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Ranchi - 834002

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MD/ENV/ 148 / 103 / 2022

Date: 30.05.2022

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

II. Environmental Clearance letter no. J-11015/104/2011. IA. II (M) dated: 29.10.2021.

Half-yearly compliance status report of Environmental Clearance conditions for the

period October'21 - March'22 in respect of Noamundi Iron Mine, M/s Tata Steel

Limited.

Dear Sir,

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

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

Thanking you,

Yours faithfully,

f: M/s Tata Steel Limited

Chief (Mine Planning & Projects), OMO

Encl.

: As above

: 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

# ENVIRONMENTAL CLEARANCE NO. J-11015/104/2011-IA.II (M) DATED 06.09.2021 (Period of Compliance: October 2021 to March 2022)

Sl.	Conditions	Compliance
No.	ecific 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) has been initiated. Various activities such as development of safety zone plantation, Miyawaki plot, fruit bearing plots in village area and rainwater harvesting ponds are in progress. Detailed status (Year-1 compliance) would be shared in next EC compliance report.
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 is being complied.
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. It will be done accordingly in consultation with forest department officials.
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 and activities such as provision of critical ambulance, school bus, etc. are in progress. Detailed status (Year-1 compliance) would be shared in next EC compliance report.
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 391.51 Ha, we shall approach the Ministry with proper mining plan for undertaking mining in the remaining area.
	andard conditions	
1, Sta (1)	tutory Compliance This Environmental Clearance (EC) is subject to	Noted
(*)	orders/ judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, 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 Common Cause versus Union of India &Ors before commencing the mining operations.	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.
(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 land. 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.	Consent to Establish (CTE) has been granted by JSPCB vide letter no: JSPCB/HO/RNC/CTE-10765772/2021/354 dated 17.12.2021. Consent to Operate (CTO) has been granted by JSPCB vide letter no: JSPCB/HO/RNC/CTO-11411247/2022/128 dated 02.02.2022 which is valid till 31.12.2022. All the conditions stipulated in CTE & CTO are being implemented effectively.
(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 landowners, before start of mining operations, as per the provisions of MMDR Act, 1957 and rules made there under in respect of	Since it is an old mine, this is not applicable. Further the expansion is proposed within the mine lease area.

	lands which are not owned by it.	
(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 activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area".	All the conditions mentioned in the MoEFCC's Office Memorandum No. Z-11013/57/2014-IA.II (M), dated 29th October, 2014 are being followed. The compliance is indicated later against other standard EC conditions.
(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.	Only Surface water from Baitarani river is being used for mining and allied activities. No ground water withdrawal is required for this project.  Approval for drawing 10.6 MCM water on annual basis (~29000 KLD) from Baitarini river vide letter no: -1/PMC/VIVIDH/975/2020-514 dated 24.08.2021 has been granted by Water Resources Department, GoJ. Subsequently an agreement was signed on 20.10.2021 with the Executive Engineer, Water ways Division Chaibasa.
(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 was 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 and also attached along with half-yearly EC compliance report submitted in November 2021.
(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.
	r quality monitoring and preservation	Thron continuous ambient air 1th the first air
(1)	The Project Proponent shall install a minimum	Three continuous ambient air quality monitoring stations

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 SO2 etc. as per the methodology mentioned in NAAQS Notification No. 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

are installed in the core zone (two nos.) and buffer zone (one no.) of mine lease area. Various parameters such as PM10, PM2.5, SOx, NOx & CO are being monitored as per guidelines.

Manual ambient air quality stations are installed at prominent places such as Hospital, Mega Centre, Bottom bin, etc. and monitoring of the NAAQS parameters is done on regular basis.

Monitored data is being displayed using electronic display board in front of the main gate of mines site as well as public domain.

Average air quality data is enclosed as Annexure 1.





CAAQMS station & Display board at Noamundi Mine

(2)Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled 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

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.

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.





