



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

Ref No. - JMB/ENV/KOCP/24/ 294 /2024  
May 27<sup>th</sup>, 2024

Ref.: Environmental Clearance letter no. - J-11015/252/2005-IA. II (M) dated June 22, 2006

**SUB: Half Yearly Compliance Status Report of Environment Clearance conditions  
issued by MoEFCC, New Delhi to Kalimela Open Cast Project, Tata Steel  
Limited, Dhanbad for the period October-23 to March-24.**

Dear Sir,

We are enclosing herewith compliance report for the period **October-23 to March-24** for the EC granted vide letter no.- J-11015/252/2005-IA. II(M), Dated-22<sup>nd</sup> June 2006 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

**TATA STEEL LIMITED**

Jharia Collieries Jamadoba 828 112 Dhanbad India

Tel 91 326 2320263/2320265/2320267 Fax 91 326 2320268

Regd. Office Bombay House 24 Homi Mody Street Fort Mumbai 400 001

Tel 91 22 66658282 Fax 91 22 66657724

Corporate Identity Number L27100MH1907PLC000260 Website [www.tatasteel.com](http://www.tatasteel.com)

Your (**Environment Clearance**) application has been **Submitted** with following details

Proposal No	IA/JH/CMIN/8145/2005
Compliance ID	72033214
Compliance Number(For Tracking)	EC/M/COMPLIANCE/72033214/2024
Reporting Year	2024
Reporting Period	01 Jun(01 Oct - 31 Mar)
Submission Date	30-05-2024
IRO Name	ARTATRANA MISHRA
IRO Email	jhk109@ifs.nic.in
State	JHARKHAND
IRO Office Address	Integrated Regional Offices, Ranchi

**Note:-** SMS and E-Mail has been sent to ARTATRANA MISHRA, JHARKHAND with Notification to Project Proponent.

**Half Yearly Compliance Report  
2024  
01 Jun(01 Oct - 31 Mar)**

**Acknowledgment**

<b>Proposal Name</b>		Kalimela OCP Expn.	
<b>Name of Entity / Corporate Office</b>		Tata Steel Ltd.	
<b>Village(s)</b>		N/A	
<b>District</b>		DHANBAD	
<b>Proposal No.</b>	IA/JH/CMIN/8145/2005	<b>Category</b>	Coal Mining
<b>Plot / Survey / Khasra No.</b>	N/A	<b>Sub-District</b>	N/A
<b>State</b>	JHARKHAND	<b>Entity's PAN</b>	AAICM3854E~LALALLL
<b>MoEF File No.</b>	J-11015/252/2005-IA.II(M)	<b>Entity name as per PAN</b>	Prakash Sinha

**Compliance Reporting Details**

<b>Reporting Year</b>	2024
<b>Remarks (if any)</b>	Compliance status of Environmental Clearance of Kalimela Open Cast Mining Project (0.34 MTPA) of M/s Tata Steel Ltd., Village Dungri, Tehsil Jharia, dist. Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/252/2005-IA.II (M) dated June 22, 2006 for October 2023 to March 2024.
<b>Reporting Period</b>	01 Jun(01 Oct - 31 Mar)

**Details of Production and Project Area**

<b>Name of Entity / Corporate Office</b>	Tata Steel Ltd.	
	<b>Project Area as per EC Granted</b>	<b>Annual Project Area in Possession</b>
Private	0	0
Revenue Land	0	0
Forest	0	0
Others	0	0
Total	0	0

**Production Capacity**

Sr. no	Product Name	units	Valid Upto	Capacity	Production last year	Capacity as per CTO
1	Coal	Million Tons per Annum (MTPA)	N/A	0.3	0	

## Conditions

### Specific Conditions

Sr.No.	Condition Type	Condition Details
1	Statutory compliance	All the conditions stipulated by SPCB in their NOC no N-35 dated 31.01.2005 are to be implemented effectively.
<b>PPs Submission:</b> Complied NOC conditions are being complied with. The open cast operations have ceased, and no raw coal production is taking place. Currently the backfilling of the mine void by the OB has been completed and biological reclamation work is in progress.		Date: 29/05/2024
2	MISCELLANEOUS	The bund/embankment shall be designed taking into account highest flood level, based on past data, in the Damodar River/ Dungri Jore so as to guard against mine inundation.
<b>PPs Submission:</b> Complied The embankment exists along Dungri Jore. The HFL (Highest flood line) of Damodar river is way below the surface level of open cast mine hence bunds across the river is not necessary.		Date: 29/05/2024
3	GREENBELT	Topsoil should be stacked properly with proper slope at earmarked sites and should not be kept active and shall be used for reclamation and development of green belt.
<b>PPs Submission:</b> Complied No further top soil will be generated as coal mining activity has been ceased. The back filling has been completed and the top soil is being used for biological reclamation of backfilled and OB area.		Date: 29/05/2024
4	Statutory compliance	OB should be stacked at earmarked external OB dumpsite(s) within ML area and shall be a maximum height of 60m only and consist of benches of 10m each. The ultimate slope of the dump shall not exceed 28°. Backfilling shall begin at the end of 3rd year in the decoaled area. Monitoring and management of existing reclaimed dumpsites should continue until the vegetation becomes self-sustaining. Compliance Status should be submitted to the MOEF and its regional office at Bhubaneswar on yearly basis.
<b>PPs Submission:</b> Complied OB was stacked within ML area at an area of 12 ha approx. About 24.08 lakh cum of OB generated has been stacked with an approximate height reached of 50 mts. The other conditions are being followed as well. This OB has been used for backfilling the mine pit as part of our mine closure plan. Now the backfilling work has been completed and biological reclamation work is in progress.		Date: 29/05/2024
5	MISCELLANEOUS	Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The water so collected should be utilized for watering the mine area, roads, green belt development, etc. The drains should be regularly desilted and maintained properly. Garland drains (size, gradient and length) and sump capacity should be designed keeping 50% safety margin over and above the peak sudden rainfall and



		maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of slit material.
<b>PPs Submission:</b> Complied Catch drain and siltation ponds have been constructed to arrest the debris, silt and sediment flows from OB dumps. Collected water had been used for watering mine area, roads & plantation. Total length of catch drains was 2200 mts. Garland drains (about 1790 mts) had been completely constructed around the mine site to ensure runoff water during rainy season is properly drained off. Since mine area has not going to expand, no additional garland drains are required as of now.		Date: 29/05/2024
6	MISCELLANEOUS	Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and siltation should be based on the rainfall data
<b>PPs Submission:</b> Complied Retention wall (or Toe wall) of about 2200 mts. exists around the dump area to check run-off and siltation.		Date: 29/05/2024
7	MISCELLANEOUS	The effluents from the coal washery shall be treated to prescribed norms before discharge from the lease.
<b>PPs Submission:</b> Complied There is no separate coal washery for OCP Kalimela. We have a central coal washery for Jamadoba group of mines, about 1.5 kms away, which has a closed water circuit system to maintain zero discharge.		Date: 29/05/2024
8	AIR QUALITY MONITORING AND PRESERVATION	Crushers at the CHP should be operated with high efficiency bag filters, water sprinkling system should be provided to check fugitive emissions from crushing operations, conveyor system, haulage roads, transfer points, etc.
<b>PPs Submission:</b> Complied There is no separate CHP for OCP Kalimela. The existing CHP for Jamadoba group of mines already has adequate measures in place such as water sprinkling system (fixed and movable) and dry fog system.		Date: 29/05/2024
9	AIR QUALITY MONITORING AND PRESERVATION	Drills should be wet operated.
<b>PPs Submission:</b> Complied It is not applicable now as mining has ceased.		Date: 29/05/2024
10	AIR QUALITY MONITORING AND PRESERVATION	Controlled blasting should be practiced only during daytime with use of delay detonators. The mitigative measures for control of ground vibration and to arrest the fly rocks and boulders should be implemented.
<b>PPs Submission:</b> Complied It is not applicable now as mining has ceased.		Date: 29/05/2024
11	GREENBELT	Area brought under afforestation includes reclaimed external OB dump (12.89 ha), backfilled area (25.15 ha), along ML boundary, along roads (0.45 ha) and in undisturbed area (1.14 ha) within the lease area by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500 plants per ha.

<b>PPs Submission:</b> Complied The backfilling work has been completed and the biological reclamation work is in progress.		Date: 29/05/2024
12	LAND RECLAMATION	A progressive closure plan shall be implemented by reclamation of quarry area of 25.15 ha which shall be backfilled and afforested by planting native plant species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500 plants per ha. The balance 1.10 ha of decoaled area shall be converted into a water reservoir, the upper benches of which shall be gently sloped and stabilized and reclaimed with plantation.
<b>PPs Submission:</b> Complied The reclamation work is in progress as per the progressive mine closure Plan. The mine closure plan of KOCF is under mining plan of Jamadoba Colliery (including MCP of Kalimela) has been approved by MOC, Delhi.		Date: 29/05/2024
13	MISCELLANEOUS	Conservation Plan for endangered species, if any, found in and around the project area shall be formulated, if required, in consultation with the State Forest and Wildlife Departments.
<b>PPs Submission:</b> Complied Not Applicable.		Date: 29/05/2024
14	WATER QUALITY MONITORING AND PRESERVATION	The company shall obtain prior approval of CGWA/ CGWB Regional Office for use of groundwater if any, for mining operations.
<b>PPs Submission:</b> Complied Not Applicable.		Date: 29/05/2024
15	WATER QUALITY MONITORING AND PRESERVATION	Regular monitoring of groundwater level and quality should be carried out by establishing a network of existing wells and construction of new peizometers. The monitoring for quantity should 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 should be submitted to the Ministry of Environment & Forest and to the Central Pollution Control Board quarterly within one month of monitoring.
<b>PPs Submission:</b> Complied Now there will be no impact on ground water as mining has ceased. However, quality of groundwater is regularly analysed as required and attached as an Annexure.		Date: 30/05/2024
16	WATER QUALITY MONITORING AND PRESERVATION	The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource. The project authorities should meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.
<b>PPs Submission:</b> Complied Now there will be no impact on ground water as mining has ceased. However, quality of groundwater is regularly analysed as required and attached as Annexure.		Date: 30/05/2024
17	WATER QUALITY MONITORING AND PRESERVATION	ETP should also be provided for workshop, coal washery and CHP wastewater.
<b>PPs Submission:</b> Complied		Date:

