |
|   |                                  | 05.12.22 | Clear                | 82.7  | 42.6  | 13.2   | 15.7  |
| 6&7 Pits<br>Kalimandir<br>colony  | 23°43'15" N/<br>86°24'12" E      | 19.10.22 | Clear                | 86.2  | 45.7  | 14.5   | 16.8  |
|   |                                  | 07.11.22 | Clear                | 78.6  | 42.6  | 12.4   | 14.9  |
|   |                                  | 06.12.22 | Clear                | 89.2  | 46.5  | 15.1   | 17.2  |



Sr. Manager (Environment)

## Ambient Air Quality and Groundwater Quality Report (Period- October'22 to March'23)

**AIR QUALITY REPORT**

Core zone &amp; Buffer zone

Period- January'23 to March'23

No. of sampling points: 4

| Core zone (as per Air quality standards for coal mines in EPA Notification, 1988) |                                  |          |                      |   |   |  |   |
|---|----------------------------------|----------|----------------------|---|---|--|---|
| Location  | Latitude/<br>Longitude           | Date     | Weather<br>Condition | SPM<br>24 Hourly<br>Limit- 700<br>$\mu\text{g}/\text{m}^3$  | RSPM<br>24 Hourly<br>Limit- 300<br>$\mu\text{g}/\text{m}^3$ | SO <sub>2</sub><br>24 Hourly<br>Limit- 120<br>$\mu\text{g}/\text{m}^3$ | NO <sub>x</sub><br>24 Hourly<br>Limit-120<br>$\mu\text{g}/\text{m}^3$ |
| Jamadoba<br>Group Office  | 23°42'15.3"<br>N/ 86°24'11"<br>E | 09.01.23 | Clear                | 238.7   | 92.6  | 15.6   | 17.8  |
|   |                                  | 17.02.23 | Clear                | 234.6   | 90.3  | 13.7   | 15.4  |
|   |                                  | 20.03.23 | Cloudy               | 187.6   | 70.8  | 12.5   | 14.8  |
| Buffer zone (as per NAAQS 2009 for ambient air quality standards)                 |                                  |          |                      |   |   |  |   |
| Location  | Latitude/<br>Longitude           | Date     | Weather<br>Condition | PM10<br>24 Hourly<br>Limit-<br>100 $\mu\text{g}/\text{m}^3$ | PM2.5<br>24 Hourly<br>Limit-<br>60 $\mu\text{g}/\text{m}^3$ | SO <sub>2</sub><br>24 Hourly<br>Limit-<br>80 $\mu\text{g}/\text{m}^3$  | NO <sub>2</sub><br>24 Hourly<br>Limit-<br>80 $\mu\text{g}/\text{m}^3$ |
| Digwadih 12<br>No. Colony   | 23°41'42" N/<br>86°24'45.3" E    | 06.01.23 | Clear                | 84.1  | 42.6  | 13.9   | 15.2  |
|   |                                  | 15.02.23 | Clear                | 96.3  | 52.7  | 15.8   | 17.1  |
|   |                                  | 17.03.23 | Clear                | 75.4  | 36.1  | 13.2   | 15.7  |
| New Village<br>Colony,<br>Jamadoba  | 23°41'51" N/<br>86°23'19" E      | 12.01.23 | Clear                | 90.7  | 46.0  | 15.8   | 16.3  |
|   |                                  | 16.02.23 | Clear                | 94.8  | 50.3  | 14.2   | 16.8  |
|   |                                  | 15.03.23 | Clear                | 92.2  | 49.7  | 15.4   | 18.4  |
| 6&7 Pits<br>Kalimandir<br>colony  | 23°43'15" N/<br>86°24'12" E      | 10.01.23 | Clear                | 87.4  | 40.5  | 14.9   | 15.8  |
|   |                                  | 14.02.23 | Clear                | 85.1  | 38.2  | 13.4   | 16.2  |
|   |                                  | 16.03.23 | Clear                | 87.1  | 43.5  | 14.8   | 15.9  |



Sr. Manager (Environment)

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

| S.No | Date     | Location                   | Time     | Depth in meter | pH  | Electrical Conductivity, $\mu\text{S/m}$ |
|------|----------|----------------------------|----------|----------------|-----|--|
| 1    | 06.11.22 | Purnadih (Jorapokhar)      | 11:55 AM | 2.98           | 7.2 | 834                                      |
| 2    | 06.11.22 | Bhowra 13 No               | 12:25 PM | 2.09           | 7.0 | 946                                      |
| 3    | 06.11.22 | Mohalbani Basti            | 12:50 PM | 3.94           | 7.3 | 834                                      |
| 4    | 06.11.22 | Digwadih 10 No F & J       | 01:15 PM | 2.97           | 7.2 | 1087                                     |
| 5    | 06.11.22 | Kalimela Shivmandir        | 11:20 AM | 1.38           | 7.1 | 938                                      |
| 6    | 06.11.22 | Kalimela Kalimandir        | 11:35 AM | 3.28           | 7.2 | 1024                                     |
| 7    | 06.11.22 | Lower Dungari              | 11:00 AM | 3.49           | 7.2 | 736                                      |
| 8    | 06.11.22 | Upper Dungari              | 10:35 AM | 3.12           | 7.3 | 824                                      |
| 9    | 06.11.22 | Pattia Basti               | 10:05 AM | 2.52           | 7.2 | 798                                      |
| 10   | 06.11.22 | Kenduadih Basti            | 09:40 AM | 2.14           | 7.1 | 766                                      |
| 11   | 06.11.22 | Jorapokhar Kushtand        | 02:25 PM | 1.47           | 7.2 | 844                                      |
| 12   | 06.11.22 | Jamadoba 3 No              | 02:05 PM | 2.52           | 7.1 | 795                                      |
| 13   | 06.11.22 | 6&7 Pits (Ayodhya Nagri)   | 01:45 PM | 2.08           | 7.1 | 938                                      |
| 14   | 06.11.22 | Jorapokhar Basti Chhattand | 02:50 PM | 1.74           | 7.2 | 732                                      |



**Sr. Manager (Environment)**

Ambient Air Quality and Groundwater Quality Report (Period- October'22 to March'23)

**Ground Water Quality Analysis (Hand Pump & Dung Well)  
(Winter Season- January'2023)**

| S.No | Date       | Location                   | Time     | Depth in meter | pH  | Electrical Conductivity $\mu$ S/m |
|------|------------|----------------------------|----------|----------------|-----|-----------------------------------|
| 1    | 30.01.2023 | Purnadih (Jorapokhar)      | 12:15 PM | 3.21           | 7.1 | 936                               |
| 2    | 30.01.2023 | Bhowra 13 No               | 12:55 PM | 2.45           | 7.2 | 998                               |
| 3    | 30.01.2023 | Mohalbani Basti            | 01:20 PM | 4.21           | 7.1 | 842                               |
| 4    | 30.01.2023 | Digwadih 10 No F & J       | 01:40 PM | 3.48           | 7.2 | 1139                              |
| 5    | 30.01.2023 | Kalimela Shivmandir        | 11:25 AM | 1.85           | 7.2 | 924                               |
| 6    | 30.01.2023 | Kalimela Kalimandir        | 11:45 AM | 3.78           | 7.3 | 1086                              |
| 7    | 30.01.2023 | Lower Dungari              | 11:05 AM | 3.73           | 7.2 | 748                               |
| 8    | 30.01.2023 | Upper Dungari              | 10:40 AM | 3.68           | 7.1 | 839                               |
| 9    | 30.01.2023 | Pattia Basti               | 10:15 AM | 2.87           | 7.2 | 834                               |
| 10   | 30.01.2023 | Kenduadih Basti            | 09:45 AM | 2.26           | 7.3 | 773                               |
| 11   | 30.01.2023 | Jorapokhar Kushtand        | 11:50 AM | 2.64           | 7.2 | 831                               |
| 12   | 30.01.2023 | 6&7 Pits (Ayodhya Nagri)   | 02:05 PM | 2.35           | 7.2 | 956                               |
| 13   | 30.01.2023 | Jorapokhar Basti Chhattand | 02:25 PM | 1.82           | 7.2 | 747                               |
| 14   | 30.01.2023 | Jorapokhar Babu Basa       | 12:35 PM | 2.77           | 7.2 | 1038                              |

**Sr. Manager (Environment)**



# 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: aditirnds.com  
Phone: 0326-2952377 (O)  
Mobile: 09471358492, 09431512808

Ref. No.: - ARDS/22-23/2051

Date: 12.11.2022

## TEST REPORT OF AMBIENT AIR QUALITY

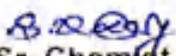
- Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED, JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 07.11.2022 to 08.11.2022
- Date of Testing : 09.11.2022 to 11.11.2022
- Test Procedure : As per IS-5182

### TEST RESULTS

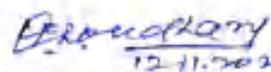
LOCATION – OFFICERS COLONY, 12 NO. DIGWADIH

| SI No. | Particulars  | Value | NAAQ - CPCB STANDARD  |
|--------|--|-------|-----------------------|
|        | Avg. Ambient Temperature                                   | 29°C  | Avg. Humidity 49%     |
| 1.     | Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>  | 74.81 | 100 µg/m <sup>3</sup> |
| 2.     | Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> | 37.84 | 60 µg/m <sup>3</sup>  |
| 3.     | SO <sub>2</sub> , µg/m <sup>3</sup>                        | 14.60 | 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>                                   | 20.12 | 180 µg/m <sup>3</sup> |
| 6.     | NH <sub>3</sub> , µg/m <sup>3</sup>                        | 16.53 | 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

  
Sr. Chemist  
Aditi R&D Services



  
12.11.2022  
Quality Manager  
Aditi R&D Services, Sindri

### Statements:

- The test report refers only to the particular item(s) submitted for testing.
- The test results reported in this report are valid at the time of and under the stated condition of measurement.
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P.O.- Domgarh, Dist.- Dhanbad  
Jharkhand - 828107  
Email ID: sindriaditi@gmail.com  
Website: aditirdservices.com  
Phone: 0326-2952377 (O)  
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/22-23/2052

Date: 12.11.2022

## TEST REPORT OF AMBIENT AIR QUALITY

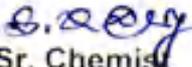
- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO. : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 07.11.2022 to 08.11.2022
- Date of Testing : 09.11.2022 to 11.11.2022
- Test Procedure : As per IS-5182

### TEST RESULTS

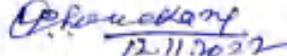
#### LOCATION – CENTRAL WORKSHOP AREA , JAMADOBA

| SI No. | Particulars  | Value | Avg. Ambient Temperature | Avg. Humidity         |
|--------|--|-------|--------------------------|-----------------------|
|        |  |       | 29°C                     | 49%                   |
|        |  |       |                          | NAAQ - CPCB STANDARD  |
| 1.     | Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>  | 86.9  |                          | 100 µg/m <sup>3</sup> |
| 2.     | Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> | 46.8  |                          | 60 µg/m <sup>3</sup>  |
| 3.     | SO <sub>2</sub> , µg/m <sup>3</sup>                        | 17.52 |                          | 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>                                   | 17.84 |                          | 180 µg/m <sup>3</sup> |
| 6.     | NH <sub>3</sub> , µg/m <sup>3</sup>                        | 17.26 |                          | 400 µg/m <sup>3</sup> |
| 7.     | CO, mg/m <sup>3</sup>                                      | 0.99  |                          | 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



