



The Additional PCCF (C)
MoEF & CC, Govt. of India
Bungalow No. A-2, Shyamali Colony
Ranchi-834002, Jharkhand
Tel: 0651-2410007, 2410002, Email: ro.ranchi-mef@gov.in

MD/ENV/ 316 / 103 / 2021
Date: 29.11.2021

Ref: Environmental Clearance letter no. J-11015/104/2011.IA.II (M) dated: 06.09.2021.

Sub: Half-yearly compliance status report of Environmental Clearance conditions for the period April'21 - September'21 in respect of Noamundi Iron Mine, M/s Tata Steel Limited.

Dear Sir,

Kindly find attached herewith submitting the six monthly compliance report as on date in respect of the stipulated Environmental Clearance conditions of Noamundi Iron Mine, M/s Tata Steel Limited for the period from **April 2021 – September 2021** as per EIA Notification, 2006. Also for the same period vide office memorandum no. Z-11013/57/2014-IA.II (M), dated 29.10.2014, is attached herewith as Annexure -1. The same has been mailed to your good office on email: ro.ranchi-mef@gov.in for your ready reference.

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

Thanking you,

Yours faithfully,
f: M/s Tata Steel Limited

Pinku Kumar
Head (Planning), OMQ

Encl. : As above

Copy to : The Chairman, Central Pollution Control Board, Southern Conclave, Block 502, 5th & 6th Floors, 1582 Rajdanga Main Road, Kolkata - 700107 (W. B.)
: The Member Secretary, State Pollution Control Board, T.A. Division (Ground Floor), H.E.C. Dhurwa, Ranchi - 834004 (Jharkhand)
: The Regional Officer, JSPCB, MB/12, New Housing Colony, Adityapur, Jamshedpur – 831013 (Jharkhand)

TATA STEEL LIMITED

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**ENVIRONMENTAL CLEARANCE
OF
NOAMUNDI IRON MINE OF TATA STEEL LIMITED
EC No. J-11015/104/2011-IA.II (M), 06.09.2021.
(April 2021 to September 2021)**


Sl. No.	Conditions	Compliance
A. Specific conditions		
1.	Implementation of the revised remediation plan, natural resource augmentation plan (NRAP) and community resource augmentation plan (CRAP) which was submitted by PP after the EAC meeting.	Implementation of the revised remediation plan, natural resource augmentation plan (NRAP) and community resource augmentation plan (CRAP) which was submitted has been initiated.
2.	Implementation of the environmental monitoring plan with emphasis on air quality, noise and vibration, water quality as well as soil degradation to be submitted.	Noted. It will be complied accordingly.
3.	Wildlife conservation plan be augmented with additional points revised in the light of guidance given by EAC during the meeting with more emphasis on wildlife conservation rather than creating infrastructure which cannot be controlled by project proponent.	Noted.
4.	Public hearing concerns must be addressed as committed.	All the concerns raised in Public Hearing are being addressed. The implementation of action plan has been initiated.
5.	The EMP cost should include plantation within the mine lease area whereas plantation outside the mine lease area will be given to NRAP cost.	Noted. All the cost involved for plantation within mine lease area shall be included in EMP cost and plantation outside the mine lease area has already been included in NRAP cost.
6.	No mining activities will be allowed in the forest area for which forest clearance is not available.	Noted and shall be abided.
7.	As the public hearing has been carried out for the entire project area and PP has paid the NPV for entire forest land involved in the project area, PP after taking stage- II Forest Clearance for remaining area i.e. 391.51 Ha; may again approach the Ministry for undertaking mining in the remaining area with the proper mining plan.	After the grant of stage II FC for remaining area of 391.51ha, we shall approach the Ministry with proper mining plan for undertaking mining in the remaining area.
B. Standard conditions		
I. Statutory Compliance		
(1)	This Environmental Clearance (EC) is subject to orders/ judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.	Noted.
(2)	The Project proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated 2nd August,2017 in Writ Petition (Civil) No. 114 of 2014 in matter of	A payment of Rs 56,96,51,093.00/- is made as per demand notice no. 1986/M dated 12.09.2017. The Project Proponent is complying with all the statutory requirements and judgements of Hon. Supreme Court


	Common Cause versus Union of India &Ors before commencing the mining operations.	dated the 2nd August 2017 in writ petition (civil) no. 114 of 2014 in the matter of common cause vs union of India and Ors.
(3)	The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of Judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India &Ors.	A payment of Rs 56,96,51,093.00/- is made as per demand notice no. 1986/M dated 12.09.2017. The Project Proponent is complying with all the statutory requirements and judgements of Hon. Supreme Court dated the 2nd August 2017 in writ petition (civil) no. 114 of 2014 in the matter of common cause vs union of India and Ors.
(4)	This Environmental Clearance shall become operational only after receiving formal NBWL Clearance from MoEF&CC subsequent to the recommendations of the Standing Committee of National Board for Wildlife, if applicable to the Project.	Not applicable. There are no protected areas/eco-sensitive zones within 10 km of the mine lease area.
(5)	This Environmental Clearance shall become operational only after receiving formal Forest Clearance (FC) under the provision of Forest Conservation Act, 1980, if applicable to the Project.	Noamundi Iron Mine of TATA Steel has restricted its operations in diverted forest and non-forest area as per approvals obtained. The mine has 1160.06 ha lease area, out of which 762.42 ha is forest land & rest is non-forest. Out of 762.42 ha, forest land diverted for mining is 370.92 ha vide letter no. 8-279, 1985 FC (Pt) dated 4th Sept., 2014 & for rest 391.51 ha (including safety zone), forest diversion proposal has already been applied & is at advanced stage of clearance.
(6)	Project Proponent (PP) shall obtain Consent to Operate after grant of EC and effectively implement all the conditions stipulated therein. The mining activity shall not commence prior to obtaining Consent to Establish / Consent to Operate from the concerned State Pollution Control Board/Committee.	Mine has a valid consent to operate (10 MTPA ROM & 13 MTPA processing and dispatch) granted by JSPCB which is valid till 31.12.2025. Proposed expansion in mining shall be commenced only after the grant of CTE/CTO from the Board.
(7)	The PP shall adhere to the provision of the Mines Act, 1952, Mines and Mineral (Development & Regulation), Act, 2015 and rules & regulations made there under. PP shall adhere to various circulars issued by Directorate General Mines Safety (DGMS) and Indian Bureau of Mines from time to time.	Noted and shall be abided.
(8)	The Project Proponent shall obtain consents from all the concerned land owners, before start of mining operations, as per the provisions of MMDR Act, 1957 and rules made there under in respect of lands which are not owned by it.	Not applicable since it is an old mine and the expansion is proposed within the mine lease area.
(9)	The Project Proponent shall follow the mitigation measures provided in MoEFCC's Office Memorandum No. Z-11013/57 /2014-IA.II (M), dated 29th October, 2014, titled "Impact of mining	All the conditions mentioned in the MoEFCC's Office Memorandum No. Z-11013/57/2014-IA.II (M), dated 29th October, 2014 are being followed.

	activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area".	
(10)	The Project Proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water and from CGWA for withdrawal of ground water for the project.	Being complied. Only Surface water from Baitarani is being used for mining and processing purpose. At present, we have water allocation from WRD, GoJ for drawl of 10.6MCM (29000KLD) of surface water from Baitarani river. No ground water withdrawal is required for this project.
(11)	A copy of EC letter will be marked to concerned Panchayat / local NGO etc. if any, from whom suggestion / representation has been received while processing the proposal.	A copy of EC letter is submitted to local panchayats i.e Noamundi, Balijore, Diriburu, Kadajamda and Mahudi panchayat.
(12)	State Pollution Control Board/Committee shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collector's office/ Tehsildar's Office for 30 days	Noted.
(13)	The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board/Committee and web site of the Ministry of Environment, Forest and Climate Change (www.parivesh.nic.in). A copy of the advertisement may be forwarded to the concerned MoEFCC Regional Office for compliance and record.	Details of Environment Clearance with regard to Noamundi Iron Mine were published both in English(Avenue Mail) and Hindi(Prabhat Khabar) in local newspapers on 12.09.2021. The copy of the newspaper advertisement was sent to the Regional Office, MoEF&CC, Ranchi with letter no: MD/ENV/210/97/2021 dated 13.09.2021. The same is enclosed as Annexure 1.
(14)	The Project Proponent shall inform the MoEF&CC for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred than mining operation shall only be carried out after transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.	Noted.

II. Air quality monitoring and preservation

(1)	The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120° is made between the monitoring locations to monitor critical parameters, relevant for mining operations, of air pollution viz. PM10, PM2.5, NO2, CO and SO2 etc. as per the methodology	Three continuous ambient air quality monitoring stations are installed in the core zone(two) and buffer zone(one) of mine lease area. Various parameters such as PM10, PM2.5, SOx, NOx & CO are being monitored as per guidelines. Four manual ambient air quality stations are installed at prominent places such as Hospital, WTP etc. and monitoring is done on regular basis. The data is also been displayed using electronic display board in public domain. Average air quality data is enclosed as Annexure 2.
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<p>mentioned in NAAQS Notification No. B-29016/20/90/PCI/I, dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site</p>	 <p>CAAQMS station of Noamundi</p>
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<p>(2) Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from all sources shall be regularly controlled by installation of required equipments/ machineries and preventive maintenance. Use of suitable water- soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEFCC/ Central Pollution Control Board</p>	<p>Fugitive dust emissions from all the sources are being controlled regularly on daily basis. A network of fixed water sprinklers has been laid on permanent haul roads. Two mobile water tankers of large capacity namely 50 KL which can cover the entire width of the haul road has been commissioned. Procurement of one additional mobile water sprinkler of capacity 50KL is in process and shall be deployed soon. All feed hoppers where ore is unloaded and all transfer chutes have been provided with dry-fog dust suppression system. Mist cannons have placed at strategic points to prevent and control of fugitive dust emission. Ambient air quality conforms to the CPCB norms.</p>  <p>Other dust control measures in area</p>
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III. Water quality monitoring and preservation

<p>(1) In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEFCC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro-geological study of the area</p>	<p>The mining operations are being restricted to above the ground water table. However, in case of working below ground water table prior approval for CGWA shall be taken.</p>
<p>(2) 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 maintain. The natural water bodies and or streams which are flowing in an around the village, should</p>	<p>Regular monitoring of flow rate of springs and nallahs is carried out and records are maintained. Streams which are present in and around the mine lease area shall not be disturbed. Ground water quality and Ground water level are being</p>

	<p>not be disturbed. The Water Table should be nurtured so as not to go down below the pre-mining period. In case of any water scarcity in the area, the Project Proponent has to provide water to the villagers for their use. A provision for regular monitoring of water table in open dug wall located in village should be incorporated to ascertain the impact of mining over ground water table. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department/ State Pollution Control Board.</p>	<p>monitored periodically in and around the lease area by establishing network of dugwells and piezometric borewells. All the monitoring results are being submitted to regulatory agencies. At five locations, new piezometric borewell are installed. All the monitored data is being submitted to various agencies on six monthly basis along with Half yearly EC compliance reports.</p>
(3)	<p>Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on six- monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department/ State Pollution Control Board.</p>	<p>Ground water quality and Ground water level are being monitored periodically in and around the lease area by establishing network of dugwells and piezometric borewells. All the monitoring results are being submitted to regulatory agencies. At five locations, new piezometric borewell are installed. All the monitored data is being submitted on six monthly basis along with Half yearly EC compliance reports to the Regional Office of the Ministry, CGWA/CGWB and Jharkhand State Pollution Control Board and enclosed as Annexure 3.</p>
(4)	<p>The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease and maintain its records. The project proponent shall undertake regular monitoring of water quality upstream and downstream of water bodies passing within and nearby/ adjacent to the mine lease and maintain its records. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. PP shall carryout regular monitoring w.r.t. pH and included the same in monitoring plan. The parameters to be monitored shall include their water quality vis-a-vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and/ or alteration be made to water bodies during mining operations without justification and prior approval of MoEF&CC. The monitoring of water courses/bodies existing in lease area shall be carried out four times in a year viz. pre- monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the record of monitored data may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground</p>	<p>Water quality monitoring of nallahs present inside and outside the mine lease area is done regularly and the reports are submitted to Regional Office of Ministry of Environment, Forest and Climate Change, Central Ground Water Authority and Regional Director, Central Ground Water Board, Jharkhand State Pollution Control Board and Central Pollution Control Board. A copy of report is enclosed as Annexure 4.</p>


	<p>Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on six-monthly basis</p>	
(5)	<p>Quality of polluted water generated from mining operations which include Chemical Oxygen Demand (COD) in mines run-off; acid mine drainage and metal contamination in runoff shall be monitored along with Total Suspended Solids (TDS), Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular No. J-20012/1/2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred in this regard.</p>	<p>There is no waste water discharge from the mine and mineral processing plant, entire unit is "Zero Discharge Unit".</p> <p>After mineral processing (wet plant) the water is collected in slime pond, where decanted water from the slime dam is completely recycled & reused in the beneficiation plant and slime is recovered and stored for future use. Thus no water is being discharged to environment.</p> <p>The environmental monitoring data is regularly uploaded on the company website as a part of six monthly EC compliance reports. The link for the same is attached here (https://www.tatasteel.com/corporate/our-organisation/environment/environment-compliance-reports/). In addition to this all the monitored data is shown in display board present at the entrance gate.</p> 
(6)	<p>Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area in consultation with Central Ground Water Board/ State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office MoEFCC annually.</p>	<p>The rainwater collected in the mine pits and allowed to be collected in the lowest level sumps to augment the ground water resources gradually. Rain water harvesting (RWH) ponds and ground water recharge structures have been constructed and approved by the Ground Water Directorate, Jharkhand, Ranchi.</p>  <p><i>RWH structure for ground water augmentation in the area</i></p> <p>The unit has rainwater harvesting approval from Hon. Director, Ground Water Directorate, Water Resources Dept. Jharkhand vide letter no. GWD 317/Ranchi, dated 14th Jun, 2012. At Noamundi area the various RWH structures in the form of Check Dams, Saucer ponds, Gabion Structures, Trenches and contour are made</p>




		<p>based on recommendation in available area.</p>  <p><i>RWH structure for ground water augmentation in the area</i></p> <p>To augment the ground water about 06 new additional ponds are constructed around Noamundi mine lease at Leping, Mahudi, Jampani & Sarbil villages.</p>  <p><i>Newly constructed ponds in surrounding villages</i></p>
(7)	<p>Industrial waste water (workshop and waste water from the mine) should be properly collected and treated so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.</p>	<p>Two Sewage Treatment Plant (STP) of 50 KLD each and two Effluent Treatment Plant (ETP) of 10 KLD each are already installed & working smoothly in colony area of Noamundi. Copy of monitoring reports are enclosed as Annexure 5.</p>  <p><i>Sewage & Effluent Treatment Plant at Noamundi</i></p> <p>For the workshops and all other areas and oil trap is installed with collection system. The entire water is reused in other activities such as gardening & dust suppressions. No wastewater generated is discharged outside from mine.</p>
(8)	<p>The water balance/water auditing shall be carried out and measure for reducing the consumption of water shall be taken up and reported to the Regional Office of the MoEF&CC and State Pollution Control Board/Committee.</p>	<p>Noted. Evaluation of water consumption is being carried out and suitable measures for reducing water consumption have been identified such as commissioning of paste thickener etc. There is zero waste-water discharge by the mine and it will be maintained in the future as well. Optimization of the water consumption will be done to reduce the specific water consumption year-on-year.</p>