It is not applicable. Though ETP for Central Workshop has been commissioned having facility of Oil & Grease Trap.		29/05/2024
18	Statutory compliance	R&R shall not be less than the norms laid down by the State Government and shall be completed within a specified time-frame.
<b>PPs Submission:</b> Complied It is not applicable.		Date: 29/05/2024
19	Statutory compliance	A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests for approval 5 years in advance of final mine closure for approval.
<b>PPs Submission:</b> Complied It has been approved by MOC, Delhi and submitted to MoEF&CC.		Date: 29/05/2024
20	Statutory compliance	Consent to operate shall be obtained before starting mining operations.
<b>PPs Submission:</b> Complied Consent to operate was obtained from JSPCB vide letter ref. No. SPCB/HO/RNC/CTO-13226858/2022/959 dated-04.07.2022, which was valid up to 30.09.2023, for backfilling and reclamation. The activities were completed, and biological reclamation is ongoing with trees plantation. Hence, the CTO was surrendered on 20.07.2023 vide letter no. JMB/ENV/SPCB/08/519/2023. Letter attached as an Annexure.		Date: 30/05/2024
<b>General Conditions</b>		
Sr.No.	Condition Type	Condition Details
1	Statutory compliance	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment and forest.
<b>PPs Submission:</b> Complied All mining excavation activities are terminated. Reclamation work is in progress		Date: 29/05/2024
2	AIR QUALITY MONITORING AND PRESERVATION	Four Ambient Air quality monitoring station should be established in the core zones as well as in the buffer zone SPM, RSPM, SO2 and NOX monitoring location of the stations should be decided based on the metrological data & topographical features & environmentally & ecologically sensitive targets in consultation with SPCB.
<b>PPs Submission:</b> Complied The operations have now ceased. The ambient air monitoring is done at 4 locations and the reports are attached as Annexure.		Date: 30/05/2024
3	AIR QUALITY MONITORING AND PRESERVATION	Fugitive dust emissions (SPM & RSPM) from all the sources should be controlled regularly monitored & data recorded properly. Water spraying arrangement on haul roads, wagon loading, and dump trucks (loading & unloading) points should be provided & properly maintained.
<b>PPs Submission:</b> Complied Presently no coal excavation and coal transportation jobs are going on. However, water sprinkling on roads is being done regularly.		Date: 29/05/2024

4	AIR QUALITY MONITORING AND PRESERVATION	Data on ambient air quality (SPM, RSPM, SOx & NOx) should be regularly submitted to the Ministry including its regional office at Bhubaneswar and to the SPCB & CPCB once in six months.
<b>PPs Submission:</b> Complied The ambient air monitoring is done at 4 locations and the reports are submitted to SPCB, CPCB & MoEFCC on half yearly basis (Annexure).		Date: 30/05/2024
5	Noise Monitoring & Prevention	Adequate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations of HEMM etc. All should be provided with Ear Plug/Muff.
<b>PPs Submission:</b> Complied It is not applicable now.		Date: 29/05/2024
6	WATER QUALITY MONITORING AND PRESERVATION	Industrial waste water (Workshop and Waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422(E) dated 19th May 1993 and 31st December 1993 or as amended from time to time before discharged. Oil and Grease trap should be installed before discharge of Work shop effluent.
<b>PPs Submission:</b> Complied There is no generation of wastewater.		Date: 29/05/2024
7	AIR QUALITY MONITORING AND PRESERVATION	Vehicular emissions should be kept under control and regularly monitored. Vehicle used for transporting the mineral should be covered with tarpaulins and optimally loaded.
<b>PPs Submission:</b> Complied No mineral is being transported now. The vehicles carrying OB are only allowed to ply after securing full compliance on vehicle check list. Check list ensures the optimum load, good condition, emissions under limit.		Date: 29/05/2024
8	MISCELLANEOUS	Environmental laboratory should be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the SPCB.
<b>PPs Submission:</b> Complied We have a fully equipped Environment Cell Laboratory with qualified personnel. The monitoring and analysis are also done at regular intervals by a NABL and JSPCB recognised laboratory.		Date: 29/05/2024
9	Human Health Environment	Personnel working in dusty area should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspect. Occupational Health Surveillance programme of the worker should be under taken periodically to observe any contraction due to exposure to dust and to take corrective measures if needed.
<b>PPs Submission:</b> Complied It is not applicable now.		Date: 29/05/2024
10	MISCELLANEOUS	A separate Environmental Management cell with suitable qualified personnel should be set up under the control of a senior executive, who will report directly to the Head of the Company.

<b>PPs Submission:</b> Complied We have a separate Environmental Management Cell with four qualified personnel. The reporting of Environmental Cell is directly to General Manager of the Division.		Date: 29/05/2024
11	Corporate Environmental Responsibility	Funds earmarked for environmental protection measures should be kept in separate A/C and should not be diverted for other purposes. Year wise expenditure should be reported to this ministry and its regional office at Bhubaneswar.
<b>PPs Submission:</b> Complied The Environment Cell has a separate fund for Environmental protection measures and for complying with legal requirements.		Date: 29/05/2024
12	MISCELLANEOUS	The regional office of this ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities shall extend full co-operation to the officer of regional office by furnishing the requisite Data/ information/ monitoring report.
<b>PPs Submission:</b> Complied Being complied. All data is being furnished in the compliance report and during inspection.		Date: 29/05/2024
13	Statutory compliance	No change in the calendar plan including excavation, quantum of mineral coal and waste should be made.
<b>PPs Submission:</b> Complied All mining excavation activities are terminated. Reclamation work is in progress.		Date: 29/05/2024
<b>Visit Remarks</b>		
<b>Last Site Visit Report Date:</b>		N/A
<b>Additional Remarks:</b>		

**HALF YEARLY COMPLIANCE REPORT  
(PERIOD: OTOBER'23 – MARCH'24)**

**OCP KALIMELA PROJECT  
UNDER JAMADOBA COLLIERY**



**TATA STEEL LIMITED, JHARIA DIVISION**

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

**ENVIRONMENTAL CLEARANCE GRANTED VIDE LETTER NO. - J-11015/252/2005-  
IA.II(M) DATED- 22<sup>ND</sup> JUNE 2006 ISSUED BY GOVT. OF INDIA, MINISTRY OF  
ENVIRONMENT & FOREST, NEW DELHI.**

**Compliance status of Environmental Clearance of Kalimela Open Cast Mining Project (0.34 MTPA) of M/s Tata Steel Ltd., Village Dungri, Tehsil Jharia, dist. Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/252/2005-IA.II (M) dated June 22, 2006**

S. No.	Condition	Compliance Status
<b>Specific Condition:</b>		
(i)	All the conditions stipulated by SPCB in their NOC no N-35 dated 31.01.2005 are to be implemented effectively.	<p>NOC conditions are being complied with. The open cast operations have ceased, and no raw coal production is taking place.</p> <p>Currently the backfilling of the mine void by the OB has been completed and biological reclamation work is in progress.</p>
(ii)	The bund/embankment shall be designed taking into account highest flood level, based on past data, in the Damodar River/ Dungri Jore so as to guard against mine inundation.	The embankment exists along Dungri Jore. The HFL (Highest flood line) of Damodar river is way below the surface level of open cast mine hence bunds across the river is not necessary.
(iii)	Topsoil should be stacked properly with proper slope at earmarked sites and should not be kept active and shall be used for reclamation and development of green belt.	<p>No further top soil will be generated as coal mining activity has been ceased.</p> <p>The back filling has been completed and the top soil is being used for biological reclamation of backfilled and OB area.</p>
(iv)	OB should be stacked at earmarked external OB dumpsite(s) within ML area and shall be a maximum height of 60m only and consist of benches of 10m each. The ultimate slope of the dump shall not exceed 28°. Backfilling shall begin at the end of 3rd year in the decoaled area. Monitoring and management of existing reclaimed dumpsites should continue until the vegetation becomes self-sustaining. Compliance Status should be submitted to the MOEF and its regional office at Bhubaneswar on yearly basis.	<p>OB was stacked within ML area at an area of 12 ha approx. About 24.08 lakh cum of OB generated has been stacked with an approximate height reached of 50 mts. The other conditions are being followed as well.</p> <p>This OB has been used for backfilling the mine pit as part of our mine closure plan. Now the backfilling work has been completed and biological reclamation work is in progress.</p>
(v)	<p>Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The water so collected should be utilized for watering the mine area, roads, green belt development, etc. The drains should be regularly desilted and maintained properly.</p> <p>Garland drains (size, gradient and length) and sump capacity should be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of slit material.</p>	<p>Catch drain and siltation ponds have been constructed to arrest the debris, silt and sediment flows from OB dumps. Collected water had been used for watering mine area, roads &amp; plantation. Total length of catch drains was 2200 mts.</p> <p>Garland drains (about 1790 mts) had been completely constructed around the mine site to ensure runoff water during rainy season is properly drained off. Since mine area has not going to expand, no additional garland drains are required as of now.</p>

**Compliance status of Environmental Clearance of Kalimela Open Cast Mining Project (0.34 MTPA) of M/s Tata Steel Ltd., Village Dungri, Tehsil Jharia, dist. Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/252/2005-IA.II (M) dated June 22, 2006**

(vi)	Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and siltation should be based on the rainfall data	Retention wall (or Toe wall) of about 2200 mts. exists around the dump area to check run-off and siltation.
(vii)	The effluents from the coal washery shall be treated to prescribed norms before discharge from the lease.	There is no separate coal washery for OCP Kalimela. We have a central coal washery for Jamadoba group of mines, about 1.5 kms away, which has a closed water circuit system to maintain zero discharge.
(viii)	Crushers at the CHP should be operated with high efficiency bag filters, water sprinkling system should be provided to check fugitive emissions from crushing operations, conveyor system, haulage roads, transfer points, etc.	There is no separate CHP for OCP Kalimela. The existing CHP for Jamadoba group of mines already has adequate measures in place such as water sprinkling system (fixed and movable) and dry fog system.
(ix)	Drills should be wet operated.	It is not applicable now as mining has ceased.
(x)	Controlled blasting should be practiced only during daytime with use of delay detonators. The mitigative measures for control of ground vibration and to arrest the fly rocks and boulders should be implemented.	It is not applicable now as mining has ceased.
(xi)	Area brought under afforestation includes reclaimed external OB dump (12.89 ha), backfilled area (25.15 ha), along ML boundary, along roads (0.45 ha) and in undisturbed area (1.14 ha) within the lease area by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500 plants per ha.	The backfilling work has been completed and the biological reclamation work is in progress.
(xii)	A progressive closure plan shall be implemented by reclamation of quarry area of 25.15 ha which shall be backfilled and afforested by planting native plant species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500 plants per ha. The balance 1.10 ha of decoaled area shall be converted into a water reservoir, the upper benches of which shall be gently sloped and stabilized and reclaimed with plantation.	<p>The reclamation work is in progress as per the progressive mine closure Plan.</p> <p>The mine closure plan of KOCP is under mining plan of Jamadoba Colliery (including MCP of Kalimela) has been approved by MOC, Delhi.</p>
(xiii)	Conservation Plan for endangered species, if any, found in and around the project area shall be formulated, if required, in consultation with the State Forest and Wildlife Departments.	Not Applicable.



