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Compliance

to

Environmental Clearance Conditions

of

Katamati Iron Mine
M/s. Tata Steel Limited

For the period: April 2020 – September -2020

**(EC Letter No. J-11015/63/2008-IA.II (M) 26/11/2010 &
EC Letter No. J-11015/63/2008-IA.II (M) 18/01/2019)**

26th Nov., 2020



**ENVIRONMENTAL CLEARANCE
OF
KATAMATI IRON MINE OF TATA STEEL LIMITED**

(Apr 2020 to Sep. 2020)

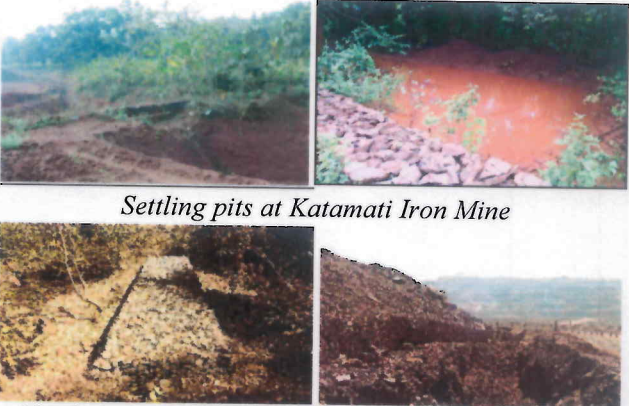

**(MoEF & CC Letter No. J-11015/63/2008.IA.II(M) DATED: 26/11/2010)
FOR PRODUCTION OF 8 MTPA (ROM)**

Sl. No.	EC Conditions	Compliance Status
<p>Name of Project: Katamati Iron Mine, Tata Steel Ltd. Clearance Letter no.: J-11015/63/2008.IA.II (M), dated: 26/11/2010 Period of Compliance: April 2020 to September 2020</p>		
Specific Conditions		
1.	The project proponent shall obtain Consent to Establish and Consent to Operate from the State Pollution Control Board, Odisha and effectively implement all the conditions stipulated therein.	<p>Being complied with.</p> <p>Consent to Establish has been obtained from the Odisha State Pollution Control Board vide letter no. 12850, dated: 04.08.2010 & no. 11818, dated 18.7.2011. Consent to Operate has also been obtained from State Pollution Control Board, Odisha vide letter No. 4811/IND/I-CON-185, dated: 18.03.2016, which is valid till 31.03.2021. All the conditions are being effectively implemented.</p>
2.	Environment clearance is subject to grant of Forestry clearance. Necessary Forestry clearance under the Forest (Conservation) Act, 1980 for an area of 199.172 ha forestland involved in the project shall be obtained before starting mining operation in that area. No mining shall be undertaken in the forest area without obtaining requisite prior forestry clearance.	<p>Being complied with.</p> <p>Katamati Iron Mine of TATA Steel has 403.3238 ha lease area, out of which 360.01 ha forest land & rest is non-forest. Katamati Iron Mine has already received the Stage -I approval for 360.01 ha (including Sabik, RF & PF) vide F No. 8-01/2018-FC, dated 28th August 2018.</p>
3.	Environmental Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No. 460 of 2004, as may be applicable to this project.	<p>Noted down.</p> <p>However, there is no National Park, Sanctuaries, Elephant corridor and tiger reserves within 10 Km radius of lease in the core zone & buffer zone.</p>
4.	Environmental clearance is subject to obtaining clearance under the Wildlife (Protection) Act, 1972 from the Competent authority, as may be applicable to this project.	<p>Site specific wildlife plan has been approved by Office of Principal Chief Conservator of Forest (Wildlife) and Chief Wildlife Warden: Odisha, Bhubaneswar vide letter no. 5842/1WL (C) SSP-306/2011, dated 29th August 2011. On compliance of this, various fund Rs. 1.22 Cr for Implementation of the Item of Work prescribed for Project Impact Area in the Site Specific Wild Life Conservation Plan and Rs. 80.66 lakhs for Implementation of Regional Wildlife Management Plan, Rs. 20 lakhs to Forest Department towards construction of Anti-Depression camp building/ barracks were also made. of Rs 10 lakhs in CORPUS fund, Rs. 2 lakhs in SSWLCP have also been deposited . Apart from above an employment of 10 local youth of nearby villages have also been provided for patrolling the jungle – forest area and fire protection incidents. A copy of approval is enclosed as annexure-I.</p>



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<p>Specific Conditions</p>		
5.	<p>The mining operations shall be restricted to above ground water table and it should not intersect the ground water table. In case of working below the ground water table, prior approval of the Ministry of Environment and Forests and the Central Ground Water Authority shall be obtained, for which a detailed hydro- geological study shall be carried out.</p>	<p>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.</p> <p>For domestic and other purposes, the mine has applied for renewal of CGWA NOC (460m³/day) issued vide no. CGWA /NOC/ MIN/ ORIG/ 2018/4244, dated 15.11.2018.</p>
6.	<p>The project proponent shall ensure that no natural watercourse and / or water resources shall be obstructed due to any mining operations. Adequate measures shall be taken for conservation and protection of the first order and the second order streams, if any, emanating from the mine lease area during the course of mining operation.</p>	<p>Complied with.</p> <p>No natural watercourse or water resources are obstructed due to mining operations. Further, no first order and the second order streams are emanating from the mine lease area.</p>
7.	<p>The top soil, if any shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation.</p>	<p>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.</p>
8.	<p>The sub grade material, if any shall be stacked at the earmarked sites.</p>	<p>Sub grade material is being stacked at the earmarked sites as per the approved mining plan.</p>
9.	<p>The Over burden (OB) generated during the mining operations shall be stacked at earmarked dump site (s) only and it should not be kept active for a long period of time and its phase-wise stabilisation shall be carried out. Partial backfilling proposed after cessation of mining. The maximum height of the OB dump (s) shall not exceed 30m having three terraces of 10m each and the overall slope of the dumps shall not exceed 27°. It shall be ensured that the OB dump(s) should be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles shall be undertaken for stabilization of the dumps. Monitoring and Management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on six monthly basis.</p>	<p>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°. The inactive dump slopes are vegetated with native species and grass and vetiver grass for better slope stabilization. The compliance status is being regularly sent to the Regional office, MoEF&CC, Bhubaneswar and SPCB, Odisha half yearly.</p> <div style="display: flex; justify-content: space-around;">  </div> <p style="text-align: center;"><i>Vegetation & grassing on slime dumps</i></p> <div style="display: flex; justify-content: space-around;">  </div> <p style="text-align: center;"><i>Vegetation & grassing on mine dumps</i></p>




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<p>Specific Conditions</p>		
<p>10.</p>	<p>Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, sub-grade, overburden and mineral dump(s) to prevent run off of water and flow of sediments directly into the Mahadev Nallah, Betlata Nallah, Baitarani River and other water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon maintained properly. Garland drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed around the mine pit, overburden dumps and sub-grade and mineral dump(s) to prevent run off of water and flow of sediments into the Mahadev Nallah, Betlata Nallah, Baitarani River and other water bodies and slump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits shall be constructed at the corners of the garland drains and desilted at regular intervals</p>	<p>Garland drains with settling pits, have been made all along the OB dumps. Three settling ponds of adequate sizes have been constructed. At the end of ponds the garland drains are made to take care of run-off water which are being de-silted regularly before, during and after the monsoon. There is no outside discharge of any industrial effluent. All the garland drains, settling pits and check dams of appropriate size, gradient and length have been constructed both around the mine pit and overburden 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. Water Quality reports of Mahadev Nallah and Baitarani river are attached as Annexure I A.</p>  <p style="text-align: center;"><i>Settling pits at Katamati Iron Mine</i></p> <p style="text-align: center;"><i>Check dams & Garland drains at Katamati Iron Mine</i></p>
<p>11.</p>	<p>Dimension of retaining wall at the toe of the OB dump(s) and the OB benches within the mine to check run-off and siltation should be based on the rainfall data.</p>	<p>Complied with</p> <p>Toe wall and Garland drains have been constructed around the OB dumps to check mine run-off.</p>  <p style="text-align: center;"><i>Toe wall at Katamati Iron Mine</i></p>
<p>12.</p>	<p>Trace Metals such as Ni, Co, As and Hg should be analysed in dust fall and soil samples for at least one year during summer, monsoon and winter seasons. If concentrations of these metals are found below the standards then with prior approval of MoEF&CC this specific monitoring could be discontinued.</p>	<p>Complied with</p> <p>We are monitoring trace metals in dust fall and soil samples. Results of soil and dust fall monitoring are attached herewith as annexure- II.</p>
<p>13.</p>	<p>Plantation shall be raised in an area of 370.155 ha including a 7.5m wide green belt in the safety zone around the mining lease, overburden dump(s), backfilled and reclaimed area, mine benches, around</p>	<p>Plantation over an area of 370.155 ha shall be done at the end of mine life through progressive mine closure plan. However, both fencing and plantation over 7.5m wide area around the mining lease is in progress.</p>




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<p>Specific Conditions</p>		
	<p>water body, roads etc. In consultation with the local DFO/Agriculture Department. The density of the tree should be around 2500 plants per hectare. Greenbelt shall be developed all along the mine lease area in a phased manner and shall be completed within first five years</p>	<p>Besides the above, concurrent reclamation and rehabilitation program have been proposed in the mining plan.</p>  <p style="text-align: center;"><i>Safety Zone Plantation</i></p> <p>In the year 2020-21 year about 4800 no of sapling planted apart from local grass plantation on dumps with various species. The species include <i>Calotropis gigantean</i>, ficus species, <i>Pedilanthus</i>, <i>Cynodon dactylon</i>, <i>Saccharum spontaneum</i>, <i>Bougainvilleas</i>, <i>Yellow durenta</i>, etc. are planted. <i>Saccharum spontaneum</i> planted on slime pond, shown encouraging results, which control the erosion bind the material and adequately covers the ground vegetation and was appreciated by MoEF&CC official during site visit.</p>  <p style="text-align: center;"><i>Plantation at Katamati Iron Mine</i></p>
<p>14.</p>	<p>The void left unfilled in an area of 11.2 ha shall be converted into water body. The higher benches of excavated void/mining pit shall be terraced and plantation done to stabilized the slopes. The slope of higher benches shall be made gentler for easy accessibility by local people to use the water body. Peripheral fencing shall be carried out all along the excavated area.</p>	<p>Shall be complied with at the end of mine life. This being the activity at the end of mine life shall be taken up only after the exhaustion of Iron ore as per mine plan.</p>
<p>15.</p>	<p>Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant, loading and unloading point and transfer point. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.</p>	<p>Regular water sprinkling is being done on the haul roads, loading & unloading points for effective dust suppression by mobile and fixed water sprinklers. Dry fog system has also been provided at all transfer point of crushing and screening unit. Photographs of Water Sprinkling and dry fog system are attached. Ambient Air Quality is being monitored regularly as per the norms stipulated in EC granted and the results are well within the prescribed limits. Apart from above four continuous ambient air quality monitoring stations are also installed and are working smoothly.</p>

