

Deputy Director General of Forests (C), Ministry of Env., Forest and Climate Change, Integrated Regional Office, A/3, Chandrasekharpur, Bhubaneswar – 751023

Email: roez.bsr-mef@nic.in

MD/ENV/ 149 /104 / 2022

Date: 30.05.2022

Ref: Environmental Clearance letter no. IA-J-11015/63/2008. IA. II(M) dated: 05.08.2021.

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

Limited.

Dear Sir.

Kindly find attached herewith the half-yearly compliance status report in respect of the stipulated Environmental Clearance conditions of Katamati Iron Mine, M/s Tata Steel Limited for the period from October'21 - March'22.

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, Parivesh 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

ENVIRONMENTAL CLEARANCE NO. IA-J-11015/63/2018-IA-II(M) DATED 05.08.2021 (Period of Compliance: October 2021 to March 2022)

SI	Specific Conditions	
i.	Environmental Clearance (EC) shall be valid up to the lease period only i.e. up to 31.03.2030.	Noted.
ii,	The budget of Rs. 7.36 Crores to address the concerns raised by the public including in the public hearing to be completed within 3 years from the date of start of mining operations. PP shall comply with all action plans made for public hearing concerns and make regular maintenance and record the progressive activity outcomes.	the timeline.
iii.	The Project Proponent shall undertake the adequate plantation in peripheral zone as well as gap plantation with the seedling of 6-8 ft height with at least 90% survival rate to control the dust at source and should be completed within 2 years from the date of commencement of mining operations. Causalities of the previous year should be replaced other than the saplings proposed to be planted every year	The State of
iv.	The Project Proponent shall make efforts for Sal plantation for restoring the mine lease area. PP shall provide tree guard to maintain the early stages of plant growth.	Sal plantation is done along with plantation activities and tree guard are provided to maintain early stages of plant growth.
v.	Geomats to be used as erosion control blanket which should be biodegradable and accordingly validated through testing from a recognized institution/ laboratory.	Geo jute coir mat has been laid on the slope of sub grade dump along with grass seeding.
/i.	The conservation plan in consultation with the Forest Department shall be implemented and compliance of the same shall be submitted to IRO of MoEF&CC before 1st July of every year.	Noted and shall be complied.
⁄ii.	Project proponent shall furnish a certificate from DFO regarding satisfactory compliance of site specific wildlife conservation plan.	Noted and shall be complied.

viii	The Project Proponent shall obtain the Renewal of NOC from CGWA for withdrawal of ground water before undertaking mining operations.	The mine has been granted renewal of CGWA NOC (460m3/day) issued vide no. CGWA/NOC/MIN/REN/1/2021/6429, dated 12.11.2021 which is valid till 09.10.2022.
íx.	The Project Proponent should undertake the soil conservation/ restoration activity in a way that the habitats can be restored.	Soil conservation/ restoration efforts such as soil amendments with cow-dung and manure, mulching, grass cover development, management of invasive species/ exotic species as well as selection of only native species for plantation, etc. are done so that habitats can be restored.
	and Manganese Ore Mining Activity in Keonjha	ying Capacity Study for Environmentally Sustainable r, Sundargarh and Mayurbhani Districts of Odisha
1)	Project Proponent and Department of Steel & Mines, Govt. of Odisha shall ensure the implementation of recommendations of carrying capacity study report conducted by CSIR-NEERI w.r.t. mining proposal of Iron Ore and/or manganese in the State of Odisha.	Noted and shall be complied.
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.	TSL will adopt the necessary environmental protection measures and abide by the sustainable annual production limit mentioned in regional plan prepared by Department of Steel & Mines, Govt. of Odisha.
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 with 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. This Environmental Clearance for the expansion project shall be operated only after the compliance of the above mentioned specific condition.	Construction of road within the mine shall be done once clearance from all the regulatory authorities is received.
4)	The Committee observed that as per the recommendations of NEERI report the PP needs to do regular vacuum cleaning of all mineral carrying roads aiming at "zero dust re-suspension" within 3 months. This Environmental Clearance for the expansion project shall be operated only after the	TSL is in process of procuring a mechanical sweeping machine to achieve zero dust re-suspension.

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	compliance of the above mentioned specific condition.	
5)	Project Proponent shall monitor the environmental quality parameters as per EC and CTE/CTO conditions, and implementation of suggested measures for control of road dust and air pollution. Odisha State Pollution Control Board has to ensure the compliance of CTE/CTO. Regional office of the MoEF&CC, Bhubaneswar shall monitor the compliance of the EC conditions. Regional office of the Indian Bureau of Mines (IBM) shall monitor the compliance of mining plan and progressive mine closure plan. Any violation by mine lease holder may invite actions per the provisions of applicable Acts.	environmental quality parameters and implementation of air pollution control measures as per EC and CTE/CTO conditions. Katamati iron mine is regularly submitting the half-yearly EC and compliance reports to respective authorities. TSL will continue to furnish the required information and extend all support during the site visits by statutory agencies.
6)	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 next 5 years. New mines or mines seeking expansion should incorporate provision of SOTM in the beginning itself, and should have system in place within next 5 years.	Out of 13.5 MTPA total production, approximately 9.5 to 11.5 MTPA of ROM shall be processed in tandem with Noamundi ore in the processing plant located at Noamundi and conveyed through closed conveyor belts to the private railway siding at Noamundi. Final product is dispatched from the private railway siding and other public railway sidings. Approximately 4 MTPA ROM shall be processed at the processing plant located at Katamati. The finished product shall be continued to be sent to the steel plants through railway siding either through Noamundi or through public siding at Deojhar or by road directly to the steel plants. Currently there is a proposal for dispatching around 2 MTPA processed ore (maximum) by trucks which will only be taken up when there is a shortage of racks and wagon availability from Railway. Road dispatch is proposed only till upgradation of logistics and dispatch facilities at Noamundi private railway siding. After adoption of SOTM, all material will be transported to Noamundi for onward dispatch by rail
7)	The State Govi. of Odisha shall ensure dust free roads in mining areas wherever the road transportation of mineral is involved. The road shoulders 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, regular maintenance should also be ensured by the Govt. of Odisha. Progress on development of dust free roads,	Noted.

	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. This Environmental Clearance for the expansion project shall be operated only after the compliance of the above mentioned specific condition.	Parking area for outside trucks with all amenities like drinking water facility, rest shelter with urinal facility, illumination etc. has been provided.
9)	Department of Steel & Mines 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.	TSL will extend any support if desired by the State Government.
10)	Regular vacuum cleaning of all mineral carrying roads aiming at "Zero Dust Re suspension" shall be adopted by PWD / NHAI/ Mine Lease Holders within a time Period of 3 months for existing roads. This Environmental Clearance for the expansion project shall be operated only after the compliance of the above mentioned specific condition.	TSL is in process of procuring a mechanical sweeping machine to achieve zero dust re-suspension.
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 so that demand for iron ore can be anticipated, and actual production/dispatch does not exceed the suggested annual production.	TSL will abide by the guidelines issued by the Department of Steel & Mines, Govt of Odisha in this regard.
12)	R&D studies towards utilization of low-grade iron ore should be conducted through research/academic institutes like IMMT, Bhubaneswar, NML, Jamshedpur, and concerned metallurgical departments in IITs, NITs etc., targeting full utilization of low-grade iron ore (Fe content upto 45% by 2020 and upto 40% by 2025). In fact, life cycle assessment of whole process including environmental considerations should be done for	The ROM include sub-grade ore from Katamati mine shall be beneficiated in the proposed Iron-ore processing plant being installed to beneficiate low-grade ores at Noamundi. Further Tata Steel's R&D Department is currently researching the technology for briquetting of slimes/tailings.

techno-economic and environmental viability. R&D studies on utilization of mine wastewater having high concentration of Fe content for different commercial applications in industries such as cosmetics, pharmaceutical, paint industry should also be explored. Responsibility: IBM, Dept. of	it of Steel
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4180 be explored. Responsibility: IBM, Dent. of I	it of Steel
Steel & Mines, Individual Mine Lease Holders.	nt of Steel
The mining activity in Joda-Koira sector is We will abide by the directions of Departmer	it of Steel
expected to continue for another 100 years, & Mines, Govt of Odisha in this regard.	
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	ļ
developed from mines to nearest railway sidings by	
11 mines in Joda region is estimated to be about 64	
13) km. Similarly, in Koira region, total length of rail	
network/ conveyor system for 8 mines (under	į
SOTM 1 & 2) is estimated to be around 95 km.	
Further, it is suggested to develop a rail network	
connecting Banspani (Joda region) 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	1
Department of Steel & Mines, Govt, of Odisha	
should follow-up with the concerned Departments	-
and railways so that proposed proper rail network is	Ì
in place by 2025.	į
State Govt. of Odisha shall make all efforts to We will work according to the instructions give	en by the
ensure exhausting all the iron & manganese ore Department of Steel & Mines, Govt of Odish	a in this
resources in the existing working mines and from regard.	
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.	

Operations/Process Related: Project Proponent shall implement the following mitigation measures: (i) Appropriate mining process and machinery (viz. right capacity, fuel efficient) should be selected to carry out various mining operations that generate minimal dust/air pollution, noise, wastewater and solid waste, e.g. drills should either be operated with dust extractors or equipped with water injection system, (ii) After commencement of mining operation, a study should be conducted to assess and quantify emission load generation (in terms of air pollution, noise, waste water and solid waste) from each of the mining activity (including transportation) on annual basis. Efforts should be made to further eliminate/ minimize generation of air pollution/dust, noise, wastewater, solid waste generation in successive years through use of better technology. This shall be ensured by the respective mine lease holders. (iii) Various machineries/equipment selected (viz. dumpers, excavators, crushers, screen plants etc.) and transport means should have optimum fuel/power consumption, and their fuel/power consumption should be recorded on monthly basis. Further, inspection and maintenance of all the machineries/ equipment/ transport vehicles should be followed as per manufacturer's instructions/ recommended time schedule and record should be maintained by the respective mine lease holders. (iv) Digital processing of the entire lease area using remote sensing technique should be carried 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. Responsibility: Individual Mine Lease Holders.

Mining activities are carried out as per IBM approved mining plan.

Due diligence is exercised for machinery selection. All drilling machines are equipped with in-built dust extraction/ suppression system which has an interlock which prohibits drilling without water.

The fleet of dumpers has been continually upgraded and currently we only have 100T L&T Komatsu make HD785 dumpers which are fuel-efficient, generate very less noise and contribute to less GHG emissions. Timely maintenance schedule is maintained, and records are maintained.

A state of the art Fleet Management System has been adopted which gives a real-time information of fuel consumption, productivity and health of the machinery (dumpers, excavators, drills, dozers, etc). This digitalization initiative contributes significantly to monitor and reduce fuel consumption and increase productivity.

Further, inspection and maintenance of all the machineries/ equipment/ transport vehicles are being done as per manufacturer's instructions/ recommended time schedule and record is maintained.

Digital processing of the entire lease area using remote sensing technique is being carried out annually with inputs from ORSAC for monitoring the land use pattern and the mining activity and also the area excavated in Pits is being demarcated based on the remote sensing analysis. TSL has engaged ORSAC for the same.

Air Environment Related: Project Proponent shall implement the following mitigation measures: (i) Fugitive dust emissions from all the sources should be controlled regularly on daily basis. Water spraying arrangement on haul roads, loading and unloading and at other transfer points should be provided and properly maintained. Further, it will be desirable to use water fogging system to

i) Fugitive dust emissions from all the sources are being controlled regularly on daily basis.

A network of fixed water sprinklers has been laid on permanent haul roads. Mobile water tankers of large capacity namely 50 KL which can cover the entire the entire width of the haul road has been commissioned.

15)

minimize water consumption. It should be ensured that the ambient air quality parameters conform to the norms prescribed by the CPCB in this regard. (ii) The core zone of mining activity should be monitored on daily basis. Minimum four ambient air quality monitoring stations should be established in the core zone for SPM, PM10, PM2.5, S02, NOx and CO monitoring. Location of air quality monitoring stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board (based on Emission Load Assessment Study). The number of monitoring 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. (iii) Monitoring in buffer zone should be carried out by SPCB or through NABET accredited agency. In addition, air quality parameters (SPM, PM10, PM2.5, SO2, NOx and CO) shall be regularly monitored at locations of nearest human habitation including schools and other public amenities located nearest to source of the dust generation as applicable. (iv) Emissions from vehicles as well as heavy machinery should be kept under control and regularly monitored. Measures should be taken for regular maintenance of vehicles used in mining operations and in transportation of mineral. (v) The vehicles shall be covered with a tarpaulin and should not be overloaded. Further, possibility of 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), Responsibility: Individual Mine Lease Holders and SPCB.

All feed hoppers where ore is unloaded and all transfer chutes have been provided with dry-fog dust suppression system.

Mist cannons have placed at strategic points to prevent and control of fugitive dust emission.

Ambient air quality conforms to the CPCB norms.

ii) 2 nos. Continuous Ambient Air Quality monitoring system is installed inside Mining Lease area for monitoring PM10, PM2.5, SO2, NOx and CO in the core zone on daily basis.

Two manual ambient air quality monitoring stations have been established in the core zone for PM10, PM2.5, SO2, NOx and CO monitoring. Monitoring is done by NABL accredited lab and the reports are submitted to Board regularly.

- (iii) We have one CAAQMS station in the buffer zone and the data is transmitted to SPCB server.
- (iv) Auto-emission checks of all the vehicles are done at regular intervals. Maintenance of mining equipment is done on regular basis. It is mandatory for any vehicle entering the mine premises to have a valid fitness certificate.
- (v) It is ensured that all the vehicles exiting the mine gate are checked for use of tarpaulin cover and are not overloaded.





Vehicle covered with tarpaulin

CAAQMS near pit office

Noise and Vibration Related: Project Proponent shall implement the following mitigation measures:
(i) Blasting operation should be carried out only during daytime. Controlled blasting such as Nonel, should be practiced. The mitigation measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented. (ii) Appropriate measures should be taken for control of noise levels below 85 dBA in the work

i) Blasting operation are being carried out only during day time only.

Blasting is done using the controlled blasting technique. In this regard, one study has been made by CIMFR (Central Mining & Fuel Research Institute), Dhanbad and recommendations therein are being followed. Initiation system is through either NONEL/electronic detonation system so as to ensure minimal ground vibration.

environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs/muffs. (iii) Noise levels should be monitored regularly (on weekly basis) near the major sources of noise 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 different activities and efforts should be made to maintain the noise levels with the acceptable limits of CPCB (CPCB, 2000) (iv) Similarly, vibration at various sensitive locations should be monitored atleast once in month, and mapped for any significant changes due to successive mining operations. Responsibility: Individual Mine Lease Holders.

Water/Wastewater Related: Project Proponent shall implement the following mitigation measures: (i) In general, the mining operations should be restricted to above ground water table and it should not intersect groundwater table. However, if enough resources are estimated below the ground water table, the same may be explored after conducting detailed geological studies by GSI and hydro geological studies by CGWB or NIH or institute of national repute, and ensuring that no damage to the land stability/ water aquifer system shall happen. The details/ outcome of such study may be reflected/incorporated in the EIA-EMP report of the mine appropriately. (ii) Natural watercourse and/or water resources should not be obstructed due to any mining operations. Regular monitoring of the flow rate of the springs and perennial nallas should be carried out and records should be maintained. Further, regular monitoring of water quality of nallas and river passing thorough the mine lease area (upstream and downstream locations) should be carried out on monthly basis. (iii) Regular monitoring of ground water level and its quality should be carried out within the mine lease area by establishing a network of existing wells and constructing new plezometers during the mining operation. The monitoring should be carried out on monthly basis. (iv) In order to optimize water requirement, suitable conservation measures to augment ground water resources in the area should

- ii) Adequate measures are taken for control of work noise levels such as all HEMMs have acoustic cabins with air conditioners and the exhaust manifold have silencers. Noisy operations have been identified and persons engaged in such operations are provided with ear plugs/muffs.
- (iii) Monitoring of Noise level are being done regularly at the identified major sources of noise generation within core zone.

Necessary efforts are made to maintain the noise level with in the acceptable limits of CPCB (CPCB, 2000). We will follow these instructions accordingly.

- iv) All efforts are taken to ensure that blast-induced ground vibrations remain within safe limits by using NONEL/ electronic detonation system. Vibration monitoring is done for every blast and records maintained thereof and their recommendations are strictly followed. CIMFR also studies the ground-vibration and suggests the mine management best blasting practices.
- i) Based on observations from nearby wells and water bodies, the water table in the area is about 519 mRL. Whereas, the maximum depth at conceptual stage is considered to be 564 mRL. Hence, throughout the course of mining operations, the ground water table will remain undisturbed and the mining operation will not intersect ground water table.
- ii) No perennial nala / stream passes through the mining lease area.
- iii) Regular monitoring of ground water level on monthly basis and its quality on quarterly basis is being carried out within the mine lease area and surrounding areas. A network of dugwells and borewells with piezometers already exists for this purpose.
- iv) During monsoon, accumulated mine pit water is not discharged outside and is allowed to seep through to augment the ground water resources.
- v) Due to area constraint inside the mine lease area ponds have been constructed in the buffer zone for ground water recharge. Further all the surface runoff generated is directed to mine pit where it is allowed to settle and augment ground water table.
- vi) Appropriate mitigation measures (viz. garland drains, retaining walls, collection of runoff etc.) are

be undertaken in consultation with Central Ground Water Board (CGWB). (v) Suitable rainwater harvesting measures on long term basis should be planned and implemented in consultation with CGWB, to recharge the ground water source. Further, CGWB can prepare a comprehensive plan for the whole region. (vi) Appropriate mitigation measures (viz. ETP, STP, garland drains, retaining walls, collection of runoff etc.) should be taken to prevent pollution of nearby river/other water bodies. Water quality monitoring study should be conducted by State Pollution Control Board to ensure quality of surface and ground water sources on regular basis. The study can be conducted through NABL/ NABET approved water testing laboratory. However, the report should be vetted by SPCB. (vii) Industrial wastewater (workshop and wastewater from the mine) should be properly collected, treated in ETP so as to conform to the discharge standards applicable. (viii) Oil and grease trap should be installed before discharge of workshop effluents. Further, sewage treatment plant should be installed for the employees/colony, wherever applicable. (ix) Mine lease holder should ensure that 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 should be undertaken. Quantity of silt/soil generated should be measured on regular basis for its better utilization. (x) Erosion from dumps site should be protected by providing geotextile matting or other suitable material, and thick plantation of native trees and shrubs should be carried out at the dump slopes. Further, dumps should be protected by retaining walls, (xi) 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 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. (xii) The water so collected in the reservoir within the mine should be utilized for the sprinkling on hauls roads, green belt development etc. (xiii) There should be zero waste water discharge from the mine. Based on actual water withdrawal and consumption/ utilization in

taken to prevent pollution of nearby river/other water bodies.

The water quality monitoring is being carried out regularly by NABL accredited laboratory.

- vii) There is no industrial wastewater being generated at Katamati. Maintenance of HEMMs is done centrally at Noamundi Workshop.
- viii) A 30 KLD CETP along with Oil and Grease trap is installed to treat all the effluent generated from washing of HEMM's in workshop at Noamundi. This caters to Katamati mine as well.
- STPs have been installed in the township located in Noamundi mine lease areas. There is no separate colony in the Katamati mine lease area.
- ix) Through a series of retention wall, garland drain, settling pits and check dams, it is ensured that no silt originating due to mining activity is transported in the surface water course or any other water body.
- x) Adequate measures to prevent soil erosion like grass plantation/coir matting on dump slopes are practiced. Further plantation with native species is done on all dump slopes. Dumps are protected by retaining walls.
- xi) Garland drain are constructed at the foot of the dumps to arrest silt. Check dams have been constructed for retention of suspended solids and allowing flow of clear water. This prevents contamination of outside water bodies from the wash-offs of the lease area. The check dams are periodically de-silted to keep them efficient.
- xii) The mine pit water is utilized for water sprinkling on haul roads and for plantation activities.
- xiii) There is zero waste-water discharge by the mine and it will be maintained in the future as well. Optimization of the water consumption will be done to reduce the specific water consumption year-on-year.

different activities, water balance diagram should be prepared on monthly basis, and efforts should be made to optimize consumption of water per ton of ore production in successive years. Responsibility: Individual Mine Lease Holders, SPCB and CGWB.

Land/ Soil/ Overburden Related: Project Proponent shall implement the following mitigation measures: (i) The top soil should temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long (not more than 3 years or as per provisions mentioned in the mine plan/ scheme). The topsoil should be used for land reclamation and plantation appropriately, (ii) Fodder plots should be developed in the non-mineralised area in lieu of use of grazing land, if any. (iii) Over burden/low grade ore should be stacked at earmarked dump site (s) only and should not be kept active for long period. The dump height should be decided on case to case basis, depending on the size of mine and quantity of waste material generated. However, slope stability study should be conducted for larger heights, as per IBM approved mine plan and DGMS guidelines. 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 should be undertaken for stabilization of the dump. Monitoring and management of rehabilitated areas should continue until the vegetation becomes selfsustaining. Proper records should be maintained regarding species, their growth, area coverage etc. (iv) Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine operation, soil, OB and mineral dumps. The water so collected can be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted, particularly after monsoon and should be maintained properly. Appropriate documents should be maintained. Garland drain of appropriate size, gradient and length should be constructed for 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 intervals. (v) Backfilling should be done as per approved mining plan/scheme. There should be no

OB dumps outside the mine lease area. The

- i) Preservation of topsoil: During the developmental stage, it is likely that we may encounter some amount of topsoil. Topsoil will be stored temporarily and will be utilized in our afforestation and horticultural activities.
- ii) Fodder plots are being developed in the mine lease area for use as grazing land.
- iii) OB/ low grade Ore are stacked at earmarked dump sites as per the approved Mining Plan.

Dump stability studies have been conducted by CIMFR, Dhanbad scientists and as per the recommendation of their experts, the height of the dump will be maintained. The measures for dump management as suggested are already being implemented to take care of any erosion and for its stabilization. The plantation is monitored and maintained till it becomes self-sustaining. The records pertaining to plantation - species name, growth, area coverage is maintained at the mine.

iv) Garland drains, Check dams and settling pits have been provided at appropriate places to arrest silt and sediment flows to ensure that only clear water will leave from lease boundary. The water collected is used for dust suppression and green belt development.

The structures are regularly de-silted and maintained properly.

Garland drains has been already constructed for the dumps as per approved mine plan.

Settling pits of adequate capacity has already been provided.

v) Back filling of the area will be done as per the approved mining Plan.

The afforestation of the dumps will be done accordingly.

vi) Hazardous wastes management is being done as per the provisions of Hazardous Waste Management Rules, 2016.

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. (vi) 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 Holders.

