

The Additional PCCF (C) Eastern Zone Regional Office MoEF & CC, Govt. of India A/3, Chandrasekharpur Bhubaneswar–751 013 (Odisha) Email: roez.bsr-mef@nic.in

MD/ENV/ 150 /102 /2022 Date: 30.05.2022

Ref: Environmental Clearance letter no. J-11015/215/2008-IA.II(M) dated: 29.07.2019.

Sub: Submission of Half-yearly compliance status report of Environmental Clearance conditions for the period October'21 - March'22 in respect of Joda East Iron Mine, M/s Tata Steel Limited.

Dear Sir,

Kindly find attached herewith submitting the six-monthly compliance report as on date of Joda East Iron Mine, M/s Tata Steel Limited for the period from **October'21 - March'22** as per EIA Notification, 2006. Also for the same period vide office memorandum no. Z-11013/57/2014-IA.II (M), dated 29.10.2014, is also attached herewith as Annexure - A. The same has been mailed in soft copy to your good office with e-mail to <u>roez.bsr-mef@nic.in</u> for your ready reference.

We trust that the measures taken towards environmental safeguards comply with the stipulated environmental conditions. We look forward to your further guidance which shall certainly help us in our endeavor for further improve upon our Environmental Management practices.

Thanking you,

Yours faithfully, f: M/s Tata Steel Limited

Chief (Mine Planning & Projects), OMQ

Encl. : As above

Copy to : The Chairman, Central Pollution Control Board, Southern Conclave, Block 502, 5th & 6th Floors, 1582 Rajdanga Main Road, Kolkata - 700107 (W. B.).

- : The Member Secretary, State Pollution Control Board, Paribesh Bhawan, A/118,
- Nilakantha Nagar, Unit VIII, Bhubaneswar 751012 (Odisha).
- : The Regional Officer, SPCB, College Road, Baniapata, Keonjhar 758001 (Odisha).

TATA STEEL LIMITED

Mines Division Noamundi 833 217 India Tel 91 9234301340 Fax 91 6596 290737 Registered 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

EC COMPLIANCE REPORT PERIOD: October 2021 to March 2022

ENVIRONMENTAL CLEARANCE TO JODA EAST IRON MINE OF TATA STEEL LIMITED

VIDE MoEF's LETTER NO. J-11015/215/2008-IA.II(M), DATED: 11.03.2013, EC compliance vide letter no J-11015/215/2008-IA.II(M) dated: 7.09.2018 and EC compliance vide letter no J-11015/215/2008-IA.II(M) dated: 29.07.2019

FOR PRODUCTION OF 12 MTPA (ROM) OF IRON ORE Special Conditions

SI. No.	EC Conditions	Compliance Status
Clear	e of Project: Joda East Iron Mine of Tata Steel Lin ance Letter No.: J-11015/215/2008-IA.II(M), Date arch 2022	nited. ed: 11.03.2013. Period of Compliance: October 2021
1	No mining activities will be allowed in forest area for which the FC is not available.	Being Complied With. The present mining operation is restricted within 567.087 ha of forest land for which Forest Clearance has been obtained under the Forest (Conservation) Act, 1980 vide letter no. F. No. 8-32/1993-FC (vol-II), date: 24.09.2007.
2	within a period of two years w.e.f. 01.02.2013, failing which the mining lease area will be reduced to the non-forest area plus the forest area for which the project proponent has been able to obtain the FC at the end of this time period. In the	MoEF & CC has issued a Guideline F. No. 11-599/ 2014-FC, dated: 01.04.2015 in supersession of the Guideline F. No. 11-362/2012-FC, dated: 01.02.2013. At present, mining operation is restricted within 567.087 ha of forest area for which due approval for diversion has already been obtained. In addition, we have also submitted fresh DRP for remaining forest area of 32.425 ha (leaving a total forest area of 9.394 ha for safety zone).
3	The project proponent shall abide by the guidelines dated 01.02.2013 vide no. 1 362/12012 FC put in place by the FC Division of MoEF in respect of cases of mines where at	

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SI. No.	EC Conditions	Compliance Status
Clear	of Project: Joda East Iron Mine of Tata Steel Lir ance Letter No.: J-11015/215/2008-IA.II(M), Da o March 2022	nited. nited: 11.03.2013. Period of Compliance: October
	present the forest clearance is available to only a part of the forest land involved in the mine	
4	Environmental clearance is subject to obtaining Clearance as may be necessary under the Wildlife (Protection) Act, 1972 from the competent authority	No specific clearance under the Wildlife (Protection) Act, 1972 is required for the project
5	Establish and Consent to Operate from the State	Complied. Consent to Establish has been obtained from OSPCB vide letter no. 21271/IND-II-NOC-5144, dated: 08.07.2011. Consent to Operate has also been obtained from State Pollution Control Board, Orissa vide letter No. 3521/IND-I-CON-184, dated: 08.03.2022 and the consent order is valid till 31.03.2026.
6	into focus any infringement /deviation /violation of the environmental or forest norms/conditions, (ii) Hierarchical system or	Complied. Details on Tata Steel's Policy on corporate Environment Responsibility and other requirements have been submitted to the MoEF vide letter no. MD/ENV/233A/102/2013, Dated. 8th June, 2013. It is also submitted in last half yearly compliance report.
7	ground water table, prior approval of the Ministry of Environment and Forests and the Central Ground Water Authority shall be obtained, for	Complied. The mining operation is restricted to above ground water table. Mining has not intercepted ground water table. The lowest working depth of our mine pits is at 580m RL, whereas the presence of ground water table has been estimated to be at 498.30 mRL. A detailed hydro-geological study was carried out for

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SI. No.	EC Conditions	Compliance Status
Clear	of Project: Joda East Iron Mine of Tata Steel Lin ance Letter No.: J-11015/215/2008-IA.II(M), Date arch 2022	nited. d: 11.03.2013. Period of Compliance: October 2021
		the purpose. Ground water level report has been attached as Annexure-1 .
8	The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any mining operations.	Being Complied With. No natural watercourse or water resources are obstructed due to our mining operations. Further, no first order or the second order streams are emanating.
9	earmarked site(s) only and it should not be kept	Being Complied With. Since there is very little lateral expansion of mining operations topsoil generation is minimal. Topsoil generated before was stacked at earmarked place and has already been used for plantation purpose. Topsoil being generated is being used concurrently for plantation purpose.
10	during operational phase of the project the air	Being Complied With. As a part of Ambient Air Quality monitor during operational phase of the project the air is also analyzed for mineralogical composition. The report is attached as Annexure-2.
11	The water recovery and spill way system shall be so designed that the natural water resources are not affected and that no spill water from the plant goes into the Kundra nallah or any other water body	Being Complied With. The water recovery and spill way system has been designed such that the natural water resources are not affected and no spill water from the mine goes beyond the lease boundary. The slime is stored in the zero-discharge slime pond. The decanted water from the slime pond is completely recycled back to beneficiation plant within the mine, ensuring zero outside discharge. Also surface water quality of Kundra nallah is enclosed as Annexure 3 .

H. Amlar

Manager Environment

		<image/>
13	site, which shall be above highest water table and shall be lined to prevent any leaching from the filter cake disposal site into groundwater. Efforts shall also be made to gainfully utilize the filter cake so generated in an environmentally compatible manner. Effective safeguard measures such as conditioning of ore with water, regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant, loading and unloading point and	There is no filter cake generation in our operations. Being Complied With. For dust Suppression effective safeguard measures such as regular water sprinkling on the haul roads, loading & unloading points is being done. Fixed water sprinklers of cumulative length 3.35 Km have been
	transfer points. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	installed on main and arterial haul roads and in addition two Komatsu HD 465-7 Water Carts of capacity 50 KL & one 28 kL Water Cart of Caterpillar make have been pressed into service for suppression of fugitive dust. Dust suppressants are added to sprinkling water for effective dust suppression. All transfer points are equipped with dry fog water sprinkling arrangement. Ambient Air Quality is monitored regularly, and the results are well within the limits prescribed. The results are also sent to the OSPCB office, Bhubaneswar once in every month. AAQ monitoring reports are shown in Annexure-4 . Results are also sent to the OSPCB office, Bhubaneswar once in every month.

H. Amber

Manager Environment

	Use of fixed water sprinklers at haul roads for dust suppression Use of water Mist Conon for dust suppression Image: Sprinklers at haul roads for dust suppression Use of water Mist Conon for dust suppression Image: Sprinklers at haul roads for plants Use of water Mist Conon for dust suppression Use of Dry fog system at all transfer points in plants Use of mobile tankers for water sprinkling on haul roads Image: Sprinklers at all transfer points in plants Use of mobile tankers for water sprinkling on haul roads
for long period. There shall be one external OB dump having maximum projected height of 30m with three terraces of 10m each. The overall slope of the dump shall not exceed 27°. The OB dump should be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles shall be undertaken for stabilization of the dump.	 Being Complied With. The OB and mineral rejects are being dumped as per the approved mining plan and at earmarked dumping area only. The slopes of the OB dumps are terraced and the overall slope is maintained so as to not exceed 27°. The inactive dump slopes are vegetated with native species. In critical areas, use of geo textiles has been undertaken for stabilization of the dump. The compliance status report is regularly sent to the Regional office, MoEF, Bhubaneswar and SPCB, Orissa once in every six months.
size should be constructed to arrest silt and sediment flows from mine working, 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 de-silted particularly after monsoon and	Being Complied With. Garland drains of 873 running meterage all along toe has been completed in FY-22. Sedimentation pits of total 12 Nos. have been constructed at the corner of the garland drains to take care of runoff water even during peak rain fall and they are de silted regularly before and after monsoon.

	should be constructed at the corners of the	Garland Drains, Toe wall & Settling pits
	garland drains and designed at regular intervals.	Settling pit Gorland drain
		Toe wall
16	Dimension of the retaining wall at the toe of dumps and OB benches within the mine to check run-off and siltation should be based on the rainfall data.	Being Complied With. Toewall of adequate length and height has been constructed at all dumps and product stockpile to prevent any runoff as per approved mine plan. This is being effective to meet the purpose even during peak rain fall.
17	Plantation shall be raised in an area of 11 ha including a 7.5m wide green belt in the safety zone around the mining lease by planting the native species around OB dump, reclaimed area, mine benches, along the roads etc. in consultation with the local DFO/Agriculture Department.	Being Complied With. Plantation has already been raised in an area of 11 ha including a 7.5m wide green belt in the safety zone around the mining lease by planting the native species around OB dump, reclaimed area, mine benches, along the roads etc. in consultation with the local DFO/Agriculture Department.

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Manager Environment

SI. No.	EC Conditions	Compliance Status
Cleara	of Project: Joda East Iron Mine of Tata Steel Lir nce Letter No.: J-11015/215/2008-IA.II(M), Date rch 2022.	nited. d: 11.03.2013. Period of Compliance:October 2021
18	Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant loading and unloading point and transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform	
19	conservation measures to augment ground water	Complied. We have submitted Rainwater Harvesting Scheme to CGWB vide letter no. MD/ENV/214/102/2013, dated: 31.05.2013 and same was forwarded to CGWA by CGWB for necessary action vide letter no. 5- 22/SER/CGWA/2013-539, dated: 17.06.2013.

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SI. No.	EC Conditions	Compliance Status
NU.		
Cleara	of Project: Joda East Iron Mine of Tata Steel Lin ance Letter No.: J-11015/215/2008-IA.II(M), Date rch 2022	mited. ed: 11.03.2013. Period of Compliance: October 2021
		Rainwater harvesting structures has been constructed at the mine site by the engagement of expertise o M/s. KRG Rainwater Foundation, Chennai and is operational.
20	Decular manitoring of ground water lovel and	Fring Compliand With
20	Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The periodic monitoring (at least four times in a year – pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) once in in each season) shall be carried out in consultation with the State Ground Water Board/ Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Director, Central Ground Water Board. If at any stage, it is observed that the ground water table is getting depleted due to the mining activity, necessary corrective measures shall be carried out.	Ground water level and Ground water quality are being monitored four times a year pre-monsoor (April- May), monsoon (August), post-monsoor (November) and winter (January). The results are being sent to Regional office, MoEF & CC and SPCB Odisha half yearly. Latest report of Ground Water Quality and Ground Water Level are shown in Annexure-1 . Since, our mining operations are carried out above the ground water table; there will be no depletion of ground water table because of our mining activity. We also like to mention that because of Rainwater Harvesting structures at Joda East Mine the ground water level has been increased.
21	The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water required for the project.	
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Manager Environment

SI. No.	EC Conditions	Compliance Status
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Clear	of Project: Joda East Iron Mine of Tata Steel Lir ance Letter No.: J-11015/215/2008-IA.II(M), Date arch 2022	nited. d: 11.03.2013. Period of Compliance: October 2021
22	The safeguard measures as suggested by the Central Ground Water Board vide letter No. 21-4(231)/CGWA/SER/2010-1010 dated 11.06.2010 shall be effectively implemented.	The safeguard measures as suggested by the Central Ground Water Board vide letter No. 21- 4(231)/CGWA/SER/2010-1010, dated: 11.06.2010
12	The project proponent shell precise suitable	has been effectively implemented.
23	harvesting, in consultation with the Central Ground Water Authority and submit a copy of the	Complied. After getting NOC from CGWA for ground water withdrawal vide letter no. 21- 4(343)/CGWA/SER/2011-956, dated: 27.07.2011, we have submitted Rain Water Harvesting Scheme to CGWB vide letter no. MD/ENV/214/102/2013, dated: 31.05.2013 and same was forwarded to CGWA by CGWB for necessary action vide letter no. 5- 22/SER/CGWA/2013-539, dated: 17.06.2013. Rainwater harvesting structures has been constructed near the mine site by the engagement of expertise from M/s. KRG Rainwater Foundation, Chennai and is now operational.
24	operations and in transportation of minerals. The	Being Complied With. Regular vehicular emission testing is being conducted once in every 6 months. The vehicles those who do not meet the emission standard, are withdrawn from operation and maintained properly. A vehicle is kept abeyance from operation till it does not meet the emission standard. Also the vehicles are not run overloaded. Overloading of trucks is avoided to prevent spillage of material.
25	Blasting operation shall be carried out only during the daytime. Controlled blasting shall be practiced. The mitigative measures for control of	Being Complied With.

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Manager Environment

SI. No.	EC Conditions	Compliance Status
Clear	of Project: Joda East Iron Mine of Tata Steel Lin ance Letter No.: J-11015/215/2008-IA.II(M), Date arch 2022	nited. d: 11.03.2013. Period of Compliance: October 2021
26	Drills shall either be operated with the dust	Complied. Wet drilling is in practice and All drills are als provided with dust suppression system.
27	including all the transfer points should also have	Being Complied With. Effective and high efficiency dust extraction system are in place at the mineral handling plant. Loadin and unloading areas including transfer points hav been provided with dust suppression facilities.
28	Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the Workshop and wastewater generated during the mining Operation.	Complied. 6 nos. of Sewage treatment plant have bee constructed with capacity 10 KLD, 50 KLD and 63 KLD in residential colony. Further two more ST with 150 KLD is constructed for community. Apa from these STPs in residential colony, Soak pits hav been provided inside the mining area because ST constructed in not feasible in the hilly topography of the mine. A 10 KLD ETP along with oil catchment p has been installed in Equipment Maintenance for treatment of wastewater generated.
29	periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of	Being Complied With. Pre-placement medical examination and periodica examination of the workers engaged are bein conducted & record maintained. The schedule of Periodical Medical Examination is once in every

Manager Environment

32	(Particulate matter with size less than 10 micron i.e., PM10) and NO in the ambient air within the impact zone, peak particle Velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water	TIME: 928 MUMIDITY 922 TEMP: 989 C
31	namely elephant, sloth bear etc. spotted in the study area. All the safeguard measures brought out in the Wildlife Conservation Plan so prepared specific to this project site and approved by the Chief Conservator of Forest, (Wildlife) shall be effectively implemented. A copy of Wildlife Conservation Plan shall be submitted to the	Being Complied With. Tata Steel is taking all precautionary measures towards conservation and protection of endangered flora and fauna. We have also deposited a sum of Rs. 1,00,66,395/- with the forest department for implementation of the wildlife management plan in order to protect them within the study area. Besides that, the mine had prepared Site Specific Wild Life Conservation Plan and it has been approved by the Principle Chief Conservator of Forests (Wildlife) & Chief Wildlife Warden vide letter no. 3195/1WL- SSP-97/2016, dated: 25.04.2016. A copy of the plan is also submitted to Ministry of Environment and Forest and its Regional Office Bhubaneswar.
30	construction labour within the site with necessary	years for the employees of age more than 40 years and once in 5 years for the employees of age less than 40 years. The concentration of Respirable dust at different locations is monitored. The employees are also given regular awareness training on safety and health aspects as part of implementation process of ISO- 45001systems. All constructional activities for the project have been completed and there was no requirement for construction of temporary housing since the mine has permanent infrastructural facilities.

H. Omlar

Manager Environment

33	A Final Mine closure Plan along with detail of	Being Complied With.
	Corpus fund shall be submitted to the Ministry of	
		A progressive mine closure plan approved by IBM is
	final mine closure for approval.	in place. The final mine closure plan along with
		details of Corpus fund shall be submitted to the
		Ministry of Environment & Forests 5 years in
		advance.

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Manager Environment

General Conditions

SI. No.	Condition	Compliance
	of Project: Joda East Iron Mine of Tata Steel Lin M), Dated: 11.03.2013. Period of Compliance: Oct	
1	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests	Being Complied With. We are operating as per the approved minir technology and scope of working mentioned Environmental Clearance granted to us and No chang in mining technology and scope of working have bee made and adhered to the condition of MoEF&CC.
2	waste should be made.	Calendar plan (IBM Approved Mining Plan) prepare for the mine is being strictly adhered to and we a well within the limits specified in Mining Plan as we as EC and CTO granted capacity.
3	matter with size less than 10 micron i.e. PM10) and NOx monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency	Ambient air quality monitoring is regularly bein carried out at four different stations within the co- zone. The stations were located in consultation with the visiting officers of State Pollution control Boar Orissa. The ambient air quality reports are submitt to Regional office, MoEF, Bhubaneswar and SPC Orissa, once in every six months. AAQ monitoring
4	Data on Ambient Air Quality (RSPM(particulate matter with size less than 10 micron i.e. PM10) and NOx] should be regularly submitted to the Ministry including its Regional office located at Bhubneswar and the State Pollution Control Board / Central Pollution Control Board once in	Being Complied With. The Ambient Air Quality reports are submitted Regional office, MoEF, Bhubaneswar and SPC Orissa, monthly and also once in every six mont with this report. Please find enclosed the monitorin details in Annexure-4.
5	Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading	
6	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc should be provided with ear plugs / muffs	

		and the system is ensured by certification to ISO 45001 and regular field audits. Noise quality reports are attached as Annexure-5 .
7	Standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap	Being Complied With. A 10 KLD ETP along with Oil & Grease separation pits have been provided to take care of effluents from the workshop. The same water quality is monitored regularly, and the parameters meet the prescribed standard. There is no wastewater generation from the mines.
8	information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to	Being Complied With. Adequate dust masks are provided to employees engaged in dusty areas. It is also ensured that they use the same. The employees are also given regula awareness training on safety and health aspects as par of implementation process of ISO 45001 systems Further, employees undergo Lung Function Tests during the Periodical Medical Examination. Periodica Medical Examination of employees and contracto workers are organized regularly to observe any contractions due to exposure to dust and othe occupational hazards.
9	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 Organization	
10	protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be	Being Complied With. Funds allocated for environmental management are spent only for environment related purposes and no diverted to any other purpose. During the year 2021- 22 an amount of Rs.663.3lakhs (approx.) spen towards environmental protection measures at Joda East Iron Mine. Details are enclosed as Annexure-6
11	Regional Office located at Bhubaneswar regarding date of financial closing and final	This is a running mine. No specific date for start o land development work can be assigned. However, the copy of the Environmental Clearance has been sent to the Regional Office, MoEF&CC, Bhubaneswa for kind information.
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	data / information / monitoring reports.	
13	including results of monitored data (both in hard r copies as well as by e-mail) to the Ministry of E Environment and Forests, its Regional Office F Bhubneswar, the respective Zonal Office of t Central Pollution Control Board and the State r	Being Complied With. Six monthly compliance reports are being submitted regularly to the MoEF, its Regional Office Bhubaneswar, Central Pollution Control Board Kolkata and State Pollution Control Board. Further, the six-monthly compliance reports along with the monitoring results are uploaded in Tata Steel's website www.tatasteel.com and updated periodically.
14	A copy of the clearance letter shall be sent by the proponent to Concerned Panchayat, Zila Parisad / Municipal Corporation Urban Local Body and A the Local NGO, if any, from whom suggestions/ s representations if any, were received while t processing the proposal. The Clearance letter F shall also be put on the website of the Company by the proponent.	A copy of the Environmental Clearance letter was sent to Member Secretary-OSPCB Bhubaneswar and to Addl. PCCF (Central), Eastern Regional Office
15	The State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and the C	
16	concerned State Pollution Control Board as 2 prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also d be put on the website of the company along with company along	The environmental statement for financial year 2020- 21 has been submitted to the State Pollution Control Board vide letter no. MD/ENV/224/120/2021, dated:22.09.2021 and the same has been hosted on company's website www.tatasteelindia.com along with half-yearly compliance environmental clearance

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Manager Environment

17	The project authority should advertise at least in Details of Environmental Clearance about Joda East
	two local newspapers widely circulated, one of Iron Mine was published in local newspapers (English
	which shall be in the vernacular language of the Daily, New Indian Express & in Oriya (Dainik
	locality concerned, within 7 days of the issue of Jagran) on 16.03.2013.
	the clearance letter informing that the project has
	been accorded environmental clearance and a
	copy of the clearance letter is available with the
	State Pollution Control Board and also at web site
	of the Ministry of Environment and Forests at
	http://envfor.nic.in and a copy of the same should
	be forwarded to the Regional Office of this
	Ministry located at Bhubaneswar

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Manager Environment

EC compliance vide letter no J-11015/215/2008-IA.II(M) dated: 7.09.2018

SI. No.	EC Condition	Compliance Status
	e of Project: Joda East Iron Mine of Tata Steel Lim (M) dated: 7.09.2018. Period of Compliance: Octob	
1	The Environmental Clearance will not be operational till such time the project proponent complies with all the statutary requirements and judgement of Hon'ble Supreme Court dated the 2 nd August 2017 in Writ Petition (Civil)No.114 of 2014 in the matter of common cause verses Union of India and Ors.	Noted and is complied A payment of Rs 243,64,11,380.00/- is made as per demand notice no. 4138/Mines dated 02.09.2017. The Project Proponent is complying with all the statutory requirements and judgements of Hon. Supreme Court dated the 2nd August 2017 in writ petition (civil) no 114 of 2014 in the matter of common cause ve union of India and Ors.
2	Department of Mining & Geology, State govt shall ensure that mining operation shall not commence till the entire compensation levied, for illegal mining paid by the project proponent through their respective department of mining geology in strict compliance of judgement of Hon'ble Supreme Court dated the 2 nd August 2017 in Writ petition(Civil) No. 114 of 2014 in the matter of common cause versus union of India and Ors.	Noted and is complied A payment of Rs 243,64,11,380.00/- is made as per demand notice no. 4138/Mines dated 02.09.2017. The Project Proponent is complying with all the statutory requirements and judgements of Hon. Supreme Court dated the 2nd August 2017 in writ petition (civil) no 114 of 2014 in the matter of common cause vs union of India and Ors.
3	Monitoring of ambient air quality to be carried out based on the 2009 notification, as amended from time to time by the central pollution control board.	Noted & is being complied regularly.
4	The pollution due to transportation load on the environment will be effectively controlled & water sprinkling will also be done regularly. Vehicles with PUCC only will be allowed to ply. The mineral transportation shall be carried out through covered trucks only and the vehicles carrying the mineral shall not be overloaded. Project should obtain PUC certificate for all the vehicles from authorized pollution testing center; washing of all transport vehicle should be done inside the mining lease.	Not applicable as 100 % mineral transportation is done through rails. And minera transportation from mines to Railway wagon is done through closed conveyers.
5	The activities and budget earmarked for Environmental Responsibility (CER) shall be as per Ministry's O.M No. 22-65/2017-IA.II(M) dated 01.05.2018 and the action plan on the activities proposed under CER shall be submitted to the Regional Office of the Ministry and State Pollution Control Board.	Not applicable.

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	e of Project: Joda East Iron Mine of Tata Steel Limi M) dated: 29.07.2019. Period of Compliance: Octol	
I	lease area for which the earlier EC is granted (i.e. (567.9087 ha (Forest Clearance available) +	The present mining operation is restricted within 567.087 ha of forest land for which Forest Clearance has been obtained under the Forest (Conservation) Act, 1980 vide letter no. F. No. 8-32/1993-FC (vol- II), date: 24.09.2007
ii	PP mentioned that the processing of ore at beneficiation plant (old and proposed) will be same as the existing EC capacity (12 MTPA). Three beneficiation units shall be operated at maximum capacity of 5 MTPA for dry processing and 7 MTPA for wet processing (i.e. existing 2.4 MTPA capacity for processing high quality grade of ROM and proposed 4.6 MTPA capacity for processing low quality grade of ROM), respectively, in order, ensure that at any given time, the total beneficiation capacity from all three plants (old dry + old wet + proposed) should not exceed the granted EC capacity of 12 MTPA.	It is being ensured that at any given time, the total beneficiation capacity from all three plants (old dry + old wet + proposed) should not exceed the granted EC capacity of 12 MTPA.
iii		The undertaking through affidavit that the total beneficiation capacity from all the three units shall not exceed the granted EC capacity of 12 MTPA at

EC compliance vide letter no J-11015/215/2008-IA.II(M) dated: 29.07.2019



Sl.	EC Conditions	Compliance Status
No.		
	e of Project: Joda East Iron Mine of Tata Steel (M) dated: 29.07.2019. Period of Compliance: (Limited. Clearance Letter No.: J-11015/215/2008- October 2021 to March 2022
iv	State Pollution Control Board should ensure that the processing capacity of beneficiation plants (all three units) should not exceed the granted EC capacity of 12 MTPA at any given time.	Noted.
V	The amendment in EC shall be operational after submission of an undertaking through affidavit to MoEF&CC within 15 days of receipt of this letter, for compliance of all the conditions prescribed herein and mentioned in EC dated 11.03.2013 and 07.09.2018.	An undertaking through affidavit has been sent to MoEF&CC.

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Manager Environment

Sl. No.	EC Conditions	Compliance Status
	⊥ f Project: Joda East Iron Mine of Tata Steel Limi I) dated: 29.07.2019. Period of Compliance: Octob	
1.	implementation of recommendations of carrying	implementation of recommendations of carrying capacity study report conducted by CSIR-NEERI. Compliance status has been uploaded to i3ms website
2.	Department of Steel & Mines, Govt. of Odisha should prepare 5 years regional plan for annual iron ore requirement from the state, which in turn shall be met from different mines/zones (e.g. Joda, Koira.) in the state. Accordingly, sustainable annual production (SAP) for each zone/mine may be followed adopting necessary environmental protection measures.	Noted.
3.	Project Proponent shall construct the cement concrete road from mine entrance and exit to the main road with proper drainage system and green belt development along the roads and also construction of road minimum 300 m inside the mine. This should be done within one year for existing mines and new mine should have since beginning. The Department of Steel & Mines, Govt. of Odisha should ensure the compliance and should not issue the Mining Permits, if mine lease holder has not constructed proper cement concrete road as suggested above.	Black top road from mine entrance and exit to the

H. Amlar

Manager Environment

Sl. No.	EC Conditions	Compliance Status	
	Name of Project: Joda East Iron Mine of Tata Steel Limited. Clearance Letter No.: J-11015/215/2008- IA.II(M) dated: 29.07.2019. Period of Compliance: October 2021 to March 2022		
	The Committee observed that as per the recommendations of NEERI report the PP need to ensure Regular vacuum cleaning of all mineral carrying roads aiming at "Zero Dust Resuspension" within 3 months for existing roads.	Complied. Since the Ore dispatch from mining lease is 100% through railway siding only hence, we don't have any mineral carrying road other than the mining haul road. Regular water sprinkling through fixed and mobile water sprinklers are carried out on haul roads to minimize dust resuspension.	
	measures for control of road dust and air pollution. Odisha State Pollution Control has to ensure the compliance of CTE/CTO. Regional office of the	Continuous monitoring of different environmental quality parameters as per EC and CTE/CTO conditions with respect to air, noise, water (surface & ground water) is already being done via third party agency and monthly reports are submitted to SPCB	
	Project Proponent shall ensure the compliance of Suggested Ore Transport Mode (SOTM) with association of the State Government of Odisha. All existing Mines should ensure adoption of SOTM within the next 5 years. New Mines or Mines seeking expansion should incorporate provisions of SOTM in the beginning itself and should have system in place within the next 5 years.	Complied EC Capacity based Suggested Ore Transport Mode (SOTM) is 100% by private railway siding which is already in action.	

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Manager Environment

SI. N	o. EC Conditions	Compliance Status
	e of Project: Joda East Iron Mine of Tata Steel Limi (M) dated: 29.07.2019. Period of Compliance: Octol	
7.	The State Govt. of Odisha shall ensure dust free roads in mining areas wherever the road transportation of mineral is involved. The road shoulder shall be paved with fence besides compliance with IRC guidelines. All the roads should have proper drainage system and apart from paving of entire carriage width the remaining right of way should have native plantation (dust capturing species). Further, the regular maintenance should also be ensured by the Govt. of Odisha. Progress on development of dust free roads, implementation of SOTM, increased use of existing rail network, development of additional railway network/conveyor belt/ pipelines etc. shall be submitted periodically to Regional Office of the MOEF&CC.	
8.	Project Proponent shall develop the parking plazas for trucks with proper basic amenities/ facilities inside the mine. This should be done within one year for existing mines and new mines should have since beginning.	Not applicable as we don't have truck dispatch. Al the dispatch is through railway siding only.
9.	Department of Steel &Mine shall ensure the construction of NH 215 as minimum 4 lane road with proper drainage system and plantation and subsequent regular maintenance of the road as per IRC guidelines. Construction of other mineral carrying roads with proper width and drainage system along with road side plantation to be carried out. This shall be completed within 2 years.	Noted.