Dust control measures at Noamundi Iron Mine

## III. Water quality monitoring and preservation

In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage,

As per approved mining plan, the mining operations are restricted above the ground water table. The ultimate working depth is 480 mRL while the Ground water table is at 478 mRL. Hence, the mine workings will never intersect ground water during the entire life of the mine. However, in case of working below ground water table

	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	prior approval for CGWA shall be taken.
(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 not be disturbed. The Water Table should be nurtured so as not to go down below the premining 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.	Regular monitoring of flow rate of springs and nallahs is carried out and records are maintained.  Streams (Balijhore nallah and Jojo nallah) which are present in and around the mine lease area shall not be disturbed.  Ground water quality and Ground water level are being monitored periodically in and around the lease area through a network of dugwells and piezometric borewells. Dugwells are located in villages adjacent to the mine lease area while piezometric borewells are located within the mine lease area.  All the monitored data is being submitted to various agencies on six monthly basis along with half yearly EC compliance reports.
(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.	Ground water quality and Ground water level are being monitored periodically in and around the lease area through network of dugwells and piezometric borewells.  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 2.
(4).	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	Water quality monitoring of perennial nallahs (upstream and downstream) present inside and outside the mine lease area is done regularly. A copy of report is enclosed as Annexure 3.  All the water parameters are within the stipulated limits. No obstruction or alteration will be made to water bodies during mining operations.  The monitoring is carried out four times in a year and monitoring 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 as part of EC compliance reports.

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 Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on sixmonthly basis.

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.

There is no wastewater discharge from the mine and mineral processing plant, i.e entire unit is "Zero Discharge Unit".

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.

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.





(6) 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.

Rainwater harvesting (RWH) ponds and ground water recharge structures have been constructed and approved by the Ground Water Directorate, Jharkhand, Ranchi. The capacity of RWH ponds is 19,785 cum. The catchment area of the RWH pond complex is approx. 117 Ha hence it has been calculated that the rainwater harvesting potential of the RWH pond structure is

approx. 12,50,000 cum/annum.



RWH structure for ground water augmentation in the area

Approval from Ground Water Directorate, Water Resources Dept. Jharkhand for RWH pond structure was received vide letter no. GWD 317/Ranchi, dated 14th Jun, 2012.

Further, the rainwater collected in the mine pits are allowed to be collected in the lowest level sumps to augment the ground water resources gradually. Various RWH structures in the form of Check Dams, Saucer ponds, Gabion Structures, Trenches and contour are also made based on recommendation in available area.







RWH structure for ground water augmentation in the area

To augment the ground water level of surrounding village areas, about 06 new additional ponds are constructed in buffer zone of Noamundi mine lease at Lepang, Mahudi, Jampani & Sarbil villages.





Newly constructed ponds in surrounding villages

(7) 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.

A 30 KLD CETP along with Oil & grease pit with collection system has been installed at HEMM maintenance area. Oil is separated by gravitational technique and solids settle by sedimentation. Clear water flows to next chamber after passing through baffle wall. Clear water is again re-used. Water quality analysis is done on regular basis.



Flow sheet of 30KLD CETP

Two Sewage Treatment Plant (STP) of 50 KLD each and two Effluent Treatment Plant (ETP) of 10 KLD each are also installed & working smoothly in mine lease area of Noamundi. Copy of monitoring reports are enclosed as Annexure 4.



Sewage & Effluent Treatment Plant at Noamundi

(8) 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.

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.

### 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 peak particle velocity (ppv) is done after every blast as per DGMS guidelines and the reports are being maintained.

The sample report of vibration monitoring done at Noamundi is given herewith: (2)The illumination and sound at night at project sites The illumination & sound has been done in such a way disturb the villages in respect of both human and that the villagers are not disturbed. animal population. Consequent sleeping disorders In addition to this we are planning to install noise and stress may affect the health in the villages barriers around the railway siding boundary to located close to mining operations. Habitations significantly reduce the noise propagation outside the have a right for darkness and minimal noise levels mine premises. 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 Project Proponent shall take measures for (3) Adequate measures are taken for control of work noise control of noise levels below 85 dBA in the work levels such as all HEMMs have acoustic cabins with air environment. The workers engaged in operations conditioners and the exhaust manifold have silencers. of HEMM, etc. should be provided with ear plugs Noisy operations have been identified and persons /muffs. All personnel including laborers working engaged in such operations are provided with ear in dusty areas shall be provided with protective plugs/muffs. respiratory devices along with adequate training, All persons working in dusty areas are provided with awareness and information on safety and health protective dust masks. aspects. The PP shall be held responsible in case it Adequate training, awareness and information on safety has been found that workers/ personals/ laborers and health aspects are provided on regular basis.