Ecology/Biodiversity (Flora-Fauna) Related: Project Proponent shall implement the following mitigation measures: (i) All precautionary measures should be taken during mining operation for conservation and protection of endangered fauna namely elephant, sloth bear etc. spotted in the study area. Action plan for conservation of flora and fauna should be prepared and implemented in consultation with the State Forest and Wildlife Department within the mine lease area, whereas outside the mine lease area, the same should be maintained by State Forest Department. (ii) Afforestation is to be done by using local and mixed species saplings within and outside the mining lease area. The reclamation and afforestation is to be done in such a manner like exploring the growth of fruit bearing trees which will attract the fauna and thus maintaining the biodiversity of the area. As afforestation done so far is very less, forest department needs to identify adequate land and do afforestation by involving local people in a time bound manner. (iii) Green belt development carried out by mines should be monitored regularly in every season and parameters like area under vegetation/plantation, type of plantation, type of tree species /grass species/scrubs etc., distance between the plants and survival rate should be recorded. (iv) Green belt is an important sink of air pollutants including noise. Development of green cover in mining area will not only help reducing air and noise pollution but also will improve the ecological conditions and prevent soil erosion to a greater extent. Further, selection of tree species for green belt should constitute dust removal/dust capturing plants since plants can act as efficient biological filters removing significant amounts of particulate pollution. Thus, the identified native trees in the mine area may be encouraged for plantation. Tree species having small leaf area, dense hair on leaf surface (rough surface), deep

- i) A detailed Site-Specific Wildlife Conservation Plan has been prepared for conservation and protection of endangered flora & fauna.
- ii) We are taking all the suggested measures like selection of the correct local species mix, fruit-species plantation, etc. to enhance the biodiversity of the region.
- iii) Green belt development done is monitored till it becomes self-sustaining. Relevant records as mentioned are being maintained by the horticultural specialist.
- iv) We have a Biodiversity Management Plan prepared by IUCN experts. It contains the list of native species suited for plantation in all conditions including for dust removal/ dust capturing plants.
- v) In consultation with IIT Kharagpur, Tata Steel has undertaken vetiver plantation in order to stabilize OB dumps. In FY22 around 1 ha area has been stabilized by vetiver grass.





vi) It is in the scope of State Forest Department.

21)	channels on leaves should be included for plantation. (v) Vetiver plantation on inactive dumps may be encouraged as the grass species has high strength of anchoring besides medicinal value. (vi) 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. Socio-Economic Related: Project Proponent shall implement the following mitigation measures: (i) Public interaction should be done on regular basis and social welfare activities should be done to meet the requirements of the local communities. Further, basic amenities and infrastructure facilities like education, medical, roads, safe drinking water, sanitation, employment, skill development, training institute etc. should be developed to alleviate the quality of life of the people of the region. (ii) Land outees and land losers/affected people, if any, should be compensated and rehabilitated as per the national/state policy on Resettlement and Rehabilitation. (iii) The socio-economic development in the region should be focused and aligned with the guidelines/initiatives of Govt, of India/ NITI Aayog around prosperity, equality, justice, cleanliness, transparency, employment, respect to women, hope etc. This can be achieved by providing adequate and quality facilities for education, medical and developing skills in the people of the region. District administration in association with mine lease holders should plan for "Samagra Vikas" of these blocks well as other blocks of the district. While planning for different schemes in the region, the activities should be prioritized as per Pradhan Mantri Khanij Kshetra Kalyan Vojna (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 Holders.	i) We have a separate wing named Tata Steel Foundation who take care of the social welfare activities and for the well-being and upliftment of the people residing near the project. They interact regularly with the local communities to identify their needs and requirement and accordingly plan the yearly activities in all the listed themes. ii) There is no case of displacement of people due to the project. iii) TSL is already supporting the State Government in facilitating the development of schools, conducting health camps, construction of medical facilities, provision of training and skill development programs, etc and will continue to extend support in future too.
22).	implement the following mitigation measures: (i) All the mine lease holders should follow the suggested ore transport mode (SOTM), based on its EC capacity within next 5 years. (ii) The mine lease holders should ensure construction of cement road	when the guidelines are formed by the Department of Steel & Mines, Govt of Odisha in this regard. ii) Construction of road within the mine shall be done once clearance from all the regulatory authorities is

of appropriate width from and to the entry and exit received. Maintenance of all roads under TSL control is gate of the mine. Further, maintenance of all the being done regularly to ensure dust-free road transport. roads should be carried out as per the requirement to ensure dust free road transport. (iii) iii) Transportation of final product by trucks, outside Transportation of ore should be done by covering mine to the end-use steel plants, is being done by the trucks with tarpaulin or other suitable covering the trucks with tarpaulin so that no spillage mechanism so that no spillage of ore/dust takes takes place. place. Further, air quality in terms of dust, PM10 Air quality monitoring (PM10) is being done near the should be monitored near the roads towards entry exit point. & exit gate on regular basis, and be maintained within the acceptable limits. Responsibility: Individual Mine Lease Holders and Dept. of Steel & Mines. i) Personal Protective Equipment for working in dusty Occupational Health Related: Project areas are provided to all personnel. Periodic training on Proponent shall implement the following mitigation safety and health aspects is carried out at the training measures: (i) Personnel working in dusty areas centre. should wear protective respiratory devices and they should also be provided with adequate training and ii) Initial Medical Examination & Periodic Medical information on safety and health aspects. Examinations are conducted for all employees at the periodically. (ii) Occupational health surveillance TSL health facility periodically and records are program for all the employees/workers (including maintained. This is being carried in compliance to casual workers) should be undertaken periodically Mines Act, 1952 & Rules 1956 and amendments thereto (on annual basis) to observe any changes due to exposure to dust, and corrective measures should be The occupational health surveillance shows that there is taken immediately, if. no occurrence of any kind of occupational health (iii) Occupational health and safety measures diseases. related awareness programs including identification of work related health hazard, training on malaria 23) iii) Awareness programs on Occupational Health and eradication, HIV and health effects on exposure to Safety are being done regularly by our central medical mineral dust etc., should be carried out for all the team located at Jamshedpur. Similar programs are workers on regular basis. A full time qualified arranged at site level to include all the contract workers doctor should be engaged for the purpose. Periodic as well. monitoring (on 6 monthly basis) for exposure to respirable minerals dust on the workers should be A Central Hospital located at Noamundi caters to both conducted, and record should be maintained Noamundi and Katamati mine. A full-time including health record of all the workers. Review Occupational Health Specialist has been appointed in of impact of various health measures undertaken (at the hospital for periodic health check-up of employees an interval of 3 years or less) should be conducted and contractual workers. followed by follow-up of actions, wherever A program called Wellness-at-Workplace is being required. Occupational health centre should be conducted at the mine and health of all mine workers is established near mine site itself. Responsibility: checked and monitored every month. Individual Mine Lease Holders and District All the health records are maintained. We will follow Administration (District Medical Officer). and implement the additional suggestions as provided. C. STANDARD CONDITIONS I. Statutory Compliance This Environmental Clearance (EC) is subject to Noted. orders/ judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any

[other Court of Law Commer Come Court	
	other Court of Law, Common Cause Conditions as may be applicable.	
23	The Project proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated 2nd August,2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors before commencing the mining operations.	A payment of Rs 82,70,48,782.00/- is made as per demand notice no. 4140/ 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)	The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of Judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors.	A payment of Rs 82,70,48,782.00/- is made as per demand notice no. 4140/ 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.
4	The Project Proponent shall follow the mitigation measures provided in MoEPCC's Office Memorandum No. Z-11013/57/2014-IA.II (M), dated 29th October, 2014, titled "Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area".	All the conditions mentioned in the MoEFCC's Office Memorandum No. Z-11013/57/2014-IA.II (M), dated 29th October, 2014 are being followed.
5	A copy of EC letter will be marked to concerned Panchayat / local NGO etc. if any, from whom suggestion / representation has been received while processing the proposal.	A copy of EC letter is sent to Deojhar panchayat and Anseikala panchayat with letter no. MD/ENV/173/110/2021 and MD/ENV/174/110/2021 dated 10.08.2021.
6	State Pollution Control Board/Committee shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collector's office/ Tehsildar's Office for 30 days.	Noted.
7	The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board/Committee and web site of the Ministry of Environment, Forest and Climate Change (www.parivesh.nic.in). A copy of the advertisement may be forwarded to the concerned MoEFCC Regional Office for compliance and record.	Details of Environment Clearance with regard to Katamati Iron Mine were published both in English (Orissa Post) and Odiya (Prameya) in local newspapers on 11.08.2021. The copy of the newspaper advertisement was sent to the Regional Office, MoEF&CC, Bhubaneswar with letter no: MD/ENV/187-A/98/2021 dated 16.08.2021. It is also submitted to Ministry along with earlier half yearly compliance report.

The Project Proponent shall inform the MoEF&CC for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred, PP need to apply for transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.

II. Air quality monitoring and preservation

The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120° is made between the monitoring locations to monitor critical parameters, relevant for mining operations, of air pollution viz. PM10, PM2.5, NO2, CO and SO2 etc. as per the methodology mentioned in NAAQS Notification B-29016/20/90/PCI/I, dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.

Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from all sources shall be regularly controlled by installation of required equipments/ machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEFCC/ Central Pollution Control Board.

Three continuous ambient air quality monitoring stations are installed in the core zone(two) and buffer zone(one) of mine lease area. Various parameters such as PM10, PM2.5, SOx, NOx & CO are being monitored as per guidelines. Four manual ambient air quality monitoring stations are installed at prominent places such as pit office, viewpoint etc. and monitoring is done on regular basis. The data is also been displayed using electronic display board in public domain. Average air quality data is enclosed as Annexure 1.





CAAQMS near pit office

Display board

Fugitive dust emissions from all the sources are being controlled regularly on daily basis.

A network of fixed water sprinklers has been laid on permanent haul roads. Mobile water tankers of large capacity namely 50 KL which can cover the entire the entire width of the haul road has been commissioned.

All feed hoppers where ore is unloaded and all transfer chutes have been provided with dry-fog dust suppression system.

NALCO Dust Ban chemical is used for better effectiveness of dust control by water sprinkling. Mist cannons have placed at strategic points to prevent

and control of fugitive dust emission.

Ambient air quality conforms to the CPCB norms.





Mobile Water sprinkler at Katamati

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Water jet with mist water spray in Katamati

Ill. Water quality monitoring and preservation

In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEFCC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydrogeological study of the area.

Based on observations from nearby wells and water bodies, the water table in the area is about 519 mRL. Whereas, the maximum depth at conceptual stage is considered to be 564 mRL. Hence, throughout the course of mining operations, the ground water table will remain undisturbed and the mining operation will not intersect ground water table.

Currently, the mining operation is restricted above the ground water table and shall not intersect the ground water table, in case of working below prior approval from MoEF&CC & CGWA shall be obtained.

For domestic use and other purposes, the mine has been granted renewal of CGWA NOC (460m3/day) issued vide no. CGWA/NOC/MIN/REN/1/2021/6429, dated 12.11.2021 which is valid till 09.10.2022.

Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezometer installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department I State Pollution Control Board.

Ground water quality and Ground water level are being monitored periodically in and around the lease areas. All the monitoring results are being submitted to regulatory agencies. Latest report is enclosed as Annexure 2.



Piezometric bore well at Katamati Iron Mine

The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease including upstream and downstream. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. The parameters to be monitored shall include their water quality vis-a-vis suitability for usage as per CPCB

No perennial nallah/stream present in the mine lease

Water quality monitoring of nallahs present outside the mine lease area is done regularly and the reports are submitted to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and

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criteria and flow rate. It shall be ensured that no Central Pollution Control Board. Latest report is obstruction and/ or alteration be made to water enclosed as Annexure 3. bodies during mining operations without justification and prior approval of MoEFCC. The monitoring of water courses/ bodies existing in lease area shall be carried out four times in a year viz. pre- monsoon (April May), monsoon (August), post-monsoon (November) and winter (January) and the record of monitored data may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on six-monthly Quality of polluted water generated from mining As there is no workshop present in the mine lease area, operations which include Chemical Oxygen there is no generation of wastewater. All the surface Demand (COD) in mines run-off; acid mine runoff is allowed to pass through garland drains, check drainage and metal contamination in runoff shall be dams and then settling pit. monitored along with Total Suspended Solids The monitored data is displayed on an electric display (TDS), Dissolved Oxygen (DO), pH and Total board as shown in the figure below Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular No. J-20012/1/2006-IA.II (M) dated 27.05.2009 issued 14) by Ministry of Environment, Forest and Climate Change may also be referred in this regard. Env monitoring data display in public domain at Katamati Project Proponent shall plan, develop and Due to area constraint inside the mine lease area ponds implement rainwater harvesting measures on long have been constructed in the buffer zone for ground term basis to augment ground water resources in the water recharge. Further all the surface runoff generated area in consultation with Central Ground Water 15) is directed to mine pit where it is allowed to settle and Board/ State Groundwater Department. A report on augment ground water table. amount of water recharged needs to be submitted to Regional Office MoEFCC annually. Industrial waste water (workshop and waste water No industrial wastewater generated as there is no from the mine) should be properly collected and workshop present in Katamati Iron Mine. 16) treated so as to conform to the notified standards prescribed from time to time. The standards shall be

17)	prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap. The water balance/water auditing shall be carried out and measure for reducing the consumption of water shall be taken up and reported to the Regional Office of the MoEF&CC and State Pollution Control Board/Committee.	A CETP is of 30KLD capacity with Oil and grease trap facility is installed for treating the effluent generated from common workshop at Noamundi. There is zero waste-water discharge by the mine and it will be maintained in the future as well. Water audit is carried out by PHDCCI, an accredited consultant from CGWA and the improvements suggested are being carried out to reduce consumption of water. Optimization of the water consumption will be done to
IV. I	 Noise and vibration monitoring and prevention	reduce the specific water consumption year-on-year,
18)	The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.	Monitoring of ppv is done after every blast and the reports are being maintained.
19)	The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day /night hours.	The illumination & sound has been done in such a way that the villagers are not disturbed. In addition to this we are planning to install noise barriers around the crushing and screening plant to significantly reduce the noise.
20)	The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM, etc. should be provided with ear plugs /muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ laborers are working without personal protective equipment.	Adequate measures are taken for control of work noise levels such as all HEMMs have acoustic cabins with air conditioners and the exhaust manifold have silencers. Noisy operations have been identified and persons engaged in such operations are provided with ear plugs/muffs.
V. M	lining plan	
21)	The Project Proponent shall adhere to approved mining plan, inter alia, including, total excavation (quantum of mineral, waste, over burden, inter burden and top soil etc.); mining technology; lease area; scope of working (method of mining, overburden & dump management, O.B& dump mining, mineral transportation mode, ultimate	Total excavation (quantum of mineral, waste, over burden, inter burden and top soil etc.); mining technology; lease area; scope of working (method of mining, overburden & dump management, O.B& dump mining, mineral transportation mode, ultimate depth of mining, concurrent reclamation and reclamation at mine

depth of mining, concurrent reclamation and closure; land-use of the mine lease area at various stages reclamation at mine closure; land-use of the mine of mining etc. shall be adhered to the Mine Plan. lease area at various stages of mining scheme as well as at the end-of-life; etc.). The land-use of the mine lease area at various stages Noted. Land-use of the mine lease area shall be of mining scheme as well as at the end-of-life shall governed as per the approved mining plan. be governed as per the approved Mining Plan. The Excavation, backfilling in the mine lease area and excavation vis-a-vis backfilling in the mine lease corresponding afforestation to be raised in the reclaimed area and corresponding afforestation to be raised in area are governed as per approved mining plan. Report 22) the reclaimed area shall be governed as per on plantation activities is being submitted regularly to approved mining plan. PP shall ensure the the Board along with monthly reports. monitoring and management of rehabilitated areas In FY 22 around 6865 saplings have planted in the mine until the vegetation becomes self sustaining. The lease area. compliance status shall be submitted half-yearly to the MoEFCC and its concerned Regional Office. VI. Land Reclamation Over burden is stacked at the earmarked places only. The slopes of the OB dumps are terraced, and the overall slope angle is maintained and not exceeding 27°. Generation of topsoil is very minimal because no fresh area is being broken for mining and the top soil generated, is being kept at the earmarked site(s) only inside the mining lease area and is being subsequently used for plantation & other vegetation & grassing activities. The inactive dump slopes are vegetated with native species and grass and vetiver grass for better slope The Overburden (O.B.), waste and topsoil stabilization. generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB / waste dumps / 23) topsoil dump like height, width and angle of slope shall be governed as per the approved Mining Plan and the guidelines/circulars issued by D.G.M.S. The topsoil shall be used for land reclamation and plantation. Vegetation & grassing on slime dumps Vegetation & grassing on waste dumps

The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer/compactors thereby ensuring proper filling/leveling of dump mass. In critical areas, use of geo textiles/geo-membranes I clay liners/Bentonite etc. shall be undertaken for stabilization of the dump.

Slope of the dumps are being stabilized by coir matting, vetiver grassing etc.,





Coir matting and vetiver grassing on dumps

Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral yards and Top Soil/OB/Waste dumps to prevent run off of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.

There is no discharge of any industrial effluent outside the mine lease. All the garland drains, settling pits and check dams of appropriate size, gradient and length been constructed both around the mine pit and over burden dump(s) to prevent run off of water and flow of sediments directly into water bodies. Photographs of toe wall, garland drain and settling pits are attached.





Settling pits at Katamati Iron Mine





Check dams & Garland drains at Katamati Iron Mine

Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the corners of the garland drains.

All the garland drains, settling pits and check dams of appropriate size, gradient and length been constructed as per progressive mine closure plan both around the mine pit and over burden dump(s) to prevent run off of water and flow of sediments directly into water bodies.

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VII. Transportation

No Transportation of the minerals shall be allowed in case of roads passing through villages/ habitations. In such cases, PP shall construct a 'bypass' road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers. [If applicable in case of road transport].

Out of 13.5 MTPA total ROM production, approximately 9.5 to 11.5 MTPA of ROM shall be processed in tandem with Noamundi ore in the processing plant located at Noamundi and conveyed through closed conveyor belts to the private railway siding at Noamundi. Final product is dispatched from the private railway siding and other public railway sidings.

Currently there is a proposal for dispatching around 2 MTPA processed ore (maximum) by trucks which will only be taken up when there is a shortage of racks and wagon availability from Railway. Road dispatch is proposed only till upgradation of logistics and dispatch facilities at Noamundi private railway siding. After adoption of SOTM, all material will be transported to Noamundi for onward dispatch by rail through the private rail siding.

The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods. dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.

A network of fixed water sprinklers has been laid on permanent haul roads. Mobile water tankers of large capacity namely 50 KL which can cover the entire the entire width of the haul road has been commissioned.

All feed hoppers where ore is unloaded and all transfer chutes have been provided with dry-fog dust suppression system.

Mist cannons have placed at strategic points to prevent and control of fugitive dust emission.

Ambient air quality conforms to the CPCB norms.





Mobile Water sprinkler at Katamati





Water jet with mist water spray in Katamati

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VIII. Green Belt The Project Proponent shall develop greenbelt in In FY 22 around 1693 saplings have been planted in 7.5m wide safety zone all along the mine lease safety zone of Katamati Iron Mine. boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be 29) developed within first 5 years starting from windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan. The Project Proponent shall carryout plantation/ In the year 2021-22 year about 6865 no of sapling afforestation in backfilled and reclaimed area of planted apart from local grass plantation on dumps with mining lease, around water body, along the various species. The species include Calotropis roadsides, in community areas etc. by planting the gigantean, ficus species, Pedilanthus, Cynodon native species in consultation with the State Forest dactylon, Saccharum spontaneum, Bougainvilleas, Department/ Agriculture Department/ development department/ Tribal are planted. Saccharum Rural Yellow durenta, etc. Welfare spontaneum planted on slime pond, shown encouraging Department/ Gram Panchayat such that only those results, which control the erosion bind the material and species be selected which are of use to the local adequately covers the ground vegetation. people. The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary provision shall be made for protection and care of trees. Plantation at Katamati Iron Mine The Project Proponent shall make necessary No grazing land has been acquired. alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. 31) The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.

IY	Public hearing and human health issues	
14,		
32)	Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic waste water should be treated with STP in order to avoid contamination of underground water.	Katamati mine) for workers with all the adequate facilities such as hospital, schools, STP etc.
X. (Corporate Environment Responsibility (CER)	
33)	The Project Proponent shall submit the time-bound action plan to the concerned regional office of the Ministry within 6 months from the date of issuance of environmental clearance for undertaking the activities committed during public consultation by the project proponent and as discussed by the EAC, in terms of the provisions of the MoEF&CC Office Memorandum No.22-65/2017-IA.111 dated 30 September, 2020. The action plan shall be implemented within three years of commencement of the project.	Time bound action plan for undertaking the activities during Public Consultation is enclosed as Annexure 4. The action plan shall be implemented within three years. The detailed status (Year-1 compliance) would be shared in next compliance report.
XI.	Misecellaneous	
34)	The Project Proponent shall prepare digital map (land use & land cover) of the entire lease area once in five years purpose of monitoring land use pattern and submit a report to concerned Regional Office of the MoEF&CC.	The digital processing of entire lease area is being carried out regularly. The current land use pattern is made by M/s Geo Consultants Pvt. Ltd. the authorized agency by ORSAC, Bhubaneshwar. Enclosed as Annexure 5.
35)	The Project Authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work	Not applicable, Katamati is an operational fron mine of Tata Steel Ltd from last several decades. Thus financial closure & it's approval is not applicable.
36)	The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MOEFCC &its concerned Regional Office, Central Pollution Control Board and State Pollution Control Board.	Six monthly compliance reports are being submitted regularly on the status of implementation of the stipulated environmental safeguards to the MoEF&CC, its Regional Office Bhubaneswar, Central Pollution Control Board and State Pollution Control Board.
37)	A separate Environmental Management Cell' with suitable qualified manpower should be set-up under the control of a Senior Executive. The Senior Executive shall directly report to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers	A separate environmental management cell is in place with people having relevant qualification on environmental science. Organization has adequate environmental reporting system for adequate decision making.

	shall be appointed and submit a report to RO, MoEFCC.	
38)	The concerned Regional Office of the MoEFCC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEFCC officer(s) by furnishing the requisite data/ information/ monitoring reports.	Full cooperation shall be extended to the officers in furnishing the requisite data/ information/ monitoring reports.
39)	In pursuant to Ministry's O.M No 22-34/2018-IA.III dated 16.01.2020 to comply with the direction made by Hon'ble Supreme Court on 8.01.2020 in W.P. (Civil) No 114/2014 in the matter Common Cause Vs Union of India, the mining lease holder shall after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to other mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.	Shall be complied after ceasing of mining operations. Although concurrent grassing of the area is undertaken which has been already explained earlier.
40)	The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.	Noted.
41)	Concealing factual data failure to comply with any or submission of false/ fabricated data and of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.	Noted.