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Manager Environment

within the time Period of3 months for existing roads.	Since the Ore dispatch from mining lease is 100% through railway siding only hence we don't have any mineral carrying road other than the mining haul road Regular water sprinkling through fixed and mobile water sprinklers are carried out on haul roads to minimize dust resuspension
11. In case the total requirement of iron ore exceeds the suggested limit for that year, permission for annual production by an individual mine may be decided depending on approved EC capacity (for total actual dispatch) and actual production rate of individual mine during last year or any other criteria set by the State Govt., i.e. Dept. of Steel & Mines. Department of Steel and Mines in consultation with Indian Bureau of Mines-RO should prepare in advance mine- wise annual production scenario as suggested in Table, so that demand for iron ore can be anticipated, and actual production/dispatch does not exceed the suggested annual production.	Noted.
12. R&D studies towards utilization of low- grade iron ore should be conducted through	Complied. R&D studies are already going for commercia utilization of low grade ore. We are also in process o installation of 4.6 MTPA Low Grade iron or Beneficiation plant for which the Environmenta Clearance has been granted.
13. The mining activity in Joda-Koira sector is expected to continue for another 100 years, therefore, it will be desirable to develop proper rail network in the region. Rail transport shall not only be pollution free mode but also will be much economical option for iron ore transport. The rail network and/or conveyor belt system upto public railway siding needs to be created. The total length of the conveyor belt system/ rail network to be developed from mines to nearest railway sidings by 11 mines in Joda region is estimated to be about	Noted.

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	64 km. Similarly, in Koira region, total length of	
	rail network/ conveyor system for 8 mines (under	
	SOTM 1 & 2) is estimated to be around 95 km.	
	Further, it is suggested to develop a rail network	
	connecting Banspani (Jodaregion) and Roxy	
	railway sidings in Koira region. Responsibility:	
	Dept. of Steel & Mines, Govt. of Odisha and	
	Concerned Mines along with Indian Railways.	
	Time Period: Maximum 7 years (by 2025). The	
	Department of Steel & Mines, Govt. of Odisha	
	should follow-up with the concerned Departments	
	and railways so that proposed proper rail network	
1.4	is in place by 2025.	Ni-4-1 1 A 1 Vi
14.	State Govt. of Odisha shall make all efforts to	Noted and Agreed Upon.
	ensure exhausting all the iron & manganese ore	
	resources in the existing working mines and from	
	disturbed mining leases/zones in Joda and Koira region. The criteria suggested shall be applicable	
	while suggesting appropriate lease area and	
	sustainable mining rate. Responsibility: Dept. of	
	Steel & Mines, Govt. of Odisha	
15.	Mining Operations/Process Related: Project	Complied
15.	Proponent shall implement the following	complica
	mitigation measures:	Appropriate mining process and machinery (viz. right
	Appropriate mining process and machinery (viz.	capacity, fuel efficient) has been selected to carry out
	right capacity, fuel efficient) should be selected to	various mining operations that generate minimal
	carry out various mining operations that generate	dust/air pollution, noise, wastewater and solid waste.
	minimal dust/air pollution, noise, wastewater and	Wet drilling with water injection system and
	solid waste. e.g. drills should either be operated	controlled blasting is in operation.
	with dust extractors or equipped with water	
	injection system.	Emission load study has been done and reply has been
	After commencement of mining operation, a study	sent to SPCB via MD/ ENV/95 / 102 /2019 on
	should be conducted to assess and quantify	20.02.2019.
	emission load generation (in terms of air pollution,	
	noise, waste water and solid waste) from each of	Efforts are continuously made to further eliminate/
	the mining activity (including transportation) on	minimize generation of air pollution/dust, noise,
		wastewater, solid waste generation through use of
	eliminate/ minimize generation of air	better technology.
	pollution/dust, noise, wastewater, solid waste	
		We have a fully-fledged Equipment Maintenance
	technology. This shall be ensured by the respective	centre where all data related to
	mine lease holders.	machineries/equipment are already recorded.
	Various machineries/equipment selected (viz.	Maintenance is carried out as per schedule.
	dumpers, excavators, crushers, screen plants etc.)	
		Digital processing of the entire lease area using
		remote sensing technique is carried out regularly for
	consumption should be recorded on monthly basis.	monitoring land use pattern and mining activity taken
	Further, inspection and maintenance of all the	place. Also, the extent of pit area excavated has been
		demarcated based on remote sensing analysis. This is
	be followed as per manufacturer's instructions/	being done by M/s Geo Consultant Pvt. Ltd which
		is an authorised organisation of ORSAC (Odisha
P.A	maintained by the respective mine lease holders.	Space Applications Centre, Bhubaneswar). It is
1.01	en	
Manager	Environment	24

	(iv) Digital processing of the entire lease area	enclosed as Annevure 7
	using remote sensing technique should be carried	enciosed as Annexure 7.
	0 0 1	
	out regularly once in 3 years for monitoring land	
	use pattern and mining activity taken place.	
	Further, the extent of pit area excavated should also	
	be demarcated based on remote sensing analysis.	
	This should be done by ORSAC (Odisha Space	
	Applications Centre, Bhubaneswar) or an agency	
	of national repute or if done by a private agency,	
	the report shall be vetted/ authenticated by	
	ORSAC, Bhubaneswar. Expenses towards the same	
	shall be borne by the respective mine lease holders.	
16.	Air Environment Related: Project Proponent	Being Complied With.
	shall implement the following mitigation	
	measures:	(i)Fugitive dust emissions from all the sources a
		controlled regularly on daily basis. Effecti
	should be controlled regularly on daily basis.	safeguard measures such as regular water sprinkli
	Water spraying arrangement on haul roads, loading	on the haul roads, loading & unloading points
		effective dust suppression are being done. Fixed wa
	and unloading and at other transfer points should	sprinklers have been put into operation on the m
	be provided and properly maintained. Further, it	haul road in addition to two 50 KL & one 28
	will be desirable to use water fogging system to	
	minimize water consumption. It should be ensured	mobile water tankers and dust suppressants are add
	that the ambient air quality parameters conform to	into the sprinkling water for effective d
	the norms prescribed by the CPCB in this regard.	suppression.
	The core zone of mining activity should be	
		Ambient Air Quality is monitored regularly and
		results are well within the limit prescribed. The resu
	established in the core zone for SPM, PM10,	
	PM2.5, SO2, NOx and CO monitoring. Location of	in every month. AAQ monitoring reports are are a
	air quality monitoring stations should be decided	sent to the OSPCB office, Bhubaneswar once in eve
	based on the meteorological data, topographical	month.
	features and environmentally and ecologically	Total 6 ambient air quality monitoring stations
	sensitive targets and frequency of monitoring	established in the core zone for SPM, PM10, PM2
	should be undertaken in consultation with the State	SO2, NOx and CO monitoring. Out of them 2
	Pollution Control Board (based on Emission Load	online continuous system. Daily Monitoring is carr
	Assessment Study) The number of monitoring	out with the help of third party NABL accredi
	locations may be more for larger capacity mines	
	and working in larger area. Out of four stations,	
	one should be online monitoring station in the	
	mines having more than 3 MTPA EC Capacity.	Monitoring in huffor gone is comind out regularly w
	Monitoring in buffer zone should be carried out by	Monitoring in buffer zone is carried out regularly w
		air quality parameters (SPM, PM10, PM2.5, SO
	SPCB or through NABET accredited agency. In	NOx and CO) at 4 locations of nearest hun
	addition, air quality parameters (SPM, PM10, PM25, SO2, NOv, and CO), shall be appulately	habitation including schools and other put
	PM2.5, SO2, NOx and CO) shall be regularly	amenities located nearest to source of the d
	monitored at locations of nearest human habitation	generation as applicable.
	including schools and other public amenities	
	located nearest to source of the dust generation as	
	applicable.	Emissions from vehicles as well as heavy machine
	Emissions from vehicles as well as heavy	are kept under control and regularly monitored.
	machinery should be kept under control and	vehicles are PUC certified.
	regularly monitored. Measures should be taken for	
	regular maintenance of vehicles used in mining	Not applicable as the Minerals are transported throu
		a sou applicable as the millerais are transported thiot

operations and in transportation of mineral.	closed conveyors and Railway Wagons through Rapid
The vehicles shall be covered with a tarpaulin and	Loading System.
should not be overloaded. Further, possibility of 3	
using closed container trucks should be	
explored for	
direct to destination movement of iron ore. Air	
quality monitoring at one location should also be	
carried out along the transport route within the	
mine (periodically, near truck entry and exit gate)	
Air quality monitoring at one location should also	
be carried out along the transport route within the	
mine (periodically, near truck entry and exit gate)	

H. Amlar

Manager Environment

Sl. No.	EC Conditions	Compliance Status

Name of Project: Joda East Iron Mine of Tata Steel Limited. Clearance Letter No.: J-11015/215/2008-IA.II(M) dated: 29.07.2019. Period of Compliance:April 2021 to September 2021

Blasting operation should be carried out only during Controlled Blasting is carried out for control of daytime. Controlled blasting such as Nonel, should ground vibrations and to arrest fly rocks, as per the be practiced. The mitigation measures for control of recommendations of CIMFR, Dhanbad. ground vibrations and to arrest fly rocks and boulders should be implemented. Appropriate measures should be taken for control of Appropriate measures are taken for control of noise noise levels below 85 dBA in the work environment environment. Workers engaged in operations of Workers engaged in operations of HEMM, etc. are provided with ear provided with ear provided with ear provided in all the HEMM for Noise levels should be monitored regularly (on controlling exposure to noise. Average Noise quality weekly basis) near the major sources of noise reports are attached as Annexure-5 . generation within the core zone. Further, date, time and distance of measurement should also be indicated with the noise levels in the report. The data should be used to map the noise generation from core zone. different activities and efforts should be made to maintain the noise levels with the acceptable limits of CPCB (CPCB, 2000)	
should be used to map the noise generation from different activities and efforts should be made to maintain the noise levels with the acceptable limits of CPCB (CPCB, 2000) Similarly, vibration at various sensitive locations should be monitored at least once in month and mapped for any significant changes due to	shall implement the following mitigation measures: Blasting is carried out during day time only. Blasting operation should be carried out only during Controlled Blasting is carried out for control of daytime. Controlled blasting such as Nonel, should ground vibrations and to arrest fly rocks, as per the be practiced. The mitigation measures for control of recommendations of CIMFR, Dhanbad. ground vibrations and to arrest fly rocks and boulders should be implemented. Appropriate measures should be taken for control of Appropriate measures are taken for control of noise noise levels below 85 dBA in the work levels below 85 dBA in the work environment. environment. Workers engaged in operations of Workers engaged in operations of HEMM, etc. are provided with ear plugs/muffs. Noise levels should be monitored regularly (on controlling exposure to noise. Average Noise quality weekly basis) near the major sources of noise reports are attached as Annexure-5 .
 18. Water/Wastewater Related: Project Proponent shall implement the following mitigation measures shall implement the following mitigation measures Being Complied With. i.) The mining operation is restricted above the ground water table. There has been no intersection of 	 Indicated with the holse levels in the report. The data near the major sources of noise generation within the should be used to map the noise generation from core zone. different activities and efforts should be made to maintain the noise levels with the acceptable limits of CPCB (CPCB, 2000) Similarly, vibration at various sensitive locations should be monitored at least once in month and mapped for any significant changes due to successive mining operations. Water/Wastewater Related: Project Proponent shall implement the following mitigation measures
18.	

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Manager Environment

In general, the mining operations should be ground water table. The lowest working depth of our restricted to above ground water table and it should mine pits is at 580 m RL, whereas the presence of not intersect groundwater table. However, if enough ground water table has been estimated to be at resources are estimated below the ground water 498.30mRL. A detailed hydro-geological study was table, the same may be explored after conducting carried out for the purpose. Ground water level report detailed geological studies by GSI and hydro-has been attached as Annexure-1 geological studies by CGWB or NIH or institute ofii.)No natural watercourse or water resources are national repute, and ensuring that no damage to the obstructed due to our mining operations. Further, no land stability/ water aquifer system shall happen. Thefirst order or the second order streams are emanating. details/ outcome of such study may be Regular monitoring of the flow rate of the springs and reflected/incorporated in the EIA/EMP report of the perennial nallas along with water quality monitoring is sent on monthly basis to Regional office, MoEF&CC mine appropriately. Natural watercourse and/or water resources should and SPCB. Odisha. not be obstructed due to any mining operations.iii.) Ground water quality and Ground water level are Regular monitoring of the flow rate of the springsbeing monitored four times a year pre-monsoon and perennial nallas should be carried out and (April- May), monsoon (August), post-monsoon records should be maintained. Further, regular (November) and winter (January). The results are

monitoring of water quality of nallas and riverbeing sent to Regional office, MoEF&CC and SPCB, passing thorough the mine lease area (upstream andOdisha half yearly. Latest report of Ground Water downstream locations) should be carried out on Quality and Ground Water Level are shown in monthly basis. Regular monitoring of ground water level and its To optimize water requirement, suitable conservation

Regular monitoring of ground water level and its lo optimize water requirement, suitable conservation quality should be carried out within the mine lease measures to augment ground water resources in the area by establishing a network of existing wells and area should be undertaken in consultation with Central constructing new piezometers during the mining Ground Water Board (CGWB).

operation. The monitoring should be carried out on After getting NOC from CGWA for ground water monthly basis. withdrawal vide letter no. 21-

In order to optimize water requirement, suitable 4(343)/CGWA/SER/2011-956, dated: 27.07.2011, conservation measures to augment ground water we have submitted Rain Water Harvesting Scheme to resources in the area should be undertaken in CGWB vide letter no. MD/ENV/214/102/2013, dated: consultation with Central Ground Water Board 31.05.2013 and same was forwarded to CGWA by CGWB).

Suitable rainwater harvesting measures on long 22/SER/CGWA/2013-539. We have the current NOC term basis should be planned and implemented inof Rainwater harvesting structures has been consultation with CGWB, to recharge the ground constructed at the mine site by the engagement of water source. Further, CGWB can prepare aexpertise from M/s. KRG Rainwater Foundation, comprehensive plan for the whole region.

Appropriate mitigation measures (viz. ETP, STP, vi)Appropriate mitigation measures (viz. ETP(garland drains, retaining walls, collection of runoff Canteen Effuent), STP, garland drains, retaining etc.) should be taken to prevent pollution of nearby walls, collection of runoff etc.) has been taken care to river/other water bodies. Water quality monitoring prevent pollution of nearby river/other water bodies. study should be conducted by State Pollution Water quality monitoring is regularly carried out and Control Board to ensure quality of surface and report is submitted to SPCB.

ground water sources on regular basis. The study (vii) All the Industrial wastewater (workshop and can be conducted through NABL/ NABET approved wastewater from the mine) is properly collected, water testing laboratory. However, the report should treated and again used in the process.

be vetted by SPCB. Industrial wastewater (workshop and wastewater constructed with capacity 10 KLD, 50 KLD and 630 from the mine) should be properly collected, treatedKLD in residential colony. Further two more STP in ETP so as to conform to the discharge standards with 150 KLD is constructed for community. Apart applicable. viii) **(**) in and grease trap should be installed before been provided inside the mining area because STP

 disabores of workshop officerts Frether	constructed in not foosible in the hills target
treatment plant should be installed for the employees/colony, wherever applicable.	constructed in not feasible in the hilly topography of the mine. A 10 KLD ETP has been installed in JEIM for treatment of wastewater generated. The oil catchment pit has also been constructed inside mining area.
the surface water course or any other water body. Appropriate measures for prevention and control of soil erosion and management of silt should be undertaken. Quantity of silt/soil generated should be measured on regular basis for its better utilization.	(ix) No silt originating due to mining activity is transported in the surface water course or any other water body. Appropriate measures for prevention and control of soil erosion and management of silt has been undertaken. Quantity of silt/soil generated is
material, and thick plantation of native trees and	(xi) Trenches / garland drain and retaining wall along with settling pits, have been constructed all along the OB dumps to prevent run off of water and flow of
Trenches / garland drain should be constructed at the foot of dumps to arrest silt from being carried to water bodies. Adequate number of check dams	- · · ·
water bodies. Adequate number of check dams should be constructed across seasonal/perennial nallas (if any) flowing through the mine lease areas and silt be arrested. De-silting at regular intervals should be carried out and quantity should be recorded for its better utilization, after proper soil quality analysis.	green belt development etc. All the efforts has been already taken care to make zero waste water discharge mine. Based on actual water withdrawal and consumption/ utilization in different activities, water balance diagram is being prepared on monthly basis, and efforts are made to optimize specific water consumption in successive years.

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Manager Environment

Sl. No.	EC Conditions	Compliance Status

Name of Project: Joda East Iron Mine of Tata Steel Limited. Clearance Letter No.: J-11015/215/2008-IA.II(M) dated: 29.07.2019. Period of Compliance: April 2021 to September 2021 19. Project Being Complied With. Land/ Soil/ Overburden **Related:** proponent shall implement the following mitigation i.)Since there is no longitudinal mining going on right measures: (i) The top soil should temporarily be stored at now, so no top soil generation is going on. Whatever earmarked site(s) only and it should not be kepttop soil generated before was stacked at earmarked unutilized for long (not more than 3 years or as perplace and has already been used for plantation provisions mentioned in the mine plan/ scheme).purpose. The topsoil should be used for land reclamation and ii.) Since the mining is on hill top there is no grazing land. However, the vetiver grass plantation has been plantation appropriately. Fodder plots should be developed in the non-done which also stabilizes slopes. mineralised area in lieu of use of grazing land, if The OB and minerals rejects are being dumped as per the approved mining plan and at earmarked dumping anv. Over burden/ low grade ore should be stacked at area only. The slopes of the OB dumps are terraced earmarked dump site(s) only and should not be keptand the overall slope is maintained. The inactive active for long period. The dump height should bedump slopes are vegetated with native species. The decided on case to case basis, depending on the size compliance status report is regularly sent to the of mine and quantity of waste material generated. Regional office, MoEF, Bhubaneswar and SPCB. However, slope stability study should be conducted Orissa once in every six months. for larger heights, as per IBM approved mine planTrenches / garland drain and retaining wall along with and DGMS guidelines. The OB dump should besettling pits, have been constructed all along the OB scientifically vegetated with suitable native species dumps to prevent run off of water and flow of to prevent erosion and surface run off. In criticalsediments directly into the natural stream. Adequate areas, use of geo textiles should be undertaken fornumber of check dams has been constructed across dump. Monitoring and seasonal/perennial nallas. Catch drains, siltation ponds stabilization of the management of rehabilitated areas should continue and the garland drains are de-silted at regular until the vegetation becomes self-sustaining. Proper intervals. records should be maintained regarding species, Backfilling of mined out pits is done as per approved mining plan/scheme. There is no OB dumps outside their growth, area coverage etc. "(iv) Catch drains and siltation ponds of appropriate the mine lease area. The backfilled area will be size should be constructed to arrest silt and sedimentafforested, aiming to restore the normal ground level. flows from mine operation, soil, OB and mineral Monitoring and management of rehabilitated areas is dumps. The water so collected can be utilized for carried till the vegetation is established and becomes watering the mine area, roads, green beltself-generating. development etc. The drains should be regularly de-Hazardous waste such as, waste oil, lubricants, resin, silted, particularly after monsoon and should beand coal tar etc. are disposed off as per provisions of maintained properly. Appropriate documents should Hazardous Waste Management Rules, 2016, as be maintained. Garland drain of appropriate size, amended from time to time and annual return (Form 4) foris submitted. gradient and length should be constructed mine pit, soil. OB and mineral dumps and sump capacity should be designed with appropriate safety margin based on long term rainfall data. Sump capacity should be provided for adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and de-silted at regular -10.1

	intervals."
	Backfilling should be done as per approved mining
	plan/scheme. There should be no OB dumps outside
	the mine lease area. The backfilled area should be
	afforested, aiming to restore the normal ground
	level. Monitoring and management of rehabilitated
	areas should continue till the vegetation is
	established and becomes self-generating.
	Hazardous waste such as, waste oil, lubricants,
	resin, and coal tar etc. should be disposed off as per
	provisions of Hazardous Waste Management Rules,
	2016, as amended from time to time.
	Responsibility: Individual Mine Lease Holder
20.	Ecology/Biodiversity (Flora-Fauna) Related: Tata Steel is taking all precautionary measures
	Project Proponent shall implement the followingtowards conservation and protection of endangered
	mitigation measures. flora and fauna. We have also deposited a sum of Rs.
	(i) All precautionary measures should be taken 1,00,66,395/- with the forest department for
	during mining operation for conservation and implementation of the wildlife management plan in
	protection of endangered fauna namely elephant, order to protect them within our mine and its
	sloth bear etc. spotted in the study area. Action planperiphery. Besides that, the mine had prepared Site
	for conservation of flora and fauna should be Specific Wild Life Conservation Plan and it has been
	prepared and implemented in consultation with the approved by the Principle Chief Conservator of
	State Forest and Wildlife Department within the Forests (Wildlife) & Chief Wildlife Warden vide
	mine lease area, whereas outside the mine lease letter no. 3195/1WL-SSP-97/2016, dated: 25.04.2016.
	area, the same should be maintained by State Forest Plantation has been in safety zone, waste dump slopes
	Department. & gaps etc. The density has been maintained at the
	Afforestation is to be done by using local and mixed rate of over 2500 plants per ha. Moreover, vetiver
	species saplings within and outside the mining lease plantation is being carried out over 1 ha with 1,00,000
	area. The reclamation and afforestation is to be doneslips. Plantation over an area of 606.229 ha shall be
	in such a manner like exploring the growth of fruit achieved gradually at the time of post mine closure
	bearing trees which will attract the fauna and thus (Conceptual land use).
	maintaining the biodiversity of the area. As(iii) Green belt development has been carried out in
	afforestation done so far is very less, forest the 7.5 m inside mines is being monitored regularly in
	department needs to identify adequate land and doevery season and parameters like area under
	afforestation by involving local people in a timevegetation/plantation, type of plantation, type of tree
	bound manner. species /grass species/scrubs etc., distance between
	Green belt development carried out by mines should the plants is being recorded to maintain density and
	be monitored regularly in every season and survival rate.
	parameters like area under vegetation/plantation, Plantation has been raised in the mining area
	type of plantation, type of tree species /grassincluding a 7.5m wide green belt in the safety zone
	species/scrubs etc., distance between the plants and around the mining lease by planting the native species
	survival rate should be recorded. around OB dump, reclaimed area, mine benches,
	Green belt is an important sink of air pollutants along the roads with native trees in the mine area has
	including noise. Development of green cover inbeen encouraged for plantation. Tree species having
	mining area will not only help reducing air and noise small leaf area, dense hair on leaf surface (rough
	pollution but also will improve the ecological surface), deep channels on leaves has been included
	conditions and prevent soil erosion to a greater for plantation.
	extent. Further, selection of tree species for green Vetiver plantation on inactive dumps has been
	belt should constitute dust removal/dust capturingencouraged as the grass species has high strength of
	plants since plants can act as efficient biologicalanchoring besides medicinal value. vetiver plantation
	filters removing significant amounts of particulate being carried out over 1 ha with 1,00,000 slips
H.A	pollution. Thus, the identified native trees in the At present, mining operation is restricted within
1.0	ment

	mine area may be encouraged for plantation. Tree567.087 ha of forest area for which due approval for species having small leaf area, dense hair on leafdiversion has already been obtained. Compensatory surface (rough surface), deep channels on leaves afforestation and avenue plantation has been raised should be included for plantation. Vetiver plantation with recorded and documented details has been on inactive dumps may be anouraged as the grasseubmitted to MOEE CC
	on inactive dumps may be encouraged as the grasssubmitted to MOEF&CC. species has high strength of anchoring besides
	medicinal value.
	Details of compensatory afforestation done should
	be recorded and documented by respective forest divisions, and State Forest Department should
	present mine-wise annual status, along with
	expenditure details.
	Responsibility: Individual Mine Lease Holders and
	State Forest & Wildlife department.
21	Socio-Economic Related: Project Proponent shall Being Complied With.
	implement the following mitigation measures:
	Public interaction should be done on regular basis Public interaction is being done on regular basis and
	and social welfare activities should be done to meet social welfare activities is done to meet the
	the requirements of the local communities. Further, requirements of the local communities. Further, basic
	basic amenities and infrastructure facilities like amenities and infrastructure facilities like education,
	education, medical, roads, safe drinking water, medical, roads, safe drinking water, sanitation,
	sanitation, employment, skill development, training employment, skill development, training institute etc.
	institute etc. should be developed to alleviate the has been developed to alleviate the quality of life of the people of the region. the people of the region with CSR activities.
	Land outees and land losers/affected people, if any, should be compensated and rehabilitated as per the Mining has been going on since a very long time
	national/state policy on Resettlement andhence there are no land outees and land losers.
	Rehabilitation.
	The socio-economic development in the region The socio-economic development in the region has
	should be focused and aligned with thebeen focused and aligned with the
	guidelines/initiatives of Govt. of India/ NITI Aayogguidelines/initiatives of Govt. of India/ NITI Aayog
	/ Hon'ble Prime Minister's / Hon'ble Prime Minister's Vision centring around
	Vision centring around prosperity, equality, justice, prosperity, equality, justice, cleanliness, transparency,
	cleanliness, transparency, employment, respect to employment, respect to women, hope etc. This is
	women, hope etc. This can be achieved by being achieved by providing adequate and quality
	providing adequate and quality facilities for facilities for education, medical and developing education, medical and developing skills in the skills in the people of the region by TSF wing of Tata
	people of the region. District administration inSteel.
	association with mine lease holders should plan for Activities are prioritized as per Pradhan Mantri Khanij
	"Samagra Vikas" of these blocks well as otherKshetra Kalyan Yojna (PMKKKY). Notified by
	blocks of the district. While planning for different Ministry of Mines, Govt. of India, vide letter no.
	schemes in the region, the activities should be 16/7/2017-M.VI part dated September 16, 2015.
	prioritized as per Pradhan Mantri Khanij Kshetra
	Kalyan Yojna (PMKKKY). Notified by Ministry of
	Mines, Govt. of India, vide letter no. 16/7/2017-
	M.VI part dated September 16, 2015.
	Responsibility: District Administration and
	Individual Mine lease holder

H. Amlar

Manager Environment

22.	Road Transport Related: Project Proponent shall Complied.
	implement the following mitigation measures: (i)SOTM is 100% being followed as the entire
	(i) All the mine lease holders should follow the dispatch of iron ore is through rail.
	suggested ore transport mode (SOTM), based on its(ii)Black top road has been constructed appropriate
	EC capacity within next 5 years. Width from and to the entry and exit gate of the mine.
	(ii) The mine lease holders should ensure(iii) Not applicable as the entire dispatch is through
	construction of cement road of appropriate width the rails only.
	from and to the entry and exit gate of the mine, as
	suggested in Chapter 10. Further, maintenance of all
	the roads should be carried out as per the
	requirement to ensure dust free road transport.
	(iii)Transportation of ore should be done by
	covering the trucks with tarpaulin or other suitable
	mechanism so that no spillage of ore/dust
	takesplace. Further, air quality in terms of dust,
	PM10 should be monitored
	near the roads towards entry & exit gate on regular
	basis, and be maintained within the acceptable
	limits.
	Responsibility: Individual Mine Lease
	Holders and Department of Steel and Mines.
23.	Occupational Health Related: Project Proponent Being Complied With.
	shall implement the following mitigation measures
	Personnel working in dusty areas should wear Adequate dust masks are provided to employees
	protective respiratory devices and they should also engaged in dusty areas. It is also ensured that they use
	be provided with adequate training and information the same. The employees are also given regular
	on safety and health aspects periodically. awareness training on safety and health aspects as part
	Occupational health surveillance program for all theof implementation process of ISO-45001 systems
	employees/workers (including casual workers)Further, employees undergo Lung Function Tests
	should be undertaken periodically (on annual basis)during the Periodical Medical Examination.
	to observe any changes due to exposure to dust, and Periodical Medical Examination of employees and
	to observe any changes due to exposure to dust, and choucal incuration of employees and
	corrective measures should be taken immediately, if contractor workers are organized regularly to observe
	needed. any contractions due to exposure to dust and other
	Occupational health and safety measures related occupational hazards.
	awareness programs including identification of (iii) Pre-placement medical examination and
	work-related health hazard, training on malariaperiodical examination of the workers engaged are
	eradication, HIV and health effects on exposure tobeing conducted & record maintained. The schedule
	mineral dust etc., should be carried out for all the of Periodical Medical Examination is once in every 3
	workers on regular basis. A full-time qualified years for the employees of age more than 40 years and
	doctor should be engaged for the purpose. Periodiconce in 5 years for the employees of age less than 40
	monitoring (on 6 monthly basis) for exposure toyears. The concentration of Respirable dust a
	respirable minerals dust on the workers should bedifferent locations is monitored. The employees are
	conducted, and record should be maintained also given regular awareness training on safety and
	including health record of all the workers. Reviewhealth aspects as part of implementation process of
	of impact of various health measures undertaken (at ISO- 45001 systems
	of impact of various health measures undertaken (at ISO- 45001 systems.
	an interval of 3 years or less) should be conducted
	followed by follow-up of actions, wherever
	required. Occupational health centre should be
	established near mine site itself.
1	Responsibility: Individual Mine Lease Holders and
	District Administration (District Medical Officer).