  
12.11.2022  
Quality Manager  
Aditi R&D Services, Sindri

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Jharkhand - 825107  
Email ID: sindriaditi@gmail.com  
Website: aditirdservices.com  
Phone: 0326-2952377 (O)  
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/22-23/2055

Date: 12.11.2022

## TEST REPORT OF AMBIENT AIR QUALITY

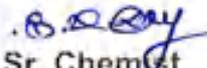
- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 07.11.2022 to 08.11.2022
- Date of Testing : 09.11.2022 to 11.11.2022
- Test Procedure : As per IS-5182

### TEST RESULTS

#### LOCATION - TATA CENTRAL HOSPITAL

| Sl No. | Particulars  | Value | NAAQ - CPCB STANDARD  |
|--------|--|-------|-----------------------|
|        | Avg. Ambient Temperature                                   | 29°C  | Avg. Humidity 49%     |
| 1.     | Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>  | 73.24 | 100 µg/m <sup>3</sup> |
| 2.     | Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> | 36.49 | 60 µg/m <sup>3</sup>  |
| 3.     | SO <sub>2</sub> , µg/m <sup>3</sup>                        | 14.52 | 80 µg/m <sup>3</sup>  |
| 4.     | NO <sub>2</sub> , µg/m <sup>3</sup>                        | 23.19 | 80 µg/m <sup>3</sup>  |
| 5.     | Ozone, µg/m <sup>3</sup>                                   | 16.57 | 180 µg/m <sup>3</sup> |
| 6.     | NH <sub>3</sub> , µg/m <sup>3</sup>                        | 14.62 | 400 µg/m <sup>3</sup> |
| 7.     | CO, mg/m <sup>3</sup>                                      | 0.83  | 4 mg/m <sup>3</sup>   |
| 8.     | Pb, µg/m <sup>3</sup>                                      | BDL   | 1 µg/m <sup>3</sup>   |
| 9.     | As, ng/m <sup>3</sup>                                      | BDL   | 6 ng/m <sup>3</sup>   |
| 10.    | Ni, ng/m <sup>3</sup>                                      | BDL   | 20 ng/m <sup>3</sup>  |
| 11.    | Benzene, µg/m <sup>3</sup>                                 | BDL   | 5 µg/m <sup>3</sup>   |
| 12.    | Benzo(a)pyrene, 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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# ADITI R&D SERVICES

Testing Laboratory

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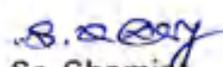
Plot No. - I-B-17 (P)  
Sindri, Industrial Area,  
P.O - Domgarh, Dist. - Dhanbad  
Jharkhand - 828107  
Email ID: sindriaditi@gmail.com  
Website: aditirdservices.com  
Phone: 0326-2952377 (O) -  
Mobile: 09471358492, 09431512608

## TEST REPORT OF NOISE (AMBIENT) LEVEL MONITORING

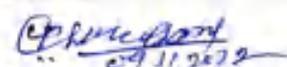
|   |  |                      |                   |                     |
|---|--|----------------------|-------------------|---------------------|
| Ref. No. & Date                             | NAME AND ADDRESS OF THE CLIENT   |                      |                   |                     |
| ARDS/22-23/2028 Date: 09.11.2022            | M/S TATA STEEL, JAMADOBA,  |                      |                   |                     |
| Date of Monitoring                          | TATA STEEL LIMITED, JAMADOBA GROUP PLANT,<br>DIST. - DHANBAD (JHARKHAND) |                      |                   |                     |
| 07.11.2022 TO 08.11.2022                    | Avg. Ambient Temperature (°C)  | Average Humidity (%) | Weather Condition | Status of the plant |
| Work Order 4700092573/932<br>Dt. 20.07.2021 | 28   | 50                   | Clear             | Running             |

### MONITORING RESULTS

| Sl. No | Place of Monitoring            | Day Time<br>(6 AM to 10 PM)<br>Avg. dB(A) |      |                | Night Time<br>(10 PM to 6 AM)<br>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       |
|        | JAMADOBA GROUP                 |   |      |                |   |      | Industrial Area   | Industrial Area  |                  |
| 1.     | Central Workshop               | 67.3                                      | 59.8 | 65.0           | 53.7  | 44.6 | 51.19             |  |                  |
| 2.     | 6 & 7 Pits Colliery Office     | 64.9                                      | 59.6 | 63.01          | 51.4  | 42.5 | 48.92             | 75   | 70               |
|        |                                |   |      |                |   |      |                   | Residential Area   | Residential Area |
| 3.     | Officer Colony 12 No. Digwadih | 50.7                                      | 47.8 | 49.49          | 43.5  | 39.8 | 42.03             | 65   | 55               |
|        |                                |   |      |                |   |      |                   | Silence Zone   | Silence Zone     |
| 4.     | Tata Central Hospital          | 46.9                                      | 42.4 | 45.21          | 40.1  | 37.9 | 39.14             | 50   | 40               |

  
Sr. Chemist  
Aditi R&D Services



  
Quality Manager  
Aditi R&D Services, Sindri

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Ref. No.: - ARDS/22-23/2048

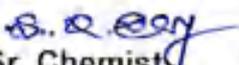
Date: 11.11.2022

## TEST REPORT OF MINERALOGICAL COMPOSITION OF PARTICULATE MATTER

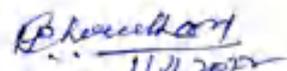
- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO. : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 08.11.2022
- Date of Testing : 09.11.2022 – 10.11.2022

### TEST RESULTS

| Sl No. | Particulars                       | Mineralogical Composition (%) |      |                                |     |
|--------|-----------------------------------|-------------------------------|------|--------------------------------|-----|
|        |                                   | SiO <sub>2</sub>              | FeO  | Al <sub>2</sub> O <sub>3</sub> | CaO |
| 1.     | Central Workshop Area Jamadoba    | 1.13                          | 0.04 | 0.97                           | 2.6 |
| 2.     | Officer's Colony, 12 No. Digwadih | 1.42                          | 0.09 | 0.92                           | 2.1 |

  
Sr. Chemist  
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11.11.2022  
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Aditi R&D Services, Sindri

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Ref. No.: - ARDS/22-23/2101

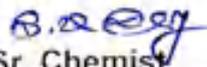
Date: 17.11.2022

## TEST REPORT OF SURFACE WATER

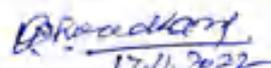
- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Sample Code : 1. Damodar River Up Stream  
2. Damodar River Down Stream
- Date of Sample Collection: 07.11.2022 To 08.11.2022
- Date of Testing : 09.11.2022 To 16.11.2022
- 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                                 | 7.5                     | 7.6                     | 6.5 -8.5                       | IS-3025 (P-11): 1983 |
| 2.      | Total Dissolved Solids, mg/l       | 595                     | 625                     | 1500                           | IS-3025 (P-16): 1984 |
| 3.      | Turbidity, NTU                     | 9.5                     | 11.2                    | -                              | IS-3025 (P-10):1984  |
| 4.      | Dissolved Oxygen, mg/l             | 6.8                     | 6.4                     | 4.0                            | IS-3025 (P-38):1989  |
| 5.      | Bio chemical Oxygen Demand, mg/l   | 2.0                     | 2.2                     | 3.0                            | IS-3025 (P-44):1994  |
| 6.      | Chloride as Cl, mg/l               | 44                      | 52                      | -                              | IS-3025 (P-32):1988  |
| 7.      | Fluoride as F, mg/l                | 0.52                    | 0.54                    | 1.5                            | IS-3025 (P-60):2008  |
| 8.      | Sulphate as SO <sub>4</sub> , mg/l | 36                      | 48                      | 400                            | IS-3025 (P-24):1986  |

  
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17.11.2022  
Quality Manager  
Aditi R&D Services, Sindri

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Ref. No.: - ARDS/22-23/2102

Date: 17.11.2022

## 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: 07.11.2022 To 08.11.2022
- Date of Testing : 09.11.2022 to 16.11.2022
- 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,                              | 7.9                     | 7.3                     | 7.3                         | 7.6                 | 7.8               | 6.5-8.5                                    | IS-3025 (P-11): 1983 |
| 2.      | Total Dissolved Solids, mg/l     | 896                     | 680                     | 610                         | 660                 | 742               | -  | IS-3025 (P-16): 1984 |
| 3.      | Total Suspended Solids, mg/l     | 38                      | 26                      | 32                          | 18                  | 28                | -  | IS-3025(P-17): 1984  |
| 4.      | Bio chemical Oxygen Demand, mg/l | 2.4                     | 2.7                     | 2.2                         | 1.6                 | 2.4               | 3  | IS-3025 (P-44):1994  |
| 5.      | Chemical Oxygen Demand, mg/l     | 48                      | 54                      | 44                          | 32                  | 48                | -  | IS-3025 (P-58):2006  |
| 6.      | Oil & Grease, mg/l               | BDL                     | BDL                     | BDL                         | BDL                 | BDL               | -  | IS-3025 (P-39):2021  |

*S. S. Ray*  
Sr. Chemist  
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*Praveen Kumar*  
17.11.2022  
Quality Manager  
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Ref. No.: - ARDS/22-23/2104

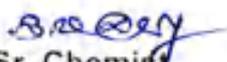
Date: 17.11.2022

## TEST REPORT OF SEWAGE

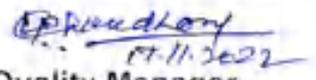
- Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED, JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Sample Code : 1. S.T.P. Outlet Jamadoba Canteen  
2. S.T.P. Outlet J.C.P.P. Canteen  
3. S.T.P. Outlet Railway Colony
- Date of Sample Collection: 07.11.2022 to 08.11.2022
- Date of Testing : 09.11.2022 to 16.11.2022
- 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,                              | 7.3                            | 7.6                            | 7.3                          | 6.0-9.0   | IS-3025 (P-11):1983 |
| 2.      | Total Dissolved Solids, mg/l     | 648                            | 725                            | 760                          | 2100  | IS-3025 (P-16):1984 |
| 3.      | Total Suspended Solids, mg/l     | 28                             | 22                             | 32                           | 100   | IS-3025(P-17):1984  |
| 4.      | Bio chemical Oxygen Demand, mg/l | 11.5                           | 10.0                           | 12.0                         | 30  | IS-3025 (P-44):1994 |
| 5.      | Chemical Oxygen Demand, mg/l     | 58                             | 52                             | 60                           | 250   | IS-3025 (P-58):2006 |
| 6.      | Oil & Grease, mg/l               | 0.4                            | B.D.L                          | 1.2                          | 10  | IS-3025 (P-39):2021 |

  
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Aditi R&D Services



  
Quality Manager  
Aditi R&D Services, Sindri

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Ref. No.: - ARDS/22-23/2110

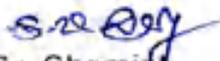
Date: 18.11.2022

## 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 T.C.H.  
2. E.T.P. Outlet Garage
- Date of Sample Collection: 07.11.2022 to 08.11.2022
- Date of Testing : 09.11.2022 to 16.11.2022
- 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,                              | 7.5                 | 7.6                  | 6.0-9.0   | IS-3025 (P-11): 1983    |
| 2.      | Total Dissolved Solids, mg/l     | 635                 | 660                  | 2100  | IS-3025 (P-16): 1984    |
| 3.      | Total Suspended Solids, mg/l     | 23                  | 25                   | 100   | IS-3025(P-17)<br>: 1984 |
| 4.      | Bio chemical Oxygen Demand, mg/l | 08                  | 10                   | 30  | IS-3025 (P-44):1994     |
| 5.      | Chemical Oxygen Demand, mg/l     | 48                  | 53                   | 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