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<p>Specific Conditions</p>		
		 <p><i>Mobile Water sprinkler at Katamati</i></p>  <p><i>CAAQMS station of Katamati</i></p> <p>A new fixed water sprinkler line is also under installation with 1.1km length for haul road dust reductions.</p>  <p><i>New additional 1km fixed water sprinkler line at Katamati</i></p>
16.	Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintained.	Regular monitoring of the flow rate of Balijhor Nallah which is flowing outside of the mining lease area is carried out and record maintained regularly. The flow of Balijhore nala is enclosed as annexure-III.
17.	The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	<p>Complied with.</p> <p>Suitable ground water augmentation measure in & around Katamati iron Mine has been implemented by check dams, toe wall, contours bunds etc.</p> <p>As the mine doesn't have any land for ground water recharge structures creations, as per kind suggestions of CGWA, Bhubaneshwar officials during site visit at adjacent mine; recharge on surrounding village can be also been done. Thus in year 2018-19, eight (08) number of new ponds constructed in and around mine lease in surrounding villages, specially at Kolahundala & Narayanpur Sana Barbil & Jamkundia Panchananpur & DandaGutu to augment the ground water.</p> <p>Deepening of old ponds is also taken up to facilitate for fishing and to provide water for agricultural purposes.</p>


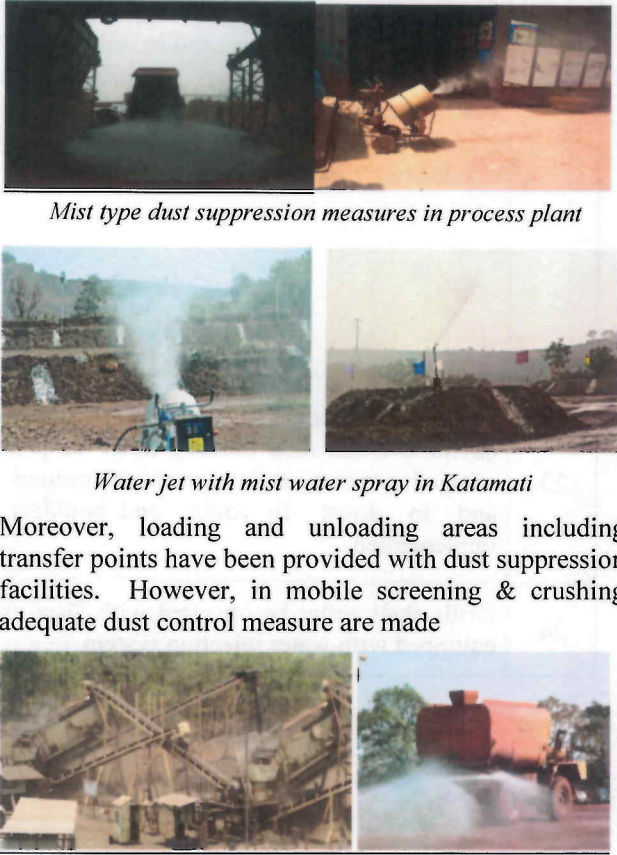
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<p><i>Specific Conditions</i></p>		
		 <p style="text-align: center;"><i>Pond at Jamakundia</i></p>  <p style="text-align: center;"><i>Water harvesting Ponds at nearby villages of Katamati</i></p>
<p>18.</p>	<p>Regular monitoring of ground water level and quality should be carried out in and around the mine lease by establishing a network of existing wells and constructing new piezometers during the mining operation. The periodic monitoring at least four times in a year – pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) once in in each season) shall be carried out in consultation with the State Ground Water Board/ Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office Bhubaneswar, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the ground water table is getting depleted due to the mining activity; necessary corrective measures shall be carried out.</p>	<p>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. The monitoring details are attached as annexure-IV.</p>  <p style="text-align: center;"><i>Piezometric bore well at Katamati Iron Mine</i></p>
<p>19.</p>	<p>Appropriate mitigative measures should be taken to prevent pollution of the Baitarani River in consultation with State Pollution Control Board.</p>	<p>Being complied with</p>
<p>20.</p>	<p>The Project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water required for the project. The ground water shall not be used for mining operations. Prior approval of Central Ground Water</p>	<p>Complied with</p> <p>For domestic purpose only ground water withdrawal permission as obtained from Central Ground Water Authority. The mine has already applied for renewal of CGWA NOC issued vide CGWA /NOC/ MIN/ ORIG/</p>


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Specific Conditions		
	Authority shall be obtained for using ground water.	2018/4244, dated 15.11.2018.
21.	Suitable rain water harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board.	<p>Being complied with</p> <p>Due to hilly topography and land constraints rainwater harvesting structure are made combinedly for Noamundi & Katamati Iron Mine at Noamundi colony area as per hydrogeology study. As the doesn't have any non-forest area for development of rainwater harvesting (RWH) structures, various RWH structures are been made in and around mine in surrounding villages. However, the mine collects all the surface runoff water during monsoon in mine pit and uses for dust suppression and other measures.</p>
22.	Vehicular emission shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.	<p>Complied with</p> <p>Katamati is an operation mine and all the mined mineral is transported to adjacent Noamundi Processing Plant, by heavy capacity dumpers. Over loading of trucks is restricted to prevent spillage of material. Emission checks for all the vehicles are carried out half yearly. Effective water sprinkling is done on haul roads to control fugitive dust.</p> <p>A wheel washing facility has been installed at exit gate of mine to arrest and control the fugitive emission from mineral transportation.</p> <div data-bbox="874 1211 1513 1373" style="text-align: center;"> </div> <p style="text-align: center;"><i>Wheel washing facility at Katamati Mines</i></p>
23.	Blasting operation shall be carried out only during the daytime. Controlled blasting shall be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.	<p>Complied with</p> <p>Blasting is carried out during daytime only. Controlled Blasting is carried out for control of ground vibrations and to arrest fly rocks, as per the recommendations of CIMFR, Dhanbad.</p>
24.	Drills shall either be operated with Dust extractors or equipped with water injection system.	Drills have been provided with dust suppression system.

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<p><i>Specific Conditions</i></p>		
		 <p><i>Wet drilling at Katamati Mines</i></p>
<p>25.</p>	<p>Mineral handling plant shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.</p>	<p>The mineral handling plants at Noamundi area is equipped with high efficiency dust suppression systems.</p>  <p><i>Mist type dust suppression measures in process plant</i></p> <p><i>Water jet with mist water spray in Katamati</i></p> <p>Moreover, loading and unloading areas including transfer points have been provided with dust suppression facilities. However, in mobile screening & crushing adequate dust control measure are made</p> <p><i>Dust suppression system at Katamati</i></p>
<p>26.</p>	<p>Sewage treatment plant shall be installed for the colony. ETP shall also be provided for workshop and wastewater generated during mining operation.</p>	<p>Being complied with. Two Sewage Treatment Plant (STP) of 50 KLD each and an Two Effluent Treatment Plant (ETP) of 10 KLD each are already installed in common colony area at Noamundi which are working smoothly.</p>


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<p>Specific Conditions</p>		
		<p>For the common workshops and all other areas and oil trap is installed with collection system. No wastewater is being generated from mining operations.</p>  <p><i>Sewage Treatment Plant of common colony at Noamundi</i></p>
27.	<p>Pre-placement of medical examination and periodical examination of the workers engaged in the project shall be carried out and record maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.</p>	<p>Initial medical examination and periodical examination of the workers engaged are being conducted & record maintained. The schedule of Periodical Medical Examination is once in every 3 years for the employees of age more than 40 years and once in 5 years for the employees of age less than 40 years.</p>
28.	<p>Effective safeguard measure shall be taken to ensure that the RSPM levels in the area are well below the prescribed standards.</p>	<p>Effective safeguard measure like Mobile & Stationary water sprinkling, dust suppression systems at loading & unloading point etc. have been provided to minimize fugitive dust emission.</p>
29.	<p>The height of stack shall be as per the prescribed standards/ guidelines.</p>	<p>Katamati Iron Mine has small capacity DG sets used for area illumination. The height of the stack is as per standards. The DG sets are used for area illumination & emergency power backups.</p>
30.	<p>Trace metals such as Fe, Cr+6, Cu, Se, As, Cd, Hg, Pb, Zn and Mn shall be periodically monitored at specific locations in both surface water downstream and in ground water at lower elevations from mine area, in consultation with the SPCB, Odisha and State Ground Water Board. Suitable treatment measures shall be undertaken in case levels are found to be higher than permissible limits.</p>	<p>Trace metals are being monitored periodically both of surface water and ground water and the monitoring reports are being sent to pollution control board regularly. The monitoring details of surrounding nallahs are attached as annexure-II.</p>
31.	<p>Occupational health programme encompassing identification of hazardous, ranking of the risks, plan to handle such risk should be prepared and implemented effectively.</p>	<p>The mine is certified to both ISO 14001 & ISO45001 .Under ISO 45001 & DGMS guidelines, hazard identification, risk assessment and measures to minimise risk have been established and are implemented for all activities.</p>
32.	<p>The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered flora and fauna namely elephant, sloth bear etc.</p>	<p>Complied with. Site specific wildlife plan has been approved by Office of Principal Chief Conservator of Forest (Wildlife) and Chief Wildlife Warden: Odisha, Bhubaneswar vide</p>

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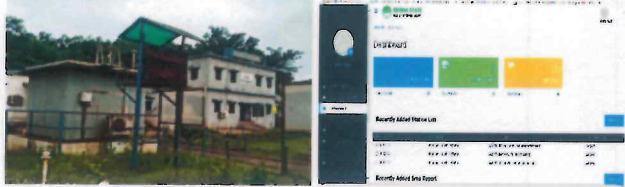