H. Amber

Manager Environment



TEST REPORT



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IIR	No -	TC545821000003041F
ULK	140	100400210000000411

Test Report No. : ALPL/30112021/1-8A		dated 30/1	1/2021	Page 1 of 3	
Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited)		Sample Inward No. Inward Date Reference Reference Date	2021/MON-147/60-GW-1 22/11/2021 W.O 3000132460/962 15.05.2020	Analysis Start23/11/202Analysis End29/11/202Report Issue Date30/11/202Sample CategoryWater	
Sample NameSample SourceGround WaterDugwell		Sample Particulars Sample Code-GW-1	Sample Condition Sealed & Ice Preserved	Quantity Received 2.0 Ltr & 250 ml	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/11/2021			

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
I	Biological Testing 1. Water					
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	Chemical Testing 1. Water					
2	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	142.6
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL - 0.005)
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	50.83
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	39.60
8	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL - 0.1)
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	BDL $(DL - 0.1)$
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	13.02
11	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	6.28
12	Odour		IS 3025 (Part 5) : 1983	Agreeable	Agreeable	Agreeable
13	pН	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.44 at 25°C
14	Phenolic compounds (as C6H5OH)	mg/l	IS 3025 (Part 43): 1992	0.001	0.002	BDL (DL - 0.001)
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	14.25
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	254
18	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.5
19	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	152.46

□ Please refer last Page for Note and Remarks.

Verified By

Formerelare

Shubhangi Armarkar Technical Manager

Pooja-Kathane **Technical Manager**

Authorized Signatories

Dr. (Mrs.) S.D. Garway Quality Manager



ANAC NLABS

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TEST REPORT

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Icento	d To :	LPL/30112021/1-8	A dated 30/11/2021 Sample Inward No. 2021/MON-147			47/60-GW-1	Analysis Start	2 of 3 23/11/2021
Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited)			Inward Date 22/11/2021 Reference W.O 3000132				Analysis End Report Issue Dat Sample Category	29/11/2021 te 30/11/2021
					2460/962			
Sample Name Sample Source			Sample Particulars Sample Code-GW-1 Sampling Date 17/11/2021		Sample Condition Sealed & Ice Preserved Sampling Time 10.40 am to 5.30 pm		Quantity Received 2.0 Ltr & 250 ml Sampling Location Komar Joda Village (Nr. Road Side)	
Ground Water Dugwell								
Sample Collected By Anacon Representative Mr. K. Pandey								
S.N.	Test Parameter		Measurement Unit	Test Method		IS 105 (Drinking Wat	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3	
						Acceptable Limit	Permissible Limit #	
п	Chemical Test 2. Residues In			Sec. 3	2	121/123		
20	Arsenic (as As)		mg/l	IS 3025 (Part 37): 1988		0.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (as	Al)	mg/l IS 3025 (Part 2 IS 3025 (Part 2			0.03	0.2	BDL (DL - 0.01)
22	Barium (as Ba)		mg/l	IS 3025 (Part 2) : 2019		0.7	No relaxation	0.05
23	Boron (as B)		mg/l	IS 3025 (Part 2) : 2019		0.5	2.4	0.10
24	Copper (as Cu)		mg/l	IS 3025 (Part 2) : 2019		0.05	1.5	BDL (DL - 0.03)
25	Cadmium (as Cd)		mg/l	IS 3025 (Part 2) : 2019		0.003	No relaxation	BDL (DL - 0.001
26	Iron (as Fe) mg/l		mg/l	IS 3025 (Part 2) : 2019		1.0	No relaxation	0.27
27	Lead (as Pb)		mg/l	IS 3025 (Part 2) : 2019		0.01	No relaxation	BDL (DL - 0.001
28	Manganese (as	Manganese (as Mn) mg/l IS 3025 (Par		2):2019	0.1	0.3	BDL (DL - 0.05)	
29	Mercury (as Hg	g)	mg/l	IS 3025 (Part 48) : 199		0.001	No relaxation	BDL (DL - 0.0005
30	Selenium (as Se		mg/l	IS 3025 (Part 56) : 200		0.01	No relaxation	BDL (DL- 0.001)
31	Total Chromiun	m (as Cr)	mg/l	IS 3025 (Part 2) : 201		0.05	No relaxation	BDL (DL - 0.03)
32	Zinc (as Zn)		mg/l	IS 3025 (Part	2):2019	5	15	BDL (DL - 0.1)
33	Polynuclear arc hydrocarbon (P		μg/l ANqr RJ		ES-30	0.1	No relaxation	BDL(DL-0.03)

□ Please refer last Page for Note and Remarks.

Verified By ABINI

Shashikant Satdeve Sr. Chemist

Shubhangi Armarkar Technical Manager Sonali Gharpure Technical Manager **Authorized Signatory**

Dr. (Mrs.) S.D. Garway Quality Manager



TEST REPORT

ANACONLABS MARK OF PROGRESS FOR BETTER ENVIRONMENT & HEALTH ANACON LABORATORIES PVT. LTD.

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Test	Report No. : AL	.PL/30112021/1-8A		dated 30/11/2021		Constant of the second second	Page 3	
Issue	d To :		Sample Inw	ard No. 2021/.	MON-1	47/60-GW-1	Analysis Start	23/11/2021
M/s J	loda East Iron	Mines	Inward Date	e 22/11/	2021		Analysis End	29/11/2021
	TATA Steel Li		Reference	•	100 10 10 10 10 10 10 10 10 10 10 10 10	32460/962	Report Issue Date	30/11/2021
(1.1.5			Reference D		Series I.	52400/902	Sample Category	Water
So	mple Name	Sample Source		Particulars	Sample Condition		Quantity I	Received
	ound Water	Dugwell	Sample Code-GW-1			& Ice Preserved	2.0 Ltr &	
	Sample Col	llected By	Sampl	ing Date	Sai	mpling Time	Sampling	Location
A	nacon Representat		100 - 000 - 000	1/2021) am to 5.30 pm	Komar Joda Villag	
	uncon representat	ite init. It. I under		TEST RESUL		, uni to 5.50 pm	reeman social vinage	e (111. Itolia Side
S.N.	Test P	arameter	Measurement Unit	Requiremen IS 10500 Test Method (Drinking Water S Including Amen		0 : 2012 r Specifications) endment No. 3	Test Result	
				Section and the	Acc	eptable Limit	Permissible Limit #	
34		es Organochlorine				0.01		
i	Alpha-HCH		μg/l	ANtr/7.2/RES/01: 2	1000 1000 C	0.01	No relaxation No relaxation	BDL (DL - 0.01
ii	Beta HCH	·	μg/l	ANtr/7.2/RES/01: 2 ANtr/7.2/RES/01: 2		0.04	No relaxation	BDL (DL - 0.03
iii	Gamma - HCH (I Delta- HCH	undane)	μg/l		2	0.04		BDL (DL - 0.03
iv	Alachlor		μg/l μg/l	ANtr/7.2/RES/01: 2 ANtr/7.2/RES/01: 2		20	No relaxation No relaxation	BDL (DL - 0.03 BDL (DL - 0.03
v vi	Aldrin		μg/l	ANtr/7.2/RES/01: 2		0.03	No relaxation	BDL (DL - 0.03
vii	Dieldrin		μg/1	ANtr/7.2/RES/01: 2		0.03	No relaxation	BDL (DL - 0.03 BDL (DL - 0.03
viii	Butachlor		μg/1	ANtr/7.2/RES/01: 2		125	No relaxation	BDL (DL - 0.03
ix	p,p'-DDE		μg/1	ANtr/7.2/RES/01: 2		125	No relaxation	BDL (DL - 0.03
X	o,p'-DDE		ug/1	ANtr/7.2/RES/01: 2		i	No relaxation	BDL (DL - 0.03
xi	p,p'-DDD		μg/1	ANtr/7.2/RES/01: 2	2000 C	i	No relaxation	BDL (DL - 0.03
xii	o,p'-DDD		μg/l	ANtr/7.2/RES/01: 2		1	No relaxation	BDL (DL - 0.03
xiii	o,p'- DDT		μg/l	ANtr/7.2/RES/01: 2		1	No relaxation	BDL (DL - 0.03
xiv	p,p'- DDT		μg/l	ANtr/7.2/RES/01: 2		i	No relaxation	BDL (DL - 0.03
xv	Monocrotophos		μg/1	ANtr/7.2/RES/01: 2		1	No relaxation	BDL (DL - 0.03
xvi	Atrazine		με/1	ANtr/7.2/RES/01: 2		2	No relaxation	BDL (DL - 0.03
xvii	Parathion methyl		μg/1	ANtr/7.2/RES/01:2		0.3	No relaxation	BDL (DL - 0.03
xviii	Paraoxon methyl		μg/1	ANtr/7.2/RES/01: 2		-		BDL (DL - 0.03
xix	Malathion		μg/1	ANtr/7.2/RES/01: 2	1000000	190	No relaxation	BDL (DL - 0.03
xx	Malaoxon		με/1	ANtr/7.2/RES/01: 2		-		BDL (DL - 0.03
xxi	Ethion		με/Ι	ANtr/7.2/RES/C1: 2		3	No relaxation	BDL (DL - 0.03
xxii	Chlorpyrifos		ug/l	ANtr/7.2/RES/01:2	2018	30	No relaxation	BDL (DL - 0.03

NOTE: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs. • Liability of Anacon Labs is limited to invoiced amount only. • Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date cf issue of Test Report, unless specified otherwise. • #Permissible limit in absence of an alternate source for drinking water. • 'mg/l' is equivalent to 'ppm'. • 'µg/l' is equivalent to 'ppb'. • BDL- Below detection limit. • DL- DL Indicates detection limit of instrument /method and shall be considered as 'absent'. • Result for test no. 11 is not relevant. • ANtr/7.2/RES -01,02,03,04,&05;: Inhouse validated method. • NT' indicates not Tested as

REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

Verified By Sonali Gharpure Technical Manager

Authorized Signatory gaw

Dr. (Mrs.) S.D. Garway Quality Manager

Laboratory address : FP-34, 35, Food Park, 5 Star Industrial Estate, MIDC Butibori, Nagpur - 441 122.



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Export inspection council (EIC); AGMARK.

TEST REPORT

	Report No. : Al				dated 30/	and the second se		- Andrew - A	elof 1
	d To :			Sample I	nward No.	2021/MON-1	47/60-GW-1	Analysis Start	23/11/2021
	Joda East Iron	8 - 10 - 10 - 10 - 10 - 10 - 10 - 10 - 1		Inward D	Date	22/11/2021 W.O 3000132460/962		Analysis End Report Issue Date	29/11/2021
(141/5	TATA Steel L	mited)		Referenc	e				te 30/11/2021
				Referenc	e Date	15.05.2020		Sample Categor	
	Sample Name Sample Source Ground Water Dugwell			Sample Particulars Sample Code-GW-1		and the second	ple Condition & Ice Preserved		y Received & 250 ml
A	Sample Col Anacon Representat		ley		npling Date 7/11/2021		npling Time am to 5.30 pm	Samplin	age (Nr. Road Side)
_					TEST F	RESULTS			uge (111. Road Blue)
S.N.	Test Par	ameter	Measurement Unit		Test I	Method	IS 105 (Drinking Wat	ment as per 00 : 2012 er Specifications) nendment No. 3	Test Result
							Acceptable Limit	Permissible Limit #	
I	Chemical Testi 1. Residues In					A			
1	Mineral Oil mg/l ANtr		ANtr/7.2/R	ANtr/7.2/RES/06: 2018		No relaxation	BDL (DL - 0.001		

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REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

Verified By Sonali Gharpure Technical Manager

Authorized Signatory

Dr. (Mrs.) S.D. Garway Quality Manager

-----END OF REPORT-----





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ULR No.- TC545821000003041F

TEST REPORT

Test Report No. : A	LPL/30112021/1-9A	dated 30/11/2021			With the state	Page 1 of 3	
Issued To : M/s Joda East Iron (M/s TATA Steel I		Sample Inward No. Inward Date Reference Reference Date	2021/MON-147/60-GW-2 22/11/2021 W.O 3000132460/962 15.05.2020	Analys Repor	sis Start sis End t Issue Date le Category	23/11/2021 29/11/2021 30/11/2021 Water	
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-2	Sample Condition Sealed & Ice Preserv	· · · · · · · · · · · · · · · · · · ·		tity Received .tr & 250 ml	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/11/2021	Sampling Time 10.40 am to 5.30 pm		Sampling Banaikala Vi		

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	IS 1050 (Drinking Wate	ent as per 0 : 2012 r Specifications) endment No. 3	Test Result
			e la companya de la	Acceptable Limit	Permissible Limit #	
I	Biological Testing 1. Water					
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
П	Chemical Testing 1. Water		51 A			
2	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	133.4
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL - 0.005)
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	37.53
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	34.85
8	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL - 0.1)
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	BDL (DL - 0.1)
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	9.64
11	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	13.09
12	Odour	A. 19	IS 3025 (Part 5) : 1983	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11): 1983	6.5 to 8.5	No relaxation	7.25 at 25°C
14	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43): 1992	0.001	0.002	BDL (DL - 0.001)
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	14.77
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	216
18	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.4
19	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	126.72

□ Please refer last Page for Note and Remarks.

Verified By Shubhangi Armarkar

Technical Manager

Pooja Kathane Technical Manager

Authorized Signatories

Jaw

Dr. (Mrs.) S.D. Garway Quality Manager



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Issue	d To :	PL/30112021/1-9	Sample Inw	ard No. 202	21/MON-14	7/60-GW-2	Analysis Start	23/11/2021
	loda East Iron	Mines	Inward Date	22/	11/2021		Analysis End	29/11/2021
	TATA Steel Li		Reference	W.	O 3000132	2460/962	Report Issue Da Sample Categor	ite 30/11/2021
			Reference D	ate 15.	05.2020	Real Providence of the	Sample Catego	y water
	mple Name ound Water	Sample Source Dugwell		articulars ode-GW-2	Sample Condition Sealed & Ice Preserved			ntity Received Ltr & 250 ml
	ACCENTION OF A DESCRIPTION OF A	ollected By ative Mr. K. Pandey	1945,200,222,8	Sampling Date 17/11/2021		mpling Time) am to 5.30 pm		ing Location a Village (Gov.)
				TEST RES	ULTS			
S.N.	Test Parameter		Measurement Unit	Test Me	thod	IS 105 (Drinking Wat	ment as per 00 : 2012 er Specifications) nendment No. 3	Test Result
					0	Acceptable Limit	Permissible Limit #	
п	Chemical Test 2. Residues In				AS .			
20	Arsenic (as As))	mg/l	IS 3025 (Part 37) : 1988		0.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (as	Al)	mg/l	IS 3025 (Part 2) : 2019 / IS 3025 (Part 55): 2003		0.03	0.2	BDL (DL - 0.01)
22	Barium (as Ba)		mg/l	IS 3025 (Part	2):2019	0.7	No relaxation	BDL (DL - 0.01)
23	Boron (as B)		mg/l	IS 3025 (Part	2):2019	0.5	2.4	BDL(DL-0.1)
24	Copper (as Cu)		mg/l 🔄	IS 3025 (Part		0.05	1.5	BDL (DL - 0.03)
25	Cadmium (as C	Cd)	mg/l	IS 3025 (Par		0.003	No relaxation	BDL (DL - 0.001
26	Iron (as Fe)		mg/l	IS 3025 (Par		1.0	No relaxation	0.27
27	Lead (as Pb)		mg/l	IS 3025 (Part	the second s	0.01	No relaxation	BDL (DL - 0.001
28	Manganese (as		mg/l	IS 3025 (Par	the second s	0.1	0.3	BDL (DL - 0.05)
29	Mercury (as H		mg/l	IS 3025 (Part		0.001	No relaxation	BDL (DL - 0.0005
30	Selenium (as S		🖉 mg/l	IS 3025 (Part		0.01	No relaxation	BDL (DL- 0.001
31	Total Chromiu	m (as Cr)	mg/l	IS 3025 (Par		0.05	No relaxation	BDL (DL - 0.03)
32	Zinc (as Zn)		mg/l	IS 3025 (Par	2):2019	5	15	BDL (DL - 0.1)
33	Polynuclear are hydrocarbon (F		μg/l	ANqr R	ES-30	0.1	No relaxation	BDL(DL-0.03)

□ Please refer last Page for Note and Remarks.

Verified By

Shashikant Satdeve Sr. Chemist

Shubhangi Armarkar Technical Manager

Sonali Gharpure

Technical Manager

Authorized Signatory

iar

Dr. (Mrs.) S.D. Garway Quality Manager





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TEST REPORT

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 Bureau of India Standards (BIS)
 Expert Inspection council (EIC); AGMARK.

Icente	d To :		Sample Inwa	ard No 2021/M	ON-147/60-GW-2	A malausia Cita at	Page 3 of 3
		N.#:	and the second sec			Analysis Start	23/11/2021
	Joda East Iron		Inward Date	22/11/2	021	Analysis End	29/11/2021
(IVI/S	TATA Steel L	(mited)	Reference	W.O 3	000132460/962	Report Issue Date	30/11/2021
			Reference D	ate 15.05.20)20	Sample Category	Water
Sa	mple Name	Sample Source	Sample P	articulars	Sample Conditi	on Quant	ity Received
G	round Water	Dugwell	Sample Co	ode-GW-2	Sealed & Ice Prese		tr & 250 ml
	Sample C	ollected By	Samr	ling Date	Sampling Time		Location
	the second s	ative Mr. K. Pandey	27	11/2021			
	i indeon represent	arve wit. ic. I andey	177		10.40 am to 5.30 pr	n Banaikala V	illage (Gov.)
				TEST RESULT			
						ment as per	
S.N.	Mea					500:2012	
5.IN.	.N. Test Parameter		Unit	Test Method	(Drinking Wa	ter Specifications)	Test Result
						nendment No. 3	1.50 1.11
34	Pesticide Residues Organochlorine				Acceptable Limit	Permissible Limit #	
34 i	Alpha-HCH	es Organochlorine					
ii	Beta HCH		µg/l	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.01
iii	Gamma - HCH (L	indona	μg/l	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03
iv	Delta- HCH	muane)	μg/l	ANtr/7.2/RES/01:20		No relaxation	BDL (DL - 0.03)
v	Alachlor		μg/l	ANtr/7.2/RES/01: 20	0101	No relaxation	BDL (DL - 0.03
vi	Aldrin		μg/l	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03
vii	Dieldrin		μg/l μg/l	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
viii	Butachlor		μg/l	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE		μg/l	ANtr/7.2/RES/01: 20 ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
x	o,p'-DDE		μg/1	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD		μg/1	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD		μg/l	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT		μg/1	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT		μg/l	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
XV	Monocrotophos		μg/l	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
xvi	Atrazine		μg/1	ANtr/7.2/RES/01: 201		No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl		μg/1	ANtr/7.2/RES/01: 201		No relaxation	BDL (DL - 0.03)
cviii	Paraoxon methyl		μg/1	ANtr/7.2/RES/01: 201	910	No relaxation	BDL (DL - 0.03)
xix	Malathion		μg/l	ANtr/7.2/RES/01: 201		- No relaxation	BDL (DL - 0.03)
xx	Malaoxon		μg/l	ANtr/7.2/RES/01: 201		no relaxation	BDL (DL - 0.03)
xxi	Ethion		μg/l	ANtr/7.2/RES/01: 201		- No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos		μg/l	ANtr/7.2/RES/01: 201		No relaxation	BDL (DL - 0.03) BDL (DL - 0.03)

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REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

Verified By

Sonali Gharpure Technical Manager

Authorized Signatory Taw

Dr. (Mrs.) S.D. Garway Quality Manager

-----End_of Report-----Laboratory address : FP-34, 35, Food Park, 5 Star Industrial Estate, MIDC Butiberi, Nagpur - 441 122. ANACONLAS



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 Export inspection council (EIC); AGMARK.

TEST REPORT

Icent	Report No. : Al		5	ample In	ward No.	2021/MON-14	17/60 011/ 2	1		Page 1 of 1
	Joda East Iron	Minor					+//00-Gw-2	Anai	ysis Start	23/11/2021
	TATA Steel L		1	nward Da	ate	22/11/2021 W.O 3000132460/962		Anal	ysis End	29/11/2021
(141)3	S TATA SILL	innied)	F	Reference				Report Issue Date		te 30/11/2021
			F	Reference	Date	15.05.2020		Sam	ple Category	Water
	Sample Name Sample Source Ground Water Dugwell Sample Collected By			Sample Particulars Sample Code-GW-2		10.00	Sample Condition Sealed & Ice Preserved		d Quantity Receiv	
	Sample C Anacon Represent		dey	1	npling Date 7/11/2021		mpling Time 0 am to 5.30 pm			ng Location Village (Gov.)
-			-		TEST R	RESULTS				<u> </u>
S.N.	Test Par	ameter		rement nit	Test N	Method	Required IS 105 (Drinking Wat Including An	00 : 201 er Spec	2 ifications)	Test Result
	-					17.0	Acceptable Limit		nissible mit #	
I	Chemical Test 1. Residues In					1.1.1			2	
1	Mineral Oil		m	g/l	ANtr/7.2/R	ES/06: 2018	1	Nor	elaxation	BDL (DL - 0.001

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REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

Verified By Sonali Gharpure Technical Manager

Authorized Signatory

Tan !

Dr. (Mrs.) S.D. Garway Quality Manager

-END OF REPORT--



Laboratory address : FP-34, 35, Food Park, 5 Star Industrial Estate, MIDC Butibori, Nagpur - 441 122.





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TEST REPORT

Issued To :		Sample Inward No.	2021/MON-147/60-GW-3	An	alysis Start	23/11/2021
M/s Joda East Iro		Inward Date	22/11/2021	An	alysis End	29/11/2021
(M/s TATA Steel	Limited)	Reference	W.O 3000132460/962	Report Issue Date		30/11/2021
		Reference Date	15.05.2020	Sai	mple Category	Water
Sample Name	Sample Source	Sample Particulars	Sample Cond	ition	Quantity Received	
Ground Water	Dugwell	Sample Code-GW-3	Sealed & Ice Pre	served	2.0 Li	tr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date	17/11/2021 10.40 am to 5.30 nm		Sampling Location	
		17/11/2021			Hudi Sahi Vi ır Joda Basti) (Mr.	llage Jagbandhu Nayak

S.N.	Test Parameter	Measurement Unit	Test Method			Test Result
			A	Acceptable Limit	Permissible Limit #	
Ι	Biological Testing 1. Water		10			
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	Chemical Testing 1. Water					
2	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	133.4
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL - 0.005)
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	54.63
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	42.77
8	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL - 0.1)
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	BDL $(DL - 0.1)$
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46): 1994	30	100	14.95
11	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	12.58
12	Odour	-	IS 3025 (Part 5) : 1983	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11): 1983	6.5 to 8.5	No relaxation	7.52 at 25°C
14	Phenolic compounds (as C6H5OH)	mg/l	IS 3025 (Part 43): 1992	0.001	0.002	BDL (DL - 0.001)
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	11.92
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	270
18	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.4
19	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	168.3

□ Please refer last Page for Note and Remarks.

Verified By

huc NE

Shubhangi Armarkar Technical Manager

Authorized Signatories

Pooja Kathane

Technical Manager

Jan

ANACONLAS:

Dr. (Mrs.) S.D. Garway Quality Manager



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 Bureau of India Standards (BIS)
 Export inspection council (EIC); AGMARK.

TEST REPORT

	d To : oda East Iror	LPL/30112021/1-1	Sample Inwa		2021/MON-147 22/11/2021	7/60-GW-3		Analysis St		23/11/2021 29/11/2021
	TATA Steel I		Inward Date					Analysis E		30/11/2021
(IVI)S	IAIA Siceri	Jiiiiiteu)	Reference		W.O 3000132	460/962		Report Issu		
			Reference Da	ate	15.05.2020			Sample Ca	tegory	Water
Sa	nple Name	Sample Source	Sample Pa		Sample Condition			Quantity Receiv		and the second state of the second
Gro	ound Water	Dugwell	Sample Co	de-GW-3	Sealed	d & Ice Pre	served		2.0	Ltr & 250 ml
	Sample Co	llected By	Samplin	g Date	Sampling	g Time		Sam	pling L	ocation
	0.5512.0000 . 002.0000		17/11	2021	10.40	5 20	12	Huc	li Sahi Y	Village
A	nacon Representat	ive Mr. K. Pandey	17/11/2021 10.40 am to 5.30 pm (Nr. K				Komar Joda B	asti) (N	Ar. Jagbandhu Nayal	
				TEST	RESULTS					
S.N.	Test Parameter		Measurement Unit	Loct N		IS 1050 (Drinking Wate		ment as per 500 : 2012 ter Specifications) mendment No. 3		Test Result
		Acceptable		Permissib Limit #	le					
п	Chemical Tes 2. Residues I				.6					
20	Arsenic (as As	5)	mg/l	IS 3025 (Part 37) : 1988	0.01		No relaxat	ion	BDL (DL - 0.01)
21	Aluminium (a	s Al)	mg/l		Part 2) : 2019 / (Part 55): 2003	0.03		0.2		BDL (DL - 0.01)
22	Barium (as Ba	.)	mg/l		(Part 2) : 2019	0.7		No relaxat	ion	BDL (DL - 0.01)
23	Boron (as B)		mg/l 🕚	IS 3025	(Part 2) : 2019	0.5		2.4		BDL(DL-0.1)
24	Copper (as Cu		mg/l	IS 3025	(Part 2) : 2019	0.05		1.5		BDL (DL - 0.03)
25	Cadmium (as	Cd)	mg/l		(Part 2) : 2019	0.00	3	No relaxat	ion	BDL (DL - 0.001)
26	Iron (as Fe)		mg/l		(Part 2) : 2019	1.0		No relaxat		0.21
27	Lead (as Pb)		mg/l		(Part 2) : 2019	0.01		No relaxat	ion	BDL (DL - 0.001)
28			(Part 2) : 2019	0.1		0.3		BDL (DL - 0.05)		
29	Mercury (as H		mg/l		Part 48) : 1994	0.00		No relaxat		BDL (DL - 0.0005)
30	Selenium (as S		mg/l		Part 56) : 2003	0.01		No relaxat	a service and the service of the ser	BDL (DL- 0.001)
31	Total Chromit	ım (as Cr)	mg/l		(Part 2) : 2019	0.05		No relaxat	ion	BDL (DL - 0.03)
32	Zinc (as Zn)	1/2-	mg/l	IS 3025	(Part 2) : 2019	5		15		BDL (DL - 0.1)
33	Polynuclear an hydrocarbon (μg/l	AN	gr RES-30	0.1	_	No relaxat	ion	BDL(DL-0.03)

□ Please refer last Page for Note and Remarks.

Verified By

Shashikant Satdeve Sr. Chemist

Shubhangi Armarkar Technica Manager

Sonali Gharpure

Technical Manager

Authorized Signatory

Jan

Dr. (Mrs.) S.D. Garway Quality Manager





TEST REPORT

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 Agricultural & Processed Food Products Export Development Authority (APEDA);
 Bureau of India Standards (BIS) • Export inspection council (EIC); AGMARK.

Icento	d To:	LPL/30112021/1-1	Sample Inwa	rd No. 2	021/MO	N-147/60-GW-3		Analysis Start	Page 3 of 3 23/11/2021	
	loda East Iroi	Minor	100000000000000000000000000000000000000							
			Inward Date		2/11/202			Analysis End	29/11/2021	
(IVI/S	TATA Steel I	Jinned)	Reference	V	V.O 300	0132460/962		Report Issue Date	30/11/2021	
			Reference Da	nte l	5.05.2020)		Sample Category	Water	
Sa	mple Name	Sample Source	Sample Pa	rticulars	Sample Condition			Quantity Received		
	ound Water	Dugwell	Sample Co		5	Sealed & Ice Pres			Ltr & 250 ml	
	Sample Co	llected By	Samplin	g Date	Sam	pling Time	18	Sampling Lo	ocation	
	1 80-0 1.0. 0 .000 - 0 40-0							Hudi Sahi V		
A	acon Representat	ive Mr. K. Pandey	17/11/2021 10.40 am to 5.30 pm (Nr. K				Komar Joda Basti) (M			
				TEST R	ESULTS					
								nt as per		
			Measurement			IS 10500 :				
S.N.	Test l	Parameter	Unit	Test Met	hod			Specifications)	Test Result	
					-			idment No. 3		
24	Pastisida Pasiduas Oussusablasias					Acceptable Lim	it	Permissible Limit #		
34	Alpha-HCH	Pesticide Residues Organochlorine		ANIte/7 O/DE	01. 2010	0.01		N. J. J.		
i ii	Beta HCH		μg/l μg/l	ANtr/7.2/RE ANtr/7.2/RE				No relaxation No relaxation	BDL (DL - 0.01)	
iii	Gamma - HCH (Lindono)	μg/i μg/i	ANtr/7.2/RE	A THE OTHER THE A CONTRACT OF			No relaxation	BDL (DL - 0.03) BDL (DL - 0.03)	
iv	Delta- HCH	Lindane)	μg/l	ANtr/7.2/RE				No relaxation	BDL (DL - 0.03) BDL (DL - 0.03)	
V	Alachlor		μg/1	ANtr/7.2/RE				No relaxation	BDL (DL - 0.03) BDL (DL - 0.03)	
vi	Aldrin		μg/l	ANtr/7.2/RE				No relaxation	BDL (DL - 0.03)	
vii	Dieldrin		μg/l	ANtr/7.2/RE		An end of the second		No relaxation	BDL (DL - 0.03)	
viii	Butachlor	The second second second	μg/l	ANtr/7.2/RE	A REAL TO A REAL PROPERTY OF THE REAL PROPERTY.	32		No relaxation	BDL (DL - 0.03)	
ix	p,p'-DDE		μg/l	ANtr/7.2/RE	S/01: 2018	1		No relaxation	BDL (DL - 0.03)	
х	o,p'-DDE		µg/l	ANtr/7.2/RE	S/01: 2018	1		No relaxation	BDL (DL - 0.03)	
xi	p,p'-DDD		μg/1	ANtr/7.2/RE	S/01: 2018	1		No relaxation	BDL (DL - 0.03)	
xii	o,p'-DDD		μg/l	ANtr/7.2/RE	S/01: 2018	1		No relaxation	BDL (DL - 0.03)	
xiii	o,p'- DDT		μg/l	ANtr/7.2/RE	S/01: 2018	1		No relaxation	BDL (DL - 0.03)	
xiv	p,p'- DDT		μg/l	ANtr/7.2/RE	S/01: 2018	1		No relaxation	BDL (DL - 0.03)	
xv	Monocrotophos		μg/l	ANtr/7.2/RE				No relaxation	BDL (DL - 0.03)	
xvi	Atrazine		μg/l	ANtr/7.2/RE	and a second			No relaxation	BDL (DL - 0.03)	
xvii	Parathion methy	217	μg/l	ANtr/7.2/RE		22 III 20 IIII 20 III 20 IIII 20 III 20 IIII 20 III		No relaxation	BDL (DL - 0.03)	
xviii	Paraoxon methyl		μg/l	ANtr/7.2/RE					BDL (DL - 0.03)	
xix	Malathion		μg/l	ANtr/7.2/RE				No relaxation	BDL (DL - 0.03)	
xx	Malaoxon	and the second	μg/l	ANtr/7.2/RE				(B)	BDL (DL - 0.03)	
xxi	Ethion		μg/l	ANtr/7.2/RE				No relaxation	BDL (DL - 0.03)	
xxii	Chlorpyrifos		μg/l	ANtr/7.2/RE	S/01: 2018	30		No relaxation	BDL (DL - 0.03)	

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REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

Verified By Sonali Gharpure Technical Manager

Authorized Signatory Dr. (Mrs.) S.D. Garway

Laboratory address : FP-34, 35, Food Park, 5 Star Industrial Estate indior Repairbert, Nagpur - 441 122.