  
18.11.2022  
Quality Manager  
Aditi R&D Services, Sindri

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Ref. No.: - ARDS/22-23/2111

Date: 18.11.2022

## 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: 07.11.2022 to 08.11.2022
- Date of Testing : 09.11.2022 to 16.11.2022
- 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                        | NIL                       | NIL                      | 1.0                     | 5.0         | IS 3025 (P-10):1984 |
| 5.     | pH   | 7.6                       | 7.3                      | 7.5                       | 7.6                      | 6.5-8.5                 | No. Relax.  | IS-3025 (P-11):1983 |
| 6.     | Total Hardness as CaCO <sub>3</sub> , mg/l   | 320                       | 368                      | 340                       | 310                      | 200                     | 600         | IS 3025 (P-21):2009 |
| 7.     | Chloride as Cl <sub>1</sub> , mg/l           | 58                        | 54                       | 56                        | 44                       | 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                 | 795                       | 760                      | 735                       | 715                      | 500                     | 2000        | IS 3025 (P-16):1984 |
| 10.    | Calcium as CaCO <sub>3</sub> , mg/l          | 41.5                      | 46                       | 38                        | 32                       | 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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| 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                           | 48                        | 52                       | 62                        | 46                       | 200                     | 400         | IS 3025 (P-24):1986 |
| 14.     | Nitrate as NO <sub>3</sub> , mg/l                            | 2.6                       | 2.8                      | 2.9                       | 3.2                      | 45                      | No. Relax   | IS 3025 (P-34):1988 |
| 15.     | Fluoride as F, mg/l  | 0.32                      | 0.28                     | 0.34                      | 0.33                     | 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,  | 0.16                      | 0.18                     | 0.12                      | 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,                      | 370                       | 330                      | 365                       | 345                      | 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

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Aditi R&D Services



*A. K. Chatterjee*  
18.11.2022  
Quality Manager  
Aditi R&D Services, Sindri

#### Statements:

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# 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: aditirnds.com  
Phone: 0326-2952377 (O)  
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/22-23/ 2112

Date: 18.11.2022

### 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. Purnadi Joraphokhar  
2. Digwadih 10 No. F&J  
3. Kalinala Kali Mandir  
4. Upper Dungri  
5. Kenduadih Basti  
6. 6 & 7 Pit Ayodha Nagari
- Date of Sample Collection : 07.11.2022 to 08.11.2022
- Date of Testing : 09.11.2022 to 16.11.2022
- 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.

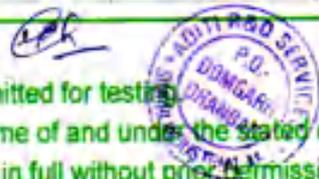
### TEST RESULT

| PARAMETERS OF TEST                         | VALUE               |                    |                      |              |                 |                     | IS as per IS 10500:1991 |             | Test Method        |
|--|---------------------|--------------------|----------------------|--------------|-----------------|---------------------|-------------------------|-------------|--------------------|
|  | Purandi Joraphokhar | Digwadih 1 No. F&J | Kalinala Kali Mandir | Upper Dungri | Kenduadih Basti | 6 & 7 Ayodha Nagari | Desirable               | Permissible |                    |
| Colour, (Hazen Unit)                       | 1                   | 2                  | 1                    | 2            | 1               | 2                   | 5                       | 15          | IS 3025 (P-4):2021 |
| Temperature °C                             | 22                  | 24                 | 23                   | 24           | 22              | 23                  | -                       | -           | -                  |
| Electrical Conductivity, µmhos/cm          | 1020                | 1045               | 1065                 | 1080         | 940             | 1070                | -                       | -           | -                  |
| Total Dissolved Solids, mg/l               | 653                 | 680                | 693                  | 702          | 611             | 696                 | -                       | -           | IS 3025(P-16):1984 |
| pH   | 7.7                 | 7.6                | 7.3                  | 7.5          | 7.6             | 7.8                 | 6.5-8.5                 | No Relax    | IS-3025(P-11):1983 |
| Total Hardness as CaCO <sub>3</sub> , mg/l | 328                 | 280                | 365                  | 258          | 385             | 260                 | 200                     | 600         | IS 3025(P-21):2009 |
| Calcium as Ca, mg/l                        | 67.2                | 59.2               | 73.6                 | 51.6         | 77.2            | 52                  | 75                      | 200         | IS 3025(P-40):1991 |
| Magnesium as Mg, mg/l                      | 37.2                | 95                 | 42.1                 | 30           | 44              | 30.2                | 30                      | 100         | IS 3025(P-46):1994 |
| Chloride as Cl, mg/l                       | 38                  | 32                 | 48                   | 28           | 52              | 28                  | 250                     | 1000        | IS 3025(P-32):1988 |
| Fluoride as F <sub>2</sub> , mg/l          | 0.28                | 0.26               | 0.44                 | 0.46         | 0.36            | 0.32                | 1.0                     | 1.5         | IS 3025(P-60):2008 |

Continued on Page 2

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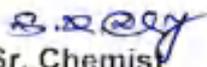
ISO/IEC 17025:2017, ISO 9001:2015, ISO (OHSAS) 45001:2018 Certified

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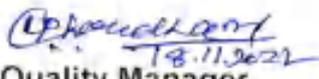
- 2 -

| Sl. No | PARAMETERS OF TEST                     | VALUE               |                    |                      |              |                   |                    | IS as per IS 10500:1991 |             | Test Method         |
|--------|--|---------------------|--------------------|----------------------|--------------|-------------------|--------------------|-------------------------|-------------|---------------------|
|        |  | Purandi Joraphokhar | Digwadih 1 No. F&J | Kalinala Kali Mandir | Upper Dungri | Kendui adih Basti | 6 & 7 Ayodha Nagar | Desirable               | Permissible |                     |
| 10     | Sulphate as SO <sub>4</sub> , mg/l     | 42                  | 66                 | 70                   | 62           | 58                | 54                 | 200                     | 400         | IS 3025(P-24):1986  |
| 12     | Nitrate as NO <sub>3</sub> , mg/l      | 11.8                | 12.4               | 8.2                  | 10.4         | 9.8               | 9.4                | 45                      | No. Relax   | IS 3025(P-34):1988  |
| 13     | Alkalinity as CaCO <sub>3</sub> , mg/l | 285                 | 260                | 310                  | 325          | 345               | 340                | 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                | 0.14               | 0.18                 | 0.16         | 0.14              | 0.16               | 5                       | 15          | IS 3025(P-42):1992  |
| 16     | Iron as Fe, mg/l                       | 0.2                 | 0.1                | 0.1                  | 0.2          | 0.2               | 0.2                | 0.3                     | No. Relax   | IS 3025(P-53):2003  |
| 17     | Copper as Cu, mg/l                     | BDL                 | BDL                | BDL                  | BDL          | BDL               | BDL                | 0.05                    | 1.5         | IS 3025 (P-42):1992 |
| 18     | Mercury as Hg, mg/l                    | BDL                 | BDL                | BDL                  | BDL          | BDL               | BDL                | 0.001                   | No. Relax   | IS 3025(P-48):1994  |
| 19     | Cadmium as Cd, mg/l                    | BDL                 | BDL                | BDL                  | BDL          | BDL               | BDL                | 0.003                   | No. Relax   | IS 3025(P-41):1992  |
| 20     | Nickel as Ni, mg/l                     | BDL                 | BDL                | BDL                  | BDL          | BDL               | BDL                | 0.02                    | No. Relax   | IS 3025(P-37):1992  |
| 21     | Arsenic as As, mg/l                    | BDL                 | BDL                | BDL                  | BDL          | BDL               | BDL                | 0.01                    | No. Relax   | IS 3025(P-37):1988  |
| 22     | Cyanide as CN, mg/l                    | BDL                 | BDL                | BDL                  | BDL          | BDL               | BDL                | 0.05                    | No. Relax   | IS 3025(P-27):1986  |
| 23     | Total Chromium as Cr, mg/l             | BDL                 | BDL                | BDL                  | BDL          | BDL               | BDL                | 0.05                    | No. Relax   | IS 3025(P-52):2003  |

NOTE: BDL - Below Detection Limit

  
Sr. Chemist  
Aditi R&D Services



  
Quality Manager  
Aditi R&D Services, Sindri

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Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/22-23/2050

Date: 12.11.2022

## TEST REPORT OF AMBIENT AIR QUALITY

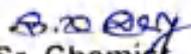
- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 07.11.2022 to 08.11.2022
- Date of Testing : 09.11.2022 to 11.11.2022
- Test Procedure : As per IS-5182

### TEST RESULTS

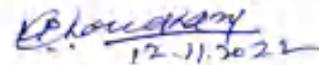
LOCATION - 6 & 7 PITS COLLOIERY OFFICE

| SI No. | Particulars  | Value | NAAQ - CPCB STANDARD  |
|--------|--|-------|-----------------------|
|        | Avg. Ambient Temperature                                   | 29°C  | Avg. Humidity 49%     |
| 1.     | Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>  | 93.80 | 100 µg/m <sup>3</sup> |
| 2.     | Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> | 47.92 | 60 µg/m <sup>3</sup>  |
| 3.     | SO <sub>2</sub> , µg/m <sup>3</sup>                        | 20.75 | 80 µg/m <sup>3</sup>  |
| 4.     | NO <sub>2</sub> , µg/m <sup>3</sup>                        | 28.60 | 80 µg/m <sup>3</sup>  |
| 5.     | Ozone, µg/m <sup>3</sup>                                   | 24.19 | 180 µg/m <sup>3</sup> |
| 6.     | NH <sub>3</sub> , µg/m <sup>3</sup>                        | 18.82 | 400 µg/m <sup>3</sup> |
| 7.     | CO, mg/m <sup>3</sup>                                      | 1.98  | 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



  
12.11.2022  
Quality Manager  
Aditi R&D Services, Sindri

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Fax: 0326-2952377  
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/22-23/2908

Date: 18.02.2023

## TEST REPORT OF AMBIENT AIR QUALITY

- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 10.02.2023 to 11.02.2023
- Date of Testing : 15.02.2023 to 17.02.2023
- Test Procedure : As per IS-5182

### TEST RESULTS

#### LOCATION – 6 & 7 PITS COLLIERY OFFICE

| Sl No. | Particulars  | Value | NAAQ - CPCB STANDARD  |
|--------|--|-------|-----------------------|
| 1.     | Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>  | 81.37 | 100 µg/m <sup>3</sup> |
| 2.     | Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> | 48.62 | 60 µg/m <sup>3</sup>  |
| 3.     | SO <sub>2</sub> , µg/m <sup>3</sup>                        | 20.19 | 80 µg/m <sup>3</sup>  |
| 4.     | NO <sub>2</sub> , µg/m <sup>3</sup>                        | 25.58 | 80 µg/m <sup>3</sup>  |
| 5.     | Ozone, µg/m <sup>3</sup>                                   | 17.29 | 180 µg/m <sup>3</sup> |
| 6.     | NH <sub>3</sub> , µg/m <sup>3</sup>                        | 14.49 | 400 µg/m <sup>3</sup> |
| 7.     | CO, mg/m <sup>3</sup>                                      | 0.83  | 4 mg/m <sup>3</sup>   |
| 8.     | Pb, µg/m <sup>3</sup>                                      | BDL   | 1 µg/m <sup>3</sup>   |
| 9.     | As, ng/m <sup>3</sup>                                      | BDL   | 6 ng/m <sup>3</sup>   |
| 10.    | Ni, ng/m <sup>3</sup>                                      | BDL   | 20 ng/m <sup>3</sup>  |
| 11.    | Benzene, µg/m <sup>3</sup>                                 | BDL   | 5 µg/m <sup>3</sup>   |
| 12.    | Benzoapyrene ng/m <sup>3</sup>                             | BDL   | 1 ng/m <sup>3</sup>   |