List of Annexures

Sr. No.	Annexure Details
Annexure I	Ambient Air Quality (Average AAQ values for core zone and buffer zone – 4 locations each)
Annexure – II.A	Ground Water Quality (NABL-lab monitoring reports for 4 nos. dugwells in buffer zone & 2 nos. borewells in core zone for Nov'21 and Feb'22)
Annexure – II.B	Ground Water Level (Nov'21 and Feb'22)
Annexure – III	Surface Water Quality (NABL-lab monitoring reports for upstream & downstream water quality of Jojo nallah & Murga nallah in buffer zone for Nov'21, Jan'22 and Mar'22)
Annexure – IV	Action Plan for fulfilling the PH commitments along with financial provisions
Annexure – V	Land Use & Land Cover

KATAMATI IRON MINE AVERAGE AIR QUALITY REPORT (CORE ZONE)

		7
Oct 21 Nov 21 Dec 21 Jan 22	Month	
54.1 52.7 51.5 50.8	PM	
18.8 19.2 18.5 18.1	Nea	
	Near Pit Office	
17.0 16.4 17.7 17.7	ND,	
0.211 0.198 0.180 0.184	3	
50.2 52.1 53.1 54.3	P.S.	
18.0 17.9 18.1 18.2	Near	
9.1	Metso	í
18.3 16.9 17.2 16.9	Near Metso Plant	
0.197 0.178 0.180 0.193	3	
51.2 51.0 53.4 51.9	S.	ŕ
17.4 16.3 17.0 16.6	Neal	
7.5 7.1 8.7 8.6	Near View Point	7
17.1 16.4 16.9 17.4	Point	֡֝֝֝֜֝֝֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֡֓֓֓֡֓֓֡֓֓֓֡֓֜֓֡֓֡֓֡֓֡֓֜֡֓֡֓֡֓֡֓֡֡֓֜֡֓֡֓֜֡֡֓֡֓֡֡֡֓֜֡֡֡֡֓֜֡֡֓֜֡֓֡֓֜֡֡֓֜֡֓֜
0.202 0.198 0.207 0.207	3	727
51.1 54.3 54.3 55.5		
18.3 18.9 18.9 21.2		
7:0 9:0 8:4 9:5	Murg	
17.2 17.8 17.8 18.2	Near Murga Gate	
0.194 0.188 0.187 0.204		

AVERAGE AIR QUALITY REPORT (BUFFER ZONE)

7		Tan	Tankura Village	illage			Mira	lgara \	Miralgara Village			Kital	Kitabeda Villagı	illage			Ba	Balita Village	lage	
14101111	PM₁o	PM _{2.5}	502	NOX	8	PM ₁₀	PM _{2.5}	502	NOX	00	РМіа	PM2,5	SO ₂	NOX	8	PM ₁₀	PM _{2.5}	ŞO ₂	Nox	
Oct 21	50.4	18.9	7.4	8.9	0.195	47.4	15.5	6,4	10.0	0.180	\$0.5	17.0	8.0	16.0	0.175	46.6	14:3	6.1	14.5	0.169
Nov 21	54.5	20.4	9.6	12.1	0.212	49.9	15.2	7.9	12.6	0.187	51.0	17.7	8.8	15.3	0.165	50.0	16.9	7.9	16:1	0.189
Dec 21	53.2	17.3	7.9	8.01	0.195	50.1	16.9	7.1	12.0	0.190	49.5	16.9	7.9	16.2	0.175	50,0	16.1	7.1	15.3	0.169
Jan 22	51.4	17.2	7.7	10.6	0.165	49.7	16.1	7.1	8.8	0.177	50.5	17.0	7.0	16.7	0.168	50.9	16.0	6.9	15.5	0.151
Feb 22	50.0	17.0	7.0	12.8	0.161	53.5	18.0	8.0	10,2	0,188	51,0	17.9	8.0	17.1	0.154	49.0	17.5	6,3	16.1	0.150
Mar 22	53,4	17.6	8.2	11.1	0.167	53.5	18.0	8.2	15,8	0.160	53.9	16.9	7.8	15.8	0.167	50.7	16.0	7.0	15.7	0.162

Unit of measurement for all parameters except CO is µg/m³. Co is in mg/m³

Senior Manager (Environment)



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

TEST REPORT

ULR No.- TC545821000003041F

Test Report No.: ALPL/30112021/1-39A dated 30/11/2021 Page 1 of 3 Issued To: 2021/MON-147/60- GW-17 Sample Inward No. Analysis Start 23/11/2021 M/s Katamati Iron Mines **Inward Date** 22/11/2021 29/11/2021 Analysis End (M/s TATA Steel Limited) Reference W.O.- 3000132460/962 30/11/2021 Report Issue Date Sample Category Water Reference Date 15.05.2020 Sample Name Sample Source Sample Particulars Sample Condition Quantity Received

	Ground Water Dug	well Samp	le Code-GW-17	Scaled & Ice Pr	eserved	2.0 Lt	r & 250 ml
	Sample Collected By Anacon Representative Mr. K. I	NAT	19/11/2021	Sampling Tim 10.40 am to 4.45	2350	Sampling Mahadev Na	
			TEST RES	ULTS			
S.N.	Test Parameter	Measurement Unit	Test Me				Test Result
					ceptable 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				LUGGIIL	riosciii	Absent
2	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 2	3): 1986	200	600	124.2
3	Anionic surface active agents	mg/1	IS 13428 : (Anno	ex K): 2005	0.2	1.0	BDI (DI -001

S.N.	Test Parameter	Unit	Test Method		r Specifications) endment No. 3	Test Result
				Acceptable Limit	Permissible Limit #	
I	Biological Testing 1. Water				1 200000	
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	Chemical Testing 1. Water				11000111	Tubblit
2	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23): 1986	200	600	124.2
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	IS 3025 (Part 4): 2021	5	15	
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 1986	0.05	No relaxation	BDL (DL - 0.005)
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	30.88
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 1	BDL (DL - 0.1)
9	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	1.0	1.5	0.25
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46): 1994	30	100	10.12
11	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	5.31
12	Odour	-	IS 3025 (Part 5): 1983	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11): 1983	6.5 to 8.5	No relaxation	7.35 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	13.48
16	Taste	-	IS 3025 (Part 8): 1984	Agreeable	Agreeable	
17	Total dissolved solids	mg/l	IS 3025 (Part 16): 1984	500	2000	Agreeable 220
18	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	
19	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	0.4

☐ Please refer last Page for Note and Remarks.

Verified By

Duneur Shubhangi Armarkar Technical Manager

Authorized Signatories

Pooja Kathane Technical Manager

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

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ULR No.- TC545821000003041F

Test Report No.: ALPL/30112021/1-39A dated 30/11/2021 Page 2 of 3 Issued To: Sample Inward No. 2021/MON-147/60- GW-17 Analysis Start 23/11/2021 M/s Katamati Iron Mines Inward Date 22/11/2021 29/11/2021 Analysis End (M/s TATA Steel Limited) Reference W.O.- 3000132460/962 Report Issue Date 30/11/2021 Sample Category Water 15.05.2020 Reference Date Sample Name Sample Source Sample Particulars Quantity Received Sample Condition Ground Water Dugwell Sample Code- GW-17 Sealed & Ice Preserved 2.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey 19/11/2021 10.40 am to 4.45 pm Mahadev Nasha Village

TEST RESULTS Requirement as per IS 10500: 2012 (Drinking Water Specifications) Measurement S.N. Test Parameter Test Method Test Result Unit Including Amendment No. 3 Acceptable Permissible Limit Limit# II 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) 0.2 mg/l 0.03 BDL (DL - 0.01) IS 3025 (Part 55): 2003 22 Barium (as Ba) 0.7 BDL (DL - 0.01) mg/l IS 3025 (Part 2): 2019 No relaxation 23 Boron (as B) IS 3025 (Part 2): 2019 BDL (DL - 0.1) mg/l 0.5 24 Copper (as Cu) IS 3025 (Part 2): 2019 mg/10.05 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) IS 3025 (Part 2): 2019 1.0 No relaxation mg/l 0.12 27 Lead (as Pb) IS 3025 (Part 2): 2019 BDL (DL - 0.001) mg/l 0.01 No relaxation 28 Manganese (as Mn) IS 3025 (Part 2): 2019 BDL (DL - 0.05) mg/10.1 0.3 IS 3025 (Part 48): 1994 Mercury (as Hg) 0.001 me/l No relaxation BDL (DL - 0.0005) 30 Selenium (as Se) mg/l IS 3025 (Part 56): 2003 0.01 No relaxation BDL (DL-0.001) 31 Total Chromium (as Cr) IS 3025 (Part 2): 2019 0.05 BDL (DL - 0.03) mg/l No relaxation 32 Zinc (as Zn) mg/l IS 3025 (Part 2): 2019 5 15 BDL (DL - 0.1) Polynuclear aromatic 33 µg/l ANqr RES-30 0.1 No relaxation BDL(DL-0.03) hydrocarbon (PAH)

Please refer last Page for Note and Remarks.

Verified By

Shashikant Satdeve

Sr. Chemist

Sonali Gharpure Technical Manager **Authorized Signatory**

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





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 Bureau of India Standards (BIS)
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TEST REPORT

ULR No.- TC545821000003041F Test Report No.: ALPL/30112021/1-39A dated 30/11/2021 Page 3 of 3 Issued To: Sample Inward No. 2021/MON-147/60- GW-17 Analysis Start 23/11/2021 M/s Katamati 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 Reference Date 15.05.2020 Water Sample Name Sample Source Sample Particulars Sample Condition Quantity Received Ground Water Dugwell Sample Code- GW-17 Sealed & Ice Preserved 2.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location

A	nacon Representative Mr. K. Pandey		1/2021		0 am to 4.45 pm		g Location	
			TEST RESU	LTS	o am to 4.45 pm	I wianadev N	asha Village	
S.N.	Test Parameter	Iensurement Unit	Test Method		IS 1056 (Drinking Wate Including Am	nent as per 00 : 2012 er Specifications) tendment No. 3	Test Result	
34	Pesticide Residues Organochlorine			Ac	ceptable Limit	Permissible Limit #		
ī	Alpha-HCH	1100	ANI /T O/DEG/O					
ii	Beta HCH	μg/l	ANtr/7.2/RES/01		0.01	No relaxation	BDL (DL - 0.0)	
iii	Gamma - HCH (Lindane)	μg/Ι	ANtr/7.2/RES/01		0.04	No relaxation	BDL (DL - 0.03	
iv	Delta- HCH	μg/1	ANtr/7.2/RES/01		2	No relaxation	BDL (DL - 0.03	
v	Alachlor	μg/]	ANtr/7.2/RES/01		0.04	No relaxation	BDL (DL - 0.03	
vi	Aldrin	μg/l	ANtr/7.2/RES/01		20	No relaxation	BDL (DL - 0.03	
vii	Dieldrin	μ <u>g</u> /l	ANtr/7.2/RES/01		0.03	No relaxation	BDL (DL - 0.03	
viii	Butachlor		ANtr/7.2/RES/01		0.03	No relaxation	BDL (DL - 0.03	
ix	p,p'-DDE		ANtr/7.2/RES/01		125	No relaxation	BDL (DL - 0.03	
X	o,p'-DDE		ANtr/7.2/RES/01		1	No relaxation	BDL (DL - 0.03	
xi	p,p'-DDD		ANtr/7.2/RES/01	The second second	1	No relaxation	BDL (DL - 0.03	
xii	o,p'-DDD		ANtr/7.2/RES/01		1	No relaxation	BDL (DL - 0.03	
xiii	o.p'-DDD		ANtr/7.2/RES/01		1	No relaxation	BDL (DL - 0.03	
xiv			ANtr/7.2/RES/01		1	No relaxation	BDL (DL - 0.03	
XV	p.p'- DDT		ANtr/7.2/RES/01		1	No relaxation	BDL (DL - 0.03	
xvi	Monocrotophos Atrazine	μg/l	ANtr/7.2/RES/01	: 2018	1	No relaxation	BDL (DL - 0.03	
xvii		μg/l	ANtr/7.2/RES/01	: 2018	2	No relaxation		
kviii	Parathion methyl	μg/l	ANtr/7.2/RES/01	: 2018	0.3	No relaxation	BDL (DL - 0.03	
_	Paraoxon methyl	μg∕І .	ANtr/7.2/RES/01:	2018	-	. vo rotaxation	BDL (DL - 0.03	
xix	Malathion		ANtr/7.2/RES/01:		190	No relaxation	BDL (DL - 0.03	
XX	Malaoxon		ANtr/7.2/RES/01:			140 relaxation	BDL (DL - 0.03	
xxi	Ethion		ANtr/7.2/RES/01:		3	No relaxation	BDL (DL - 0.03)	
xxii	Chlorpyrifos		ANtr/7.2/RES/01:		30	No relaxation	BDL (DL - 0.03) BDL (DL - 0.03)	

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PEMA DEC. As required by the client compile was tested for above accompany only. Sample contains with 15, 10500-2012. For tested conducted in dispersion of the sample was tested for above accompany only. Sample contains with 15, 10500-2012. For tested conducted in dispersion of the sample was tested for above accompany only. Sample contains the tested for above accompany of the

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 Charpure Technical Manager Authorized Signatory

BDL (DL - 0.03)

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

----End of Report----

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TEST REPORT

BDL (DL - 0.001)

PL/30112021/1-39	B dated	30/11/2	021			Page 1 of 1
Mines mited)	Inward Date	22/11 W.O.	/2021 - 3000132460/962	Anal	ysis End ort Issue Date	23/11/2021 29/11/2021 30/11/2021 Water
Sample Source Dugwell						y Received & 250 ml
		2	Sampling Time 10.40 am to 4.45 pm			
	Mines mited)	Mines Inward Date Reference Reference Date Sample Source Sample Particu Sample Code- G' Blected By Sampling Date	Mines Inward No. 2021/ Mines Inward Date 22/11 Reference W.O. Reference Date 15.05 Sample Source Sample Particulars Dugwell Sample Code- GW-17 Illected By Sampling Date	Mines mited) Sample Inward No. 2021/MON-147/60- GW-17 Inward Date 22/11/2021 Reference W.O 3000132460/962 Reference Date 15.05.2020 Sample Source Sample Particulars Sample Condition Dugwell Sample Code- GW-17 Scaled & Ice Preserve Blected By Sampling Date Sampling Time	Sample Inward No. 2021/MON-147/60- GW-17 Analymited Inward Date 22/11/2021 Analymited Reference W.O 3000132460/962 Report Reference Date 15.05.2020 Sample Source Sample Particulars Sample Condition Sample Code- GW-17 Scaled & Ice Preserved Illected By Sampling Date Sampling Time	Mines Inward Date 22/11/2021 Analysis Start Mines Mines Inward Date 22/11/2021 Analysis End Reference W.O3000132460/962 Report Issue Date Reference Date 15.05.2020 Sample Category Sample Source Sample Particulars Sample Condition Quantity Dugwell Sample Code- GW-17 Scaled & Ice Preserved 2.0 Ltm Blected By Sampling Date Sampling Time Sampling

			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 #	
1	Chemical Testing					

1 ANtr/7.2/RES/06: 2018 Mineral Oil mg/l No relaxation 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.

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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

1. Residues In Water

Sonali Gharpure Technical Manager **Authorized Signatory**

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

-END OF REPORT----







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TEST REPORT

ULR No.- TC545821000003041F Test Report No.: ALPL/30112021/1-40A dated 30/11/2021 Page 1 of 3 Issued To: Sample Inward No. 2021/MON-147/60- GW-18 Analysis Start 23/11/2021 M/s Katamati Iron Mines **Inward Date** 22/11/2021 (M/s TATA Steel Limited) Analysis End 29/11/2021 Reference W.O.- 3000132460/962 Report Issue Date 30/11/2021 Sample Category Reference Date 15.05.2020 Water Sample Name Sample Source Sample Particulars Sample Condition Quantity Received Ground Water Dugwell Sample Code- GW-18 Sealed & Ice Preserved 2.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey 19/11/2021 10.40 am to 4.45 pm Dalafiri-2 Village

			TEST RESULTS			
s.n.	Test Parameter	Measurement Unit		IS 1050 (Drinking Wate	nent as per 0 : 2012 r Specifications) endment No. 3	Test Result
1	Distant I'm it a m			Acceptable Limit	Permissible Limit #	
1	Biological Testing 1. Water				Limit W	
II	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absort
2	Chemical Testing 1. Water			Tabbutt	Ausent	Absent
2	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23): 1986	200	600	T 10/ 5
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	126.5 BDL (DL = 0.01)
4	Colour	Hazen units	IS 3025 (Part 4): 2021	5	1.5	(3.5.)
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 1986		15	11
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	0.05	No relaxation	BDL (DL - 0.005
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40): 1991	250	1000	33.72
8	Free residual chlorine	mg/l	IS 3025 (Part 26): 2021	75	200	43.56
9	Fluoride (as F)	mg/l		Min. 0.2	1	BDL (DL - 0.1)
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.23
11	Nitrate (as NO ₃)		IS 3025 (Part 46): 1994	30	100	11.09
	Odour	- mg/i	APHA method 23rd edition: 2017	45	No relaxation	5.06
13	pH		IS 3025 (Part 5): 1983	Agreeable	Agreeable	Agreeable
14	Phenolic compounds (as C ₆ H ₅ OH)		IS 3025 (Part 11): 1983	6.5 to 8.5	No relaxation	7.32 at 25°C
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 43): 1992	0.001	0.002	BDL (DL - 0.001)
	Taste	mg/l	IS 3025 (Part 24) : 1986	200	400	5.70
-	Total dissolved solids		IS 3025 (Part 8): 1984	Agrecable	Agreeable	Agreeable
	Turbidity	mg/l	IS 3025 (Part 16): 1984	500	2000	238
_	Total hardness (as CaCO ₃)	NTU	IS 3025 (Part 10): 1984	1	5	0.6
	ease refer last Page for Note and R	mg/l	IS 3025 (Part 21): 2009	200	600	154,44

Please refer last Page for Note and Remarks.

Verified By

Shubhangi Armarkar Technical Manager

Authorized Signatories

Technical Manager

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

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TEST REPORT

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ULR No.- TC545821000003041F

dated 30/11/2021 Page 2 of 3 Test Report No.: ALPL/30112021/1-40A 2021/MON-147/60- GW-18 Analysis Start 23/11/2021 Sample Inward No. Issued To: M/s Katamati Iron Mines 22/11/2021 29/11/2021 Analysis End Inward Date (M/s TATA Steel Limited) 30/11/2021 W.O.- 3000132460/962 Report Issue Date Reference Sample Category Water 15.05.2020 Reference Date Sample Condition Quantity Received Sample Name Sample Source Sample Particulars Sample Code- GW-18 2.0 Ltr & 250 ml Ground Water Dugwell Sealed & Ice Preserved

Sampling Location Sampling Date Sampling Time Sample Collected By Dalafiri-2 Village Anacon Representative Mr. K. Pandey 19/11/2021 10.40 am to 4.45 pm

			TEST RESULTS			
S.N.	Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wat	ment as per 00 : 2012 er Specifications) nendment No. 3	Test Result
				Acceptable Limit	Permissible Limit#	*
H	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)
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 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	IS 3025 (Part 2): 2019	1.0	No relaxation	0.09
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)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL - 0.0005)
30	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL- 0.001)
31	Total Chromium (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): 2019	5	15	BDL (DL - 0.1)
33	Polynuclear aromatic hydrocarbon (PAH)	µg/l	ANqr RES-30	0.1	No relaxation	BDL(DL-0.03)

Please refer last Page for Note and Remarks.

Verified By

Shashikant Satdeve

Sr. Chemist

Sonali Gharpure Technical Manager **Authorized Signatory**

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





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TEST REPORT

ULR No.- TC545821000003041F

Test Report No.: ALPL/30112021/1-40A dated 30/11/2021 Page 3 of 3 Issued To: Sample Inward No. 2021/MON-147/60- GW-18 Analysis Start 23/11/2021 M/s Katamati Iron Mines **Inward Date** 22/11/2021 (M/s TATA Steel Limited) Analysis End 29/11/2021 Reference W.O.- 3000132460/962 Report Issue Date 30/11/2021 Reference Date 15.05.2020 Sample Category Water Sample Name Sample Source Sample Particulars Sample Condition

Quantity Received Ground Water Dugwell Sample Code- GW-18 Sealed & Ice Preserved 2.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey 19/11/2021 10.40 am to 4.45 pm Dalafiri-2 Village

	T		TEST RESUL	TS		L'acception of the control of the co	2 vinage
S.N.	Test Parameter	Measurement Unit	Test Method		IS 1050 Drinking Wate Including An	nent as per 00 : 2012 er Specifications) rendment No. 3	Test Result
34	Pesticide Residues Organochi	lorine		Acce	ptable Limit	Permissible Limit#	
i	Alpha-HCH	це/І	ANtr/7.2/RES/01: 2	2010 1	0.01		
ii	Beta HCH	μg/l	ANtr/7.2/RES/01: 2		0.01	No relaxation	BDL (DL - 0.01
iii	Gamma - HCH (Lindane)	μg/1	ANtr/7.2/RES/01: 2		0.04	No relaxation	BDL (DL - 0.03
iv	Delta- HCH		ANtr/7.2/RES/01: 2	8102	2	No relaxation	BDL (DL - 0.03
γ	Alachior				0.04	No relaxation	BDL (DL - 0.03
vi	Aldrin		ANtr/7.2/RES/01: 2		20	No relaxation	BDL (DL - 0.03
vii	Dieldrin	μg/l	ANtr/7.2/RES/01: 2	810	0.03	No relaxation	BDL (DL - 0.03
viii	Butachlor		ANtr/7.2/RES/01: 2		0.03	No relaxation	BDL (DL - 0.03
ix	p,p'-DDE		ANtr/7.2/RES/01: 2		125	No relaxation	BDL (DL - 0.03
х	o,p'-DDE		ANtr/7.2/RES/01: 2	2018	1	No relaxation	BDL (DL - 0.03
xi	p.p'-DDD	µg/l	ANtr/7.2/RES/01: 2	018	1	No relaxation	BDL (DL - 0.03
xii	o.p'-DDD	μg/l	ANtr/7.2/RES/01: 2	018	1	No relaxation	BDL (DL - 0.03
xiii	o,p'- DDT	μg/l	ANtr/7.2/RES/01: 2	018	1	No relaxation	BDL (DL - 0.03
xiv	p,p'- DDT	μg/l/l	ANtr/7.2/RES/01: 2	018	1	No relaxation	BDL (DL - 0.03
XV	Monocrotophos	μg/l .	ANtr/7.2/RES/01: 2	018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	μg/l	ANtr/7.2/RES/01: 2	018	1	No relaxation	BDL (DL - 0.03)
xvli	Parathion methyl	μg/l	ANtr/7.2/RES/01: 20	018	2	No relaxation	BDL (DL = 0.03)
cviii	Paraoxon methyl	μg/l	ANtr/7.2/RES/01: 20	018	0.3	No relaxation	BDL (DL - 0.03)
xix	Malathion	μg/l	ANtr/7.2/RES/01: 20	018			BDL (DL - 0.03)
XX	Malaoxon		ANtr/7.2/RES/01: 20		190	No relaxation	BDL (DL - 0.03)
xxi	Ethion		ANtr/7.2/RES/01: 20		-		BDL (DL - 0.03)
xxii	Chlorpyrifos		ANtr/7.2/RES/01: 20		3	No relaxation	BDL (DL - 0.03)
-	A Bloom	μg/l	ANtr/7.2/RES/01: 20	318	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 1S:10500:2012, for tests conducted, indicating that

Verified By

Sonali Gharpure Technical Manager Authorized Signatory

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

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TEST REPORT

Issued To: M/s Katamati Iron (M/s TATA Steel L		Sample Inward No. Inward Date Reference Reference Date	22/11/20	ON-147/60- GW-18 21 000132460/962	Analys	is Start is End t Issue Date e Category	23/11/2021 29/11/2021 30/11/2021 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particul Sample Code- GV		Sample Condition Sealed & Ice Preserve	d		Received & 250 ml
	ollected By tive Mr. K. Pandey	Sampling Da 19/11/2021	CONT.	Sampling Time 10.40 am to 4.45 pm		Sampling L Dalafiri-2	

			TEST RESULTS			
S.N.	Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wat	ment as per 100 : 2012 ter Specifications) nendment No. 3	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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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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TEST REPORT

ULR No.- TC545821000003041F

Test Report No. : AL Issued To :		Sample Inward No.	30/11/2021 2021/MON	N-147/60- GW-19	Page 1		22/11/2021
M/s Katamati Iron (M/s TATA Steel L		Inward Date Reference Reference Date	22/11/2021	1 0132460/962	Analysis E Report Issa Sample Ca	nd ue Date	23/11/202 29/11/202 30/11/202 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particula Sample Code- GW		Sample Condition Sealed & Ice Preserved		-	Received & 250 ml
Sample Co Anacon Representa		Sampling Date 19/11/2021		Sampling Time 10.40 am to 4.45 pm		Sampling L Dalafiri-1	ocation

			TEST RESULTS			
S.N.	Test Parameter	Measurement Unit		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				1 Tosen	Auscin
2	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23): 1986	200	600	140,3
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	DDI (DI 000)
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32):1988	250	1000	BDL (DL - 0.005
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40): 1991	75	200	40.85
8	Free residual chlorine	mg/l	IS 3025 (Part 26): 2021	Min. 0.2	200	45.14
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		BDL (DL - 0.1)
11	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	100	10.12
12	Odour		IS 3025 (Part 5): 1983	Agreeable	No relaxation	6.32
13	pH	-	IS 3025 (Part 11): 1983	6.5 to 8.5	Agreeable	Agrecable
14	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43): 1992	0.001	No relaxation	7.40 at 25°C
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	0.002	BDL (DL - 0.001
16	Taste	-	IS 3025 (Part 8): 1984		400	8.81
17	Total dissolved solids	mg/l	IS 3025 (Part 16): 1984	Agreeable 500	Agreeable	Agreeable
18	Turbidity	NTU	IS 3025 (Part 10): 1984	300	2000	254
19	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	0.4 154.44

Please refer last Page for Note and Remarks.