**Compliance status of Environmental Clearance of Kalimela Open Cast Mining Project (0.34 MTPA) of M/s Tata Steel Ltd., Village Dungri, Tehsil Jharia, dist. Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/252/2005-IA.II (M) dated June 22, 2006**

(xiv)	The company shall obtain prior approval of CGWA/ CGWB Regional Office for use of groundwater if any, for mining operations.	Not Applicable.
(xv)	Regular monitoring of groundwater level and quality should be carried out by establishing a network of existing wells and construction of new peizometers. The monitoring for quantity should 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 should be submitted to the Ministry of Environment & Forest and to the Central Pollution Control Board quarterly within one month of monitoring.	Now there will be no impact on ground water as mining has ceased. However, quality of groundwater is regularly analysed as required and attached in <b>Annexure I</b> .
(xvi)	The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource. The project authorities should meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.	Now there will be no impact on ground water as mining has ceased. However, quality of groundwater is regularly analysed as required and attached in <b>Annexure-I</b>
(xvii)	ETP should also be provided for workshop, coal washery and CHP wastewater.	It is not applicable. Though ETP for Central Workshop has been commissioned having facility of Oil & Grease Trap.
(xviii)	R&R shall not be less than the norms laid down by the State Government and shall be completed within a specified time-frame.	It is not applicable.
(xix)	A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests for approval 5 years in advance of final mine closure for approval.	It has been approved by MOC, Delhi and submitted to MoEF&CC.
(xx)	Consent to operate shall be obtained before starting mining operations.	Consent to operate was obtained from JSPCB vide letter ref. No. SPCB/HO/RNC/CTO-13226858/2022/959 dated-04.07.2022, which was valid up to 30.09.2023, for backfilling and reclamation. The activities were completed, and biological reclamation is ongoing with trees plantation. Hence, the CTO was surrendered on 20.07.2023 vide letter no. JMB/ENV/SPCB/08/519/2023. Letter attached as an Annexure- II.
<b>General Conditions:</b>		
(i)	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment and forest.	All mining excavation activities are terminated. Reclamation work is in progress

**Compliance status of Environmental Clearance of Kalimela Open Cast Mining Project (0.34 MTPA) of M/s Tata Steel Ltd., Village Dungri, Tehsil Jharia, dist. Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/252/2005-IA.II (M) dated June 22, 2006**

(i)	No change in the calendar plan including excavation, quantum of mineral coal and waste should be made.	All mining excavation activities are terminated. Reclamation work is in progress.
(ii)	Four Ambient Air quality monitoring station should be established in the core zones as well as in the buffer zone SPM, RSPM, SO <sub>2</sub> and NO <sub>x</sub> monitoring location of the stations should be decided based on the metrological data & topographical features & environmentally & ecologically sensitive targets in consultation with SPCB.	The operations have now ceased. The ambient air monitoring is done at 4 locations and the reports are attached as <b>Annexure- I</b> .
(iii)	Fugitive dust emissions (SPM & RSPM) from all the sources should be controlled regularly monitored & data recorded properly. Water spraying arrangement on haul roads, wagon loading, and dump trucks (loading & unloading) points should be provided & properly maintained.	Presently no coal excavation and coal transportation jobs are going on. However, water sprinkling on roads is being done regularly.
(iv)	Data on ambient air quality (SPM, RSPM, SO <sub>x</sub> & NO <sub>x</sub> ) should be regularly submitted to the Ministry including its regional office at Bhubaneswar and to the SPCB & CPCB once in six months.	The ambient air monitoring is done at 4 locations and the reports are submitted to SPCB, CPCB & MoEFCC on half yearly basis ( <b>Annexure- I</b> ).
(v)	Adequate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations of HEMM etc. All should be provided with Ear Plug/Muff.	It is not applicable now.
(vi)	Industrial waste water (Workshop and Waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422(E) dated 19th May 1993 and 31st December 1993 or as amended from time to time before discharged. Oil and Grease trap should be installed before discharge of Work shop effluent.	There is no generation of wastewater.
(vii)	Vehicular emissions should be kept under control and regularly monitored. Vehicle used for transporting the mineral should be covered with tarpaulins and optimally loaded.	No mineral is being transported now. The vehicles carrying OB are only allowed to ply after securing full compliance on vehicle check list. Check list ensures the optimum load, good condition, emissions under limit.
(viii)	Environmental laboratory should be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the SPCB.	We have a fully equipped Environment Cell Laboratory with qualified personnel. The monitoring and analysis are also done at regular intervals by a NABL and JSPCB recognised laboratory

**Compliance status of Environmental Clearance of Kalimela Open Cast Mining Project (0.34 MTPA) of M/s Tata Steel Ltd., Village Dungri, Tehsil Jharia, dist. Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/252/2005-IA.II (M) dated June 22, 2006**

(ix)	Personnel working in dusty area should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspect. Occupational Health Surveillance programme of the worker should be under taken periodically to observe any contraction due to exposure to dust and to take corrective measures if needed.	It is not applicable now.
(x)	A separate Environmental Management cell with suitable qualified personnel should 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 four qualified personnel. The reporting of Environmental Cell is directly to General Manager of the Division.
(xi)	Funds earmarked for environmental protection measures should be kept in separate A/C and should not be diverted for other purposes. Year wise expenditure should be reported to this ministry and its regional office at Bhubaneswar.	The Environment Cell has a separate fund for Environmental protection measures and for complying with legal requirements.
(xii)	The regional office of this ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities shall extend full co-operation to the officer of regional office by furnishing the requisite Data/ information/ monitoring report.	Being complied. All data is being furnished in the compliance report and during inspection.

Ambient Air Quality and Groundwater Quality Report (Period- **October'23 to March'24**)**AIR QUALITY REPORT**

Core zone &amp; Buffer zone

Period- **October'23 to December'23**

No. of sampling points: 4

Core zone (as per Air quality standards for coal mines in EPA Notification, 1988)							
Location	Latitude/ Longitude	Date	Weather Condition	SPM 24 Hourly Limit- 700 µg/m³	RSPM 24 Hourly Limit- 300 µg/m³	SO <sub>2</sub> 24 Hourly Limit- 120 µg/m³	NO <sub>x</sub> 24 Hourly Limit-120 µg/m³
6&7 Pits Kalimandir area	23°43'15" N/ 86°24'12" E	20.10.23	Clear	218.3	80.9	15.2	17.2
		10.11.23	Clear	248.1	86.3	18.6	20.9
		13.12.23	Clear	242.5	84.2	17.8	19.5
Buffer zone (as per NAAQS 2009 for ambient air quality standards)							
Location	Latitude/ Longitude	Date	Weather Condition	PM10 24 Hourly Limit- 100µg/m³	PM2.5 24 Hourly Limit- 60µg/m³	SO <sub>2</sub> 24 Hourly Limit- 80µg/m³	NO <sub>2</sub> 24 Hourly Limit- 80µg/m³
Jamadoba Group Office	23°42'15.3" N/ 86°24'11" E	17.10.23	Clear	90.7	49.1	16.8	18.2
		08.11.23	Clear	94.2	50.7	17.9	20.5
		04.12.23	Clear	90.5	48.1	18.4	21.9
Digwadih 12 No. Colony	23°41'42" N/ 86°24'45.3" E	19.10.23	Clear	76.1	36.0	18.4	20.1
		06.11.23	Clear	90.5	48.1	15.7	17.4
		11.12.23	Clear	88.6	45.2	14.9	18.3
New Village Colony, Jamadoba	23°41'51" N/ 86°23'19" E	16.10.23	Clear	84.3	43.5	17.6	19.4
		09.11.23	Clear	87.4	46.5	16.8	18.2
		05.12.23	Clear	92.8	50.3	17.4	19.7
Tata Central Hospital	23°42'36" N/ 86°24'10.4"E	18.10.23	Clear	78..2	38.9	15.4	17.6
		07.11.23	Clear	82.1	41.0	18.4	21.3
		08.12.23	Clear	68.4	32.0	15.7	17.8


**Area Manager (Environment)**

# Ambient Air Quality and Groundwater Quality Report (Period- **October'23 to March'24**)

## AIR QUALITY REPORT

Core zone & Buffer zone

Period- January'24 to March'24

No. of sampling points: 4

Core zone (as per Air quality standards for coal mines in EPA Notification, 1988)							
Location	Latitude/ Longitude	Date	Weather Condition	SPM 24 Hourly Limit- 700 µg/m³	RSPM 24 Hourly Limit- 300 µg/m³	SO <sub>2</sub> 24 Hourly Limit- 120 µg/m³	NO <sub>x</sub> 24 Hourly Limit-120 µg/m³
6&7 Pits Kalimandir area	23°43'15" N/ 86°24'12" E	08.01.24	Clear	248.7	89.5	16.4	18.2
		16.02.24	Clear	231.9	84.2	18.2	22.8
		08.03.24	Clear	226.7	80.1	17.9	20.5
Buffer zone (as per NAAQS 2009 for ambient air quality standards)							
Location	Latitude/ Longitude	Date	Weather Condition	PM10 24 Hourly Limit- 100µg/m³	PM2.5 24 Hourly Limit- 60µg/m³	SO <sub>2</sub> 24 Hourly Limit- 80µg/m³	NO <sub>2</sub> 24 Hourly Limit- 80µg/m³
Jamadoba Group Office	23°42'15.3" N/ 86°24'11" E	05.01.24	Clear	94.2	50.1	17.6	19.5
		12.02.24	Clear	92.1	48.7	16.4	20.1
		06.03.24	Clear	76.6	32.8	18.4	20.3
Digwadih 12 No. Colony	23°41'42" N/ 86°24'45.3" E	04.01.24	Clear	92.7	48.3	15.2	17.1
		15.02.24	Clear	95.3	51.6	18.7	21.5
		07.03.24	Clear	81.4	42.1	15.9	18.6
New Village Colony, Jamadoba	23°41'51" N/ 86°23'19" E	09.01.24	Clear	90.5	46.9	16.8	18.4
		14.02.24	Clear	78.7	36.9	14.5	17.2
		04.03.24	Clear	84.3	44.2	17.2	19.5
Tata Central Hospital	23°42'36" N/ 86°24'10.4"E	03.01.24	Clear	76.3	38.9	14.8	16.2
		19.02.24	Clear	87.3	43.5	15.8	18.7
		11.03.24	Clear	74.5	30.4	16.7	19.2



**Area Manager (Environment)**

Ambient Air Quality and Groundwater Quality Report (Period- **October'23 to March'24**)