NOTE: BDL - Below Detection Limit

A. Das,

Sr. Chemist

Aditi R&D Services



Technical Manager

Aditi R&D Services, Sindri

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Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/22-23/2909

Date: 18.02.2023

## TEST REPORT OF AMBIENT AIR QUALITY

- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 10.02.2023 to 11.02.2023
- Date of Testing : 15.02.2023 to 17.02.2023
- Test Procedure : As per IS-5182

### TEST RESULTS

LOCATION – OFFICERS COLONY, 12 NO. DIGWADIH

| LOCATION – OFFICERS COLONY, 12 NO. DIGWADIH |  |                   |                       |
|---|--|-------------------|-----------------------|
|   | Avg. Ambient Temperature                                   | 24 <sup>o</sup> C | Avg. Humidity         |
| Sl No.                                      | Particulars  | Value             | NAAQ - CPCB STANDARD  |
| 1.  | Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>  | 87.76             | 100 µg/m <sup>3</sup> |
| 2.  | Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> | 52.66             | 60 µg/m <sup>3</sup>  |
| 3.  | SO <sub>2</sub> , µg/m <sup>3</sup>                        | 19.41             | 80 µg/m <sup>3</sup>  |
| 4.  | NO <sub>2</sub> , µg/m <sup>3</sup>                        | 26.35             | 80 µg/m <sup>3</sup>  |
| 5.  | Ozone, µg/m <sup>3</sup>                                   | 17.63             | 180 µg/m <sup>3</sup> |
| 6.  | NH <sub>3</sub> , µg/m <sup>3</sup>                        | 14.82             | 400 µg/m <sup>3</sup> |
| 7.  | CO, mg/m <sup>3</sup>                                      | 0.79              | 4 mg/m <sup>3</sup>   |
| 8.  | Pb, µg/m <sup>3</sup>                                      | BDL               | 1 µg/m <sup>3</sup>   |
| 9.  | As, ng/m <sup>3</sup>                                      | BDL               | 6 ng/m <sup>3</sup>   |
| 10.   | Ni, ng/m <sup>3</sup>                                      | BDL               | 20 ng/m <sup>3</sup>  |
| 11.   | Benzene, µg/m <sup>3</sup>                                 | BDL               | 5 µg/m <sup>3</sup>   |
| 12.   | Benzoapyrene ng/m <sup>3</sup>                             | BDL               | 1 ng/m <sup>3</sup>   |

NOTE: BDL - Below Detection Limit

A. Das,

Sr. Chemist

Aditi R&D Services



Technical Manager

Aditi R&D Services, Sindri

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Ref. No.: - ARDS/22-23/2910

Date: 18.02.2023

## TEST REPORT OF AMBIENT AIR QUALITY

- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO. : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 10.02.2023 to 11.02.2023
- Date of Testing : 15.02.2023 to 17.02.2023
- Test Procedure : As per IS-5182

### TEST RESULTS

#### LOCATION – CENTRAL WORKSHOP AREA, JAMADOBA

| SI No. | Particulars  | Value | NAAQ - CPCB STANDARD  |
|--------|--|-------|-----------------------|
|        | Avg. Ambient Temperature                                   | 26°C  | Avg. Humidity 39%     |
| 1.     | Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>  | 86.77 | 100 µg/m <sup>3</sup> |
| 2.     | Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> | 52.12 | 60 µg/m <sup>3</sup>  |
| 3.     | SO <sub>2</sub> , µg/m <sup>3</sup>                        | 19.64 | 80 µg/m <sup>3</sup>  |
| 4.     | NO <sub>2</sub> , µg/m <sup>3</sup>                        | 28.23 | 80 µg/m <sup>3</sup>  |
| 5.     | Ozone, µg/m <sup>3</sup>                                   | 16.60 | 180 µg/m <sup>3</sup> |
| 6.     | NH <sub>3</sub> , µg/m <sup>3</sup>                        | 17.65 | 400 µg/m <sup>3</sup> |
| 7.     | CO, mg/m <sup>3</sup>                                      | 1.06  | 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

A. Das,

Sr. Chemist

Aditi R&D Services



Technical Manager

Aditi R&D Services, Sindr

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Ref. No.: - ARDS/22-23/2911

Date: 18.02.2023

## TEST REPORT OF AMBIENT AIR QUALITY

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DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 10.02.2023 to 11.02.2023
- Date of Testing : 15.02.2023 to 17.02.2023
- Test Procedure : As per IS-5182

### TEST RESULTS

#### LOCATION – TATA CENTRAL HOSPITAL

| LOCATION – TATA CENTRAL HOSPITAL |  |                   |                       |     |
|----------------------------------|--|-------------------|-----------------------|-----|
|                                  | Avg. Ambient Temperature                                   | 24 <sup>0</sup> C | Avg. Humidity         | 40% |
| Sl No.                           | Particulars  | Value             | NAAQ - CPCB STANDARD  |     |
| 1.                               | Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>  | 78.07             | 100 µg/m <sup>3</sup> |     |
| 2.                               | Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup> | 45.84             | 60 µg/m <sup>3</sup>  |     |
| 3.                               | SO <sub>2</sub> , µg/m <sup>3</sup>                        | 17.68             | 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>                                   | 16.44             | 180 µg/m <sup>3</sup> |     |
| 6.                               | NH <sub>3</sub> , µg/m <sup>3</sup>                        | 17.38             | 400 µg/m <sup>3</sup> |     |
| 7.                               | CO, mg/m <sup>3</sup>                                      | 0.89              | 4 mg/m <sup>3</sup>   |     |
| 8.                               | Pb, µg/m <sup>3</sup>                                      | BDL               | 1 µg/m <sup>3</sup>   |     |
| 9.                               | As, ng/m <sup>3</sup>                                      | BDL               | 6 ng/m <sup>3</sup>   |     |
| 10.                              | Ni, ng/m <sup>3</sup>                                      | BDL               | 20 ng/m <sup>3</sup>  |     |
| 11.                              | Benzene, µg/m <sup>3</sup>                                 | BDL               | 5 µg/m <sup>3</sup>   |     |
| 12.                              | Benzoapyrene ng/m <sup>3</sup>                             | BDL               | 1 ng/m <sup>3</sup>   |     |

NOTE: BDL - Below Detection Limit

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## TEST REPORT OF NOISE (AMBIENT) LEVEL MONITORING

|   |  |   |  |                      |                     |
|---|--|---|--|----------------------|---------------------|
| Ref. No. & Date                             |  | NAME AND ADDRESS OF THE CLIENT            |  |                      |                     |
| ARDS/22-23/2862 Date: 13.02.2023            |  | M/S TATA STEEL, JAMADOBA,                 |  |                      |                     |
| Date of Monitoring                          |  | TATA STEEL LIMITED, JAMADOBA GROUP PLANT, |  |                      |                     |
| 10.02.2023 TO 11.02.2023                    |  | Avg. Ambient Temperature (°C)             |  | Average Humidity (%) | Weather Condition   |
| Work Order 4700092573/932<br>Dt. 20.07.2021 |  | 24  |  | 40                   | Clear               |
|   |  |   |  |                      | Status of the plant |
|   |  |   |  |                      | Running             |

### MONITORING RESULTS

| Sl. No         | Place of Monitoring            | Day Time<br>(6 AM to 10 PM)<br>Avg. dB(A) |      |                | Night Time<br>(10 PM to 6 AM)<br>Avg. dB(A) |      |                   | Noise level (Ambient standard) for Industrial Area as per CPCB Noise Pollution (Regulation and Control) (Amendment) Rules, 2000 notified vide S.O. 1046(E) Dt. 22.11.2020 Limit in dB(A) Leg |                  |
|----------------|--------------------------------|---|------|----------------|---|------|-------------------|--|------------------|
|                |                                | 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               | 67.4                                      | 53.2 | 64.55          | 54.4  | 47.5 | 52.2              | 75   | 70               |
| 2.             | 6 & 7 Pits Colliery Office     | 69.2                                      | 61.8 | 66.92          | 56.8  | 50.3 | 54.67             |  |                  |
|                |                                |   |      |                |   |      |                   | Residential Area   | Residential Area |
| 3.             | Officer Colony 12 No. Digwadih | 52.4                                      | 48.6 | 50.9           | 47.8  | 42.8 | 45.98             | 65   | 55               |
|                |                                |   |      |                |   |      |                   | Silence Zone   | Silence Zone     |
| 4.             | Tata Central Hospital          | 48.2                                      | 44.6 | 46.76          | 46.2  | 38.2 | 43.83             | 50   | 40               |

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Ref. No.: - ARDS/22-23/2912

Date: 18.02.2023

## 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 : 11.02.2023
- Date of Testing : 15.02.2023 - 17.02.2023

### 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 Office | 1.70                          | 0.06 | 1.18                           | 2.3  |
| 2.     | Tata Central Hospital      | 2.08                          | 0.12 | 1.26                           | 2.78 |

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Ref. No.: - ARDS/22-23/2931

Date: 20.02.2023

## TEST REPORT OF SURFACE WATER

- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Sample Code : 1. Damodar River Up Stream  
2. Damodar River Down Stream
- Date of Sample Collection: 11.02.2023
- Date of Testing : 13.02.2023 To 18.02.2023
- Test : pH, TDS, Turbidity, DO, BOD, Cl, F, SO<sub>4</sub>

### TEST RESULT

| Sl. No. | PARAMETERS OF TEST                 | VALUE                   |                         | Limit as per IS 2296 Class - C | Test Method          |
|---------|------------------------------------|-------------------------|-------------------------|--------------------------------|----------------------|
|         |                                    | Damodar River Up Stream | Damodar River Dn Stream |                                |                      |
| 1.      | pH                                 | 8.2                     | 8.2                     | 6.5 -8.5                       | IS-3025 (P-11): 1983 |
| 2.      | Total Dissolved Solids, mg/l       | 328                     | 328                     | 1500                           | IS-3025 (P-16): 1984 |
| 3.      | Turbidity, NTU                     | 01                      | 01                      | -                              | IS-3025 (P-10):1984  |
| 4.      | Dissolved Oxygen, mg/l             | 5.6                     | 5.8                     | 4.0                            | IS-3025 (P-38):1989  |
| 5.      | Bio chemical Oxygen Demand, mg/l   | 2.2                     | 2.4                     | 3.0                            | IS-3025 (P-44):1994  |
| 6.      | Chloride as Cl, mg/l               | 32                      | 34                      | -                              | IS-3025 (P-32):1988  |
| 7.      | Fluoride as F, mg/l                | 0.49                    | 0.52                    | 1.5                            | IS-3025 (P-60):2008  |
| 8.      | Sulphate as SO <sub>4</sub> , mg/l | 53                      | 54                      | 400                            | IS-3025 (P-24):1986  |

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Ref. No.: - ARDS/22-23/2916

Date: 18.02.2023

## 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 :
  - 2 Pit Jamadoba Colliery
  - 3 Pit Jamadoba Colliery
  - 2 Incline Jamadoba Colliery
  - 6 & 7 Pits Colliery
  - Digwadih Colliery
- Date of Sample Collection: 10.02.2023 to 11.02.2023
- Date of Testing : 13.02.2023 To 18.02.2023
- 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,                              | 7.3                     | 8.0                     | 7.8                         | 6.5                 | 7.9               | 6.5-8.5                                    | IS-3025 (P-11): 1983 |
| 2.      | Total Dissolved Solids, mg/l     | 658                     | 699                     | 788                         | 683                 | 892               | -  | IS-3025 (P-16): 1984 |
| 3.      | Total Suspended Solids, mg/l     | 36                      | 32                      | 36                          | 23                  | 34                | -  | IS-3025(P-17): 1984  |
| 4.      | Bio chemical Oxygen Demand, mg/l | 2.4                     | 1.8                     | 2.4                         | 1.2                 | 2.4               | 3  | IS-3025 (P-44):1994  |
| 5.      | Chemical Oxygen Demand, mg/l     | 40.2                    | 48                      | 59.5                        | 52                  | 54                | -  | IS-3025 (P-58):2006  |
| 6.      | Oil & Grease, mg/l               | 0.4                     | 0.4                     | BDL                         | BDL                 | BDL               | -  | IS-3025 (P-39):2021  |

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Technical Manager

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Ref. No.: - ARDS/22-23/2917

Date: 18.02.2023

### TEST REPORT OF SEWAGE

- Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Sample Code : 1. S.T.P. Outlet J.C.P.P. Canteen  
2. S.T.P. Outlet Jamadoba Canteen  
3. S.T.P. Outlet Railway Colony
- Date of Sample Collection: 10.02.2023 to 11.02.2023
- Date of Testing : 13.02.2023 to 18.02.2023
- Test : pH, TDS, TSS, BOD, COD, OIL & GREASE.