IV. Noise and vibration monitoring and prevention		
(1)	The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.	Monitoring of ppv is done after every blast and the reports are being maintained. Copy of latest report is enclosed as Annexure 6.
(2)	The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day/night hours	The illumination & sound has been done in such a way that the villagers are not disturbed. In addition to this we are planning to install noise panels around the railway siding boundary to significantly reduce the noise.
(3)	The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM, etc. should be provided with ear plugs /muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ laborers are working without personal protective equipment.	Adequate measures are taken for control of work noise levels such as all HEMMs have acoustic cabins with air conditioners and the exhaust manifold have silencers. Noisy operations have been identified and persons engaged in such operations are provided with ear plugs/muffs.
V. Mining plan		
(1)	The Project Proponent shall adhere to the working parameters of mining plan which was submitted at the time of EC appraisal wherein year-wise plan was mentioned for total excavation i.e. quantum of mineral, waste, over burden, inter burden and top soil etc.. No change in basic mining proposal like mining technology, total excavation, mineral & waste production, lease area and scope of working (viz. method of mining, overburden & dump management, O.B & dump mining, mineral transportation mode, ultimate depth of mining etc.) shall not be carried out without prior approval of the Ministry of Environment, Forest and Climate Change, which entail adverse environmental impacts, even if it is a part of approved mining plan modified after grant of EC or granted by State Govt. in the form to Short Term Permit (STP), Query license or any other name.	Total excavation (quantum of mineral, waste, over burden, inter burden and top soil etc.); mining technology; lease area; scope of working (method of mining, overburden & dump management, O.B& dump mining, mineral transportation mode, ultimate depth of mining, concurrent reclamation and reclamation at mine closure, etc. shall be adhered to the Mine Plan.
(2)	The Project Proponent shall get the Final Mine Closure Plan along with Financial Assurance	The final mine closure plan along with Financial Assurance shall be submitted to the concerned Regional

	approved from Indian Bureau of Mines/Department of Mining & Geology as required under the Provision of the MMDR Act, 1957 and Rules/ Guidelines made there under. A copy of approved final mine closure plan shall be submitted within 2 months of the approval of the same from the competent authority to the concerned Regional Office of the Ministry of Environment, Forest and Climate Change for record and verification.	Office of the Ministry of Environment, Forest and Climate Change within two months of approval for record and verification.
(3)	The land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life shall be governed as per the approved Mining Plan. The excavation vis- a-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self-sustaining. The compliance status shall be submitted half-yearly to the MoEF&CC and its concerned Regional Office.	Noted. Land-use of the mine lease area shall be governed as per the approved mining plan. Excavation, backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area are governed as per approved mining plan. Report on plantation activities is being submitted regularly to the Board along with monthly reports. In FY 22 around 21980 saplings have planted in the mine lease area till date.

VI. Land reclamation

(1)	The Overburden (O.B.) generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by D.G.M.S w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of top soil/OB dumps. The topsoil shall be used for land reclamation and plantation.	Over burden is stacked at the earmarked places only. The slopes of the OB dumps are terraced, and the overall slope angle is maintained and not exceeding 27°. Generation of topsoil is very minimal because no fresh area is being broken for mining and the top soil generated, is being kept at the earmarked site(s) only inside the mining lease area and is being subsequently used for plantation & other vegetation & grassing activities. The inactive dump slopes are vegetated with native species, vetiver grass and coir matting is done for better slope stabilization.
		
		<p style="text-align: center;"><i>Vetiver grass</i> <i>Coir matting</i></p>
(2)	The reject/waste generated during the mining operations shall be stacked at earmarked waste dump site(s) only. The physical parameters of the waste dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.	Reject/waste is stacked at the earmarked places only as per approved mining plan. The slopes of the dumps are terraced, and the overall slope angle is maintained and not exceeding 27°.

<p>(3)</p>	<p>The reclamation of waste dump sites shall be done in scientific manner as per the Approved Mining Plan cum Progressive Mine Closure Plan.</p>	<p>Currently two Over Burden (OB) dumps are made as per plan at earmarked area which are progressively stabilized by native species plantation and grass vegetation as per direction of MoEF&CC.</p> <p>In FY 22 around 21980 saplings have planted in the mine lease area till date.</p>  <p style="text-align: center;"><i>Plantation on Waste dump D2</i></p> <p>Grassing on bunds of haul roads to control wind pollution also been practiced as per kind suggestion from MoEF&CC office at mine.</p>  <p style="text-align: center;"><i>Local grass plantation on bunds of haul roads at mine.</i></p>
<p>(4)</p>	<p>The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer/ compactors thereby ensuring proper filling/ leveling of dump mass. In critical areas, use of geo textiles/ geo-membranes / clay liners/ Bentonite etc. shall be undertaken for stabilization of the dump.</p>	<p>The inactive dump slopes are vegetated with native species, vetiver grass and coir matting is done for better slope stabilization.</p> <p>The dump mass is consolidated with the help of dozer/ compactors thereby ensuring proper filling/ leveling of dump mass. In critical areas, laying of coir mat along with grass seeding is practiced.</p>  <p style="text-align: center;"><i>Vetiver grass</i> <i>Coir matting</i></p>
<p>(5)</p>	<p>The Project Proponent shall carry out slope stability study in case the dump height is more than 30 meters. The slope stability report shall be submitted to concerned regional office of MoEF&CC.</p>	<p>Slope stability study has been done for dumps at Noamundi Iron Mine by CSIR-Central Institute of Mining and Fuel Research, Dhanbad. The report has been submitted to Regional Office of MoEF&CC with vide letter no: MD/ENV/303/103/2021 dated 19.11.2021.</p>
<p>(6)</p>	<p>Catch drains, settling tanks and siltation ponds of</p>	<p>Garland drains with settling pits have been constructed</p>

	<p>appropriate size shall be constructed around the mine working, mineral yards and Top Soil/OB/Waste dumps to prevent run off of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly</p>	<p>all along the OB dumps. Settling pits have also been provided to arrest the silt flow from area. The de-siltation of these check dams settling pits are done regularly and properly maintained. Sedimentation pits have been constructed at the corners of the garland drains to take care of run off of water even during peak rain fall and they are being de-silted regularly before and after the monsoon. Garland drains, settling tanks and Check dams had been constructed both around the mine pit and over burden dump(s).</p> <div style="display: flex; justify-content: space-around;">  </div> <p style="text-align: center;"><i>garland drains, Settling pits at mine</i></p> <div style="display: flex; justify-content: space-around;">  </div> <p style="text-align: center;"><i>De-siltation of slime & check dams before monsoon.</i></p>
<p>(7)</p>	<p>Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the corners of the garland drains.</p>	<p>Check dams of appropriate size, gradient and length are constructed along with sedimentation pits as per progressive mine closure plan.</p>
<p>(8)</p>	<p>The top soil, if any, shall temporarily be stored at earmarked sile(s) within the mine lease only and should not be kept unutilized for long. The physical parameters of the top soil dumps like height, width and angle of slope shall be governed as per the approved Mining Plan and as per the guidelines framed by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of dumps. 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>

	purpose	
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VII. Transportation

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

All the finished iron ore product is transported through railway siding. Total quantity of finished iron ore product proposed to be dispatched is 24 MTPA. The capacity of existing material handling system & railway siding will be augmented from 13MTPA to 24MTPA. As an interim arrangement, till the augmentation of dispatch system is commissioned, 4 MTPA of product is envisaged to be transported by road to other railway siding namely Bokaro Siding(1.5 km from lease) and Line no.5 Siding (2.3 km from lease) for onward rail dispatch. This arrangement will be for a period of 5 years and adequate road-safety measures will be implemented for safe transport of the mineral till the railway siding. Pollution Under Control (PUC) certificate shall be obtained for all the vehicles from authorized pollution testing centers. Further, inspection and maintenance of all the machineries/ equipment/ transport vehicles are being done as per manufacturer’s instructions/ recommended time schedule and record is maintained.

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

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



Mobile & Fixed water sprinklers in Noamundi mines

All feed hoppers where ore is unloaded and all transfer chutes have been provided with dry-fog dust suppression system. Mist cannons have placed at strategic points to prevent and control of fugitive dust emission.



Mist type dust suppression measures

The beneficiated ore from processing plant to railway sidings being transported through covered conveyors only.



Closed conveyor used in mineral transport

Dust Extraction system is present at Primary crusher.



VIII. Green Belt

(1) The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be developed within first 5 years starting from windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan.

Safety zone of 7.5 meters all along the mine lease boundary is maintained with plantation of saplings. In FY 22 around 1456 saplings have been planted as gap filling till date in safety zone of Noamundi Iron Mine.



(2) The Project Proponent shall carryout plantation/afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department/ Agriculture Department/ Rural development department/ Tribal Welfare Department/ Gram Panchayat such that only those species be selected which are of use to the local people. The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary provision shall be made for protection and care of trees.

Plantation of saplings on waste dumps, backfilled area is done as per approved mine plan.


In this financial year i.e 2021-22 plantation of about 21980 saplings is done on Waste dump D2, Kurtha dump. In addition to this Avenue plantation outside the mine lease is in progress.




Plantation on dumps



Avenue Plantation outside the mine

		 <p><i>Avenue Plantation outside the mine</i></p>
(3)	<p>The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.</p>	<p>No grazing land has been acquired.</p>
(4)	<p>The Project Proponent shall undertake all precautionary measures for conservation and protection of endangered flora and fauna and Schedule-I species during mining operation. A Wildlife Conservation Plan shall be prepared for the same clearly delineating action to be taken for conservation of flora and fauna. The Plan shall be approved by Chief Wild Life Warden of the State Govt. and implemented in consultation with the State Forest and Wildlife Department. A copy of Wildlife Conservation Plan and its implementation status (annual) shall be submitted to the Regional Office of the Ministry.</p>	<p>The site specific wildlife conservation plan (SSWLCP) has been approved by Chief Wildlife Warden on 28.08.2020. The impact of mining project on wildlife of the study area and detailed mitigative measures are part of this plan. The total approved cost for implementation of SSWLCP is Rs.25.26 crores (to be spent over a 10-year period). As required, a site specific wild life conservation plan has also been submitted to the Ministry and its Regional Office. Copy of approval is enclosed as Annexure 7.</p>
<p>IX. Public hearing and human health issues</p>		
(1)	<p>The Project Proponent shall appoint an Occupational Health Specialist for Regular as well as Periodical medical examination of the workers engaged in the mining activities, as per the DGMS guidelines. The records shall be maintained properly. PP shall also carryout Occupational health check-ups in respect of workers which are having ailments like BP, diabetes, habitual smoking, etc. The check-ups shall be undertaken once in six months and necessary remedial/preventive measures be taken. A status report on the same may be sent to MoEFCC Regional Office and DGMS on half-yearly basis.</p>	<p>For providing medical facilities to its workers, company is providing well equipped Occupational Health Centre/Hospital at Noamundi Pre-placement medical examination and periodical examination of the workers engaged is 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 45 years.</p>
(2)	<p>The Project Proponent must demonstrate</p>	<p>The company's commitment in the area of Health &</p>

<p>commitment to work towards 'Zero Harm' from their mining activities and carry out Health Risk Assessment (HRA) for identification workplace hazards and assess their potential risks to health and determine appropriate control measures to protect the health and wellbeing of workers and nearby community. The proponent shall maintain accurate and systematic records of the HRA. The HRA for neighborhood has to focus on Public Health Problems like Malaria, Tuberculosis, HIV, Anaemia, Diarrhoea in children under five, respiratory infections due to bio mass cooking. The proponent shall also create awareness and educate the nearby community and workers for Sanitation, Personal Hygiene, Hand washing, not to defecate in open, Women Health and Hygiene (Providing Sanitary Napkins), hazard of tobacco and alcohol use. The Proponent shall carryout base line HRA for all the category of workers and thereafter every five years.</p>	<p>Safety is well supported by implementation of: Safety Principles & Occupational Health Policy Occupational Health & Safety Management System (ISO 45001:2018).</p> <p>Hazards in work place are identified as a part of occupational health policy and appropriate control measures are in place to protect the health and well being of workers.</p> <p>Various awareness programs regarding health, sanitation etc. have been conducted with the help of Tata Steel Rural Development Society(TSRDS).</p> <p>The health related initiatives in place are-</p> <ul style="list-style-type: none"> ▪ Mega health camps, Malaria parasite control programme, Cataract surgery camp, Prenatal care ▪ MANSI project: Reducing infant and maternal mortality ▪ Providing financial assistance and waivers for needy patients, on a case-to-case basis ▪ Preventing and treating communicable diseases like malaria, tuberculosis and HIV / AIDS ▪ Treating and rehabilitating persons with disabilities ▪ RISHTA project: working on adolescent and reproductive sexual health issues 
<p>(3) The Proponent shall carry out Occupational health surveillance which be a part of HRA and include Biological Monitoring where practical and feasible, and the tests and investigations relevant to the exposure (e.g. for Dust a X-Ray chest; For Noise Audiometric; for Lead Exposure Blood Lead, For Welders Full Ophthalmologic Assessment; for Manganese Miners a complete Neurological Assessment by a Certified Neurologist, and Manganese (Mn) Estimation in Blood; For Inorganic Chromium- Fortnightly skin</p>	<p>Pre-placement medical examination and periodical examination of the workers engaged is being conducted & record maintained. The schedule of Periodical Medical Examination is once in every 3 years for the employees of age more than 45 years and once in 5 years for the employees of age less than 45 years.</p> <p>Some of the best practices related to occupational health adopted in mine are:</p> <p style="padding-left: 40px;">Employees' health check-up under Wellness @ workplace program</p> <p style="padding-left: 40px;">Health awareness classes on weekly basis for shop</p>