working

equipment.

without

personal

protective

V. M	ining 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 as per the approved mining plan.
(2)	The Project Proponent shall get the Final Mine Closure Plan along with Financial Assurance 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.	This is not applicable in this financial year as it is an operational mine.
(3) VI I	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 23876 saplings have planted in the mine lease area.
(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	Over burden is stacked at the earmarked places only. The slopes of the OB dumps are terraced, and the overall height width and slope angle is maintained as per approved Mining Plan.  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

guidelines/circulars issued by D.G.M.S w.r.t. inside the mining lease area and is being subsequently safety in mining operations shall be strictly used for plantation & other vegetation & grassing adhered to maintain the stability of top soil/OB activities. dumps. The topsoil shall be used The inactive dump slopes are vegetated with native for reclamation and plantation. species, vetiver grass and coir matting is done for better slope stabilization. Vetiver grass Coir matting (2) The reject/waste generated during the mining Reject/waste is stacked at the earmarked places only. operations shall be stacked at earmarked waste The slopes of the dumps are terraced, and the overall dump site(s) only. The physical parameters of the height width and slope angle is maintained as per waste dumps like height, width and angle of slope approved Mining Plan. 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. (3) The reclamation of waste dump sites shall be done Currently two Over Burden (OB) dumps are made as per in scientific manner as per the Approved Mining plan at earmarked area which are progressively stabilized by native species plantation and grass vegetation as per Plan cum Progressive Mine Closure Plan. direction of MoEF&CC. In FY 22 around 23876 saplings have planted in the mine lease area. Plantation on Waste dump D2 Grassing on bunds of haul roads to control wind pollution also been practiced as per kind suggestion from MoEF&CC office at mine.

Local grass plantation on bunds of haul roads at mine. (4) The slope of dumps shall be vegetated in scientific The inactive dump slopes are vegetated with native manner with suitable native species to maintain the species, vetiver grass and coir matting is done for better slope stability, prevent erosion and surface run off. slope stabilization. The selection of local species regulates local The dump mass is consolidated with the help of dozer/ climatic parameters and help in adaptation of plant compactors thereby ensuring proper filling/ leveling of species to the microclimate. The gullies formed on dump mass. In critical areas, laying of coir mat along slopes should be adequately taken care of as it with grass seeding is practiced. 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. Vetiver grass Coir matting (5) The Project Proponent shall carry out slope Slope stability study has been done for dumps at stability study in case the dump height is more than Noamundi Iron Mine by CSIR-Central Institute of 30 meters. The slope stability report shall be Mining and Fuel Research, Dhanbad. The report has submitted to concerned regional been submitted to Regional Office of MoEF&CC vide office letter no: MD/ENV/303/103/2021 dated 19.11.2021. MoEF&CC. Catch drains, settling tanks and siltation ponds of (6)Garland drains with settling pits have been constructed appropriate size shall be constructed around the all along the OB dumps. Settling pits have also been mineral yards mine working, and provided to arrest the silt flow from area. The de-Soil/OB/Waste dumps to prevent run off of water siltation of these check dams settling pits are done and flow of sediments directly into the water regularly and properly maintained. Sedimentation pits bodies (Nallah/ River/ Pond etc.). The collected have been constructed at the corners of the garland water should be utilized for watering the mine drains to take care of run off of water even during peak area, roads, green belt development, plantation etc. rain fall and they are being de-silted regularly before The drains/ sedimentation sumps etc. shall be deand after the monsoon. Garland drains, settling tanks silted regularly, particularly after monsoon season, and Check dams had been constructed both around the and maintained properly mine pit and over burden dump(s). garland drains, Settling pits at mine

De-siltation of slime & check dams before monsoon.