### TEST RESULT

| Sl. No. | PARAMETERS OF TEST               | VALUE                          |                                |                              | General Standards For Discharge Of Environmental Pollutants, Inland Surface Water By The MOEF&C | Test Method         |
|---------|----------------------------------|--------------------------------|--------------------------------|------------------------------|---|---------------------|
|         |                                  | S.T.P. Outlet J.C.P.P. Canteen | S.T.P. Outlet Jamadoba Canteen | S.T.P. Outlet Railway Colony |   |                     |
| 1.      | pH,                              | 7.7                            | 7.9                            | 7.5                          | 5.5-9.0   | IS-3025 (P-11):1983 |
| 2.      | Total Dissolved Solids, mg/l     | 638                            | 678                            | 693                          | 2100  | IS-3025 (P-16):1984 |
| 3.      | Total Suspended Solids, mg/l     | 28                             | 30                             | 38                           | 100   | IS-3025(P-17):1984  |
| 4.      | Bio chemical Oxygen Demand, mg/l | 13.6                           | 12.4                           | 14.8                         | 30  | IS-3025 (P-44):1994 |
| 5.      | Chemical Oxygen Demand, mg/l     | 80                             | 73                             | 86.8                         | 250   | IS-3025 (P-58):2006 |
| 6.      | Oil & Grease, mg/l               | BDL                            | BDL                            | 1.6                          | 10  | IS-3025 (P-39):2021 |

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*[Signature]*  
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Ref. No.: - ARDS/22-23/2918

Date: 18.02.2023

## TEST REPORT OF EFFLUENT

- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Sample Code : 1. E.T.P. Outlet T.C.H.  
2. E.T.P. Outlet Garage
- Date of Sample Collection: 10.02.2023
- Date of Testing : 13.02.2023 to 18.02.2023
- Test : pH, TDS, TSS, BOD, COD, OIL & GREASE.

### TEST RESULT

| Sl. No. | PARAMETERS OF TEST               | VALUE               |                      | General Standards For Discharge Of Environmental Pollutants, Inland Surface Water By The MOEF&C | Test Method             |
|---------|----------------------------------|---------------------|----------------------|---|-------------------------|
|         |                                  | E.T.P. Outlet T.C.H | E.T.P. Outlet Garage |   |                         |
| 1.      | pH,                              | 7.3                 | 7.2                  | 5.5-9.0   | IS-3025 (P-11): 1983    |
| 2.      | Total Dissolved Solids, mg/l     | 890                 | 752                  | 2100  | IS-3025 (P-16): 1984    |
| 3.      | Total Suspended Solids, mg/l     | 28                  | 27                   | 100   | IS-3025(P-17)<br>: 1984 |
| 4.      | Bio chemical Oxygen Demand, mg/l | 8.6                 | 9.5                  | 30  | IS-3025 (P-44):1994     |
| 5.      | Chemical Oxygen Demand, mg/l     | 54                  | 59                   | 250   | IS-3025 (P-58):2006     |
| 6.      | Oil & Grease, mg/l               | 0.8                 | BDL                  | 10  | IS-3025 (P-39):2021     |

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Ref. No.: - ARDS/22-23/2932

Date: 20.02.2023

### 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 - Digwadih Colliery  
3. Canteen - 6 & 7 Pit Colliery  
4. Canteen - Jamadoba Washery
- Date of Sample Collection: 10.02.2023
- Date of Testing : 13.02.2023 to 18.02.2023
- Test :

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

### TEST RESULT

| Sl. No | PARAMETERS OF TEST                         | VALUE                     |                           |                            |                          | IS as per IS 10500:2012 |             | Test Method         |
|--------|--|---------------------------|---------------------------|----------------------------|--------------------------|-------------------------|-------------|---------------------|
|        |  | Canteen Jamadoba Colliery | Canteen Digwadih Colliery | Canteen 6 & 7 Pit Colliery | Canteen Jamadoba Washery | Desirable               | Permissible |                     |
| 1.     | Colour, (Hazen Unit)                       | 1                         | 1                         | 1                          | 1                        | 5.00                    | 15.0        | IS 3025 (P-4):2021  |
| 2.     | Odour                                      | Agreeable                 | Agreeable                 | Agreeable                  | Agreeable                | Agreeable               | Agreeable   | IS 3025 (P-5):2018  |
| 3.     | Taste                                      | Agreeable                 | Agreeable                 | Agreeable                  | Agreeable                | Agreeable               | Agreeable   | IS 3025 (P-7):2017  |
| 4.     | Turbidity, NTU                             | NIL                       | NIL                       | NIL                        | NIL                      | 1.0                     | 5.0         | IS 3025 (P-10):1984 |
| 5.     | pH   | 7.5                       | 8.2                       | 7.8                        | 8.0                      | 6.5-8.5                 | No. Relax.  | IS-3025 (P-11):1983 |
| 6.     | Total Hardness as CaCO <sub>3</sub> , mg/l | 376                       | 380                       | 224                        | 416                      | 200                     | 600         | IS 3025 (P-21):2009 |
| 7.     | Chloride as Cl <sub>1</sub> , mg/l         | 58                        | 60                        | 36                         | 60                       | 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               | 828                       | 750                       | 406                        | 738                      | 500                     | 2000        | IS 3025 (P-16):1984 |
| 10.    | Calcium as CaCO <sub>3</sub> , mg/l        | 43.2                      | 43.2                      | 36.8                       | 52.8                     | 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 |

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- 2 -

| Sl. No. | PARAMETERS OF TEST   | VALUE                     |                           |                    |                          | IS as per IS 10500:1991 |             | Test Method         |
|---------|--|---------------------------|---------------------------|--------------------|--------------------------|-------------------------|-------------|---------------------|
|         |  | Canteen Jamadoba Colliery | Canteen Digwadih Colliery | 6 & 7 Pit Colliery | Jamadoba Washery Canteen | 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                           | 72.7                      | 36.6                      | 31.3               | 62                       | 200                     | 400         | IS 3025 (P-24):1986 |
| 14.     | Nitrate as NO <sub>3</sub> , mg/l                            | 3.3                       | 3.1                       | 2.8                | 2.9                      | 45                      | No. Relax   | IS 3025 (P-34):1988 |
| 15.     | Fluoride as F, mg/l  | 0.38                      | 0.32                      | 0.34               | 0.28                     | 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,  | 0.14                      | 0.12                      | 0.12               | 0.18                     | 5                       | 15          | IS 3025 (P-42):1992 |
| 23.     | Total Coliform, No./100ml                                    | Absent                    | Absent                    | Absent             | Absent                   | Absent                  | Absent      | IS 3025 (P-49):1994 |
| 24.     | Hexavalent Chromium as Cr, mg/l                              | BDL                       | BDL                       | BDL                | BDL                      | 0.05                    | No. Relax   | IS 3025 (P-52):2003 |
| 25.     | Mineral Oil, mg/l  | BDL                       | BDL                       | BDL                | BDL                      | 0.5                     | No. Relax   | IS 3025 (P-39):1989 |
| 26.     | Alkalinity as CaCO <sub>3</sub> , mg/l,                      | 492                       | 500                       | 220                | 492                      | 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

A. Das,

Sr. Chemist  
Aditi R&D Services



*[Signature]*

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 measurement.
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# 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

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Sindri, Industrial Area,  
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Website: aditirnds-services.com  
Phone: 0326-2952377 (O)  
Fax: 0326-2952377  
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/22-23/2937

Date: 21.02.2023

## TEST REPORT OF GROUND WATER

- Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED, JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO. : 4700092573/932 Dt. 20.07.2021
- Sample Code :
  1. Moholbani Basti
  2. Jorapukhar Kushtand
  3. Bhowra 13 No
  4. Jamadoba 3 No
  5. Lower Dungri
- Date of Sample Collection : 10.02.2023
- Date of Testing : 13.02.2023 to 18.02.2023
- Test : Colour, Odour, Taste, Turbidity, pH, Total Hardness, Iron, Chloride, Res. Free chlorine, Total Dissolved Solids, Calcium, Copper, Manganese, Sulphate, Nitrate, Fluoride, Phenolic Compound, Mercury, Cadmium, Arsenic, Cyanide, Lead, Zinc, Total Coliform, Hexavalent Chromium, Mineral Oil, Alkalinity, Aluminium & Boron.