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<p>Specific Conditions</p>		
	<p>Found in the study area. Action plan for conservation of flora and fauna prepared shall be implemented in consultation with the state forest and Wildlife Department. All the safeguard measures brought out in the Wildlife Conservation plan prepared specific to this project site shall be effectively implemented. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. A copy of action plan shall be submitted to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar.</p>	<p>letter no. 5842/1WL (C) SSP-306/2011, dated 29th August 2011. On compliance of this, various fund Rs. 1,22 Cr for Implementation of the Item of Work prescribed for Project Impact Area in the Site Specific Wild Life Conservation Plan and Rs. 80.66 lakhs for Implementation of Regional Wildlife Management Plan, Rs. 20 lakhs to Forest Department towards construction of Anti-Depression camp building/ barracks were also made. of Rs 10 lakhs in CORPUS fund, Rs. 2 lakhs in SSWLCP have also been deposited Apart from above an employment of 10 local youth of nearby villages have also been provided for patrolling the jungle – forest area and fire protection incidents.</p>
33.	<p>Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.</p>	<p>Currently it's been not applicable.</p>
34.	<p>Digital processing of the entire lease area using remote sensing technique shall be carried out regularly once in three years for monitoring land use pattern and report submitted to Ministry of Environment and Forests and its Regional Office, Bhubaneswar.</p>	<p>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, Bhubaneswar in august 2018. The land use land cover change map as on date is attached as annexure-V.</p>
35.	<p>The critical parameters such as RSPM (Particulate matter with size less than 10 micron i.e., PM10) and NOx in the ambient Air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored (TDS, DO, PH, and total suspended Solids (TSS)). The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the company in public domain. The circular No. J-20012/1/2006-1A.II(M) dated: 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance.</p>	<p>All the critical parameters mentioned are being monitored internally and from third party. All the six monthly compliance data along with Environmental monitoring parameter is being uploaded in the company's website as part of this report, all the monitoring data is being displayed on the display board at the main entrance gate of the mine. Apart from above three continuous ambient air quality monitoring stations are also installed and working smoothly. Various parameters such as PM₁₀, PM_{2.5}, SO_x, NO_x & CO is being monitored for every 15 minutes and the date of same is continuously uploaded in Pollution Control Board server. The data is also been displayed using electronic display board in public domain</p>

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Specific Conditions		
		 <p><i>Env monitoring data display in public domain at Katamati</i></p>
36.	A final Mine closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.	The mine has approved mine plan & progressive mine closure plan from IBM, Ministry of Mines, GoI. The mine plan and final progressive closure plan shall be submitted to MoEF&CC before 5 years in advance of final closure of mine for approval.

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General Conditions		
1.	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	Being complied with. We are operating as per the approved mining technology and scope of working mentioned in Environmental Clearance granted to us.
2.	No change in the calendar plan including excavation, quantum of iron ore and waste produced should be made.	Being complied with.
3.	At least four ambient air quality- monitoring stations should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10micron i.e., PM ₁₀) and , NO _x monitoring. Location of the 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.	Ambient Air Quality monitoring is regularly being carried out at four different stations within the core zone, which were located in consultation with the visiting officers of State Pollution control Board, Bhubaneswar. The ambient air quality reports are being submitted to Regional office, MoEF&CC, Bhubaneswar half yearly and to SPCB, Bhubaneswar monthly. Various parameters such as PM ₁₀ , PM _{2.5} , SO _x , NO _x , CO are also been monitored for every 15 minutes and the online data is continuously updated at State Pollution Control Board server. The data is same is also been displayed using electronic display board in public domain

4. Anil

Sl. No.	EC Conditions	Compliance Status
<p>Name of Project: Katamati Iron Mine, Tata Steel Ltd. Clearance Letter no.: J-11015/63/2008.IA.II (M), dated: 26/11/2010 Period of Compliance: October 2019 to March 2020</p>		
<p>General Conditions</p>		
		 <p style="text-align: center;"><i>CAAQMS station & data connectivity of Katamati Mine</i></p>
4.	<p>Data on ambient air quality [RSPM (Particulate matter with size less than 10micron i.e., PM₁₀) and, NO_x] should be regularly submitted to the Ministry including its Regional Office at Bhubaneswar and to the State Pollution Control Board/ Central Pollution Control Board once in six months.</p>	<p>RSPM (Particulate matter with size less than 10 micron i.e., PM₁₀) and, NO_x in ambient air are being monitored as per standard guidelines and the reports are submitted to Regional office, MoEF&CC, Bhubaneswar half yearly and SPCB, Odisha monthly. Ambient Air Quality Report is attached as Annexure-VI.</p>
5.	<p>Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangements on haul roads, loading and unloading and at transfer points should be provided and properly maintained.</p>	<p>Effective water sprinkling is being done on haul roads and at loading and unloading points. Dust suppression systems in the drills have been provided for functioning effectively.</p>  <p style="text-align: center;"><i>Water jet with mist water spray in Katamati</i></p>  <p style="text-align: center;"><i>Dust suppression arrangements at Katamati</i></p>
6.	<p>Measures should be taken for control of noise levels below 85dBA in the work environment. Workers engaged in operations of HEMM etc. should be provided with ear plugs/ muffs.</p>	<p>High noise areas are earmarked and people working there are provided with ear protection equipment. All the HEMM's cabin is air conditioned so that there won't be any noise pollution.</p>
7.	<p>Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap and retention ponds should be installed before discharge of workshop effluents.</p>	<p>Oil & Grease separation pits have been provided to take care of effluents from the workshop. Its water quality is being monitored regularly and the parameters meet the prescribed standard. There is no waste water discharge from the mine.</p>

4. Ambed

20/11/20

Sl. No.	EC Conditions	Compliance Status
<p>Name of Project: Katamati Iron Mine, Tata Steel Ltd. Clearance Letter no.: J-11015/63/2008.IA.II (M), dated: 26/11/2010 Period of Compliance: October 2019 to March 2020</p>		
General Conditions		
		 <p style="text-align: center;"><i>Oil trap at common workshop at Noamundi</i></p>
8.	<p>Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.</p> <p>Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed</p>	<p>Adequate dust masks are provided to employees engaged in dusty areas. PME of company and contractor employees are organized regularly to observe any contractions due to exposure to dust and other occupational hazards. Employees also undergo Lung Function Tests during the Periodical Medical Examination. The employees are also given regular awareness training on safety and health aspects as part of implementation process of ISO:45001 systems.</p>
9.	<p>A separate Environment Management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organisation</p>	<p>Complied with.</p> <p>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.</p>
10.	<p>The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneswar.</p>	<p>Funds allocated for environmental management are spent only for environment related purposes and not diverted to any other purpose. Expenditure details of environmental protection measures during 2019-20 at Katamati Iron Mine are attached as annexure-VII.</p>
11.	<p>The Project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.</p>	<p>This is a running mine. No specific date of start of land development work can be assigned. However, the copy of the Environmental Clearance has been sent to the Regional Office, MoEF&CC, Bhubaneswar for necessary information.</p>
12.	<p>The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The Project authorities should extend full co-operation to the officer (s) of the Regional Office by furnishing the requisite data/information/ monitoring reports</p>	<p>We extend full co-operation to the officers of the Regional Office during their visit and furnish the required data, Information and monitoring reports. MoEF&CC officials has made the kind visit of the mine on 21st May 2020.</p>
13.	<p>The Project proponent shall submit six monthly reports on the status of compliance of the stipulated</p>	<p>Six monthly compliance reports are being submitted regularly on the status of implementation of the</p>


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Sl. No.	EC Conditions	Compliance Status
<p>Name of Project: Katamati Iron Mine, Tata Steel Ltd. Clearance Letter no.: J-11015/63/2008.IA.II (M), dated: 26/11/2010 Period of Compliance: October 2019 to March 2020</p>		
General Conditions		
	<p>environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Office, Bhubaneswar, the respective Zonal office of Central Pollution Control Board and the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar, the respective zonal officer of Central Pollution Control Board and the State Pollution Control Board.</p>	<p>stipulated environmental safeguards to the MoEF&CC, its Regional Office Bhubaneswar, Central Pollution Control Board Kolkata and State Pollution Control Board, Bhubaneswar.</p> <p>Further, the six monthly compliance reports along with the monitoring results is being uploaded on Tata Steel's website www.tatasteelindia.com and updated periodically.</p>
14.	<p>A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.</p>	Complied with
15.	<p>The State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and the Collector's office/ Tehsildar's Office for 30 days.</p>	Noted.
16.	<p>The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Office of the Ministry of Environment and Forests, Bhubaneswar by email</p>	<p>The environmental statement for financial year 2018-19 has been submitted to the State Pollution Control Board on vide letter no. MD/ENV/811/120/2020 dated: 16.09.2020 and the same had been hosted on Company's website www.tatasteelindia.com. Further, compliance status on environmental clearance conditions was also sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar by e-mail on 18.09.2020.</p>
17.	<p>The project authorities should advertise at least in two local newspapers of the District or State in which the project is located and widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar.</p>	<p>Details of Environment Clearance with regard to Katamati Iron Mine were published both in English and Hindi in local newspapers. The copy of the newspaper advertisement was sent to the Regional Office, MoEF&CC, Bhubaneswar.</p>

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**ENVIRONMENTAL CLEARANCE
OF
KATAMATI IRON MINE OF TATA STEEL LIMITED**
(April 2020 to September 2020)