Aproneis

Verified By

Shubhangi Armarkar Technical Manager

Authorized Signatories

Pooja Kathane Technical Manager

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

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TEST REPORT

ULR No.- TC545821000003041F Test Report No.: ALPL/30112021/1-41A dated 30/11/2021 Page 2 of 3 Issued To: Sample Inward No. 2021/MON-147/60- GW-19 Analysis Start 23/11/2021 M/s Katamati Iron Mines 22/11/2021 29/11/2021 **Inward Date** Analysis End (M/s TATA Steel Limited) 30/11/2021 Reference W.O.- 3000132460/962 Report Issue Date Sample Category Water 15.05.2020 Reference Date Quantity Received Sample Name Sample Source Sample Particulars Sample Condition

Sample Name Sample Source Sample Particulars Sample Condition Quantity Received Sample Collected By Sampling Date Sampling Time Sampling Location Dalafiri-1 Village

			TEST RESULTS			
S.N.	Test Parameter	Measurement Unit	Test Method	Requirer IS 105 (Drinking Wat Including Ar	Test Result	
				Acceptable Limit	Permissible Limit #	
11	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)
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 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	IS 3025 (Part 2): 2019	1.0	No relaxation	0.27
27	Lead (as Pb)	mg/I	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)	mg/l	1S 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL - 0.0005)
30	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL-0.001)
31	Total Chromium (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): 2019	5	15	BDL (DL - 0.1)
33	Polynuclear aromatic hydrocarbon (PAH)	μg/1	ANqr RES-30	0.1	No relaxation	BDL(DL-0.03)

Please refer last Page for Note and Remarks.

Verified By

A Lall.

Shashikant Satdeve Sr. Chemist

24

Sonali Gharpure Technical Manager Authorized Signatory

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





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TEST REPORT

ULR No.- TC545821000003041F Test Report No.: ALPL/30112021/1-41A dated 30/11/2021 Page 3 of 3 Issued To: 2021/MON-147/60- GW-19 Sample Inward No. Analysis Start M/s Katamati Iron Mines 23/11/2021 **Inward Date** 22/11/2021 Analysis End (M/s TATA Steel Limited) 29/11/2021 Reference W.O.- 3000132460/962 Report Issue Date 30/11/2021 Reference Date Sample Category 15.05.2020 Water Sample Name Sample Source Sample Particulars Sample Condition Quantity Received Ground Water Dugwell Sample Code- GW-19 Sealed & Ice Preserved 2.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey 19/11/2021 10.40 am to 4.45 pm Dalafiri-1 Village

TEST DECLI

			TEST RESULT	S		
S.N.	Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wat	ment as per 00 : 2012 er Specifications) nendment No. 3	Test Result
34	Pesticide Residues Organochl	orine		Acceptable Limit	Permissible Limit #	
i	Alpha-HCH	μg/l	ANtr/7.2/RES/01: 20	0.01	I No selection	Tool
ii	Beta HCH	μg/I	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.01)
iii	Gamma - HCH (Lindane)	μg/l	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
iv	Delta- HCH		ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
v	Alachior		ANtr/7.2/RES/01: 20	0.04	No relaxation	BDL (DL - 0.03)
vi	Aldrin		ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
vii	Dieldrin		ANtr/7.2/RES/01: 20	0.00	No relaxation	BDL (DL - 0.03)
viii	Butachlor		ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
ix	p.p'-DDE		ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
x	o.p'-DDE				No relaxation	BDL (DL - 0.03)
xi	p.p'-DDD		ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	με/Ι	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
xiii	o.p'- DDT	ug/l	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT		ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
xv	Monocrotophos		ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
xvi	Atrazine		ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl		ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
	Paraoxon methyl	μg/l /	ANtr/7.2/RES/01: 20	18 0.3	No relaxation	BDL (DL - 0.03)
	Malathion	μg/l /	ANtr/7.2/RES/01: 20	18 -	I	BDL (DL - 0.03)
-	Malaoxon	<u>μg/l</u> /	Ntr/7.2/RES/01: 20	18 190	No relaxation	BDL (DL - 0.03)
	Ethion		Ntr/7.2/RES/01: 20		-	BDL (DL - 0.03)
_	Chlorpyrifos		Ntr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
-	Diagrama	μg/l /	Ntr/7.2/RES/01: 20	18 30	No relaxation	BDL (DL - 0.03)

NOTE:

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Verified By

Sonali Gharpure Technical Manager Authorized Signatory

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

----End of Report----

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TEST REPORT

est Report No. : ALPL/30112021/1-41 Issued To: M/s Katamati 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	22/11/2 W.O 3	2021/MON-147/60- GW-19 22/11/2021 W.O 3000132460/962 15.05.2020		e 1 of 1 is Start is End t Issue Date e Category	23/11/2021 29/11/2021 30/11/2021 Water
		Sample Particulars Sample Code- GW-19				Quantity Re	
		Sampling Dat 19/11/2021	e	Sampling Time 10.40 am to 4.45 pm		Sampling Location Dalafiri-I Village	

			TEST RESULTS			
S.N.	Test Parameter	Measurement Test Method		Require IS 105 (Drinking Wat Including Ar	Test Result	
				Acceptable Limit	Permissible Limit #	
I	Chemical Testing 1. Residues In Water				Diffic II	
1	Mineral Oil	mg/l	ANtr/7.2/RES/06: 2018	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.

Verified By

Sonali Gharpure Technical Manager Authorized Signatory

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

----END OF REPORT----







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TEST REPORT

ULR No.- TC545821000003041F Test Report No.: ALPL/30112021/1-42A dated 30/11/2021 Page 1 of 3 Issued To: Sample Inward No. 2021/MON-147/60- GW-20 Analysis Start 23/11/2021 M/s Katamati Iron Mines Inward Date 22/11/2021 (M/s TATA Steel Limited) Analysis End 29/11/2021 Reference W.O.- 3000132460/962 Report Issue Date 30/11/2021 Reference Date 15.05.2020 Sample Category Water Sample Name Sample Source Sample Particulars Sample Condition Quantity Received Ground Water Dugwell Sample Code- GW-20 Sealed & Ice Preserved 2.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey 19/11/2021 10.40 am to 4.45 pm Village Nr. Tata Sponge

s.n.	Test Parameter Biological Testing 1. Water	Measurement Unit	Test Method	Requirem IS 1050 (Drinking Wate Including Am	Test Result							
-				Acceptable Limit	Permissible Limit #	1						
1	Escherichia cali											
iI		Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent						
2	Allestine (c. C.C.)											
	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23): 1986	200	600	147.2						
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	IS 3025 (Part 4): 2021	5	1.5	(== (== 2 0.01)						
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 1986	0.05	15	1						
6	Chloride (as Cl)	mg/I	IS 3025 (Part 32) :1988		No relaxation	BDL (DL - 0.005						
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40): 1991	250	1000	59.38						
8	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	75	200	48.31						
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	Min. 0.2	1	BDL (DL - 0.1)						
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.22						
11	Nitrate (as NO ₃)		IS 3025 (Part 46): 1994	30	100	2.94						
12	Odour	·	APHA method 23rd edition: 2017	45	No relaxation	7.48						
13	pH		IS 3025 (Part 5): 1983	Agreeable	Agreeable	Agreeable						
14	Phenolic compounds (as C ₆ H ₅ OH)	- ma/l	IS 3025 (Part 11): 1983	6.5 to 8.5	No relaxation	7.43 at 25°C						
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 43): 1992	0.001	0.002	BDL (DL - 0.001)						
16	Taste	mg/l	IS 3025 (Part 24): 1986	200	400	9.33						
17	Total dissolved solids		IS 3025 (Part 8): 1984	Agreeable	Agreeable	Agreeable						
	Turbidity	mg/l	IS 3025 (Part 16): 1984	500	2000	260						
	Total hardness (as CaCO ₃)	NTU	IS 3025 (Part 10): 1984	1	5	0.5						
DI.	ease refer last Page for Note and R	mg/l	IS 3025 (Part 21): 2009	200	600	160.38						

Verified By

Shubhangi Armarkar Technical Manager

Authorized Signatories

Pooja Kathane Technical Manager

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

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TEST REPORT

ULR No.- TC545821000003041F Test Report No. : ALPL/30112021/1-42A dated 30/11/2021 Page 2 of 3 Issued To: Sample Inward No. 2021/MON-147/60- GW-20 **Analysis Start** 23/11/2021 M/s Katamati 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 Reference Date 15.05.2020 Water Sample Name Sample Source Sample Particulars Sample Condition Quantity Received Ground Water Dugwell

Sample Code- GW-20 Sealed & Ice Preserved 2.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey 19/11/2021 10.40 am to 4.45 pm Village Nr. Tata Sponge TEST DESILITE

s.n.	Test Parameter	Measurement Unit	Test Method	Require IS 105 (Drinking Wat Including At	Test Result	
				Acceptable Limit	Permissible Limit #	1
11	Chemical Testing 2. Residues In Water			Onne	Dittile #	<u> </u>
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/I	IS 3025 (Part 2): 2019	0.5	2.4	BDL (DL - 0.01)
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	IS 3025 (Part 2): 2019	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)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL - 0.0005)
30	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL- 0.001)
31	Total Chromium (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): 2019	5	15	BDL (DL - 0.03)
33	Polynuclear aromatic hydrocarbon (PAH)	µg/l	ANqr RES-30	0.1	No relaxation	BDL(DL-0.03)

Please refer last Page for Note and Remarks.

Verified By

Shashikant Satdeve Sr. Chemist

Sonali Gharpure Technical Manager **Authorized Signatory**

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





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TEST REPORT

ULR No.- TC545821000003041F Test Report No.: ALPL/30112021/1-42A dated 30/11/2021 Page 3 of 3 Issued To: 2021/MON-147/60- GW-20 Sample Inward No. Analysis Start 23/11/2021 M/s Katamati Iron Mines Inward Date 22/11/2021 (M/s TATA Steel Limited) Analysis End 29/11/2021 Reference W.O.- 3000132460/962 Report Issue Date 30/11/2021 Reference Date Sample Category 15.05.2020 Water Sample Name Sample Source Sample Particulars Sample Condition Quantity Received Ground Water Dugwell Sample Code- GW-20 Sealed & Ice Preserved 2.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey 19/11/2021 10.40 am to 4.45 pm Village Nr. Tata Sponge

		TEST RESULTS										
S.N.	Test Parameter	Measurement Unit	Test Method	IS 10: (Drinking Wa Including A	ment as per 500 : 2012 ter Specifications) mendment No. 3	Test Result						
34	Pesticide Residues Organochi	lorine		Acceptable Limit	Permissible Limit #							
i	Alpha-HCH	μg/l	ANtr/7.2/RES/01: 2	019 001								
ii	Beta HCH	μg/l	ANtr/7.2/RES/01: 2	018 0.01	No relaxation	BDL (DL - 0.01)						
iii	Gamma - HCH (Lindane)	μg/l	ANtr/7.2/RES/01: 2		No relaxation	BDL (DL - 0.03)						
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2		No relaxation	BDL (DL - 0.03)						
v	Alachlor	με/Ι	ANtr/7.2/RES/01: 2		No relaxation	BDL (DL - 0.03)						
vi	Aldrin		ANt+/7 2/RES/01: 2	018 20	No relaxation	BDL (DL - 0.03)						
vii	Dieldrin		ANtr/7.2/RES/01: 2		No relaxation	BDL (DL - 0.03)						
viii	Butachlor		ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)						
ix	p.p'-DDE		ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)						
X	o,p'-DDE		ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)						
xi	p,p'-DDD	μg/l μg/l	ANtr/7.2/RES/01: 20	1 1	No relaxation	BDL (DL - 0.03)						
xii	o,p'-DDD		ANtr/7.2/RES/01: 20	018 1	No relaxation	BDL (DL - 0.03)						
xiii	o.p'- DDT	μg/Ι	ANtr/7.2/RES/01: 20	1 1	No relaxation	BDL (DL - 0.03)						
xiv	p.p'- DDT	μg/l	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)						
xv	Monocrotophos	μg/l	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)						
xvi	Atrazine	μg/l	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)						
xvii	Parathion methyl	μg/l	ANtr/7.2/RES/01: 20	18 2	No relaxation	BDL (DL - 0.03)						
xviii	Paraoxon methyl	μg/l	ANtr/7.2/RES/01: 20	18 0.3	No relaxation	BDL (DL - 0.03)						
xix	Malathion	μ <u>g</u> /l /	ANtr/7.2/RES/01: 20	18 -		BDL (DL - 0.03)						
XX	Malaoxon		ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)						
xxi	Ethion	μ <u>g</u> /l /	ANtr/7.2/RES/01: 20	18 -		BDL (DL - 0.03)						
xxii	Chlorpyrifos	μ <u>υ</u> / /	ANtr/7.2/RES/01: 20	18 3	No relaxation	BDL (DL - 0.03)						
-	o Discourage of the Control of the C	µg/l /	ANtr/7.2/RES/01: 20	18 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 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. Non-perishable and alternate source for drinking water. Timely is equivalent to 'ppn'. Timely perishable and alternate source for drinking water. Result for test no. 11 is not relevant. Antir/7.2/RES -01,02,03,04,&05,: Inhouse validated method. NT indicates not Tested as REMARKS. REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with 15:10500:2012, for tests conducted, indicating that

Verified By

Sonali Gharpure Technical Manager Authorized Signatory

(1am Dr. (Mrs.) S.D. Garway Quality Manager

----End of Report----

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TEST REPORT

est Report No. : ALPI	L/30112021/1-42E	dated	30/11/2021	Pag	e 1 of 1		
Issued To: M/s Katamati Iron Mines (M/s TATA Steel Limited)		Inward Date 22/11/2 Reference W.O		2021/MON-147/60- GW-20 22/11/2021 V.O 3000132460/962 5.05.2020		is Start is End Issue Date e Category	23/11/2021 29/11/2021 30/11/2021 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code- GW-20		20 Scaled & Ice Preserved		Quantity Recei	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Dat 19/11/2021	e			Sampling Location Village Nr. Tata Spong	

S.N.	Test Parameter	Measurement Unit Test Method		Required IS 105 (Drinking Wat Including An	Test Result	
				Acceptable Limit	Permissible Limit #	
I	Chemical Testing 1. Residues In Water		. 01		Dillit II	
1	Mineral Oil	mg/l	ANtr/7.2/RES/06: 2018	1	No relaxation	BDL (DL - 0.001)

NOTES:
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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.

Verified By

Technical Manager

Authorized Signatory aaw

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

---END OF REPORT----



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TEST REPORT

ULR No.- TC545821000003041F Test Report No.: ALPL/30112021/1-43A dated 30/11/2021 Page 1 of 3 Issued To: Sample Inward No. 2021/MON-147/60- GW-21 **Analysis Start** 23/11/2021 M/s Katamati 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 Reference Date Sample Category 15.05.2020 Water Sample Name Sample Source Sample Particulars Sample Condition Quantity Received Ground Water Borewell Sealed & Ice Preserved Sample Code- GW-21 5.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey 19/11/2021 10.40 am to 4.45 pm Nr. Metso Plant

			TEST RESULTS			
S.N.	Test Parameter	Measurement Unit	Test Method	Requirem IS 1050 (Drinking Wate Including Am	Test Result	
				Acceptable Limit	Permissible Limit #	1
	Biological Testing 1. Water				1 231111217	
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
11	Chemical Testing 1. Water				, tosent	Ausciit
2	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23): 1986	200	600	158.7
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	
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 1986	0.05	No relaxation	DDI (DI 0.005
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	BDL (DL - 0.005
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40): 1991	75	200	57
8	Free residual chlorine	mg/l	IS 3025 (Part 26): 2021	Min. 0.2	200	53.06
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	0.21
11	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45		8.20
12	Odour	-	IS 3025 (Part 5): 1983	Agreeable	No relaxation	5.34
13	pH		IS 3025 (Part 11): 1983	6.5 to 8.5	Agreeable	Agreeable
14	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43): 1992		No relaxation	7.43 at 25°C
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24): 1986	200	0.002	BDL (DL - 0.001
16	Taste	-	IS 3025 (Part 8): 1984		400	8.29
17	Total dissolved solids	mg/l	IS 3025 (Part 16): 1984	Agreeable	Agreeable	Agreeable
18	Turbidity	NTU	IS 3025 (Part 10): 1984	500	2000	264
19	Total hardness (as CaCO ₃)	mg/l		1	5	0.4
I PI	ease refer last Page for Note and E		IS 3025 (Part 21): 2009	200	600	166.32

refer last Page for Note and Remarks.

Verified By

Shuchangi Armarkar Technical Manager

Authorized Signatories

Pooja Katharie Technical Manager

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

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ULR No.- TC545821000003041F

Test Report No.: ALPL/30112021/1-43A dated 30/11/2021 Page 2 of 3 Issued To: Sample Inward No. 2021/MON-147/60- GW-21 **Analysis Start** 23/11/2021 M/s Katamati 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 Ground Water Borewell Sample Code- GW-21 Sealed & Ice Preserved 5.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey 19/11/2021 10.40 am to 4.45 pm Nr. Metso Plant

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# Chemical Testing H 2. Residues In Water 20 Arsenic (as As) IS 3025 (Part 37): 1988 mg/l 0.01 BDL (DL - 0.01) No relaxation IS 3025 (Part 2): 2019 / 21 Aluminium (as Al) mg/l0.03 0.2 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 Boron (as B) mg/l IS 3025 (Part 2): 2019 0.5 2.4 BDL (DL - 0.1) 24 Copper (as Cu) IS 3025 (Part 2): 2019 mg/l 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) mg/l IS 3025 (Part 2): 2019 1.0 No relaxation 0.26 27 Lead (as Pb) IS 3025 (Part 2): 2019 mg/l 0.01 BDL (DL - 0.001) No relaxation 28 Manganese (as Mn) mg/l IS 3025 (Part 2): 2019 0.1 0.3 BDL (DL - 0.05) 29 Mercury (as Hg) mg/l IS 3025 (Part 48): 1994 0.001 No relaxation BDL (DL - 0.0005) 30 Selenium (as Se) IS 3025 (Part 56): 2003 mg/l 0.01 No relaxation BDL (DL-0.001) 31 Total Chromium (as Cr) IS 3025 (Part 2): 2019 mg/l 0.05 No relaxation BDL (DL - 0.03) 32 IS 3025 (Part 2): 2019 Zinc (as Zn) ing/l 5 15 BDL (DL - 0.1) Polynuclear aromatic 33 ANqr RES-30 0.1 No relaxation BDL(DL-0.03) hydrocarbon (PAH)

Please refer last Page for Note and Remarks.

Verified By

Shashikant Satdeve Sr. Chemist

Sonali Gharpure Technical Manager **Authorized Signatory**

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

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TEST REPORT

ULR No.- TC545821000003041F

Test Report No.: ALPL/30112021/1-43A dated 30/11/2021 Page 3 of 3 Issued To: Sample Inward No. 2021/MON-147/60- GW-21 Analysis Start 23/11/2021 M/s Katamati 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 Reference Date 15.05.2020 Water Sample Name Sample Source Sample Particulars Sample Condition Quantity Received Ground Water Borewell Sample Code- GW-21 Sealed & Ice Preserved 5.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey 19/11/2021 10.40 am to 4.45 pm Nr. Metso Plant

	T		TEST RESUL'	TS			
S.N.	Test Parameter	Test Parameter Measurement Unit		A	Requirer IS 1050 (Drinking Wate Including An	Test Result	
34	Pesticide Residues Organochi	lorine		ACC	eptable Limit	Permissible Limit #	
i	Alpha-HCH	μg/l	ANtr/7.2/RES/01: 2	2018	0.01	No selecti	I BBY (II)
ii	Beta HCH	μg/l	ANtr/7.2/RES/01: 2		0.01	No relaxation	BDL (DL - 0.01
iii	Gamma - HCH (Lindane)	μg/l	ANtr/7,2/RES/01: 2		2	No relaxation	BDL (DL - 0.03
iv	Delta- HCH	μg/I	ANtr/7.2/RES/01: 2			No relaxation	BDL (DL - 0.03
v	Alachlor	μg/l	ANtr/7.2/RES/01: 2		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/l			0.03	No relaxation	BDL (DL - 0.03
viii	Butachlor	μg/l	ANtr/7.2/RES/01: 2		0.03	No relaxation	BDL (DL - 0.03
ix	p,p'-DDE		ANtr/7.2/RES/01: 2		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,p'-DDD	μg/l	ANtr/7.2/RES/01: 2		1	No relaxation	BDL (DL - 0.03
xii	o,p'-DDD		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		ANtr/7.2/RES/01: 2		1	No relaxation	BDL (DL - 0.03
xv	Monocrotophos		ANtr/7.2/RES/01: 2		1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine		ANtr/7.2/RES/01: 2		1	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl		ANtr/7.2/RES/01: 2		2	No relaxation	BDL (DL = 0.03)
cviii	Paraoxon methyl		ANtr/7.2/RES/01: 2		0.3	No relaxation	BDL (DL - 0.03)
xix	Malathion		ANtr/7.2/RES/01: 2		-	-	BDL (DL - 0.03)
XX	Malaoxon		ANtr/7.2/RES/01: 2		190	No relaxation	BDL (DL - 0.03)
xxi	Ethion		ANtr/7.2/RES/01: 2				BDL (DL = 0.03)
xxii			ANtr/7.2/RES/01: 20		3	No relaxation	BDL (DL = 0.03)
AAH	Chlorpyrifos	μg/l	ANtr/7.2/RES/01: 20	018	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

Verified By

Sonali Gharpure Technical Manager Authorized Signatory

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

Laboratory address: FP-34, 35, Food Park, 5 Star Industrial Estate, MICC Butlbori, 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 Katamati Iron Mines (M/s TATA Steel Limited) Sample Name Ground Water Sample Collected By Anacon Representative Mr. K. Pandey		Inward Date 22/1 Reference W.O Reference Date 15.03				(a) The state of t	

			TEST RESULTS			
S.N.	Test Parameter	Measurement Unit	Test Method	Requirer IS 105 (Drinking Wat Including Ar	Test Result	
				Acceptable Limit	Permissible Limit #	
I	Chemical Testing I. 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.