(Mrs.) S.D. Garway Quality Manager



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TEST REPORT

Issued To : M/s Joda East Iro (M/s TATA Steel)		B dated 30. Sample Inward No. Inward Date Reference Reference Date	2021/MON-147/60-C 22/11/2021 W.O 3000132460/9 15.05.2020		Analys Report	is Start is End Issue Date c Category	Page 1 of 1 23/11/2021 29/11/2021 30/11/2021 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-3	Sample C Sealed & Ic	Condition e Preserved			ty Received
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/11/2021	Sampling Time 10.40 am to 5.30	m	Sampling Location Hudi Sahi Village (Nr. Komar Joda Basti) (Mr. Jagbandhu Nay		
		TEST	RESULTS				
				Requirem	ent as po	er	

S.N.	Test Parameter	Measurement Unit	Test Method	Require IS 105 (Drinking Wat Including Ar	Test Result	
				Acceptable Limit	Permissible Limit #	
I	Chemical Testing 1. Residues In Water					
1	Mineral Oil	mg/l	ANtr/7.2/RES/06: 2018	1	No relaxation	BDL (DL - 0.001)

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REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

-----END OF REPORT-----

Verified By Sonali Gharpure Technical Manager

Jaw

Dr. (Mrs.) S.D. Garway Quality Manager

Authorized Signatory



Laboratory address : FP-34, 35, Food Park, 5 Star Industrial Estate, MIDC Butibori, Nagpur - 441 122.





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ULR No.- TC545821000003041F

TEST REPORT

Test Report No. : A	LPL/30112021/1-1	IA dated 3	0/11/2021	Page 1 o	f 3
Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited)		Sample Inward No. Inward Date Reference Reference Date	2021/MON-147/60-GW-4 22/11/2021 W.O 3000132460/962 15.05.2020	Analysis Start Analysis End Report Issue Date Sample Category	23/11/2021 29/11/2021 30/11/2021 Water
Sample Name	Sample Source	Sample Particular:		Quantity Received	
Ground Water	Dugwell	Sample Code-GW-4		2.0 Ltr & 250 ml	
Sample Collected By		Sampling Date	Sampling Time	Sampling Lo	
Anacon Representative Mr. K. Pandey		17/11/2021	10.40 am to 5.30 pm	Ramjan Huttin	

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S.N.	Test Parameter	Measurement Unit	Test Method	IS 1050 (Drinking Wate	ent as per 0 : 2012 r Specifications) endment No. 3	Test Result
			1 A A	Acceptable Limit	Permissible Limit #	
I	Biological Testing 1. Water					
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
П	Chemical Testing 1. Water					277
2	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	126.5
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL - 0.005)
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	39.90
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	45.94
8	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL - 0.1)
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	BDL (DL - 0.1)
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	16.39
11	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	13.09
12	Odour	-	IS 3025 (Part 5): 1983	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11): 1983	6.5 to 8.5	No relaxation	7.65 at 25°C
14	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43) : 1992	0.001	0.002	BDL (DL - 0.001)
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	13.22
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	266
18	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.4
19	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	182.16

Pooja Kathane

Technical Manager

□ Please refer last Page for Note and Remarks.

Verified By

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Shubhangi Armarkar Technical Manager

Authorized Signatories

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Dr. (Mrs.) S.D. Garway Quality Manager



TEST REPORT

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ANACON LABORATORIES PVT. LTD.

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ULR No.- TC545821000003041F Test Report No. : ALPL/30112021/1-11A dated 30/11/2021 Page 2 of 3 Sample Inward No. 2021/MON-147/60-GW-4 Analysis Start 23/11/2021 Issued To : M/s Joda East Iron Mines **Inward Date** 22/11/2021 **Analysis End** 29/11/2021 (M/s TATA Steel Limited) Reference W.O.- 3000132460/962 **Report Issue Date** 30/11/2021 Sample Category Water **Reference** Date 15.05.2020 Sample Name Sample Source **Sample Particulars Sample Condition Quantity Received** Sealed & Ice Preserved Ground Water Dugwell Sample Code-GW-4 2.0 Ltr & 250 ml Sample Collected By Sampling Time Sampling Date Sampling Location Anacon Representative Mr. K. Pandey 17/11/2021 10.40 am to 5.30 pm Ramjan Hutting Basti TEST RESULTS **Requirement** as per IS 10500 : 2012 Measurement (Drinking Water Specifications) S.N. **Test Parameter Test Method Test Result** Unit **Including Amendment No. 3** Acceptable Permissible Limit Limit # П **Chemical Testing** 2. Residues In Water 20 Arsenic (as As) mg/l IS 3025 (Part 37): 1988 0.01 No relaxation BDL (DL - 0.01) IS 3025 (Part 2) : 2019 / 21 Aluminium (as Al) 0.03 0.2 mg/l BDL (DL - 0.01) IS 3025 (Part 55): 2003 22 Barium (as Ba) mg/l IS 3025 (Part 2): 2019 0.7 No relaxation BDL (DL - 0.01) 23 IS 3025 (Part 2) : 2019 Boron (as B) mg/l 0.5 2.4 BDL(DL-0.1) 24 Copper (as Cu) mg/l IS 3025 (Part 2): 2019 0.05 1.5 BDL (DL - 0.03) 25 Cadmium (as Cd) IS 3025 (Part 2): 2019 mg/l 0.003 No relaxation BDL (DL - 0.001) 26 Iron (as Fe) IS 3025 (Part 2): 2019 mg/l 1.0 No relaxation 0.24 27 Lead (as Pb) mg/l IS 3025 (Part 2): 2019 0.01 No relaxation BDL (DL - 0.001) 28 Manganese (as Mn) mg/l IS 3025 (Part 2): 2019 0.1 0.3 BDL (DL - 0.05) 29 Mercury (as Hg) IS 3025 (Part 48): 1994 mg/l 0.001 No relaxation BDL (DL - 0.0005) 30 Selenium (as Se) mg/l IS 3025 (Part 56): 2003 0.01 BDL (DL-0.001) No relaxation 31 Total Chromium (as Cr) IS 3025 (Part 2) : 2019 mg/l 0.05 No relaxation BDL (DL - 0.03) 32 Zinc (as Zn) BDL (DL - 0.1) IS 3025 (Part 2): 2019 mg/l 5 15 Polynuclear aromatic 33 $\mu g/l$ ANgr RES-30 0.1 No relaxation BDL(DL-0.03)

Please refer last Page for Note and Remarks.

Verified By

Shashikant Satdeve Sr. Chemist

hydrocarbon (PAH)

Fernuel Shubhangi Armarkar Technical Manager

Sonali Gharpure

Technical Manager

Authorized Signatory

Dr. (Mrs.) S.D. Garway Quality Manager





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Chlorpyrifos

TEST REPORT

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ULR No.- TC545821000003041F Test Report No. : ALPL/30112021/1-11A dated 30/11/2021 Page 3 of 3 Sample Inward No. 2021/MON-147/60-GW-4 23/11/2021 **Issued To: Analysis Start** M/s Joda East Iron Mines **Inward Date** 22/11/2021 **Analysis End** 29/11/2021 (M/s TATA Steel Limited) Reference W.C.- 3000132460/962 **Report Issue Date** 30/11/2021 Sample Category Water **Reference Date** 15.05.2020 Sample Name Sample Source Sample Particulars Sample Condition **Quantity Received** Ground Water Dugwell Sample Code-GW-4 Sealed & Ice Preserved 2.0 Ltr & 250 ml Sample Collected By Sampling Date **Sampling Time Sampling Location** Anacon Representative Mr. K. Pandey 17/11/2021 10.40 am to 5.30 pm Ramjan Hutting Basti TEST RESULTS Requirement as per IS 10500 : 2012 Measurement S.N. **Test Parameter Test Method** (Drinking Water Specifications) **Test Result** Unit **Including Amendment No. 3** Acceptable Limit | Permissible Limit # **Pesticide Residues Organochlorine** 34 Alpha-HCH $\mu g/l$ ANtr/7.2/RES/01: 2018 0.01 i No relaxation BDL (DL - 0.01) ii Beta HCH ANtr/7.2/RES/01: 2018 µg/l 0.04 BDL (DL - 0.03) No relaxation Gamma - HCH (Lindane) iii ANtr/7.2/RES/01: 2018 2 µg/l No relaxation BDL (DL - 0.03) iv Delta-HCH ANtr/7.2/RES/01: 2018 0.04 $\mu g/l$ No relaxation BDL (DL - 0.03) Alachlor v µg/l ANtr/7.2/RES/01: 2018 20 No relaxation BDL (DL - 0.03) vi Aldrin ANtr/7.2/RES/01: 2018 µg/l 0.03 No relaxation BDL (DL - 0.03) vii Dieldrin µg/l ANtr/7.2/RES/01: 2018 0.03 BDL (DL - 0.03) No relaxation viii Butachlor µg/l ANtr/7.2/RES/01: 2018 125 No relaxation BDL (DL - 0.03) ix p,p'-DDE µg/1 ANtr/7.2/RES/01: 2018 1 No relaxation BDL (DL - 0.03) o,p'-DDE х μg/1 ANtr/7.2/RES/01: 2018 1 No relaxation BDL (DL - 0.03) p,p'-DDD xi µg/1 ANtr/7.2/RES/01: 2018 1 No relaxation BDL (DL - 0.03) o,p'-DDD xii $\mu g/l$ ANtr/7.2/RES/01: 2018 1 No relaxation BDL (DL - 0.03) o,p'- DDT xiii µg/1 ANtr/7.2/RES/01: 2018 1 No relaxation BDL (DL - 0.03) p,p'- DDT xiv µg/l ANtr/7.2/RES/01: 2018 1 No relaxation BDL (DL - 0.03) Monocrotophos XV µg/1 ANtr/7.2/RES/01: 2018 1 No relaxation BDL (DL - 0.03) xvi Atrazine µg/l ANtr/7.2/RES/01: 2018 2 No relaxation BDL (DL - 0.03) µg/l ANtr/7.2/RES/01: 2018 xvii Parathion methyl 0.3 No relaxation BDL (DL - 0.03) xviii Paraoxon methyl µg/1 ANtr/7.2/RES/01: 2018 BDL (DL - 0.03) xix Malathion 190 µg/1 ANtr/7.2/RES/01: 2018 No relaxation BDL (DL - 0.03) Malaoxon XX ANtr/7.2/RES/01: 2018 µg/1 BDL (DL - 0.03) -Ethion xxi µg/l ANtr/7.2/RES/01: 2018 3 No relaxation BDL (DL - 0.03)

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ANtr/7.2/RES/01: 2018

30

REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

Verified By Sonali Gharpure

Authorized Signatory Man Dr. (Mrs.) S.D. Garway

No relaxation

Laboratory address : FP-34, 35, Food Park, S Star Industrial Estate, MIDC Butibori, Nagpur - 441 122.

µg/l

(Mrs.) S.D. Garway C AMLARS Quality Manager

BDL (DL - 0.03)



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	d To :	LPL/30112021/1	Sample Inwa	dated 30/11	21/MON-14	7/60 CW 4	Page 1	Contraction and American
	Joda East Irc	on Mines	Inward Date		2/11/2021		Analysis Start	23/11/2021
	TATA Steel						Analysis End	29/11/2021
(1.00		Linnea)	Reference	W.	0 3000132	2460/962	Report Issue Date	30/11/2021
			Reference D	ate 15.	05.2020		Sample Category	Water
	ample Name Sample Source round Water Dugwell			Sample Particulars Sample Code-GW-4		ple Condition & Ice Preserved	Quantity Received 2.0 Ltr & 250 ml	
	- a series a series of the series and the	ollected By		ing Date	Sampling Time		Sampling Location	
An	acon Representa	tive Mr. K. Pandey	17/1	1/2021	and a second	am to 5.30 pm	Ramjan Hu	tting Basti
				TEST RE	SULTS			
S.N.	Test F	Test Parameter Measurement Unit		IS (Drinking V		IS 105 (Drinking Wat	ment as per 500 : 2012 ter Specifications) nendment No. 3	Test Result
						Acceptable Limit	Permissible Limit #	
I	Chemical Te 1. Residues				4			
					- at the test	and a second sec		A CONTRACT OF

Mineral Oil 1 ANtr/7.2/RES/06: 2018 mg/l 1 No relaxation BDL (DL - 0.001) NOTES: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs. • Liability of Anacon Labs is limited to invoiced amount only. • Non-perishable and

perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. • #Permissible limit in absence of an alternate source for drinking water. ANtr/7.2/RES -06: Inhouse validated method

REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

-END OF REPORT-----

Verified By

Sonali Gharpure Technical Manager Authorized Signatory

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Dr. (Mrs.) S.D. Garway Quality Manager





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ULR No.- TC545821000003041F

Test Report No. : A	LPL/30112021/1-12A	A dated 30/	11/2021		Page 1 of 3	
Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited)		Sample Inward No. Inward Date Reference Reference Date	2021/MON-147/60-GW-5 22/11/2021 W.O 3000132460/962 15.05.2020	Analysis Start Analysis End Report Issue Date Sample Category	23/11/2021 29/11/2021 30/11/2021 Water	
Sample Name	Sample Source	Sample Particulars		Quantity Received		
Ground Water	Dugwell	Sample Code-GW-5		2.0 Ltr & 250 ml		
Sample Collected By		Sampling Date	Sampling Time	Sampling Location		
Anacon Representative Mr. K. Pandey		17/11/2021	10.40 am to 5.30 pm	Khuntapani Village (Nr. School)		

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	IS 1050 (Drinking Wate	ent as per 0 : 2012 r Specifications) endment No. 3	Test Result
				Acceptable Limit	Permissible Limit #	
I	Biological Testing 1. Water					
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	Chemical Testing 1. Water			1. Contract (1997)		
2	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	133.4
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL - 0.005)
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	26.13
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	45.14
8	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL $(DL - 0.1)$
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.16
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	13.02
11	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	15.59
12	Odour	-	IS 3025 (Part 5) : 1983	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11): 1983	6.5 to 8.5	No relaxation	7.57 at 25°C
14	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43) : 1992	0.001	0.002	BDL (DL - 0.001)
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	12.18
16	Taste	-	IS 3025 (Part 8): 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	260
18	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.5
19	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	166.32

Pooja Kathane

Technical Manager

Please refer last Page for Note and Remarks.

Verified By

Former

Shubhangi Armarkar Technical Manager

Authorized Signatories

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Dr. (Mrs.) S.D. Garway Quality Manager





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ULR No.- TC545821000003041F

TEST REPORT

		LPL/30112021/1-		dated 30/11/2				Page 2 of 3	
	d To:		Sample Inv			47/60-GW-5	Analysis Start	23/11/2021	
	Joda East Iron		Inward Da	te 22/	11/2021		Analysis End	29/11/2021	
(M/s	TATA Steel Li	mited)	Reference	W.	D 300013	2460/962	Report Issue Da	te 30/11/2021	
			Reference	Date 15.	05.2020		Sample Categor		
	omple Name ound Water	Sample Source Dugwell		Particulars Code-GW-5	A set of the set of			y Received	
01								& 250 ml	
	Sample Col		1 2	ling Date		npling Time		ng Location	
P	Anacon Representati	ve Mr. K. Pandey	17/	11/2021		am to 5.30 pm	Khuntapani Vi	illage (Nr. School)	
_				TEST RESU	LTS	1			
S.N.	. Test Parameter		Measurement Unit Test M		IS 1050 (Drinking Wate		ment as per 600 : 2012 ter Specifications) nendment No. 3	Test Result	
						Acceptable Limit	Permissible Limit #		
п	Chemical Testi 2. Residues In			1	2				
20	Arsenic (as As)		mg/l	IS 3025 (Part 3	7): 1988	0.01	No relaxation	BDL (DL - 0.01)	
21	Aluminium (as .	Al)	mg/l	IS 3025 (Part 2 IS 3025 (Part 5		0.03	0.2	BDL (DL - 0.01)	
22	Barium (as Ba)		mg/l	IS 3025 (Part 2):2019	0.7	No relaxation	BDL (DL - 0.01)	
23	Boron (as B)		mg/l	IS 3025 (Part 2):2019	0.5	2.4	BDL (DL - 0.1)	
24	Copper (as Cu)		mg/l	IS 3025 (Part 2):2019	0.05	1.5	BDL (DL - 0.03)	
25	Cadmium (as Co	d)	mg/l	IS 3025 (Part 2):2019	0.003	No relaxation	BDL (DL - 0.001	
26	Iron (as Fe)		mg/l	IS 3025 (Part 2):2019	1.0	No relaxation	0.18	
27	Lead (as Pb)		mg/l	IS 3025 (Part 2):2019	0.01	No relaxation	BDL (DL - 0.001	
28	Manganese (as M		mg/l	IS 3025 (Part 2):2019	0.1	0.3	BDL (DL - 0.05)	
29	Mercury (as Hg)		mg/l	IS 3025 (Part 4		0.001	No relaxation	BDL (DL - 0.0005	
30	Selenium (as Se)	mg/l	IS 3025 (Part 5	5):2003	0.01	No relaxation	BDL (DL- 0.000)	
31	Total Chromium	a (as Cr)	mg/l	IS 3025 (Part 2):2019	0.05	No relaxation	BDL (DL - 0.03)	
32	Zinc (as Zn)		mg/l	IS 3025 (Part 2		5	15	BDL (DL - 0.1)	
33	Polynuclear aron hydrocarbon (PA		μg/l	ANgr RE		0.1	No relaxation	BDL(DL-0.03)	

Please refer last Page for Note and Remarks.

Verified By

Shashikant Satdeve Sr. Chemist

Shubhangi Armarkar Technical Manager

Sonali Gharpure Technical Manager

Authorized Signatory

Dr. (Mrs.) S.D. Garway Quality Manager







TEST REPORT

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	d To :	LPL/30112021/1-1	Sample Inv	ward No. 2021	/MON-1	47/60-GW-5	Analysis Start	Page 3 of 3 23/11/2021
	Joda East Iron		Inward Da	te 22/11	/2021		Analysis End	29/11/2021
(M/s	TATA Steel Li	imited)	Reference	W.O.	- 300013	32460/962	Report Issue Date	30/11/2021
			Reference	Date 15.05	5.2020		Sample Category	Water
	mple Name ound Water	Sample Source Dugwell	A DESCRIPTION OF A DESC	Particulars Code-GW-5		ple Condition & Ice Preserved	d Quantity	
	Sample Col	llected By		ling Date	Sar	mpling Time	Sampling	
A	Anacon Representat			11/2021		am to 5.30 pm	Khuntapani Villa	
				TEST RESUL				age (i.m. beneel)
S.N.	Test Parameter		Measurement Unit	Test Method		IS 105 (Drinking Wate	nent as per 00 : 2012 er Specifications) nendment No. 3	Test Result
					Acce	eptable Limit	Permissible Limit #	
34		ues Organochlorin	e					
i	Alpha-HCH	7,012	μg/l	ANtr/7.2/RES/01:		0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	A Construction of the second sec	μg/l	ANtr/7.2/RES/01		0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH	(Lindane)	μg/1	ANtr/7.2/RES/01:	2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH		μg/l	ANtr/7.2/RES/01:	2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor		μg/l	ANtr/7.2/RES/01:	C1211122112250	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin		μg/l	ANtr/7.2/RES/01:	2018	0.03	No relaxation	BDL (DL - 0.03)
vii	Dieldrin		μg/1	ANtr/7.2/RES/01:	2018	0.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor		μg/1	ANtr/7.2/RES/01:	2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE		μg/l	ANtr/7.2/RES/01:	2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE		μg/1	ANtr/7.2/RES/01:	2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD		μg/1	ANtr/7.2/RES/01:	2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD		μg/1	ANtr/7.2/RES/01:	2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT		μg/l	ANtr/7.2/RES/01:		1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT		μg/l	ANtr/7.2/RES/01:		1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos		μg/l	ANtr/7.2/RES/01:	and the second	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine		μg/l	ANtr/7.2/RES/01:		2	No relaxation	BDL (DL - 0.03)
vi i	Parathion methy		μg/l	ANtr/7.2/RES/01:	the state of the s	0.3	No relaxation	BDL (DL - 0.03)
viii	Paraoxon methy	1	μg/l	ANtr/7.2/RES/01:				BDL (DL - 0.03)
xix	Malathion		μg/l	ANtr/7.2/RES/01:		190	No relaxation	BDL (DL - 0.03)
XX	Malaoxon		the second se	ANtr/7.2/RES/01:			-	BDL (DL - 0.03)
xxi	Ethion		μg/l	ANtr/7.2/RES/01:	2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos		μg/l	ANtr/7.2/RES/01:	2018	30	No relaxation	BDL (DL - 0.03)

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REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

Verified By Sonali Gharpure

Authorized Signatory Man

Laboratory address : FP-34, 35, Food Park, Star Industrial Estate, MIDC Butibori, Nagpur - 441 122.

Dr. (Mrs.) S.D. Garway C MLABS Quality Manager



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 Export inspection council (EIC); AGMARK.

TEST REPORT

M/s J	Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited)			Sample Inward No. 2021/MON-147/60 Inward Date 22/11/2021 Reference W.O 3000132460 Reference Date 15.05.2020			Analysis Start Analysis End Report Issue Da Sample Categor		
Sample NameSample SourceGround WaterDugwell					ple Condition & Ice Preserved	Land La Contraction of the Contr	y Received & 250 ml		
A	Sample Col anacon Representat		dey		pling Date 7/11/2021	10.40	npling Time am to 5.30 pm		ng Location llage (Nr. School)
S.N.	Test Par	ameter		surement Unit Test Meth			IS 105 (Drinking Wat	nent as per 00 : 2012 er Specifications) nendment No. 3	Test Result
					·		Acceptable Limit	Permissible Limit #	
I	Chemical Test 1. Residues In		_			1			
1	Mineral Oil		m	g/l	ANtr/7.2/RE	S/06: 2018	1	No relaxation	BDL (DL - 0.001

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REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

Verified By

Sonali Gharpure Technical Manager

Authorized Signatory

an

Dr. (Mrs.) S.D. Garway Quality Manager

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-END OF REPORT-----





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TEST REPORT

Test Report No. : A	LPL/30112021/1-13A	A dated 30/	11/2021	Page 1 of	Page 1 of 3		
Issued To :		Sample Inward No.	2021/MON-147/60-GW-6	Analysis Start	23/11/2021		
M/s Joda East Iron Mines (M/s TATA Steel Limited)		Inward Date Reference Reference Date	w.o 3000132460/962		29/11/2021 30/11/2021 Water		
Sample Name Ground Water	Sample Source Borewell	Sample Particular Sample Code-GW-6		Quantity Received 2.0 Ltr & 250 ml			
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/11/2021	Sampling Time 10.40 am to 5.30 pm	Sampling Location JEIM-Nr. Chief Office			

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	IS 1050 (Drinking Wate	ent as per 0 : 2012 r Specifications) endment No. 3	Test Result
			1	Acceptable Limit	Permissible Limit #	
I	Biological Testing 1. Water					
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
Π	Chemical Testing 1. Water					
2	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	46.55
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	IS 3025 (Par. 4) : 2021	5	15	1
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL - 0.005)
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	35.63
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	38.02
8	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL - 0.1)
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	BDL $(DL - 0.1)$
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	11.09
11	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	10.94
12	Odour	-	IS 3025 (Part 5) : 1983	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11): 1983	6.5 to 8.5	No relaxation	7.31 at 25°C
14	Phenolic compounds (as C6H5OH)	mg/l	IS 3025 (Part 43): 1992	0.001	0.002	BDL (DL - 0.001)
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	10.11
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	248
18	Turbidity	NTU	IS 3025 (Part 10): 1984	1	5	0.4
19	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	140.58

Pooja Kathane

Technical Manager

Please refer last Page for Note and Remarks.

Verified By

9Al

Shubhangi Armarkar Technical Manager

Authorized Signatories

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ANAC

Dr. (Mrs.) S.D. Garway Quality Manager





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LIL P. No. TCE459240000020445

TEST REPORT

Loon	ed To :	PL/30112021/1-1	Sample Inv	dated 30/11/2		19/20 0001 2		e 2 of 3	
	Joda East Iron	Mines				47/60-GW-6	Analysis Start	23/11/2021	
	s TATA Steel Li		Inward Da	te 22	/11/2021		Analysis End	29/11/2021	
(11/2	STATA SIECILI	miled)	Reference	W	.O 300013	2460/962	Report Issue Da	ate 30/11/2021	
			Reference	Date 15	.05.2020		Sample Categor	ry Water	
S	ample Name	Sample Source	Sample Particulars Samp			ple Condition	Quanti	ty Received	
G	round Water	Borewell	Sample	Code-GW-6	Sealed	& Ice Preserved		r & 250 ml	
	Sample Col	lected By	Samp	ling Date	San	npling Time	tores to the second	ng Location	
1	Anacon Representati					am to 5.30 pm		. Chief Office	
			1 1/1	TEST RES		un to 2.50 pm	JEAN-INF.	. Chief Office	
S.N.	Test Parameter		Measurement Unit	Test Method		Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result	
						Acceptable Limit	Permissible Limit #		
п	Chemical Testi 2. Residues In				A				
20	Arsenic (as As)		mg/l	IS 3025 (Part 3	87): 1988	0.01	No relaxation	BDL (DL - 0.01)	
21	Aluminium (as a	Al)	mg/l	IS 3025 (Part 2 IS 3025 (Part 2		0.03	0.2	BDL (DL - 0.01)	
22	Barium (as Ba)	N. CONTRACTOR	mg/l	IS 3025 (Part	2):2019	0.7	No relaxation	BDL (DL - 0.01)	
23	Boron (as B)		mg/l	IS 3025 (Part	2):2019	0.5	2.4	BDL (DL - 0.1)	
	Copper (as Cu)		mg/l	IS 3025 (Part)		0.05	1.5	BDL (DL - 0.03)	
24									
24 25	Cadmium (as Co	d)	mg/l	IS 3025 (Part)	2):2019	0.003	No relaxation	I BDL(DL = 0.00)	
24 25 26	Iron (as Fe)	d)	mg/l mg/l	IS 3025 (Part) IS 3025 (Part)		0.003	No relaxation No relaxation		
24 25 26 27	Iron (as Fe) Lead (as Pb)			and the second se	2):2019	Contra Data	No relaxation	0.24	
24 25 26 27 28	Iron (as Fe) Lead (as Pb) Manganese (as N	Mn)	mg/l	IS 3025 (Part)	2):2019 2):2019	1.0		0.24 BDL (DL - 0.001	
24 25 26 27 28 29	Iron (as Fe) Lead (as Pb) Manganese (as M Mercury (as Hg)	Mn)	mg/l mg/l	IS 3025 (Part) IS 3025 (Part)	2):2019 2):2019 2):2019 2):2019	1.0 0.01	No relaxation No relaxation 0.3	0.24 BDL (DL - 0.001 BDL (DL - 0.05	
24 25 26 27 28 29 30	Iron (as Fe) Lead (as Pb) Manganese (as M Mercury (as Hg) Selenium (as Se	Mn))	mg/l mg/l mg/l	IS 3025 (Part IS 3025 (Part IS 3025 (Part)	2) : 2019 2) : 2019 2) : 2019 2) : 2019 8) : 1994	1.0 0.01 0.1	No relaxation No relaxation 0.3 No relaxation	0.24 BDL (DL - 0.001 BDL (DL - 0.05 BDL (DL - 0.0005	
24 25 26 27 28 29 30 31	Iron (as Fe) Lead (as Pb) Manganese (as M Mercury (as Hg) Selenium (as Se Total Chromium	Mn))	mg/l mg/l mg/l mg/l	IS 3025 (Part) IS 3025 (Part) IS 3025 (Part) IS 3025 (Part 4	2) : 2019 2) : 2019 2) : 2019 2) : 2019 8) : 1994 6) : 2003	1.0 0.01 0.1 0.001	No relaxation No relaxation 0.3 No relaxation No relaxation	0.24 BDL (DL - 0.001 BDL (DL - 0.005 BDL (DL - 0.0005 BDL (DL - 0.001	
24 25 26 27 28 29 30 31 32	Iron (as Fe) Lead (as Pb) Manganese (as M Mercury (as Hg) Selenium (as Se	Mn))) (as Cr)	mg/l mg/l mg/l mg/l mg/l	IS 3025 (Part IS 3025 (Part IS 3025 (Part IS 3025 (Part IS 3025 (Part IS 3025 (Part 5	2): 2019 2): 2019 2): 2019 2): 2019 8): 1994 6): 2003 2): 2019	1.0 0.01 0.1 0.001 0.01	No relaxation No relaxation 0.3 No relaxation	BDL (DL - 0.001 0.24 BDL (DL - 0.001 BDL (DL - 0.005 BDL (DL - 0.0005 BDL (DL - 0.001) BDL (DL - 0.03) BDL (DL - 0.1)	

Please refer last Page for Note and Remarks.