## TEST RESULT

| Sl. No | PARAMETERS OF TEST                         | VALUE           |                     |              |               |              | IS as per IS 10500:1991 |             | Test Method        |
|--------|--|-----------------|---------------------|--------------|---------------|--------------|-------------------------|-------------|--------------------|
|        |  | Moholbani Basti | Jorapukhar Kushtand | Bhowra 13 No | Jamadoba 3 No | Lower Dungri | Desirable               | Permissible |                    |
| 1.     | Colour, (Hazen Unit)                       | 1               | 1                   | 1            | 1             | 1            | 5                       | 15          | IS 3025 (P-4):2021 |
| 2.     | Temperature °C                             | 22              | 23                  | 23           | 22            | 23           | -                       | -           | -                  |
| 3.     | Electrical Conductivity, µmhos/cm          | 930             | 1280                | 750          | 350           | 630          | -                       | -           | -                  |
| 4.     | Total Dissolved Solids, mg/l               | 609             | 835                 | 489          | 232           | 414          | -                       | -           | IS 3025(P-16):1984 |
| 5.     | pH   | 7.0             | 8.1                 | 7.5          | 7.9           | 7.7          | 6.5-8.5                 | No Relax    | IS-3025(P-11):1983 |
| 6.     | Total Hardness as CaCO <sub>3</sub> , mg/l | 436             | 544                 | 356          | 140           | 264          | 200                     | 600         | IS 3025(P-21):2009 |
| 7.     | Calcium as Ca, mg/l                        | 144             | 81.6                | 72           | 33.6          | 70.4         | 75                      | 200         | IS 3025(P-40):1991 |
| 8.     | Magnesium as Mg, mg/l                      | 18.2            | 81.6                | 42.2         | 13.4          | 21.1         | 30                      | 100         | IS 3025(P-46):1994 |
| 9.     | Chloride as Cl, mg/l                       | 99.9            | 70                  | 52           | 22            | 62           | 250                     | 1000        | IS 3025(P-32):1988 |
| 10.    | Fluoride as F, mg/l                        | 0.36            | 0.26                | 0.28         | 0.32          | 0.36         | 1.0                     | 1.5         | IS 3025(P-60):2008 |

Continued on Page -2

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*[Handwritten signature]*



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

2

| Sl. No | PARAMETERS OF TEST                      | VALUE           |                     |              |               |              | IS as per IS 10500:1991 |             | Test Method        |
|--------|---|-----------------|---------------------|--------------|---------------|--------------|-------------------------|-------------|--------------------|
|        |   | Moholbani Basti | Jorapukhar Kushtand | Bhowra 13 No | Jamadoba 3 No | Lower Dungri | Desirable               | Permissible |                    |
| 11     | Sulphate as SO <sub>4</sub> , mg/l      | 75              | 44                  | 58.4         | 45.3          | 21.8         | 200                     | 400         | IS 3025(P-24):1986 |
| 12     | Nitrate as NO <sub>3</sub> , mg/l       | 9.8             | 12.4                | 11.3         | 9.4           | 9.8          | 45                      | No. Relax   | IS 3025(P-34):1988 |
| 13     | Alkalinity as CaCO <sub>3</sub> , mg/l, | 328             | 504                 | 312          | 104           | 184          | 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,                       | 0.14            | 0.16                | 0.12         | 0.10          | 0.16         | 5                       | 15          | IS 3025(P-42):1992 |
| 16     | Iron a Fe, mg/l                         | 0.1             | 0.1                 | 0.08         | 0.08          | 0.1          | 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

A. Das.

Sr. Chemist  
Aditi R&D Services



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

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## ENVIRONMENTAL POLICY

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

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

**Date :** November 1, 2017



**T V Narendran**  
CEO & Managing Director



GM (J) Chief (HR/IR) 

Publication

DAINIK BHASKAR, DHANBAD Date 11-10-13



TATA

TATA STEEL

सूचना

जन साधारण को सूचित किया जाता है कि भारत सरकार, वन एवं पर्यावरण मंत्रालय के पत्रांक संख्या- J -11015/372/2010-IA.II(M) डिगवाडीह कोलियरी (0.38 मिलियन टन प्रति वर्ष से 0.6 मिलियन टन प्रति वर्ष, विस्तारीकरण परियोजना) मेसर्स टाटा स्टील लिमिटेड, डिगवाडीह, जिला-धनबाद को पर्यावरण स्वीकृति प्रदान की गई है। जिसकी प्रतिलिपि क्षेत्रीय कार्यालय, झारखंड राज्य प्रदूषण नियंत्रण परिषद, धनबाद में उपलब्ध है तथा भारत सरकार, वन एवं पर्यावरण मंत्रालय के इंटरनेट साइट :- <http://envfor.nic.in> में भी देखी जा सकती है।

महाप्रबंधक (झरिया)

टाटा स्टील, जामाडोबा (धनबाद)

GM (J)

Chief (HR/IR)

Publication

**PRABHAT KHABAR, DHANBAD** Date **11-10-13**



**TATA STEEL**  
**सूचना**

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महाप्रबंधक (झरिया)  
टाटा स्टील, जामाडोबा (धनबाद)

GM (J)  Chief (HR/IR)

Publication HINDUSTAN, DHANBAD Date 11-10-13



**TATA STEEL**  
**सूचना**

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टाटा स्टील, जामाडोबा (धनबाद)

GM (J)

Chief (HR/IR)

Publication

**DAINIK JAGRAN, DHANBAD**

Date **11-10-13**



**TATA STEEL**  
**सूचना**

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महाप्रबंधक (झरिया)  
टाटा स्टील, जामाडोबा (धनबाद)

Municipal Commissioner,  
Dhanbad.

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

September 17 , 2018

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

Dear Sir,

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

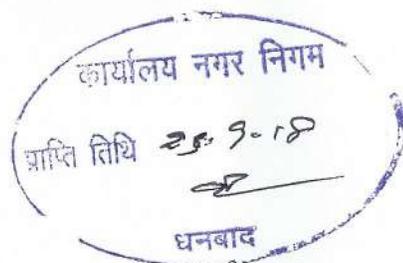
1. Digwadih Colliery (for expansion from 0.38 MTPA to 0.6 MTPA in ML area 314.57 ha), dist. Dhanbad, Jharkhand.
2. 6 & 7 Pits Colliery (for expansion from 0.28 MTPA to 0.6 MTPA in ML area 168.12 ha), dist. Dhanbad, Jharkhand.
3. Jamadoba Coal Washery (for expansion from 1 MTPA to 2 MTPA in 7 Ha area),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

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

Thanking You,

Yours faithfully,

  
Head, Planning  
Jharia Division



## Executive Summery

Tata Steel Foundation is focused upon co-creating solutions, with tribal and excluded communities, to address their development challenges. Working for the overall development of community through its interventions in Health, livelihood, Education and Skill development.

Followings are the key highlights of the work carried out by Tata Steel Foundation in FY'23:

- In Public Health camp, 24968 villagers from 35 villages got free health check-up and medicines.
- A total of 79 camps were organized for Non communicable diseases (hypertension, diabetes, breast, and oral cancers) in which 2,296 beneficiaries got screened and were provided health services.
- Under the Ni-kshya Mitra program, 673 food packets were provided in Baghmara block.
- Under Cataract, 85 Nukar natak were organised to create awareness among villagers on blindness and a total of Eight camps organized in which 1,021 surgeries were successfully done.
- In Nutritional Garden, TSF Jamadoba distributed seed, plants and Agri materials to 1500 Households and wall paintings around nutrition were done at 180 places in different villages.
- Tata Steel started SPARSH centre with technical collaboration with LEPRASOCIETY in which 1570 patients got benefitted.
- Under RISHTA project, TSF Jamadoba is working with 1465 beneficiaries through Pre and post-test.
- Total number of students enrolled in Pre-Matriculation Couching in FY'23 is 2378 in 18 centres.
- TSF Jamadoba has recently organized the `placement-drives for the job-openings at Tata Electronics Private Limited (TEPL) in which 24 candidates joined Tata Electronics.
- The total enrolment of the candidates in Community Youth coaching program for Uniform services is 64.
- Tata Steel Foundation (TSF), in collaboration with NIIT Foundation (NF), has been offering IT and English Courses in which total enrolment is 755.
- To promote paddy cultivation a total of 92 farmers (36 from Jamadoba and 56 from Sijua) of the leasehold area were supported with paddy seeds having acreage of 92 acres.
- 20 acre of horticulture plantation has been done through providing plants of Banana, papaya, Mango, coconut, guava, and lemon.
- TSF Jamadoba is supporting 140 landless families with critical inputs around various types of micro enterprises.
- Gender and Leadership for Disha, in which 240 women leaders are being developed. Out of 240, 60 women have completed training till module 4.
- Tata feeder centre, training of budding sports talent in three sporting segments i.e., Football, Archery and Athletics. As of now the total intake of the players under these sporting segments is 188.

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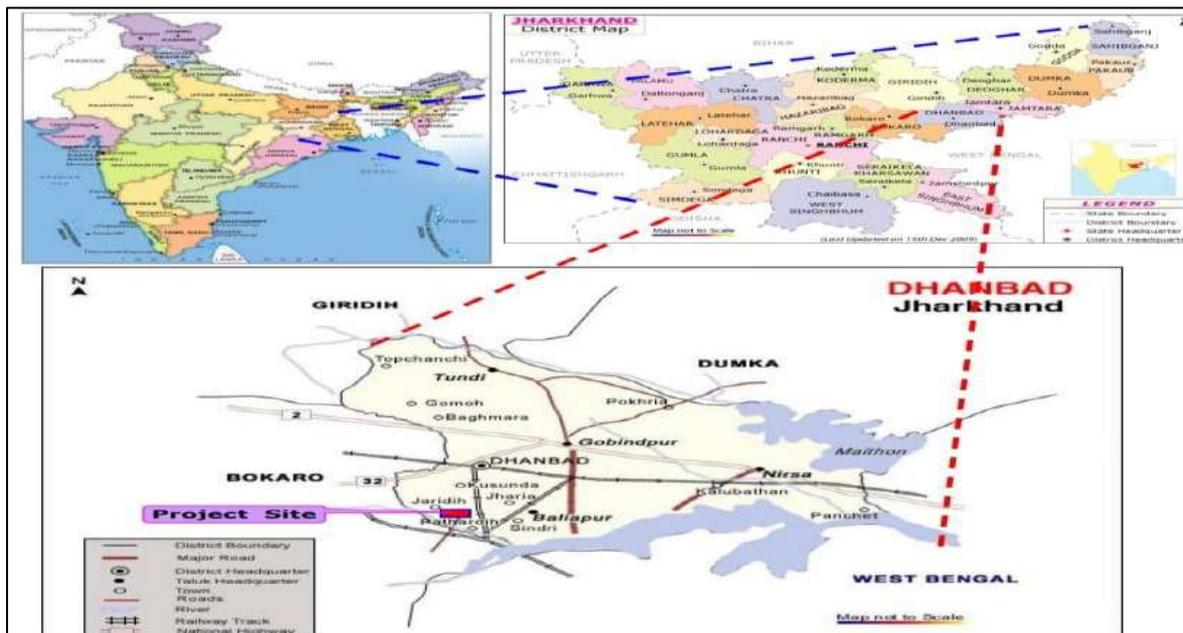
| S. No. | Particulars                              | Page No. | No. of Beneficiary |
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# INTRODUCTION

Tata Steel Foundation (the Foundation), a wholly owned subsidiary of Tata Steel Limited, was incorporated on August 16, 2016, under Section 8 of the Companies Act 2013. The Foundation is focused upon co-creating solutions, with tribal and excluded communities, to address their development challenges. During this process of co-creation, the Foundation endeavours to develop and implement change models that are replicable at a national scale, enable significant and lasting betterment in the well-being of communities proximate to the Company’s operating locations and embed a societal perspective in key business decisions. The Foundation strives for excellence by ensuring that all programmes are aligned with community needs and focus on national priority areas enabling communities to access and control resources to improve the quality of their lives with dignity.



TSF, Jamadoba is working in 44 villages of three blocks (Jharia, Dhanbad and Baghmara). Working in different areas like Health, Livelihood, Education, and Infrastructural development for livelihood enhancement and make community self-sufficient.



## PUBLIC HEALTH

Tata Steel provides both curative and preventive healthcare services to improve levels of health amongst the community. Tata Steel Foundation is committed to provide best health care facility to people in Tata Steel leasehold area. TSF Jamadoba, acts as strengthening agency for awareness generation, promotion of good health and hygiene, and bridge gap between community and government health facilities.

### **Major Achievement:**

- In Public Health camp, 24968 villagers from 35 villages got free health check-up and medicines.
- Focussing the preventive aspects of public health, a total of 79 camps were organized for Non communicable diseases (hypertension, diabetes, breast, and oral cancers) in which 2296 beneficiaries got screened and were provided health services.
- Under the Ni-kshya Mitra program, 673 food packets were provided in Baghmara block.

### **Nutritional Garden:**

The kitchen/home gardens have been found to play an important role in improving food security for the poor rural household. Keeping in view the importance of vegetables in daily diets and its low availability, TSF Jamadoba has started Nutritional Garden program for villagers of Tata Steel lease hold area. TSF Jamadoba, provides seed, plants and Agri materials to villagers for Kitchen Garden and have the benefits of good quality of food without using external fertilizer or chemicals.