Verified By

Sonali Gnarpure Technical Manager **Authorized Signatory**

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

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

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

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TEST REPORT

ULR No.- TC545821000003041F

Test Report No.: ALPL/30112021/1-44A Page 1 of 3 Issued To: Sample Inward No. 2021/MON-147/60- GW-22 Analysis Start 23/11/2021 M/s Katamati Iron Mines **Inward Date** 22/11/2021 Analysis End (M/s TATA Steel Limited) 29/11/2021 Reference W.O.- 3000132460/962 Report Issue Date 30/11/2021 Reference Date Sample Category 15.05.2020 Water Sample Name Sample Source Sample Particulars Sample Condition Quantity Received Ground Water Borewell Sample Code- GW-22 Sealed & Ice Preserved 5.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey 19/11/2021 10.40 am to 4.45 pm Nr. Pit Office

		1	TEST RESULTS			
S.N.	Test Parameter	Measurement Unit	Test Method	Requirem IS 1050 (Drinking Wate Including Am	Test Result	
1	Dialogical Testing 1 200			Acceptable Limit	Permissible Limit #	1
1	Biological Testing 1. Water Escherichia coli					
II		Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
2	Chemical Testing 1. Water				1 . robert	Ausciit
-	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23): 1986	200	600	154.1
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL = 0.0
4	Colour	Hazen units	IS 3025 (Part 4): 2021	5	15	,
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05		1
6	Chloride (as CI)	mg/l	IS 3025 (Part 32) :1988	250	No relaxation	BDL (DL - 0.00
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	1000	58.43
8	Free residual chlorine	mg/l	IS 3025 (Part 26): 2021		200	48.31
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	Min. 0.2	1	BDL (DL - 0.1
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46): 1994	1.0	1.5	0.20
11	Nitrate (as NO ₃)		APHA method 23rd edition: 2017	30	100	9.16
12	Odour		IS 3025 (Part 5): 1983	45	No relaxation	7.44
13	pH	-	IS 3025 (Part 11): 1983	Agreeable	Agrecable	Agrecable
14	Phenolic compounds (as C ₆ H ₅ OH)	mg/l		6.5 to 8.5	No relaxation	7.43 at 25°C
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 43): 1992	0.001	0.002	BDL (DL - 0.00
16	Taste	- 1001	IS 3025 (Part 24) : 1986	200	400	8.29
17	Total dissolved solids	mg/l	IS 3025 (Part 8): 1984	Agreeable	Agreeable	Agreeable
18	Turbidity	NTU	IS 3025 (Part 16): 1984	500	2000	264
	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 10): 1984		5	0.4
[] Pl	ease refer last Page for Note and R	nig/t	IS 3025 (Part 21): 2009	200	600	158.4

Verified By

Shubhangi Armarkar Technical Manager

Authorized Signatories

Pooja Kathane Technical Manager

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





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TEST REPORT

ULR No.- TC545821000003041F

Test Report No.: ALPL/30112021/1-44A Page 2 of 3 Sample Inward No. Issued To: 2021/MON-147/60- GW-22 Analysis Start 23/11/2021 M/s Katamati 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 Ground Water Borewell Sample Code- GW-22 Sealed & Ice Preserved 5.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey 19/11/2021 10.40 am to 4.45 pm Nr. Pit Office

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 Permissible Acceptable Limit Limit # Chemical Testing II 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) mg/I 0.03 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 Boron (as B) mg/l IS 3025 (Part 2): 2019 0.5 24 BDL (DL - 0.1) 24 Copper (as Cu) IS 3025 (Part 2): 2019 mg/l 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 IS 3025 (Part 2): 2019 Iron (as Fe) mg/l 1.0 No relaxation 0.31 Lead (as Pb) 27 mg/l IS 3025 (Part 2): 2019 0.01 BDL (DL - 0.001) No relaxation 28 Manganese (as Mn) IS 3025 (Part 2): 2019 mg/l 0.1 0.3 BDL (DL - 0.05) 29 Mercury (as Hg) mg/l IS 3025 (Part 48): 1994 0.001 No relaxation BDL (DL - 0.0005) 30 Selenium (as Se) IS 3025 (Part 56): 2003 No relaxation BDL (DL-0.001) mg/1 0.01 31 Total Chromium (as Cr) IS 3025 (Part 2): 2019 mg/1 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) Polynuclear aromatic 33 ANqr RES-30 0.1 No relaxation BDL(DL-0.03) hydrocarbon (PAH)

Please refer last Page for Note and Remarks.

Verified By

Shashikant Satdeve

Sr. Chemist

Sonali Gharpure Technical Manager Authorized Signatory

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





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TEST REPORT

ULR No.- TC545821000003041F

Test Report No.: ALPL/30112021/1-44A Page 3 of 3 Issued To: Sample Inward No. 2021/MON-147/60- GW-22 Analysis Start 23/11/2021 M/s Katamati Iron Mines Inward Date 22/11/2021 (M/s TATA Steel Limited) Analysis End 29/11/2021 Reference W.O.- 3000132460/962 Report Issue Date 30/11/2021 Reference Date 15.05.2020 Sample Category Water Sample Name Sample Source

Sample Particulars Sample Condition Quantity Received Ground Water Borewell Sample Code- GW-22 Sealed & Ice Preserved 5.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey 19/11/2021 10.40 am to 4.45 pm Nr. Pit Office

S.N.	Test Parameter	Measurement Unit	TEST RESUL		IS 105 (Drinking Wat Including An	ment as per 00 : 2012 er Specifications) nendment No. 3	Test Result
34	Pesticide Residues Organochi	lorine	A		eptable Limit	Permissible Limit #	1
i	Alpha-HCH		ANtr/7.2/RES/01:	2/110			
ii	Beta HCH		ANI./7.2/RES/01:	2018	0.01	No relaxation	BDL (DL - 0.01
iii	Gamma - HCH (Lindane)		ANtr/7.2/RES/01: 1		0.04	No relaxation	BDL (DL - 0.03
iv	Delta- HCH		ANtr/7.2/RES/01: 2		2	No relaxation	BDL (DL - 0.03
v	Alachlor	μg/l	ANtr/7.2/RES/01: 2	2018	0.04	No relaxation	BDL (DL - 0.03
vi	Aldrin		ANtr/7.2/RES/01: 2		20	No relaxation	BDL (DL - 0.03
vii	Dieldrin	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/l	ANtr/7.2/RES/01: 2	2018	125	No relaxation	BDL (DL - 0.03)
х	o.p'-DDE	μg/l	ANtr/7.2/RES/01: 2	2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	μg/l	ANu/7.2/RES/01: 2	2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD		ANtr/7.2/RES/01: 2		1	No relaxation	BDL (DL - 0.03)
xiii	o.p'- DDT		ANtr/7.2/RES/01: 2		1	No relaxation	BDL (DL - 0.03)
xiv	p.p'- DDT		ANtr/7.2/RES/01: 2		1	No relaxation	BDL (DL - 0.03)
XV	Monocrotophos	μg/1	ANtr/7.2/RES/01: 2	018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine		ANtr/7.2/RES/01: 2		1	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl		ANtr/7.2/RES/01: 2		2	No relaxation	PDL (DL - 0.03)
cviii	Paraoxon methyl	μg/l /	ANtr/7.2/RES/01: 2	018	0.3	No relaxation	BDL (DL - 0.03)
xix	Malathion	μg/l /	ANtr/7.2/RES/01: 2	018		1.0 rotaxation	BDL (DL - 0.03)
XX	Malaoxon	μg/l /	Ntr/7.2/RES/01: 2	018	190	No relaxation	BDL (DL = 0.03)
xxi	Ethion	μg/l A	ANtr/7.2/RES/01: 2	018		150 Telakation	BDL (DL - 0.03)
xxii	CHAPTER TO THE PROPERTY OF THE		ANtr/7.2/RES/01: 20		3	No relaxation	BDL (DL - 0.03)
CAH	Chlorpyrifos		Ntr/7.2/RES/01: 20		30	No relaxation	BDL (DL - 0.03) BDL (DL - 0.03)

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Verified By

Sonali Gharpure Technical Manager Authorized Signatory 5 Gaw

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

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

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TEST REPORT

l'est Report No. : AL	PL/30112021/1-441	В					Page 1 of 1
Issued To: M/s Katamati Iron Mines (M/s TATA Steel Limited) Sample Name Sample Source Ground Water Borewell		Inward Date 22/1 Reference W.O Reference Date 15.0				sis Start sis End rt Issue Date le Category	23/11/2021 29/11/2021 30/11/2021 Water
							y Received & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 19/11/2021		Sampling Time 10.40 am to 4.45 pm	Sampling Nr. Pit (

S.N.	Test Parameter	Measurement Unit	Test Method	Requires IS 105 (Drinking Wat Including An	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.

Verified By

Sonali Gharpure Technical Manager **Authorized Signatory**

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

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

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TEST REPORT

Issued To: M/s Katamati Iron Mines (M/s TATA Steel Limited)		Sample Inward No. Inward Date Reference Reference Date	28/02/2022 2022/MON-32/60- GW-17 22/02/2022 W.O 3000132460/962 15.05.2020		Analysis Start Analysis End Report Issue Date Sample Category	Page 1 of 3 22/02/2023 28/02/2023 28/02/2023 Water
Sample Name Ground Water	Sample Source Dagwell	Sample Particula Sample Code-GW	The state of the s			y Received & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/02/2022		Sampling Time 10.25 am to 4.45 pm	Sampling I Mahadey Nas	ocation

		1	TEST REGULTS			
S.N.	Test Parameter	Measuremen Unit	Test Method	Requires IS 1056 (Drinking Wate Including Am	Test Result	
		100		Acceptable Limit	Permissible	
3	Biological Testing 1. Water		1	Limit	Limit #	
1	Escherichia voli	Per 100 ml	IS 15185 : 2016	About	1	
H	Chemical Testing 1. Water			Absent	Absent	Absent
2	Alkalinity (as CaCO ₂)	mg/l	IS 3025 (Part 23): 1986			
3	Anionic surface active agents			200	600	131.6
	(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	-		more for - 0.01
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 1986	3	15	
6	Chloride (as C1)	mg/l	IS 3025 (Part 32):1988	0.05	No relaxation	BDL (DL - 0.00)
7	Calcium (as Ca)	me/l	IS 3025 (Part 40) : 1991	250	1000	32.68
8	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	75	200	47.26
9	Fluoride (as F)	mg/l	1S 3025 (Part 60) : 2008	Min. 0.2		BDL (DL - 0.1)
10	Magnesium (as Mg)	mg i		1.0	1.5	0.21
11	Nitrate (as NO ₃)	mg/I	IS 3025 (Part 46): 1994	30	100	12.68
2	Odour		APHA method 23rd edition: 2017	45	No relaxation	4.94
13	pH		IS 3025 (Part 5): 1983	Agrecable	Agreeable	Agreeable
4	Phenolic compounds (as C _n H ₂ OH)		IS 3625 (Part 11): 1983	6.5 to 8.5	No relaxation	7.16 at 25°C
5	Sulphate (as SO ₄)		1S 3025 (Part 43) : 1992	0.001	The state of the s	BDL (DL - 0.90)
6	Taste	mg/l	IS 3025 (Part 24): 1986	200	400	14.27
7	Total dissolved solids	mg/l	IS 3025 (Part 8): 1984	Agrecable	Agrecable	Agreeable
8	Turbidity	NIU	IS 3025 (Part 16): 1984	500	2000	246
9	Fotal hardness (as CaCO ₁)		IS 3025 (Part 10): 1984	1	5	0.3
Ple	ase refer last Page for Note and R	mg/l	IS 3025 (Part 21): 2009	200	600	170.22

Verified By

Shilohangi Armarkar Technical Manuarkar

Authorized Signatories

Technical Manager

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

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TEST REPORT

Issued To : M/s Katamati Iron Mines (M/s TATA Steel Limited)		Sample Inward No. Inward Date Reference Reference Date	22/02 W.O.	2022/MON-32/60- GW-17 22/02/2022 W.O 3000132460/962 15.05.2020		sis Start sis End t Issue Date le Category	Page 2 of 3 22/02/2022 28/02/2022 28/02/2022 Water
Sample Name Ground Water	County Was a second sec		Sample Condition Scaled & Ice Preserv			y Received & 250 ml	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/02/2022		Sampling Time		Sampling Location	

			TEST RESULTS		American Control of the Control of t	
S.N.	. Test Parameter	Measurement Unit	Test Method	Require IS 105 (Drinking Wat Including Ar	Test Result	
				Acceptable Limit	Permissible Limit #	
11	Chemical Testing 2. Residues In Water				Entrette (
20	Arsenie (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/I	IS 3025 (Part 2) : 2019	0.7	No refaxation	BDL (DL - 0.01)
23	Boron (as B)	mg/l	1S 3025 (Part 2): 2019	0.5	2.4	BDL (DL = 0.1)
24	Copper (as Cu)	mg/l	1S 3025 (Part 2): 2019	0.05	15	HDL (DL - 0.03)
25	Cadmium (as Cd)	rag/l	1S 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL - 0.00)
26	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	1.0	No relaxation	0.16
27	Lead (as Pb)	mg/l	IS 3025 (Part 2): 2019	0.01	No relaxation	BDL (DL - 0.00)
28	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL = 0.05
29	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL - 0.0005
30	Selenium (as Se)	mg/	IS 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL - 0.000)
31	Total Chromium (as Cr)	mg/l	15 3025 (Part 2) 2019	0.05	No relaxation	BDL (DL - 0.001
32	Zinc (as Zn)	mg/l	1S 3025 (Part 2) : 2019	3	15	BDL (DL - 0.0)
33	Polynuclear aromatic hydrocarbon (PAH)	μ <u>g</u> /1	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

Shubhangi Armarkar Technical M

Authorized Signatory

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

yan

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

Issued To : M/s Katamati Iron (M/s TATA Steel L	insteads	Sample Inward No. Inward Date	X-02/2022 2022/MON-32/60- GW-17 22/02/2022 W.O 3000132460/962 15.05.2020		Page 3 of 3 22/02/2022 28/02/2022 28/02/2022 Water	
Sample Name Ground Water	Sample Source Dogweit	Sample Particulars Sample Code-GW-1	The second secon		Received	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/02/2022	Sampling Time 10.25 am to 4.45 pm	2.0 Ltr & Sampling Lo Mahadey Nasha		

S.N. Test Parameter		Measurement Unit	Test Method	Re I (Drinkin Includi	Test Result		
34	Mineral Oil	mg/l	110000000000000000000000000000000000000	Acceptable L			
35	Pesticide Residues Organochi	orine	ANIt/7 2/RES/06: 20	18 1 1	No relaxation	BDL (DL - 0.00)	
i	Alpha-HCH Beta HCH	P8/1	ANu/7.2/RES/01: 26	18 0.0	I No relaxation	BDL (DL = 0.0)	
iii		μ <u>μ</u> /1	ANu/7.2/RES/01: 20		4 No relaxation	BDL (DL = 0.03	
iv	Gamma - HCH (Lindane) Delta- HCH	μμ/Ι	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL = 0.03	
V	Alachlor	jig/l	ANtr/7.2/RES/01: 20	18 0.0	4 No relaxation	BDL (DL = 0.03	
Vi	Aldrin		ANtr/7.2/RES/01: 20			BDL (DL = 0.03	
Vii	Dieldrin		ANtr/7.2/RES/01: 20			BDL (DL = 0.03	
viii	Butachlor	pg/l	ANIE/7.2/RES/01: 20			BDL (DL - 0.03	
ix	p.p -DDE	Hg/l	ANIE/7.2/RES/01: 20			BDL (DL = 0.03	
X	o,p'-DDE		ANIE7.2/RES/01: 20		No relaxation	BDL (DL = 0.03	
Ni	p.p -DDD		ANto7.2/RES/01: 20		No relaxation	BDL (DL - 0.03	
XII	o.p*-DDD		ANti/7.2/RES/01: 20		No relaxation	BDL (DL + 0.03	
xiii	o,p'-DDT		ANt:/7.2/RES/01: 20		No relaxation	BDL (DL = 0.03)	
xiv	p.p - DDT		ANti/7.2/RES/01; 20		No relaxation	BDL (DL - 0.03)	
XV	Monocrotophos	на/1	ANte/7.2/RES/01: 20	8 1	No relaxation	BDL (DL = 0.03)	
XVI	Atrazine		ANti/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)	
XVII.	Parathion methyl		ANtr/7.2/RES/01: 20		No relaxation	BDL (DL = 0.03)	
viii	Paraoxon methyl		ANti/7.2/RES/01: 20		No relaxation	BDL (DL = 0.03)	
XIX	Malathion		ANti/7.2/RES/01: 201			BDL (DL = 0.03)	
XX	Malaoxon		ANIC7 2 RES/01: 201		No relaxation	BDL (DL = 0.03)	
	Ethion	ng/l	ANu/7.2/RES/01: 201	8 -		BDL (DL +0.03)	
oxii	Chlorpyrifos	μ <u>α</u> /1 /	Nu/7.2/RES/01: 201	8 3	No relaxation	BDL (DL - 0.03)	
www.	Plane was and a second	The T	Nu.7.2/RES/01: 201	8 30	No relocation	BDL (DL = 0.03)	

NOTE:

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Later of the report shall not be reproduced except in full without prior written approval of Anacon Later.

Later of Anacon Later is found to rested unspected and applicable to rested parameters only perialable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of more of Test Report, unless specified otherwise.

Result for rest is a specified otherwise.

Result for rest is a specified otherwise.

Result for rest is a 11 in not relevant.

Anter 7.2/RES -01,06. Informer validated method.

At indicates not Tested as sample falled to

REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with 18:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

Sonali Gharpure Technical Manager

Verified By

Authorized Signatory) Gan

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

-End of Report-

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

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TEST REPORT

Issued To: M/s Katamuti Iron Mines (M/s TATA Steel Limited)		A dated Sample Inward No. Inward Date Reference Reference Date	22/02 W.O.	2022/MON-32/60- GW-18 22/02/2022 W.O 3000132460/962 15.05.2020		ysis Start ysis End ort Issue Date ple Category	Page 1 of 3 22/02/2022 28/02/2022 28/02/2022 Water	
Sample Name Ground Water	Sample Source Dugwell	Sample Particul Sample Code-GW		Sample Condition Scaled & Ice Preserv		The second second	tity Received Ltr & 250 ml	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/02/2022		Sampling Time 10.25 am to 4.45 pm		Sampling Location Datafiri-2 Village		

			TEST RESULTS			
S.N.	, Test Parameter	Measurement Unit	Test Method	Requirem IS 1050 (Drinking Wate Including Am	Test Result	
	***			Acceptable Limit	Permissible Limit #	
I	Biological Testing I. Water					
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
11	Chemical Testing 1. Water			- 1/2-12-12-12-12-12-12-12-12-12-12-12-12-12		100000
2	Alkalinity (as CaCO ₁)	mg/l	IS 3025 (Part 23): 1986	200	600	152.6
3	Anionic surface active agents (as MBAS)	mg/I	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	Cyunide (us CN)	mg/l	IS 3025 (Part 27): 1986	0.65	No reluxation	BDL (DL - 0.005)
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32):1988	250	1000	38.91
7	Calcium (av Ca)	mg/l	IS 3025 (Part 40): 1991	75	200	51.63
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	13	0.27
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46): 1994	30	100	
11	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	13.58
12	Odoor	-	IS 3025 (Part 5): 1983	Agrecable	Agrecable	
13	pH		1S 3025 (Part 11): 1983	6.5 to 8.5	No relaxation	Agreeable 7.26 at 25°C
14	Phenolic compounds (as C _e H ₂ OH)	mg/i	IS 3025 (Part 43): 1992	0.001	0.002	Primmin 1
15	Sulphate (as SO ₄)	mg/l	1S 3025 (Part 24) : 1986	2(0)	400	BDL (DL - 0.001)
16	Taste		IS 3025 (Part 8): 1984	Agrecable		13.82
17	Total dissolved solids	mg/I	IS 3025 (Part 16): 1984	500	Agreeable 2000	Agreeable
18	Turbidity	NTU	IS 3025 (Part 10): 1984	1	5	252
19	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21): 2009	200	600	184.85

Please refer last Page for Note and Remarks.