**Ground Water Quality Analysis (Hand Pump & Dung Well)**

**(Post Monsoon Season- November'2023)**

S.No	Date	Location	Time	Depth in meter	pH	Electrical Conductivity, $\mu\text{S/m}$
1	15.11.23	Purnadih (Jorapokhar)	01:15 PM	3.53	7.0	1210
2	15.11.23	Bhowra 13 No	12:50 PM	3.32	7.3	1251
3	15.11.23	Mohalbani Basti	02:15 PM	2.94	6.9	1198
4	15.11.23	Digwadih 10 No F & J	12:10 PM	2.61	7.3	1252
5	15.11.23	Kalimela Shivmandir	11:05 AM	1.62	7.4	1022
6	15.11.23	Kalimela Kalimandir	11:20 AM	3.31	7.0	1358
7	15.11.23	Lower Dungari	10:45 AM	3.10	7.2	778
8	15.11.23	Upper Dungari	10:25 AM	2.26	7.4	912
9	15.11.23	Pattia Basti	10:00 AM	3.42	7.1	887
10	15.11.23	Kenduadih Basti	09:35 AM	2.34	7.4	810
11	15.11.23	Jorapokhar Kushtand	01:55 PM	4.24	7.6	1465
12	15.11.23	6&7 Pits (Ayodhya Nagri)	11:45 AM	1.86	7.3	994
13	15.11.23	Jorapokhar Basti Chhattand	12:25 PM	2.12	7.4	1236
14	15.11.23	Jorapokhar Babu Basa	01:30 PM	2.04	7.2	1138

**Area Manager (Environment)**

Ambient Air Quality and Groundwater Quality Report (Period- **October'23 to March'24**)

**Ground Water Quality Analysis (Hand Pump & Dung Well)**

**(Winter Season- January'2024)**

S.No	Date	Location	Time	Depth in meter	pH	Electrical Conductivity $\mu\text{S/m}$
1	12.01.24	Purnadih (Jorapokhar)	11:50 AM	4.78	7.2	1208
2	12.01.24	Bhowra 13 No	12:20 PM	3.38	7.0	984
3	12.01.24	Mohalbani Basti	12:30 PM	2.98	7.1	1174
4	12.01.24	Digwadih 10 No F & J	12:50 PM	2.82	7.2	1608
5	12.01.24	Kalimela Shivmandir	10:55 AM	1.66	7.0	878
6	12.01.24	Kalimela Kalimandir	11:10 AM	3.42	7.1	1339
7	12.01.24	Lower Dungari	10:40 AM	3.41	7.3	776
8	12.01.24	Upper Dungari	09:35 AM	2.44	7.6	810
9	12.01.24	Pattia Basti	09:55 AM	3.51	7.2	920
10	12.01.24	Kenduadih Basti	10:15 AM	2.47	7.3	1120
11	12.01.24	Jorapokhar Kushtand	11:30 AM	4.52	7.3	1628
12	12.01.24	6&7 Pits (Ayodhya Nagri)	01:40 PM	1.95	7.4	1019
13	12.01.24	Jorapokhar Basti Chhattand	01:10 PM	1.01	7.2	1327
14	12.01.24	Jorapokhar Babu Basa	12:05 PM	2.08	7.0	1172



**Area Manager (Environment)**



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Fax: 0326-2952377  
Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/23-24/1416

Date: 15.11.2023

## 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 : 09/11/2023 to 10/11/2023
- Date of Testing : 11/11/2023 to 14/11/2023
- Test Procedure : As per IS-5182

### TEST RESULTS

LOCATION - 6 & 7 PITS COLLIERY OFFICE				
	Avg. Ambient Temperature	30°C	Avg. Humidity	39%
Sl No.	Particulars	Value	NAAQ - CPCB STANDARD	
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	90.76	100 µg/m <sup>3</sup>	
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	53.45	60 µg/m <sup>3</sup>	
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	20.83	80 µg/m <sup>3</sup>	
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	28.62	80 µg/m <sup>3</sup>	
5.	Ozone, µg/m <sup>3</sup>	18.36	180 µg/m <sup>3</sup>	
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	14.25	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

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



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

### Statements :

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Mobile: 09471358492, 09431512608

Ref. No.: ARDS/23-24/1417

Date: 15.11.2023

## 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 : 09/11/2023 to 10/11/2023
- Date of Testing : 11/11/2023 to 14/11/2023
- Test Procedure : As per IS-5182

### TEST RESULTS

LOCATION – OFFICERS COLONY, 12 NO. DIGWADIH				
	Avg. Ambient Temperature	30°C	Avg. Humidity	39%
Sl No.	Particulars	Value	NAAQ - CPCB STANDARD	
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	78.18	100 µg/m <sup>3</sup>	
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	44.90	60 µg/m <sup>3</sup>	
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	17.32	80 µg/m <sup>3</sup>	
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	29.30	80 µg/m <sup>3</sup>	
5.	Ozone, µg/m <sup>3</sup>	16.65	180 µg/m <sup>3</sup>	
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	14.15	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

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



*S. D. Ray*  
Technical Manager  
Aditi R&D Services, Sindri

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Ref. No.: - ARDS/23-24/1418

Date: 15.11.2023

## 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 : 09/11/2023 to 10/11/2023
- Date of Testing : 11/11/2023 to 14/11/2023
- Test Procedure : As per IS-5182

## TEST RESULTS

LOCATION – CENTRAL WORKSHOP AREA , JAMADOBA				
	Avg. Ambient Temperature	30°C	Avg. Humidity	39%
Sl No.	Particulars	Value	NAAQ - CPCB STANDARD	
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	88.57	100 µg/m <sup>3</sup>	
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	54.15	60 µg/m <sup>3</sup>	
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	22.27	80 µg/m <sup>3</sup>	
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	29.00	80 µg/m <sup>3</sup>	
5.	Ozone, µg/m <sup>3</sup>	17.90	180 µg/m <sup>3</sup>	
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	18.36	400 µg/m <sup>3</sup>	
7.	CO, mg/m <sup>3</sup>	1.09	4 mg/m <sup>3</sup>	
8.	Pb, µg/m <sup>3</sup>	BDL	1 µg/m <sup>3</sup>	
9.	As, ng/m <sup>3</sup>	BDL	6 ng/m <sup>3</sup>	
10.	Ni, ng/m <sup>3</sup>	BDL	20 ng/m <sup>3</sup>	
11.	Benzene, µg/m <sup>3</sup>	BDL	5 µg/m <sup>3</sup>	
12.	Benzoapyrene ng/m <sup>3</sup>	BDL	1 ng/m <sup>3</sup>	

NOTE: BDL - Below Detection Limit

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



*S. R. Das*  
Technical Manager  
Aditi R&D Services, Sindri

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# Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)



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Ref. No.: - ARDS/23-24/1419

Date: 15.11.2023

### 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 : 09/11/2023 to 10/11/2023
- Date of Testing : 11/11/2023 to 14/11/2023
- Test Procedure : As per IS-5182

### TEST RESULTS

#### LOCATION - TATA CENTRAL HOSPITAL

	Avg. Ambient Temperature	30°C	Avg. Humidity	39%
Sl No.	Particulars	Value	NAAQ - CPCB STANDARD	
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	70.63	100 µg/m <sup>3</sup>	
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	41.38	60 µg/m <sup>3</sup>	
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	18.12	80 µg/m <sup>3</sup>	
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	29.93	80 µg/m <sup>3</sup>	
5.	Ozone, µg/m <sup>3</sup>	15.83	180 µg/m <sup>3</sup>	
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	16.70	400 µg/m <sup>3</sup>	
7.	CO, mg/m <sup>3</sup>	0.73	4 mg/m <sup>3</sup>	
8.	Pb, µg/m <sup>3</sup>	BDL	1 µg/m <sup>3</sup>	
9.	As, ng/m <sup>3</sup>	BDL	6 ng/m <sup>3</sup>	
10.	Ni, ng/m <sup>3</sup>	BDL	20 ng/m <sup>3</sup>	
11.	Benzene, µg/m <sup>3</sup>	BDL	5 µg/m <sup>3</sup>	
12.	Benzoapyrene ng/m <sup>3</sup>	BDL	1 ng/m <sup>3</sup>	

NOTE: BDL - Below Detection Limit

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



*S. D. Singh*  
Technical Manager  
Aditi R&D Services, Sindri

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# Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)



## ADITI R&D SERVICES

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Mobile: 09471358492, 09431512608

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

Ref. No. & Date		NAME AND ADDRESS OF THE CLIENT							
ARDS/23-24/1420 Date: 15.11.2023		M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED, JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)							
Date of Monitoring									
09/11/2023 TO 10/11/2023		Avg. Ambient Temperature (°C)		Average Humidity (%)		Weather Condition		Status of the plant	
Work Order 4700092573/932 Dt. 20.07.2021		30		44		Clear		Running	
MONITORING RESULTS									
Sl. No	Place of Monitoring	Day Time (6 AM to 10 PM) Avg. dB(A)			Night Time (10 PM to 6 AM) Avg. dB(A)			Noise level (Ambient standard) for Industrial Area as per CPCB Noise Pollution (Regulation and Control) (Amendment) Rules , 2000 notified vide S.O. 1046(E) Dt. 22.11.2020 Limit in dB(A) Leq	
		MAX	MIN	AVG. dB(A) Leq	MAX	MIN	AVERAGE dB(A) Leq	Day Time	Night Time
LOCATION		MAX	MIN	AVG. dB(A) Leq	MAX	MIN	AVERAGE dB(A) Leq	Industrial Area	Industrial Area
JAMADOBA GROUP									
1.	Central Workshop Area, Jamadoba	68.4	56.2	65.64	54.2	46.8	51.92	75	70
2.	6 & 7 Pits Colliery Office	69.8	53.4	66.89	58.6	52.4	56.52		
								Residential Area	Residential Area
3.	Officers Colony 12 No. Digwadih	52.8	47.2	50.85	46.8	42.4	45.13	65	55
								Silence Zone	Silence Zone
4.	Tata Central Hospital	49.2	44.8	47.53	39.4	37.8	38.67	50	40

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



*S. D. Roy*  
Technical Manager  
Aditi R&D Services, Sindri

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Ref. No.: - ARDS/23-24/1421

Date: 15.11.2023

## 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 : 10/11/2023
- Date of Testing : 11/11/2023 - 14/11/2023

### 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	1.83	0.06	1.39	2.8
2.	Officer's Colony 12 No. Digwadih	1.09	0.14	1.30	2.89