**(MoEF & CC Letter No. J-11015/63/2008.IA.II(M) DATED: 18/01/2019)
FOR PRODUCTION OF 08 MTPA (ROM)**

Sl. No.	EC Conditions	Compliance
<p>Name of Project: Katamati Iron Mine, Tata Steel Ltd. Clearance Letter no.: J-11015/63/2008.IA.II (M), dated: 18/01/2019 – EC amendment w.r.t. ROM. Period of Compliance: April 2020 to September 2020</p>		
Specific Conditions		
1.	This Environmental Clearance will not be operation till such time the project proponent complies with all the statutory requirements and judgements of Hon. Supreme Court dated the 2 nd August 2017 in writ petition (civil) no. 114 of 2014 in the matter of common cause vs union of India and Ors.	Complied.
2.	Department of Mining & Geology, State Government shall ensure that mining operation shall not commence till the entire compensation levied, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of judgment of Hon'ble Supreme Court dated the 2 nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors.	Complied with.
3.	Monitoring of Ambient Air Quality to be carried out based on the 2009 Notification, as amended from time to time by the Central Pollution Control Board.	Complied. Ambient Air Quality monitoring is regularly being carried out at core & buffer zone, which were located in consultation with the visiting officers of State Pollution Control Board, Bhubaneswar. The monthly monitoring report of same is been submitted regularly. The data of PM ₁₀ , PM _{2.5} , SO _x , NO _x , CO etc is been submitted online. The data of monitoring by using electronic board displayed in public domain.
4.	The pollution due to transportation load on the environment will be effectively controlled & water sprinkling will also be done regularly. Vehicles with PUC only will be allowed to ply. The mineral transportation shall be carried out through covered trucks only and the vehicles carrying the mineral shall not be overloaded. Project should obtain 'PUC certificate for all the vehicles from authorized pollution testing centre. Washing of all transport vehicle should be done inside the mining lease.	Complied. Effective water sprinkling is being done on haul roads and at loading and unloading points. Dust suppression systems in the drills have been provided for functioning effectively.
		 <p style="text-align: center;"><i>Water mist water spray & fixed sprinklers at Katamati mine</i></p>

Sl. No.	EC Conditions	Compliance
	<p>Name of Project: Katamati Iron Mine, Tata Steel Ltd. Clearance Letter no.: J-11015/63/2008.IA.II (M), dated: 18/01/2019 – EC amendment w.r.t. ROM. Period of Compliance: April 2020 to September 2020</p>	
	<p>Specific Conditions</p>	
		<p>High pressure mobile water sprinkler of 50kL procured & used for water sprinkling in haul roads.</p>  <p style="text-align: center;"><i>Water sprinkler in Katamati mine</i></p> <p>Vehicles having valid PUC certificate are only allowed in mines for any operations. The existing HEMM also undergoes periodic PUC checks internally from authorized centres.</p> <p>A wheel washing facility has been installed at exit gate of mine to arrest and control the fugitive emission from mineral transportation.</p>  <p style="text-align: center;"><i>Wheel washing facility at Katamati Mines</i></p>
5.	<p>The activities and budget earmarked for Corporate Environmental Responsibility (CER) shall be as per Ministry's O.M No 22-65/2017-IA. II (M) dated 01.05.2018 and the action plan on the activities proposed under CER shall be submitted to the Regional Office of the Ministry and State Pollution Control Board.</p>	<p>Being complied.</p>

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 OFFICE OF THE
 PRINCIPAL CHIEF CONSERVATOR OF FORESTS (WILDLIFE)
 AND CHIEF WILDLIFE WARDEN: ORISSA: BHUBANESWAR- 751012.

Memo No. 5842 /WL(C) SSP-306 /2011.

Dated, Bhubaneswar the 29th August, 2011.

To

The Chief Conservator of Forests (Nodal),
 O/O the Principal Chief Conservator of Forests, Orissa,
 Bhubaneswar.

Sub: Approval of Site Specific Wildlife Conservation Plan of M/S TATA
 Steel Limited for Katamati Iron Ore Mine, Barbil, Dist Keonjhar,
 Orissa of Keonjhar Forest Division.

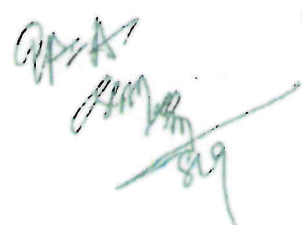
I am directed to inform you that the Site Specific Wildlife
 Conservation Plan of M/S TATA Steel Limited, Katamati Iron Mine of
 Keonjhar Forest Division in the District of Keonjhar, Orissa has been
 approved by the Principal Chief Conservator of Forests(WL) & Chief
 Wildlife Warden, Orissa with financial forecast of Rs.205.00 lakh for the
 following activities.

- | | |
|---|-----------------------------|
| 1. For activities to be implemented
by User agency in project area- | Rs.83.00 Lakh |
| 2. For activities to be implemented by
the DFO, Keonjhar Division in the
Project impact area- | Rs.122.00 Lakh |
| | Total:Rs.205.00 Lakh |

Various activities in the lease hold area will be executed by the User
 Agency themselves under the guidance of D.F.O., Keonjhar Division.
 Rs.122.00 Lakhs may be deposited with the Divisional Forest Officer,
 Keonjhar Division under CAMPA for implementation of various activities
 within the project impact area.

Encl: Two Nos. of approved
 S.S. WL Conservation Plan.

Approved by Principal C.C.F. (WL),
 Orissa, Bhubaneswar.


 Conservator of Forests (WL).

Contd..2

Memo No. 5843 /Dt. 29.08.2011.

Copy forwarded to the Divisional Forest Officer, Keonjhar Division for information & necessary action with reference to Memo No.751 dt.17.03.2011 of RCCF, Rourkela Circle.

Encl: One No. of approved
S.S. WL Conservation Plan


Conservator of Forests (WL).

Memo No. 5844 /Dt. 29.08.2011.

Copy forwarded to the Regional Chief Conservator of Forests, Rourkela Circle for information & necessary action with reference to his Memo No.749 dt.17.03.2011.


Conservator of Forests (WL).

Memo No. 5845 /dt. 08.2011.

Copy forwarded to M/S TATA Steel Limited, Katamati Iron Mine, Barbil, Dist Keonjhar, Orissa for information & necessary action.


Conservator of Forests (WL).



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ISO 9001:2015, ISO 14001:2015, OHSAS 18001:2007 Certified Organization
Recognized By Ministry of Environment & Forests (MoEF), New Delhi
Accredited By Quality Council of India by - NABET

TEST REPORT

Approved by : ♦ Food Safety & Standards Authority of India Under FSS Act ♦ Bureau of Indian Standards (BIS)
♦ Agricultural & Process Food Products Export Development Authority (APEDA) ♦ Export Inspection Council (EIC) ♦ Agmark

Test Report No. : ALPL/25092020/01-7&8		dated 25.09.2020		Page 1 of 1	
Issued To : M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2020/MON-09/4/12-7&8 Inward Date 18.09.2020 Reference W.O.- 3000132460/962 Reference Date 15.05.2020		Analysis Start 18.09.2020 Analysis End 25.09.2020 Sample Category Water	
Sample Name	Sample Source	Sample Particulars	Sample Condition	Quantity Received	
Surface Water	1. Upstream 2. Downstream	Sample Code-SW-1 & 2	Sealed & Ice Preserved	2.0 Ltr & 250 ml	
Sample Collected By		Sampling Date	Sampling Time	Sampling Location	
Anacon Representative Mr. K. Pandey		15.09.2020	Not Mentioned	1.Mahadev Nallah (Murga Nallah) Upstream (SW-1) 2.Mahadev Nallah (Murga Nallah) Downstream (SW-2)	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result	
				SW-1	SW-2
I	Biological Testing 1.Water				
1	Total Coliform	MPN/100ml	IS 1622 : 1981	<2	<2
II	Chemical Testing 1.Water				
2	pH value	-	IS 3025 (Part 11) : 1983	7.32 at 25°C	7.34 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4) : 1983	1	1
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) : 1989	6.2	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	4.16	5.82
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) : 2006	12	16
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	224	236
9	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	BDL(DL-0.05)	BDL(DL-0.05)
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	64.32	67.38
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	5.44	6.48
12	Nitrate (as NO ₃)	mg/l	IS 3025 (Part 34) : 1988	4.12	3.80
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	BDL(DL-0.1)	BDL(DL-0.1)
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	BDL(DL-0.005)	BDL(DL-0.005)
15	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43) : 1001	BDL(DL-0.001)	BDL(DL-0.001)
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	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	0.18	0.17
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41) : 1992	BDL(DL-0.001)	BDL(DL-0.001)
19	Selenium (as Se)	mg/l	IS 3025 (Part 2) : 2019	BDL(DL-0.001)	BDL(DL-0.001)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	BDL(DL-0.01)	BDL(DL-0.01)
21	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	BDL(DL-0.001)	BDL(DL-0.001)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	BDL(DL-0.1)	BDL(DL-0.1)
23	Hexa Chromium (as Cr ⁶⁺)	mg/l	IS 3025 (Part 2) : 2019	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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REMARKS : As requested by the client, sample was tested for above parameters only.

Verified By

Pallavi Harkare
Technical Manager

Pooja Kathane
Technical Manager

Authorized Signatories

Dr. (Mrs.) Anupa Tankhiwale
Sr. Technical Manager

Swati Shrivastava
Technical Manager

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Accounts Division (9326960081, 9372960079) Email : accounts@anacon.in
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TEST REPORT

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Recognized By Ministry of Environment & Forests (MoEF), New Delhi

Approved by: ♦ Food Safety & Standards Authority of India by - NABET
♦ Agricultural & Process Food Products Export Development Authority (APEDA) ♦ Bureau of Indian Standards (BIS)
♦ Export Inspection Council (EIC) ♦ Agmark

Test Report No. : ALPL/30062020/13-7&8 dated 30.06.2020 Page 1 of 1

Issued To : M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217	Sample Inward No. 2020/EW-219/12-7&8 Inward Date 22.06.2020 Reference W.O.- 3000132460.962 Reference Date 15.05.2020	Analysis Start 22.06.2020 Analysis End 29.06.2020
Sample Name Surface Water	Sample Particulars Sample Code-SW-1 & 2	Sample Condition Sealed & Ice Preserved
Sample Collected By Anacon Representative Mr. Krishnendu Pandey	Sampling Date 18.06.2020	Quantity Received 2.0 lit & 250 ml
	Sampling Time Not Mentioned	Sampling Location 1. Baitarani River Upstream (SW 1) 2. Baitarani River Downstream (SW-2)