	<p>inspection of hands and forearms by a responsible person. Except routine tests all tests would be carried out in a Lab accredited by NABH. Records of Health Surveillance must be kept for 30 years, including the results of and the records of Physical examination and tests. The record of exposure due to materials like Asbestos, Hard Rock Mining, Silica, Gold, Kaolin, Aluminum, Iron, Manganese, Chromium, Lead, Uranium need to be handed over to the Mining Department of the State in case the life of the mine is less than 30 years. It would be obligatory for the State Mines Departments to make arrangements for the safe and secure storage of the records including X-Ray. Only conventional X-Ray will be accepted for record purposes and not the digital one). X-Ray must meet ILO criteria (17 x14 inches and of good quality).</p>	<p>floor employees Officers' health check-up on yearly basis for lifestyle disease Counseling to high blood pressure, sugar cholesterol, hypertension employees through medical board Observation of important health days like World No Tobacco day, AIDS day, Heart day, Diabetic day etc Display of calorie chart in canteens alongside the menu</p> <p>Health of the employees through audiometry, x-ray, pathology, ophthalmology, lung-function test, etc monitored. No adverse cases have been found till date.</p> 
(4)	<p>The Proponent shall maintained a record of performance indicators for workers which includes (a) there should not be a significant decline in their Body Mass Index and it should stay between 18.5 - 24.9, (b) the Final Chest X-Ray compared with the base line X-Ray should not show any capacities ,{c) At the end of their leaving job there should be no Diminution in their Lung Functions Forced Expiratory Volume in one second (FEV1),Forced Vital Capacity (FVC), and the ratio) unless they are smokers which has to be adjusted, and the effect of age, (d) their hearing should not be affected. As a proof an Audiogram (first and last need to be presented}, (e) they should not have developed any Persistent Back Pain, Neck Pain, and the movement of their Hip, Knee and other joints should have normal range of movement, (f) they should not have suffered loss of any body part. The record of the same should be submitted to the Regional Office, MoEF&CC annually along with details of the relief and compensation paid to workers having above indications.</p>	<p>All the performance indicators for workers during IME and PME are maintained. In addition to health check-ups, health awareness classes on weekly basis for shop floor employees, counselling to high blood pressure, sugar, cholesterol etc is done. No adverse cases have been found till date.</p>
(5)	<p>The Project Proponent shall ensure that 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>All the personnel working in dusty areas are provided with protective respiratory devices such as masks and also provided adequate training and information on safety and health aspects.</p>
(6)	<p>Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with</p>	<p>Township has been developed for workers with all the adequate facilities such as hospital, schools, STP etc.</p>

	necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic waste water should be treated with STP in order to avoid contamination of underground water.	
(7)	The activities proposed in Action plan prepared for addressing the issues raised during the Public Hearing shall be completed as per the budgetary provisions mentioned in the Action Plan and within the stipulated time frame. The Status report on implementation of action plan shall be submitted to the concerned Regional office of the Ministry along with District Administration.	Shall be complied.
X. Corporate Environment Responsibility (CER)		
(1)	The activities and budget earmarked for Corporate Environmental Responsibility (GER) as per Ministry's O.M No 22-65/2017-IA. II (M) dated 01.05.2018 or as proposed by EAC should be kept in a separate bank account. The activities proposed for CER shall be implemented in a time bound manner and annual report of implementation of the same along with documentary proof viz. photographs, purchase documents, latitude & longitude of infrastructure developed & road constructed needs to be submitted to Regional Office MoEFCC annually along with audited statement.	Shall be complied.
(2)	Project Proponent shall keep the funds earmarked for environmental protection measures in a separate account and refrain from diverting the same for other purposes. The Year wise expenditure of such funds should be reported to the MoEF&CC and its concerned Regional Office.	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 are reported to MoEF&CC and its Regional Office every year. Expenditure details for the year 2020-21 is enclosed as Annexure 8.
XI. Miscellaneous		
(1)	The Project Proponent shall prepare digital map (land use & land cover) of the entire lease area once in five years purpose of monitoring land use pattern and submit a report to concerned Regional Office of the MoEF&CC.	The digital processing of entire lease area is being carried out regularly. The current land use pattern is made by M/s Geo Consultants Pvt. Ltd. the authorized agency by ORSAC, Bhubaneshwar. The land use land cover change map as on date is enclosed as Annexure 9.
(2)	The Project Authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	Not applicable. Noamundi is an operational Iron mine of Tata Steel Ltd from last several decades. Thus financial closure & it's approval is not applicable.

(3)	The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MOEFCC & its concerned Regional Office, Central Pollution Control Board and State Pollution Control Board.	Six monthly compliance reports are being submitted regularly on the status of implementation of the stipulated environmental safeguards to the MoEF&CC, its Regional Office, Central Pollution Control Board and Jharkhand State Pollution Control Board.
(4)	A separate 'Environmental Management Cell' with suitable qualified manpower should be set-up under the control of a Senior Executive. The Senior Executive shall directly report to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEF&CC.	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.
(5)	The concerned Regional Office of the MoEF&CC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEF&CC officer(s) by furnishing the requisite data/information/ monitoring reports.	Full cooperation shall be extended to the officers in furnishing the requisite data/ information/ monitoring reports.

**ENVIRONMENTAL CLEARANCE
OF
NOAMUNDI IRON MINE OF TATA STEEL LIMITED
EC No. J-11015/104/2011-IA.II (M), 29.10.2021.**

S.No	Specific Condition	Compliance
1	After this road is brought into utilization for transport, 6 monthly monitoring report as well as videography of the transportation undertaken to be submitted to Ministry.	Shall be complied after the road is brought into utilization.
2	The project proponent is advised to undertake a videography of 10.5 km road for those who are already using this road for transportation of the mineral other than M/s Tata Steel Limited from their respective mines to Jamda site and submit to the Ministry for information.	Videography of the 10.5 km road shall be taken and submitted to Ministry for information.
3	It was also mentioned by the project proponent that they are willingly accepting not to use Jamda siding and this will stay till the information on Jamda transportation available with the Ministry and within 5 years project proponent must bring conveyer system till railway siding and stop using road.	Jamda siding shall not be used for transportation of mineral.

List of Annexures

Noamundi Iron Mine Tata Steel Limited

Sl. No.	Annexure Details
Annexure – 1	EC Advertisement
Annexure - 2	Air Quality Average
Annexure – 3	Ground Water Level & Quality Report
Annexure – 4	Nallah Quality report
Annexure – 5	STP & ETP Report
Annexure – 6	Vibration Report
Annexure – 7	Copy of SSWLCP
Annexure – 8	Environmental Expenditure FY'21
Annexure - 9	Land Use & Land Cover



**Regional Office
Ministry of Environment, Forest & Climate Change
Regional Office (ECZ), Bunglow No. A-2
Shyamali Colony
Ranchi – 834002**

MD/ENV/ 210 / 97 /2021
Date: 13.09.2021

Sub: Advertisement regarding grant of Environmental Clearance for expansion of Noamundi Iron Mine of M/s Tata Steel Limited.

Ref: Environmental Clearance letter no. J-11015/104/2011-IA.II (M) dated: 06.09.2021.

Dear Sir,

In compliance to the standard condition no. 13 in EC granted with vide letter no. J-11015/104/2011-IA.II (M) dated: 06.09.2021 which states that *"The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of clearance letter mentioning that the instant project has been accorded EC and copy of EC letter is available with the State Pollution Control Board/Committee and website of Ministry of Environment, Forest and Climate Change(www.parivesh.nic.in). A copy of the advertisement may be forwarded to the concerned MoEFCC Regional office for compliance and record"* we hereby advertised in two newspapers i.e Avenue Mail(English) and Prabhat Khabar(Hindi) on 12.09.2021. A copy is enclosed as annexure.

Thanking you,

Yours faithfully,
f: Tata Steel Limited

A handwritten signature in blue ink, appearing to be 'Anurag', written over a horizontal line.

Chief (Mine Planning & Projects), OMQ

Encl: As above

TATA STEEL LIMITED

Mines Division Noamundi 833 217 India
Tel 91 9234301340 Fax 91 6596 290737
Registered Office Bombay House 24 Homi Mody Street Fort Mumbai 400 001
Tel 91 22 66658282 Fax 91 22 66657724
Corporate Identity Number L27100MH1907PLC000260 Website www.tatasteel.com

Work for people, not position, Kejriwal's golden advice to AAP cadre

New Delhi, Sep 11 (IANS) - AAP Party (AAP) leader Arvind Kejriwal on Saturday advised his cadre to work for people and not for position, as election ticket is not for sale. He said that the party has to work for the people and not for position. He said that the party has to work for the people and not for position. He said that the party has to work for the people and not for position.



Arvind Kejriwal

Kejriwal said while addressing a virtual conference to welcome the new members of National Council. He said that the party has to work for the people and not for position. He said that the party has to work for the people and not for position. He said that the party has to work for the people and not for position.

Congress announces new chief in poll-bound Manipur

Imphal, Sep 11 (IANS) - Congress interim President Jyoti Basu on Friday appointed N. Laksh Singh as the President of the Manipur state, while also naming three Working Presidents for the poll-bound northeastern state. Laksh Singh was currently the interim state chief in the interim party.

Could've averted 9/11 if world had accepted Vivekananda's message: President Kovind

Prayagraj, Sep 11 (IANS) - President Ram Nath Kovind on Saturday said the message of peace, justice and coexistence given by Swami Vivekananda at the 1893 Chicago World Conference of Religions, saying that had the world accepted his message, the 9/11 attacks would not have occurred. He said that the world should have accepted his message.



Ram Nath Kovind

Kovind said that the world should have accepted his message. He said that the world should have accepted his message. He said that the world should have accepted his message. He said that the world should have accepted his message.

NCW takes cognizance of Sakinaka rape case

Mumbai, Sep 11 (IANS) - A 30-year-old woman, who was raped and brutalized with rods, remains unconscious and critical in a city hospital. As the medical specialist struggle all over the state, the National Commission for Women took cognizance of this heinous incident where a woman was raped and brutalized with rods.



Woman in hospital

Pending cases will be resolved soon: Minorities' panel chief

New Delhi, Sep 11 (IANS) - Union Minister for Minority Affairs, Jai Prakash Narain, on Saturday said that the government is committed to resolving all pending cases of minorities. He said that the government is committed to resolving all pending cases of minorities.



Jai Prakash Narain

'Blot on humanity,' says Thackeray as Mumbai rape-assault victim dies in hospital

Mumbai, Sep 11 (IANS) - A 34-year-old woman, who was raped and brutalized with a rod by a man inside a taxi, died in a city hospital on Saturday. The woman was in a critical condition for several days. She died in a city hospital.



Woman in hospital

Thackeray said that the case is a blot on humanity. He said that the case is a blot on humanity. He said that the case is a blot on humanity. He said that the case is a blot on humanity.

Vijay Rupani: Fourth BJP CM to quit in 6 months

New Delhi, Sep 11 (IANS) - Vijay Rupani on Saturday said that he is considering his resignation as Chief Minister of Gujarat. He said that he is considering his resignation as Chief Minister of Gujarat. He said that he is considering his resignation as Chief Minister of Gujarat.



Vijay Rupani

Rupani said that he is considering his resignation. He said that he is considering his resignation. He said that he is considering his resignation. He said that he is considering his resignation.

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Rupani said that he is considering his resignation. He said that he is considering his resignation. He said that he is considering his resignation. He said that he is considering his resignation.

India, Sudan navies carry out maritime drill in Red Sea

New Delhi, Sep 11 (IANS) - India and Sudan navies carried out a bilateral maritime exercise in the Red Sea off the Sudanese coast, the Indian Navy said on Saturday. The exercise was a bilateral maritime exercise.



Ships at sea

The exercise was a bilateral maritime exercise. He said that the exercise was a bilateral maritime exercise. He said that the exercise was a bilateral maritime exercise.

The exercise was a bilateral maritime exercise. He said that the exercise was a bilateral maritime exercise. He said that the exercise was a bilateral maritime exercise.

TATA STEEL NOTICE. September 2021, Neamundi Iron Mine of M/s Tata Steel Ltd. has been granted environmental clearance for its expansion in prohibition of Iron Ore from 10 MTPA to 15 MTPA. The project will increase the production of Iron Ore from 10 MTPA to 15 MTPA. The project will increase the production of Iron Ore from 10 MTPA to 15 MTPA.

TATA STEEL



NOTICE

पर्यावरण, वन व जलवायु परिवर्तन मंत्रालय पत्र संख्या : I A-J&11015/104/2011&IA-II (M) दिनांक 06 सितंबर, 2021 के द्वारा मेसर्स टाटा स्टील लिमिटेड के नोआमुंडी आयरन माइन को 10 एम टी पी ए से 19 एम टी पी ए (आर ओ एम) तक लौह अयस्क उत्पादन विस्तार के लिए पर्यावरण मंजूरी दी गई है, जिसमें 27 एम टी पी ए (एम एल एरिया 1160.06 हेक्टेयर) के कुल उत्खनन के साथ-साथ महुदी, बालिजोट, कोरटा, नोआमुंडी, सरबिल और बाराबालिजोरी गांव, पश्चिमी सिंहभूम जिला, झारखंड में स्थित 1230.42 हेक्टेयर के कुल परियोजना क्षेत्र में आयरन ओर बेनेफिशिएशन प्लांट (फीड टू प्लांट) की 18 एम टी पी ए से 27 एम टी पी ए तक क्षमता बढ़ोतरी भी शामिल है। इसी पत्र की प्रतिलिपि झारखंड राज्य प्रदूषण नियंत्रण बोर्ड और पर्यावरण, वन व जलवायु परिवर्तन मंत्रालय की वेबसाइट (www.parivesh.nic.in) पर भी उपलब्ध है।

Registered Office: Bombay House, 24, Homi Mody Street, Fort, Mumbai 400 001, India
Tel.: 022 66658282 Fax: 022 66657724 (CIN) - L27100MH1907PLC000260
Website: www.tatasteel.com



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

Month	MRSS Building					Bottom Bin					Near WTP					Near Hospital				
	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 21	63.1	23.0	8.2	17.7	0.267	61.3	21.8	9.2	18.1	0.288	60.4	21.2	9.1	18.8	0.311	57.6	18.7	7.6	16.5	0.276
May 21	53.7	21.0	7.4	17.2	0.268	55.8	19.8	8.4	17.6	0.250	50.7	17.1	7.3	16.1	0.262	56.4	18.9	8.1	16.7	0.298
Jun 21	56.1	26.1	6.9	16.3	0.238	55.4	27.9	7.0	16.0	0.267	51.8	23.4	8.7	15.1	0.220	53.9	24.5	7.5	16.1	0.260
Jul 21	51.8	21.7	7.0	17.1	0.217	51.3	21.1	6.7	16.7	0.218	50.0	18.7	7.9	16.6	0.203	51.7	17.3	6.6	17.2	0.203
Aug 21	49.0	18.6	7.2	18.1	0.220	51.6	22.0	7.5	16.4	0.207	48.7	17.0	7.5	16.2	0.192	47.7	16.3	6.0	17.1	0.198
Sep 21	51.1	18.0	7.5	17.3	0.209	51.6	20.3	7.2	16.9	0.199	49.2	16.8	7.5	17.1	0.191	48.9	17.3	7.2	18.2	0.189

AVERAGE AIR QUALITY REPORT (BUFFER ZONE)

Month	Tankura Village					Mitralgara Village					Kitabeda Village					Bajira 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 21	58.7	18.4	8.7	13.1	0.228	52.3	17.4	8.3	15.9	0.223	54.4	18.0	10.5	17.9	0.287	49.3	17.5	8.7	16.9	0.210
May 21	55.1	15.9	7.2	10.6	0.203	49.9	17.6	6.7	13.3	0.204	51.4	16.8	8.0	15.5	0.238	50.1	16.5	7.3	17.1	0.210
Jun 21	55.4	16.8	6.4	8.9	0.196	52.7	17.2	7.0	13.9	0.191	50.5	15.6	7.5	16.3	0.228	50.0	16.9	7.2	16.4	0.200
Jul 21	50.1	15.8	6.1	7.9	0.199	49.5	15.3	6.3	12.4	0.178	47.4	16.0	8.2	17.3	0.185	50.1	15.9	6.9	16.1	0.194
Aug 21	46.0	15.2	6.7	8.7	0.173	49.5	16.0	6.7	13.2	0.197	45.6	15.1	7.5	15.7	0.189	50.0	16.0	7.9	15.3	0.177
Sep 21	49.2	16.9	7.1	9.2	0.187	51.0	17.1	6.6	12.2	0.190	49.7	15.5	7.0	14.3	0.175	51.3	15.8	7.9	16.0	0.184

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


Manager (Environment)

**Ground Water level details for Pre-Monsoon (May) & Monsoon (August)
Noamundi Iron Mine, M/s Tata Steel Limited**

**Standard condition clause no. III Water quality monitoring & Preservation, sub-clause
point no.3 of EC vide no. J-11015/104/2011-IA.II (M), 06th September 2021.**