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Ref. No.: - ARDS/23-24/1428

Date: 17.11.2023

## 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: 09/11/2023
- Date of Testing : 11/11/2023 To 16/11/2023
- 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	7.9	8.0	6.5 -8.5	IS-3025 (P-11): 1983
2.	Total Dissolved Solids, mg/l	403	393	1500	IS-3025 (P-16): 1984
3.	Turbidity, NTU	1	1	-	IS-3025 (P-10):1984
4.	Dissolved Oxygen, mg/l	4.5	5.9	4.0	IS-3025 (P-38):1989
5.	Bio chemical Oxygen Demand, mg/l	2.6	2.0	3.0	IS-3025 (P-44):1994
6.	Chloride as Cl, mg/l	29.8	27.9	-	IS-3025 (P-32):1988
7.	Fluoride as F, mg/l	0.48	0.45	1.5	IS-3025 (P-60):2008
8.	Sulphate as SO <sub>4</sub> , mg/l	65.5	49	400	IS-3025 (P-24):1986

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Ref. No.: - ARDS/23-24/1429

Date: 17.11.2023

## 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 : 1. 3 Pit Jamadoba Colliery  
2. 6 & 7 Pits Colliery  
3. 2 Pit Jamadoba Colliery  
4. 2 Incline Jamadoba Colliery  
5. Digwadih Colliery
- Date of Sample Collection: 09/11/2023 to 10/11/2023
- Date of Testing : 11/11/2023 to 16/11/2023
- 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
		3 Pit Jamadoba Colliery	6 & 7 Pits Colliery	2 Pit Jamadoba Colliery	2 Incline Jamadoba Colliery	Digwadih Colliery		
1.	pH,	7.7	6.8	7.4	7.1	7.3	6.5-8.5	IS-3025 (P-11): 1983
2.	Total Dissolved Solids, mg/l	799	912	845	720	932	-	IS-3025 (P-16): 1984
3.	Total Suspended Solids, mg/l	34	35	31	34	32	-	IS-3025(P-17): 1984
4.	Bio chemical Oxygen Demand, mg/l	2.4	1.8	2.0	2.0	1.6	3	IS-3025 (P-44):1994
5.	Chemical Oxygen Demand, mg/l	65	43.6	87	43.6	43.6	-	IS-3025 (P-58):2006
6.	Oil & Grease, mg/l	0.4	BDL	BDL	BDL	BDL	-	IS-3025 (P-39):2021

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Ref. No.: - ARDS/23-24/1430

Date: 17.11.2023

## 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
  4. S.T.P. Out let Digwadih Officer Colony.
  5. S.T.P. Out let Digwadih 12 No. Supervisor Flat
- Date of Sample Collection: 09/11/2023 to 10/11/2023
- Date of Testing : 11/11/2023 to 16/11/2023
- 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	S.T.P. Outlet Digwadih Officer Colony	S.T.P. Outlet Digwadih 12 NO. Supervisor Flat		
1.	pH,	7.5	7.3	7.4	8.1	7.3	5.5-9.0	IS-3025 (P-11):1983
2.	Total Dissolved Solids, mg/l	988	871	910	767	945	2100	IS-3025 (P-16):1984
3.	Total Suspended Solids, mg/l	42	38	45	34	40	100	IS-3025(P-17):1984
4.	Bio chemical Oxygen Demand, mg/l	2.4	2.8	3.2	3.6	3.0	30	IS-3025 (P-44):1994
5.	Chemical Oxygen Demand, mg/l	80	102	109	94	102	250	IS-3025 (P-58):2006
6.	Oil & Grease, mg/l	1.2	0.8	1.6	1.2	0.8	10	IS-3025 (P-39):2021

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Technical Manager  
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# Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)



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Ref. No.: - ARDS/23-24/1431

Date: 17.11.2023

### 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. ETP Outlet Garage  
2. ETP Outlet T.C.H Jamadoba
- Date of Sample Collection: 09/11/2023
- Date of Testing : 11/11/2023 to 16/11/2023
- 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
		ETP Out let Garage	ETP Outlet T.C.H Jamadoba		
1.	pH,	8.1	8.2	6.0 – 9.0	IS-3025 (P-11): 1983
2.	Total Dissolved Solids, mg/l	858	754	2100	IS-3025 (P-16): 1984
3.	Total Suspended Solids, mg/l	45	36	100	IS-3025(P-17): 1984
4.	Bio chemical Oxygen Demand, mg/l	2.6	1.6	30	IS-3025 (P-44):1994
5.	Chemical Oxygen Demand, mg/l	87	29.2	250	IS-3025 (P-58):2006
6.	Oil & Grease, mg/l	1.6	1.2	10	IS-3025 (P-39):2021

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Ref. No.: - ARDS/23-24/1432

Date: 17.11.2023

### 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 6 & 7 Pits Colliery  
3. Canteen Digwadiah Colliery  
4. Canteen Jamadoba Washery
- Date of Sample Collection: 09/11/2023 to 10/11/2023
- Date of Testing : 11/11/2023 to 16/11/2023
- 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 6 & 7 Pits Colliery	Canteen Digwadiah 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	7.7	7.8	7.9	8.1	6.5-8.5	No. Relax.	IS-3025 (P-11):1983
6.	Total Hardness as CaCO <sub>3</sub> , mg/l	415.8	193.2	420	411.6	200	600	IS 3025 (P-21):2009
7.	Chloride as Cl, mg/l	57.6	24.2	59.5	57.6	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	503	368	727	684	500	2000	IS 3025 (P-16):1984
10.	Calcium as Ca, mg/l	72.2	42	87.4	84		200	IS 3025 (P-40):1991
11.	Copper as Cu, mg/l	BDL	BDL	BDL	BDL	BDL	1.5	IS 3025 (P-42):1992

Continued on Page 2



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- 2 -

Sl. No	PARAMETERS OF TEST	VALUE						IS as per IS 10500:1991		Test Method
		Kendwad ih Basti	6 & 7 Pits Ayodhaya Nagari	Upper Dungri	Kalimela Kalimandir	Purnadi h (Joraph okhar)	Digw adih 10 No. F&J	Desi r- able	Permi s-sible	
11	Sulphate as SO <sub>4</sub> , mg/l	62.4	55.7	44	58.4	71	73.5	200	400	IS 3025(P-24):1986
12	Nitrate as NO <sub>3</sub> , mg/l	8.6	8.1	4.5	8.7	9.3	9.1	45	No. Relax	IS 3025(P-34):1988
13	Alkalinity as CaCO <sub>3</sub> , mg/l	306.6	310.8	105	264.6	564	576	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	0.56	0.38	0.18	0.7	0.8	0.64	5	15	IS 3025(P-42):1992
16	Iron as Fe, mg/l	0.18	0.2	0.12	0.33	0.29	0.28	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

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# Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)



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Ref. No.: - ARDS/23-24/1433

Date: 17.11.2023

### 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. Kendwadih Basti
  - 2. 6 & 7 Pits Ayodhya Nagari
  - 3. Upper Dungri
  - 4. Kalimela Kalimandir
  - 5. Purnadih (Joraphokhar).
  - 6. Digwadih 10 No. F&J
- Date of Sample Collection : 09/11/2023 to 10/11/2023
- Date of Testing : 11/11/2023 to 16/11/2023
- 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
		Kendwadih Basti	6 & 7 Pits Ayodhya Nagari	Upper Dungri	Kalimela Kalimandir	Purnadih (Joraphokhar)	Digwadih 10 No. F&J	Desirable	Permissible	
1.	Colour, (Hazen Unit)	1	1	1	1	1	2	5	15	IS 3025 (P-4):2021
2.	Temperature °C	24	25	24	25	25	25	-	-	-
3.	Electrical Conductivity, µmhos/cm	1140	1100	400	1360	1400	1300	-	-	-
4.	Total Dissolved Solids, mg/l	734	711	265	878	882	842	500	2000	IS 3025(P-16):1984
5.	pH	7.3	7.5	7.8	7.2	7.4	7.5	6.5-8.5	No Relax	IS-3025(P-11):1983
6.	Total Hardness as CaCO <sub>3</sub> , mg/l	491.4	508.2	138.6	484	510	496	200	600	IS 3025 (P-21):2009
7.	Calcium as Ca, mg/l	92.4	104.2	33.6	116	122	119	75	200	IS 3025(P-40):1991
8.	Magnesium as Mg, mg/l	62.5	59.5	13	47	49	48	30	100	IS 3025(P-46):1994
9.	Chloride as Cl, mg/l	81.8	55.8	20.5	132	174.7	165.5	250	1000	IS 3025(P-32):1988
10.	Fluoride as F, mg/l	0.42	0.38	0.28	0.56	0.62	0.58	1.0	1.5	IS 3025(P-60):2008

Continued on Page -2



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# ADITI R&D SERVICES

**Testing Laboratory**

**NABL ACCREDITED**

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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
		Canteen Jamadoba Colliery	Canteen 6 & 7 Pits Colliery	Canteen Digwadih Colliery	Canteen Jamadoba Washery	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	52.4	47.7	48.8	60.2	200	400	IS 3025 (P-24):1986
14.	Nitrate as NO <sub>3</sub> , mg/l	3.7	1.8	2.1	1.7	45	No. Relax	IS 3025 (P-34):1988
15.	Fluoride as F, mg/l	0.26	0.34	0.56	0.38	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,	0.28	0.16	0.24	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,	483	184.8	453.6	310.8	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.	Boron as B, mg/l	BDL	BDL	BDL	BDL	0.5	1.0	IS 3025 (P-57):2005

NOTE: BDL - Below Detection Limit

*Anandita*  
Sr. Chemist  
Aditi R&D Services



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

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# Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)



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

Ref. No.: - ARDS/23-24/1943

Date: 17.02.2024

### TEST REPORT OF AMBIENT AIR QUALITY

- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 09.02.2024 to 10.02.2024
- Date of Testing : 14.02.2024 to 16.02.2024
- Test Procedure : As per IS-5182

### TEST RESULTS

LOCATION – 6 & 7 PITS COLLOIERY OFFICE				
	Avg. Ambient Temperature	24°C	Avg. Humidity	46%
Sl No.	Particulars	Value	NAAQ - CPCB STANDARD	
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	93.28	100 µg/m <sup>3</sup>	
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	54.96	60 µg/m <sup>3</sup>	
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	21.18	80 µg/m <sup>3</sup>	
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	26.64	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>	14.54	400 µg/m <sup>3</sup>	
7.	CO, mg/m <sup>3</sup>	0.78	4 mg/m <sup>3</sup>	
8.	Pb, µg/m <sup>3</sup>	BDL	1 µg/m <sup>3</sup>	
9.	As, ng/m <sup>3</sup>	BDL	6 ng/m <sup>3</sup>	
10.	Ni, ng/m <sup>3</sup>	BDL	20 ng/m <sup>3</sup>	
11.	Benzene, µg/m <sup>3</sup>	BDL	5 µg/m <sup>3</sup>	
12.	Benzoapyrene ng/m <sup>3</sup>	BDL	1 ng/m <sup>3</sup>	

NOTE: BDL - Below Detection Limit

Sr. Chemist  
Aditi R&D Services



Technical Manager  
Aditi R&D Services, Sindri

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# Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)