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 2296:1992 Class C	Test Result	
					SW-1	SW-2
I Biological Testing 1. Water						
1	Total Coliform	MPN/100ml	IS 1622 : 1981	5000	Absent	Absent
II Chemical Testing 1. Water						
2	pH value	-	-	-	-	-
3	Colour	Hazen units	IS 3025 (Part 1) : 1983	6.0 to 9.0	7.44 at 25°C	7.48 at 25°C
4	Dissolved Oxygen	mg/l	IS 3025 (Part 4) : 1983	300	1	1
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 38) : 1989	4.0	6.1	6.0
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 17) : 1984	--	BDL(DL-10)	BDL(DL-10)
7	Chemical oxygen demand	mg/l	IS 3025 (Part 44) : 1993	3.0	4.80	5.94
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 58) : 2006	--	14.12	16.88
9	Copper (as Cu)	mg/l	IS 3025 (Part 16) : 1984	1500	210	225
10	Chloride (as Cl)	mg/l	IS 3025 (Part 2) : 2004	1.5	BDL(DL-0.03)	BDL(DL-0.03)
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 32) : 1988	600	54.42	57.6
12	Nitrate (as NO ₃)	mg/l	IS 3025 (Part 24) : 1986	400	6.24	5.86
13	Fluoride (as F)	mg/l	IS 3025 (Part 34) : 1988	50	4.12	3.96
14	Cyanide (as CN)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.30	0.38
15	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 27) : 1986	0.05	BDL(DL-0.005)	BDL(DL-0.005)
16	Anionic Detergent	mg/l	IS 3025 (Part 43) : 1001	0.005	BDL(DL-0.001)	BDL(DL-0.001)
Chemical Testing 2. Residues In Water						
17	Iron (as Fe)	mg/l	IS 13428 : 2005 Annex K	1.0	BDL(DL-0.01)	BDL(DL-0.01)
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2004	0.5	0.11	0.15
19	Selenium (as Se)	mg/l	IS 3025 (Part 41) : 1992	0.01	BDL(DL-0.001)	BDL(DL-0.001)
20	Arsenic (as As)	mg/l	IS 3025 (Part 2) : 2004	0.05	BDL(DL-0.001)	BDL(DL-0.001)
21	Lead (as Pb)	mg/l	IS 3025 (Part 37) : 1988	0.2	BDL(DL-0.001)	BDL(DL-0.001)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.05)	BDL(DL-0.05)
23	Hexa Chromium (as Cr ⁶⁺)	mg/l	IS 3025 (Part 2) : 2004	15	BDL(DL-0.05)	BDL(DL-0.05)
24	Mercury (as Hg)	mg/l	IS 3025 (Part 2) : 2004	1.0	BDL(DL-0.001)	BDL(DL-0.001)
25	Manganese (as Mn)	mg/l	IS : 3025 (Part 48) : 1994	--	BDL(DL-0.005)	BDL(DL-0.005)
					BDL(DL-0.05)	BDL(DL-0.05)

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Verified By

Swati Shrivastava
Biological Manager

Pallavi Harkare
Deputy Technical Manager

Pooja Kulkarni
Technical Manager

Dr. (Mrs.) Anupa Tankhiwale
Senior Technical Manager

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

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TEST REPORT

Approved by : ♦ Food Safety & Standards Authority of India Under FSS Act ♦ Bureau of Indian Standards (BIS)
 ♦ Agricultural & Process Food Products Export Development Authority (APEDA) ♦ Export inspection council (EIC) ♦ Agmark

DUST FALL MONITORING REPORT FOR THE MONTH OF SEPTEMBER-2020

Report No.: AN/MC/TS-JEIM/2020/227		Date: 03/10/2020
Name and Address of Industry:-	M/s Katamati Iron Mine (M/s TATA Steel Limited)	W. O. No.
		3000132460/962 15 05 2020
Sample Description/Type	Dust Fall	Sample Ref. No.: 2020/Mon 183/DF/ 1
Sample Drawn By:-	Anacon Representative	

Sr. No.	Parameters	Unit	Analysis Results
			01.09.2020 to 30.09.2020
			DF-1
1.	Nickel as Ni	%	0.021
2.	Cobalt as Co	%	0.06
3.	Mercury as Hg	%	< 0.001
4.	Arsenic as As	%	< 0.001
5.	Iron as Fe	%	1.4

Total Dust Fall for the month of September-2020 is 2.7 t/km²/month.

For ANACON LABORATORIES PVT.LTD.

Verified by

Shashikant Satdeve
(Sr. Chemist)

Authorized Signatory

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

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TEST REPORT

Test Report No. : ALPL/25092020/01-1

dated 25.09.2020

Page 1 of 3

Issued To : M/s Katamati Iron Mines (M/s TATA Steel Limited)	Sample Inward No.	2020/MON-09/4/14-1	Analysis Start	18.09.2020
	Inward Date	18.09.2020	Analysis End	25.09.2020
	Reference	W.O.- 3000132460/962	Sample Category	Soil
	Reference Date	15.05.2020		
Sample Name Soil	Sampling Date : 15.09.2020 Sampling Time : 11.30 am		Quantity Received 1 Kg	
Sample Collected By Anacon Representative Mr. Priyansh Jain		Sampling Location S1-Mines Area		

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
1	Colour	--	Visual	Brown
2	Type of soil	--	pH meter	Neutral
3	pH (1:2.5 Aq. Extract) at 25°C	-	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	6.41 at 25°C
4	Texture	-	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Sandy loam
5	Bulk density	g/cm ³	IS 2720 (Part 29)	1.427
6	Electrical Conductivity (1:2.5 Aq. Extract)	µs/cm	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	163.8
7	Moisture Content	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	12.84
8	Water soluble Chloride (as Cl)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	6827
9	Water soluble Sulphate (as SO ₄)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	1926
10	Water soluble Potassium (as K)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	580
11	Available Phosphorous (as P)	Kg/hect	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	410
12	Available Nitrogen (as N)	Kg/hect	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	340
13	Total Organic matter	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	2.15
14	Total Organic Carbon	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	1.23
15	Available Iron (Fe)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	3.08
16	Total Nickel (Ni)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
17	Mercury (Hg)	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
18	Total Cobalt (Co)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
19	Total Arsenic (As)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent

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. ● 'mg/kg' is equivalent to 'ppm'.

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

Verified By

Shashikant Satdeve

Mangesh Fande

Sr. Chemist

Technical Manager

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Authorized Signatory

Dr. (Mrs.) S.D. Garway

Quality Manager

Flow Rate of Balijhor Nalla**(April 2020 – September 2020)****ANALYSIS OF WATER QUALITY
Sample collected from Balijhore Nalla**

Parameter	Apr- 20	May-20	Jun-20	Jul-20	Aug-20	Sep-20
Flow Rate Cum/hr	263	191	324	351.6	796.3	161.52

There is no any industrial effluents discharge from the mine.

H. Amber

Ground Water level details for Pre-Monsoon (May) & Monsoon (August)

Katamati Iron Mine, M/s Tata Steel Ltd.

EC condition no. (xviii), vide no. J-11015/63/2008-IA.II (M) dated 26th November, 2010.

(xi) Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and installing new piezometers during the mining operation. The periodic monitoring (at least four times in a year - pre-monsoon (April- May), monsoon (August), post - monsoon (November) and winter (January); once in each season) shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office Bhubaneswar, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the ground water table is getting depleted due to mining activity, necessary corrective measures shall be carried out.

Katamati Iron Mine of M/s Tata Steel Limited is an operational opencast captive iron mine. Regular monitoring of ground water level in and around the mine lease of existing well is regularly been done in desired frequency. The detailed quality report is attached herewith. The Katamati Iron Mine has received NOC from CGWA for ground water withdrawal of 460m³/day recently vide letter no. CGWA/NOC/MIN/ORIG/2018/4244, dated 10th Oct 2018.

As per recent hydro-geological study & regulatory approval, few additional locations are also incorporated along with proposed piezometers in the area. Monitored water level for of area for the month of November 2019 and February 2020 are as follows:

Sl. No.	LOCATION	MONTH	
		May 2020	August 2020
Existing Dug Well Locations:			
1.	Mahadevnasa Village, Near Pond	3 m 65 cm	1 m 21 cm
2.	Dalafiri Sahi (well-2) Near Road	3 m 67 cm	2 m
3.	Tata Sponge – Galuri Sahi	6 m 67 cm	2 m 33 cm
4.	Murga, Near Temple	2 m 90 cm	1 m 85 cm
5.	Dalagiri-1, Near Road	6 m 90 cm	2 m 24 cm
New Piezometer Locations:			
6	Murga Village, Near Security Gate	17m	16 m
7	Near pit office, Katamati Iron Mine	42m 13 cm	41 m
8	Near METSO Office, Katamati Mine	61m 40 cm	60 m 18 cm



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TEST REPORT

Test Report No. : ALPL/25092020/01-1		dated 25.09.2020		Page 1 of 1	
Issued To : M/s Katamati Iron Mines (M/s TATA Steel Limited)		Sample Inward No. 2020/MOIN-09-011-1		Analysis Start 18.09.2020	
		Inward Date 18.09.2020		Analysis End 25.09.2020	
		Reference W.O. - 3000132050/962		Sample Category Water	
		Reference Date 15.05.2020			
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code:GW-1	Sample Condition Sealed & Ice Preserved	Quantity Received 2.0 Lit & 250 ml	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17.09.2020	Sampling Time Not Mentioned	Sampling Location Mahadev Naha Village	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 2		Test Result
				Acceptable Limit	Permissible Limit	
I	Biological Testing - I.Water					
1	<i>Escherichia coli</i>	Per 100 ml	IS 15183 : 2016	Absent	Absent	Absent
II	Chemical Testing - I.Water					
2	pH value	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.32 at 25°C
3	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
4	Colour	Hazen units	IS 3025 (Part 4) : 1983	5	15	1
5	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
6	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
7	Free residual chlorine	mg/l	IS 3025 (Part 26) : 1986	Min. 0.2	1	BDL(DL-0.1)
8	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	218
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.20
10	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL(DL-0.005)
11	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	31.64
12	Total Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	132
13	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	140.58
14	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	41.18
15	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	9.16
16	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	6.74
17	Nitrate (as NO ₃)	mg/l	APHA Method 23 rd Edition	45	No relaxation	3.26
18	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43) : 1992	0.001	0.002	BDL(DL-0.001)
19	Anionic detergents (as MBAS)	mg/l	IS 13428 : 2005 Annex K	0.2	1.0	BDL(DL-0.01)

NOTES: ● Please see annexure "Original Test Report" to confirm the authenticity of this report. ● Results shall be returned to tested samples 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 measured amount only. ● Non-permissible and permissible samples shall be disposed off after 30 days and 11 days respectively from the date of issue of Test Report, unless specified otherwise. ● mg/l is equivalent to ppm. ● Result for test no 7 is not relevant. ● BDL - Below detection limit ● DL - Indicates detection limit of instrument used and shall be considered as 'absent'.