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

Noamundi 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

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 May 2021 and August 2021 are as follows:

Sl. No.	Location	Month	
		May 2021	August 2021
Existing Dug Well Locations:			
1.	Mohudi Railway Station, Kash Moudi Inside Home	2.12 m	1.98 m
2.	Noamundi Basti, Near Football field	6.42 m	5.86 m
3.	Near Plant Site, In front of Bottom Bin back Gate	3.58 m	2.50 m
4.	Serbil	6.47 m	4.89 m
6.	Mohudi Village exit	1.57 m	1.32 m
7.	Mohudi Village near road	7.92 m	6.89 m
8.	Kash Mohudi Railway Station (Near road)	1.42 m	1.2 m
9.	Natho Sahi (near pond)	1.98 m	1.48 m
10.	Natho Sahi (on the road to Matia home)	1.54 m	1.30 m
11.	Noamundi Basti (inside house)	1.94 m	1.80 m
12.	Noamundi Basti (near pond)	1.62 m	1.52 m
New Dug Well Locations:			
13.	Natho Sahi (near Rain water harvesting)	1.54 m	1.40 m
14.	College Road	2.55 m	2.35 m
15.	Noamundi Bazar (In front of Petrol Pump)	3.27 m	3 m
16.	Lakhansahi (Near Manish House)	11.17 m	10.65 m
Newly Constructed Piezometer Locations:			
17.	New Township, Near DAV School, Noamundi	23.5 m	22.4 m
18.	Balijharan, Near Aqua Park, Noamundi	24.8 m	21.5 m
19.	Jojo Camp Security Gate, Noamundi	7.90 m	6.5 m
20.	Bottom bin near well	1.8 m	1.3 m
21.	Bore well near power house	16.30 m	16 m



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TEST REPORT

Test Report No. : ALPL/26052021/3-3

dated 26/05/2021

Page 1 of 3

Issued To : M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-54/60-13	Analysis Start 20/05/2021
		Inward Date 19/05/2021	Analysis End 26/05/2021
		Reference W.O.- 3000132460/962	
		Reference Date 15.05.2020	Sample Category Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code GW 1	Location Co-ordinates Lat: 22°9'30 46"N, Long: 85°28'53.38"E
			Quantity Received 2.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 15/05/2021	Sampling Time 10.30 am to 5.30 pm
			Sampling Location Noamundi Basti (Nr. Play Ground)

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	7.37 at 25°C
3	Turbidity	NTU	IS 3025 (Part 10) : 1984	.1	5	0.5
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	234
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	48.57
12	Total Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	122
13	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	146.52
14	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	34.14
15	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	14.17
16	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	15.81
17	Nitrate (as NO ₃)	mg/l	APHA Method 23 rd Edition	45	No relaxation	7.25
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)

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Verified By

Swati Shrivastava
Technical Manager

Authorized Signatories

Pooja Kathane
Technical Manager

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

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TEST REPORT

Test Report No. : ALPL/26052021/3-3

dated 26/05/2021

Page 2 of 3


Issued To : M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-54/60-13	Analysis Start 20/05/2021
		Inward Date 19/05/2021	Analysis End 26/05/2021
		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-1	Location Co-ordinates Lat: 22°9'30.46"N, Long: 85°28'53.38"E
			Quantity Received 2.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 15/05/2021	Sampling Time 10.30 am to 5.30 pm
			Sampling Location Noamundi Basti (Nr. Play Ground)

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	0.09
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	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


Shashikant Satdeve
Sr. Chemist


Sonali Gharpure
Technical Manager

Authorized Signatory


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

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TEST REPORT

Test Report No. : ALPL/26052021/3-3		dated 26/05/2021		Page 3 of 3	
Issued To : M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-54/60-13 Inward Date 19/05/2021 Reference W.O.- 3000132460/962 Reference Date 15.05.2020		Analysis Start 20/05/2021 Analysis End 26/05/2021 Sample Category Water	
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-1	Location Co-ordinates Lat: 22°9'30.46"N, Long: 85°28'53.38"E		Quantity Received 2.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 15/05/2021	Sampling Time 10.30 am to 5.30 pm	Sampling Location Noamundi Basti (Nr. Play Ground)	

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	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	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

Sonali Gharpure
Technical Manager

Authorized Signatory

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

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TEST REPORT

Test Report No. : ALPL/26052021/3-4

dated 26/05/2021

Page 1 of 3

Issued To : M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-54/60-14	Analysis Start 20/05/2021
		Inward Date 19/05/2021	Analysis End 26/05/2021
		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	Location Co-ordinates Lat: 22°9'25.41"N, Long: 85°30'21.34"E
			Quantity Received 2.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 15/05/2021	Sampling Time 10.30 am to 5.30 pm
			Sampling Location Noamundi Bazar (Nr. Petrol Pump)

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	7.45 at 25°C
3	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.6
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	244
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	34.97
12	Total Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	128
13	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	134.64
14	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	32.59
15	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	12.28
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	8.13
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)

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Verified By

 Swati Shrivastava
 Technical Manager

Authorized Signatory

 Pooja Kathane
 Technical Manager

Authorized Signatory

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

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TEST REPORT


Test Report No. : ALPL/26052021/3-4		dated 26/05/2021		Page 2 of 3	
Issued To : M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No.	2021/MON-54/60-14	Analysis Start	20/05/2021
		Inward Date	19/05/2021	Analysis End	26/05/2021
		Reference	W.O.- 3000132460/962	Sample Category	Water
		Reference Date	15.05.2020		
Sample Name	Sample Source	Sample Particulars	Location Co-ordinates	Quantity Received	
Ground Water	Dugwell	Sample Code-GW-2	Lat: 22°9'25.41"N, Long: 85°30'21.34"E	2.0 ltr & 250 ml	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date	Sampling Time	Sampling Location	
		15/05/2021	10.30 am to 5.30 pm	Noamundi Bazar (Nr. Petrol Pump)	

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	0.17
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	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


Shushikant Satdeve
Sr. Chemist


Sonali Gharpure
Technical Manager

Authorized Signatory


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

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

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TEST REPORT

Test Report No. : ALPL/26052021/3-4

dated 26/05/2021

Page 3 of 3

Issued To : M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-54/60-14	Analysis Start 20/05/2021
		Inward Date 19/05/2021	Analysis End 26/05/2021
		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	Location Co-ordinates Lat: 22°9'25.41"N, Long: 85°30'21.34"E
			Quantity Received 2.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 15/05/2021	Sampling Time 10.30 am to 5.30 pm
			Sampling Location Noamundi Bazar (Nr. Petrol Pump)

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	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	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

Sonali Gharpure
Technical Manager

Authorized Signatory

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

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

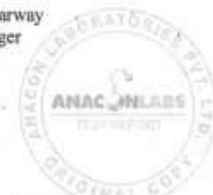
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TEST REPORT

Test Report No. : ALPL/26052021/3-5

dated 26/05/2021

Page 1 of 3

M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-54/60-15 Inward Date 19/05/2021 Reference W.O.- 3000132460/962 Reference Date 15.05.2020	Analysis Start 20/05/2021 Analysis End 26/05/2021 Sample Category Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-3	Location Co-ordinates Lat: 22°8'54.89"N, Long: 85°31'8.03"E
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 15/05/2021	Quantity Received 2.0 Ltr & 250 ml
		Sampling Time 10.30 am to 5.30 pm	Sampling Location Mahudi Village (Railway Station Road)

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 1.Water						
1	<i>Escherichia coli</i>	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II Chemical Testing 1.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	0.5
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	240
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	40.79
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	166.32
14	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	47.34
15	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	10.86
16	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	15.81
17	Nitrate (as NO ₃)	mg/l	APHA Method 23 rd Edition	45	No relaxation	6.51
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)

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Verified By


Swati Shrivastava
Technical Manager

Authorized Signatories


Pooja Kathane
Technical Manager


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

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TEST REPORT

Test Report No. : ALPL/26052021/3-5

dated 26/05/2021

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M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-54/60-15	Analysis Start 20/05/2021
		Inward Date 19/05/2021	Analysis End 26/05/2021
		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-3	Location Co-ordinates Lat: 22°8'54 89"N, Long: 85°31' 8 03"E
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 15/05/2021	Quantity Received 20 Lit & 250 ml
		Sampling Time 10.30 am to 5.30 pm	Sampling Location Mahudi Village (Railway Station Road)

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	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


Shashikant Satdeve
Sr. Chemist


Sonali Gharpure
Technical Manager

Authorized Signatory


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

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TEST REPORT

Test Report No. : ALPL/26052021/3-5

dated 26/05/2021

Page 3 of 3

M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217	Sample Inward No.	2021/MON-54/60-15	Analysis Start	20/05/2021
	Inward Date	19/05/2021	Analysis End	26/05/2021.
	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-3	Location Co ordinates Lat: 22°8'54.89"N, Long: 85°31'8.03"E	Quantity Received 2.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 15/05/2021	Sampling Time 10.30 am to 5.30 pm	Sampling Location Mahudi Village (Railway Station Road)

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	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	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


Sonali Gharpure
Technical Manager

Authorized Signatory


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

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TEST REPORT

Test Report No. : ALPL/26052021/3-6

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Page 1 of 3

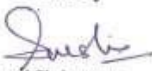
M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-54/60-16	Analysis Start 20/05/2021
		Inward Date 19/05/2021	Analysis End 26/05/2021
		Reference W.O.- 3000132460/962	Sample Category Water
		Reference Date 15 05 2020	
Sample Name (ground Water)	Sample Source (Dugwell)	Sample Particulars Sample Code-GW-4	Location Co-ordinates Lat: 22°8'52 58"N, Long: 85°30'28 50"E
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 15/05/2021	Quantity Received 2.0 Ltr & 250 ml
		Sampling Time 10.30 am to 5.30 pm	Sampling Location Bottom Bin (Nr Barrack)

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	
I Biological Testing - 1.Water						
1	<i>Escherichia coli</i>	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II Chemical Testing - 1.Water						
2	pH value	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.36 at 25°C
3	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.5
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	266
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	44.68
12	Total Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	162
13	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	156.42
14	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	44.23
15	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	10.39
16	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	11.92
17	Nitrate (as NO ₃)	mg/l	APHA Method 23 rd Edition	45	No relaxation	7.60
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)

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Verified By


Swati Shrivastava
Technical Manager

Authorized Signatories


Pooja Kathane
Technical Manager


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

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

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TEST REPORT

Test Report No. : ALPL/26052021/3-6

dated 26/05/2021

Page 2 of 3

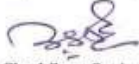
M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-54/60-16	Analysis Start 20/05/2021
		Inward Date 19/05/2021	Analysis End 26/05/2021
		Reference W.O.- 3000132460/962	Sample Category Water
		Reference Date 15.05.2020	
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-4	Location Co-ordinates Lat. 22°8'52.58"N, Long. 85°30'28.50"E
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 15/05/2021	Quantity Received 2.0 Lt & 250 ml
		Sampling Time 10.30 am to 5.30 pm	Sampling Location Bottom Bin (Nr. Barrack)

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 ^o	
II	Chemical Testing					
	2. Residues In Water					
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.26
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	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)

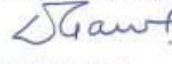
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Verified By


Shashikant Satdeve
Sr. Chemist


Sonali Gharpure
Technical Manager

Authorized Signatory


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

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TEST REPORT



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Test Report No. : ALPL/26052021/3-6

dated 26/05/2021

Page 3 of 3

M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-54/60-16	Analysis Start 20/05/2021
		Inward Date 19/05/2021	Analysis End 26/05/2021
		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-4	Location Co-ordinates Lat: 22°8'52.58"N, Long: 85°30'28.50"E
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 15/05/2021	Quantity Received 2.0 Ltr & 250 ml
		Sampling Time 10.30 am to 5.30 pm	Sampling Location Bottom Bin (Nr. Barrack)

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	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	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	Monoerophos	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

Sonali Gharpure
Technical Manager

Authorized Signatory

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

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TEST REPORT

Test Report No. : ALPL/31082021/1-27

dated 31/08/2021

Page 1 of 3

Issued To : M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-100/60-13	Analysis Start 21/08/2021
		Inward Date 20/08/2021	Analysis End 28/08/2021
		Reference W.O.- 3000132460/962	Report Issue Date 31/08/2021
		Reference Date 15.05.2020	Sample Category Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-13	Location Co-ordinates Lat: 22°9'30.46"N, Long: 85°28'53.38"E
			Quantity Received 2.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/08/2021	Sampling Time 10.30 am to 5.30 pm
			Sampling Location Noamundi Basti (Nr. Play Ground)

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	7.32 at 25°C
3	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.6
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	230
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	49.29
12	Total Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	124
13	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	144
14	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	36
15	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	13.15
16	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	17.10
17	Nitrate (as NO ₃)	mg/l	APHA Method 23 rd Edition	45	No relaxation	7.44
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)

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Verified By

Roshani Thakur
Sr. Chemist

Authorized Signatories

Pooja Kathane
Technical Manager

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

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TEST REPORT

Test Report No. : ALPL/31082021/1-27		dated 31/08/2021		Page 2 of 3	
Issued To : M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-100/60-13 Inward Date 20/08/2021 Reference W.O.- 3000132460/962 Reference Date 15.05.2020		Analysis Start 21/08/2021 Analysis End 28/08/2021 Report Issue Date 31/08/2021 Sample Category Water	
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-13	Location Co-ordinates Lat: 22°9'30.46"N, Long: 85°28'53.38"E		Quantity Received 2.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/08/2021	Sampling Time 10.30 am to 5.30 pm	Sampling Location Noamundi Basti (Nr. Play Ground)	

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	0.17
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	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

Shashikant Satdeve
Sr. Chemist

Sonali Gharpure
Technical Manager

Authorized Signatory

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Quality Manager

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TEST REPORT

Test Report No. : ALPL/31082021/1-27

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Page 3 of 3

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Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-13	Location Co-ordinates Lat: 22°9'30.46"N, Long: 85°28'53.38"E	Quantity Received 2.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/08/2021	Sampling Time 10.30 am to 5.30 pm	Sampling Location Noamundi Basti (Nr. Play Ground)

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	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	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	Ph: rate	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

Sonali Gharpure
Technical Manager

Authorized Signatory

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

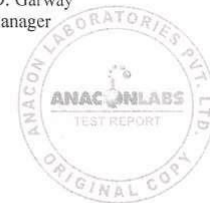
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TEST REPORT

Test Report No. : ALPL/31082021/1-28

dated 31/08/2021

Page 1 of 3


Issued To : M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-100/60-14	Analysis Start 21/08/2021
		Inward Date 20/08/2021	Analysis End 28/08/2021
		Reference W.O.- 3000132460/962	Report Issue Date 31/08/2021
		Reference Date 15.05.2020	Sample Category Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-14	Location Co-ordinates Lat: 22°9'25.41"N, Long: 85°30'21.34"E
			Quantity Received 2.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/08/2021	Sampling Time 10.30 am to 5.30 pm
Sampling Location Noamundi Bazar (Nr. Petrol Pump)			

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 1.Water					
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	Chemical Testing 1.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	0.4
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	240
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	35.89
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	131.4
14	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	33.84
15	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	11.39
16	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	9.07
17	Nitrate (as NO ₃)	mg/l	APHA Method 23 rd Edition	45	No relaxation	8.29
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)

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Verified By


Roshani Thakur
Sr. Chemist

Authorized Signatories


Pooja Kathane
Technical Manager


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

Laboratory address : FP-34, 35, Food Park, 5 Star Industrial Estate, MIDC Butibori, Nagpur - 441.122.