Shashikant Satdeve Sr. Chemist

Verified By

Shubhangi Armarkar Technica Manager

Sonali Gharpure Technical Manager **Authorized Signatory**

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Dr. (Mrs.) S.D. Garway Quality Manager





TEST REPORT

III D No. TOFIERRA



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Issi	ued To :	LPL/30112021/1-1		dated 30/11/202 nward No. 2021		147/60 000		3 of 3
M/9	s Joda East Iron	Mines	Inward D			147/60-GW-6	Analysis Start	23/11/2021
(M	/s TATA Steel L	imited)		Reference W.O 3000132460/962			Analysis End	29/11/2021
			1.				Report Issue Da	
			Reference	Date 15.03	5.2020		Sample Categor	y Water
	Sample Name Ground Water	Sample Source Borewell		e Particulars e Code-GW-6		nple Condition d & Ice Preserve		y Received & 250 ml
	Sample Col Anacon Representati	lected By		pling Date	Sa	mpling Time	Samplin	g Location
		to with R. Fandey	17	/11/2021	10.4	0 am to 5.30 pm		Chief Office
				TEST RESUL	TS			Since Onloc
S.N.	Test Pa	rameter	Measurement Unit	t Test Method		IS 105 (Drinking Wat	nent as per 00 : 2012 er Specifications) nendment No. 3	Test Result
34	Pesticide Residu	ies Organochlorin			Acce	eptable Limit	Permissible Limit #	-
i	Alpha-HCH	es organocinor in		131 /0				
ii	Beta HCH		μg/l	ANtr/7.2/RES/01:	2018	0.01	No relaxation	BDL (DL - 0.01
iii	Gamma - HCH ((indane)	μg/l	ANtr/7.2/RES/01:	2018	0.04	No relaxation	BDL (DL - 0.03
iv	Delta- HCH	(Sindune)	μg/l	ANtr/7.2/RES/01:	2018	2	No relaxation	BDL (DL - 0.03)
v	Alachlor		μg/l μg/l	ANtr/7.2/RES/01: :	2018	0.04	No relaxation	BDL (DL - 0.03)
vi	Aldrin		μg/1	ANtr/7.2/RES/01: 1	2018	20	No relaxation	BDL (DL - 0.03)
vii	Dieldrin		μg/1 μg/l	ANtr/7.2/RES/01: 2	2018	0.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor		μg/l	ANtr/7.2/RES/01: 2	2018	0.03	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE		μg/1	ANtr/7.2/RES/01: 2	.018	125	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE			ANtr/7.2/RES/01: 2	018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD			ANtr/7.2/RES/01: 2	018	1	No relaxation	BDL (DL - 0.03)
cii	o,p'-DDD			ANtr/7.2/RES/01: 2		1	No relaxation	BDL (DL - 0.03)
iii	o,p'- DDT			ANtr/7.2/RES/01: 2	018	1	No relaxation	BDL (DL - 0.03)
iv	p,p'- DDT		and the second se	ANtr/7.2/RES/01: 2	018	1	No relaxation	BDL (DL - 0.03)
v	Monocrotophos			ANtr/7.2/RES/01:2	018	1	No relaxation	BDL (DL - 0.03)
vi	Atrazine			ANtr/7.2/RES/01: 2	018	1	No relaxation	BDL (DL - 0.03)
	Parathion methyl			ANtr/7.2/RES/01: 2)18	2	No relaxation	BDL (DL - 0.03)
	Paraoxon methyl			ANtr/7.2/RES/01: 20	018	0.3		BDL (DL - 0.03)
ix	Malathion			ANtr/7.2/RES/01: 20	018	-		BDL (DL - 0.03)
	Malaoxon			ANtr/7.2/RES/01: 20	18	190	No relaxation	BDL (DL - 0.03)
	Ethion			ANtr/7.2/RES/01: 20	810	-		BDL (DL - 0.03)
ii	Chlorpyrifos			ANtr/7.2/RES/01: 20	18	3		BDL (DL - 0.03)
1		Original Test Report" to	the second se	ANtr/7.2/RES/01: 20	18	30		BDL (DL - 0.03)

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REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

Verified By

Sonal Gharpure

Authorized Signatory

Laboratory address : FP-Bechific advianage, 5 Star Industrial Estate, MIDC Butibori, Nagpur - 441 122Pr. (Mrs.) S.D. Garway



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TEST REPORT

2.74	Test Report No	D.: ALPL/30	112021/	1		ed 30/11/2021		and the second second	Page 1 of 1
M/s	d To : Joda East Iron TATA Steel Li			Sample In Inward D Reference Reference	8	2021/MON-1 22/11/2021 W.O 30001 15.05.2020		Analysis Start Analysis End Report Issue Da Sample Categor	
	mple Name ound Water	Sample S Borew		100000000000000000000000000000000000000	e Particular: e Code-GW-6		ple Condition & Ice Preserved		y Received & 250 ml
A	Sample Col Anacon Representation		ley		pling Date 7/11/2021	and the second second	mpling Time) am to 5.30 pm		g Location Chief Office
					TEST F	RESULTS	and the second s	1 A 1	
s.n.	Test Par	ameter	201103085	surement Unit	Test	Method	IS 105 (Drinking Wat	nent as per 00 : 2012 er Specifications) nendment No. 3	Test Result
							Acceptable Limit	Permissible Limit #	
1	Chemical Testi 1. Residues In					A			
1	Mineral Oil		E C	mg/l	ANtr/7.2/F	RES/06: 2018	1	No relaxation	BDL (DL - 0.001

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is fit for drinking purpose with respect to tested parameters.

Verified By

Sonali Gharpure Technical Manager

Authorized Signatory 2

Dr. (Mrs.) S.D. Garway Quality Manager

-END OF REPORT-----



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TEST REPORT

Issued To :	PL/30112021/1-14A	dated 30/1 Sample Inward No.	Page 1 of	f 3	
M/s Joda East Iron	1 Mines	T 10.		Analysis Start	23/11/202
(M/s TATA Steel Limited)		Inward Date 22/11/2021 Reference W.O 3000132460/962 Reference Date 15.05.2020		Analysis End	29/11/202
				Report Issue Date Sample Category	30/11/202 Water
Sample Name Ground Water	Sample Source Borewell	Sample Particulars Sample Code-GW-7	Sample Condition Sealed & Ice Preserved	Quantity Received	
Sample Co	llected By	Sampling Date		2.0 Ltr & 250 ml	
Anacon Representative Mr. K. Pandey		Sampling DateSampling Time17/11/202110.40 am to 5.30 pi		Sampling Location JEIM-Nr. RC Gate	

TEST	RESULTS	

S.N.	Test Parameter	Test Parameter Measurement Unit Test Me		Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
I	Biological Testing 1. Water			Acceptable Limit	Permissible Limit #	1
1	Escherichia coli	D 100 1			Diant #	
П	Chemical Testing 1. Water	Per 100 ml	IS 15185 : 2016	Absent	Absent	1 11
2	Alkalinity (as CaCO ₃)		60.5		Ausent	Absent
	Anionia gunface ati	mg/l	IS 3025 (Part 23) : 1986	200	(00	
3	Anionic surface active agents (as MBAS)	mg/l		200	600	140.3
4	Colour		IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
5		Hazen units	IS 3025 (Part 4) : 2021	5	15	(00 0.01)
6	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	15	1
7	Chloride (as CI)	mg/l	IS 3025 (Part 32) :1988	250	No relaxation	BDL (DL - 0.005
8	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991		1000	46.55
	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	75	200	40.39
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2021	Min. 0.2	1	BDL $(DL - 0.1)$
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	1.0	1.5	BDL $(DL - 0.1)$
11	Nitrate (as NO ₃)		APHA method 23rd edition: 2017	30	100	15.43
12	Odour		IS 2025 (D. 15) 12007	45	No relaxation	10.97
	pH	-	IS 3025 (Part 5) : 1983	Agreeable	Agreeable	Agreeable
14	Phenolic compounds (as C6H5OH)	mg/l	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.40 at 25°C
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 43) : 1992	0.001		BDL (DL - 0.001)
	Taste	ing/1	IS 3025 (Part 24) : 1986	200	400	16.59
17	Total dissolved solids	mg/l	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
	Turbidity	NTU	IS 3025 (Part 16) : 1984	500	2000	242
19	Total hardness (as CaCO ₃)		IS 3025 (Part 10) : 1984	1	5	
DI	ase refer last Page for Note and R	mg/l	IS 3025 (Part 21) : 2009	200	600	0.4

Verified By

Shubhangi Armarkar

Technical Manager

Pooja Kathahe

Technical Manager

Authorized Signatories

ANAC

Dr. (Mrs.) S.D. Garway Quality Manager





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TEST REPORT

Test I	No TC54582100 Report No. : AL ed To :	00003041F .PL/30112021/1-1		dated 30/11.	and the second se		Page	2 of 3
M/s (M/:	Joda East Iron s TATA Steel L	Mines imited)	Sample In Inward Da Reference Reference	ate 2	2021/MON- 22/11/2021 W.O 30001 15.05.2020	147/60-GW-7 132460/962	Analysis Start Analysis End Report Issue Data Sample Category	23/11/2021 29/11/2021 e 30/11/2021
	ample Name round Water	Sample Source Borewell	Sample	e Particulars Code-GW-7		nple Condition	Quantity 2.0 Ltr &	Received
1	Sample Col Anacon Representat			pling Date /11/2021 TEST RES	10.40	mpling Time 0 am to 5.30 pm	Sampling JEIM-Nr.	Location
S.N.	Test P:	arameter	Measurement Unit	Test Me		IS 105 (Drinking Wate	nent as per 00 : 2012 er Specifications) tendment No. 3	Test Result
п	Chemical Testi	ng				Acceptable Limit	Permissible Limit #	
20	2. Residues In Arsenic (as As)				11-1-1			

	2. Residues In Water					_
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01		
21	Aluminium (as Al)		IS 3025 (Part 2) : 2019 /	0.01	No relaxation	BDL (DL - 0.01)
22	and the second se	mg/l	IS 3025 (Part 55): 2003	0.03	0.2	BDL (DL - 0.01)
22	Barium (as Ba)	mg/l	IS 3025 (Part 2) : 2019	0.7		
23	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.7	No relaxation	BDL (DL - 0.01)
24	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019		2.4	BDL (DL - 0.1)
25	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
26	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.00)
17	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.31
8	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.00)
9	Mercury (as Hg)	mg/l	IS 3025 (Part 48) : 1994	0.1	0.3	BDL (DL - 0.05
0	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.001	No relaxation	BDL (DL - 0.0005
1	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL- 0.001)
2	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
3	Polynuclear aromatic		15 5025 (Fart 2): 2019	5	15	BDL (DL - 0.1)
	hydrocarbon (PAH)	μg/1	ANqr RES-30	0.1	No relaxation	
Ple	ase refer last Page for Note and	Ramarka		(078/195)	1.0 relaxation	BDL(DL-0.03

Please refer last Page for Note and Remarks.

Shashikant Satdeve Sr. Chemist

Verified By

game Shubhangi Armarkar Technical Manager

Sonali Gharpure

Technical Manager

Authorized Signatory

ear

Dr. (Mrs.) S.D. Garway Quality Manager







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TEST REPORT

Issu	ied To :	PL/30112021/1-14		dated 30/11/202 nward No. 2021		1.100.000	Page	e 3 of 3	
M/s (M/	Joda East Iron 's TATA Steel L	Mines imited)	Inward D Reference	ate 22/1	1/2021	147/60-GW-7	Analysis Start Analysis End	23/11/202 29/11/202	
			Reference		5.2020	132460/962	Report Issue Da Sample Categor	te 30/11/202 y Water	
	ample Name round Water	Sample Source Borewell			Sample Condition		Quantit	Received	
	Sample Col Anacon Representat	llected By ive Mr. K. Pandey	Sam	pling Date /11/2021	Sealed & Ice Preserved Sampling Time		Samplin	& 250 ml g Location	
_				TEST RESUL	10.40	0 am to 5.30 pm	JEIM-N	r. RC Gate	
S.N.	Test Pa	arameter	Measurement Unit			IS 105 (Drinking Wat Including An	ment as per 00 : 2012 er Specifications) nendment No. 3	Test Result	
34	Pesticide Residu	ues Organochlorine			Acce	eptable Limit	Permissible Limit #		
i	Alpha-HCH	Builden	μg/l	ANta/7 2/DEC/01	0.01.0				
ii	Beta HCH	1.8	μg/1	ANtr/7.2/RES/01:	2018	0.01	No relaxation	BDL (DL - 0.01	
iii	Gamma - HCH (Lindane)	μg/l	ANtr/7.2/RES/01:	2018	0.04	No relaxation	BDL (DL - 0.03	
iv	Delta- HCH		μg/l	ANtr/7.2/RES/01:	2018	2	No relaxation	BDL (DL - 0.03	
v	Alachlor		$\mu g/l$	ANtr/7.2/RES/01:	2018	0.04	No relaxation	BDL (DL - 0.03	
vi	Aldrin		μg/l	ANtr/7.2/RES/01: 2	2018	20	No relaxation	BDL (DL - 0.03	
'ii	Dieldrin		μg/l	ANtr/7.2/RES/01: 2	2018	0.03	No relaxation	BDL (DL - 0.03	
iii	Butachlor		μg/l	ANtr/7.2/RES/01: 2	2018	0.03	No relaxation	BDL (DL - 0.03	
x	p,p'-DDE			ANtr/7.2/RES/01: 2	2018	125	No relaxation	BDL (DL - 0.03	
x	o,p'-DDE			ANtr/7.2/RES/01: 2	2018	1	No relaxation	BDL (DL - 0.03)	
	p,p'-DDD			ANtr/7.2/RES/01: 2	018	1	No relaxation	BDL (DL - 0.03)	
	o,p'-DDD			ANtr/7.2/RES/01: 2	018	1	No relaxation	BDL (DL - 0.03)	
	o,p'- DDT			ANtr/7.2/RES/01: 2 ANtr/7.2/RES/01: 2	018	1	No relaxation	BDL (DL - 0.03)	
	p,p'- DDT			ANtr/7.2/RES/01: 2	018	1	No relaxation	BDL (DL - 0.03)	
v	Monocrotophos			ANtr/7.2/RES/01: 2	018	1	No relaxation	BDL (DL - 0.03)	
	Atrazine		And the second sec	ANtr/7.2/RES/01: 20	018	1	No relaxation	BDL (DL - 0.03)	
ii	Parathion methyl			ANtr/7.2/RES/01: 20	018	2	No relaxation	BDL (DL - 0.03)	
ii 1	Paraoxon methyl			ANtr/7.2/RES/01: 20	018	0.3	No relaxation	BDL (DL - 0.03)	
	Malathion			ANtr/7.2/RES/01: 20	010	-	-	BDL (DL - 0.03)	
1	Malaoxon			ANtr/7.2/RES/01: 20	10	190	No relaxation	BDL (DL - 0.03)	
	Ethion			ANtr/7.2/RES/01: 20	18	-	-	BDL (DL - 0.03)	
ii (Chlorpyrifos			Ntr/7.2/RES/01: 20	18	3	No relaxation	BDL (DL - 0.03)	
	10		10		10	30		DDL (DL 0.00)	

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REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

Verified By Sonali Gharpure Technical Manage

Authorized Signatory

Dr. (Mrs.) S.D. Garway

Laboratory address : FP-34, 35, Food Park, 5 Star Industrial Estate, MIDC Butibori, Nagpur - 441 122. Quality

Quality Manager

MILA



• ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 Certified

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TEST REPORT

M/s	Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited)		In Re	imple Inward N ward Date eference eference Date	dated 3C/11/2021 0. 2021/MON- 22/11/2021 W.O 30001 15.05.2020	147/60-GW-7	Analysis Start Analysis End Report Issue D Sample Catego	29/11/2021 ate 30/11/2021
	ample Name round Water	Sample S Borew		Sample Particu Sample Code-G	lars San	ple Condition	Quanti	ty Received
	Sample Col Anacon Representat	lected By we Mr. K. Pand	ey	Sampling Da 17/11/2021	te Sa	mpling Time) am to 5.30 pm	Sampli	r & 250 ml
			1	TES	T RESULTS		JEIM-1	Nr. RC Gate
S.N.	Test Parameter Mea		Measurer Unit			IS 105 (Drinking Wat Including An	ment as per 00 : 2012 er Specifications) nendment No. 3	Test Result
I	Chemical Testi 1. Residues In	ng Watar				Acceptable Limit	Permissible Limit #	
1	Mineral Oil	water	mg/l	121.17	2/RES/06: 2018	1 1		

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REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

Verified By

Sonali Gharpure Technical Manager

Authorized Signatory

Dr. (Mrs.) S.D. Garway Quality Manager

-----End of Report-----





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 Bureau of Indian Standards (BIS), Agricultural & Processed Food Products Export Development Authority (APEDA). · Export inspection council (EIC): AGMARK

TEST REPORT

Test Report No. : ALPL/28022022/1-8A Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited)		dated 28/0 Sample Inward No. Inward Date Reference Reference Date	2/2022 2022/MON-32/60-GW-1 22/02/2022 W.O 3000132460/962 15.05.2020	Page 1 of Analysis Start Analysis End Report Issue Date Sample Category	22/02/2022 28/02/2022 28/02/2022 28/02/2022 Water
Sample Name Ground Water	March 1995 March 1997 States of Stat		Sample Condition Sealed & Ice Preserved	Quantity Re 5.0 Ltr & 2	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 16/02/2022	Sampling Time 10.40 am to 5.30 pm	Sampling Lo Komar Joda Village	

TEST RESULTS

s.n.	' Test Parameter	Measurement Unit	Test Method	Requirem IS 1050 (Drinking Water Including Ame	0 : 2012 r Specifications)	Test Result
				Acceptable Limit	Permissible Limit #	
1	Biological Testing 1. Water					
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
11	Chemical Testing 1. Water					
2	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	138.7
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL - 0.005)
6	Chloride (as Cl)	mg/l	1S 3025 (Part 32) :1988	250	1000	48.52
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	51.96
8	Free residual chlorine	mg/I	1S 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL-0.1)
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.13
10	Magnesium (as Mg)	mg/l	1S 3025 (Part 46) : 1994	30	100	12.68
11	Nitrate (as NO ₁)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	7.16
12	Odour		1S 3025 (Part 5) : 1983	Agreeable	Agreeable	Agreeable
13	pH		IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.32 at 25°C
14	Phenolic compounds (as C6H5OH)	mg/l	IS 3025 (Part 43) : 1992	0.001	0.002	BDL (DL - 0.001
15	Sulphate (as SO ₄)	mg/I	1S 3025 (Part 24) : 1986	200	400	12.96
16	Taste		IS 3025 (Part 8): 1984	Agreeable	Agrecable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	264
18	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.4
19	Total hardness (as CaCO ₃)	mg/l	1S 3025 (Part 21) : 2009	200	600	181.97

Please refer last Page for Note and Remarks.

Verified By

Samuelcere

Shubhangi Armarkar Technical Manager

.

Authorized Signatories

V Pooja Kathane Technical Manager

Dr. (Mrs.) S.D. Garway

Quality Manager

ARAC INLANS

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TEST REPORT

BDL (DL = 0.001)

BDL (DL - 0.05)

BDL (DL - 0.0005)

BDL (DL-0.001)

BDL (DL = 0.03)

BDL(DL-0.03)

BDL (DL - 0.1)

ANAC INLAS

Issu	ed To :	PL/28022022/1-8A	Trees and the second se	dated 28/		and a second s	A 1000 - 00000 - 1		e 2 of 3
M/s Joda East Iron Mines (M/s TATA Steel Limited)			Sample Inward No. Inward Date Reference Reference Date		2022/MON-32/60-GW-1 22/02/2022 W.O 3000132460/962 15.05.2020		Analysis Start Analysis End Report Issue Da Sample Categor		
	ample Name round Water	Sample Particul Sample Code-GV		100700		ple Condition & Ice Preserved		y Received	
Sample Collected By Anacon Representative Mr. K. Pandey				Sampling Date 16/02/2022		Sampling Time 10.40 am to 5.30 pm		Sampling Location Komar Joda Village (Nr. Road S	
				TEST	RESU	LTS		Transition Product This	age (bit, Road Side
s.n.	N. Test Parameter		leasurement Unit	Test	Metho	bd	IS 105 (Drinking Wat Including Ar	ment as per 600 : 2012 Fer Specifications) nendment No. 3	Test Result
11							Acceptable Limit	Permissible Limit #	
	Chemical Testin	g 2. Residues In V	Vater		1				
20	Arsenic (as As)		mg/l	IS 3025 (P	art 17	- 1099	0.01		
21	Aluminium (as A	d)	mg/l	1S 3025 (P IS 3025 (F	art 2)	2019/	0.03	No relaxation 0.2	BDL (DL - 0.01) BDL (DL - 0.01)
22	Barium (as Ba)		mg/l	1S 3025 (1	Part 7)	2005	0.7	100	BDL (DL = 0.01)
23	Boron (as B)		mg/l	18 3025 (1			0.7	No relaxation	0.04
24	Copper (as Cu)		mg/l	IS 3025 (I	Part 2)	2019	0.5	2.4	0.13
25	Cadmium (as Cd))	mg/l	1S 3025 (F			0.05	1.5	BDL (DL - 0.03)
26	Iron (as Fe)		mg/l	IS 3025 (F			0.003	No relaxation	BDL (DL - 0.001
27	Lead (as Pb)		mall	15 2025 /			1.0	No relaxation	0.24

IS 3025 (Part 2) : 2019

IS 3025 (Part 2): 2019

IS 3025 (Part 48) : 1994 30 Selenium (as Se) mg/l IS 3025 (Part 56) : 2003 31 Total Chromium (as Cr) mg/l IS 3025 (Part 2) : 2019 32 Zinc (as Zn) mg/l IS 3025 (Part 2): 2019 Polynuclear aromatic 33 µg/l hydrocarbon (PAH) ANtr/7.2/RES/01: 2018

mg/l

mg/l

mg/l

Please refer last Page for Note and Remarks.

Verified By

Manganese (as Mn)

Mercury (as Hg)

28

29

Shashikant Satdeve Sr. Chemist

Authorized Signatory

No relaxation

0.3

No relaxation

No relaxation

No relaxation

15

No relaxation

0.01

0.1

0.001

0.01

0.05

5

0.1

Jaw

Dr. (Mrs.) S.D. Garway Quality Manager

Laboratory address : FP-34, 35, Food Park, 5 Star Industrial Estate, MIDC Bullbori, Nagpur - 441 122. Email : support@anacon.in;

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TEST REPORT

Test Report No. : Al	PL/28022022/1-8A	dated 28/0	2/2022		Page 3 of	3
Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited)		Sample Inward No. Inward Date Reference Reference Date	2022/MON-32/60-GW-1 22/02/2022 W.O 3000132460/962 15.05.2020		Analysis Start Analysis End Report Issue Date Sample Category	22/02/2022 28/02/2022 28/02/2022 Water
Sample Name Sample Source		Sample Particulars			Quantity Received	
Ground Water Dugwell		Sample Code-GW-1			5.0 Ltr & 250 ml	
Sample Collected By		Sampling Date		Sampling Time	Sampling Location	
Anacon Representative Mr. K. Pandey		16/02/2022		10.40 am to 5.30 pm	Komar Joda Village (Nr. Road Si	

TEST RESULTS

s.N.	Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wat	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		
				Acceptable Limit	Permissible Limit #		
.34	Migeral Oil	mg/l	ANtr/7.2/RES/06: 201	8 1	No relaxation	BDL (DL - 0.001	
35	Pesticide Residues Organochlori	ne					
1	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 201	8 0.01	No relaxation	BDL (DL = 0.01	
11	Beta HCH	μg/1	ANtr/7.2/RES/01: 201	8 0.04	No relaxation	BDL (DL - 0.03)	
iii	Gamma - HCH (Lindane)	μg/l	ANtt/7.2/RES/01: 201	8 2	No relaxation	BDL (DL = 0.03)	
iv	Delta- HCH	μμ/Ι	ANtr/7.2/RES/01: 201	8 0.04	No relaxation	BDL (DL - 0.03)	
v	Alachior	µg/l	ANtr/7.2/RES/01: 201	8 20	No relaxation	BDL (DL + 0.03)	
vi	Aldrin	Part Part	ANn/7.2/RES/01: 201	8 0.03	No relaxation	BDL (DL - 0.03	
vii	Dieldrin	paq	ANtr/7.2/RES/01: 201	8 0.03	No relaxation	BDL (DL = 0.03)	
vill	Butachlor	μgA	ANtr/7.2/RES/01: 201	8 125	No relaxation	BDL (DL + 0.03	
ix	p.p'-DDE	µg/l	ANtr/7.2/RES/01: 201	8 1	No relaxation	BDL (DL = 0.03	
x	0,p-DDE	µg/1	ANu/7.2/RES/01: 201	8 1	No relaxation	BDL (DL - 0.03	
XI	p.p -DDD	µg/l	ANtr/7.2/RES/01: 201	8 1	No relaxation	BDL (DL = 0.03	
XII	o.p -DDD	μg/1	ANtr/7.2/RES/01: 201	8 1	No relaxation	BDL (DL - 0.03	
XIII	o.p'- DDT	µg/l	ANtr/7.2/RES/01: 201	8 1	No relaxation	BDL (DL - 0.03	
xiv	p.p'- DDT	µg/1	ANtr/7.2/RES/01:201	8 1	No relaxation	BDL (DL - 0.03	
XV.	Monocrotophos	µg/1	ANtr/7.2/RES/01:201	8 1	No relaxation	BDL (DL - 0.03	
xvi	Atrazine	µg/l	ANtr/7.2/RES/01:201	8 2	No relaxation	BDL (DL - 0.03	
xvii	Parathion methyl	μµΛ	ANtr/7.2/RES/01:20	and a summer of the summer state of the	No relaxation	BDL (DL - 0.03	
xvili	Paraoxon methyl	μgA	ANtr/7.2/RES/01: 201	8 +	+	BDL (DL + 0.03	
xix	Malathion	μμ/1	ANtr/7.2/RES/01: 20	8 190	No relaxation	BDL (DL + 0.03	
XX	Malauxon	µg/l	ANtr/7.2/RES/01: 20	8 -		BDL (DL - 0.03	
333	Ethion	µg/l	ANtr/7.2/RES/01: 20	8 3	No relaxation	BDL (DL - 0.03	
xxii	Chlorpyrifes	µg/l	ANtr/7.2/RES/01: 20	8 30	No relaxation	BDL (DL - 0.03	

NOTE:
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REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

Verified By Sonali Gharpure Technical Manager

----- End of Report-----

Authorized Signatory Staw

Dr. (Mrs.) S.D. Garway **Quality Manager**

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 Export Inspection council (EIC); AGMARK;

TEST REPORT

Test Report No. : A	LPL/28022022/1-9A	dated 28/0	2/20	22	Page 1 of	3
Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited)		Inward Date		2/MON-32/60-GW-2 12/2022 0 3000132460/962 05.2020	Analysis Start Analysis End Report Issue Date Sample Category	22/02/2022 28/02/2022 28/02/2022 Water
Sample Name Sample Source Ground Water Dugwell		Sample Particulars Sample Code-GW-2		Sample Condition Sealed & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml	
	Hected By tive Mr. K. Pandey	Sampling Date 16/02/2022	74	Sampling Time 10.40 am to 5.30 pm	Sampling Lo Banaikala Villa	

TEST RESULTS

5.N.	Test Parameter	Measurement Unit	Test Method	Requirem IS 10500 (Drinking Water Including Ame	0 : 2012 Specifications)	Test Result
				Acceptable Limit	Permissible Limit #	
1	Biological Testing 1. Water					
1	Escherichia coli	Per 100 mi	IS 15185 : 2016	Absent	Absent	Absent
11	Chemical Testing L. Water					
2	Alkalinity (as CaCO ₂)	mg/l	IS 3025 (Part 23) : 1986	200	600	146.2
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	1S 3025 (Part 4) : 2021	5	15	1
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL-0.005)
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	32.68
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	48.29
8	Free residual chlorine	mg/l	1S 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL - 0.1)
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.14
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	11.94
11	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	8.16
12	Odour	2	1S 3025 (Part 5) : 1983	Agreeable	Agreeable	Agreeable
13	pH		IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.18 at 25°C
14	Phenolic compounds (as CoH3OH)	mg/l	IS 3025 (Part 43) : 1992	0.001	0.002	BDL (DL - 0.001
15	Sulphate (as SO ₄)	mg/l	1S 3025 (Part 24) : 1986	200	400	13.52
16	Taste	-	1S 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	276
18	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
19	Total hardness (as CaCO3)	mg/l	1S 3025 (Part 21) : 2009	200	600	169.76

Please refer last Page for Note and Remarks.

Verified By

Sumuelove

Shubhangi Armarkar Technical Manager

Pooja Kathane Technical Manager

Authorized Signatories

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Dr. (Mrs.) S.D. Garway Quality Manager

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 Export Inspection council (ECL) AGMARK Export inspection council (EIC); AGMARK.