(7) Check dams of appropriate size, gradient and Check dams of appropriate size, gradient and length are length shall be constructed around mine pit and OB constructed along with sedimentation pits as per dumps to prevent storm run-off and sediment flow progressive mine closure plan. 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. The top soil, if any, shall temporarily be stored at (8)Generation of topsoil is very minimal because no fresh earmarked sile(s) within the mine lease only and area is being broken for mining and the top soil should not be kept unutilized for long. The generated, is being kept at the earmarked site(s) only physical parameters of the top soil dumps like inside the mining lease area and is being subsequently height, width and angle of slope shall be governed used for plantation & other vegetation & grassing as per the approved Mining Plan and as per the activities. 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 purpose VII. Transportation  $(1)^{\circ}$ No Transportation of the minerals shall be allowed All the finished iron ore product is transported to endin case of roads passing through villages/ users through Noamundi captive railway siding. habitations. In such cases, PP shall construct a As an interim arrangement, it is proposed to additionally 'bypass' road for the purpose of transportation of use the public railway sidings (Bokaro siding and Line the minerals leaving an adequate gap (say at least no.5 Siding) for dispatch to end users. Therefore the road 200 meters) so that the adverse impact of sound between Bottom bin and public railway sidings will be and dust along with chances of accidents could be used for transporting the material through trucks. This is mitigated. All costs resulting from widening and as per approval granted by MoEFCC. strengthening of existing public road network shall be borne by the PP in consultation with nodal State Pollution Under Control (PUC) certificate has been Govt. Department. Transportation of minerals obtained for all the vehicles from authorized pollution through road movement in case of existing village/ testing centers. Sample is attached herewith: 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.

(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.

(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.

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 in safety zone of Noamundi Iron Mine.





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 23876 saplings is done on Waste dump D2, Kurtha dump. In addition to this Avenue plantation outside the mine lease is also carried out.





Plantation on dumps



Avenue Plantation outside the mine

(3) The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate

No grazing land has been acquired.

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.

(4) 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.

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).

Site specific wild life conservation plan and its approval has been submitted to the Ministry and its Regional Office.

The annual implementation status of the plan (for FY22) is provided as Annexure 5.

#### IX. Public hearing and human health issues

(2)

(1) 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.

Noamundi hospital is well-equipped with an Occupational Health Center OHS center employs a full-time occupational health specialist. Health of the employees through audiometry, x-ray, pathology, ophthalmology, lung-function test, etc monitored.

Some of the best practices related to occupational health adopted in mine are:

- Employees' health check-up under Wellness @ workplace program
- Health awareness classes on weekly basis for shop floor employees
- Officers' health check-up on yearly basis for lifestyle disease
- Counseling to high blood pressure, sugar cholesterol, hypertension employees through medical board

The Project Proponent must demonstrate 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

The company's commitment in the area of Health & Safety is well supported by implementation of: Safety Principles & Occupational Health Policy Occupational Health & Safety Management System (ISO 45001:2018).

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.

Various awareness programs regarding health, sanitation

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.

etc. have been conducted with the help of Tata Steel Rural Development Society(TSRDS).

The health related initiatives in place are-

- 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









(3) The Proponent shall carry out Occupational health surveillance which be a part of HRA and include Biological Monitoring where practical 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 Certified Neurologist, and Manganese (Mn) Estimation in Blood; For Inorganic Chromium- Fortnightly skin 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

Noamundi hospital is well-equipped with an Occupational Health Center OHS center employs a full-time occupational health specialist. Health of the employees through audiometry, x-ray, pathology, ophthalmology, lung-function test, etc monitored.

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.

Some of the best practices related to occupational health adopted in mine are:

- Employees' health check-up under Wellness @ workplace program
- Health awareness classes on weekly basis for shop floor employees
- Officers' health check-up on yearly basis for lifestyle disease

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).

- 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

No adverse cases have been found till date.





The Proponent shall maintained a record of (4) 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.

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.

(5) 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.

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.

(6) Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, 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.

Township has been developed for workers with all the adequate facilities such as hospital, schools, STP etc.