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TEST REPORT

Test Report No. : ALPL/31082021/1-28		dated 31/08/2021		Page 2 of 3	
Issued To : M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No.	2021/MON-100/60-14	Analysis Start	21/08/2021
		Inward Date	20/08/2021	Analysis End	28/08/2021
		Reference	W.O.- 3000132460/962	Report Issue Date	31/08/2021
		Reference Date	15.05.2020	Sample Category	Water
Sample Name	Sample Source	Sample Particulars	Location Co-ordinates	Quantity Received	
Ground Water	Dugwell	Sample Code-GW-14	Lat: 22°9'25.41"N, Long: 85°30'21.34"E	2.0 Ltr & 250 ml	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date	Sampling Time	Sampling Location	
		17/08/2021	10.30 am to 5.30 pm	Noamundi Bazar (Nr. Petrol Pump)	

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)	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


Shashikant Satdeve
Sr. Chemist


Sonali Gharpure
Technical Manager

Authorized Signatory


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

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TEST REPORT

Test Report No. : ALPL/31082021/1-28		dated 31/08/2021		Page 3 of 3	
Issued To : M/s Noa.undi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-100/60-14 Inward Date 20/08/2021 Reference W.O.- 3000132460/962 Reference Date 15.05.2020		Analysis Start 21/08/2021 Analysis End 28/08/2021 Report Issue Date 31/08/2021 Sample Category Water	
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-14	Location Co-ordinates Lat: 22°9'25.41"N, Long: 85°30'21.34"E		Quantity Received 2.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/08/2021	Sampling Time 10.30 am to 5.30 pm	Sampling Location Noamundi Bazar (Nr. Petrol Pump)	

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	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	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


Sonali Gharpure
Technical Manager

Authorized Signatory


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

----End of Report----

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TEST REPORT

Test Report No. : ALPL/31082021/1-29

dated 31/08/2021

Page 1 of 3

M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-100/60-15	Analysis Start 21/08/2021
		Inward Date 20/08/2021	Analysis End 28/08/2021
		Reference W.O.- 3000132460/962	Report Issue Date 31/08/2021
		Reference Date 15.05.2020	Sample Category Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-15	Location Co-ordinates Lat: 22°8'54.89"N, Long: 85°31'8.03"E
			Quantity Received 2.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/08/2021	Sampling Time 10.30 am to 5.30 pm
			Sampling Location Mahudi Village (Railway Station Road)

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	7.44 at 25°C
3	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.6
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	244
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	41.63
12	Total Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	136
13	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	158.4
14	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	44.64
15	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	11.39
16	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	15.03
17	Nitrate (as NO ₃)	mg/l	APHA Method 23 rd Edition	45	No relaxation	6.81
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)

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Verified By

Roshani Thakur

Roshani Thakur
Sr. Chemist

Authorized Signatories

Pooja Kathare
Pooja Kathare
Technical Manager

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

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TEST REPORT

Test Report No. : ALPL/31082021/1-29

dated 31/08/2021

Page 2 of 3


M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-100/60-15	Analysis Start 21/08/2021
		Inward Date 20/08/2021	Analysis End 28/08/2021
		Reference W.O.- 3000132460/962	Report Issue Date 31/08/2021
		Reference Date 15.05.2020	Sample Category Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-15	Location Co-ordinates Lat: 22°8'54.89"N, Long: 85°31'8.03"E
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/08/2021	Quantity Received 2.0 Ltr & 250 ml
		Sampling Time 10.30 am to 5.30 pm	Sampling Location Mahudi Village (Railway Station Road)

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	0.17
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	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


Shashikant Satdeve
Sr. Chemist


Sonali Gharpure
Technical Manager

Authorized Signatory


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

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TEST REPORT

Test Report No. : ALPL/31082021/1-29

dated 31/08/2021

Page 3 of 3

M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-100/60-15	Analysis Start 21/08/2021
		Inward Date 20/08/2021	Analysis End 28/08/2021
		Reference W.O.- 3000132460/962	Report Issue Date 31/08/2021
		Reference Date 15.05.2020	Sample Category Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-15	Location Co-ordinates Lat: 22°8'54.89"N, Long: 85°31'8.03"E
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/08/2021	Quantity Received 2.0 Ltr & 250 ml
		Sampling Time 10.30 am to 5.30 pm	Sampling Location Mahudi Village (Railway Station Road)

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	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	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

Sonali Gharpure
Technical Manager

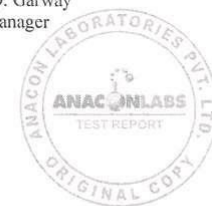
Authorized Signatory

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

---End of Report---

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TEST REPORT

Test Report No. : ALPL/31082021/1-30

dated 31/08/2021

Page 1 of 3

M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-100/60-16	Analysis Start 21/08/2021
		Inward Date 20/08/2021	Analysis End 28/08/2021
		Reference W.O.- 3000132460/962	Report Issue Date 31/08/2021
		Reference Date 15.05.2020	Sample Category Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-16	Location Co-ordinates Lat: 22°8'52.58"N, Long: 85°30'28.50"E
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/08/2021	Quantity Received 2.0 Ltr & 250 ml
		Sampling Time 10.30 am to 5.30 pm	Sampling Location Bottom Bin (Nr. Barrack)

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	7.40 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	268
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	45.46
12	Total Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	164
13	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	160.2
14	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	46.08
15	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	10.96
16	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	12.44
17	Nitrate (as NO ₃)	mg/l	APHA Method 23 rd Edition	45	No relaxation	7.91
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)

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Verified By

Roshani Thakur
Sr. Chemist

Authorized Signatories

Pooja Kathane
Technical Manager

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

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

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

TEST REPORT

Test Report No. : ALPL/31082021/1-30		dated 31/08/2021		Page 2 of 3	
M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No.	2021/MON-100/60-16	Analysis Start	21/08/2021
		Inward Date	20/08/2021	Analysis End	28/08/2021
		Reference	W.O.- 3000132460/962	Report Issue Date	31/08/2021
		Reference Date	15.05.2020	Sample Category	Water
Sample Name	Sample Source	Sample Particulars	Location Co-ordinates	Quantity Received	
Ground Water	Dugwell	Sample Code-GW-16	Lat: 22°8'52.58"N, Long: 85°30'28.50"E	2.0 Ltr & 250 ml	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date	17/08/2021	Sampling Time	10.30 am to 5.30 pm
				Sampling Location Bottom Bin (Nr. Barrack)	

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	0.23
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	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


Shashikant Satdeve
Sr. Chemist


Sonali Gharpure
Technical Manager

Authorized Signatory


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

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TEST REPORT

Test Report No. : ALPL/31082021/1-30

dated 31/08/2021

Page 3 of 3

M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217	Sample Inward No. 2021/MON-100/60-16 Inward Date 20/08/2021 Reference W.O.- 3000132460/962 Reference Date 15.05.2020	Analysis Start 21/08/2021 Analysis End 28/08/2021 Report Issue Date 31/08/2021 Sample Category Water		
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-16	Location Co-ordinates Lat: 22°8'52.58"N, Long: 85°30'28.50"E	Quantity Received 2.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/08/2021	Sampling Time 10.30 am to 5.30 pm	Sampling Location Bottom Bin (Nr. Barrack)

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	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	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

Sonali Gharpure
Technical Manager

Authorized Signatory

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

---End of Report---

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TEST REPORT

Test Report No. : ALPL/26052021/3-7

dated 26/05/2021

Page 1 of 1

Issued To : M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-54/60-4 & 5	Analysis Start 20/05/2021
		Inward Date 19/05/2021	Analysis End 26/05/2021
		Reference W.O.- 3000132460/962	
		Reference Date 15.05.2020	Sample Category Water
Sample Name Surface Water	Sample Source Balijhorn Nallah	Sample Particulars Sample Code SW 1 & 2	Location Coordinate SW-1 Lat. 22°8'59.1"N, Long. 85°29'37.62"E SW-2 Lat: 22°9'35.88"N; Long: 85°29'49.87"E
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 15/05/2021	Sampling Time 11:20 am to 2 pm
		Sampling Location Balijhore Nallah (SW-1; Nr. Aqua Park) 2. (SW-2; Nr. DVC)	
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	<2	<2
II	Chemical Testing 1. Water					
2	pH value	-	IS 3025 (Part 11) : 1983	6.0 to 9.0	7.45 at 25°C	7.47 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4) : 1983	300	1	1
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) : 1989	4.0	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	3.0	BDL(DL-2)	BDL(DL-2)
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) : 2006	--	BDL(DL-4)	BDL(DL-4)
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	1500	206	224
9	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	1.5	BDL(DL-0.03)	BDL(DL-0.03)
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	600	57.31	59.25
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	400	7.52	8.03
12	Nitrate (as NO ₃)	mg/l	IS 3025 (Part 34) : 1988	50	6.74	5.78
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.23	0.40
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	BDL(DL-0.005)	BDL(DL-0.005)
15	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43) : 1001	0.005	BDL(DL-0.001)	BDL(DL-0.001)
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	1.0	BDL(DL-0.01)	BDL(DL-0.01)
	Chemical Testing 2. Residues In Water					
17	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.5	0.13	0.17
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41) : 1992	0.01	BDL(DL-0.001)	BDL(DL-0.001)
19	Selenium (as Se)	mg/l	IS 3025 (Part 2) : 2019	0.05	BDL(DL-0.001)	BDL(DL-0.001)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.2	BDL(DL-0.001)	BDL(DL-0.001)
21	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.05)	BDL(DL-0.05)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	15	BDL(DL-0.05)	BDL(DL-0.05)
23	Hexa Chromium (as Cr ⁶⁺)	mg/l	IS 3025 (Part 2) : 2019	0.05	BDL(DL-0.001)	BDL(DL-0.001)
24	Mercury (as Hg)	mg/l	IS : 3025 (Part 48) : 1994	--	BDL(DL-0.005)	BDL(DL-0.005)
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

Swati Shrivastava
Technical Manager

Shashikant Satdeve
Sr. Chemist

Authorized Signatories

Pooja Kathane
Technical Manager

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

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Test Report No. : ALPL/31082021/ 1-36

dated 31/08/2021

Page 1 of 1

Issued To : M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-100/60-16&17	Analysis Start 21/08/2021
		Inward Date 20/08/2021	Analysis End 28/08/2021
		Reference W.O.- 3000132460/962	Report Issue Date 31/08/2021
		Reference Date 15.05.2020	Sample Category Water
Sample Name Surface Water	Sample Source 1.Balijhore Nallah Upstream (SW-1) 2.Balijhore Nallah Downstream (SW-2)	Sample Particulars Sample Code-SW-16 & 17	Sample Condition Sealed & Ice Preserved
			Quantity Received 2.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 17/08/2021	Sampling Time 11.20 am to 2 pm
		Sampling Location 1.Balijhore Nallah Upstream (SW-1) 2. Downstream (SW-2)	

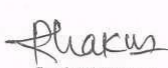
TEST RESULTS


S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 2296:1992 Class C	Test Result	
					SW-1	SW-2
1 Biological Testing I.Water						
1	Total Coliform	MPN/100ml	IS 1622 : 1981	5000	<2	<2
ii Chemical Testing I.Water						
2	pH value	-	IS 3025 (Part 11) : 1983	6.0 to 9.0	7.67 at 25°C	7.62 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4) : 1983	300	1	1
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) : 1989	4.0	5.8	6.1
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) : 1984	--	BDL(DL-10)	BDL(DL-10)
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) : 1993	3.0	BDL(DL-2)	BDL(DL-2)
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) : 2006	--	BDL(DL-4)	BDL(DL-4)
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	1500	249	251
9	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	1.5	BDL(DL-0.03)	BDL(DL-0.03)
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	600	41.59	57.28
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	400	11.26	8.19
12	Nitrate (as NO ₃)	mg/l	IS 3025 (Part 34) : 1988	50	5.82	4.16
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.32	0.36
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	BDL(DL-0.005)	BDL(DL-0.005)
15	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43) : 1001	0.005	BDL(DL-0.001)	BDL(DL-0.001)
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	1.0	BDL(DL-0.01)	BDL(DL-0.01)
Chemical Testing 2. Residues In Water						
17	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.5	0.18	0.14
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41) : 1992	0.01	BDL(DL-0.001)	BDL(DL-0.001)
19	Selenium (as Se)	mg/l	IS 3025 (Part 2) : 2019	0.05	BDL(DL-0.001)	BDL(DL-0.001)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.2	BDL(DL-0.001)	BDL(DL-0.001)
21	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.05)	BDL(DL-0.05)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	15	BDL(DL-0.05)	BDL(DL-0.05)
23	Hexa Chromium (as Cr ¹⁶)	mg/l	IS 3025 (Part 2) : 2019	1.0	BDL(DL-0.001)	BDL(DL-0.001)
24	Mercury (as Hg)	mg/l	IS : 3025 (Part 48) : 1994	--	BDL(DL-0.005)	BDL(DL-0.005)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	--	BDL(DL-0.05)	BDL(DL-0.05)

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Verified By


Roshani Thakur
Sr. Chemist


Shashikant Satdeve
Sr. Chemist

Authorized Signatories


Pooja Kathane
Technical Manager


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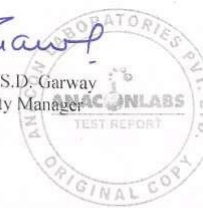
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TEST REPORT

Test Report No. : ALPL/22062021/1-3A

dated 22/06/2021

Page 1 of 3

Issued To : M/s Noamundi Iron Mine (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-66/24-11&12	Analysis Start 14/06/2021
		Inward Date 14/06/2021	Analysis End 21/06/2021
		Reference W.O.- 3000132460/962	Sample Category Waste Water
		Reference Date 15.05.2020	
Sample Name Sewage Water	Sample Source New Town Ship STP 50 KLD Inlet & Outlet	Sample Particulars Sample Code-WW-11 & 12	Sample Condition Sealed & Ice Preserved
			Quantity Received 5.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 10/06/2021	Sampling Time 11.20 am to 4.30 pm
			Sampling Location New Town Ship STP 50 KLD Inlet & Outlet

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards (In Land Surface Water)	Test Result	
					Inlet	Outlet
I	Chemical Testing 1.Water					
1	pH value	-	IS 3025 (Part 11) : 1983	5.5 to 9.0	6.56 at 25°C	7.21 at 25°C
2	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	10	BDL(DL-4)	BDL(DL-4)
3	Total Suspended Solid (TSS)	mg/l	IS 3025 (Part 17) : 1984	100	138	30
4	Ammonical Nitrogen (as N)	mg/l	IS 3025 (Part 34) :1988	50	7.73	4.65
5	Total Kjeldahl Nitrogen (as N)	mg/l	IS 3025 (Part 34) : 1988	100	18.48	9.8
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) :1993	30	54.0	10.05
7	Chemical Oxygen Demand	mg/l	IS 3025 (Part 58) :2006	250	176.4	32.4
8	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.2	BDL(DL-0.1)	BDL(DL-0.1)
9	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43) : 1992	1.0	BDL(DL-0.1)	BDL(DL-0.1)