TEST REPORT

Issu	ied To :	.PL/28022022/1-	Sample In	dated 2 ward No.			32/60-GW-2	Pa Analysis Start	ge 2 of 3	
(M/	Re Re		Reference	Inward Date 22/02/2022 Reference W.O 30001 Reference Date 15.05.2020			Analysis Start Analysis End Report Issue I Sample Catego	28/02/202 Pate 28/02/202		
	ample Name round Water	Sample Source Dugwell		e Particula Code-GW		San	ple Condition	Ound	ity Received	
	Sample Col	lected By		12			& Ice Preserved		tr & 250 ml	
	Anacon Representati	ve Mr. K. Pandey	010	ampling Date 16/02/2022			mpling Time		ng Location	
			10	and the second se	RESU	10.40	am to 5.30 pm	Banaikala	Village (Gov.)	
	1			16.51	RE-SU	LIS				
5.N.	Test Pa	rameter	Measurement Unit	Tes	t Meth	od	IS 10 (Drinking Wa	ement as per 500 : 2012 ter Specifications) mendment No. 3	Test Result	
11	Chemical Testin	g 2. Residues In	Water				Acceptable Limit	Permissible Limit #		
20	Arsenic (as As)	e		-						
21	111111111111111111111111111111111111111		mg/l	18 3025 (Part 37]: 1988	0.01	No relaxation	Dist day a set	
	Aluminium (as A	10	mg/l	IS 3025 (Part 2)	:2019/	0.03		BDL (DL - 0.01)	
12	Barium (as Ba)		mg/l	IS 3025 (Part 55): 2003	0.03	0.2	BDL (DL - 0.01)	
3	Boron (as B)		mg/l	IS 3025 (Part 2)	: 2019	0.7	No relaxation	0.03	
4	Copper (as Cu)		mg/l	IS 3025 (Part 2)	: 2019	0.5	2.4	0.14	
5	Cadmium (as Cd)		mg/l	18 3025 (Part 2)	: 2019	0.05	1.5	BDL (DL - 0.03)	
6	Iron (as Fe)		mg/l	18 3025 (Part 2)	:2019	0.003	No relaxation	BDL (DL - 0.001)	
7	Lead (as Pb)		mg/l	IS 3025 (Part 2)	: 2019	1.0	No relaxation	0.17	
8	Manganese (as M	n)	mg/l	1S 3025 (Part 2)	: 2019	0.01	No relaxation	BDL (DL - 0.001)	
9	Mercury (as Hg)		mg/1	15 3025 (Part 2)	: 2019	0.1	0.3	BDL (DL - 0.05)	
0	Selenium (as Se)		mg/1	15 3025 (F	art 48)	: 1994	0.001	No relaxation	BDL (DL - 0.0005)	
	Total Cheomium (101	the second se	IS 3025 (P	(art 56)	: 2003	0.01	No relaxation	100 - 0.0005	
1	a come concommune (BS Cr)	me/l	18 2026 0	1	40. cl. m. cl.		A 40 DemiAntion	BDL(D) = 0.0011	
2	Total Chromium (Zinc (as Zn) Polynuclear aroma		mg/I mg/I	IS 3025 (1 IS 3025 (1	Part 2)	2019	0.05	No relaxation	BDL (DL- 0.001) BDL (DL - 0.03)	

ANtr/7.2/RES/01: 2018

hydrocarbon (PAH) D Please refer last Page for Note and Remarks.

Verified By

Shashikant Satdeve Sr. Chemist

Authorized Signatory

No relaxation

BDL(DL-0.03)

ANAC

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0.1

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Dr. (Mrs.) S.D. Garway Quality Manager

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 Bureau of Indian Standards (BIS); Agricultural & Processed Food Products Export Development Authority (APEDA); Export inspection council (EIC): AGMARK

TEST REPORT

Test Report No. : Al	PL/28022022/1-9A	dated 28/0	2/2022	Page 3 of	63	
Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited)		Sample Inward No. Inward Date Reference Reference Date	2022/MON-32/60-GW-2 22/02/2022 W.O 3000132460/962 15.05.2020	Analysis Start Analysis End Report Issue Date Sample Category	22/02/2022 28/02/2022 28/02/2022 Water	
Sample Name Sample Source		Sample Particulars	Sample Condition	Quantity Received		
Ground Water Dugwell		Sample Code-GW-2	Scaled & Ice Preserved	5.0 Ltr & 250 ml		
Sample Collected By		Sampling Date	Sampling Time	5,750,A1,4,111,044,171	Sampling Location	
Anacon Representative Mr. K. Pandey		16/02/2022	10.40 am to 5.30 pm		Banaikala Village (Gov.)	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wat	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		
				and the second second	Acceptable Limit	Permissible Limit #	in and the second
34	Mineral Oil	mg/l	ANtr/7.2/RES/06: 2018	1	No relaxation	BDL (DL - 0.001	
35	Pesticide Residues Organochlori	DC	and some some some	V N CONT		manage and there	
1	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)	
11	Beta HCH	µg/1	ANtr/7,2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)	
iii	Gamma - HCH (Lindane)	μg/l	ANte/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)	
ix.	Delta-HCH	µg/l	ANtt/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)	
N.	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)	
vi	Aldrin	μ <u>μ</u> /]	ANtr/7.2/RES/01:2018	0.03	No relaxation	BDL (DL - 0.03)	
vii	Dieldrin	µg/1	ANtr/7.2/RES/01:2018	0.03	No relaxation	BDL (DL - 0.03	
viii	Butachior	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03	
ix.	p,p -DDE	µg/1	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03	
x	o,p'-DDE	μg/1	ANtt/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03	
xi	p.p -DDD	μg/l	ANtr/7.2/RES/01: 2018	3 1	No relaxation	BDL (DL + 0.03)	
XII	o.p -DDD	μg/3	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03	
xiii	a,p'+ DDT	µg/l	ANte/7.2/RES/01: 2018	5 1	No relaxation	BDL (DL - 0.03)	
xiv	p.p - DDT	μg/1	ANtr/7.2/RES/01: 2018	3 1	No relaxation	BDL (DL + 0.03	
XV	Monocrotophos	µ2/1	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03	
XVI	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03	
xvii	Parathion methyl	ugil	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03	
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2011			BDL (DL - 0.03	
xix	Malathion	µg/1	ANtr/7.2/RES/01: 2018	8 190	No relaxation	BDL (DL - 0.03	
XX	Malaoxon	µ2/1	ANtr/7.2/RES/01: 2011			BDL (DL + 0.03	
xxi	Ethion	μgA	ANtr/7.2/RES/01: 2011	3	No relaxation	BDL (DL + 0.03	
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2014	30	No relaxation	BDL (DL - 0.03	

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#Permissible limit in absence of an alternate source for drinking water.
'mg?l' is equivalent to 'ppb'.
DL- Below detection limit.
DL- DL Indicates detection limit of instrument /method and shall be considered as 'absent'.
Result for test no. N is not relevant.
ANtr/7.2/RES -91,06,: Inhouse validated method.
NT' indicates cot Tested as sample failed to establish safety concerns.

REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

Verified By Sonali Gharpure Technical Manager

--- End of Report----

Authorized Signatory jan

Dr. (Mrs.) S.D. Garway Quality Manager

ANAC MULARS

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TEST REPORT

Test Report No. : A	LPL/28022022/1-10/	dated 28/0	2/2022	Page 1 of	13
Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited)		Sample Inward No. Inward Date Reference Reference Date	2022/MON-32/60-GW-3 22/02/2022 W.O 3000132460/962 15.05.2020	Analysis Start Analysis End Report Issue Date Sample Category	22/02/2022 28/02/2022 28/02/2022 Water
Sample Name Sample Source Ground Water Dugwell		Sample Particulars Sample Code-GW-3	Sample Condition Sealed & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 16/02/2022	Sampling Time 10.40 am to 5.30 pm	Sampling Lo Hudi Sahi V (Nr. Komar Joe (Mr. Jagbandh	'illage da Basti)

TEST RESULTS

S.N.	' Test Parameter	Measurement Unit	Test Method			Test Result
		I TRACTORE		Acceptable Limit	Permissible Limit #	
1	Biological Testing 1. Water					
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
11	Chemical Testing 1. Water	- Distance				
2	Alkalinity (as CaCO ₁)	mg/l	IS 3025 (Part 23) : 1986	200	600	127.6
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL-0.01)
4	Colour	Hazen units	IS 3025 (Part 4): 2021	5	15	E
5	Cyanide (as CN)	mg/l	1S 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL-0.005)
6	Chloride (as Cl)	mg/l	1S 3025 (Part 32) :1988	250	1000	24.56
7	Calcium (as Ca)	mg/l	1S 3025 (Part 40) : 1991	75	200	53.91
8	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL-0.1)
9	Fluoride (as F)	mg/l	1S 3025 (Part 60) : 2008	1.0	1.5	0.18
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	12.59
11	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	7.26
12	Odour	-	1S 3025 (Part 5) : 1983	Agreeable	Agreeable	Agreeable
13	pH		1S 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	6.98 at 25°C
14	Phenolic compounds (as CoH3OH)	mg/l	1S 3025 (Part 43) : 1992	0.001	0.002	BDL (DL - 0.001)
15	Sulphate (as SO ₄)	mg/l	1S 3025 (Part 24) : 1986	200	400	14.82
16	Taste		1S 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	281
18	Turbidity	NTU	1S 3025 (Part 10) : 1984	1	5	0.6
19	Total,hardness (as CaCO ₂)	mg/l	IS 3025 (Part 21) : 2009	200	600	186.48

Please refer last Page for Note and Remarks.

Verified By

recert Shubblangi Armarkar Technical Manager

Pooja Kathanc

Technical Manager

Authorized Signatories

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Dr. (Mrs.) S.D. Garway Quality Manager-

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TEST REPORT

Issued Tó : M/s Joda East Iron (M/s TATA Steel L	Mines imited)	Sample Inward No. 2022/MON-32/60-GW-3 Inward Date 22/02/2022 Reference W.O 3000132460/962 Reference Date 15.05.2020		Page 2 of Analysis Start Analysis End Report Issue Date Sample Category	f 3 22/02/2022 28/02/2022 28/02/2022 Water
Sample Name Sample Source Ground Water Dugwell		Sample Particular Sample Code-GW-	s Sample Conditio	n Quantity Re	ceived
Sample Co	Sample Collected By		Sampling Time		
Anacon Representative Mr. K. Pandey		16/02/2022	10,40 am to 5.30 p	Hudi Sahi V	illage la Basti)

TEST RESULTS

S.N.	Test Param <mark>ete</mark> r	Test Parameter Unit	Test Method	Require IS 103 (Drinking Wa Including A	Test Result	
11	24 June 1			Acceptable Limit	Permissible Limit #	1
	Chemical Testing 2. Residu	es In Water				
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	1 0.01		
21	Aluminium (as Al)		1S 3025 (Part 2) : 2019 /	0.01	No relaxation	BDL (DL - 0.01)
2.11		mg/l	IS 3025 (Part 55): 2003	0.03	0.2	BDL (DL D.DL
22	Barium (as Ba)	mg/l	IS 3025 (Part 2) : 2019		185	BDL (DL = 0.01)
23	Boron (as B)	mg/l		0.7	No relaxation	0.04
24	Copper (as Cu)		IS 3025 (Part 2) : 2019	0.5	2.4	0.14
25	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL = 0.03)
26	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001
27	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.17
28	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001
29	Mercury (as Hg)	mg/i	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL - 0.05)
30		mg/l	1S 3025 (Part 48) : 1994	0.001	No relaxation	
31	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL - 0.0005
	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05		BDL (DL-0.001)
32	Zinc (as Zn)	mg/l	1S 3025 (Part 2) : 2019		No relaxation	BDL (DL - 0.03)
33	Polynuclear aromatic hydrocarbon (PAH)	µg/l	ANtr/7.2/RES/01: 2018	5	15 No relaxation	BDL (DL = 0.1) BDL(DL=0.03)

Verified By

Shashikant Satdeve Sr. Chemist

Authorized Signatory

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Dr. (Mrs.) S.D. Garway Quality Manager



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Bureau of Indian Standards (BIS): Agricultural & Processed Food Products Export Development Authority (APEDA);
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TEST REPORT

Test Report No. : A	LFL/28022022/1+10/				Page 3 of	
Issued To : M/s Joda East Iron	Minar	Sample Inward No.	2022/MON-32/60-GW-3		Analysis Start	22/02/2022
(M/s TATA Steel L				Analysis End	28/02/2022	
(Wrs TATA Ster Limited)		Reference W.O 3000132460/962 Reference Date 15.05.2020		Report Issue Date Sample Category	28/02/2022 Water	
Sample Name Ground Water			Lit (Sample Condition Sealed & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 16/02/2022		Sampling Time 10.40 am to 5.30 pm	Sampling Location Hudi Sahi Village (Nr. Komar Joda Basti) (Mr. Jagbandhu Navak)	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit Permissible Limit #		
34	Minefal Oil	mg/l	ANtr/7.2/RES/06: 201	8 1	No relaxation	BDL (DL - 0.001
35	Pesticide Residues Organochlori	ne			in the second	
1.	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 201	8 0.01	No relaxation	BDL (DL - 0.01
-ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 201	8 0.04	No relaxation	BDL (DL + 0.03)
111	Gamma - HCH (Lindane)	μg/1	ANtr/7.2/RES/01: 201	8 2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 201	8 0.04	No relaxation	BDL (DL + 0.03)
v	Alachior	µg/l	ANtr/7.2/RES/01: 201	8 20	No relaxation	BDL (DL - 0.03)
· vi	Aldrin	μg/1	ANtr/7.2/RES/01: 201	8 0.03	No relaxation	BDL (DL - 0.03
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 201	8 0.03	No reluxation	BDL (DL - 0.03
viii	Butachlor	μg/l	ANtr/7.2/RES/01: 201	8 125	No relaxation	BDL (DL - 0.03
ix.	p.p'-DDE	µg/l	ANItr/7.2/RES/01: 201	8 1	No reluxation	BDL (DL - 0.03)
*	o,p'-DDE	μg/1	ANtr/7.2/RES/01: 201	8 1	No relaxation	BDL (DL + 0.03
xi	p,p'-DDD	µg/1	ANtr/7.2/RES/01: 201	8 1	No relaxation	BDL (DL - 0.03
xii	o,p'-DDD	ug/l	ANtr/7.2/RES/01: 201	8 1	No relaxation	BDL (DL - 0.03
xiii	o.p' - DDT	μg/l	ANtr/7.2/RES/01: 201	8 1	No relaxation	BDL (DL - 0.03)
XIV	p.p' - DDT	µg/1	ANtr/7.2/RES/01:201	8 1	No relaxation	BDL (DL + 0.03
AV.	Monocrotophos:	µg/l	ANtr/7.2/RES/01:201	8 1	No relaxation	BDL (DL -0.03
wvi .	Atrazine	µg/l	ANir/7 2/RES/01: 201	8 2	No relaxation	BDL (DL - 0.03
xvii	Parathion methyl	µg/l	ANir/7.2/RES/01:201	8 0.3	No relaxation	BDI, (DL -0.03
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01:201	8 +		BDL (DL - 0.03
XIX	Malathion	µg/l	ANtr/7.2/RES/01:201	8 190	No relaxation	BDL (DL - 0.03)
XX	Malaoxon	μg/1	ANtr/7 2/RES/01: 201	8 -		BDL (DL + 0.03
xxi	Ethion	µg/l	ANu/7.2/RES/01: 201	8 3	No relaxation	BDL (DL - 0.03
XXII	Chlorpyrifes	µg/1	ANtr/7.2/RES/01:201	8 30	No relaxation	BDL (DL - 0.03

NOTE: • Please see watermark "Original Test Report" to confirm the authoriticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only

REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

Verified By Q

Sonali Gharpure

Authorized Signatory 54 au

Dr. (Mrs.) S.D. Garway Quality Manager

1011051

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Bureau of Indian Standards (BIS): Agricultural & Processed Food Products Export Development Authority (APEDA);
 Export Inspection council (EIC); AGMARK.

TEST REPORT

Test Report No. : Al	LPL/28022022/1-11A	dated 28/0	2/2022	Page 1 of	f 3
Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited)		Sample Inward No. Inward Date Reference Reference Date	2022/MON-32/60-GW-4 22/02/2022 W.O.+ 3000132460/962 15.05.2020	Analysis Start Analysis End Report Issue Date Sample Category	22/02/2022 28/02/2022 28/02/2023 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-4		Quantity Re 5.0 Ltr & 2	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 16/02/2022	Sampling Time 10.40 am to 5.30 pm	Sampling Location Ramjan Hutting Basti	

TEST RESULTS

S.N.	. Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result			
			1	Acceptable Limit	Permissible Limit #				
I	Biological Testing 1. Water								
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent			
H	Chemical Testing 1. Water								
2	Alkalinity (as CaCO ₁)	mg/l	1S 3025 (Part 23) : 1986	200	600	116.9			
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)			
4	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	i i i i i i i i i i i i i i i i i i i			
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL - 0.005)			
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	18.93			
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	48.76			
8	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL - 0,1)			
9	Fluoridg (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.21			
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	13.68			
11	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	8.17			
12	Odour	-	IS 3025 (Part 5) : 1983	Agreeable	Agreeable	Agreeable			
13	pH		IS 3025 (Part 11): 1983	6.5 to 8.5	No relaxation	7.19 at 25°C			
14	Phenolic compounds (as C6H3OH)	mg/l	1S 3025 (Part 43) : 1992	0.601	0.002	BDL (DL - 0.001)			
15	Sulphate (as SO ₄)	mg/l	1S 3025 (Part 24) : 1986	200	400	16.27			
16	Taste	-	1S 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable			
17	Total dissolved solids	mg/l	1S 3025 (Part 16) : 1984	500	2000	257			
18	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.4			
19	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	178.08			

Please refer last Page for Note and Remarks.

Verified By Shubilangi Armarkar Technical Man

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Authorized Signatories

Pooja Kathane Technical Manager

Gawf

Dr. (Mrs.) S.D. Garway Quality Manager

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 Export Inspection council (EIC); AGMARX.

TEST REPORT

Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited)		Sample Inward No. Inward Date Reference Reference Date	02/2022 2022/MON-32/60-GW-4 22/02/2022 W.O 3000132460/962 15.05.2020		Page 2 of 3 Analysis Start 22/02/20 Analysis End 28/02/20 Report Issue Date 28/02/20 Sample Category Water	
Sample Name Ground Water	Sample Source Dugwell	e Sample Particular Sample Code-GW-		Sample Condition Sealed & Ice Preserved	Quantity Received	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 16/02/2022		Sampling Time 10.40 am to 5.30 pm	5.0 Ltr & 250 ml Sampling Location Ramjan Hutting Basti	

S.N.	Test Parameter	Measurement Unit	Test Method	IS 10: (Drinking Wa	ment as per 500 : 2012 ter Specifications) mendment No. 3	Test Result
				Acceptable Limit	Permissible Limit #	
	Chemical Testing 2. Residu	es In Water				
20	Arsenic (as As)	mg/l	1S 3025 (Part 37) : 1988	0.01	N	
21	Aluminium (as Al)		IS 3025 (Part 2) : 2019 /	0.01	No relaxation	BDL (DL - 0.01)
-		mg/l	IS 3025 (Part 55): 2003	0.03	0.2	BDL (DL - 0.01)
22	Barium (as Ba)	mg/l	IS 3025 (Part 2) : 2019	0.7	Mand	
23	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	No relaxation	0.06
24	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019		2.4	0,17
25	Cadmium (as Cd)	mg/l	1S 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
26	Iron (as Fe)	mg/i		0.003	No relaxation	BDL (DL - 0.001
27	Lead (as Pb)	mg/l	1S 3025 (Part 2) : 2019	1.0	No relaxation	0.17
28	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001
29	Mercury (as Hg)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL-0.05)
30	Selenium (as Se)	mg/l	IS 3025 (Part 48) : 1994	0,001	No relaxation	BDL (DL - 0.0005
31	Total Chromium (as Cr)	The second se	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
32	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
	Polynuclear aromatic	mg/l	IS 3025 (Part 2): 2019	5	15	BDL (DL - 0.1)
33	hydrocurbon (PAH)	μg/l	ANtr/7.2/RES/01: 2018	0.1	No relaxation	BDL(DL-0.03)

efer last Page for Note and Remarks.

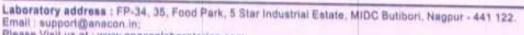
Verified By

Shashikant Satdeve Sr. Chemist

Authorized Signatory

ANAC MELAUS

Dr. (Mrs.) S.D. Garway Quality Manager



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TEST REPORT

Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited) Sample Name Ground Water Dugwell		A dated 28/0 Sample Inward No. Inward Date Reference	2022/MON-32/60-GW-4 22/02/2022 W.O 3000132460/962	Page 3 of Analysis Start Analysis End Report Issue Date	22/02/2022 28/02/2022 28/02/2022
		Reference Date 15.05.2020		Sample Category	Water
		Sample Particulars Sample Code-GW-4		-52 Toursen 1990	Quantity Received 5.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 16/02/2022	Sampling Time 10.40 am to 5.30 pm	Sampling Lo Ramjan Hutti	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wat	nent as per 00 : 2012 er Specifications) nendment No. 3	Test Result
				Acceptable Limit	Permissible Limit #	
34	Mineral Oil	mg/I	ANtr/7.2/RES/06: 2018	1	No relaxation	BDL (DL - 0.001)
35	Pesticide Residues Organochlori	ne		1000	A AMERICAN AND	
1	Alpha-HCH	μg/l	ANtr/7.2/RES/01 2018	0.01	No relaxation	BDL (DL - 0.01)
Й.	Beta HCH	μg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
ili	Gamma - HCH (Lindane)	µg/1	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL+0.03)
iv	Delta-HCH	μg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL = 0.03)
V.	Alachlor	µg/l	ANtr/7.2/RES/01 2018	20	No relaxation	BDL (DL + 0.03)
vi	Aldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL + 0.03)
viii	Butachlor	pgq	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL = 0.03)
ix.	p.p'-DDE	µg/1	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
X	o.p -DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL = 0.03)
-xi	p.p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL = 0.03)
xii	o,p'-DDD	µg/l	ANu/7.2/RES/01.2018	1	No relaxation	BDL (DL + 0.03)
xiii	o,p'+ DDT	μg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p + DDT	μg/l	ANtr/7.2/RES/01:2018	1	No relaxation	BDL (DL + 0.03)
XV	Monocrotophos	µg/l	ANtr/7 2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazioe	µg/l	ANtr/7.2/RES/01: 2018	and the second design of the s	No relaxation	BDL (DL +0.03)
xvii	Parathion methyl	1192/1	ANtr/7.2/RES/01:2018	0.3	No relucation	HDL (DL - 0.03)
xviii	Paraoxon methyl	μ <u>μ</u> /1	ANtr/7 2/RES/01: 2011			BDL (DL + 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL + 0.03)
XX	Malaoxon	μg/1	ANtr/7 2/RES/01: 2018		-	BDL (DL + 0.03)
XXI	Ethion	µg/l	ANtr/7.2/RE5/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/1	ANtr/7.2/RES/01: 2018	30	No relaxation	BDL (DL = 0.03)

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REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

Verified By Sonali Gharpure Technical Manager

-End of Report-

Authorized Signatory Dr. (Mrs.) S.D. Garway

ANACIANIAN

Quality Manager

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TEST REPORT

Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited) Sample Name Ground Water Sample Collected By Anacon Representative Mr. K. Pandey		Sample Inward No. Inward Date Reference Reference Date	2022/MON-32/60-GW-5 22/02/2022 W.O 3000132460/962 15.05.2020	Analysis Start 22/02/2022 Analysis End 28/02/2022 Report Issue Date 28/02/2022 Sample Category Water Quantity Received 5.0 Ltr & 250 m]	
		Sample Particulars Sample Code-GW-5	Sample Condition Sealed & Ice Preserved		
		Sampling Date 16/02/2022	Sampling Time 10.40 am to 5.30 pm	Sampling Location Khuntapani Village (Nr. School)	

TEST RESULTS

S.N.	lest Parameter	Measurement Unit	Test Method	1S 1050 (Drinking Wate	ent as per 0 : 2012 r Specifications) endment No. 3	Test Result
				Acceptable Limit	Permissible Limit #	
1	Biological Testing 1. Water					
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
П	Chemical Testing 1. Water					
2	Alkalinity (as CaCO3)	mg/l	1S 3025 (Part 23) : 1986	200	600	126.17
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL-0.01)
4	Colour	Hazen units	1S 3025 (Part 4) : 2021	5	15	1
5	Cyanide (as CN)	mg/l	1S 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL - 0.005)
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	21.36
7	Calcium (as Ca)	mg/l	1S 3025 (Part 40) : 1991	75	200	32.69
8	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL - 0,1)
9	Fluoride (as F)	mg/l	1S 3025 (Part 60) : 2008	1.0	1.5	0.17
10	Magnesium (as Mg)	mg/1	1S 3025 (Part 46) : 1994	30	100	12.58
11	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	6.94
12	Odour		1S 3025 (Part 5) : 1983	Agreeable	Agrecable	Agreeable
13	pH		IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.42 at 25°C
14	Phenolic compounds (as C6H3OH)	mg/l	IS 3025 (Part 43) : 1992	0.001	0.002	BDL (DL - 0.001)
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	21.43
16	Taste	-	1S 3025 (Part 8) : 1984	Agreeable	Agrecable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	281
18	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
19	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	133.39

Please refer last Page for Note and Remarks.

Verified By

Shubhangi Armarkar

Technical Manager

Pooja Kathane Technical Manager

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Authorized Signatories

Dr. (Mrs.) S.D. Garway Quality Manager

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TEST REPORT

Test Report No. : ALPL/28022022/1-12/ Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited) Sample Name Ground Water Dugwell Sample Collected By Anacon Representative Mr. K. Pandey		Sample Inw Inward Date Reference	Reference Date 15.05.2020 Sample Particulars Sample Code-GW-5 Samp Scaled of Sampling Date			Page 2 Analysis Start Analysis End Report Issue Date Sample Category	of 3 22/02/2022 28/02/2022 28/02/2022 Water	
					ple Condition	Quantity Received 5.0 Ltr & 250 ml Sampling Location Khuntapani Village (Nr. School)		
					mpling Time) am to 5.30 pm			
	-			TEST RE	SULTS		rendinapani v mar	e (INT. School)
S.N.	Test Pa	Test Parameter Measurement Unit				Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
_	_			C REAV		Acceptable	Permissible	

11	Chamber 5 West A. B. S.	042.020.070		Limit	Limit #	
	Chemical Testing 2. Residue	s In Water				
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01		
21	Aluminium (as Al)		IS 3025 (Part 2) : 2019/	0.01	No relaxation	BDL (DL = 0.01)
100		mg/l	IS 3025 (Part 55): 2003	0.03	0.2	BDL (DL - 0.01)
22	Barium (as Ba)	mg/1	IS 3025 (Part 2): 2019	0.7	States -	0000 (000-0001)
23	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.7	No relaxation	0.04
24	Copper (as Cu)	mg/l		0.5	2.4	0.13
25	Cadmium (as Cd)	mg/l	15 3025 (Part 2) : 2019	0.05	1.5	BDL (DL = 0.03)
26	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001
27	Lead (as Pb)		1S 3025 (Part 2) : 2019	1.0	No relaxation	0.17
28	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001
29	Mercury (as Hg)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL - 0.05)
30	Selenium (as Se)	mg/l	IS 3025 (Part 48) : 1994	0.001	No relaxation	BDL (DL - 0.0005
31	Total Chromium (as Cr)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
32	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	
14	Zinc.(us Zn)	mg/l	IS 3025 (Part 2) : 2019	5	16	BDL (DL - 0.03)
33	Polynuclear aromatic hydrocarbon (PAH)	μg/1	ANtr/7.2/RES/01: 2018	0.1	No relaxation	BDL (DL - 0.1) BDL(DL-0.03)

Please refer last Page for Note and Remarks.