1 7		
	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	Shall be complied.
	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.	
X. C	orporate Environment Responsibility (CER)	
(1)	The activities and budget earmarked for Corporate	All the activities proposed during Public Consultation are
( )	Environmental Responsibility (CER) as per	being implemented. The detailed status (Year-1
	Ministry's O.M No 22-65/2017-IA. II (M) dated	compliance) shall be shared in next compliance report.
	01.05.2018 or as proposed by EAC should be kept	computance) shall be shared in flext computance report.
[	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.	
(2)	Project Proponent shall keep the funds earmarked	Funds allocated for environmental management are spent
	for environmental protection measures in a	only for environment related purposes and not diverted to
	separate account and refrain from diverting the	any other purpose. Expenditure details of environmental
	same for other purposes. The Year wise	protection measures are reported to MoEF&CC and its
ļ <b>!</b>	expenditure of such funds should be reported to the	Regional Office every year.
	MoEF&CC and its concerned Regional Office.	Expenditure details for the year 2021-22 is enclosed as:
		Annexure 6.
	Tiscellaneous	
(1)	The Project Proponent shall prepare digital map	The digital processing of entire lease area is being carried
	(land use & land cover) of the entire lease area	out regularly. The current land use pattern is made by
.	once in five years purpose of monitoring land use	M/s Geo Consultants Pvt. Ltd. the authorized agency by
.	pattern and submit a report to concerned Regional	ORSAC, Bhubaneshwar.
	Office of the MoEF&CC.	The land use land cover change map is enclosed as
		Annexure 7.
(2)	The Project Authorities should inform to the	Not applicable. Noamundi is an operational Iron mine of
	Regional Office regarding date of financial	Tata Steel Ltd from last several decades. Thus financial
. 1	closures and final approval of the project by the	closure & it's approval is not applicable.
1		X t
	concerned authorities and the date of start of land	
(3)	concerned authorities and the date of start of land development work.	Six monthly compliance reports are being submitted
(3)	concerned authorities and the date of start of land development work.  The Project Proponent shall submit six monthly	Six monthly compliance reports are being submitted
(3)	concerned authorities and the date of start of land development work.  The Project Proponent shall submit six monthly compliance reports on the status of the	regularly on the status of implementation of the
(3)	concerned authorities and the date of start of land development work.  The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stiputated environmental	regularly on the status of implementation of the stipulated environmental safeguards to the MoEF&CC,
(3)	concerned authorities and the date of start of land development work.  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	regularly on the status of implementation of the stipulated environmental safeguards to the MoEF&CC, its Regional Office, Central Pollution Control Board and
(3)	concerned authorities and the date of start of land development work.  The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stiputated environmental	regularly on the status of implementation of the stipulated environmental safeguards to the MoEF&CC,

(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.	environmental science. Organization has adequate environmental reporting system for adequate decision
(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.	furnishing the requisite data/ information/ monitoring reports.

# ENVIRONMENTAL CLEARANCE NO. J-11015/104/2011-IA.II (M) DATED 29.10.2021 (Period of Compliance: October 2021 to March 2022)

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.	It shall be complied after the road is brought into utilization. Currently all the finished iron ore product is transported to end-users through Noamundi captive railway siding.
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 has been completed. It is being shared herewith through One-drive link. It is requested to click on the link below to view the video. Access has been provided to- ro.ranchimef@gov.in  Video Noamundi Jamda.mp4
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 by Noamundi Iron Mine of Tata Steel Limited.

## **List of Annexures**

SI. No.	Annexure Details
Annexure – 1	Ambient Air Quality (Average AAQ values for core zone and
	buffer zone – 4 locations each)
Annexure – 2.A	Ground Water Quality (NABL-lab monitoring reports for 4 nos.
Annexure 2.A	dugwells in buffer zone for Nov'21 and Feb'22)
Annexure – 2.B	Ground Water Level (Nov'21 and Feb'22)
	Surface Water Quality (NABL-lab monitoring reports for
Annexure – 3	upstream & downstream water quality of Balijhore nallah in
	core zone for Nov'21 and Feb'22)
Annexure – 4	STP & ETP Water Quality (NABL-lab monitoring reports for
Amiexure – 4	inlet-outlet water quality for 4 STP-ETP units for Feb'22)
Annexure – 5	Implementation Status of the SSWLCP (FY22)
Annexure – 6	Environmental Expenditure (FY22)
Annexure – 7	Land Use & Land Cover Map