## ADITI R&D SERVICES

Testing Laboratory

NABL ACCREDITED

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

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Website: aditirndservices.com  
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Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/23-24/1944

Date: 17.02.2024

### TEST REPORT OF AMBIENT AIR QUALITY

- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 09.02.2024 to 10.02.2024
- Date of Testing : 14.02.2024 to 16.02.2024
- Test Procedure : As per IS-5182

### TEST RESULTS

LOCATION – OFFICERS COLONY, 12 NO. DIGWADIH				
	Avg. Ambient Temperature	24°C	Avg. Humidity	46%
Sl No.	Particulars	Value	NAAQ - CPCB STANDARD	
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	75.92	100 µg/m <sup>3</sup>	
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	46.52	60 µg/m <sup>3</sup>	
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	18.35	80 µg/m <sup>3</sup>	
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	25.52	80 µg/m <sup>3</sup>	
5.	Ozone, µg/m <sup>3</sup>	17.48	180 µg/m <sup>3</sup>	
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	14.60	400 µg/m <sup>3</sup>	
7.	CO, mg/m <sup>3</sup>	0.63	4 mg/m <sup>3</sup>	
8.	Pb, µg/m <sup>3</sup>	BDL	1 µg/m <sup>3</sup>	
9.	As, ng/m <sup>3</sup>	BDL	6 ng/m <sup>3</sup>	
10.	Ni, ng/m <sup>3</sup>	BDL	20 ng/m <sup>3</sup>	
11.	Benzene, µg/m <sup>3</sup>	BDL	5 µg/m <sup>3</sup>	
12.	Benzoapyrene ng/m <sup>3</sup>	BDL	1 ng/m <sup>3</sup>	

NOTE: BDL - Below Detection Limit

S. D. Dey  
Sr. Chemist

Aditi R&D Services




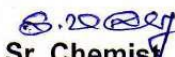

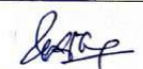
Technical Manager  
Aditi R&D Services, Sindri

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# Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)

	<h2 style="margin: 0;">ADITI R&amp;D SERVICES</h2> <h3 style="margin: 0;">Testing Laboratory</h3> <p style="margin: 0;"><b>NABL ACCREDITED</b></p> <p style="margin: 0;">Ref. No.: - ARDS/23-24/1945 (A Constituent Board of Quality Council of India)</p> <p style="margin: 0; color: red;">ISO/IEC 17025:2017, ISO 9001:2015, ISO (OHSAS) 45001:2018 Certified</p>	Plot No. - I-B-17 (P) Sindri, Industrial Area, P.O.- Domgarh, Dist.- Dhanbad Jharkhand - 828107 Email ID: sindriaditi@gmail.com Website: sindriaditiservices.com Phone: 0326-2952377 (O) Mobile: 09471358492, 09431512608		
<b>TEST REPORT OF AMBIENT AIR QUALITY</b>				
<ul style="list-style-type: none"> <li>• Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)</li> <li>• Work Order Ref. NO. : 4700092573/932 Dt. 20.07.2021</li> <li>• Date of Sample Collection : 09.02.2024 to 10.02.2024</li> <li>• Date of Testing : 14.02.2024 to 16.02.2024</li> <li>• Test Procedure : As per IS-5182</li> </ul>				
<b>TEST RESULTS</b>				
<b>LOCATION – CENTRAL WORKSHOP AREA , JAMADOBA</b>				
	Avg. Ambient Temperature	24°C	Avg. Humidity	46%
SI No.	Particulars	Value	NAAQ - CPCB STANDARD	
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	90.48	100 µg/m <sup>3</sup>	
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	53.29	60 µg/m <sup>3</sup>	
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	22.46	80 µg/m <sup>3</sup>	
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	30.29	80 µg/m <sup>3</sup>	
5.	Ozone, µg/m <sup>3</sup>	17.32	180 µg/m <sup>3</sup>	
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	17.83	400 µg/m <sup>3</sup>	
7.	CO, mg/m <sup>3</sup>	0.95	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				
 <b>Sr. Chemist</b> Aditi R&D Services			 <b>Technical Manager</b> Aditi R&D Services, Sindri	
<b>Statements :</b> <ol style="list-style-type: none"> <li>The test report refers only to the particular item(s) submitted for testing.</li> <li>The test results reported in this report are valid at the time of and under the stated condition of measurement.</li> <li>This particular test report cannot be reproduced except in full without prior permission of Quality Manager of the laboratory.</li> </ol>				





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Ref. No.: - ARDS/23-24/1946

Date: 17.02.2024

## TEST REPORT OF AMBIENT AIR QUALITY

- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 09.02.2024 to 10.02.2024
- Date of Testing : 14.02.2024 to 16.02.2024
- Test Procedure : As per IS-5182

### TEST RESULTS

LOCATION – TATA CENTRAL HOSPITAL				
	Avg. Ambient Temperature	24°C	Avg. Humidity	46%
Sl No.	Particulars	Value	NAAQ - CPCB STANDARD	
1.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	72.41	100 µg/m <sup>3</sup>	
2.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	44.38	60 µg/m <sup>3</sup>	
3.	SO <sub>2</sub> , µg/m <sup>3</sup>	16.48	80 µg/m <sup>3</sup>	
4.	NO <sub>2</sub> , µg/m <sup>3</sup>	26.88	80 µg/m <sup>3</sup>	
5.	Ozone, µg/m <sup>3</sup>	16.56	180 µg/m <sup>3</sup>	
6.	NH <sub>3</sub> , µg/m <sup>3</sup>	17.44	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

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



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

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# Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)



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

Ref. No. & Date				NAME AND ADDRESS OF THE CLIENT					
ARDS/23-24/1903    Date: 12.02.2024				M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED, JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)					
Date of Monitoring									
09.02.2024 TO 10.02.2024				Avg. Ambient Temperature (°C)	Average Humidity (%)		Weather Condition	Status of the plant	
Work Order 4700092573/932 Dt. 20.07.2021				24	46		Clear	Running	
MONITORING RESULTS									
Sl. No	Place of Monitoring	Day Time  (6 AM to 10 PM) Avg. dB(A)			Night Time  (10 PM to 6 AM) Avg. dB(A)			Noise level (Ambient standard) for Industrial Area as per CPCB Noise Pollution (Regulation and Control) (Amendment) Rules , 2000 notified vide S.O. 1046(E) Dt. 22.11.2020 Limit in dB(A) Leq	
		MAX	MIN	AVG. dB(A) Leq	MAX	MIN	AVERAGE dB(A) Leq	Day Time	Night Time
LOCATION JAMADOBA GROUP								Industrial Area	Industrial Area
1.	Central Workshop	69.6	54.8	66.73	56.2	44.8	53.49	75	70
2.	6 & 7 Pits Colliery Office	68.6	62.4	66.52	57.2	48.4	54.73		
								Residential Area	Residential Area
3.	Officer Colony 12 No. Digwadih	50.4	46.2	48.79	44.2	40.4	42.7	65	55
								Silence Zone	Silence Zone
4.	Tata Central Hospital	47.8	42.6	45.94	36.8	32.4	34.6	50	40

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



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

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Ref. No.: - ARDS/23-24/1947

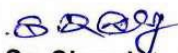
Date: 17.02.2024

## TEST REPORT OF MINERALOGICAL COMPOSITION OF PARTICULATE MATTER

- Name of the industry : M/S TATA STEEL, JAMADOBA,  
TATA STEEL LIMITED  
JAMADOBA GROUP PLANT,  
DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO. : 4700092573/932 Dt. 20.07.2021
- Date of Sample Collection : 10.02.2024
- Date of Testing : 14.02.2024 – 16.02.2024

### TEST RESULTS

Sl No.	Particulars	Mineralogical Composition (%)			
		SiO <sub>2</sub>	FeO	Al <sub>2</sub> O <sub>3</sub>	CaO
1.	6 & 7 Pits Colliery Officer	1.76	0.08	1.24	2.4
2.	Tata Central Hospital	2.02	0.10	1.23	2.49


  
Sr. Chemist  
Aditi R&D Services





  
Technical Manager  
Aditi R&D Services, Sindri


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<p>Ref. No.: - ARDS/23-24/1924</p>		<p>Date: 15.02.2024</p>						
<h3 style="margin: 0;"><u>TEST REPORT OF SURFACE WATER</u></h3>								
<p>• Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)</p> <p>• Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021</p> <p>• Sample Code : 1. Damodar River Up Stream 2. Damodar River Down Stream</p> <p>• Date of Sample Collection: 09.02.2024</p> <p>• Date of Testing : 10.02.2024 To 14.02.2024</p> <p>• Test : pH, TDS, Turbidity, DO, BOD, Cl, F, SO<sub>4</sub></p>								
<h4 style="margin: 0;"><u>TEST RESULT</u></h4>								
Sl. No.	PARAMETERS OF TEST	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2">VALUE</th> </tr> <tr> <th style="width: 50%;">Damodar River Up Stream</th> <th style="width: 50%;">Damodar River Dn Stream</th> </tr> </table>	VALUE		Damodar River Up Stream	Damodar River Dn Stream	Limit as per IS 2296 Class - C	Test Method
VALUE								
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	455      462	1500	IS-3025 (P-16): 1984				
3.	Turbidity, NTU	2.2      2.6	-	IS-3025 (P-10):1984				
4.	Dissolved Oxygen, mg/l	5.3      5.7	4.0 (Min)	IS-3025 (P-38):1989				
5.	Bio chemical Oxygen Demand, mg/l	1.3      1.4	3.0	IS-3025 (P-44):1994				
6.	Chloride as Cl, mg/l	31.34      32.3	600 (Max.)	IS-3025 (P-32):1988				
7.	Fluoride as F, mg/l	0.65      0.69	1.5	IS-3025 (P-60):2008				
8.	Sulphate as SO <sub>4</sub> , mg/l	70.9      74.7	400	IS-3025 (P-24):1986				

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




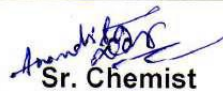


  
**Technical Manager**  
 Aditi R&D Services, Sindri

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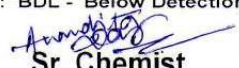




# Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)