Verified By

Shashikant Satdeve Sr. Chemist

Authorized Signatory

Gant

Dr. (Mrs.) S.D. Garway Quality Manager

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PleTest Report NoverABPE/28023022/1+12:4m

dated 28/02/2022

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TEST REPORT

Test Report No. : A	LPL/28022022/1-12/	A dated 28/0	2/2022	Page 3 of	13	
Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited)		Sample Inward No. Inward Date Reference Reference Date	2022/MON-32/60-GW-5 22/02/2022 W.O 3000132460/962 15.05.2020	Analysis Start Analysis End Report Issue Date Sample Category	22/02/2022 28/02/2022 28/02/2022 Water	
Sample Name Sample Source		Sample Particulars	Sample Condition	Quantity Received		
Ground Water Dugwell		Sample Code-GW-5	Scaled & Ice Preserved	5.0 Ltr & 250 ml		
Sample Collected By		Sampling Date	Sampling Time		Sampling Location	
Anacon Representative Mr. K. Pandey		16/02/2022	10.40 am to 5.30 pm		Khuntapani Village (Nr. School)	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wate	nent as per 00 : 2012 er Specifications) eendment No. 3	Test Result
				cceptable Limit	Permissible Limit #	
34	Mineral Oil	mg/l	ANtr/7.2/RES/06: 2018	1	No relaxation	BDL (DL - 0.001)
35	Pesticide Residues Organochlori	oe	Carlo Control and an Anti-			Anno ton a barrier and all a bar
1	Alpha-HCH	µg/1	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
11	Beta HCH	µg/ī	AN#/7.2/RES/01:2018	0.04	No relaxation	BDL (DL + 0.03)
iii	Gamma - HCH (Lindane)	μg/l	ANit/7.2/RES/01: 2018	2	No relaxation	BDL (DL + 0.03)
iv	Delta- HCH	µg/I	ANtr/7.2/RES/01:2018	0.04	No relaxation	BDL (DL - 0.03)
V.	Alachlor	μg/1	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
Vi	Aldrin	µg/1	ANu/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL = 0.03)
VII	Dieldrin	μg/I	AN#/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL + 0.03)
VIII	Butachlor	из/1	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL = 0.03)
ix.	p.p°-DDE	μχ/1	ANtr/7.2/RES/01: 2018	L	No relaxation	BDL (DL - 0.03)
X	o,p"-DDE	µg/J	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL + 0.03)
xi.	p,p'-DDD	μg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL + 0.03)
XII	u,p'-DDD	μg/1	ANtr/7.2/RES/01: 2018	E	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	μg/1	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL + 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
XV	Monocrotophos	μg/1	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
XVX	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	μg/1	ANtr/7.2/RES/01: 2018	03	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg/1	ANtr/7.2/RES/01: 2018		The remaining	BDL (DL - 0.03)
xix	Malathion	μ <u>μ</u> /4	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
XX	Malaexon	µg/l	ANtr/7.2/RES/01: 2018			BDL (DL - 0.03)
XXI	Ethion	µµ/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifes	µg/1	ANtr/7.2/RES/01: 2018	30	No relaxation	BDL (DL - 0.03)

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REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

Verified By Sonali Gharpure

Technical Manager

End of Report-

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Authorized Signatory

1040 Dr. (Mrs.) S.D. Garway Quality Manager

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TEST REPORT

Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited)		Sample Inward No. Inward Date Reference Reference Date	2022/MON-32/60-GW-6 22/02/2022 W.O.+ 3000132460/962 15.05.2020	Page 1 of 3 Analysis Start 22/02/2022 Analysis End 28/02/2022 Report Issue Date 28/02/2022 Sample Category Water Quantity Received 5.0 Ltr & 250 ml Sampling Location JEIM-Nr. Chief Office	
Sample Name Ground Water	a contraction contraction		Sample Condition Sealed & Ice Preserved		
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 16/02/2022	Sampling Time 10.40 am to 5.30 pm		

TEST RESULTS

s.N.	rest rarameter	Measurement Unit	t Test Method		IS 1050 (Drinking Wate	ent as per 0 : 2012 r Specifications) endment No. 3	Test Result
					Acceptable	Permissible Limit #	
1	Biological Testing 1. Water						1
1	Escherichia coli	Per 100 ml	1S 15	85:2016	Absent	Absent	Absent
п	Chemical Testing 1. Water				· · · · · · · · · · · · · · · · · · ·	, topont	1 Adastin
2	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (I	Part 23): 1986	200	600	152
3	Anionic surface active agents (as MBAS)	mg/l	Store and	Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
5	Cyanide (as CN)	mg/l	the second s	Part 27): 1986	0.05	No relaxation	BDL (DL - 0.005)
6	Chloride (as CI)	mg/l		Part 32):1988	250	1000	27.96
7	Calcium (as Ca)	mg/l		Part 40) : 1991	75	200	46.28
8	Free residual chlorine	mg/l	the summaries of the su	Part 26) : 2021	Min. 0.2	1	and a support to be supported as a support
9	Fluoride (as F)	mg/l	the second s	Part 60) : 2008	1.0	1.5	BDL (DL - 0.1) 0.24
10	Magnesium (as Mg)	mg/l		Part 46) : 1994	30	100	
11	Nitrate (as NO ₃)	mg/l		23rd edition: 2017	45	No relaxation	7.16
12	Odour			Part 5) : 1983	Agreeable	Agreeable	the second se
13	pH			Part 11): 1983	6.5 to 8.5	No relaxation	Agreeable
14	Phenolic compounds (as CoH5OH)	mg/l		Part 43) : 1992	0.001	0.002	7.27 at 25°C
15	Sulphate (as SO ₄)	mg/l		Part 24) : 1986	200	400	BDL (DL - 0.001)
16	Taste		and the second se	Part 8) : 1984	Agreeable	and the second s	18.32
17	Total dissolved solids	mg/l	the second se	art 16) : 1984	500	Agreeable	Agreeable
18	Turbidity	NTU		art 10) : 1984	500	2000	316
19	Total hardness (as CaCO ₃)	mg/l	Contraction of the local data	art 21) : 2009	200	5	0.4

Please refer last Page for Note and Remarks.

Verified By Shubbargi Armarkar Technical Manar

Authorized Signatories

Pooja Kathane Technical Manager

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ANAC PHIARS

Dr. (Mrs.) S.D. Garway Quality Manager

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 Export Inspection council (EIC); AGMARK.

TEST REPORT

Issued To : M/s Joda East Iror (M/s TATA Steel L	Mines .imited)	Sample Inward No. Inward Date Reference Reference Date	202 22/ W,0	22/MON-32/60-GW-6 02/2022 D 3000132460/962 05.2020	Page 2 of Analysis Start Analysis End Report Issue Date Sample Category	22/02/202: 28/02/202: 28/02/202: 28/02/202: Water
Sample Name Ground Water	Sample Source Borewell	Sample Particular Sample Code-GW-4		Sample Condition Sealed & fee Preserved	Quantity Res	
Sample Co Anacon Representa	Sample Collected By Anacon Representative Mr. K. Pandey		,	Sampling Time 10.40 am to 5.30 pm	5.0 Ltr & 250 ml Sampling Location JEIM-Nr. Chief Office	

S.N.	Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wa	ment as per 500 : 2012 ter Specifications) mendment No. 3	Test Result
11				Acceptable Limit	Permissible Limit #	
-112	Chemical Testing 2. Residu	es In Water				
20	Arsenic (as As)	mg/l	15 1035 (0.4 27) 1000	1		
-		1112/1	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019 / IS 3025 (Part 55): 2003	0.03	0.2	BDL (DL + 0.01)
and the second second	Barium (as Ba)	mg/l	IS 3025 (Part 2) : 2019	0.7	New	
23	Boron (as B)	mg/1	IS 3025 (Part 2) : 2019	0.5	No relaxation	0,08
24	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	Contraction of the local diversion of the loc	2.4	0.12
25	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.05	1,5	BDL (DL + 0.03)
26	Iron (as Fe)	mg/l		0.003	No relaxation	BDL (DL - 0.001
27	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.24
28	Manganese (as Mn)	the second se	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001
29	Mercury (as Hg)	mg/l	IS 3025 (Part 2) : 2019	0,1	0.3	BDL (DL - 0.05)
30	Selenium (as Se)	mg/l	IS 3025 (Part 48) : 1994	0.001	No relaxation	BDL (DL - 0.0005
31		mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL-0.001)
32	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	
34	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	and the second se	BDL (DL - 0.03)
33	Polynuclear aromatic hydrocarbon (PAH) se refer last Page for Note and	µg/l	ANtr/7.2/RES/01: 2018	0.1	15 No relaxation	BDL (DL - 0.1) BDL(DL-0.03)

r last Page for Note and Remarks.

Verified By

Shashikant Satdeve Sr. Chemist

Authorized Signatory

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AMAC MILLIN

Dr. (Mrs.) S.D. Garway Quality Manager

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TEST REPORT

Test Report No. : A	LPL/28022022/1-13/	A dated 28/0	2/20	22	Page 3 of	3
Issued To : M/s Joda East Iron (M/s TATA Steel I		Sample Inward No. Inward Date Reference Reference Date	22/0 W.0	2/MON-32/60-GW-6)2/2022) 3000132460/962)5.2020	Analysis Start Analysis End Report Issue Date Sample Category	22/02/2022 28/02/2022 28/02/2022 Water
Sample Name Ground Water	Sample Source Borewell	Sample Particulars Sample Code-GW-6		Sample Condition Scaled & Ice Preserved	Quantity Re 5.0 Ltr & 2	
	llected By tive Mr. K. Pandey	Sampling Date 16/02/2022	÷.	Sampling Time 10.40 am to 5.30 pm	Sampling Lo JEIM-Nr. Chie	cation

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	(Drinking Wat	ment as per 00 : 2012 ter Specifications) nendment No. 3	Test Result
-2.4	A MELL CONTRACTOR			Acceptable Limit	Permissible Limit #	
34	Mineral Oil	mg/l	ANtt/7.2/RES/06: 201	8 1	No relaxation	BDL (DL - 0.001)
35	Pesticide Residues Organochlori				A state of the sta	A
1	Alpha-HCH	μg/i	ANtr/7.2/RES/01:201		No relaxation	BDL (DL - 0.04)
11	Beta HCH	µg/1	ANtr/7.2/RES/01: 201	8 0,04	No relaxation	BDL (DL - 0.03)
111	Gamma - HCH (Lindane)	µg/1	ANtt/7.2/RES/01: 201	8 2	No relaxation	BDL (DL - 0.03)
iv.	Delta- HCH	µg/l	ANtr/7.2/RES/01: 201	8 0.04	No relaxation	BDL (DL + 0.03)
¥.	Alachlor	µg/1	ANtr/7.2/RES/01: 201	8 20	No relaxation	BDL (DL - 0.03)
VE	Aldrin	µg/l	ANtr/7.2/RES/01: 201	8 0.03	No relaxation	BDL (DL - 0.93)
Vit	Dieldrin	µg/l	ANtr/7.2/RES/01: 201	8 0.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01.201	8 125	No relaxation	BDL (DL - 0.03)
ix	p.p'-DDE	µg/l	ANtr/7.2/RES/01: 201	8 1	No relaxation	BDL (DL - 0.03)
N	o,p'-DDE	µg/l	ANn/7.2/RES/01: 201	8 1	No relaxation	BDL (DL - 0.03)
xi	p.p ^o -DDD	µg/1	ANtr/7.2/RES/01: 201	8 1	No relaxation	BDL (DL - 0.03)
xii	o,p*-DDD	µg/l	ANtr/7.2/RES/01: 201	8 1	No relaxation	BDL (DL - 0.03)
XIII	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 201	8 1	No relaxation	BDL (DL - 0.03)
xiv	p.p - DDT	µg/l	ANtr/7.2/RES/01: 201	the second se	No relaxation	BDL (DL - 0.03)
XV.	Monocrotophos	μg/l	ANtr/7.2/RES/01:201		No relaxation	BDL (DL - 0.03)
xvi	Atruzine	μg/1	ANtr/7.2/RES/01: 201	and the second se	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	μg/l	ANtr/7.2/RES/01: 201		No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	μg/l	ANtr/7.2/RES/01: 201	57.147	and relaciation	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01:201		No relaxation	BDL (DL - 0.03) BDL (DL - 0.03)
XX	Malaoxon	μg/l	ANtr/7.2/RES/01: 201	1.00	into remainingin	BDL (DL - 0.03)
xxi	Ethion	μg/l	ANtr/7 2/RES/01: 201		No relaxation	BDL (DL - 0.03)
XXII	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 201		No relaxation	BDL (DL - 0.03)

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 Non-perishable and perishable and perishable and limit in absonce of an another source for drinking water.
 'impl' is equivalent to 'ppb'.
 BDL- Below detection limit.
 DL- DL. Indicates detection limit of instrument /method and shall be considered as 'alivent'.
 Result for test no. 8 is not relevant.
 Antri7.2/RES-01.06,: Inhouse validated method.
 NT' exclusion not Tested as sample to h safety concerns

REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

Verified-By Sonali Gharpure

Technical Manager

-End of Report-

Authorized Signatory

Dr. (Mrs.) S.D. Garway Quality Manager

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TEST REPORT

Issued To : M/s Joda East Iror (M/s TATA Steel I		Sample Inward No. Inward Date Reference Reference Date	2/2022 2022/MON-32/60-GW-7 22/02/2022 W.O 3000132460/962 15.05.2020	Page 1 of Analysis Start Analysis End Report Issue Date Sample Category	22/02/202: 28/02/202: 28/02/202: Water
Sample Name Ground Water	Sample Source Borewell	Sample Particulars Sample Code-GW-7	Sample Condition Scaled & Icc Preserved	Quantity Re 5.0 Ltr & 25	
Sample Co Anacon Representa		Sampling Date 16/02/2022	Sampling Time 10.40 am to 5.30 pm	Sampling Lo JEIM-Nr. RC	cation

TEST RESULTS

s.n.	Test Parameter	Measurement Unit	Test Method	Requiren IS 1050 (Drinking Wate Including Am	Test Result		
-	BL.L. I. I.W. J. A.M.			Acceptable Limit	Permissible Limit #		
-	Biological Testing 1. Water				and the second second		
	Escharichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent	
11	Chemical Testing 1. Water				racoett	Aosem	
2	Alkalinity (as CaCO3)	mg/l	1S 3025 (Part 23) : 1986	200	600	176	
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)	
4	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15		
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL 0.000	
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32):1988	250	1000	BDL (DL - 0.005)	
7	Calcium (as Ca)	mg/l	1S 3025 (Part 40) : 1991	75	The state of the s	32.58	
8	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	200	56.39	
9	Fluoride (as F)	mg/I	IS 3025 (Part 60) : 2008		1	BDL (DL-0.1)	
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	1.0	1.5	0.27	
11	Nitrate (as NO ₁)	mg/l	APHA method 23rd edition: 2017	30	100	12.59	
12	Odour		IS 3025 (Part 5) : 1983	45	No relaxation	8.17	
13	pH		IS 3025 (Part 11) : 1983	Agreeable	Agreeable	Agreeable	
14	Phenolic compounds (as CoHsOH)	mg/l	IS 3025 (Part 43) : 1992	6.5 to 8.5	No relaxation	7.84 at 25°C	
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1992 IS 3025 (Part 24) : 1986	0.001	0.002	BDL (DL-0.001)	
16	Taste		IS 3025 (Part 8) : 1986	200	400	16.24	
17	Total dissolved solids	mg/l		Agreeable	Agreeable	Agreeable	
18	Turbidity	NTU	1S 3025 (Part 16) : 1984	500	2000	281	
19	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 10) : 1984		5	0.3	
	case refer last Page for Note and I		1S 3025 (Part 21) : 2009	200	600	192.68	

Please refer last Page for Note and Remarks.

Verified By

Journerelieve

Shubhangi Armarkar Technical Manager

Authorized Signatories

Pooja Kathane Technical Manager

and

ANAC INLAS

Dr. (Mrs.) S.D. Garway Quality Manager

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TEST REPORT

Issued M/s Je (M/s	l To : oda East Iron TATA Steel L	Mines imited)	Sample In Inward D Reference Reference	ate	2022/MON 22/02/2022	32/60-GW-7 132460/962	Page 2 o Analysis Start Analysis End Report Issue Date Sample Category	f 3 22/02/2023 28/02/2023 28/02/2023 Water
	nple Name und Water	Sample Sour Borewell		Particular Code-GW-7	s Sai	nple Condition d & Ice Preserved	Quantity Re	ceived
An	Sample Col acon Representat	lected By ive Mr. K. Pandey	Sam	oling Date	Si	mpling Time 0 am to 5.30 pm	5.0 Ltr & 2 Sampling Lo	cation
T			1	TEST	RESULTS	a new restory put	JEIM-Nr. RC	Gate
5.N.	Test Pr	rameter	Measurement	Terr	Method	IS 1050	tent as per 0 : 2012 r Specifications)	

Test Parameter	Unit	Test Method	(Drinking Was Including Ar	ter Specifications) mendment No. 3	Test Result
-	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	Acceptable Limit	Permissible		
Chemical Testing 2. Residue	es In Water			Longit II	
Arsenic (as As)	man	19 1034 (0 325 - 1025			
Aluminium (0.01	No relaxation	BDL (DL = 0.01)
	mg/l	15 3025 (Part 2) : 2019 / 15 3025 (Part 55): 2003	0.03	0.2	
	mg/l	15 3025 (Part 2) 2003	6.5		BDL (DL = 0.01)
Boron (as B)	the second se		the second s	No relaxation	0.06
Copper (as Cu)		15 5025 (Part 2) : 2019	0.5	2.4	0.11
Cadmium (as Cd)		15 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
	and the second sec		0.003	No relaxation	BDL (DL - 0.001)
	and the second division of the second divisio	IS 3025 (Part 2): 2019	1.0		0.24
	and the second se	IS 3025 (Part 2): 2019	0.01		BDL (DL - 0.001)
		IS 3025 (Part 2) : 2019	0.1	the second se	BDL (DL - 0.05)
		IS 3025 (Part 48) : 1994	0.001	and the second se	BDL (DL - 0.0005)
Total Chromium (as Co)	and the second se	1S 3025 (Part 56) : 2003	0.01		
Zing Las Zol	mg/l	IS 3025 (Part 2) : 2019	0.05		BDL (DL-0.001)
	mg/l	IS 3025 (Part 2) : 2019	and the second se	the second se	BDL (DL - 0.03)
hydrocarbon (PAH)	μg/l	ANtr/7.2/RES/01: 2018			BDL (DL - 0.1) BDL(DL-0.03)
	Chemical Testing 2. Residue Arsenic (as As) Aluminium (as Al) Barium (as Ba) Boron (as B) Copper (as Cu) Cadmium (as Cd) Iron (as Fe) Lead (as Pb) Manganese (as Mn) Mercury (as Hg) Selenium (as Se) Total Chromium (as Cr) Zinc (as Zn) Polynuclear aromatic hydrocarbon (PAH)	Chemical Testing 2. Residues In Water Arsenic (as As) mg/l Aluminium (as Al) mg/l Barium (as Ba) mg/l Boron (as B) mg/l Copper (as Cu) mg/l Cadmium (as Cd) mg/l Iron (as Fe) mg/l Lead (as Pb) mg/l Manganese (as Mn) mg/l Mercury (as Hg) mg/l Selenium (as Se) mg/l Total Chromium (as Cr) mg/l Polynuclear aromatic mg/l	Unit Test Method • Unit Test Method • Onit Test Method • Operation of the state of t	Unit Test Method (Ormking Wa Including Ar Acceptable Limit Chemical Testing 2. Residues In Water Mater Arsenic (as As) mg/l 1S 3025 (Part 37): 1988 0.01 Aluminium (as Al) mg/l 1S 3025 (Part 2): 2019 / IS 3025 (Part 2): 2019 / 0.03 0.03 Barium (as Ba) mg/l 1S 3025 (Part 2): 2019 / IS 3025 (Part 2): 2019 / 0.5 0.03 Boron (as B) mg/l 1S 3025 (Part 2): 2019 / 0.5 0.5 Copper (as Cu) mg/l 1S 3025 (Part 2): 2019 / 0.05 0.05 Iron (as Fe) mg/l 1S 3025 (Part 2): 2019 / 0.003 0.01 Iron (as Fe) mg/l 1S 3025 (Part 2): 2019 / 0.01 0.01 Manganese (as Mn) mg/l 1S 3025 (Part 2): 2019 / 0.01 0.01 Manganese (as Mn) mg/l 1S 3025 (Part 2): 2019 / 0.01 0.1 Mercury (as Hg) mg/l 1S 3025 (Part 2): 2019 / 0.01 0.1 Marganese (as Mn) mg/l 1S 3025 (Part 2): 2019 / 0.01 0.1 Marganese (as Mn) mg/l 1S 3025 (Part 2): 2019 / 0.05 0.01 Marganese (as Zn)	UnitTest Method(Drinking Water Specifications) Including Amendment No, 3 Acceptable LimitChemical Testing 2. Residues In Watermg/lIS 3025 (Part 37): 19880.01No relaxationAluminium (as At)mg/lIS 3025 (Part 2): 2019 / IS 3025 (Part 2): 2019 / 0.030.030.2Barium (as Ba)mg/lIS 3025 (Part 2): 2019 / IS 3025 (Part 2): 2019 0.7No relaxationBoron (as B)mg/lIS 3025 (Part 2): 2019 0.7No relaxationCopper (as Cu)mg/lIS 3025 (Part 2): 2019 0.52.4Cadmium (as Cd)mg/lIS 3025 (Part 2): 2019 0.051.5Iron (as Fe)mg/lIS 3025 (Part 2): 2019 0.003No relaxationLead (as Pb)mg/lIS 3025 (Part 2): 2019 0.003No relaxationMarganese (as Mn)mg/lIS 3025 (Part 2): 2019 0.01No relaxationMarganese (as Mn)mg/lIS 3025 (Part 2): 2019 0.05No relaxationMarganese (as Cr)mg/lIS 3025 (Part 2): 2019 0.05No relaxationMarganese (as Cr)mg/lIS 3025 (Part 2): 2019 0.05No relaxationMarganese (as Cr)mg/lIS 3025 (Part 2): 2019 0.05No relaxationMarganese (as An)mg/lIS 3025 (Part 2): 2019 0.05No relaxationMarganese (as An)mg/l

refer last Page for Note and Remarks.

Verified By

Shashikant Satdeve Sr. Chemist

Authorized Signatory

and

AMAC (INLS.)

Dr. (Mrs.) S.D. Garway Quality Manager

Laboratory address : FP-34, 35, Food Park, 5 Star Industrial Estate, MIDC Butibori, Nagpur - 441 122. Email : support@anacon.in;

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 Bureau of Indian Standards (BIS): Agricultural & Processed Food Products Export Development Authority (APEDA); Export inspection council (EIC); AGMARK

TEST REPORT

Issued To : M/s Joda East Iron (M/s TATA Steel I	i Mines .imited)	A dated 28/0 Sample Inward No. Inward Date Reference Reference Date	2022/MON-32/60-GW-7 22/02/2022 W.O 3000132460/962 15.05.2020	Page 3 o Analysis Start Analysis End Report Issue Date Sample Category	f 3 22/02/2022 28/02/2022 28/02/2022 Water
Sample Name Ground Water	Sample Source Borewell	Sample Particulars Sample Code-GW-7	Sample Condition Scaled & Ice Preser	n Quantity Re	eived
Sample Co Anacon Representa	Hected By tive Mr. K. Pandey	Sampling Date 16/02/2022	Sampling Time 10.40 am to 5.30 p	Sampling Lo	cation

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method		IS 1050 (Drinking Wate Including Am	nent as per 00 : 2012 rr Specifications) endment No. 3	Test Result
34	Mineral Oil	eral Oil mg/l	1210 12 12 12 12 12 12 12 12 12 12 12 12 12	A	cceptable Limit	Permissible Limit #	
35	Pesticide Residues Organochloria	ing/a	ANtr/7.2/RES/06:	2018	1	No relaxation	BDL (DL - 0.001
1	Alpha-HCH	And and a second s	A BULL OF IN CONTRACTOR		and the second se		T strate date
ii	Beta HCH	μg/l μg/l	ANtr/7 2/RES/01:	2018	0,01	No relaxation	BDL (DL = 0.01
101	Gamma + HCH (Lindane)	The second se	ANtr/7.2/RES/01: 3	2018	0.04	No relaxation	BDL (DL - 0.03)
15	Delta- HCH	µg/1	ANtr/7.2/RES/01	2018	2	No relaxation	BDL (DL = 0.03)
¥	Alachlor	µg/l	ANtr/7.2/RES/01: 2	2018	0.04	No relaxation	BDL (DL - 0.03)
vi	Aldrin	μg/l	ANtr/7.2/RES/01:2		20	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	µg/1	ANtr/7.2/RES/01:2		0.03	No relaxation	BDL (DL = 0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01:2	2018	0.03	No relaxation	BDL (DL - 0.03)
ix	p.p'-DDE	µg/l	ANtr/7.2/RES/01: 2	2018	125	No relaxation	BDL (DL = 0.03)
x	o,p'-DDE	μg/l	ANtr/7.2/RES/01:2		1	No relaxation	BDL (DL - 0.03)
XI	p.pDDD	pgn	ANtr/7.2/RES/01:2	1018	1	No relaxation	BDL (DL = 0.03) BDL (DL = 0.03)
xii	0.p'-DDD	µg/1	ANtr/7.2/RES/01: 2		1	No relaxation	
xiii	0.p'-DDT	µg/l	ANtr/7.2/RES/01: 2	018	1	No relaxation	BDL (DL + 0.03) BDL (DL + 0.03)
xiv	p.p'- DDT	μg/1	ANtr/7.2/RES/01: 2		1	No relaxation	
XV	detail and a second	µg/l	ANtr/7.2/RES/01 2		1	No relaxation	BDL (DL - 0.03)
XVI	Monocrotophos Atrazine	μgЛ	ANtr/7.2/RES/01:2	018	1	No relaxation	BDL (DL - 0.03)
		µg/1	ANtr/7.2/RES/01: 2		2	No relaxation	BDL (DL - 0.03)
XVII	Parathion methyl	μg/l	ANu/7.2/RES/01:2		0.3		BDL (DL +0.03)
xviii	Paraoxon methyl	μg/l	ANtr/7.2/RES/01: 2		0.3	No relaxation	BDL (DL - 0.03)
xix	Malathion	μg/I	ANtr/7.2/RES/01:2		190		BDL (DL - 0.03)
XX	Malaoxon	μg/1	ANtr/7.2/RES/01:2	018		No relaxation	BDL (DL + 0.03)
XXI	Ethion	µg/l	ANtt/7.2/RES/01:2		3	+	BDL (DL+0.03)
XXII	Chlorpyrifos	Hg/I	ANIt/7.2/RES/01:2		30	No relaxation	BDL (DL + 0.03)
OTE-	Plenne see watermark "Original Test Res			010		No relaxation	BDL (DL - 0.03)

entermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only NOTE: • Prene see watermark "Original Yeal Report" to contribute authenticity of this report. • Results shall be referred to tested sample(s) and apprecise to tested parameters only • Test report shall not be reproduced except in full without prior written approval of Anacon Labs. • Liability of Anacon Labs is limited to involved amount only. • Non-perishable and alternate source for drinking water. • 'mg/l' is equivalent to 'ppm'. • 'µg/l' is equivalent to 'ppb'. • RDL- Below detection limit. • DL- DL Indicates detection limit of instrument /method and shall be considered as 'absent', • Result for test no. 8 is not relevant. • ANtr/7.2/RES -01.06;: Inhouse validated method. • NT indicates not Tested as sample failed to

REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

Verified By Sonali Gharpure

Technical Manager

----End of Report-----

Authorized Signatory

Dr. (Mrs.) S.D. Garway

Quality Manager

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ANAC

Laboratory address : FP-34, 35, Food Park, 5 Star Industrial Estate, MIDC Butlbori, Nagpur - 441 122. Email : support@anacon.in;

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Export inspection council (EIC); AGMARK.

Mineralogical Composition Report-March-2022

Report No.: AN/MC/TS-JEIM	//2022/1-15		Date: 31/03/2022	
Name and Address of Industry:-	Name and Address of M/s Joda East Iron Mines			
Sample Description/Type	Mineralogical Composition	Sample Ref. No.:-	2022/ENV-67/JEIM/MC-1	
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	21/03/2022	
Test Started On:-	21/03/2022	Test Completed On:-	22/03/2022	

Date of sampling	Location	Parameter	Unit	Result
		Silica	%	0.43
	Near Mines Area	FeO	%	0.38
14/03/2022		CaO	%	0.024
14/03/2022		Al2O3	%	BDL (DL-0.01)
		P2O5	%	BDL (DL-0.01)

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BDL- Below detection limit

DL- Indicates detection limit of instrument/method and shall be considered as 'absent'.