Verified By

Shubhangi Armarkar Technical Manuschar

Authorized Signatories

Technical Manager

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

TEST REPORT

ssued To ; M/s Katamati Iron Mines (M/s TATA Steel Limited)		Sample Inward No. Inward Date Reference Reference Date	22/02 W.O	/MON-32/60- GW-18 2/2022 3000132460/962 5/2020	Analysis Start Analysis End Report Issue Date Sample Category	Page 2 of 3 22/02/2022 28/02/2022 28/02/2022 Water	
Sample Name Ground Water	Sample Source Dugwell	Sample Particul Sample Code-GW	7777853	Sample Condition Scaled & Ice Preserved	- TIPE -	v Received & 250 ml	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/02/2022		Sampling Time 10.25 am to 4.45 pm	Sampling Location Dalatiri-2 Village		

S.N.	Test Parameter	Measurement Unit	Test Method	Require IS 105 (Drinking Wat Including A	Test Result	
				Acceptable Limit	Permissible Limit #	
11	Chemical Testing 2. Residues In Water				Latin II	
20	Arsenie (as As)	mg/l	IS 3025 (Part 37) : 1988	0,01	No relaxation	BDI doi 6.815
21	Aluminium (as Al)	mg/I	IS 3025 (Part 2): 2019 / IS 3025 (Part 55): 2003	0.03	0.2	BDL (DL = 0.01) 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	0.5	No relaxation	BDL (DL = 0.01)
24	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	0.05	2.4	BDL (DL = 0.1)
25	Cadmium (as Cd)	mg/l	IS 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL = 0.03)
26	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	BDL (DL - 0,001
27	Lead (as Pb)	mg/l	IS 3025 (Part 2): 2019	0.01	The same of the sa	0.18
28	Manganese (as Mn)	me/l	IS 3025 (Part 2) : 2019	0.1	No relaxation	BDL (DL = 0.001
29	Mercury (as Hg)	mel	IS 3025 (Part 48): 1994	0.001	100,000	BDL (DL - 0.05)
30	Selenium (as Se)	me/l	IS 3025 (Part 56) : 2003		No relaxation	BDL (DL+0.0003
31	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	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)
3.3	Polynuclear aromatic hydrocarbon (PAH)	μg/1	ANgr RES-30	0.1	No relaxation	BDL(DL-0.1) BDL(DL-0.03)

Verified By

Shashikant Satdeve Sr. Chemist

Journewdoor Shubhangi Armarkar Feehnical Manager

Authorized Signatory

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

Laboratory address ; FP-34, 35, Food Park, 5 Star Industrial Estate, MIDC Buttoon, Nagour - 441 122 Email support@anacon in

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- Export inspection council (EIC); AGMARK

TEST REPORT

Test Report No.: ALPL/28022022/1-40A dated 28/02/2022 Page 3 of 3 Issued To: Sample Inward No. 2022/MON-32/60- GW-18 Analysis Start 22/02/2022 M/s Katamati Iron Mines Inward Date 22/02/2022 28/02/2022 Analysis End (M/s TATA Steel Limited) Reference W.O.-3000132460/962 Report Issue Date 28/02/2022 Sample Category Water Reference Date 15.05.2020 Sample Name Sample Source Sample Particulars Sample Condition Quantity Received Ground Water Dugwell Sample Code-GW-18 Scaled & Ice Preserved 2.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey 17/02/2022 10.25 am to 4.45 pm Dalafiri-2 Village

S.N.	Test Parameter	Measurement Unit	TEST RESUL	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3			Test Result
34					ceptable Limit	Permissible Limit #	
35		mg/l	ANtr/7.2/RES/06:	2018	1 1	No relaxation	BDL (DL - 0.001)
10.0	Pesticide Residues Organochlori	7					
ii	Alpha-HCH Beta HCH	pg/l	ANI/7.2/RES/01	middle of the same	0.01	No relaxation	BDL (DL - 0.01)
iii		µg/l	ANI/7.2/RES/01:		0.04	No relaxation	BDL (DL = 0.03)
iv	Gadana'- HCH (Lindane)	µg/l	ANtr/7.2/RES/01:		2	No relaxation	BDL (DL - 0.03)
	Delta-HCH	µg/l	ANn/7.2/RES/01:		0.64	No relaxation	BDL (DL - 0.03)
¥	Alachior	He/I	ANtr/7.2/RES/01:		20	No relaxation	BDL (DL - 0.03)
Vi	Aldrin	μg/l	ANI/7.2/RES/01:	2018	0.03	No relaxation	BDL (DL - 0.03)
¥11	Dieldrin	μg/1	ANtr/7.2/RES/01:	2018	0.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor	μg/I	ANI/7.2/RES/01	2018	125	No relaxation	BDL (DL - 0.03)
ix.	p.p'-DDE	µg/I	ANtr/7.2/RES/01:		1	No relaxation	BDL (DL + 0.03)
X	o.p'-DDE	μg/I	ANte/7.2/RES/01:		i	No relaxation	BDL (DL - 0.03)
xi	p.pDDD	µg/l	ANtr/7.2/RES/01:		1 - 1 -	No relaxation	BDL (DL - 0.03)
XII	o.p -DDD	μμ/1	ANti/7.2/RES/01	-	1	No relaxation	BDL (DL - 0.03)
XIII	e.p'- DDT	µg/l	ANte/7.2/RES/61:			No relaxation	The state of the latest device
XÍV	p.p - DDT	pg/I	ANti/7.2/RES/01:			No relaxation	BDL (DL - 0.03)
NY	Monocrotophos	µg/l	ANto 7.2/RES/01:	Westernam Street Street	1	No relaxation	BDL (DL - 0.03)
XVI	Atrazine	µg/l	ANtr/7.2/RES/01:		1 2		BDL (DL - 0.03)
xvii	Parathion methyl	ng/l	ANtr/7.2/RES/01:	- Christian Inches	4	No relaxation	BDL (DL - 0.03)
XVIII	Paraoxon methyl	ng/I	The state of the s		0.3	No relaxation	BDL (DL + 0.03)
xix	Malathion		ANu/7.2/RES/01:		-	-	BDL (DL = 0.03)
XX	Malaexon		ANti/7.2/RES/01;		190	No relaxation	BDL (DL - 0.03)
XXI	Ethion		ANto7.2/RES/01: 1			-	BDL (DL - 0.03)
XXII	Chlorpyrifos	-	ANtr/7.2/RES/01: 3	Control of the last of the las	3	No relaxation	BDL (DL - 0.03)
	2.00/2/1000	Jug/T	ANtr/7.2/RES/01: 2	2018	30	No relaxation	BDL (DL - 0.03)

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REMARKS: As requested by the effect, sample was tested for above parameters only. Sample complies with 18:10500:2012, 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

Laboratory address: FP-34, 35, Food Park, 5 Star Industrial E East of Repute Libori, Nagour - 441 122

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TEST REPORT

issued To : M/s Katamati Iron Mines (M/s TATA Steel Limited)		Sample Inward No. Inward Date Reference Reference Date	22/02 W.O.	19 Sealed & Ice Preserved		sis Start rsis End rt Issue Date le Category	Page 1 of 3 22/02/2022 28/02/2022 28/02/2022 Water
Sample Name Ground Water	The second secon		ars /-19			Quantity Received 2.0 Lie & 250 ml Sampling Location Dalaffet-1 Village	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Da 17/02/2022	te				

		1	TEST RESULTS			_
S.N.	Test Parameter	Measurement Unit	Test Method	Requirem IS 1050 (Drinking Wate Including Am	Test Result	
1	Biological Taxing 1 33			Acceptable Limit	Permissible Limit#	
1	Biological Testing 1. Water Escherichia coli					-
II		Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
2	Chemical Testing I. Water			7971		7 Prosent
4	Alkalinity (as CaCO ₁)	mg/I	IS 3025 (Part 23): 1986	200	600	126.7
3	Anionic surface active agents (as MBAS)	mg/l	18 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.0)
4	Colour	Hazen onits	18 3025 (Part 4): 2021	- 5		mer desir dina
5	Cyanide (as CN)	mg/t	15 3025 (Part 27) : 1986		15	1
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32):1988	0.05 250	No relaxation	BDL (DL = 0.00)
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) 1991	75	1000	24.82
8	Free residual chlorine	mg/I	IS 3025 (Part 26) - 2021		200	48.29
9	Fluoride (as F)	mg/l	1S 3025 (Part 60) : 2008	Min. 0.2	1	BDL (DL - 0.1
10	Magnestum (as Mg)	mg/I	IS 3025 (Part 46): 1994	1.0	1.5	0.21
11	Nitrate (as NO ₁)	The second secon	APHA method 23rd edition: 2017	30	100	14.52
12	Odour	-		45	No relaxation	7.84
13	pH		IS 3025 (Part 5): 1983	Agreeable	Agreeable	Agrecable
4	Phenolic compounds (as CallsOH)	mg/l	IS 3025 (Part 11): 1983	6.5 to 8.5	No relaxation	6.92 at 25°C
5	Sulphate (as SO ₄)		IS 3025 (Part 43): 1992	0.001	0.002	BDL (DL = 0.001
6	Taste	mg/l	15 3025 (Part 24) : 1986	200	400	14.76
2	Total dissolved solids	mg/t	IS 3025 (Part 8): 1984	Agrecable	Agrecable	Agreeable
8	Turbidity	NIU	IS 3025 (Part 16): 1984	500	2000	264
9	Total hardness (as CaCO ₁)	-	1S 3025 (Part 10) : 1984	1	5	0.1
PL	ease refer last Page for Note and E	mg/l	18 3025 (Part 21) : 2009	200	500	180.36

Verified By

Quimuelcore Shubhangi Armarkar Technical Manager

Authorized Signatories

Pagin Kathan Technical Manager

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

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TEST REPORT

ssued To : M/s Katamati fron Mines (M/s TATA Steel Limited)		Sample Inward No. Inward Date Reference Reference Date	22/02 W.O.	/MON-32/60- GW-19 5/2022 - 3000132460/962 5/2020	Analysis Start Analysis End Report Issue Date Sample Category	Page 2 of 3 22/02/2022 28/02/2022 Water	
Sample Name Ground Water	Sample Source Dugwell	Sample Particu Sample Code-GV		Sample Condition Sealed & Ice Preserved		y Received & 250 ml	
Sample Collected By Anncon Representative Mr. K. Pandey		Sampling Date 17/02/2022		Sampling Time 10.25 am to 4.45 pm	Sampling Dulatiri-		

S.N.	Test Parameter	Measurement Unit	Test Method	Require IS 105 (Drinking Wat Including Ar	Test Result	
				Acceptable Limit	Permissible Limit#	
11	Chemical Testing 2. Residues In Water		- 444			
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	6.03	0.2	BDL (DL - 0.01)
22	Bagium (as Ru)	mg/l	18 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	1S 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 - 0.00)
26	Iron (as Fe)	mg/l	15 3025 (Part 2): 2019	1.0	No relaxation	0.16
27	Lead (as Pb)	mg/l	IS 3025 (Part 2): 2019	0.01	No relaxation	BDL (DL - 0.00)
28	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019	0.1	0.3	BDL (DL - 0.05
29	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	THE RESERVE OF THE PARTY OF THE
30 -	Selenium (as Se)	mg/l	IS 3025 (Part 56) - 2003	0.01	No relaxation	BDL (DL - 0.0005 BDL (DL - 0.001
31	Total Chromium (as Cr)	mg/I	18 3025 (Part 2) - 2019	0.05	No refaxation	THE RESIDENCE OF THE PARTY OF T
32	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	5	15	BDL (DL - 0.03
33	Polymoclear aromatic hydrocarbon (PAH)	µg/1	ANgr RES-30	0.1	No relaxation	BDL (DL = 0.1) BDL(DL=0.03)

Please refer last Page for Note and Remarks.

Verified By

Shashilomt Satdeve Sr, Chemist

gomeralecte Shubhangi Armarkar Technical Manager

Authorized Signatory

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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TEST REPORT

ssued To : Us Katamati Iron Mines M/s TATA Steel Limited)		Sample Inward No. Inward Date Reference Reference Date	22/02 W.O.	MON-32/60- GW-19 /2022 - 3000132460/962 - 2020	Analysis Start Analysis End Report Issue Date Sample Category	Page 3 of 3 22/02/2022 28/02/2022 28/02/2022 Water
Sample Name Ground Water	Sample Source Dugweil	Sample Particula Sample Code-GW		Sample Condition Scaled & Ice Preserved		y Received
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/02/2022	e	Sampling Time 10.25 am to 4.45 pm	Sampling Dalafiri-1	

S.N.	· Test Parameter	Measurement Unit	Test Method		Requiren IS 1050 (Drinking Wate Including Am	Test Result	
34	Mineral Oil	7 1		Ace	eptable Limit	Permissible Limit #	1
35	Pesticide Residues Organochi		ANin 7,2/RES/06: 2	2018		No relaxation	BDL (DL - 0.00
1	Alpha-HCH	The state of the s		-		A CONTRACTOR OF THE PARTY OF TH	
ii	Beta HCH	µg/l	ANu/7.2/RES/01: 2	2018	10.0	No relaxation	BDL (DL = 0.0)
iii	Gamma - HCH (Lindane)	119.1	ANtr/7,2/RES/01: 2		0.04	No relaxation	BDL (DL = 0.03
iv	Delta- HCH	µg/l	ANto 7.2/RES/01: 2		2	No relaxation	BDL (DL = 0.03
V	Alachior	µg/l	ANtr/7.2/RES/01: 2		0.04	No relaxation	BDL (DL = 0.03
vi	Aldrin	µg/1	ANI/7/2/RES/01: 2		20	No relaxation	BDL (DL = 8.03
vii	Dieldrin	Hg/l	ANte/7.2/RES/01: 2		0.03	No relaxation	BDL (DL - 0.03
viii	Butachlor	μg/l	ANw7 2 RES 01: 2		0.03	No relaxation	BDL (DL = 0.03
ix		119/1	ANII/7.2/RES/01: 2		125	No relaxation	BDL (DL = 0.03
	p.p -DDE	14g/l	ANte/7.2/RES/01: 2	018	1	No relaxation	
X	o.p -DDE	l'ga	ANtr/7.2/RES/01: 2	018	1	No relaxation	BDL (DL - 0.03
xi	p.p -DDD	µg/l	ANic/7.2/RES/01: 2			No relaxation	BDL (DL - 0.03
XII	o.p'-DDD	μμ/1	ANtr/7.2/RES/01: 2		1	No relaxation	BDL (DL = 0.03
XIII	o.p - DDT		ANu/7.2/RES/01: 2			No relaxation	BDL (DL = 0.03
KIV	p.p - DDT		ANti/7.2/RES/01: 2			No relaxation	BDL (DL = 0.03
XV	Monocrotophos		ANU/7.2/RES/01: 2			No relaxation	BDL (DL = 0.03
xvi	Atrazine		ANii/7.2/RES/01: 2		2	No relaxation	BDL (DL = 0.03)
(VII	Parathion methyl		ANE/7.2/RES/01: 2		0.3		BDL (DL = 0.03)
VIII	Paraoxon methyl		ANte/7.2/RES/01: 20			No relaxation	BDL (DL - 0.03)
VIX	Malathion	The state of the s	ANtr/7.2/RES/01: 20		190		BDL (DL - 0.03)
XX	Malaoxon	µg/l	ANto/7.2/RES/01: 20	11.0		No relaxation	BDL (DL = 0.03)
CXI	Ethion		ANtr/7.2/RES/01: 20		-		BDL (DL = 0.03)
ocii	Chlorpyrifos		AND 7 2/RES/01-20		30	No relaxation	BDL (DL = 0.03)
ver.	Please see watermark "Original Test Rev	The state of the s			30	No relaxation	BDL (DL = 0.03)

NOTE: • Please see watermark. "Original Test Report" to confirm the nothermory of this report • Resolus shall be referred to rested sample(s) and applicable to tested parameters only employed and not be reproduced except to find without price written approval of Auston Labs. • Liability of Auston Labs sy limited to invoice amount only. • Non-periodable and alternate source for docking water • mg/l is opposite to 'ppm' • 'pgr' in opposite to 'ppm' • 'ppm' •

REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted, indicating that

Verifical By

Sonali Gharpure Technical Manager Authorized Signatury

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

---End of Report----

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

Email: support@anacon.in;

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 Export inspection council (EIC): AGMARK.

TEST REPORT

Issued To:	100	Sample Inward No.	2022/N	40N-32/60- GW-20	Analysis Start	Page 1 of 3 22/02/2022
M/s Katamati Iron		Inward Date	22/02/2	302.2	Analysis End	28/02/2022
		Reference Reference Date			Report Issue Date Sample Category	28/02/2022 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particula Sample Code-GW		Sample Condition Scaled & Ice Preserve		ity Received tr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/02/2022		Sampling Time 10.25 am to 4.45 pm	Sampling	Location Tata Sponge

			TEST	RESULTS			
S.N.	Test Parameter	Measurement Unit	Ter	t Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
					Acceptable Limit	Permissible Limit #	
1	Biological Testing 1. Water	7 WI IIIQ-5III					
1	Escherichia coli	Per 100 mi	18 1	5185 : 2016	Absent	Absent	Absent
11	Chemical Testing I. Water					-	- Consens
2	Alkalinity (as CaCO ₃)	mg/l	IS 3025	(Part 23): 1986	200	600	131.68
3	Amonic 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	The second second	(Part 27): 1986	0.05	No relaxation	BDL (DL - 0.005
6	Chloride (as Ci)	mg/l		(Part 32):1988	250	1000	27.59
7	Calcium (as Ca)	mg/l		(Part 40): 1991	75	200	46.21
8	Free residual chlorine	mg/l		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	0.28
10	Magnesium (as Mg)	mg/L		(Part 46): 1994	30	100	12.52
11	Nitrate (as NO ₃)	mg/l		d 23rd edition: 2017	45	No relaxation	11.26
12	Odour		IS 3025	(Part 5): 1983	Agreeable	Agrecable	Agreeable
13	pH	*	18 3025 (Part 11): 1983	6.5 to 8.5	No relaxation	7.14 at 25°C
14	Phenolic compounds (as C _s H _s OH)	mg/l	MINE CONTRACTOR OF THE PARTY OF	(Part 43): 1992	0.001	0.002	BDL (DL - 0.001)
15	Sulphate (as SO ₄)	mg/l		Part 241 : 1986	200	400	16.32
16	Taste	-	The second second second second second	(Part 8): 1984	Agreeable	Agreeable	***
17	Total dissolved solids	mg/I		Part (6): 1984	500	2000	Agrecable
18	Turbidity	NTU		Part 10) : 1984		\$	276
19	Total hardness (as CaCO ₃)	mg/I	THE RESIDENCE OF THE PARTY OF T	Part 21) : 2009	200	500	166.94

Please refer last Page for Note and Remarks.

Verified By

Shubbangi Armarkar Technical Manne

Authorized Signatories

Pooja Kathang Technical Manager

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 impection council (EIC), AGMARIX.

TEST REPORT

Issued To : M/s Katamati Iron Mines (M/s TATA Steel Limited)		Sample Inward No. Inward Date Reference Reference Date	2022/02/ 22/02/ W.O	V02/2022 2022/MON-32/60- GW-20 22/02/2022 W.O 3000132460/962 15/05/2020		ysis Start ysis End rt Issue Date ole Category	Page 2 of 3 22/02/2022 28/02/2022 28/02/2022 Water
Sample Name Ground Water	Sample Source Dagwell	Sample Particular Sample Code-GW-		Sample Condition Scaled & Ice Preserved			y Received
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/02/2022		Sampling Time 10.25 am to 4.45 pm		2.0 Ltr & 250 ml Sampling Location Village Nr. Tata Sponge	

S.N.	Test Parameter	Measurement Unit	Test Method	Require IS 10: (Drinking Wa Including A	Test Result	
				Acceptable Limit	Permissible Limit #	
	Chemical Testing 2. Residues In Water					
20	Arsenie (as As)	mg/l	IS 3025 (Part 37): 1988	0.01	No relaxation	Dry dry out
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2): 2019 / IS 3025 (Part 55): 2003	0.03	0.2	BDL (DL - 0.0)
22	Barium (as Ba)	mg/l	1S 3025 (Part 2): 2019	0.7	No relaxation	
23	Boron (as B)	mg/I	IS 3025 (Part 2): 2019	0.5	2.4	BDL (DL = 0.01
24	Copper (as Cu)	mg/l	18 3025 (Part 2) : 2019	0.05	1.5	BDL (DL = 0.1
25	Cadmium (as Cd)	mg/l	18 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL = 0.0)
27	Iron (as Fe)	mg/l	1S 3025 (Part 2): 2019	1.0	No relaxation	BDL (DL = 0.00
28	Lead (as Pb)	mg/l	IS 3025 (Part 2): 2019	0.01	No relaxation	0.24 BDL (DL - 0.00
29	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019	0.1	0.3	BDL (DL - 0.0
10	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL = 0.000
11	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL- 0.00
12	Total Chromium (as Cr) Zinc (as Zn)	mg/l	1S 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL = 0.0
		mg/l	IS 3025 (Part 2): 2019	5	15	BDL (DL = 0.1)
13	Polynaclear aromatic hydrocarbon (PAH) se refer last Page for Note and	μg/l	ANgr RES-30	0.1	No relaxation	BDL(DL-0.03

Verified By

Shashikant Satdeve Sr. Chemist

Shubbangi Armarkar Technical Man

Authorized Signatory

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

Laboratory address: FP-34, 35, Food Park, 5 Star Industrial Estate, MIDC Butibori, Nagour - 441 122. Email: support@anacon.in; Please Vixit us as | www.anaconlaboratories.com



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TEST REPORT

Test Report No. : ALPL/28022022/1- Issued To : M/s Katamati Iron Mines (M/s TATA Steel Limited)		2A dated Sample Inward No. Inward Date Reference Reference Date	22/02 W.O.	022 MON-32/60- GW-20 //2022 - 3000132460/962	Analysis Start Analysis End Report Issue Date Sample Category	Page 3 of 3 22/02/2022 28/02/2022 28/02/2022 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Partieu Sample Code-GV	The state of the s		Quantity Received 2.0 Lp & 250 ml	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Da 17/02/2022	2000	Sampling Time 10.25 am to 4.45 pm	Sampling Village Nr. 1	Location

TEST RESULTS Requirement as per IS 10500: 2012 Measurement S.N. Test Parameter Test Method (Drinking Water Specifications) Test Result Limit Including Amendment No. 3 Acceptable Limit | Permissible Limit # Mineral Oil ANtr/7.2/RES/06; 2018 mg/l No relaxation BDL (DL - 0,001) Pesticide Residues Organochlorine Alpha-HCH ANte/7.2 RES-01: 2018 110/ 0.01 No relaxation BDL (DL - 0.01) ii Beta HCH ANic/7.2/RES/01: 2018 112 0.04 No relaxation BDL (DL - 0.03) ANte/7.2/RES/01 Gamma - HCH (Lindane) 2018 HE/ No relaxation BDL (DL - 0.03) Delta-HCH $\mu g/I$ ANtr/7.2/RES/01: 2018 0.04 No relaxation BDL (DL -0.03)Alachlor AND 7.2/RES/01 2018 AND 7.2/RES/01 2018 AND 7.2/RES/01 2018 11 1 BDL (DL - 0.03) 20 No relaxation Aldrin V µg/i 0.03 No relaxation BDL (DL - 0.03) Dieldrin BDL (DL - 0.03) BDL (DL - 0.03) Hg/ 0.03 No relaxation Butachlor ANtr/7.2/RES/01/2018 1111/1 125 No relaxation P.P'-DDE ANtr 7.2 RES 01: 2018 ANtr 7.2 RES 01: 2018 HE/ No relaxation BDL (DL = 0.03) o.p.-DDF Hg/ No relaxation BDL (DL = 0.03) P.P.-DDD ug/I ANn 7.2/RES/01: 2018 No relaxation BDL (DL - 0.03) o.p -DDD mg/l ANU/7 2/RES/01: 2018 BDL (DL - 0.03) No relaxation o.p. DDT ANtr 7.2/RES/01 2018 ANtr 7.2/RES/01 2018 xiii µg/I No relaxation BDL (DL - 0.03) p.p'- DDT xiv ng/l BDL (DL - 0.03) No relaxation Monocrotophos ANa/7.2/RES/01. 2018 305 $\mu g/l$ No relaxation BDL (DL - 0.03) XV) Atrazine ANI/7.2/RES/01/2018 ANI/7.2/RES/01/2018 BDL (DL - 0.03) 145/ No relaxation Parathion methyl 2018 112/1 No relaxation BDL (DL - 0.03) AND/7.2/RES/01: 2018 Paraexon methyl 102/1 BDL (DL - 0.03) XIX Malathion ANto 7.2/RES/01/2018 ANto 7.2/RES/01/2018 ug/l 190 No relocation BDL (DL - 0.03) XX Malagyon 112/1 BDL (DL = 0.03) ANtr/7.2/RES/01: 2018 XX Ethion $\mu g/l$ BDL (DL - 0.03) No relaxation Chlorpyrifos XXII ANIE/7.2/RES/01: 2018 me l 10 No relaxation BDL (DL = 0.03)