	<h2 style="margin: 0;">ADITI R&amp;D SERVICES</h2> <h3 style="margin: 0;">Testing Laboratory</h3> <p style="margin: 0;"><b>NABL ACCREDITED</b></p> <p style="margin: 0;">(A Constituent Board of Quality Council of India)</p> <p style="margin: 0;"><b>ISO/IEC 17025:2017, ISO 9001:2015, ISO (OHSAS) 45001:2018 Certified</b></p>	<p>Plot No. - I-B-17 (P) Sindri, Industrial Area, P.O.- Domgarh, Dist.- Dhanbad Jharkhand - 828107 Email ID: sindriaditi@gmail.com Website: aditirndservices.com Phone: 0326-2952377 (O) Mobile: 09471358492, 09431512608</p>					
Ref. No.: - ARDS/23-24/1925		Date: 15.02.2024					
<h3><u>TEST REPORT OF MINE WATER DISCHARGE</u></h3>							
<ul style="list-style-type: none"> <li>• Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)</li> <li>• Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021</li> <li>• Sample Code : 1. 2 Pit Jamadoba Colliery 2. 3 Pit Jamadoba Colliery 3. 6 &amp; 7 Pits Colliery 4. Digwadih Colliery</li> <li>• Date of Sample Collection: 09.02.2024 To 10.02.2024</li> <li>• Date of Testing : 10.02.2024 to 14.02.2024</li> <li>• Test : pH, TDS, TSS, BOD, COD, OIL &amp; GREASE.</li> </ul>							
<h3><u>TEST RESULT</u></h3>							
Sl. No.	PARAMETERS OF TEST	VALUE	Limit as per IS-2296 Class B (For Bathing)	Test Method			
		2 Pit Jamadoba Colliery	3 Pit Jamadoba Colliery	6 & 7 Pits Colliery	Digwadih Colliery		
1.	pH,	7.7	7.6	7.3	7.3	6.5-8.5	IS-3025 (P-11): 1983
2.	Total Dissolved Solids, mg/l	924	826	1066	845	-	IS-3025 (P-16): 1984
3.	Total Suspended Solids, mg/l	34	36	38	30	-	IS-3025(P-17): 1984
4.	Bio chemical Oxygen Demand, mg/l	2.7	2.8	2.4	3.0	3	IS-3025 (P-44):1994
5.	Chemical Oxygen Demand, mg/l	67	74	61	54	-	IS-3025 (P-58):2006
6.	Oil & Grease, mg/l	BDL	BDL	BDL	BDL	-	IS-3025 (P-39):2021
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">   <b>Sr. Chemist</b>  <b>Aditi R&amp;D Services</b> </div> <div style="text-align: center;">  </div> <div style="text-align: center;">   <b>Technical Manager</b>  <b>Aditi R&amp;D Services, Sindri</b> </div> </div>							
<p><b>Statements :</b></p> <ol style="list-style-type: none"> <li>The test report refers only to the particular item(s) submitted for testing.</li> <li>The test results reported in this report are valid at the time of and under the stated condition of measurement.</li> <li>This particular test report cannot be reproduced except in full without prior permission of Quality Manager of the laboratory.</li> </ol>							







# Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)

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<p>Ref. No.: - ARDS/23-24/1948 <span style="float: right;">Date: 17.02.2024</span></p>								
<h3><u>TEST REPORT OF SEWAGE</u></h3>								
<ul style="list-style-type: none"> <li>• Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED, JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)</li> <li>• Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021</li> <li>• Sample Code :                          <ul style="list-style-type: none"> <li>1. S.T.P. Outlet J.C.P.P. Canteen</li> <li>2. S.T.P. Outlet Jamadoba Canteen</li> <li>3. S.T.P. Outlet Railway Colony</li> <li>4. S.T.P. Supervisor Apartment Digwadih 12 No</li> <li>5. S.T.P. Officer Colony Digwadih 12 No.</li> </ul> </li> <li>• Date of Sample Collection: 10.02.2024</li> <li>• Date of Testing : 12.02.2024 to 16.02.2024</li> <li>• Test : pH, TDS, TSS, BOD, COD, OIL &amp; GREASE.</li> </ul>								
<h3><u>TEST RESULT</u></h3>								
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 J.C.P.P. Canteen	S.T.P. Outlet Jamadoba Canteen	S.T.P. Outlet Railway Colony	S.T.P. Supervisor or Apartment Digwadih 12 No	S.T.P. Officer Colony Digwadih 12 No		
1.	pH,	7.4	7.8	8.1	7.7	8.0	5.5-9.0	IS-3025(P-11):1983
2.	Total Dissolved Solids, mg/l	1131	975	1300	1430	858	2100	IS-3025(P-16):1984
3.	Total Suspended Solids, mg/l	47	35	50	45	40	100	IS-3025(P-17):1984
4.	Bio chemical Oxygen Demand, mg/l	5.7	1.9	7.5	8.1	7.8	30	IS-3025(P-44):1994
5.	Chemical Oxygen Demand, mg/l	81	33.6	94	101	94	250	IS-3025(P-58):2006
6.	Oil & Grease, mg/l	BDL	BDL	3.2	2.4	2.0	10	IS-3025(P-39):2021
<p>Note : BDL - Below Detection Limit</p> <div style="display: flex; justify-content: space-between; align-items: flex-end;"> <div style="width: 40%;"> <p style="text-align: center;">   <b>Sr. Chemist</b>  <b>Aditi R&amp;D Services</b> </p> </div> <div style="width: 20%; text-align: center;">  </div> <div style="width: 40%;"> <p style="text-align: center;">   <b>Technical Manager</b>  <b>Aditi R&amp;D Services, Sindri</b> </p> </div> </div>								
<p><b>Statements :</b></p> <ol style="list-style-type: none"> <li>The test report refers only to the particular item(s) submitted for testing.</li> <li>The test results reported in this report are valid at the time of and under the stated condition of measurement.</li> <li>This particular test report cannot be reproduced except in full without prior permission of Quality Manager of the laboratory.</li> </ol>								



## Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)

	<h2 style="margin: 0;">ADITI R&amp;D SERVICES</h2> <h3 style="margin: 0;">Testing Laboratory</h3> <p style="margin: 0;"><b>NABL ACCREDITED</b></p> <p style="margin: 0;">(A Constituent Board of Quality Council of India)</p> <p style="margin: 0;"><b>ISO/IEC 17025:2017, ISO 9001:2015, ISO (OHSAS) 45001:2018 Certified</b></p>	<p>Plot No. - I-B-17 (P)</p> <p>Sindri, Industrial Area,</p> <p>P.O. - Domgarh, Dist. - Dhanbad</p> <p>Jharkhand - 828107</p> <p>Email ID: sindriaditi@gmail.com</p> <p>Website: aditirndservices.com</p> <p>Phone: 0326-2952377 (O)</p> <p>Mobile: 09471358492, 09431512608</p>																																												
<div style="display: flex; justify-content: space-between;"> <span>Ref. No.: - ARDS/23-24/1926</span> <span>Date: 15.02.2024</span> </div> <h3 style="text-align: center; margin-top: 10px;">TEST REPORT OF EFFLUENT</h3> <div style="margin-top: 10px;"> <ul style="list-style-type: none"> <li>• Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)</li> <li>• Work Order Ref. NO.: : 4700092573/932 Dt. 20.07.2021</li> <li>• Sample Code : 1. E.T.P. Outlet T.C.H. 2. E.T.P. Outlet Garage</li> <li>• Date of Sample Collection: 09.02.2024 to 10.02.2024</li> <li>• Date of Testing : 10.02.2024 to 14.02.2024</li> <li>• Test : pH, TDS, TSS, BOD, COD, OIL &amp; GREASE.</li> </ul> </div> <h4 style="text-align: center; margin-top: 10px;">TEST RESULT</h4> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Sl. No.</th> <th rowspan="2">PARAMETERS OF TEST</th> <th colspan="2">VALUE</th> <th rowspan="2">MoEF&amp;C Notification 1<sup>st</sup> Jan.2016 Permissible Max. Desirable Limit</th> <th rowspan="2">Test Method</th> </tr> <tr> <th>E.T.P. Outlet T.C.H</th> <th>E.T.P. Outlet Garage</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>pH,</td> <td>7.9</td> <td>8.1</td> <td>5.5-9.0</td> <td>IS-3025 (P-11): 1983</td> </tr> <tr> <td>2.</td> <td>Total Dissolved Solids, mg/l</td> <td>872</td> <td>715</td> <td>2100</td> <td>IS-3025 (P-16): 1984</td> </tr> <tr> <td>3.</td> <td>Total Suspended Solids, mg/l</td> <td>40</td> <td>42</td> <td>100</td> <td>IS-3025(P-17) : 1984</td> </tr> <tr> <td>4.</td> <td>Bio chemical Oxygen Demand, mg/l</td> <td>2.6</td> <td>6.9</td> <td>30</td> <td>IS-3025 (P-44):1994</td> </tr> <tr> <td>5.</td> <td>Chemical Oxygen Demand, mg/l</td> <td>33.6</td> <td>81</td> <td>250</td> <td>IS-3025 (P-58):2006</td> </tr> <tr> <td>6.</td> <td>Oil &amp; Grease, mg/l</td> <td>B.D.L</td> <td>2.8</td> <td>10</td> <td>IS-3025 (P-39):2021</td> </tr> </tbody> </table> <p style="margin-top: 5px;">Note : BDL - Below Detection Limit</p> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 45%; text-align: center;">  <p><b>Sr. Chemist</b> Aditi R&amp;D Services</p> </div> <div style="width: 10%; text-align: center;">  </div> <div style="width: 45%; text-align: center;">  <p><b>Technical Manager</b> Aditi R&amp;D Services, Sindri</p> </div> </div>			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,	7.9	8.1	5.5-9.0	IS-3025 (P-11): 1983	2.	Total Dissolved Solids, mg/l	872	715	2100	IS-3025 (P-16): 1984	3.	Total Suspended Solids, mg/l	40	42	100	IS-3025(P-17) : 1984	4.	Bio chemical Oxygen Demand, mg/l	2.6	6.9	30	IS-3025 (P-44):1994	5.	Chemical Oxygen Demand, mg/l	33.6	81	250	IS-3025 (P-58):2006	6.	Oil & Grease, mg/l	B.D.L	2.8	10	IS-3025 (P-39):2021
Sl. No.	PARAMETERS OF TEST	VALUE			MoEF&C Notification 1 <sup>st</sup> Jan.2016 Permissible Max. Desirable Limit	Test Method																																								
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**Testing Laboratory**

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Phone: 0326-2952377 (O)

Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/23-24/1932

Date: 16.02.2024

## TEST REPORT OF DRINKING WATER

- Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO.: : 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: 09.02.2024 to 10.02.2024
- Date of Testing : 10.02.2024 to 15.02.2024
- Test : 
 

Colour, Odour, Taste, Turbidity, pH, Total Hardness, Iron, Chloride, Res. Free chlorine, Total Dissolved Solids, Calcium, Copper, Manganese, Sulphate, Nitrate, Fluoride, Phenolic Compound, Mercury, Cadmium, Arsenic, Cyanide, Lead, Zinc, Total Coliform, 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	7.6	7.8	7.7	7.9	6.5-8.5	No. Relax.	IS-3025 (P-11):1983
6.	Total Hardness as CaCO <sub>3</sub> , mg/l	325.6	330	259.6	343.2	200	600	IS 3025 (P-21):2009
7.	Chloride as Cl, mg/l	64.5	64.5	32.3	66.5	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	825	805	458	845	500	2000	IS 3025 (P-16):1984
10.	Calcium as CaCO <sub>3</sub> , mg/l	65.12	41.2	52.8	66.8	75	200	IS 3025 (P-40):1991
11.	Copper as Cu, mg/l	BDL	BDL	BDL	BDL	0.05	1.5	IS 3025 (P-42):1992