Verified by

Shashikant Satdeve (Sr. Chemist)

-----End of Report-----

Authorized Signatory

Same

Dr. (Mrs.) S.D. Garway (Quality Manager)



TEST REPORT

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TEST REPORT

Test Report No. : /	ALPL/2110202	1/1	date	d 21/10/2021			Page 1 of 1				
	M/s Joda East Iron Mines (M/s TATA Steel Limited)			. 2021/MON-13 13/10/2021 W.O 300013: 15.05.2020		Analy Repor	sis Start sis End t Issue date le Category	14/10/2021 21/10/2021 21/10/2021 Waste Water			
Sample Name Surface Water	1 minipre D			ple Particulars e Code-SW-1 & 2		Condition Ice Preserved		ity Received & 250 ml each			
Sample Colle		Sampling Da		Sampling Time			pling Locatio				
Anacon Representative	Anacon Representative Mr. Krishnendu			11.20 am to 1.35 pm	n	 Kundra Nallah (Nr. Joda Pump House Kundra Nallah (Nr. Banaikala Village 					

TEST RESULTS

-		Measurement		Standards as	Test Result				
S.N.	Test Parameter	Unit	Test Method	per IS 2296:1992 Class C	SW-1	SW-2			
1	Biological Testing 1.Water								
1	Total Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)			
11	Chemical Testing 1.Water					DDD(DD-2)			
2	pH value	-	IS 3025 (Part 11): 1983	6.0 to 9.0	7.16 at 25°C	6.92 at 25°C			
3	Colour	Hazen units	IS 3025 (Part 4): 2021	300	4	0.72 dt 25 C			
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	4.0	6.1	6.2			
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) :1984		24	17			
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) :1993	3.0	2.16	2.21			
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) :2006		9	2.21			
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	1500	237	249			
9	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	1.5	0.03				
10	Chloride (as Cl)	mg/l	1S 3025 (Part 32) :1988	600	37.29	0.02			
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	400	9.18	32.17			
12	Nitrate (as NO ₃)	mg/l	IS 3025 (Part 34) : 1988	50	6.27	8.24			
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.36	5.93			
14	Cyanide (as CN)	mg/l	1S 3025 (Part 27) : 1986	0.05	and the second se	0.34			
15	Phenolic compounds (as C6H5OH)	mg/l	IS 3025 (Part 43) :1001	0.005	BDL(DL-0.005) BDL(DL-0.001)	BDL(DL-0.005 BDL(DL-0.001)			
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	1.0	BDL(DL-0.01)				
	Chemical Testing 2. Residues In	Water	and a second sec	1.0	BDL(DL-0.01)	BDL(DL-0.01)			
17	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.5	0.28	1 0.00			
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41) : 1992	0.01	BDL(DL-0.001)	0.23			
19	Selenium (as Se)	mg/l	IS 3025 (Part 2) : 2019	0.01		BDL(DL-0.001)			
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.03	BDL(DL-0.001)	BDL(DL-0.001)			
21	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003		BDL(DL-0.01)	BDL(DL-0.01)			
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	0,1	BDL(DL-0.001)	BDL(DL-0.001)			
23	Hexa Chromium (as Cr*6)	mg/l	IS 3025 (Part 2) : 2019 IS 3025 (Part 2) :2019	15	BDL(DL-0.1)	BDL(DL-0.1)			
24	Mercury (as Hg)	mg/l	IS : 3025 (Part 48) : 1994	0.05	BDL(DL-0.03)	BDL(DL-0.03)			
25	Manganese (as Mn)	mg/l	IS 3025 (Part 48) : 1994 IS 3025 (Part 2) : 2019		BDL(DL-0.0005)	BDL(DL-0.0005			
		mgri	15 5025 (Part 2) : 2019		BDL(DL-0.05)	BDL(DL-0.05)			

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Verified By 42 Shashikant Satdeve

Sr. Chemist

r Jumen Shubhangi Armarkar Technical Manager

Pooja Kathand Technical Manager

Authorized Signatories an

Dr. (Mrs.) S.D. Garway Quality Manager

----End of Report-----

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 Event inspection council (EIC): AGMARK

TEST REPORT

Iss	st Report No. : ALPL/30112021/1 ued To :		d	ated 30/11/2021				-	TEST REPO	
M /: (M	s Joda East Iron Mines I/s TATA Steel Limited)	Sample Inv Inward Dat Reference Reference I	vard N te	No. 2021/MON-1 22/11/2021 W.O 30001 15.05.2020		50-SW-1 & 2 50/962	Anal Repo	ysis Start ysis End ort Issue D	29/11/202 Date 30/11/202	
S	ample Name Sample S						Samp	ole Catego	ory Water	
Si	1. Unstream 2	Downstream	Sa	mple Particulars		Sample Cond	lition			
	Sample Collected By	Sampling D	Sam	ble Code-SW-1 & 2	Se	aled & Ice Pr	eserved	20	uantity Received	
Ana	acon Representative Mr. K. Pandey			Sampling Time	1		Samn	ling Loco	Ltr & 250 ml each	
	The randey	17/11/202	1	10.40 am to 5.30 pm	1	1. Kun	dra Nallah	Nr Inda	Dume II) (or	
-				TEST RESULTS	1	2. Kun	dra Nallah	(Nr. Bana	aikala Village) (SW-2	
			T	LOI RESULIS	-				(SW-2	
5.N.	Test Parameter	Measurement	t			Standards			st Result	
		Unit		Test Method		as per IS				
I	Biological Testing 1.Water					2296:1992	3	SW-1	SW-2	
1	Total Coliform					Class C			5.1.2	
II	Chemical Testing 1 122	MPN/100ml		IS 1622 : 1981		5000				
2	Chemical Testing 1.Water pH value				_	5000	BD	L(DL-2)	BDL(DL-2)	
3	Colour	-	IS	3025 (Part 11): 1983	2 1			A Second Second	(DD2)	
4		Hazen units	IS	3025 (Part 4) : 2021	3	6.0 to 9.0	7.56	at 25°C	7.63 at 25°C	
5	Dissolved Oxygen	mg/l	IS	IS 3025 (Part 38) :1989		300		2	2	
6	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 38) :1989 IS 3025 (Part 17) :1984			4.0		6.2	6.1	
7	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) :1993					20	26	
8	Chemical oxygen demand	mg/l	IS	3025 (Part 44) :1993 3025 (Part 58) :2006		3.0	1	2.40	2.25	
	Total Dissolved Solids (TDS)	mg/l	IS	3025 (Part 58) :2006				18	25.2	
9	Copper (as Cu)	mg/l	10	3025 (Part 16) : 1984	1	1500		184	188	
0	Chloride (as CI)	mg/l	10	3025 (Part 2) : 2019	_	1.5		.01	0.02	
1	Sulphate (as SO ₄)	mg/l	IO.	3025 (Part 32) :1988		600		5.44	52.07	
2	Nitrate (as NO ₃)	mg/l	10	3025 (Part 24) : 1986		400		0.88	5.70	
3	Fluoride (as F)	mg/l	10	3025 (Part 34) : 1988	3	50		.84	7.31	
4	Cyanide (as CN)	mg/l	10.	3025 (Part 60) : 2008		1.5		.30		
5	Phenolic compounds	ing/1	15.3	025 (Part 27) : 1986		0.05	BDL(D	L-0.005)	0.38	
	(as C6H5OH)	mg/l	IS 3	025 (Part 43) :1001		0.005	1.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2	and the second se	BDL(DL-0.005)	
5	Anionic Detergent	mg/l				0.003	BDL(D	L-0.001)	BDL(DL-0.001)	
	Chemical Testing 2. Residues In	Water	10 1.	3428 : 2005 Annex K		1.0	BDL(D	DL-0.01)	BDL(DL-0.01)	
5-18	non (as re)	mg/l	TO	100 - CP				= 0.01)	BDL(DL-0.01)	
	Cadmium (as Cd)	mg/l	15.	3025 (Part 2) : 2019		0.5	0.	09	0.13	
	Selenium (as Se)	mg/l	15 3	025 (Part 41) : 1992	-	0.01	BDL(D)			
	Arsenic (as As)		IS.	3025 (Part 2) : 2019		0.05	BDL(DI	L-0.001)	BDL(DL-0.001)	
	Lead (as Pb)	mg/l	15 3	025 (Part 37): 1988		0.2	BDL(D	L-0.01)	BDL(DL-0.001)	
	Zinc (as Zn)	mg/l	15 3	025 (Part 47) : 2003		0.1	BDL(DI	-0.001)	BDL(DL-0.01)	
1	Hexa Chromium (as Cr ⁺⁶)	mg/l	IS :	025 (Part 2): 2019		15	BDL(D	(1 - 0.1)	BDL(DL-0.001)	
1	Mercury (as Hg)	mg/l	IS 3	025 (Part 2) :2019		0.05	BDL(D)	L-0.02)	BDL(DL-0,1)	
1	Manganese (as Mn)	mg/l	IS : 3(025 (Part 48) : 1994			BDL(DL	-0.0005)	BDL(DL-0.03)	
	Please see watermark "Original Test Report"	mg/1	IS 3	025 (Part 2) : 2019			BDL(DL	0.0003)	BDL(DL-0.0005) BDL(DL-0.05)	

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Verified By

Shashikant Satdeve Sr. Chemist

me Shubhangi Armarkar

Technical Manager

Pooja Kathane Technical Manager

Authorized Signatories Dr. (Mrs.) S.D. Garway Quality Manager

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TEST REPORT

Test	Report No. : ALPL/27122021/1		dated 27/12/2021		·	Page 1 of 1
	ed To:	Sample Inwar	d No. 2021/ENV-30)-SW-1&2	Analysis Start	21/12/2021
M/s	Joda East Iron Mines	Inward Date	21/12/2021		Analysis End	27'12/2021
(M/s	s TATA Steel Limited)	Reference	W.O 300013	2460/962	Report Issue Date	
Ì		Deferrer Det	15 05 2020		Sample Category	
		Reference Dat				
	mple Name Sample S		Sample Particulars	Sample Condi		tity Received
Su	rface Water 1. Upstream 2.		ample Code-SW-1 & 2	Sealed & Ice Pres		* & 250 ml each
	Sample Collected By	Sampling Dat	e Sampling Time		Sampling Locatio	n
Ana	con Representative Mr. K. Pandey	15/12/2021	11.20 am to 1.30 pm		a Nallan (Nr. Joda P. a Nallan (Nr. Banaik	
			TEST RESULTS		in Funda (FU) Bundan	and v mage) (0 (1 2)
				Standards	Test	Result
S.N.	Test Parameter	Measurement	Test Method	as per IS		
5.11.	i est i arameter	Unit	i est methou	2296:1992	SW-1	SW-2
				Class C		
<u>I</u>	Biological Testing 1.Water Total Coliform	MDN1/1001	10 1/00 1001	5000		
I	Chemical Testing 1.Water	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
2	pH value	- 1	IS 3025 (Part 11) : 198	3 6.0 to 9.0	7.52 at 25°C	7.20 + 2500
3	Colour	Hazen units	IS 3025 (Part 4) : 2021			7.38 at 25°C
4	Dissolved Oxygen	mg/l	IS 3025 (Part 4) : 2021 IS 3025 (Part 38) :1989		2	2
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) :1984		6.3 21	6.2
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) :1993		2.52	24
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) :2006		16	2.49
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 198		176	21.4
9	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019		0.03	0.02
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988		48.59	51.67
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986		11.27	9.28
12	Nitrate (as NO ₃)	mg/l	IS 3025 (Part 34) : 198		7.68	6.57
13	Fluoride (as F)	mg/1	IS 3025 (Part 60) : 2003		0.32	0.26
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986		BDL(DL-0.005)	BDL(CL-0.005)
15	Phenolic compounds (as C6H5OH)	mg/l	IS 3025 (Part 43) :1001	19 1 AL	BDL(DL-0.003)	BDL(DL-0.003)
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex			
10	Chemical Testing 2. Residues		15 15428 : 2005 Annex .	K 1.0	BDL(DL-0.01)	BDL(DL-0.01)
17	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.5	0.14	0 12
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41) : 1992		0.14 BDL(DL-0.001)	012 BDL(DL-0.001)
19	Selenium (as Se)	mg/l	IS 3025 (Part 2) : 2019		BDL(DL-0.001) BDL(DL-0.001)	BDL(DL-3.001) BDL(DL-3.001)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 198		BDL(DL-0.001) BDL(DL-0.01)	BDL(DL-0.01) BDL(DL-0.01)
21	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 200		BDL(DL-0.001)	BDL(DL-0.01) BDL(DL-0.001)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019		BDL(DL-0.001) BDL(DL-0.1)	BDL(DL-J.001) BDL(DL-0.1)
23	Hexa Chromium (as Cr ⁺⁶)	mg/l	IS 3025 (Part 2) :2019		BDL(DL-0.1) BDL(DL-0.03)	BDL(DL-0.1) BDL(DL-0.03)
24	Mercury (as Hg)	mg/l	IS : 3025 (Part 48) : 1994		BDL(DL-0.0005)	BDL(DL-0.005)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019		BDL(DL-0.05)	BDL(DL-0.05)
25		<u></u>	15 5025 (1 att 2) . 2019			DDL(LL-0.03)

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REMARKS : As requested by the client. sample was tested for above parameters only.

Shashikant Satdeve Sr. Chemist

Shubhangi Armarkar **Technical Manager**

Verified By

Authorized Signatories

Pooja Kathane **Technical Manager**

Dr. (Mrs.) S.D. Garway Quality Manager

-----End of Report-----Laboratory address (EP.34, 35, Eood Park, 5 Star Industrial Estate MIDC Butihari, Nacour - 441 122



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Approved by : Food Safety & Standards Authority of India under FSS Act;
Bureau of Indian Standards (BIS); Agricultural & Processed Food Products Export Development Authority (APEDA);
Export inspection council (EIC); AGMARK.

TEST REPORT

the second s	and the second se	ALPL/31012022/1-1			ed 31/01/2022					Page 1 of 1		
/I/s J	d To : oda East Irc TATA Steel		Sample Inwar Inward Date Reference Reference Da		 2022/ENV-12- 18/01/2022 W O - 3000132 15.05.2020 			Analys Repor	sis Start sis End t Issue Date e Category	18/01/2022 22/01/2022 31/01/2022 Water		
	ple Name	Sample So			nple Particulars		Sample Condit			ty Received		
Surf	ace Water	1. Upstream 2. L			le Code-SW-1 & 2	Se	aled & Ice Pres			& 250 ml each		
Anac	1.1.1	ollected By tive Mr. K. Pandey	Sampling Da 14/01/2022		Sampling Time 11.30 am to 2.30 pm				np House) (SW-1) a Village) (SW-2)			
				1	TEST RESULTS							
							Standards		Test R	lesult		
S.N.		Parameter	Mensurement Unit		Test Method		as per IS 2296:1992 Class C		SW-1	SW-2		
I		esting 1.Water	1					1				
1	Total Colifor		MPN/100ml		IS 1622 : 1981		5000	BD	DL(DL-2)	BDL(DL-2)		
<u>II</u>		esting 1.Water		1 7	0.0005 (D . 11) 100	10	(0) 00	1		E16 : 0500		
2	pH value		-		S 3025 (Part 11) : 198		6.0 to 9.0	7.4	7 at 25°C	7.16 at 25°C		
3	Colour		Hazen units	_	IS 3025 (Part 4) : 2021 IS 3025 (Part 38) :1989		300	2 6.4		2		
4 5	Dissolved O	nded Solid (as TSS)	mg/1		IS 3025 (Part 17) :1984		4.0		23	<u>6.1</u> 26		
6	BOD (3 day		mg/l mg/l		IS 3025 (Part 17):1984 IS 3025 (Part 44):1993		3.0	2.17		2.81		
7		s at 27 C) tygen demand	mg/l	IS 3025 (Part 44) :19 IS 3025 (Part 58) :20					18	2.81		
8		ved Solids (TDS)	mg/l		IS 3025 (Part 16) : 1984		1500	1	184	207		
9	Copper (as C		mg/l	_	IS 3025 (Part 2) : 201	_	1.5		0.04	0.03		
10	Chloride (as		mg/l		S 3025 (Part 32) :198		600		43.91	48.67		
11	Sulphate (as		mg/l		S 3025 (Part 24) : 198		400		24.52	21.58		
12	Nitrate (as N		mg/l	_	S 3025 (Part 34) : 19		50		9.26	8.73		
13	Fluoride (as		mg/l		S 3025 (Part 60) : 200		1.5		0.28	0.31		
14	Cyanide (as	CN)	mg/l		S 3025 (Part 27) : 198		0.05	BDL	(DL-0.005)	BDL(DL-0.005		
15	Phenolic con (as C6H5OH		mg/l	I	S 3025 (Part 43) :100)1	0.005	BDL	(DL-0.001)	BDL(DL-0.001		
16	Anionic Det	ergent	mg/l	IS	S 13428 : 2005 Annex	κK	1.0	BDI	L(DL-0.01)	BDL(DL-0.01)		
	Chemical T	esting 2. Residues										
17	Iron (as Fe)		mg/l		IS 3025 (Part 2) : 201		0.5		0.17	0.14		
18	Cadmium (a	and the second se	mg/l		S 3025 (Part 41) : 199		0.01		(DL-0.001)	BDL(DL-0.001		
19	Selenium (a	Construction of the second s	mg/l	_	IS 3025 (Part 2) : 201		0.05		(DL-0.001)	BDL(DL-0.001		
20	Arsenic (as		mg/l		IS 3025 (Part 37) : 19		0.2		L(DL-0.01)	BDL(DL-0.01)		
21	Lead (as Pb		mg/l	_	IS 3025 (Part 47) : 20	_	0.1		(DL-0.001)	BDL(DL-0.001		
22	Zinc (as Zn)		mg/l		IS 3025 (Part 2) : 201	_	15		L(DL-0.1)	BDL(DL-0.1)		
23		nium (as Cr ⁺⁶)	mg/l		IS 3025 (Part 2) :201		0.05		L(DL-0.03)	BDL(DL-0.03		
24	Mercury (as		mg/l	IS	: 3025 (Part 48) : 199	_			(DL-0.0005)	BDL(DL-0.000		
25	Manganese	(as Mn)	mg/l		IS 3025 (Part 2) : 201	19		BD	L(DL-0.05)	BDL(DL-0.05		

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REMARKS : As requested by the client, sample was tested for above parameters only.

Verified By

Shashikant Satdeve

approver Shubhangi Armarkar

-Sr. Chemist Technical Manager Te Laboratory address : FP-34, 35, Food Park, 5 Star Industrial Estate MIDC Butibori, Nagpur - 441

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Authorized Signatories

Pooja Kathane

Dr. (Mrs.) S.D. Garway Quality Manager

chilcal Manager



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 Recognized By Ministry of Environment & Forests (MoEF). New Delhi
 Approved by : Food Safety & Standards Authority of India under FSS Act;
 Bureau of Indian Standards (BIS); Agricultural & Processed Food Products Export Development Authority (APEDA); Export inspection council (EiC); AGMARK.

TEST REPORT

Issu	ed To :	ALPL/28022022/1-	Sample Inw	dated 22	/02/2022	140 001 1 = 0	-		elof 1								
M/s (M/	Joda East Iro s TATA Steel	n Mines Limited)	Inward Date Reference Reference D		22/02/2022 W.O 300013 15.05.2020	2/60-SW-1 & 2 2460/962	Analys	sis Start sis End t Issue Dat e Category	22/02/2022 28/02/2022 28/02/2022 Water								
	mple Name	Sample S	Transmonto de la	2007	articulars	6 1 6 1		In Chick Price	A A A A A A A A A A A A A A A A A A A								
Su	rface Water	1. Upstream 2.1	Downstream	Sample Cod	c-SW-1 & 2	Sample Condi Scaled & Ice Pres	tion	Qu	antity Received								
Ana	Sample Co scon Representat	llected By tive Mr. K. Pandey	Sampling D 16/02/202	ate Sa	mpling Time am to 12.45pr	1. Ku	Sam ndra Nalla	Sampling Location dra Nallah (Nr. Joda Pump House) (S									
_				TEST	RESULTS	2. Ku	ndra Nalla	ih (Nr. Ban	aikala Village) (SW-								
	0.611		New reserves to the second			Standards	1	Test	Result								
S.N.		Parameter	Measurement Unit	Te	st Method	as per IS 2296:1992 Class C	SW-1		SW-2								
1	Biological Te	sting 1.Water				Classic											
1	Total Coliforn		MPN/100ml	IS	1622:1981	5000	BDI	(DL-2)	BDL (DL 2)								
2		sting 1.Water				0.000	1 DDA	(DL-2)	BDL(DL-2)								
3	pH value Colour		•	IS 3025	(Part 11): 1983	6.0 to 9.0	7.43 at 25%		7.43 at 25%		7.43 at 25%		7.43 at 25%		7.43 at 25°C		7.38 at 25°C
4	Dissolved Oxy		Hazen units		(Part 4): 2021	300		1	1.30 41 23 (.								
5	Total Suspand	led Solid (as TSS)	mg/l	IS 3025	(Part 38) :1989	4.0	6.0		6.2								
6	BOD (3 days a	cu Sond (as 155)	mg/I		(Part 17) :1984	+	18		24								
7	Chemical oxy		mg/l		Part 44):1993	3.0	2	37	2.46								
8			mg/l		Part 58) :2006		and the second se	21	24								
9		d Solids (TDS)	mg/l	IS 3025	(Part 16) : 1984	1500		93	187								
10	Copper (as Cu		mg/l	IS 3025	(Part 2): 2019	1.5		02	0.01								
11	Chloride (as C Sulphate (as S		mg/l	18 3025 (Part 32) :1988	600		1.29	58.37								
12	Nitrate (as NO		mg/l		Part 24) : 1986			2.84	9.82								
13	Fluoride (as F)		mg/l		(Part 34) : 1988			27	8.16								
14	Cyanide (as C)		mg/l		Part 60) : 2008	1.5		.32	0.27								
	Phenolic comp		mg/l	IS 3025 (Part 27) : 1986	0.05	BDL(D	L-0.005)	BDL(DL-0.005)								
15	(as C6H5OH)		mg/l	IS 3025 (Part 43) :1001	0.005	BDL(D	L-0.001)	BDL(DL-0.001)								
16	Anionic Detery	the state of the s	mg/l	IS 13428	2005 Annex K	1.0	BDL/I	DL-0.01)	BDL(DL-0.01)								
7	Chemical Test	ing 2. Residues I	n Water		ST. HANNERS		To to to to	12-01011	BDL(DL=0.01)								
8	Iron (as Fe)		mg/l	15 3025	(Part 2) : 2019	0.5	0	14	0.16								
9	Cadmium (as C		mg/l		Part 41): 1992	0.01	the second se	L-0.001)	BDL(DL-0.001)								
0	Selenium (as S Arsenic (as As		mg/l	IS 3025	(Part 2) : 2019	0.05		L-0.001)	BDL(DL-0.001)								
1	Lead (as Pb)		mg/l	IS 3025 (Part 37): 1988	0,2		L-0.01)	BDL(DL-0.01)								
2	Zinc (as Zn)		mg/i		Part 47) : 2003	0.1		L-0.001)	BDL(DL-0.001)								
3	Hexa Chromius	in fac Colle	mg/l		(Part 2) : 2019	15	the second s	01-0.1)	BDL(DL-0.1)								
4			mg/l		(Part 2) :2019	0.05	BDL(DL-0.03)		BDL(DL-0.03)								
5	Mercury (as Ha Manganese (as		mg/l	IS: 3025 (Part 48): 1994		the second s	-0.0005)	BDL(DL-0.0005)								
2	manganese (as	Mn)	mg/l	IS 3025	(Part 2) : 2019		the second s	L-0.05)	BDL(DL-0.05)								

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Verified By Rusneide Shubhangi Armarkar

Technical Manager

Shashikant Satdeve Sr. Chemist

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Pooja Kathane Technical Manager

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Dr. (Mrs.) S.D. Garway Quality Manager

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Bureau of Indian Standards (BIS); Agricultural & Processed Food Products Export Development Authority (APEDA); Export inspection council (EIC); AGMARK.

TEST REPORT

Test Report No. : A	LPL/28032022/1-2	3	da	ted 28/03/2022	1	1			Page 1 c	
Issued To : M/s Joda East Iro	ssued To : M/s Joda East Iron Mines (M/s TATA Steel Limited)			Io. 2022/ENV-67-21/03/2022 W.O 300013 15.05.2020				Analy Repor	sis Start sis End rt Issue Date le Category	21/03/2022 28/03/2022 28/03/2022 Water
Sample Name Surface Water	Sample So 1. Upstream 2. D			Sample Particulars mple Code-SW-1 & 2			Condition Condition			y Received 250 ml each
Surface Water Sample Co Anacon Representa	llected By	Sampling Date		Sampling Time 11.45 am to 3.25 pm	ı	1. 2.	Kundra Kundra	Nallah	ling Location (Nr. Joda Pump (Nr. Banaikala	o House) (SW-1) Village) (SW-2)
				TEST RESULTS						
						Standa	ards as	Bergelle	Test Res	sult

S.N.	Test Parameter	Measurement Unit	Test Method	per IS 2296:1992 Class C	SW-1	SW-2
I	Biological Testing 1.Water			A Parks		
1	Total Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
II	Chemical Testing 1.Water			and the second	1	(02 + 25%)
2	pH value	-	IS 3025 (Part 11) : 1983	6.0 to 9.0	6.84 at 25°C	6.93 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4) : 2021	300	3	2
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	4.0	6.7	6.3
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) :1984		38	27
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) :1993	3.0	2.41	2.87
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) :2006		16	14
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	1500	176	204
9	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	1.5	0.03	0.04
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	600	52.49	38.76
10	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	400	41.68	34.52
12	Nitrate (as NO ₃)	mg/l	IS 3025 (Part 34) : 1988	50	8.76	7.91
12	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.36	0.28
13	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	BDL(DL-0.005)	BDL(DL-0.005)
14	Phenolic compounds (as C6H5OH)	mg/l	IS 3025 (Part 43) :1001	0.005	BDL(DL-0.001)	BDL(DL-0.001)
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	1.0	BDL(DL-0.01)	BDL(DL-0.01)
10	Chemical Testing 2. Residues In					
17	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.5	0.27	0.18
17	Cadmium (as Cd)	mg/l	IS 3025 (Part 41) : 1992	0.01	BDL(DL-0.001)	BDL(DL-0.001)
	Selenium (as Se)	mg/l	IS 3025 (Part 2) : 2019	0.05	BDL(DL-0.001)	BDL(DL-0.001)
19		mg/l	IS 3025 (Part 37) : 1988	0.2	BDL(DL-0.01)	BDL(DL-0.01)
20	Arsenic (as As)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.001)	BDL(DL-0.001)
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	15	BDL(DL-0.1)	BDL(DL-0.1)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2) :2019	0.05	BDL(DL-0.03)	BDL(DL-0.03)
23	Hexa Chromium (as Cr ⁺⁶)	mg/l	IS : 3025 (Part 48) : 1994		BDL(DL-0.0005)	BDL(DL-0.0005)
24 25	Mercury (as Hg) Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019		BDL(DL-0.05)	BDL(DL-0.05)

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Shashikant Satdeve Sr. Chemist

Shubhangi Armarkar Technical Manager

Verified By

--End of Report----

Authorized Signatories

Pooja Kathane

Technical Manager

jan Dr. (Mrs.) S.D. Garway

Quality Manager

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Annexure - IV

JODA EAST IRON MINE
AVERAGE AIR QUALITY REPORT (CORE ZONE)

	Manmora Slime Dam			ı	Near Rain Water Harvesting					Near Magazine					Near Equipment Maintenance					
Month	PM ₁₀	PM _{2.5}	SO ₂	NOX	СО	PM ₁₀	PM _{2.5}	SO ₂	NOX	СО	PM_{10}	PM _{2.5}	SO ₂	NOX	СО	PM ₁₀	PM _{2.5}	SO2	NOX	со
Oct 21	51.9	18.8	9.4	16.9	0.194	51.9	19.3	9.4	18.0	0.220	51.2	18.6	8.4	18.0	0.195	53.6	19.5	9.0	17.7	0.219
Nov 21	54.0	18.4	10.2	17.1	0.211	51.9	19.3	8.0	15.7	0.201	53.0	19.2	9.3	19.1	0.205	52.2	18.6	8.6	16.8	0.202
Dec 21	55.1	20.4	10.3	18.6	0.212	51.7	18.5	7.3	16.3	0.208	53.6	19.6	9.8	18.4	0.200	51.1	18.5	9.4	17.3	0.201
Jan 22	55.8	19.6	10.3	18.4	0.208	52.0	18.1	9.0	17.3	0.236	54.8	20.0	10.2	19.1	0.202	52.3	20.5	9.3	18.1	0.221
Feb 22	57.6	22.0	10.7	18.9	0.212	54.9	18.1	9.1	18.0	0.253	56.1	19.5	10.5	19.8	0.214	51.9	20.5	10.4	18.7	0.231
Mar 22	60.2	21.4	10.7	20.6	0.225	55.4	20.0	7.8	17.6	0.227	60.9	20.6	9.5	19.7	0.205	52.7	20.6	10.0	18.7	0.207

AVERAGE AIR QUALITY REPORT (BUFFER ZONE)

Month		E	Baneike	la		Lohanda				Khuntpani					Joda Hospital					
Month	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO
Oct 21	51.0	17.3	7.1	16.5	0.179	49.5	16.8	6.3	16.1	0.198	49.7	17.3	6.9	16.3	0.201	51.0	16.1	5.5	17.0	0.177
Nov 21	53.5	17.3	8.0	16.2	0.185	52.0	16.1	7.1	15.3	0.169	52.9	17.6	8.8	17.1	0.18	49.7	16.1	6.5	17.1	0.168
Dec 21	53.8	17.1	8.0	18.0	0.209	54.5	19.4	7.3	17.5	0.188	52.9	17.0	7.2	16.2	0.184	50.6	16.1	7.2	16.8	0.184
Jan 22	53.2	17.0	8.7	16.3	0.179	54.9	20.5	8.9	16.8	0.187	50.0	16.5	7.9	15.1	0.161	50.5	16.9	8.7	17.9	0.199
Feb 22	50.0	16.1	9.0	17.9	0.187	53.1	18.0	9.2	17.9	0.197	52.6	17.9	8.8	16.8	0.17	50.0	16.4	8.2	16.8	0.177
Mar 22	52.6	17.5	10.6	17.2	0.17	55.2	20.5	7.8	17.0	0.191	52.4	18.0	7.9	17.5	0.168	51.0	16.7	6.5	16.4	0.170

Unit of measurement for all parameters except CO is $\mu g/m^3$. Co is in mg/m^3

H.Am 0.

Manager (Environment)

ANNEXURE – V

AMBIENT NOISE QUALITY AT JODA EAST AVERAGE OCTOBER 2021 TO MARCH 2022

	Location	Day Time 8.00 am to 10.00 pm	Limits in dB(A) Leq	Night Time 8.00 am to 10.00 pm	Limits in dB(A) Leq
	Hospital Premises	47.52		37.93	
Residential area	Training Centre	53.13	55.00	42.78	45.00
	Township	53.65		42.68	
	Chief Office	57.30		39.32	
Industrial area	Mining area	65.93	75.00	56.27	70.00
	Plant area	66.75		55.93	

H. Amlar

Manager (Environment)

Annexure 6

Environmental Expenditure for Joda East Iron Mine during FY 22

Sl. No	Activity	Capital (Rs. In Lakhs)	Recurring (Rs.in Lakhs)
1	Covering stack fines	05	
2	Spares of existing fixed water sprinkler	34	
3	Maintenance of existing fixed water sprinkler		40
4	construction of Toe wall & garland drain	38	
5	Maintenance of toe wall & garland drain		15
6	Cleaning & desilting of check dam		15
7	Mobile water sprinkling arrangements		20
8	Dust suppression Nalco chemicals		15
9	Operation and Maintenance of dry fog system		130
10	Purchase of spare parts of dry fog system	08	
11	Maintenance of vetiver plantation	16	
12	Maintenance of rainwater harvesting structures		15
14	Operation and Maintenance of STP	26	
16	Plantation & Its maintenance		30
17	operation & Maintenance of biomedical waste facilities	23	
18	Housekeeping of plant & Township		150
19	Development & execution for monsoon preparation plan	14	
20	Expenses incurred for Environment awareness sessions, Swachhata Pakhwara etc.	12	
21	Shifting of Trees and Garden	06	
22	Installation of Vertical Garden Project	05	
23	Installation of Drip Irrigation	10	5
24	Maintenance of CAAQMS and spares		10
25	Environmental Monitoring by third party		6.3
26	Studies conducted as advised by MoEFCC	15	
	Total	212	451.3

Annexure 7