Verified By

Authorized Signatories

Swati Shrivastava
Swati Shrivastava
Technical Manager

Pooja Kulkarni
Pooja Kulkarni
Technical Manager

Dr. (Mrs.) Sangeeta Parkhiwale
Dr. (Mrs.) Sangeeta Parkhiwale
Sr. Technical Manager

Dr. (Mrs.) S.D. Garwar
Dr. (Mrs.) S.D. Garwar
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TEST REPORT

Test Report No. : ALPL/25092020-01-1

dated 25.09.2020

Page 2 of 3

Issued To : M/s Katamati Iron Mines (M/s TATA Steel Limited)	Sample Inward No.	2020/MON-09/4/14-1	Analysis Start	18.09.2020
	Inward Date	18.09.2020	Analysis End	25.09.2020
	Reference	W.G. - 3000122460/962	Sample Category	Water
	Reference Date	15.05.2020		

Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-1	Sample Condition Sealed & Ice Preserved	Quantity Received 2.0 Lit & 750 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 15.09.2020	Sampling Time Not Mentioned	Sampling Location Mahadev Nasha Village

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 2		Test Result
				Acceptable Limit	Permissible Limit ^a	
II	Chemical Testing					
	2. Residues In Water					
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.22
21	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL(DL-0.01)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL(DL-0.05)
23	Mercury (as Hg)	mg/l	IS : 3025 (Part 48) : 1994	0.001	No relaxation	BDL(DL-0.0005)
24	Cadmium (as Cd)	mg/l	IS : 3025 (Part 41) : 1992	0.003	No relaxation	BDL(DL-0.001)
25	Selenium (as Se)	mg/l	IS : 3025 (Part 56) : 2003	0.01	No relaxation	BDL(DL-0.001)
26	Arsenic (as As)	mg/l	IS : 3025 (Part 37) : 1988	0.01	No relaxation	BDL(DL-0.01)
27	Aluminium (as Al)	mg/l	IS 15302 : 2003	0.03	0.2	BDL(DL-0.01)
28	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.01	No relaxation	BDL(DL-0.001)
29	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL(DL-0.1)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL(DL-0.03)
31	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL(DL-0.1)
32	Polynuclear aromatic hydrocarbon (PAH)	µg/l	ANqr RES-30	0.1	No relaxation	BDL(DL-0.03)
33	Mineral Oil	mg/l	ANqr RES-40	0.5	No relaxation	BDL(DL-0.001)

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Verified By

Pallav Hirarkare
Pallav Hirarkare
Technical Manager

Sonal Gharpure
Sonal Gharpure
Technical Manager

Authorized Signatory

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

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TEST REPORT

Test Report No.: ALPL/25092020/01-3

dated 25.09.2020

Page 3 of 3

Issued To : M/s Katamati Iron Mines (M/s TATA Steel Limited)		Sample Inward No. 2020/MUN-09/014-1	Analysis Start 18.09.2020
		Inward Date 18.09.2020	Analysis End 25.09.2020
		Reference W.O.- 300/132460/962	
		Reference Date 15.05.2020	Sample Category Water
Sample Name Ground Water	Sample Source Dug well	Sample Particulars Sample Code: GW-1	Sample Condition Sealed & Iq Preserved
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17.09.2020	Quantity Received 2.0 ltr @ 250 ml
		Sampling Time Not Mentioned	Sampling Location Mahadev Nanka Village

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500:2012 (Drinking Water Specifications) Including Amendment No. 2		Test Result
				Acceptable Limit	Permissible Limit ^a	
II	Chemical Testing 2. Residues In Water					
34	Pesticide Residues					
i	Alpha-HCH	µg/l	ANg RES-28	0.01	No relaxation	BDL (DL-0.01)
ii	Beta HCH	µg/l	ANg RES-28	0.04	No relaxation	BDL (DL-0.03)
iii	Delta-HCH	µg/l	ANg RES-28	0.04	No relaxation	BDL (DL-0.03)
iv	Alachlor	µg/l	ANg RES-28	20	No relaxation	BDL (DL-0.03)
v	Aldrin / Dieldrin	µg/l	ANg RES-28	0.03	No relaxation	BDL (DL-0.03)
vi	Atrazine	µg/l	ANg RES-29	2	No relaxation	BDL (DL-0.03)
vii	Butachlor	µg/l	ANg RES-29	125	No relaxation	BDL (DL-0.03)
viii	Chlorpyrifos	µg/l	ANg RES-28	30	No relaxation	BDL (DL-0.03)
ix	DDT and its Isomers	µg/l	ANg RES-28	1	No relaxation	BDL (DL-0.03)
x	Gamma-HCH (Lindane)	µg/l	ANg RES-28	2	No relaxation	BDL (DL-0.03)
xi	2,4-Dichlorophenoxyacetic acid	µg/l	ANg RES-29	30	No relaxation	BDL (DL-0.03)
xii	Endosulphan	µg/l	ANg RES-28	0.4	No relaxation	BDL (DL-0.03)
xiii	Fenion	µg/l	ANg RES-29	3	No relaxation	BDL (DL-0.03)
xiv	Improprathion	µg/l	ANg RES-29	9	No relaxation	BDL (DL-0.03)
xv	Malathion	µg/l	ANg RES-29	190	No relaxation	BDL (DL-0.03)
xvi	Methyl Parathion	µg/l	ANg RES-29	0.3	No relaxation	BDL (DL-0.03)
xvii	Monocrotophos	µg/l	ANg RES-29	1	No relaxation	BDL (DL-0.03)
xviii	Phorate	µg/l	ANg RES-29	2	No relaxation	BDL (DL-0.03)

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

Verified By

Sonali Gharpure
Technical Manager

Authorized Signatory

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

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TEST REPORT

Test Report No. : ALPL/2509202001-2

dated 25.09.2020

Page 1 of 3

Issued To : M/s Katamati Iron Mines (M/s TATA Steel Limited)		Sample Inward No. 2020/MON-09/4/14-2	Analysis Start 18.09.2020
		Inward Date 18.09.2020	Analysis End 25.09.2020
		Reference W.O. - 3000132460/062	Sample Category Water
		Reference Date 15.05.2020	
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-2	Sample Condition Sealed & Ice Preserved
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 15.09.2020	Sampling Time Not Mentioned
			Quantity Received 20 Lit & 250 ml
			Sampling Location Dafatri-2 Village

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 2		Test Result
				Acceptable Limit	Permissible Limit *	
I Biological Testing - I.Water						
1	<i>Escherichia coli</i>	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II Chemical Testing - I.Water						
2	pH value	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.35 at 25°C
3	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.4
4	Colour	Hazen units	IS 3025 (Part 4) : 1983	5	15	1
5	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
6	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
7	Free residual chlorine	mg/l	IS 3025 (Part 26) : 1986	Min. 0.2	1	BDL (DL-0.1)
8	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	232
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.17
10	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL-0.005)
11	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	34.71
12	Total Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	130
13	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	154.44
14	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	41.57
15	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	12.05
16	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	1.66
17	Nitrate (as NO ₃)	mg/l	APHA Method 23 rd Edition	45	No relaxation	3.09
18	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43) : 1992	0.001	0.002	BDL (DL-0.001)
19	Anionic detergents (as MBS)	mg/l	IS 13428 : 2005 Annex K	0.2	1.0	BDL (DL-0.01)

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Verified By

Authorized Signatories

Swati Shrivastava
Technical Manager

Pooja Kulkarni
Technical Manager

Dr. (Mrs.) Jyoti Patil
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TEST REPORT

Test Report No. : ALPL/2509202001-2

dated 25.09.2020

Page 2 of 3

Issued To: M/s Katamati Iron Mines (M/s TATA Steel Limited)		Sample Inward No. 2020MON-09-4-14-2	Analysis Start 18.09.2020
		Inward Date 18.09.2020	Analysis End 25.09.2020
		Reference W.O. 3000132400962	Sample Category Water
		Reference Date 15.05.2020	
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code: GW-2	Sample Condition Sealed & Ice Preserved
Sample Collected By Anacon Representative Mr. S. Pusley		Sampling Date 15.09.2020	Quantity Received 2.0 Lit @ 250 ml
		Sampling Time Not Mentioned	Sampling Location Dulefri-2 Village

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 2		Test Result
				Acceptable Limit	Permissible Limit*	
II Chemical Testing						
2. Residues In Water						
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.16
21	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL(DL-0.03)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL(DL-0.05)
23	Mercury (as Hg)	mg/l	IS : 3025 (Part 48) : 1994	0.001	No relaxation	BDL(DL-0.0005)
24	Cadmium (as Cd)	mg/l	IS : 3025 (Part 41) : 1992	0.003	No relaxation	BDL (DL-0.001)
25	Selenium (as Se)	mg/l	IS : 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL-0.001)
26	Arsenic (as As)	mg/l	IS : 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL-0.01)
27	Aluminium (as Al)	mg/l	IS 15302 : 2003	0.03	0.2	BDL (DL-0.01)
28	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.01	No relaxation	BDL (DL-0.001)
29	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL-0.1)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL(DL-0.03)
31	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL(DL-0.1)
32	Polynuclear aromatic hydrocarbon (PAH)	ppb	ANP RES-30	0.1	No relaxation	BDL (DL-0.03)
33	Mineral Oil	mg/l	ANP RI 5-30	0.5	No relaxation	BDL(DL-0.001)