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Verified By

Roshani Thakur
Sr. Chemist

Authorized Signatory

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

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TEST REPORT

Test Report No. : ALPL/22062021/1-3A

dated 22/06/2021

Page 2 of 3

Issued To : M/s Noamundi Iron Mine (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-66/24-11&12 Inward Date 14/06/2021 Reference W.O.- 3000132460/962 Reference Date 15.05.2020	Analysis Start 14/06/2021 Analysis End 21/06/2021 Sample Category Waste Water	
Sample Name Sewage Water	Sample Source New Town Ship STP 50 KLD Inlet & Outlet	Sample Particulars Sample Code-WW-11 & 12	Sample Condition Sealed & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 10/06/2021	Sampling Time 11.20 am to 4.30 pm	Sampling Location New Town Ship STP 50 KLD Inlet & Outlet

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards (In Land Surface Water)	Test Result	
					Inlet	Outlet
II	Chemical Testing 2. Residues In Water					
10	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	3.0	0.17	0.16
11	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	3.0	BDL(DL-5)	BDL(DL-5)
12	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	2.0	BDL(DL-0.1)	BDL(DL-0.1)
13	Mercury (as Hg)	mg/l	IS : 3025 (Part 48) : 1994	0.01	BDL(DL-0.01)	BDL(DL-0.01)
14	Cadmium (as Cd)	mg/l	IS : 3025 (Part 41) : 1992	2.0	BDL(DL-0.1)	BDL(DL-0.1)
15	Selenium (as Se)	mg/l	IS : 3025 (Part 56)	0.05	BDL(DL-0.1)	BDL(DL-0.1)
16	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.1)	BDL(DL-0.1)
17	Arsenic (as As)	mg/l	IS : 3025 (Part 37) : 1988	0.2	BDL(DL-0.05)	BDL(DL-0.05)
18	Nickel (as Ni)	mg/l	IS:13428 : 2005(Annexure L)	3.0	BDL(DL-0.1)	BDL(DL-0.1)
19	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5.0	BDL(DL-5)	BDL(DL-5)
20	Total Chromium	mg/l	IS 3025 (Part 2) : 2019	2.0	BDL(DL-0.1)	BDL(DL-0.1)
21	Vanadium (as V)	mg/l	IS 3025 (Part 2) : 2019	0.2	BDL(DL-0.1)	BDL(DL-0.1)

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

Verified By


Shashikant Satdeve
Sr. Chemist

Authorized Signatory


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

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Test Report No. : ALPL/22062021/1-3B		dated 22/06/2021		Page 3 of 3	
Issued To : M/s Noamundi Iron Mine (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-66/24-11&12 Inward Date 14/06/2021 Reference W.O.- 3000132460/962 Reference Date 15.05.2020		Analysis Start 14/06/2021 Analysis End 21/06/2021 Sample Category Waste Water	
Sample Name Sewage Water	Sample Source New Town Ship STP 50 KLD Inlet & Outlet	Sample Particulars Sample Code-WW-11 & 12		Sample Condition Sealed & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 10/06/2021	Sampling Time 11.20 am to 4.30 pm	Sampling Location New Town Ship STP 50 KLD Inlet & Outlet	


TEST RESULTS


S.N.	Test Parameter	Measurement Unit	Test Method	Standards (In Land Surface Water)	Test Result	
					Inlet	Outlet
I Biological Testing 1.Water						
1	Faecal coliform	MPN/100 ml	IS 1622 : 1981	--	148	94
I Chemical Testing 1.Water						
2	Colour	Hazen units	IS 3025 (Part 4) : 1983	Colourless	2	0 (Colourless)
3	Oodour	-	IS 3025 (Part 5) : 2018	Odourless	Disagreeable	Agreeable
4	Temperature	°C	APHA Method	Shall not exceed 5°C above the receiving water temperature	25°C	25°C
5	Free residual chlorine	mg/l	IS 3025 (Part 26) : 1986	1.0	BDL(DL-0.1)	BDL(DL-0.1)
6	Particulate size of SS		Gravimetric Method	Shall pass 850 micron IS Sieve	<850	<850
7	Free Ammonia (as NH ₃)	mg/l	APHA Method	5	BDL(DL-0.1)	BDL(DL-0.1)
8	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	2.0	0.47	BDL(DL-0.1)
9	Sulphide (as S)	mg/l	IS 3025 (Part 29) : 1986	2.0	BDL(DL-0.03)	BDL(DL-0.03)
10	Nitrate Nitrogen	mg/l	APHA Method	10	8.15	BDL(DL-2)
11	Bio Assay Test	%	APHA 22nd Edition	90% Survival of fish after 96 hours in 100% effluent	84%	96%
12	Hexavalent Chromium (as Cr ⁺⁶)	mg/l	IS 3025 (Part 2) : 2019	0.1	BDL(DL-0.01)	BDL(DL-0.01)
13	Dissolved Phosphate (as P)	mg/l	IS 3025 (Part 31) : 1988	5.0	BDL(DL-0.1)	BDL(DL-0.1)

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Roshani Thakur
Sr. Chemist


Shashikant Satdeve
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Technical Manager


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TEST REPORT

Test Report No. : ALPL/22062021/1-4A

dated 22/06/2021

Page 1 of 3


Issued To : M/s Noamundi Iron Mine (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-66/24-13&14 Inward Date 14/06/2021 Reference W.O.- 3000132460/962 Reference Date 15.05.2020	Analysis Start 14/06/2021 Analysis End 21/06/2021 Sample Category Waste Water
Sample Name Sewage Water	Sample Source Bottom Bin ETP 10 KLD Inlet & Outlet	Sample Particulars Sample Code-WW-13 & 14	Sample Condition Sealed & Ice Preserved Quantity Received 5.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 10/06/2021	Sampling Time 11.20 am to 4.30 pm Sampling Location Bottom Bin ETP 10 KLD Inlet & Outlet

TEST RESULTS


S.N.	Test Parameter	Measurement Unit	Test Method	Standards (In Land Surface Water)	Test Result	
					Inlet	Outlet
I	Chemical Testing 1.Water					
1	pH value	-	IS 3025 (Part 11) : 1983	5.5 to 9.0	6.42 at 25°C	7.31 at 25°C
2	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	10	BDL(DL-4)	BDL(DL-4)
3	Total Suspended Solid (TSS)	mg/l	IS 3025 (Part 17) : 1984	100	126	32
4	Ammonical Nitrogen (as N)	mg/l	IS 3025 (Part 34) : 1988	50	5.26	3.30
5	Total Kjeldahl Nitrogen (as N)	mg/l	IS 3025 (Part 34) : 1988	100	13.72	12.04
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) : 1993	30	63.0	9.75
7	Chemical Oxygen Demand	mg/l	IS 3025 (Part 58) : 2006	250	187.2	25.2
8	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.2	BDL(DL-0.1)	BDL(DL-0.1)
9	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43) : 1992	1.0	BDL(DL-0.1)	BDL(DL-0.1)

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		Inward Date 14/06/2021	Analysis End 21/06/2021
		Reference W.O.- 3000132460/962	
		Reference Date 15.05.2020	Sample Category Waste Water
Sample Name Sewage Water	Sample Source Bottom Bin ETP 10 KLD Inlet & Outlet	Sample Particulars Sample Code-WW-13 & 14	Sample Condition Sealed & Ice Preserved
			Quantity Received 5.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 10/06/2021	Sampling Time 11.20 am to 4.30 pm
			Sampling Location Bottom Bin ETP 10 KLD Inlet & Outlet

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards (In Land Surface Water)	Test Result	
					Inlet	Outlet
II	Chemical Testing					
	2. Residues In Water					
10.	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	3.0	0.16	0.13
11	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	3.0	BDL(DL-5)	BDL(DL-5)
12	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	2.0	BDL(DL-0.1)	BDL(DL-0.1)
13	Mercury (as Hg)	mg/l	IS : 3025 (Part 48) : 1994	0.01	BDL(DL-0.01)	BDL(DL-0.01)
14	Cadmium (as Cd)	mg/l	IS : 3025 (Part 41) : 1992	2.0	BDL(DL-0.1)	BDL(DL-0.1)
15	Selenium (as Se)	mg/l	IS : 3025 (Part 56)	0.05	BDL(DL-0.1)	BDL(DL-0.1)
16	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.1)	BDL(DL-0.1)
17	Arsenic (as As)	mg/l	IS : 3025 (Part 37) : 1988	0.2	BDL(DL-0.05)	BDL(DL-0.05)
18	Nickel (as Ni)	mg/l	IS:13428 : 2005(Annexure L)	3.0	BDL(DL-0.1)	BDL(DL-0.1)
19	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5.0	BDL(DL-5)	BDL(DL-5)
20	Total Chromium	mg/l	IS 3025 (Part 2) : 2019	2.0	BDL(DL-0.1)	BDL(DL-0.1)
21	Vanadium (as V)	mg/l	IS 3025 (Part 2) : 2019	0.2	BDL(DL-0.1)	BDL(DL-0.1)

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		Inward Date 14/06/2021	Analysis End 21/06/2021
		Reference W.O.- 3000132460/962	
		Reference Date 15.05.2020	Sample Category Waste Water
Sample Name Sewage Water	Sample Source Bottom Bin ETP 10 KLD Inlet & Outlet	Sample Particulars Sample Code-WW-13 & 14	Sample Condition Sealed & Ice Preserved
			Quantity Received 5.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 10/06/2021	Sampling Time 11.20 am to 4.30 pm
Sampling Location Bottom Bin ETP 10 KLD Inlet & Outlet			


TEST RESULTS


S.N.	Test Parameter	Measurement Unit	Test Method	Standards (In Land Surface Water)	Test Result	
					Inlet	Outlet
I	Biological Testing 1.Water					
1	Fecal coliform	MPN/100 ml	IS 1622 : 1981	--	94	70
I	Chemical Testing 1.Water					
2	Colour	Hazen units	IS 3025 (Part 4) : 1983	Colourless	2	0 (Colourless)
3	Odour	-	IS 3025 (Part 5) : 2018	Odourless	Disagreeable	Agreeable
4	Temperature	°C	APHA Method	Shall not exceed 5°C above the receiving water temperature	25°C	25°C
5	Free residual chlorine	mg/l	IS 3025 (Part 26) : 1986	1.0	BDL(DL-0.1)	BDL(DL-0.1)
6	Particulate size of SS		Gravimetric Method	Shall pass 850 micron IS Sieve	<850	<850
7	Free Ammonia (as NH ₃)	mg/l	APHA Method	5	BDL(DL-0.1)	BDL(DL-0.1)
8	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	2.0	0.66	BDL(DL-0.1)
9	Sulphide (as S)	mg/l	IS 3025 (Part 29) : 1986	2.0	BDL(DL-0.03)	BDL(DL-0.03)
10	Nitrate Nitrogen	mg/l	APHA Method	10	6.18	BDL(DL-2)
11	Bio Assay Test	%	APHA 22nd Edition	90% Survival of fish after 96 hours in 100% effluent	82%	94%
12	Hexavalent Chromium (as Cr ⁺⁶)	mg/l	IS 3025 (Part 2) : 2019	0.1	BDL(DL-0.01)	BDL(DL-0.01)
13	Dissolved Phosphate (as P)	mg/l	IS 3025 (Part 31) : 1988	5.0	BDL(DL-0.1)	BDL(DL-0.1)

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Verified By


Roshani Thakur
Sr. Chemist


Shashikant Satdeve
Sr. Chemist

Authorized Signatories


Pooja Kathane
Technical Manager


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

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TEST REPORT

Test Report No. : ALPL/22062021/1-5A

dated 22/06/2021

Page 1 of 3

Issued To : M/s Noamundi Iron Mine (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-66/24-15&16 Inward Date 14/06/2021 Reference W.O.- 3000132460/962 Reference Date 15.05.2020	Analysis Start 14/06/2021 Analysis End 21/06/2021 Sample Category Waste Water	
Sample Name Sewage Water	Sample Source Central Camp STP 50 KLD Inlet & Outlet	Sample Particulars Sample Code-WW-15 & 16	Sample Condition Sealed & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr.K. Pandey		Sampling Date 10/06/2021	Sampling Time 11.20 am to 4.30 pm	Sampling Location Central Camp STP 50 KLD Inlet & Outlet

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards (In Land Surface Water)	Test Result	
					Inlet	Outlet
I	Chemical Testing 1.Water					
1	pH value	-	IS 3025 (Part 11) : 1983	5.5 to 9.0	6.94 at 25 ^o C	6.91 at 25 ^o C
2	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	10	BDL(DL-4)	BDL(DL-4)
3	Total Suspended Solid (TSS)	mg/l	IS 3025 (Part 17) : 1984	100	60	36
4	Ammonical Nitrogen (as N)	mg/l	IS 3025 (Part 34) : 1988	50	7.73	9.24
5	Total Kjeldahl Nitrogen (as N)	mg/l	IS 3025 (Part 34) : 1988	100	23.24	12.04
6	BOD (3 days at 27 ^o C)	mg/l	IS 3025 (Part 44) : 1993	30	34.80	3
7	Chemical Oxygen Demand	mg/l	IS 3025 (Part 58) : 2006	250	104.4	10.8
8	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.2	BDL(DL-0.1)	BDL(DL-0.1)
9	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43) : 1992	1.0	BDL(DL-0.1)	BDL(DL-0.1)

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Sample Name Sewage Water	Sample Source Central Camp STP 50 KLD Inlet & Outlet	Sample Particulars Sample Code-WW-15 & 16	Sample Condition Sealed & Ice Preserved
Sample Collected By Anacon Representative Mr.K. Pandey		Sampling Date 10/06/2021	Sampling Time 11.20 am to 4.30 pm
		Quantity Received 5.0 Ltr & 250 ml	
		Sampling Location Central Camp STP 50 KLD Inlet & Outlet	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards (In Land Surface Water)	Test Result	
					Inlet	Outlet
II	Chemical Testing 2. Residues In Water					
10	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	3.0	0.24	0.19
11	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	3.0	BDL(DL-5)	BDL(DL-5)
12	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	2.0	BDL(DL-0.1)	BDL(DL-0.1)
13	Mercury (as Hg)	mg/l	IS : 3025 (Part 48) : 1994	0.01	BDL(DL-0.01)	BDL(DL-0.01)
14	Cadmium (as Cd)	mg/l	IS : 3025 (Part 41) : 1992	2.0	BDL(DL-0.1)	BDL(DL-0.1)
15	Selenium (as Se)	mg/l	IS : 3025 (Part 56)	0.05	BDL(DL-0.1)	BDL(DL-0.1)
16	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.1)	BDL(DL-0.1)
17	Arsenic (as As)	mg/l	IS : 3025 (Part 37) : 1988	0.2	BDL(DL-0.05)	BDL(DL-0.05)
18	Nickel (as Ni)	mg/l	IS:13428 : 2005(Annexure L)	3.0	BDL(DL-0.1)	BDL(DL-0.1)
19	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5.0	BDL(DL-5)	BDL(DL-5)
20	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	2.0	BDL(DL-0.1)	BDL(DL-0.1)
21	Vanadium (as V)	mg/l	IS 3025 (Part 2) : 2019	0.2	BDL(DL-0.1)	BDL(DL-0.1)