NOTE:
Please see watermark "Original Test Report" to confirm the authenticity of this report
Report
Report to 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

Sonnli Gharpure Technical Manager Authorized Signatory

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

-End of Report-

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

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TEST REPORT

Issued To: M/s Katamati Iron Mines (M/s TATA Steel Limited)		Sample Inward No. Inward Date	8/02/2022 2022/MON-32/60- GW-21 22/02/2022 W O - 3000132466/962 15/05/2020		nalysis Start nalysis End sport Issue Date mple Category	Page 1 of 3 22/02/2022 28/02/2022 28/02/2022 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-2	the second section of the second			Received
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/02/2022	Sampling Ti 10.25 am to 4.4	me	2.0 Lir & 250 ml Sampling Location Nr. Metso Plant	

-	T		TEST RESULTS			
S.N.	Text Parameter	Test Parameter Measurement Unit		Requiren IS 1050 (Drinking Wate Including Am	Test Result	
1	Biological Testing I. Water			Acceptable Limit	Permissible Limit #	
1	Exchericha coli					<u> </u>
H		Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
2	Chemical Testing 1. Water Alkalinity (as CaCO ₃)	1			PROMETE	Ameni
		mg/l	IS 3025 (Part 23): 1986	200	I 600	151.62
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 (Pagr 4): 2021	- 4	- 12	***************************************
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 1986	0.05	15	
6	Chloride (as CI)	mg/l	1S 3025 (Part 32):1988	The second secon	No relaxation	BDL (DL = 0.005)
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	250	1000	32.56
8	Free residual chlorine	mg/I	IS 3025 (Part 26) : 2021	75	200	43.81
9	Fluoride (as F)	mg/l		Min 0.2	1	BDL (DL = 0.1)
10	Magnesium (as Mg)	mg/I	IS 3025 (Part 60) : 2008	1.0	1.5	0.21
11	Nitrate (as NO ₁)	me/l	15 3025 (Part 46) : 1994	30	100	14.63
12	Odour		APHA method 23rd edition: 2017	45	No relaxation	9.27
13	pH		IS 3025 (Part 5): 1983	Agreeable	Agrecable	Agreeable
14	Phenolic compounds (as C ₀ H ₅ OH)	trade (a) (Vanis	IS 3025 (Part 11): 1983	6.5 to 8.5	No relaxation	7,28 at 25°C
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 43): 1992	0.001	0.002	BDL (DL - 0.001)
6	Taste-		15 3025 (Part 24) : 1986	200	400	21.54
7	Total dissolved solids		IS 3025 (Part 8): 1984	Agreeable	Agrecable	Agreeable
8	Turbidity	mg/l	IS 3025 (Part 16): 1984	500	2000	281
9	Total hardness (as CaCO ₁)	NTU	IS 3025 (Pag. 10): 1984	1	5	0.4
_	rase refer last Page for Note and R	mg/L	1S 3025 (Part 21) : 2009	200	600	169.61

Verified By

Shubitangi Armarkar Technical Manuscar

Authorized Signatories

Technical Manager

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

Laboratory address ; FP-34, 35, Food Park, 5 Star Industrial Estate, MIDC Busbon, Nagpur - 441 122. Email supportaganacon in;

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

ssued To : M/s Katamati Iron Mines (M/s TATA Steel Limited)		Sample Inward No. Inward Date Reference Reference Date	22/02 W.O.	MON-32/60- GW-21 /2022 - 3000132460/962 - 2020	Analysis Start Analysis End Report Issue Date Sample Category	Page 2 of 3 22/02/2022 28/02/2022 28/02/2022 Water	
Sample Name Ground Water	Sample Source Dugwell	Sample Particula Sample Code-GW-		Sample Condition Scaled & Ice Preserved		y Received	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/02/2022		Sampling Time 10.25 nm to 4.45 pm	Sampling Location Nr. Metso Plant		

S.N.	Test Parameter	Measurement Unit	Test Method	Require IS 105 (Drinking Wa Including A	Test Result	
				Acceptable Limit	Permissible Limit#	
11	Chemical Testing 2. Residues In Water				Canac ii	
20	Arschie (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 selection	
23	Boron (as B)	mg/l	IS 3025 (Part 2): 2019	0.5	No relaxation	BDL (DL + 0.01)
24	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	0.05	2.4	BDL (DL + 0.1)
25	Cadmium (as Cd)	mg/l	IS 3025 (Part 21: 2019	0.003	1.5	BDL (DL - 0.03)
26	Iron (as Fe)	me/l	IS 3025 (Part 2) : 2019		No relaxation	BDL (DL - 0.00)
27	Lead (as Pb)	mg/I	1S 3025 (Part 2): 2019	0.01	No relaxation	0.18
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	1S 3025 (Part 48) : 1994	0.001	0.3	BDL (DL - 0.05)
30	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	THE RESERVE TO THE RE	No relaxation	BDL (DL - 0.0005
31	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.01	No relaxation	BDL (DL-0.001)
12	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	0.03	No relaxation	BDL (DL - 0.01)
33	Polyosclear aromatic hydrocarbon (PAH) se refer last Page for Note and	ng/I	ANgr RES-30	0.1	No relaxation	BDL (DL - 0.1) BDL(DL-0.03)

fer last Page for Note and Remarks.

Shashikant Satdeve Sr. Chemist

Shubblingi Armarkar Technical Manager

Authorized Signatory

Dr. (Mrs.) S.D. Garway

Quality Manager

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

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

Issued To : M/s Katamati Iron (M/s TATA Steel L		Sample Inward No. Inward Date Reference Reference Date	22/02 W.O.	MON-52/60- GW-21 2/2022 - 3000132460/962 - 2020	Anal Repo	ysis Start ysis End ort Issue Date ole Category	Page 3 of 3 22/02/202 28/02/202 28/02/202 Water
Sample Name Ground Water	Sample Source Dogwell	Sample Parties Sample Code-G		Sample Condition Scaled & Ice Preserved			Received
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/02/2022		Sampling Time 10.25 am to 4.45 pm		2.0 Ltr & 250 ml Sampling Location Nr. Metso Plant	

Test Parameter neral Oil ticide Residues Organochl ha-HCH i HCH nma - HCH (Lindane)	Measurement Unit mg/I orine µg/I	Test Method ANia 7.2/RES 06	Acce	IS 1050 Drinking Wate Including Am	00 : 2012 er Specifications)	Test Result	
ticide Residues Organochl ha-HCH i HCH nma - HCH (Lindanc)	orine	ANn/7.2/RLS/06:	Acce		Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		
ha-HCH i HCH nma - HCH (Lindane)	orine	APRIL 7.2 RES/06	A	ptable Limit	Permissible Limit #	1	
ha-HCH i HCH nma - HCH (Lindane)	1		2018	1	No relaxation	BDL (DL - 0.00)	
nma - HCH (Lindane)		Abinet amoreus					
nma - HCH (Lindane)	11g/l	ANtr/7.2/RES/01: 7	2018	0.01	No relaxation	BDL (DL - 0.01	
The state of the s	The State of the S	ANte/7.2/RES/01: 2		0.04	No relaxation	BDL (DL = 0.03	
n+ HCH	112/1	ANtr/7.2/RES/01: 2		2	No relaxation	BDL (DL = 0.03	
chlor	µg/l	ANI/7.2/RES/01: 2		0.04	No relaxation	BDL (DL - 0.03)	
in	109/1	ANii:7.2/RES/01: 2		.20	No relaxation	BDL (DL - 0.03	
drin		ANtr/7.2/RES/01: 2		0.03	No relaxation	HDL (DL = 0.03)	
chlor	118/1	ANto 7.2/RES/01: 2	018	0.03	No relaxation	BDL (DL = 0.03)	
DDE	ng t	ANto/7.2/RES/01: 2	018	125	No relaxation	BDL (DL = 0.03)	
DDE	µg/l	ANtr/7.2/RES/01: 2	018	1	No relaxation	BDL (DL = 0.03)	
DDD		ANti/7.2/RES/01: 2		1	No relaxation	BDL (DL = 0.03)	
DDD		ANtr/7.2/RES/01: 2		1	No relaxation	BDL (DL = 0.03)	
DDT		ANtr/7.2/RES/01: 2		1	No relaxation	BDL (DL = 0.03)	
DDT		ANte/7.2/RES/01: 2		1	No relaxation	BDL (DL - 0.03)	
- pro-				1		BDL (DL = 0.03)	
The second secon				1			
	µg/l	ANto 7.2/RES/01: 2	018	2		BDL (DL = 0.03)	
	ng I	ANu/7.2/RES/01: 2	018	0.3	The state of the s	BDL (DL - 0.03)	
	μg/1	ANIE/7.2/RES/01: 20	018		Transmire Or	BDL (DL - 0.03)	
	The state of the s	ANte/7.2/RES/01: 20	018	190	No relevation:	BDL (DL = 0.03)	
OADH D				*	TO TELEVALEDIT	BDL (DL = 0.03)	
				3	No relaxation	BOL (DL - 0.03)	
THE PARTY OF THE P	μg/l /	ANur7.2/RES/01: 20	318	30		BDL (DL = 0.03) BDL (DL = 0.03)	
日本 日本 日本	ocrotophos ine non methyl xon methyl hion		Crotophos	Ecotophos Eg/1 ANE/7.2/RES/01 2018 Eg/1 ANE/7.2/RES/01 Eg/1 Eg/1		Page ANte 7.2/RES/01 2018 No relaxation	

NOTE: • Frame ser watermark: Output I feet Report to confern the authorizery of the report • Remains shall be referred to rested sample(s) and applicable to testal parameters only perturbable rangeles) shall be desposed off after 30 days and 12 days respectively from the date of mose of feet Report, unless specified otherwise. • Strangeless in absence of an internal source for drawing source • ungit is consistent to prov. • unit is quite and absence of the Report, unless specified otherwise. • Strangeless in absence of an internal and shall be consistented as "absence". • Result for test no. • is not relevance. • Abstr7.2/RES-01.06. Inhuse validated method. • NE releases not Tested as sample taken.

REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted, indicating that

Verified By

Sonali Gharpure Technical Manager Authorized Signatory

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

End of Report-

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

TEST REPORT

Test Report No. : A	LPL/28022022/1-44	IA dates	1 28/02/2	022		Page 1 of 3	
Issued To:		Sample Inward No.		MON-32/60- GW-22	Analysis Start	22/02/2022	
M/s Katamati Iron		Inward Date 22/02		7/2022	Analysis End	28/02/2022	
(M/S LATA Steel L	M/s TATA Steel Limited)		Reference W.O 3000132460/962 Reference Date 15.05.2020		Report Issue Date Sample Category	28/02/2022 Water	
Sample Name Ground Water	Sample Source Dugwell	Sample Partice Sample Code-G		Sample Condition Sealed & Ice Preserved		y Received & 250 ml	
- Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/02/2022		Sampling Time 10.25 am to 4.45 pm		Sampling Location Nr. Pit Office	

			TEST	FRESULTS				
S.N.	Test Parameter	Measurement Unit	Test Method		IS 1050 (Drinking Wate Including Am	Requirement as per 1S 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		
					Acceptable Limit	Permissible Limit #		
1	Biological Testing 1. Water							
ì	Escherichia cell	Per 100 ml	IS I	5185:2016	Absent	Absent	Absent	
H	Chemical Testing 1. Water						1 (8)	
2	Alkalinity (as CaCO ₃)	mg/I	IS 3025	(Part 23): 1986	200	6081	147.18	
3	Anionic surface active agents (as MBAS)	mg/I	IS 13428	(Annex K): 2005	0.2	1.0	BDL (DL - 0.01)	
4	Colour	Hazen units	IS 3025	(Pari 4): 2021	5	15	1	
5	Cyanide (as CN)	med	THE RESERVE THE PERSON NAMED IN	(Part 27): 1986	0.05	No relaxation	BDL (DL - 0.005	
fi .	Chloride (as Cl)	mg/l	18 3025	(Part 32):1988	250	1000	36,19	
7	Calcium (as Ca)	mg/l	15 3025	(Part 40): 1991	75	200	53.64	
8	Free residual chlorine	mg/l		(Part 26): 2021	Min. 0.2	1	BDL (DL - 0.1)	
9	Fluoride (as F)	mg/l	The second secon	(Part 60): 2008	1.0	1.5	0.16	
10	Magnesium (as Mg)	mg/l		(Part 46): 1994	30	100	12.47	
11	Nitrate (as NO ₁)	mg/l		od 23rd edition: 2017	45	No relaxation	8.19	
12	Odeur			(Part 5): 1983	Agreeable	Agreeable	Agrecable	
13	pH	-		(Part 11): 1983	6.5 to 8.5	No relaxation	7.14 at 25°C	
14	Phenolic compounds (as C ₆ H ₆ 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	(Pari 24): 1986	200	400	18.46	
16	Taste		IS 3025	(Part 8): 1984	Agreeable	Agreeable	Agrecable	
17	Total dissolved solids	mg/l	IS 3025	(Part 16): 1984	500	2000	271	
18	Lurbidity	NIU	IS 3025	(Part 10): 1984	T T	1 3	0.3	
19	Total hardness (as CaCO ₃)	mg/l		(Part 21): 2009	200	690	185.31	

Please refer last Page for Note and Remarks.

Verified By

Shubbangi Armarkar Technical Man

Authorized Signatories

Peopa Kathane Technical Manager

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

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TEST REPORT

Issued To : M/s Katamati Iron Mines (M/s TATA Steel Limited)		Sample Inward No. Inward Date Reference Reference Date	22/02/2	MON-32/60- GW-22 2022 3000132460/962	Analysis Start Analysis End Report Issue Date Sample Category	
Sample Name Ground Water	Sample Source Dugwell	Sample Particula Sample Code-GW		Sample Condition Scaled & Ice Preserved		tity Received Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/02/2022		Sampling Time 10.25 am to 4.45 pm	Sampling Location Nr. Pit Office	

s.N.	* Test Parameter	Measurement Unit	Test Method	Require IS 105 (Drinking Wat Including Ar	Test Result	
				Acceptable Limit	Permissible Limit#	
11	Chemical Testing 2. Residues In Water				Limit is	
20	Arsenic (as As)	mg/l	1S 3025 (Part 37): 1988	6.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2): 2019 / IS 3025 (Part 55): 2001	0.03	0.2	BDL (DL+0.01)
22	Barium (as Ba)	mg/l	1S 3025 (Part 2): 2019	0.7	No relaxation	BDL (DL - 0.01)
23	Boron (as B)	mg/l	15 3025 (Part 2): 2019	0.5	2.4	BDL (DL - 0.1)
24	Copper (as Cu)	mg/l	1S 3025 (Part 2): 2019	0.05	15	BDL (DL = 0.03)
25	Cadmium (as Cd)	mg/l	18 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL = 0.00
26	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	1.0	No relaxation	0.18
27	Lend (as Pb)	mg/l	15 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.00
28	Manganese (as Ma)	mg/I	1S 3025 (Part 2) : 2019	0.1	0.3	BDL (DL = 0.03
29	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL - 0.0005
30	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL- 0.001
31	Total Chromium (as Cr)	mg/l	1S 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL - 0.03
32	Zinc (as Zn)	mg/l	15 3025 (Part 2): 2019	5	15	BDL (DL - 0.1)
33	Polynuclear aromatic hydrocarbon (PAH)	ngd	ANgr RES-30	0.1	No relaxation	BDL(DL-0.03)

Verified By

Shashikant Satdeve Sr. Chemist

Summerelate Shubhangi Armarkar Technical Manager

Authorized Signatory

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



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 Export Inspection council (EIC): AGMARK.

TEST REPORT

Test Report No.: ALPL/28022022/1-44A dated 28/02/2022 Page 3 of 3 Issued To: Sample Inward No. 2022/MON-32/60- GW-22 Analysis Start 22/02/2022 M/s Katamati Iron Mines Inward Date 22/02/2022 Analysis End (M/s TATA Steel Limited) 28/02/2022 Reference W.O.-3600132460/962 Report Issue Date 28/02/2022 Reference Date Sample Category 15.05.2020 Water Sample Name Sample Source Sample Particulars Sample Condition Quantity Received Ground Water Dugwell Sample Code-GW-22 Scaled & Ice Preserved 2.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey 17/02/2022 10.25 am to 4.45 pm Nr. Pit Office

S.N.	Test Parameter	Measurement Unit	Test Method		Requirer IS 1050 (Drinking Wate Including Am	Test Result	
34	Mineral Oil	- mail 1	AND IN COLUMN	Acc	eptable Limit	Permissible Limit #	
35	Pesticide Residues Organochlo	mg/I	ANtr/7,2/RES/06: 3	2018	1 1	No relaxation	BDL (DL - 0.001
1	Alpha-HCH		AND IN NOTE OF STREET				
11	Bela HCH	μg/1	ANtr/7.2/RES/01: 2		0.01	No relaxation	BDL (DL - 0.01
111	Gamma - HCH (Lindane)	µg/1	ANtr/7.2/RES/01: 2		0.04	No relaxation	BDL (DL - 0.03)
İv	Delta-HCH	μg/l	ANtr/7.2/RES/01: 2		2	No relaxation	BDL (DL - 0.03)
V	Alachlor	μg/1	ANu/7,2/RES/01: 2		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		ANtr/7.2/RES/01: 2		0.03	No relaxation	BDL (DL - 0.03)
viii i	Untachlor	ру/!	ANtr/7-2/RES/01: 2		0.03	No relaxation	BDL (DL - 0.03)
ix.	p.p'-DDE		ANtr/7/2/RES/01: 2		125	No relaxation	BDL (DL - 0.03)
X	o.p'-DDE		ANtr/7.2/RES/01: 2		1	No relaxation	BDL (DL = 0.03)
xi.	p.pDDD		ANIE/7.2/RES/01: 2		1	No relaxation	BDL (DL - 0.03)
xii	o.p'-DDD		ANtr 7.2/RES/01: 2			No relaxation	BDL (DL - 0.03)
witi			ANtr 7.2/RES-01: 2		1	No relaxation	BDL (DL - 0.03)
-	o,p' - DDT	μg/l	ANtr/7.2/RES/01: 2	018	1	No relaxation	BDL (DL - 0.03)
XHV	p.p - DDT	µg/I	ANtr/7.2/RES/01: 2	018	1	No relaxation	BDL (DL - 0.03)
XV	Monocrotophos		ANtr/7.2/RES/01: 2		i	No relaxation	
XVI	Atraciae	jig/I	ANtr/7.2/RES/01: 2	018	3	No relaxation	BDL (DL - 0.03)
cvii	Parathion methyl		ANte/7,2/RES/01: 2		0.3	No relaxation	BDL (DL - 0.03)
cviii	Paraoxon methy!		ANu/7.2/RES/01: 2			(40 telavarion)	BDL (DL = 0.03)
xix	Malathion		ANII/7.2/RES/01: 2		190	No relaxation	BDL (DL - 0.03)
	Malaoxon		ANIE 7.2 RLS 01: 2			STO IVIDABLEON	BDL (DL - 0.03)
-	Ethion	µg/l	ANtr/7.2/RES/01: 2	018	1	No relaxation	BDL (DL - 0.03)
(XII	Chlorpyrifus -		ANu/7.2/RES/01: 2/		30	No relaxation	BDL (DL - 0.03) 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 15:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters,

Verified By

Sonati Charpure Technical Manager Authorized Signatory

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

----End of Report-

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Ground Water Level

Katamati Iron Mine, M/s Tata Steel Limited

(October 2021 - March 2022)

Standard condition clause no. III Water Quality Monitoring & Preservation, sub-clause point no.12 of EC vide no. IA-J-11015/63/2018-IA-II (M), 05th August 2021.

(12) Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.

Regular monitoring of ground water level in and around the mine lease of dug-wells and piezometric borewells are regularly been done in desired frequency.