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Verified By

Pallavi Harikar
Technical Manager

Sonali Gharpure
Technical Manager

Authorized Signatory

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Quality Manager

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TEST REPORT

Test Report No. : ALPL/25092020/01-2

dated 25.09.2020

Page 3 of 3

Issued To : M/s Katamati Iron Mines (M/s TATA Steel Limited)		Sample Inward No. 2020/MON-09/4/14-2	Analysis Start 18.09.2020
Sample Collected By Anacon Representative Mr. K. Pandey		Inward Date 18.09.2020	Analysis End 25.09.2020
		Reference W.O.- 3000132460/962	Sample Category Water
		Reference Date 15.05.2020	
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-2	Sample Condition Sealed & Ice Preserved
		Quantity Received 2.0 ltr & 250 ml	
		Sampling Date 15.09.2020	Sampling Location Dalafrji-2 Village
		Sampling Time Not Mentioned	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2013 (Drinking Water Specifications) Including Amendment No. 2		Test Result
				Acceptable Limit	Permissible Limit *	
II	Chemical Testing					
	2. Residues In Water					
34	Pesticide Residues					
i	Alpha-HCH	µg/l	ANqr RES-28	0.01	No relaxation	BDL (DL-0.01)
ii	Beta HCH	µg/l	ANqr RES-28	0.04	No relaxation	BDL (DL-0.03)
iii	Delta- HCH	µg/l	ANqr RES-28	0.04	No relaxation	BDL (DL-0.03)
iv	Alachlor	µg/l	ANqr RES-28	20	No relaxation	BDL (DL-0.03)
v	Aldrin / Dieldrin	µg/l	ANqr RES-28	0.03	No relaxation	BDL (DL-0.03)
vi	Atrazine	µg/l	ANqr RES-29	2	No relaxation	BDL (DL-0.03)
vii	Butachlor	µg/l	ANqr RES-29	125	No relaxation	BDL (DL-0.03)
viii	Chlorpyrifos	µg/l	ANqr RES-28	30	No relaxation	BDL (DL-0.03)
ix	DDT and its Isomers	µg/l	ANqr RES-28	1	No relaxation	BDL (DL-0.03)
x	Gamma - HCH (Lindane)	µg/l	ANqr RES-28	2	No relaxation	BDL (DL-0.03)
xi	2,4-Dichlorophenoxyacetic acid	µg/l	ANqr RES-29	30	No relaxation	BDL (DL-0.03)
xii	Endosulphan	µg/l	ANqr RES-28	0.4	No relaxation	BDL (DL-0.03)
xiii	Ethion	µg/l	ANqr RES-29	3	No relaxation	BDL (DL-0.03)
xiv	Improprator	µg/l	ANqr RES-29	9	No relaxation	BDL (DL-0.03)
xv	Malathion	µg/l	ANqr RES-29	190	No relaxation	BDL (DL-0.03)
xvi	Methyl Parathion	µg/l	ANqr RES-29	0.3	No relaxation	BDL (DL-0.03)
xvii	Monocrotophos	µg/l	ANqr RES-29	1	No relaxation	BDL (DL-0.03)
xviii	Phorate	µg/l	ANqr RES-29	2	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-10500:2013, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

Verified By


Sonali Gharpure
Technical Manager

Authorized Signatory


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TEST REPORT

Test Report No. : ALPL/25092020/1-3

dated 25.09.2020

Page 1 of 3

Issued To : M/s Katumati Iron Mines (M/s TATA Steel Limited)		Sample Inward No. 2020/MON-09/4/14-3	Analysis Start 18.09.2020
		Inward Date 18.09.2020	Analysis End 25.09.2020
		Reference W.O.- 3000132460/962	Sample Category Water
		Reference Date 15.05.2020	
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-(IW-2)	Sample Condition Sealed & Ice Preserved
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 15.09.2020	Sampling Time Not Mentioned
		Quantity Received 2.0 Ltr & 250 ml	Sampling Location Dahuri-1 Village

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 2		Test Result
				Acceptable Limit	Permissible Limit*	
I Biological Testing - I.Water						
1	<i>Escherichia coli</i>	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II Chemical Testing - I.Water						
2	pH value	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.38 at 25°C
3	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
4	Colour	Hazen units	IS 3025 (Part 4) : 1983	5	15	1
5	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
6	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
7	Free residual chlorine	mg/l	IS 3025 (Part 26) : 1986	Min. 0.2	1	BDL(DL-0.1)
8	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	250
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	BDL(DL-0.1)
10	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL(DL-0.005)
11	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	41.85
12	Total Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	144
13	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	148.5
14	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	44.35
15	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	9.16
16	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	7.52
17	Nitrate (as NO ₃)	mg/l	APHA Method 23 rd Edition	45	No relaxation	4.22
18	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43) : 1992	0.001	0.002	BDL(DL-0.001)
19	Anionic detergents (as MBAS)	mg/l	IS 13426 : 2005 Annex K	0.2	1.0	BDL(DL-0.01)

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Verified By

Authorized Signatories

Swati Shrivastava
Technical Manager

Pooja Kulkarni
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TEST REPORT

Test Report No. : ALPI/25092020/01-3

dated 25.09.2020

Page 2 of 8

Issued To : M/s Katamati Iron Mines (M/s TATA Steel Limited)		Sample Inward No. 2020 MON-09/4/14-3	Analysis Start 18.09.2020
		Inward Date 18.09.2020	Analysis End 25.09.2020
		Reference W.O.- 3000132460/62	Sample Category Water
		Reference Date 15.05.2020	
Sample Name Ground Water	Sample Source Digwell	Sample Particulars Sample Code-GW-3	Sample Condition Sealed & Ice Preserved
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 15.09.2020	Sampling Time Not Mentioned
		Quantity Received 7.0 ltr & 250 ml	Sampling Location Dahfiri-1 Village

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 2		Test Result
				Acceptable Limit	Permissible Limit *	
II Chemical Testing						
2. Residues In Water						
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.14
21	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL-0.03)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL-0.05)
23	Mercury (as Hg)	mg/l	IS : 3025 (Part 48) : 1994	0.001	No relaxation	BDL (DL-0.0005)
24	Cadmium (as Cd)	mg/l	IS : 3025 (Part 41) : 1992	0.003	No relaxation	BDL (DL-0.001)
25	Selenium (as Se)	mg/l	IS : 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL-0.001)
26	Arsenic (as As)	mg/l	IS : 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL-0.01)
27	Aluminium (as Al)	mg/l	IS 15302 : 2003	0.03	0.2	BDL (DL-0.01)
28	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.01	No relaxation	BDL (DL-0.001)
29	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL-0.1)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL-0.03)
31	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL-0.1)
32	Polynuclear aromatic hydrocarbon (PAH)	µg/l	ANq RES-30	0.1	No relaxation	BDL (DL-0.03)
33	Mineral Oil	mg/l	ANq RES-40	0.5	No relaxation	BDL (DL-0.001)

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Verified By

Pulkit Thakare
Technical Manager

Sonali Gharpure
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TEST REPORT

Test Report No. : ALPI/25092020/01-4

dated: 25.09.2020

Page 3 of 3

Issued To : M/s Katamati Iron Mines (M/s TATA Steel Limited)		Sample Inward No. 2020/MON-09/4/14-3	Analysis Start 18.09.2020
		Inward Date 18.09.2020	Analysis End 25.09.2020
		Reference W.O- 300/132400/962	Sample Category Water
		Reference Date 15.05.2020	
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code: GW-3	Sample Condition Sealed & Ice Preserved
		Quantity Received 2.0 Ltr & 250 ml	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 15.09.2020	Sampling Time Not Mentioned
		Sampling Location Dabfiri-1 Village	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 2		Test Result
				Acceptable Limit	Permissible Limit*	
II	Chemical Testing					
	2. Residues in Water					
34	Pesticide Residues					
i	Alpha-HCH	µg/l	ANqr RES-28	0.01	No relaxation	BDL(DL-0.01)
ii	Beta HCH	µg/l	ANqr RES-28	0.04	No relaxation	BDL(DL-0.03)
iii	Delta-HCH	µg/l	ANqr RES-28	0.04	No relaxation	BDL(DL-0.03)
iv	Alachlor	µg/l	ANqr RES-28	20	No relaxation	BDL(DL-0.03)
v	Aldrin / Dieldrin	µg/l	ANqr RES-28	0.03	No relaxation	BDL(DL-0.03)
vi	Atrazine	µg/l	ANqr RES-29	2	No relaxation	BDL(DL-0.03)
vii	Butachlor	µg/l	ANqr RES-29	125	No relaxation	BDL(DL-0.03)
viii	Chlorpyrifos	µg/l	ANqr RES-28	30	No relaxation	BDL(DL-0.03)
ix	DDT and its isomers	µg/l	ANqr RES-28	1	No relaxation	BDL(DL-0.03)
x	Gamma-HCH (Lindane)	µg/l	ANqr RES-28	2	No relaxation	BDL(DL-0.03)
xi	2,4-Dichlorophenoxyacetic acid	µg/l	ANqr RES-29	30	No relaxation	BDL(DL-0.03)
xii	Endosulfan	µg/l	ANqr RES-28	0.4	No relaxation	BDL(DL-0.03)
xiii	Ethion	µg/l	ANqr RES-29	2	No relaxation	BDL(DL-0.03)
xiv	Isoproturon	µg/l	ANqr RES-29	9	No relaxation	BDL(DL-0.03)
xv	Malathion	µg/l	ANqr RES-29	190	No relaxation	BDL(DL-0.03)
xvi	Methyl Parathion	µg/l	ANqr RES-29	0.3	No relaxation	BDL(DL-0.03)
xvii	Monocrotophos	µg/l	ANqr RES-29	1	No relaxation	BDL(DL-0.03)
xviii	Phorate	µg/l	ANqr RES-29	2	No relaxation	BDL(DL-0.03)

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

Verified By

Sushil Gharpure
Technical Manager

Authorized Signatory

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

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Approved by • Food Safety & Standards Authority of India Under FSS Act • Bureau of Indian Standards (BIS)
• Agricultural & Processed Food Products Export Development Authority (APEDA) • Export Inspection Council (EIC) • Agmark

TEST REPORT

Test Report No. : AULP/25092020/01-4

dated 25.09.2020

Page 1 of 1

Issued To : M/s Katamati Iron Mines (M/s TATA Steel Limited)		Sample Inward No. 2020/MON-09/4/14-4 Inward Date 18.09.2020 Reference W.G. 3000132460/962 Reference Date 15.05.2020	Analysis Start 18.09.2020 Analysis End 25.09.2020 Sample Category Water	
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-4	Sample Condition Sealed & Ice Preserved	Quantity Received 2.0 Lit. @ 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 15.09.2020	Sampling Time Not Mentioned	Sampling Location Village Nr. Tatu Springs

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 2		Test Result
				Acceptable Limit	Permissible Limit*	
I. Biological Testing - Water						
1	<i>Escherichia coli</i>	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II. Chemical Testing - Water						
2	pH value	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.40 at 25°C
3	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.4
4	Colour	Hazen units	IS 3025 (Part 4) : 1983	5	15	1
5	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
6	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
7	Free residual chlorine	mg/l	IS 3025 (Part 26) : 1986	Min. 0.2	1	BDL (DL-0.1)
8	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	262
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.24
10	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL-0.005)
11	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	60.33
12	Total Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	152
13	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	160.38
14	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	49.89
15	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	8.67
16	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	8.29
17	Nitrate (as NO ₃)	mg/l	APHA Method 23 rd Edition	45	No relaxation	5.42
18	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 47) : 1992	0.001	0.002	BDL (DL-0.001)
19	Anionic detergents (as MBAS)	mg/l	IS 13428 : 2005 Annex K	0.2	1.0	BDL (DL-0.01)