TSF Jamadoba, distributed seed, plants and Agri materials to 1500 Households and wall paintings around nutrition were done at 180 places in different villages.

### **Case Study of Mrs. Dhani Devi**

“Connecting with nature is connecting with God” is the story of Dhani Devi (Age -29) wife of Mr. Devan Kalindi, and resident of Harijan Tola of Patia Panchayat. TSF Jamadoba reached her during seed distribution campaign in her village. During the home visit TSF Jamadoba team came to know that they have to rely on daily wages for their livelihood as they are landless. After monitoring the troublesome and pathetic condition of the family during home visit. Mrs. Dhani Devi was suggested to do kitchen gardening and explained about the benefits of kitchen garden. Which will not only increase her family nutritional intake but also save money which they spend on buying vegetable or for medical purpose which arises due to malnourishment. Kitchen garden will also help her generate additional income if the produce is high through selling of vegetable.

She decided to own an uncultivated and useless land in her village with the consent of community and SHG members. The issue was discussed in front of village community, and she got a small piece of land. TSF Jamadoba has supported her with seed, plants and Agri materials and provided one day training session.

Now after three months, she has done one of the best kitchen gardens and promised to continue it in near future. Mrs. Dhani Devi thanked TSF Jamadoba team for their effort and handholding support.



## **CATARACT**

Tata steel has collaborated with Shankar Netralaya during the year 2017-18 to do cataract camps through Mobile Eye surgical unit (MESU) which carries out operations for the cataract infected patients. Under the program for preventable blindness a total of 85 Nukar natak were organised to create awareness among villagers on blindness because of cataract in Tata Steel lease hold area villages and a total of Eight camp organised (2 at Baghmara CHC, Rajganj, 2 at Bhelatand and 3 at Digwadih) in which 1441 patient were screened, and total surgery done is 1,021.

### **Case Study of Mr. Niranjn Mahato:**

It has been correctly said “I have a very poor eyesight, and I can’t imagine a world without my glasses or contacts”. Mr. Niranjn Mahato of Nunidih Basti, was working as a helper at Tata Steel canteen, he uses to put coal in the cooking stove. During his mid-forties he notice that his vision is getting blur. He started wearing spectacles for clear vision. His right eye vision deteriorated dramatically.

He gets to know about Tata Steel Foundation, Eye check-up camp from one of the beneficiaries residing near his house. So, he visited the camp and diagnosed with cataract. After all the screening done by doctors, operation date was given. But on the date of operation, he was diagnosed with Hypertension and was referred to TSF Medical department. He visited TSF, Jamadoba and the medical team provided all the necessary support and medicines. The next day he visited again as per the advice of TSF medical team, and he was found normal and sent for cataract surgery.

On 20.09.2022, Cataract surgery was done. And now he can see the world clearly and does all his work without any support from others. He expresses his happiness and gratitude to Tata Steel Foundation.



## RISHTA

Regional Initiative for Safe Sexual Health by Today's Adolescents, formally known as "Project RISHTA" is a consortium project on Adolescents' Reproductive and Sexual Health, which aims "to improve the sexual and reproductive health and wellbeing of adolescents in Jharia Division.

RISHTA project aims at empowering adolescents to know and exercise their adolescent rights and be sensitive to issues of adolescent health (preventive and curative). Furthermore, pregnancy during adolescence is associated with higher risk of health problems like anaemia, sexually transmitted infections, unsafe abortion, and mental disorders (like depression). Pregnant adolescents also bear negative social consequences and often have to leave school reducing their employability leading to long-term economic implications. Unmet needs for family planning especially for spacing are high among adolescents.

### Key objectives of RISHTA project

- Enable adolescents to take right decision with right information for their future.
- Inculcating the importance of adolescents' health, which otherwise remains ignored.
- Reduce Early Age of Marriage across the block
- Inducing the importance of life skills in adolescents as catalysts to cater to their life approach in a more progressive manner.
- Orienting the adolescents with adolescent rights which are powerful tools for them to exercise.



- Number of adolescents reached through ARSH sessions -1465.
- 4 number of National/International Day observed in which 567 number of participants participated.
- 4 Kishor Navdampatti samaroh was organized with 56 adolescent couple participation.



- Total 123 meeting with AWW, Asha and PRI member with 1470 participants.
- Total 3 Child marriage delayed.
- 135 Sathiya were trained around various aspects of sexual and reproductive health
- Total 13 no. of pregnancy delayed.

### **Case Study of Mohini Kumari Khetrupal**

Mohini Kumari Khetrupal is 20 years (DOB – 11/11/2002) old girl who believes that education and hard work never goes in vain. Her father Mr. Deepak Kumar Khetrupal is a daily wage labor, and her mother Mrs. Anjana Devi is a house manager. She has one younger sibling, who works as a daily wage laborer with his father. The monthly income of the family was Rs. 8000 /-. And the financial condition was not good.

She is associated with RISHTA team for last 4 years. She has completed her intermediate and wanted to help her family financially. One day Mohini came to attend RISHTA meeting in which one of the TSF staff was discussing on F&B training which is given by PACE Centre Jamshedpur. She found this training fruitful for her career growth and to make her family financial stable.



She contacted RISHTA team after few days of training to know the procedure of selection in F&B course and wanted RISHTA team to convince her parents. The team visited her house and counselled her parents and convinced them.

The team lined up with PACE training Centre for F&B training and Mohini got admission in 2 months training program. After successful completion of her training, she got placed at Ramada Hotel Jamshedpur. Now she is earning Rs. 14,500/- per month with free accommodation, which enabled her to take care of both her and her family financial need.

With regular guidance of TSF RISHTA team, she completed her graduation and now enrolled herself in Hotel Management course for departmental promotion. She and her family are very thankful to TSF Jamadoba and RISHTA team for all the support and guidance.

### **SPARSH**

In 2005, India was declared with leprosy eliminated. Vertical system comprising Non-Medical Assistants and Supervisors were abolished. Health personals dedicated for NLEP2 have been deployed in other health vertical. Rigorous screening and monitoring system became poor post 2005. Considering the fact of high endemicity in Dhanbad (adjacent to

Purulia), a joint venture namely “SPARSH centre- A healing Touch” had been started in 2009.

Above all, new cases have been found in special pockets of India through Leprosy Case Detection Campaign by NLEP, GoI (14th September to 4th October 2016). According to WHO report, India accounts for 60% of total new cases of Leprosy across the world. Many new cases have been found in Bihar, Jharkhand, and Chhattisgarh.

Tata Steel started SPARSH centre with technical collaboration with LEPRO Society, for the benefit of the Leprosy affected persons in the year 2009 (26th October) and the reconstructive surgery unit started during the year 2017. This reconstructive surgery unit which is one-of-its-kind in Eastern India will play a major role in the leprosy eradication programmes, benefitting the patients from the States of Jharkhand and Bihar.



### **Coverage Area**

The SPARSH centre caters to the patients from Jharkhand and Bihar. Till today patients from 13 blocks have been able to access health services.

### **Objective of SPARSH Centre**

- Provide healthcare facilities to leprosy affected people and helping them to cope up with the societal stigma attached to the disease.
- To correct the deformities of people suffering from Leprosy, so that they come in the mainstream society.
- Restoring livelihood opportunities for those who have undergone reconstructive surgery.

### **Services offered**

- OPD services for patients suffering from leprosy
- Providing specially designed footwear to the patients
- Raising awareness regarding leprosy through a Mobile IEC Van in 200 villages in Dhanbad district
- Capacity building of health officials in leprosy

### **Key achievements during this period**

- A total of 1570 persons suffering from leprosy and related illness were provided health facilities.

- 1,53,500 persons were covered under the IEC campaign which creates awareness around the early identification and treatment of leprosy in 200 villages of the Dhanbad district.
- 454 MCR footwear manufactured for person affected of Leprosy.
- Reconstructive surgery to correct deformity was organised in which total 23 RCS was done.

### **Case Study of Mr. Prahalad Mahato:**

Mr. Prahalad Mahato (Age – 26 years) son of Ramlochan Mahto, Resident of Nischitpur village, Baghmara. He lives in his sister's house in Baghara village due to leprosy. His wife and son left him and his father lives alone at Nischitpur village, where he works as a daily wage worker.

He was referred by PHC Baghmara for reconstructive surgery at SPARSH centre to correct left claw hand after one year treatment from MDT. During examination, SPARSH Doctors found that he is suffering with Type II(ENL) reaction with right Ulnar, bilateral lateral popliteal and posterior tibial neuritis.

Prahalad Mahato was suffering from Leprosy for last 4 year and started his treatment at Nirmal Leprosy Hospital, Gobindpur for one year. During his treatment he get Lepra reaction. Then he started his treatment at MDT, PHC Baghmara.



After examination and diagnose at SPARSH centre, the treatment started with Steroid therapy for a period of one month. The reaction was subsided, and muscle power improved. Again, he gets recurrent reaction. The centre started second line drug for Lepra reaction with clofazimine therapy with proper counselling for a period of 4 month. He was declared cured of ENL reaction.

The reason of reaction was psychological problem caused due to disease, family, and future. The centre counsels Prahalad and his family time to time for proper case holding and management. Finally, he copped and accepted mental health treatment and case management of SPARSH centre.



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Now he is doing good and works as a daily wage worker with his father at his hometown. He believes that his deformity will correct, and his family will live together after surgery. He is very thankful to TSF Jamadoba and SPARSH team.

## EDUCATION

### **Pre-Matriculation coaching:**

PMC (Pre-Matriculation Coaching) classes have been running since 2012 in government and private (J.A.C. Board) schools for class VI to X in the leasehold areas of Jamadoba and Sijua. PMC was started in 2011-12 with 1,025 students at 11 centres, especially for the poor students, who cannot afford private tuition classes for bringing improvement in their studies. Pre- Matriculation coaching classes have been operated in two parts from Class VIII - X and Preparatory classes for classes VI to VII.

Total number of students enrolled last year (FY22) was 1548 in 09 centres. The Pre-Matriculation Coaching class is a boon for the students as it has been observed that the students have gained a lot from this program. Due to this program, they have been able to score good marks in their academic exams. According to the survey done before starting of PMC class, the passing % of the class 10th was 70%. In FY 22, TSF Jamadoba has achieved 100% result in the matriculation exam.

The purpose of running this Pre-Matriculation Coaching class is to provide quality tuitions to the poor students in English, Math, and Science. The total number of teachers in one centre is 5 - two teachers for Classes VI-VII and three teachers for classes VIII-X. The teachers are being paid through the school committees or the SHGs (Self Help Group).

In FY 23, TSF Jamadoba have conducted PMC classes at 18 centres covering 2378 students.



### **Jyoti Fellowship Programme:**

As part of affirmative action policy and effort towards inclusive growth and development of Scheduled Caste and Scheduled Tribe community. Tata Steel Foundation awarded Jyoti Fellowship to 346 meritorious students of Jamadoba region. Total scholarship amount is Rs. 17,98,750/-.

The objective of Tata Steel Jyoti Fellowship is to ensure that meritorious student from economically- challenged SC/ ST families have an opportunity to continue and pursue their

educational goals and fulfil career aspirations. Tata Steel's Tribal Cultural Society (TCS) identifies deserving candidates from operational areas of the company on the merit-based test.