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Verified By

Shashikant Satdeve
Sr. Chemist

Authorized Signatory

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		Inward Date 14/06/2021	Analysis End 21/06/2021
		Reference W.O.- 3000132460/962	Sample Category Waste Water
		Reference Date 15.05.2020	
Sample Name Sewage Water	Sample Source Central Camp STP 50 KLD Inlet & Outlet	Sample Particulars Sample Code-WW-15 & 16	Sample Condition Sealed & Ice Preserved
			Quantity Received 5.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr.K. Pandey		Sampling Date 10/06/2021	Sampling Time 11.20 am to 4.30 pm
Sampling Location Central Camp STP 50 KLD Inlet & Outlet			


TEST RESULTS


S.N.	Test Parameter	Measurement Unit	Test Method	Standards (In Land Surface Water)	Test Result	
					Inlet	Outlet
I Biological Testing 1.Water						
1	Faecal coliform	MPN/100 ml	IS 1622 : 1981	--	109	63
I Chemical Testing 1.Water						
2	Colour	Hazen units	IS 3025 (Part 4) : 1983	Colourless	2	0 (Colourless)
3	Odour	-	IS 3025 (Part 5) : 2018	Odourless	Disagreeable	Agreeable
4	Temperature	°C	APHA Method	Shall not exceed 5°C above the receiving water temperature	25°C	25°C
5	Free residual chlorine	mg/l	IS 3025 (Part 26) : 1986	1.0	BDL(DL-0.1)	BDL(DL-0.1)
6	Particulate size of SS		Gravimetric Method	Shall pass 850 micron IS Sieve	<850	<850
7	Free Ammonia (as NH ₃)	mg/l	APHA Method	5	BDL(DL-0.1)	BDL(DL-0.1)
8	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	2.0	0.61	BDL(DL-0.1)
9	Sulphide (as S)	mg/l	IS 3025 (Part 29) : 1986	2.0	BDL(DL-0.03)	BDL(DL-0.03)
10	Nitrate Nitrogen	mg/l	APHA Method	10	5.53	BDL(DL-2)
11	Bio Assay Test	%	APHA 22nd Edition	90% Survival of fish after 96 hours in 100% effluent	80%	96%
12	Hexavalent Chromium (as Cr ⁺⁶)	mg/l	IS 3025 (Part 2) : 2019	0.1	BDL(DL-0.01)	BDL(DL-0.01)
13	Dissolved Phosphate (as P)	mg/l	IS 3025 (Part 31) : 1988	5.0	BDL(DL-0.1)	BDL(DL-0.1)

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TEST REPORT

Test Report No. : ALPL/22062021/1-6A

dated 22/06/2021

Page 1 of 3

Issued To : M/s Noamundi Iron Mine (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. : 2021/MON-66/24-17&18	Analysis Start : 14/06/2021
		Inward Date : 14/06/2021	Analysis End : 21/06/2021
		Reference : W.O.- 3000132460/962	Sample Category : Waste Water
		Reference Date : 15.05.2020	
Sample Name : Sewage Water	Sample Source : Hospital ETP 10 KLD Inlet & Outlet	Sample Particulars : Sample Code-WW-17 & 18	Sample Condition : Sealed & Ice Preserved
			Quantity Received : 5.0 Ltr & 250 ml
Sample Collected By : Anacon Representative Mr.K. Pandey		Sampling Date : 10/06/2021	Sampling Time : 11.20 am to 4.30 pm
			Sampling Location : Hospital ETP 10 KLD Inlet & Outlet

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards (In Land Surface Water)	Test Result	
					Inlet	Outlet
I	Chemical Testing 1.Water					
1	pH value	-	IS 3025 (Part 11) : 1983	5.5 to 9.0	6.48 at 25°C	6.89 at 25°C
2	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	10	BDL(DL-4)	BDL(DL-4)
3	Total Suspended Solid (TSS)	mg/l	IS 3025 (Part 17) : 1984	100	60	28
4	Ammonical Nitrogen (as N)	mg/l	IS 3025 (Part 34) :1988	50	7.89	4.59
5	Total Kjeldahl Nitrogen (as N)	mg/l	IS 3025 (Part 34) : 1988	100	26.32	8.96
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) :1993	30	40.20	8.70
7	Chemical Oxygen Demand	mg/l	IS 3025 (Part 58) :2006	250	118.8	21.6
8	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.2	BDL(DL-0.1)	BDL(DL-0.1)
9	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43) : 1992	1.0	BDL(DL-0.1)	BDL(DL-0.1)

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		Inward Date 14/06/2021	Analysis End 21/06/2021
		Reference W.O.- 3000132460/962	
		Reference Date 15.05.2020	Sample Category Waste Water
Sample Name Sewage Water	Sample Source Hospital ETP 10 KLD Inlet & Outlet	Sample Particulars Sample Code-WW-17 & 18	Sample Condition Sealed & Ice Preserved
			Quantity Received 5.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr.K. Pandey		Sampling Date 10/06/2021	Sampling Time 11.20 am to 4.30 pm
			Sampling Location Hospital ETP 10 KLD Inlet & Outlet

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards (In Land Surface Water)	Test Result	
					Inlet	Outlet
II	Chemical Testing 2. Residues In Water					
10	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	3.0	0.21	0.17
11	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	3.0	BDL(DL-5)	BDL(DL-5)
12	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	2.0	BDL(DL-0.1)	BDL(DL-0.1)
13	Mercury (as Hg)	mg/l	IS : 3025 (Part 48) : 1994	0.01	BDL(DL-0.01)	BDL(DL-0.01)
14	Cadmium (as Cd)	mg/l	IS : 3025 (Part 41) : 1992	2.0	BDL(DL-0.1)	BDL(DL-0.1)
15	Selenium (as Se)	mg/l	IS : 3025 (Part 56)	0.05	BDL(DL-0.1)	BDL(DL-0.1)
16	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.1)	BDL(DL-0.1)
17	Arsenic (as As)	mg/l	IS : 3025 (Part 37) : 1988	0.2	BDL(DL-0.05)	BDL(DL-0.05)
18	Nickel (as Ni)	mg/l	IS:13428 : 2005(Annexure L)	3.0	BDL(DL-0.1)	BDL(DL-0.1)
19	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5.0	BDL(DL-5)	BDL(DL-5)
20	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	2.0	BDL(DL-0.1)	BDL(DL-0.1)
21	Vanadium (as V)	mg/l	IS 3025 (Part 2) : 2019	0.2	BDL(DL-0.1)	BDL(DL-0.1)

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Test Report No. : ALPL/22062021/1-6B		dated 22/06/2021		Page 3 of 3	
Issued To : M/s Noamundi Iron Mine (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. 2021/MON-66/24-17&18 Inward Date 14/06/2021 Reference W.O.- 3000132460/962 Reference Date 15.05.2020		Analysis Start 14/06/2021 Analysis End 21/06/2021 Sample Category Waste Water	
Sample Name Sewage Water	Sample Source Hospital ETP 10 KLD Inlet & Outlet	Sample Particulars Sample Code-WW-17 & 18	Sample Condition Sealed & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml	
Sample Collected By Anacon Representative Mr.K. Pandey		Sampling Date 10/06/2021	Sampling Time 11.20 am to 4.30 pm	Sampling Location Hospital ETP 10 KLD Inlet & Outlet	


TEST RESULTS


S.N.	Test Parameter	Measurement Unit	Test Method	Standards (In Land Surface Water)	Test Result	
					Inlet	Outlet
I Biological Testing 1.Water						
1	Faecal coliform	MPN/100 ml	IS 1622 : 1981	--	58	31
I Chemical Testing 1.Water						
2	Colour	Hazen units	IS 3025 (Part 4) : 1983	Colourless	2	0 (Colourless)
3	Odour	-	IS 3025 (Part 5) : 2018	Odourless	Disagreeable	Agreeable
4	Temperature	°C	APHA Method	Shall not exceed 5°C above the receiving water temperature	25°C	25°C
5	Free residual chlorine	mg/l	IS 3025 (Part 26) : 1986	1.0	BDL(DL-0.1)	BDL(DL-0.1)
6	Particulate size of SS		Gravimetric Method	Shall pass 850 micron IS Sieve	<850	<850
7	Free Ammonia (as NH ₃)	mg/l	APHA Method	5	BDL(DL-0.1)	BDL(DL-0.1)
8	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	2.0	0.56	BDL(DL-0.1)
9	Sulphide (as S)	mg/l	IS 3025 (Part 29) : 1986	2.0	BDL(DL-0.03)	BDL(DL-0.03)
10	Nitrate Nitrogen	mg/l	APHA Method	10	6.11	BDL(DL-2)
11	Bio Assay Test	%	APHA 22nd Edition	90% Survival of fish after 96 hours in 100% effluent	82%	96%
12	Hexavalent Chromium (as Cr ⁺⁶)	mg/l	IS 3025 (Part 2) : 2019	0.1	BDL(DL-0.01)	BDL(DL-0.01)
13	Dissolved Phosphate (as P)	mg/l	IS 3025 (Part 31) : 1988	5.0	BDL(DL-0.1)	BDL(DL-0.1)

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

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

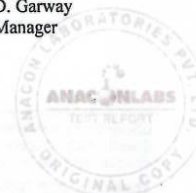
Email : support@anacon.in;

Please Visit us at : www.anaconlaboratories.com

Thanks for your faith and trust in our services. We at Anacon Laboratories cherish our relationship.

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Waveform Trigger Source
Trigger Level(s)
Trigger Level (Mic)
Pre-Trigger/Record Time
Sample Rate
Setup File Name
Operator

Tran at November 6, 2021 13:16:22
 Geo 0.500 mm/s
 Mic 6.32 pa, 110 dB(L)
 0.25 sec/10.3 sec (Auto)
 2048 sps
 Default Micromate ISEE.MMB
 Operator

Serial Number
Model Number
Battery Level
Unit Calibration
Event File Name
USB Sensor Support

UM15332
 Micromate ISEE 10.90FB
 3.8 volts
 October 5, 2021 by UES New Delhi
 UM15332_20211106131622.IDFW
 Disabled

Notes

Location
 Client
 Company
 General Notes
 TATA STEEL NIM

Post Event Notes No text to be displayed.

Geophone

Peak Particle Velocity
 Zero Crossing Frequency
 Time (Relative to Trigger)
 Peak Acceleration
 Peak Displacement
 Sensor Check
 Frequency
 Overswing Ratio

Tran	Vert	Long
0.717 mm/s	0.631 mm/s	0.315 mm/s
14.0 Hz	8.8 Hz	13.5 Hz
0.008 sec	0.403 sec	0.032 sec
0.013 g	0.012 g	0.010 g
0.011 mm	0.011 mm	0.006 mm
Passed	Passed	Passed
6.9 Hz	7.3 Hz	7.3 Hz
5.4	5.2	4.8

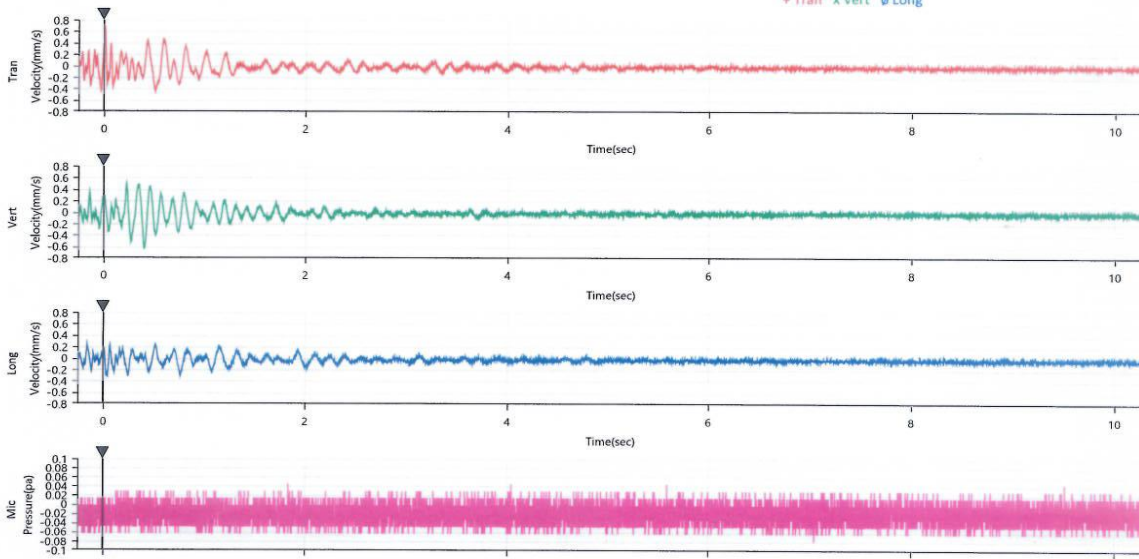
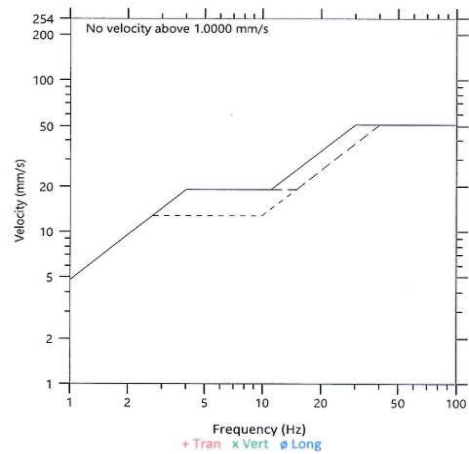
Peak Vector Sum 0.788 mm/s at 0.010 sec

ISEE Linear Microphone

Peak Sound Pressure Level
 Time (Relative to Trigger)
 Zero Crossing Frequency
 Sensor Check
 Frequency
 Test Amplitude

<0.5 pa
 7.047 sec
 >100 Hz
 Check
 0.0 Hz
 0 nv

USBM R18507 And OSMRE
 Velocity versus Frequency (Zero Crossing)





Waveform Trigger Source
Trigger Level(s)
Trigger Level (Mic)
Pre-Trigger/Record Time
Sample Rate
Setup File Name
Operator

Tran at November 6, 2021 13:16:22
Geo 0.500 mm/s
Mic 6.32 pa, 110 dB(L)
0.25 sec/10.3 sec (Auto)
2048 sps
Default Micromate ISEE.MMB
Operator

Serial Number
Model Number
Battery Level
Unit Calibration
Event File Name
USB Sensor Support

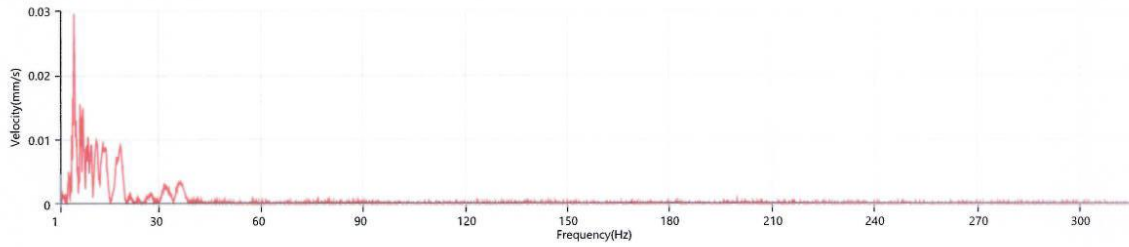
UM15332
Micromate ISEE 10.90FB
3.8 volts
October 5, 2021 by UES New Delhi
UM15332_20211106131622.IDFW
Disabled

Notes
Location
Client
Company
General Notes

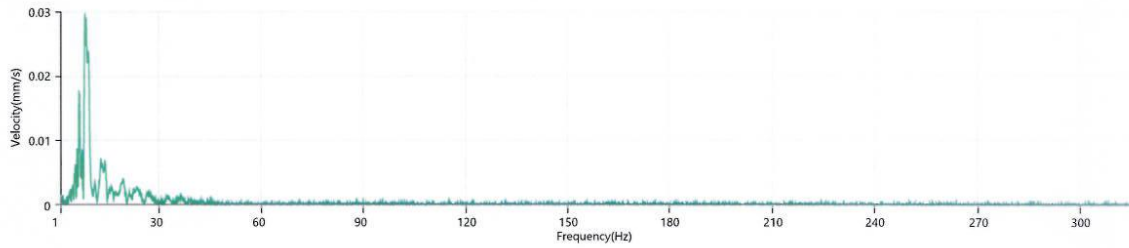
TATA STEEL NIM

Post Event Notes No text to be displayed.