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Verified By

Authorized Signatories

Swati
Swati Shrivastava
Technical Manager

Pooja
Pooja Kulkarni
Technical Manager

Anup
Dr. (Mrs.) Anup Tankhiwale
Sr. Technical Manager

S.D. Garwa
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Agricultural & Process Food Products Export Development Authority (APEDA) Export Inspection Council (EIC) Agmark

TEST REPORT

Test Report No. : ALPL/25092020/01-4

Dated 25.09.2020

Page 3 of 3

Issued To : Mrs Katamati Iron Mines (M/s TATA Steel Limited)		Sample Inward No. 2020/MON-09/4/14-4	Analysis Start 18.09.2020
		Inward Date 18.09.2020	Analysis End 25.09.2020
		Reference W/O- 1000132460/062	Sample Category Water
		Reference Date 15.05.2020	
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-4	Sample Condition Sealed & Ice Preserved
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 15.09.2020	Sampling Time Not Mentioned
		Quantity Received 2.0 Lit & 250 ml	
		Sampling Location Village Mr. Tata Sponge	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 2		Test Result
				Acceptable Limit	Permissible Limit ^a	
II	Chemical Testing 2. Residues In Water					
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.13
21	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL(DL-0.01)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL(DL-0.05)
23	Mercury (as Hg)	mg/l	IS : 3025 (Part 48) : 1994	0.001	No relaxation	BDL(DL-0.0005)
24	Cadmium (as Cd)	mg/l	IS : 3025 (Part 41) : 1992	0.003	No relaxation	BDL(DL-0.001)
25	Selenium (as Se)	mg/l	IS : 3025 (Part 56) : 2003	0.01	No relaxation	BDL(DL-0.001)
26	Arsenic (as As)	mg/l	IS : 3025 (Part 37) : 1988	0.01	No relaxation	BDL(DL-0.01)
27	Aluminium (as Al)	mg/l	IS 15302 : 2003	0.03	0.2	BDL(DL-0.01)
28	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.01	No relaxation	BDL(DL-0.001)
29	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL(DL-0.1)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL(DL-0.03)
31	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL(DL-0.1)
32	Polynuclear aromatic hydrocarbon (PAH)	µg/l	ANqr RES-30	0.1	No relaxation	BDL(DL-0.03)
33	Mineral Oil	mg/l	ANqr RES-40	0.5	No relaxation	BDL(DL-0.001)

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Verified By

[Signature]
Pallavi Harkare
Technical Manager

[Signature]
Sonali Gharpure
Technical Manager

Authorized Signatory

[Signature]
Dr. (Mrs.) S.D. Garway
Quality Manager

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TEST REPORT

Test Report No. : AI PL/25092020/01-4

dated 25.09.2020

Page 3 of 3

Issued To : M/s Katamati Iron Mines (M/s TATA Steel Limited)		Sample Inward No. 2020/MON-09-4/14-4	Analysis Start 18.09.2020
		Inward Date 18.09.2020	Analysis End 25.09.2020
		Reference W.O - 300132460/962	Sample Category Water
		Reference Date 15.05.2020	
Sample Name Ground Water	Sample Source Digwell	Sample Particulars Sample Code-GW-4	Sample Condition Sealed & Ice Preserved
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 15.09.2020	Sampling Time Not Mentioned
			Quantity Received 20 Lit & 250 ml
			Sampling Location Village Nr. Tulu Sponge

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 2		Test Result
				Acceptable Limit	Permissible Limit*	
II	Chemical Testing					
	2. Residues In Water					
34	Pesticide Residues					
i	Alpha-HCH	µg/l	ANgr RES-28	0.01	No relaxation	BDL (DL-0.01)
ii	Beta HCH	µg/l	ANgr RES-28	0.04	No relaxation	BDL (DL-0.03)
iii	Delta-HCH	µg/l	ANgr RES-28	0.04	No relaxation	BDL (DL-0.03)
iv	Alachlor	µg/l	ANgr RES-28	20	No relaxation	BDL (DL-0.03)
v	Aldrin / Dieldrin	µg/l	ANgr RES-28	0.03	No relaxation	BDL (DL-0.03)
vi	Atrazine	µg/l	ANgr RES-29	2	No relaxation	BDL (DL-0.03)
vii	Butachlor	µg/l	ANgr RES-29	125	No relaxation	BDL (DL-0.03)
viii	Chlorpyrifos	µg/l	ANgr RES-28	30	No relaxation	BDL (DL-0.03)
ix	DDT and its isomers	µg/l	ANgr RES-28	1	No relaxation	BDL (DL-0.03)
x	Gamma - HCH (Lindane)	µg/l	ANgr RES-28	2	No relaxation	BDL (DL-0.03)
xi	2,4-Dichlorophenoxyacetic acid	µg/l	ANgr RES-29	50	No relaxation	BDL (DL-0.03)
xii	Endosulphan	µg/l	ANgr RES-28	0.4	No relaxation	BDL (DL-0.03)
xiii	Ethion	µg/l	ANgr RES-29	3	No relaxation	BDL (DL-0.03)
xiv	Isoproturon	µg/l	ANgr RES-29	9	No relaxation	BDL (DL-0.03)
xv	Malathion	µg/l	ANgr RES-29	190	No relaxation	BDL (DL-0.03)
xvi	Methyl Parathion	µg/l	ANgr RES-29	0.3	No relaxation	BDL (DL-0.03)
xvii	Monocrotophos	µg/l	ANgr RES-29	1	No relaxation	BDL (DL-0.03)
xviii	Phorate	µg/l	ANgr RES-29	2	No relaxation	BDL (DL-0.03)

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

Verified By

Sonali Gharpure
Technical Manager

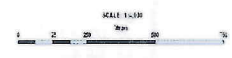
Authorized Signatory

Dr. (Mrs.) S.D. Garway
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LAND USE/LAND COVER MAP OF
KATAMATI IRON MINES
OF MA TATA STEEL LTD



LEGEND



LAND USE/LAND COVER

CODE	LAND USE/LAND COVER	AREA (HA)	PERCENTAGE
01	NET CROPLAND	1015	1.02
02	NET RURAL CROPLAND	1015	1.02
03	NET URBAN CROPLAND	1015	1.02
04	NET FOREST	1015	1.02
05	NET BARREN	1015	1.02
06	NET WATER	1015	1.02
07	NET BUILDING	1015	1.02
08	NET ROAD	1015	1.02
09	NET RAILWAY	1015	1.02
10	NET OTHER	1015	1.02
11	NET TOTAL	1015	1.02

MAP PREPARED FOR THE YEAR ENDING ON 31.03.2024

Prepared at:
MA TATA STEEL LTD, CHANDLER ROAD
KATAMATI, WEST BENGAL
INDIA

Prepared by:
S. K. SINGH
Sr. Geologist
MA TATA STEEL LTD, CHANDLER ROAD
KATAMATI, WEST BENGAL
INDIA

Land use/Land cover (Core Zone) – Katamati Iron Mine

**KATAMATI IRON MINE
AVERAGE AIR QUALITY REPORT (CORE ZONE)**

Month	Near Pit Office				Near Metso Plant				Near View Point				Near Murgu Gate									
	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO		
Apr 20																						
May 20																						
Jun 20	58.9	29.5	8.7	17.9	0.427	62.2	33.5	9.1	18.2	0.453	63.4	31.7	9.6	19.2	0.470	68.5	41.2	10.5	18.5	0.435		
Jul 20	58.9	34.0	8.6	17.4	0.353	56.7	28.5	8.0	15.9	0.349	64.9	34.3	8.5	17.1	0.373	67.1	38.5	9.0	18.2	0.362		
Aug 20	46.9	25.9	7.0	14.8	0.320	50.3	27.7	7.6	14.4	0.314	45.3	24.9	6.1	11.1	0.279	49.4	26.8	6.4	13.2	0.292		
Sep 20	56.5	25.6	7.4	15.6	0.347	55.9	24.2	7.5	17.3	0.323	59.7	30.8	8.3	16.6	0.339	58.6	26.0	7.8	18.2	0.314		

AVERAGE AIR QUALITY REPORT (BUFFER ZONE)

Month	Tankura Village				Miralgara Village				Kitabeda Village				Balita Village									
	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO		
Apr 20																						
May 20																						
Jun 20	55.0	25.8	8.7	17.1	0.271	51.7	22.0	7.6	20.5	0.304	57.3	24.0	7.4	17.5	0.335	60.5	27.2	8.9	18.3	0.321		
Jul 20	55.5	24.7	7.6	14.4	0.319	52.8	23.0	6.8	14.1	0.257	57.8	22.7	7.0	15.0	0.327	56.0	23.9	6.7	14.1	0.294		
Aug 20	43.9	17.7	5.8	11.9	0.244	45.6	16.8	5.5	10.7	0.209	48.4	19.4	6.5	12.3	0.265	55.6	22.1	6.9	14.3	0.288		
Sep 20	46.5	19.1	6.8	9.7	0.227	48.9	20.1	6.0	8.9	0.201	54.4	21.6	6.8	15.1	0.309	54.9	20.0	6.5	14.3	0.284		

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

Handwritten Signature
Lab-in-charge

Environmental Expenditure (2019-20)
Katamati Iron Mine, TATA Steel Ltd

Sl. No.	Heads / Item	Expenditure (Lakhs)	
		Capital	Recurring
1.	Development & maintenance of office garden	--	08,00,000.00
2.	Development of nursery & sapling for plantation	--	01,45,000.00
3.	Tree Planation & maintenance in & around Katamati	--	04,10,000.00
4.	Environmental monitoring in & around Katamati	--	02,95,000.00
5.	CAAQMS maintenance & operation & display board	--	05,45,000.00
6.	Geo-jute laying & maintenance on slime at Katamati	--	10,70,000.00
7.	Operation of mobile water sprinklers	--	62,87,161.78
8.	Operation of fixed water sprinklers on Haul road	--	07,92,000.00
9.	Cleaning of garland drain & settling pits	--	89,521.50
10.	Annual maintenance of dry fog system at METSO	--	09,55,000.00
11.	Toewall extension	--	03,50,000.00
12.	HEMM maintenance at mega center for Katamati	--	04,11,696.00
Total			1,21,50,379.28
Environmental Expenditure for the year 2019-20 at Katamati Iron Mine =~1.21Cr			