### **Language Classes:**

Language classes on `Ol-chiki` script was started for the Santali communities residing in and around Tata Steel leasehold areas that is Bhowra-parsiabad village (Jamadoba) and Bhelatand Majhi tola (Sijua location). The classes are held during the weekend. The total enrolment is 71 (JMB- 33 students and Sijua-38 students).



## **Employability Programme**

### **Placement Drives**

With an objective to provide employment opportunity for youths. TSF Jamadoba has recently organized the `placement-drives (for the job-openings at Tata Electronics Private Limited (TEPL) in collaboration with the Model Career Centre, Jamshedpur.

The placement –drive was specially meant for the local female candidates who are aged between 18-20 years (21 for the SC/ST category) and have passed out their intermediate exam during the year 2021 and 2022.

This placement drive was attended by total 128 candidates out of which 64 were shortlisted and finally 24 female candidates from Tata Steel leasehold areas have joined Tata Electronics.



### **Community Youth coaching program for Uniform services:**

With an objective to support the youth prepare for entry into uniformed services, TSF Jamadoba is running ``Community Youth Coaching Program`` for the local youths. The coaching is provided to prepare for written as well as physical tests for clearing various competitive exam(s) of the Uniformed Services like State Police, CMPF like BSF, CRPF, ITBP, Coast Guards, Army, Navy, and Air Force etc.

As of now, the total enrolment of the candidates is 64 (31 at Jamadoba and 33 at Sijua). While this coaching program, the enrolled candidates have started appearing at the competitive exam related to the Uniformed Services.

Total 29 candidates (11 from Jamadoba, 18 from Sijua) have appeared at the SSC GD EXAM-2022 which was held in January`23. The SSC has declared the results of SSC GD Exam on 08th April,2023. Total 9 candidates (6 from Sijua and 3 from Jamadoba) have cleared the

written exam of SSC GD. The physical exam is likely to be held soon for the candidates who have cleared the written exam of SSC GD-2022.



### **Skill development centre:**

Tata Steel Foundation (TSF), in collaboration with NIIT Foundation (NF), has been offering IT and English Courses in small towns and interior villages of the Company's operational areas since FY15. This program was initiated in response to the high demand for these skills among youth. The goal is to empower communities within Tata Steel operational areas by developing IT (Information Technology) and English capabilities among them. This would include youths, women (SHG, ANM, Asha, etc), adolescents and migrant laborers.

### **Progress made during the period**

- A total of 755 enrolment has been done for FY'23.
- Out of 755 – 375 enrolled in Jamadoba and 380 in Sijua centre.
- A total of 677 students completed their course – 330 at Jamadoba and 347 at Sijua.



## **LIVELIHOOD ENHANCEMENT**

### **Support to farmers during kharif season:**

To promote paddy cultivation a total of 92 farmers (36 from Jamadoba and 56 from Sijua) of the leasehold area were supported with paddy seeds having acreage of 92 acres. The improved varieties of seeds promoted were KV21 and Purnima Gold. The farmers contributed 50% of the cost of seeds and each farmer was supported with a maximum of 1 acre. A total of 200 kg of seeds were promoted (164 kg of Purnima Gold seeds and 36 kg of KV2 seeds).

## Horticulture Development:

Horticulture development is a very useful method of income augmentation for the farmers. During the year 20 acre of horticulture plantation has been done through providing plants of Banana, papaya, Mango, coconut, guava, and lemon. Out of which the district horticulture department has also supported in this initiative by providing plants for 10 acres. In which total of 142 farmers got benefited.



## Leveraging Government Resources:

Community mobilization has been done by raising awareness levels of the farmers so that they can access the agriculture related schemes. During the year following progress has been made:

- 13 farmers have received 5350 banana and papaya plant from District Horticulture Department Dhanbad having an acreage of 6 acre of land.
- 4 animal health camps have been organized with support of district animal husbandry department in which a total of 1414 animal received medical check-up.
- TSF Jamadoba in collaboration with MSME Dhanbad has organised 30 days stitching training program in Petia Panchyat Bhawan, Petiya.
- FLD project of District Horticulture Department is being implemented in Tundi.
- 15 Diesel pump sets and 2 tractors was lesioned with govt. on 90% subsidiary under which 15 farmers got benefitted.
- 331 farmers got free elephant yam seed from District Horticulture Department.
- 160 women attended 3 days training on mushroom farming and received free Mushroom spawn.



### **Distribution of Micro-Enterprise Toolkit:**

Micro-Enterprise businesses not only help in promoting quality of life for business runners but also add value to the local economy. They produce numerous jobs at small-scale, improve income, and boost purchasing power.

TSF Jamadoba is supporting 140 landless families with critical inputs around various types of micro enterprises which will help them in self-employment and entrepreneurship.



### **Promoting Fish Farming:**

“Promoting fish farming” is one of the key initiatives towards improving the livelihood of the people living in Tata Steel leasehold area. During the FY’23, total 52 ponds were supported with fingerlings having 208 beneficiaries. Total 312 kg of fingerlings were distributed. The fingerlings were provided at 50% contribution from the pond-beneficiaries.

Besides providing fingerlings to the pond beneficiaries and build their capacities, much emphasis is given on improving the feeding practice. In this respect, TSF Jamadoba is facilitating farmers in getting proper-feed packets from the District Fishery Department at 50% subsidy.

### **Case Study of Mr. Abhimanyu Mahato:**

A young farmer Mr. Abhimanyu Mahato (Age 35), his father’s name Mr. Shankar Mahato resident of Patia Panchayat of Dhanbad district. Just a matric pass is growing rapidly with increase interest in the field of fish production. It is correctly said “The capacity to learn is a gift; the ability to learn is a skill; the willingness to learn is a choice.” With his willingness and support from TSF Jamadoba, made him earn his livelihood with dignity.

He used to support his family by doing agriculture which was not sufficient for overall development and give a dignified life to his family. Then he comes to know about Tata Steel Foundation and about its programmes from his friend. With keen interest in fish farming, he reached TSF Jamadoba office. And after knowing that TSF Jamadoba is supporting with fingerlings and capacity building on fish farming.

On the next day he meets TSF field staff and gives the application for fish farming. After that he received 5 days training on fish farming from Government Fishery Department at Ranchi.

When he returned from training, decided to start his own business of fish production. Mr. Abhimanyu Mahato improved his pond by expanding the area of pond to 1.5 acer and cleaned grass under water that can harm fishes. Then the TSF provided 100 kg fingerlings at 50% subsidy. Currently his annual income is one Lakh from Fish farming.

Mr. Abhimanyu Mahato is very happy with the support provided by TSF and said that now he can send his children for higher education and live his life with dignity. The help from TSF Jamadoba made him economically as well as socially strong.

## LIVELIHOOD EMPOWERMENT

### Disha Training:

The primary objective of Disha project is to enable women leaders through social-political empowerment by making systematic investments in community-based organizations to enhance their participation and productivity, and to create and sustain model of rural women. The project has an objective to increase knowledge, awareness, and income of women through capacity building.

Training of active SHG members on Gender and Leadership for Disha, in which 240 women leaders are being developed. Out of 240, 60 women have completed training till module 4.



## SPORTS

Organising sporting events/activities etc. has been a key strategy for ensuring the community engagement and to nurture the local young talents across Tata Steel leasehold areas. The children from the leasehold-villages will be given opportunities to take part in various sporting events/ activities towards shaping their future career in the Sports field.



During this year in the feeder centre training of budding sports talent is being done in three sporting segments i.e., Football, Archery and Athletics. As of now the total intake of the players under these sporting segments is 188.

Major achievement in Sports:

#### Achievement in Archery

| S. No. | Name                   | Village        | Medal    | Event  |
|--------|------------------------|----------------|----------|--|
| 1      | Ms. Nazia Parween      | Digwadih No.10 | Selected | Centre for excellence (Govt. of Jharkhand), U-16 |
| 2      | Ms. Madhu Kumari       | Patherdih      | Selected | Centre for excellence (Govt. of Jharkhand), U-16 |
| 3      | Ms. Riya Kumari        | Digwadih No.10 | Selected | Centre for excellence (Govt. of Jharkhand), U-16 |
| 4      | Ms. Pinky Kumari       | Jealgora       | Selected | Centre for excellence (Govt. of Jharkhand), U-16 |
| 5      | Ms. Simran Kumari      | Jealgora       | Selected | Centre for excellence (Govt. of Jharkhand), U-16 |
| 6      | Ms. Versha Chakroborty | Noonidih       | Selected | Centre for excellence (Govt. of Jharkhand), U-16 |
| 7      | Khusi Kumari           | Digwadih       | Gold     | NTPC Mini National Archery Competition           |
| 8      | Md. Adil               | Digwadih       | Selected | Tata Archery Academy                             |

#### Achievement in Football

| S. No. | Name                  | Village                  | Selection | Event  |
|--------|-----------------------|--------------------------|-----------|--|
| 9      | Mr. Pankaj Basti      | Bhowra -36 No. PO Bhowra | Selected  | National Camp at Bhubneshwar                                 |
| 10     | Mr. Mrinal            | Jealgora Basti           | Selected  | National Camp at Bhubneshwar                                 |
| 11     | Mr. Prashant Diger    | Nagina Bazar, Mohalbani  | Selected  | Residential sports training centre, Kumaitha Stadium Deoghar |
| 12     | Ms. Anju Sharma       | Domgarh                  | Selected  | Jharkhand state team camp u-17 at Chaibasa                   |
| 13     | Master Narayan Mahato | Digwadih No.10           | Selected  | SAIL Football Academy, Bokaro                                |
| 14     | Raj Kr. Mahato        | Upper Dungri             | Selected  | CISF Delhi   |
| 15     | Md. Irfan             | Bhaga                    | Selected  | Kuljeet Football Academy, Punjab                             |
| 16     | Mr. Vishnu Hajari     | Noonidih Basti           | Selected  | Kuljeet Football Academy, Punjab                             |
| 17     | Mr. Vikky Kr. Mahato  | Dumariatand              | Selected  | Kuljeet Football Academy, Punjab                             |

## INFRASTRUCTURE

- 7600 people got benefitted through construction of 6,193 mts. long roads in 10 villages (Sijua 12 no., Dukhitdih, Rampur 2, Chetudih, Kanchanpur Bauritola, Upper dungri, Petiya, Banskapuria, Suyakanali, Malkera) and drain of length 1,552 mts were constructed in (Belubakhar, Lahargora, Purnadih, Sundarpur, Petiya, Kalimela, Lower Dungri, Upper Dungri, Digwadih Mahato basti, Kasiatand, Fatehpur, Rampur, Barughutu, Malkera illages) of Tata Steel intervention area.



- 1000 people got benefitted through repair of 4 deep bore well in 4 villages ((Lower Dungri, Rampur Md tola, Kapuria, Kanchanpur)



- In 11 villages (Debogram harijan tola, Debogram bangali tola, Banskapuria, Azadnagar, Belubakhar, Suyakanali, Upper dungri, Dungri no.3, Dungri no.7, Digwadih Majhi basti, Sunderpur) of Tata Steel leasehold area, 11,435 people got benefitted through installation of 8,878 mts. long piped drinking water supply.



- Renovation and construction of 282 mts long irrigation drain which is benefitting 34 farmers in 5 villages (Chattand, Petiya, Chaitudih, Kasiatand, Lower Dungri).



- In 4 villages of Sijua (Banskapuria, Rampur, Debogram, Sawaldih) deepening of 4 ponds is done to solve water crises at village level.



- 9080 people got benefitted through construction of 39 Rural infrastructure like pond steps (17), sitting platform (15), community center (3), culvert (1), community shed (2), Biswanath club.