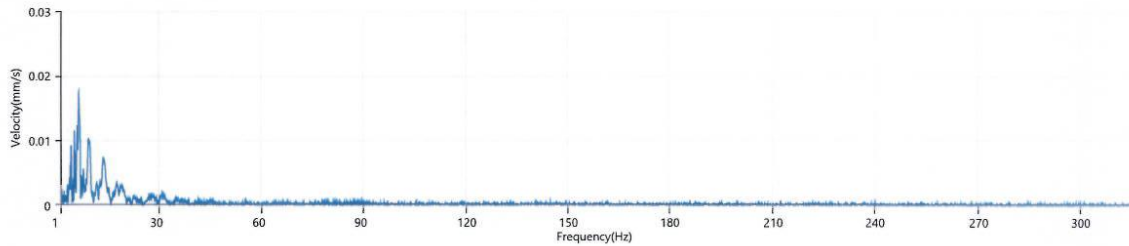
Tran - Dominant Frequency 4.9 Hz, Amplitude 0.030 mm/s (Peak Particle Velocity: 0.717 mm/s)



Vert - Dominant Frequency 8.2 Hz, Amplitude 0.030 mm/s (Peak Particle Velocity: 0.631 mm/s)



Long - Dominant Frequency 6.3 Hz, Amplitude 0.018 mm/s (Peak Particle Velocity: 0.315 mm/s)



Mic - Dominant Frequency 1.2 Hz, Amplitude 0.00 pa (Peak Sound Pressure Level: 0.08 pa)



**Office of the Principal Chief Conservator of Forests, Wildlife & Chief
Wildlife Warden, Jharkhand, Ranchi.**

Email : pccf-wildlife@gov.in Phone No. 0651-2481744

Office Order No. 28.....

Date. 28/08/2020

**Sanction to the Site Specific Wildlife Conservation Plan of Noamundi Iron mine
M/s TATA Steel Ltd.- District- West Singhbhum. (Forest Division Chaibasa)**

1. Proposed Site Specific Wildlife Conservation Plan is for Noamundi Iron Mine M/s TATA Steel Ltd located in Forest Division, West Singhbhum districts of Jharkhand. Tata Steel Limited holds the Noamundi lease over an area of 1160.06 Ha in West Singhbhum District of Jharkhand (in Chaibasa Forest Division). Proposed Site Specific Wildlife Conservation Plan has been submitted by Tata Steel Limited, Noamundi in compliance of condition no. XXXVI of MoEF, Government of India letter No. J-1 1015/104/2011-IA.II (M) dated 10.06.2013, (Annexure-1). The condition states that " The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna such as wolf, elephant, sloth bear, rhesus macaque etc. spotted in the core and buffer zone of the mine and contribute towards the cost of implementation of the plan and / or Regional Wildlife Management Plan for conservation of flora and fauna so prepared by the State Forest and Wildlife Department."

There is another order for compliance of condition no. VIII of Jharkhand State Pollution Control Board, Ranchi Memo no. PC/NOC/JSR/26/12-14-3959 dated 23.10.2013 (Annexure-2) states that, " That, the proponent shall undertake measures for conservation of flora and fauna observed in the study area. Wild life conservation plan shall be implemented in consultation with the State Forests and Wildlife Departments."

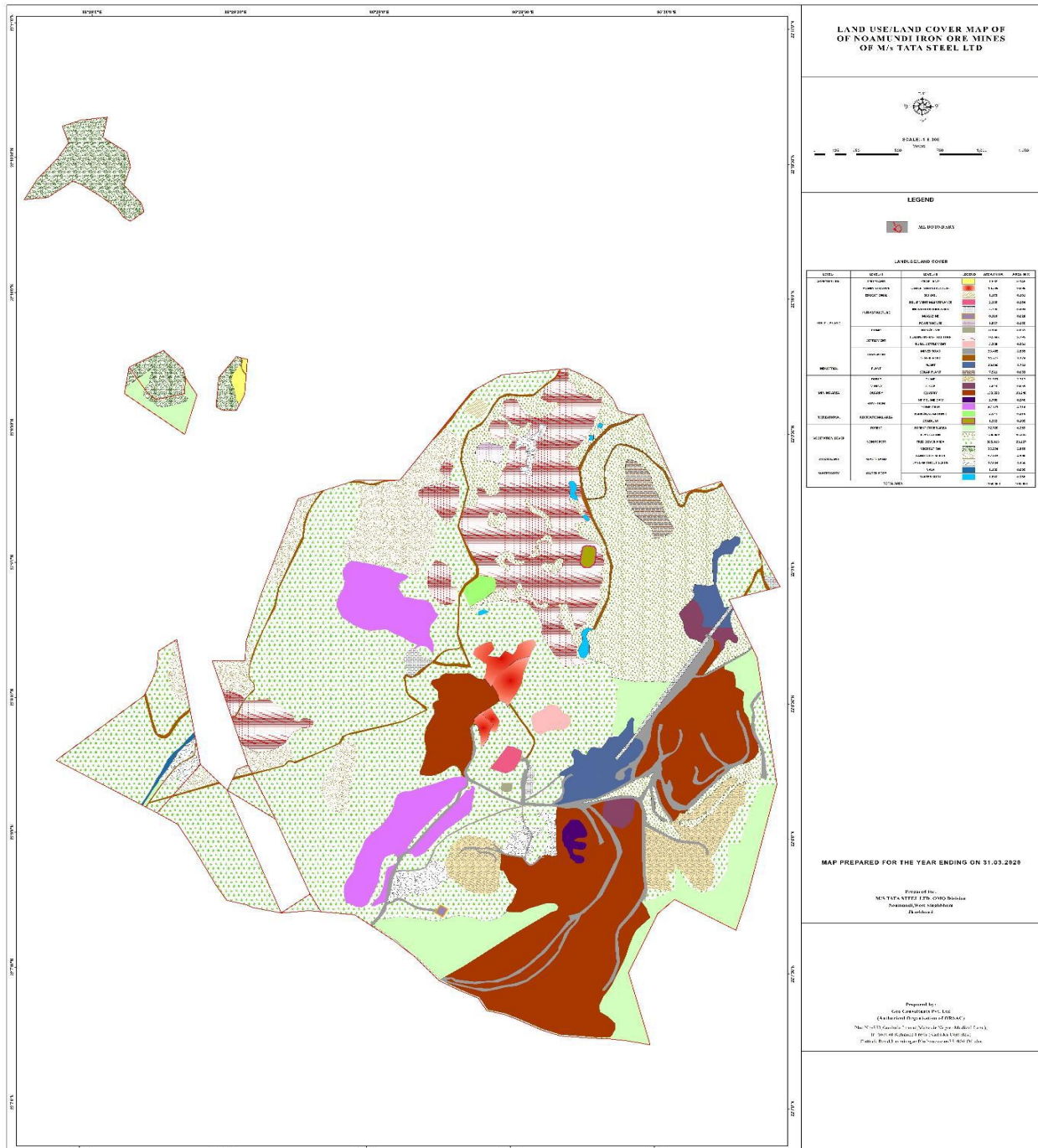
[Signature]
Principal Chief Conservator of Forests,
Wildlife & Chief Wildlife Warden,
Jharkhand, Ranchi

Office orders

Environmental Expenditure (2020-21)

Noamundi Iron Mine, TATA Steel Ltd

Sl. No.	Heads / Item	Expenditure (Lakhs)	
		Capital	Recurring
1.	General housekeeping at HEMM shed & upkeep of recycling pit at mega center	--	04.00
2.	Haz. waste disposal to common Haz. Waste facility	--	1.50
3.	Operation of Parks & Gardens at Railway sidings	--	2.50
4.	Operation of mobile water sprinklers at Railway sidings	--	11.50
5.	Operation & Maintenance of dry fog system at Railway sidings (1000TPH)	--	7.20
6.	Housekeeping & maintenance of Rapid Loading System, stackers, bins, Over Laying Conveyors at Railway siding areas	--	250
7.	Operation & maintenance of STPs & ETPs	--	38
8.	Operation & maintenance of WTP	--	35
9.	Operation and maintenance of solar power plant	--	5
10.	Operation & maintenance of municipal solid waste (collection, segregation, development of compost) in colony & Other area	--	36
11.	Installation of 2 composter machines	20	
12.	Development & maintenance of Gardens	--	132.00
13.	Development of Nursery & sapling for plantation	--	95.00
14.	Tree Planation & maintenance in & around Noamundi	--	156.28
15.	Special studies at Noamundi Mines (Biodiversity)	--	19
16.	Environmental monitoring in & around Noamundi	--	8.7
17.	CAAQMS maintenance & operation & display board	--	8.5
18.	Niche nesting- Biodiversity initiatives	--	6.8
19.	Toe wall and garland drain construction	--	5.1
20.	Operation and maintenance of fixed and mobile water sprinklers	--	175
21.	Desilting of thickeners & check dam, Housekeeping of plant, spillage control measures at Processing plant	--	180
22.	Operation & assistance in waste collection & check dam de-siltation, disposal of slime at dump, housekeeping of plant etc	--	30
23.	Maintenance & upkeep of High rate Thickener, flocculent addition etc	--	270
24.	Water recycling & reusing system in plant	--	450
Total		20	1927.08
Environmental Expenditure for the year 2020-21 at Noamundi Iron Mine =~19.47Cr			



LAND USE/LAND COVER MAP OF NOAMUNDI IRON ORE MINES OF M/s TATA STEEL LTD

LEGEND



ML BOUNDARY



BUFFER ZONE-5KM

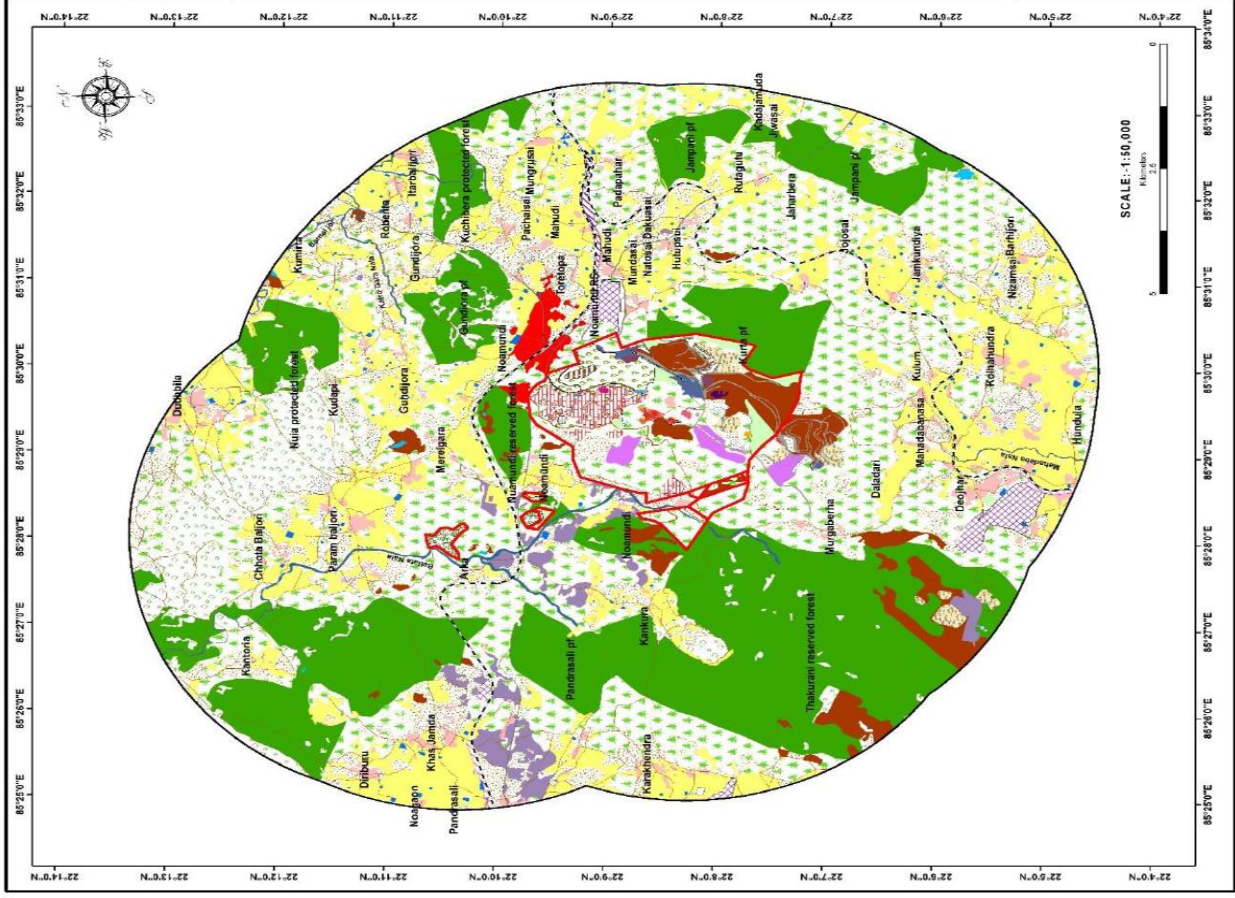
LANDUSE/LAND COVER

LEVEL-I	LEVEL-II	LEVEL-III	AREA IN HA	AREA IN %
AGRICULTURAL	NET CROP LAND	125145	125145	0.80
	OFFICE INFRASTRUCTURE	11521	11521	0.00
	ADDITIONAL	1273	1273	0.00
MANUFACTURE	INDUSTRIAL AREA	125145	125145	0.80
	INDUSTRIAL AREA	125145	125145	0.80
	INDUSTRIAL AREA	125145	125145	0.80
INFRASTRUCTURE	ROAD	125145	125145	0.80
	ROAD	125145	125145	0.80
	ROAD	125145	125145	0.80
SETTLEMENT	SETTLEMENT	125145	125145	0.80
	SETTLEMENT	125145	125145	0.80
	SETTLEMENT	125145	125145	0.80
WATER BODY	WATER BODY	125145	125145	0.80
	WATER BODY	125145	125145	0.80
	WATER BODY	125145	125145	0.80

MAP PREPARED FOR THE YEAR ENDING ON 31.03.2020

Prepared for:
M/S TATA STEEL LTD, OMO Division
Noamundi, West Singhbhum
Jharkhand

Prepared by:
Geo Consultants Pvt. Ltd
(Authorized Organisation of ORSSAC)
Plot No-853 Govinda Prasad Mahavir Nagar (Medical Lane),
In front of Reliance Fresh (Radhika Complex)
Cuttack Road, Laxminagar, Bhubaneswar-751006, Odisha



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