Monitored water level for the month of November 2021 and February 2022 are as follows:

SI.	Location	Month			
No.	Location	November 2021	February 2022		
Dug	Well Locations:				
1.	Mahaɗevnasa Village, Near Pond	2.3 m	2.3 m		
2.	Dalafiri Sahi (well-2) Near Road	2.4 m	2.0 m		
3.	Dalagiri-1, Near Road	2.2 m	5.0 m		
4.	Tata Sponge – Galurî Sahi	4.2 m	4.0 m		
Pie	zometer Locations:				
5.	Murga Gate	11.2 m	8.9 m		
6.	Near METSO Office, Katamati Mine	45.2 m	45.84 m		

Senior Manager Environment



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TEST REPORT

Test Report No. : A	LPL/30112021/1-	45		dated 30	/11/2021	NAMES OF THE PERSON OF THE PER		Page 1 c	of 1
Issued To: M/s Katamati Iro (M/s TATA Steel		Inward Refere			2021/MON-147/60 22/11/2021 W.O 3000132460 15.05.2020		Analysis Star Analysis End Report Issue Sample Cate	t Date	23/11/2021 29/11/2021 30/11/2021 Water
Sample Name Surface Water	Sample Name Surface Water Surface Water Surface Water Sample Source 1. Jojo Nallah Upstream 2. Jojo Nallah Downstream		G to the second second			Sample Condition Qua		antity Received	
Sample Collected By Anacon Representative Mr. K. Pandey		Samplin	Sampling Date Sampling T 19/11/2021 10.40 am to 4.4		5 pm l. Jojo Nallah U		h Upstre		

TEST DECLI TO

	7		TEST RESULTS					
				Standards	Test	Result		
S.N.	Test Parameter	Measurement Unit	Test Method	as per IS 2296:1992 Class C	SW-1	SW-2		
	Biological Testing 1.Water							
1	Total Colifon	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)		
11	Chemical Testing T.Water							
2	pH value	-	IS 3025 (Part 11): 1983	6.0 to 9.0	7.35 at 25°C	7.30 at 25°C		
3	Colour	Hazen units	IS 3025 (Part 4): 2021	300	1	7.30 at 23 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		BDL(DL-10)	BDL(DL-10)		
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44):1993	3.0	2.85	6.45		
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) :2006		18	25.2		
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16): 1984	1500	220	23.2		
9	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	1.5	BDL(DL-0.05)	BDL(DL-0.05)		
10	Chloride (as CI)	mg/l	IS 3025 (Part 32):1988	600	63.88			
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24): 1986	400	3.11	67.01		
12	Nitrate (as NO ₃)	mg/l	IS 3025 (Part 34): 1988	50	4.18	5.44		
13	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	1.5	BDL(DL-0.1)	5.36		
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 1986	0.05	BDL(DL-0.005)	BDL(DL-0.1)		
15	Phenolic compounds (as C6H5OH)	mg/l	IS 3025 (Part 43):1001	0.005	BDL(DL-0.003)	BDL(DL-0.005) BDL(DL-0.001)		
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	1.0				
	Chemical Testing 2. Residues In Water		is to tee . 2005 Annex R	1.0	BDL(DL-0.01)	BDL(DL-0.01)		
17	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	0.5	0.18	0.11		
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41): 1992	0.01	BDL(DL-0.001)	0.14		
19	Selenium (as Se)	mg/l	IS 3025 (Part 2): 2019	0.05		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	15	BDL(DL-0.1)	BDL(DL-0.1)		
24	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994	1.0	BDL(DL-0.03)	BDL(DL-0.03)		
25	Manganese (as Mn)	mg/l			BDL(DL-0.0005)	BDL(DL-0.0005)		
	• ® Please see waterwell 100 : 17	mg/1	IS 3025 (Part 2): 2019		BDL(DL-0.05)	BDL(DL-0.05)		

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Verified By

ichli Shashikant Satdeve

Sr. Chemist

Shubhangi Armarkar Technical Manager

Authorized Signatories

Peoja Kathane Technical Manager Dr. (Mrs.) S.D. Garway Quality Manager

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TEST REPORT

	.: ALPL/30112021/1-	45 dated 3	0/11/2021	Page 1	of I
Issued To: M/s Katamati (M/s TATA St		Sample Inward No. Inward Date Reference Reference Date	2021/MON-147/60-7&8 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 Surface Water	Sample Name Surface Water Surface Water Surface Water Surface Water Surface Water Sample Source 1.Mahadeo Nallah (Murga Nallah) Upstream 2. Mahadeo Nallah (Murga Nallah) Downstream			Sample Condition Quantity Ro Scaled & Ice Preserved 2.0 Ltr & 2	
	ple Collected By resentative Mr. K. Pando	Sampling Date	Sampling Time 10.40 am to 4.45 pm	Sampling Lo 1. Murga Nallah Up 2. Murga Nallah Do	stream (SW-1)

				Standards	Test	Result
S.N.	Test Parameter	Measurement Unit	Test Method	as per IS 2296:1992 Class C	SW-1	SW-2
I	Biological Testing 1. Water					
1	Total Coliforn	MPN/100m1	IS 1622: 1981	5000	<2	<2
II	Chemical Testing 1.Water					
2	pH value	-	IS 3025 (Part 11): 1983	6.0 to 9.0	7.28 at 25°C	7.32 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4): 2021	300	1	1
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38):1989	4.0	6.0	6.2
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17):1984		BDL(DL-10)	BDL(DL-10)
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44):1993	3.0	4.20	5.70
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) :2006		14.4	18
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16): 1984	1500	226	232
9	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	1.5	BDL(DL-0.05)	BDL(DL-0.05)
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32):1988	600	65.57	68.46
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24): 1986	400	6.74	7.00
12	Nitrate (as NO ₃)	mg/l	IS 3025 (Part 34): 1988	50	5.00	4.01
13	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	1.5	BDL(DL-0.1)	BDL(DL-0.1)
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 1986	0.05	BDL(DL-0.005)	BDL(DL-0.005)
15	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)
	Chemical Testing 2. Residues In Water			-		DDE(DE-0.01)
17	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	0.5	0.16	0.14
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41): 1992	0.01	BDL(DL-0.001)	BDL(DL-0.001)
19	Selenium (as Se)	mg/l	IS 3025 (Part 2): 2019	0.05	BDL(DL-0.001)	BDL(DL-0.001)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 1988	0.2	BDL(DL-0.01)	BDL(DL-0.01)
21	Lead (as Pb)	mg/l	IS 3025 (Part 47): 2003	0.1	BDL(DL-0.001)	BDL(DL-0.001)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	15	BDL(DL-0.1)	BDL(DL-0.1)
23_	Hexa Chromium (as Cr ⁺⁶)	mg/l	IS 3025 (Part 2) :2019	1.0	BDL(DL-0.03)	BDL(DL-0.03)
24	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994		BDL(DL-0.0005)	BDL(DL-0.0005)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019		BDL(DL-0.05)	BDL(DL-0.05)

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BDLBLACK of the Anacon Labs is limited to invoiced amount only." REMARKS: As requested by the client, sample was tested for above parameters only.

Verified By

Shashikant Satdeve Sr. Chemist

Shubhangi Armarkar Technical Manager

Authorized Signatories

Pooja Kathane Technical Manager Dr. (Mrs.) S.D. Garway Quality Manager

Coan

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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/31012022/1	-5 dated 3	1/01/2022	Page 1	of 1	
Surface Water 1.Mahadeo Nallah (Mu		Sample Inward No. Inward Date Reference Reference Date sple Source Murga Nallah) Upstream	2022/ENV-15-1&2 18/01/2022 W.O 3000132460/962 15.05.2020 Sample Particulars Sample Code-SW-1 & 2	Analysis Start Analysis End Report Issue Date Sample Category Sample Condition	18/01/2022 22/01/2022 31/01/2022 Water Quantity Received	
		2. Mahadeo Nallah (Murga Nallah) Downstream		Sealed & Ice Preserved	2.0 Ltr & 250 ml	
Sample Collected By Anacon Representative Mr. K. Pandey Sampling Date 14/01/2022			Sampling Time 10.20am to 4.35 pm	Sampling Le 1. Murga Nallah Up 2. Murga Nallah Do	stream (SW-1)	

S.N.	Test Parameter	Measurement		Standards as per	Test R	esult
		Unit	Test Method	IS 2296:1992 Class C	SW-1	SW 2
I	Biological Testing 1.Water					
1	Total Coliforn	MI*N/100ml	IS 1622: 1981	5000	BDL(DL-2)	BDL(DL-2)
II	Chemical Testing 1.Water					1 000(00-2)
2	pH value	-	IS 3025 (Part 11): 1983	6.0 to 9.0	7.21 at 25°C	7.37 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4): 2021	300	1	1.07 81 2.5 C
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38):1989	4.0	6.1	6.3
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17):1984	-	BDL(DL-10)	BDL(DL-10)
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) :1993	3.0	3.94	5.27
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) :2006		14	18
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16): 1984	1500	263	251
9	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	1.5	BDL(DL-0.05)	BDL(DL-0.05)
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	600	52.94	
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24): 1986	400	7.21	58.63
12	Nitrate (as NO ₃)	mg/l	IS 3025 (Part 34): 1988	50	4.93	6.52
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	BDL(DL-0.1)	3.17
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	BDL(DL-0.1)	BDL(DL-0.1)
15	Phenolic compounds (as C6H5OH)	mg/l	IS 3025 (Part 43) :1001	0.005	BDL(DL-0.003)	BDL(DL-0.005 BDL(DL-0.001
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	1.0	BDL(DL-0.01)	DDI (DI A A)
	Chemical Testing 2. Residues In Water			1.0	BDL(DL-0.01)	BDL(DL-0.01)
17	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	0.5	0.16	0.13
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41): 1992	0.01	BDL(DL-0.001)	BDL(DL-0.001
19	Selenium (as Se)	mg/l	IS 3025 (Part 2): 2019	0.05	BDL(DL-0.001)	BDL(DL-0.001
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 1988	0.2	BDL(DL-0.01)	BDL(DL-0.01)
21	Lead (as Pb)	mg/l	IS 3025 (Part 47): 2003	0.1	BDL(DL-0.001)	BDL(DL-0.001)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	15	BDL(DL-0.001)	
23	Hexa Chromium (as Cr ⁺⁶)	mg/l	IS 3025 (Part 2) :2019	1.0	BDL(DL-0.1)	BDL(DL-0.1)
24	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994		BDL(DL-0.005)	BDL(DL-0.03) BDL(DL-
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019		DDI (DI 0.05)	0.0005)
	e Pi		10 2020 (1 41 2) . 2017		BDL(DL-0.05)	BDL(DL-0

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Verified By

Shashikant Satdeve

Sr. Chemist

Shubhangi Armarkar Technical Manager

Pooja Karhane Technical Manager

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

Authorized Signatories

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

----End of Report----

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 Export Inspection council (EIC); AGMARK.

TEST REPORT

Fest Report No.: A	LPL/31012022/1-6		dated 3	1/01/2022		Page 1 of	1	
Issued To: M/s Katamati Iro (M/s TATA Steel		Sample Inwar Inward Date Reference Reference Dat		2022/ENV-15-3&4 18/01/2022 W.O 3000132460 15.05.2020		Analysis Star Analysis End Report Issue Sample Categ	t Date	18/01/2022 22/01/2022 31/01/2022 Water
Sample Name Surface Water	1 Join Nellah Umstraam		COMPANY OF THE PROPERTY OF THE				ntity Received Ltr & 250 ml	
Sample Anacon Represe		Sampling Date Sampling T1 14/01/2022 10.20am to 4.3		3263000	Sampling Loc 1. Jojo Nallah Upsti 2. Jojo Nallah Dowi		am (SW-3)	

TEST DESILITE

-			TEST RESULTS				
S.N.	Test Parameter	* Measurement	I est Method	Standards as per IS	Test Result		
ī	Distantal Tasks 137	Unit		2296:1992 Class C	SW-3	SW-4	
1	Biological Testing 1.Water						
	Total Colifor	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)	
П	Chemical Testing 1.Water						
2 3	pH value	•	IS 3025 (Part 11): 1983	60 to 90	7.31 at 25°C	7.26 at 25°C	
	Colour	Hazen units	IS 3025 (Part 4): 2021	300	1	1	
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	4.0	6.4	6.2	
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17):1984		BDL(DL-10)	BDL(DL-10)	
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44):1993	3.0	3.81	5.92	
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) :2006		22	26	
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16): 1984	1500	239	257	
9	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	1.5	BDL(DL-0.05)	BDL(DL-0.05)	
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	600	56.18	62.93	
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24): 1986	400	8.31	7.26	
12	Nitrate (as NO ₃)	mg/l	IS 3025 (Part 34): 1988	50	6.82	7.19	
13	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	1.5	BDL(DL-0.1)	BDL(DL-0.1)	
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 1986	0.05	BDL(DL-0.005)	BDL(DL-0.005)	
15	Phenolic compounds (as C6H5OH)	mg/l	IS 3025 (Part 43) :1001	0.005	BDL(DL-0.001)	BDL(DL-0.003	
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	1.0	BDL(DL-0.01)	BDL(DL-0.01)	
	Chemical Testing 2. Residues In Water					(===(===============================	
17	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	0.5	0.17	0.14	
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41): 1992	0.01	BDL(DL-0.001)	BDL(DL-0.001)	
19	Selenium (as Se)	mg/l	IS 3025 (Part 2): 2019	0.05	BDL(DL-0.001)	BDL(DL-0.001	
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 1988	0.2	BDL(DL-0.01)	BDL(DL-0.001	
21	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.001)	BDL(DL-0.001)	
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	15	BDL(DL-0.01)	BDL(DL-0.001	
23	Hexa Chromium (as Cr ⁺⁶)	mg/l	IS 3025 (Part 2) :2019	1.0	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-0.0005	
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019		BDL(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 Sr. Chemist

Shubhangi Armarkar Technical Manager

DINY

Authorized Signatories

Pooja Kathane Technical Manager Dr. (Mrs.) S.D. Garway

----End of Report----

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

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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	: ALPL/28032022/	1-5	dated 28	8/03/2022	Page	of 1
Issued To : M/s Katamati (M/s TATA St		Inwar Refere	e Inward No. d Date ence ence Date	2022/ENV-70-1&2 21/03/2022 W.O 3000132460/962 15.05.2020	Analysis Start Analysis End Report Issue Date Sample Category	21/03/2022 28/03/2022 28/03/2022 Water
Sample Name Surface Water	1 Mahadaa Nallah (Muraa Nallah) Hastusan		Sample Particulars Sample Code-SW-1 & 2	Sample Condition Quantity Ro Sealed & Ice Preserved 2.0 Ltr & 2		
Sample Collected By Anacon Representative Mr. K. Pandey			Sampling Date 14/03/2022	Sampling Time 10.50am to 3.30 pm	Sampling L. 1. Murga Nallah Up 2. Murga Nallah Do	

TEST RESULTS

		34		Standards as	Test Result		
S.N.	Test Parameter	Measurement Unit	Test Method	per IS 2296:1992 Class C	SW-1	SW-2	
1	Biological Testing 1.Water						
1	Total Coliforn	MPN/100ml	IS 1622:1981	5000	BDL(DL-2)	BDL(DL-2)	
II	Chemical Testing 1.Water) DDD(DD Z)	
2	pH value	-	IS 3025 (Part 11): 1983	6.0 to 9.0	7.18 at 25°C	7.24 at 25°C	
3	Colour	Hazen units	IS 3025 (Part 4): 2021	300	1	1.24 01 23 C	
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38):1989	4.0	5.8	6.1	
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17):1984		BDL(DL-10)	BDL(DL-10)	
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) :1993	3.0	2.84	2.57	
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) :2006		11	9	
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16): 1984	1500	316	284	
9	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	1.5	BDL(DL-0.05)	BDL(DL-0.05)	
10	Chloride (as CI)	mg/l	IS 3025 (Part 32) :1988	600	48.21	51.67	
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24): 1986	400	8.16	7.92	
12	Nitrate (as NO ₃)	mg/l	IS 3025 (Part 34): 1988	50	4.27	3.94	
13	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	1.5	BDL(DL-0.1)	BDL(DL-0.1)	
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 1986	0.05	BDL(DL-0.005)	BDL(DL-0.005)	
15	Phenolic compounds (as C6H5OH)	mg/l	IS 3025 (Part 43) :1001	0.005	BDL(DL-0.001)	BDL(DL-0.003)	
16	Anionic Detergent	mg/I	IS 13428 : 2005 Annex K	1.0	BDL(DL-0.01)	BDL(DL-0.01)	
	Chemical Testing 2. Residues In Water						
17	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	0.5	0.12	0.16	
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41): 1992	0.01	BDL(DL-0.001)	BDL(DL-0.001)	
19	Selenium (as Se)	mg/l	IS 3025 (Part 2): 2019	0.05	BDL(DL-0.001)	BDL(DL-0.001)	
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 1988	0.2	BDL(DL-0.01)	BDL(DL-0.01)	
21	Lead (as Pb)	mg/l	IS 3025 (Part 47): 2003	0.1	BDL(DL-0.001)	BDL(DL-0.001)	
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	15	BDL(DL-0.1)	BDL(DL-0.001)	
23	Hexa Chromium (as Cr ⁺⁶)	mg/l	IS 3025 (Part 2) :2019	1.0	BDL(DL-0.03)	BDL(DL-0.1)	
24	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994	1.0	BDL(DL-0.0005)	BDL(DL-0.0005)	
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019		BDL(DL-0.05)	BDL(DL-0.0003)	

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

Verified By

Shashikant Satdeve Sr. Chemist

Burnens Shubhangi Armarkar Technical Manager

Pooja Kathane Technical Manager Dr. (Mrs.) S.D. Garway Quality Manager

Authorized Signatories

----End of Report----

Laboratory address: FP-34, 35, Food Park, 5 Star Industrial Estate, MIDC Butibori, Nagpur - 441 122. Email: support@anacon.in; Please Visit us at: www.anaconiaboratories.com



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Export inspection council (EIC); AGMARK.

TEST REPORT

Fest Report No.: AI Issued To: M/s Katamati Iron (M/s TATA Steel	Sample Inwar Inward Date Reference Reference Dat	d No.	8/03/2022 2022/ENV-70-3&4 21/03/2022 W.O 3000132460/962 15.05.2020		Page 1 of 1 Analysis Start Analysis End Report Issue Date Sample Category		21/03/2022 28/03/2022 28/03/2022 Water		
Sample Name Surface Water	Sample S 1. Jojo Nallah Upst 2. Jojo Nallah Dow	ource tream	Sampl	e Particulars Code-SW-3 & 4	Sealed & Ice Preserved		2.0	Quantity Received 2.0 Ltr & 250 ml	
Sample Anacon Represe	Sampl	ling Date Sampling Time 3/2022 10.50am to 3.30 pm			Sampling Location 1. Jojo Nallah Upstream (SW-3) 2. Jojo Nallah Downstream (SW-4)				

TEST RESULTS Test Result Standards as per IS Measurement Test Method SW-3 SW-4 Test Parameter 2296:1992 S.N. Unit Class C Biological Testing 1.Water BDL(DL-2) BDL(DL-2) 5000 IS 1622: 1981 MPN/100ml Total Coliforn Chemical Testing 1.Water H 7.21at 25°C 6.0 to 9.0 7.38 at 25°C IS 3025 (Part 11): 1983 pH value 300 IS 3025 (Part 4): 2021 3 Hazen units Colour 6.3 4.0 6.5 IS 3025 (Part 38):1989 mg/l Dissolved Oxygen 4 BDL(DL-10) BDL(DL-10) IS 3025 (Part 17):1984 Total Suspended Solid (as TSS) mg/l 5.73 3.0 4.16 IS 3025 (Part 44):1993 mg/l BOD (3 days at 27°C) 6 26 32 IS 3025 (Part 58) :2006 mg/l Chemical oxygen demand 249 1500 256 IS 3025 (Part 16): 1984 Total Dissolved Solids (TDS) mg/l 8 BDL(DL-0.05) BDL(DL-0.05) IS 3025 (Part 2): 2019 1.5 mg/l 9 Copper (as Cu) 61.29 600 54.76 IS 3025 (Part 32):1988 mg/l Chloride (as Cl) 10 8.16 400 921 IS 3025 (Part 24): 1986 mg/l Sulphate (as SO₄) 11 6.94 6.52 50 IS 3025 (Part 34): 1988 mg/l Nitrate (as NO₁) 12 BDL(DL-0.1) IS 3025 (Part 60): 2008 BDL(DL-0.1) mg/l 13 Fluoride (as F) BDL(DL-0.005) BDL(DL-0.005) 0.05 IS 3025 (Part 27): 1986 mg/l Cyanide (as CN) 14 BDL(DL-0.001) BDL(DL-0.001) Phenolic compounds IS 3025 (Part 43):1001 0.005 mg/l 15 (as C6H5OH) BDL(DL-0.01) BDL(DL-0.01) IS 13428 : 2005 Annex K 1.0 mg/l 16 Anionic Detergent Chemical Testing 2. Residues In Water 0.13 0.16 0.5 IS 3025 (Part 2): 2019 mg/l 17 Iron (as Fe) BDL(DL-0.001) BDL(DL-0.001) IS 3025 (Part 41): 1992 0.01 mg/l Cadmium (as Cd) 18 BDL(DL-0.001) BDL(DL-0.001) 0.05 IS 3025 (Part 2): 2019 mg/l 19 Selenium (as Se) BDL(DL-0.01) BDL(DL-0.01) 0.2 IS 3025 (Part 37): 1988 mg/l 20 Arsenic (as As) BDL(DL-0.001) BDL(DL-0.001) 0.1 IS 3025 (Part 47): 2003 mg/l 21 Lead (as Pb) BDL(DL-0.1) BDL(DL-0.1) IS 3025 (Part 2): 2019 15 mg/l 22 Zinc (as Zn) BDL(DL-0.03) BDL(DL-0.03) 1.0 IS 3025 (Part 2) :2019 23 Hexa Chromium (as Cr¹⁶) mg/l BDL(DL-0.0005) BDL(DL-0.0005) IS: 3025 (Part 48): 1994 Mercury (as Hg) mg/l 24 BDL(DL-0.05) BDL(DL-0.05) IS 3025 (Part 2): 2019 Manganese (as Mn) 25 mg/l

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

Verified By

Shashikant Satdeve Sr. Chemist

Rimereloy Shubhangi Armarkar Technical Manager

----End of Report----

Authorized Signatories

Poola Kathane Technical Manager 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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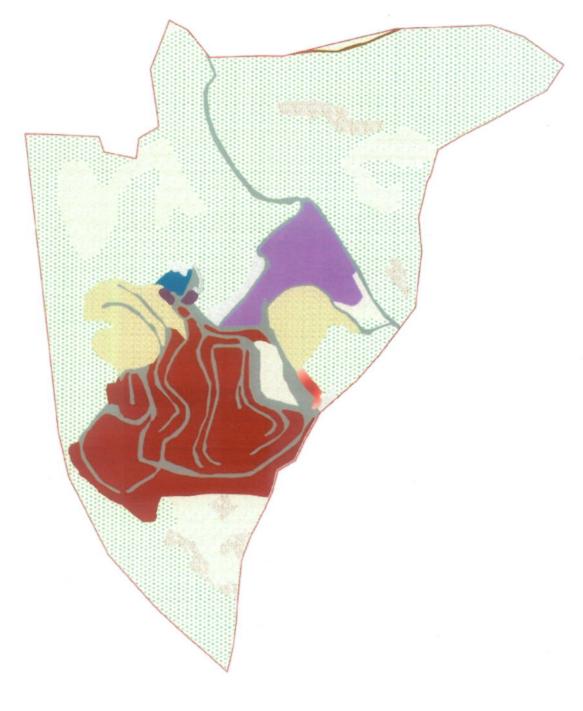
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Budget for PH commitments

	12	11. H.	10	9 Inf	∞	7 A	6	5 Sw.	.4	ω	2	<u> </u>	No.
		Health care		Infrastructure		Agriculture		Swachh Bharat		Tivelihood	TT OFFI THE ASSESSMENT	Education	Sector
Total for PH commitments	Provision of Ambulance	Setting up of Dispensaries	Contruction of boundary wall, stage, platform, shed at playground	Revamping of Temples (Murga Mahadev & Budha Temple)	Construction of Kalyan Mandap	Construction of vermi-compost pit	Providing toilet facility with water arrangements in two schools	Providing toilets to individual households	Support for Entrepreneurship develoment	Construction of Goatery sheds	Provision of computer equipment at Saraswati Sishu Mandir School	Construction of additional classrooms & boundary wall at Belaipada High School	Description
	Deojhar GP Ansaikela GP	Deojhar GP Ansaikela GP	Chamakpur	Deojhar GP	Ansaikela GP	Deojhar GP Ansaikela GP	Deojhar GP Ansaikela GP	Deojhar GP Ansaikela GP	Surrounding villages	Deojhar GP Ansaikela GP	Kotarposi GP	Birkela GP	Location
	20 lakh/ unit	105 lakhs / unit	Lumpsum	Lumpsum	Lumpsum	15000/ pit	25 lakh/ unit	25000/ toilet	Lumpsum	25000/ shed	20000/ unit	Lumpsum	in Rs.
	2 nos.	2 nos.	Lot	Lot	1 no;	100 nos.	2 units	200 nos.	Lot	100 nos.	5 no.	1 no.	quantity
736	40	210	30	70	150	15	50	.50	25	25	3	70	in Rs Lakhs
436	40	210	20	35	50	5	0	10	25	L/I	H	35	Year 1
240	0	٥	10	35	100	51	25	20	0	10	0	35	Year 2
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