Continued on Page 2

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# Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)



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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	Canteen 6&7 Pit Colliery	Canteen Jamadoba Washery	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	70.3	64.4	61.8	75.1	200	400	IS 3025 (P-24):1986
14.	Nitrate as NO <sub>3</sub> , mg/l	3.2	3.7	2.7	3.5	45	No. Relax	IS 3025 (P-34):1988
15.	Fluoride as F, mg/l	0.35	0.42	0.30	0.40	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	0.20	0.16	0.14	0.28	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	523.2	528	216	523.2	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.	Boron as B, mg/l	BDL	BDL	BDL	BDL	0.5	1.0	IS 3025 (P-57):2005

NOTE: BDL - Below Detection Limit

Sr. Chemist  
Aditi R&D Services



Technical Manager  
Aditi R&D Services, Sindri

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Mobile: 09471358492, 09431512608

Ref. No.: - ARDS/23-24/1933

Date: 16.02.2024

### TEST REPORT OF GROUND WATER

- Name of the industry : M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED, JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)
- Work Order Ref. NO. : 4700092573/932 Dt. 20.07.2021
- Sample Code :
  - Mohalbani Basti
  - Jorapokhar Kushtand
  - Bhowra 13 NO
  - Jamadoba 3 No
  - Lower Dungri
- Date of Sample Collection : 09.02.2024 to 10.02.2024
- Date of Testing : 10.02.2024 to 16.02.2024
- Test : Colour, Odour, Taste, Turbidity, pH, Total Hardness, Iron, Chloride, Res. Free chlorine, Total Dissolved Solids, Calcium, Copper, Manganese, Sulphate, Nitrate, Fluoride, Phenolic Compound, Mercury, Cadmium, Arsenic, Cyanide, Lead, Zinc, Total Coliform, Hexavalent Chromium, Mineral Oil, Alkalinity, Aluminium & Boron.

### TEST RESULT

Sl. No	PARAMETERS OF TEST	VALUE					IS as per IS 10500:1991		Test Method
		Mohalbani Basti	Jorapokhar Kushtand	Bhowra 13 NO	Jamadoba 3 No	Lower Dungri	Desirable	Permissible	
1.	Colour, (Hazen Unit)	1	2	2	1	1	5	15	IS 3025 (P-4):2021
2.	Temperature °C	22	22	20	22	21	-	-	-
3.	Electrical Conductivity, µmhos/cm	1040	2400	1090	550	870	-	-	-
4.	Total Dissolved Solids, mg/l	676	1545	708	350	560	-	-	IS 3025(P-16):1984
5.	pH	7.0	7.6	7.5	7.6	7.0	6.5-8.5	No Relax	IS-3025(P-11):1983
6.	Total Hardness as CaCO <sub>3</sub> , mg/l	470.8	589.6	466.4	233.2	347.6	200	600	IS 3025(P-21):2009
7.	Calcium as Ca, mg/l	96.8	153.1	95.0	49.3	72.2	75	200	IS 3025(P-40):1991
8.	Magnesium as Mg, mg/l	54.9	49.6	54.9	26.4	40.1	30	100	IS 3025(P-46):1994
9.	Chloride as Cl, mg/l	930	138.7	75.9	24.7	53.2	250	1000	IS 3025(P-32):1988
10.	Fluoride as F, mg/l	0.30	0.54	0.34	0.35	0.42	1.0	1.5	IS 3025(P-60):2008

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# Ambient Air Quality and Groundwater Quality Report (Period- October'23 to March'24)



**ADITI R&D SERVICES**  
**Testing Laboratory**  
**NABL ACCREDITED**  
**(A Constituent Board of Quality Council of India)**  
**ISO/IEC 17025:2017, ISO 9001:2015, ISO (OHSAS) 45001:2018 Certified**

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

- 2 -

Sl. No	PARAMETERS OF TEST	VALUE					IS as per IS 10500:1991		Test Method
		Mohalbani Basti	Jorapokhar Kushtand	Bhowra 13 NO	Jamado ba 3 No	Lower Dungri	Desi r-able	Permi s-sible	
11	Sulphate as SO <sub>4</sub> , mg/l	49.5	97.6	60.5	38.2	43.9	200	400	IS 3025(P-24):1986
12	Nitrate as NO <sub>3</sub> , mg/l	7.8	11.5	8.7	7.7	8.5	45	No. Relax	IS 3025(P-34):1988
13	Alkalinity as CaCO <sub>3</sub> , mg/l	242	523.2	384	144	196.8	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	0.24	0.36	0.3	0.14	0.24	5	15	IS 3025(P-42):1992
16	Iron a Fe, mg/l	0.09	0.09	0.07	0.08	0.09	1.0	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	0.00 1	No. Relax	IS 3025(P-48):1994
19	Cadmium as Cd, mg/l	BDL	BDL	BDL	BDL	BDL	0.00 3	No. Relax	IS 3025(P-41):1992
20	Nickel as Ni, mg/l	BDL	BDL	BDL	BDL	BDL	0.02	No. Relax	IS 3025(P-37):1992
21	Arsenic as As, mg/l	BDL	BDL	BDL	BDL	BDL	0.01	No. Relax	IS 3025(P-37):1988
22	Cyanide as CN, mg/l	BDL	BDL	BDL	BDL	BDL	0.05	No. Relax	IS 3025(P-27):1986
23	Total Chromium as Cr, mg/l	BDL	BDL	BDL	BDL	BDL	0.05	No. Relax	IS 3025(P-52):2003

NOTE: BDL - Below Detection Limit

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



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

## Statements :

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### TEST REPORT OF STACK EMISSION

Ref. No & Dt.	NAME AND ADDRESS OF THE CLIENT			
ARDS/23-24/1927 Date: 15.02.2024	M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)			
Date of Sample Collection				
12.02.2024				
Date of Testing	Nature of Sampling Collection: ISO - KINETIC SAMPLING			
13.02.2024 to 14.02.2024	Weather condition	Status of the Plant	Avg. Ambient Temperature (°C)	Average Humidity (%)
	Clear	Running	24	39

### GENERAL INFORMATION

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

### GASEOUS EMISSION ANALYSIS RESULTS

Sl. No	Particulars	Method	Value	As per CPCB STANDARD mg/Nm <sup>3</sup>
1.	Flue gas temperature (°C)	IS : 11255 (Part-3)	83	-
2.	Velocity of flue gas (m/sec)	IS : 11255 (Part-3)	8.6	-
3.	Flow Rate of Flue gas (Nm <sup>3</sup> /Hr)	IS : 11255 (Part-3)	127265.85	-
4.	Concentration of Particulate Matter (mg/ Nm <sup>3</sup> ) 15%O <sub>2</sub>	IS : 11255 (Part-1)	63.74	75
5.	Concentration of SOX as SO <sub>2</sub> (mg/Nm <sup>3</sup> ) at 15%O <sub>2</sub>	IS : 11255 (Part-2)	43.70	-
6.	Concentration of NOX as NO <sub>2</sub> (mg/Nm <sup>3</sup> ) at 15%O <sub>2</sub>	IS : 11255 (Part-7)	93.38	360
7.	Non Methane Hydrocarbon (NMHC) at 15%O <sub>2</sub>	IS : 13270	37.28	100
8.	Carbon Monoxide (CO)	IS : 13270	39.50	150

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



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

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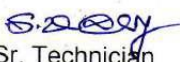
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### TEST REPORT OF NOISE (AMBIENT) LEVEL MONITORING

Ref. No. & Date	NAME AND ADDRESS OF THE CLIENT			
ARDS/23-24/1928 Date: 15.02.2024	M/S TATA STEEL, JAMADOBA, TATA STEEL LIMITED, JAMADOBA GROUP PLANT, DIST. - DHANBAD (JHARKHAND)			
Date of Monitoring				
13.02.2024 to 14.02.2024	Avg. Ambient Temperature (°C)	Average Humidity (%)	Weather Condition	Status of the plant
Work Order 4700092573/932 Dt. 20.07.2021	24	39	Clear	Running
MONITORING RESULTS				

Sl. No	Place of Monitoring	Day Time  (6 AM to 10 PM) dB(A)		Noise level (Ambient standard) for Industrial Area as per CPCB Noise Pollution (Regulation and Control) (Amendment) Rules , 2000 notified vide S.O. 1046(E) Dt. 22.11.2020	
				Limit in dB(A) Leq	
				Day Time	Night Time
LOCATION		MAX	MIN	Industrial Area	Industrial Area
JAMADOBA GROUP					
Central Workshop Area Jamadoba near DG Set		71.4	65.8	75	70

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

  
Sr. Technician  
Aditi R&D Services



  
Technical Manager  
Aditi R&D Services, Sindri

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Rajeev Sinha  
Section Head, Dhanbad  
Jharkhand State Pollution Control Board,  
T.A. Building, HEC Complex, Dhurwa, Ranchi-834004

Ref No.: JMB/ENV/SPCB/08/519/2023  
20<sup>th</sup> July 2023

**Sub: Regarding surrender of CTO of Kalimela Opencast of Tata Steel Limited, Jharia**  
**Ref: JSPCB/HO/RNC/CTO-13226858/2022/959 dt. 04.07.2022**

Dear Sir,  
This is in reference to existing CTO number JSPCB/HO/RNC/CTO-13226858/2022/959 dt. 04.07.2022 valid till 30.09.2023 for Backfilling and reclamation work only in Kalimela Opencast project of Tata Steel Limited, Jharia Division.

In this context we would like to inform you that the permitted activities of existing CTO i.e. backfilling and reclamation work only has been completed and there is no any activities of physical reclamation (machine movement) ongoing or planned in future. The biological reclamation of the site has been initiated and is part of gradual improvement. Currently, we are neither emitting any air pollutant nor any effluent/water discharge from the unit. In future we'll ensure to continue the same.

Hence, we are keen to not renew the existing CTO and surrender the same.

All the condition of the existing CTO is being complied and copy of the CTO compliance status has been attached for reference. Also, we are complying with the conditions of existing EC and will continue the same.

Based on this, consider our request to surrender the CTO for mentioned unit.

Thanking you,  
Yours sincerely,

General Manager  
Jharia Division, Tata Steel Ltd.

Encl: As above  
CC: Regional Officer, JSPCB, Dhanbad (Jharkhand)

*Received  
21/8/2023*



**TATA STEEL LIMITED**

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