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

# 		3	WRSS Building	ding			B	Bottom Bin	ñ			-	Near Wi	/TP			Ne	Near Hospital	oital	1
WIOTITA	PM <sub>10</sub>	PM2.5	50 <sub>2</sub>	, NO <sub>X</sub>	8	PM <sub>10</sub>	PM <sub>2.5</sub>	202	NO <sub>x</sub>	8	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>x</sub>	8	PM <sub>10</sub>	PM <sub>Z:5</sub>	<sup>2</sup> O <sub>S</sub>	» O	7
Oct 21	51,6	17.9	7.9	16.0	0.212	52.1	19.4	8.1	16.6	0.197	51.1	17.1	8.1	17.2	0.188	49.9	16.3	7.2	17.2	0.182
Nov 21	54.0	19.0	9.3	17.9	0.248	51.2	18.5	8.1	16.5	0.181	51.0	17.2	.5 8	16.9	0.187	50:7	16.3	7.0	16.8	0.175
Dec 21	53.2	19.4	9.5	16,9	0.213	51.3	17.5	8.4	17.0	0.181	52.3	18.5	9.4	17,1	0.196	50.5	16.5	7.0	17.3	0.167
Jan 22	54.1	18.1	10.5	17.6	0.217	49.5	17.7	7.8	16.5	0.178	51.7	.19.9	11.0	9.61	0.203	50.9	18.2	7.9	17.2	0.171
Feb 22	58.8	20.6	9.9	17.8	0.228	51.4	18.0	8.4	16.3	0.194	55.2	22.5	11.2	19.9	0.229	51.6	19.2	0 (1.0)	18.0	0.179
Mar 22	57.1	22.8	9.8	17,6	0.259	56.7	18.5	.8.0	16.1	0,191	52,4	20.5	10.7	17.6	0.210	51.2	17.5	8.4	16.7	0.173

# **AVERAGE AIR QUALITY REPORT (BUFFER ZONE)**

,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	-								5		í		•	[	֡֝֞֝֞֜֝֞֜֜֝֓֓֓֓֓֓֓֓֓֓֓֓֓֟֝֓֓֓֓֓֞֝֓֓֓֞֝֜֜֝֓֡֓֞֝֞֡֓֞֝֞֡֓֞֡֝֡֡֓֓֡֡֝֡֡֓֜֝֡֡֡֓֜֝֡֡֡֡֡֡֡֡֝֡֡֡֡֜֝֡֡֡֓֜֝֡֡֡֜֜֝֡֡֜֜֜֝֡֡֡֜֜֜֡֡֡֜֜֜֡֡֡֜					
Month		Tan	Tankura Village	llage			Mira	Miralgara Village	'illage		•	Kital	Kitabeda Village	illage			gg.	Balita Village	age	
	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO.	8	РМ10	PM <sub>2.5</sub>	SO <sub>2</sub>	NO.	CO	PM10	PM2.5	50 <sub>2</sub>	No.	60	PMin	PM2.5	SO <sub>2</sub>	NO.	8
Oct 21	51.0	17.4	6.5	8.4	0.170	49.0	17.1	6.9	10.5	0.175	45.7	13,4	6.1	15.2	0.153	50.0	15.0	8,7	16.1	0.179
Nov 21	50.0	17:1	7.2	9.0	0.169	50.9	18.0	8.8	13.0	0.199	50.5	14.4	7.1	15.7	0.157	50.4	15.4	8.5	17.9	0.198
Dec 21	49.7	17.9	0.8	10.3	0.177	50.1	16.9	7.8	14.3	0.179	50.9	15:2	6.5	15.4	0.148	49.7	15.3	7.9	16.9	0.177
Jan 22	50.0	17.9	8.0	10.6	0.171	51,1	16.9	8.5	13.6	0.174	52.8	16.0	7.2	16.0	0.16	50.2	15.8	8.8	17.2	0.177
Feb 22	50.4	17.0	8.7 10.3	10.3	0.16	50:0	17.1	8.1	15.1	0.169	52.4	16.1	7.2	16,3	0.157	49.4	15.3	7.2	17.5	0.183
Mar 22	53.4	17.6	8.2	<u>11</u>	0.167	53.5	18.0	8.2	15.8	0.160	53.9	16.9	7.8	15.8	0.167	50.7	16.0	7.0	15.7	0.162

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

Senior Manager (Environment)





 ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 Certified Recognized By Ministry of Environment & Forests (MoEF), New Delhi
 Accredited By Quality Council of India by - NABET and NABL
 Approved by : Food Safety & Standards Authority of India under FSS Act; Agricultural & Processed Food Products Export Development Authority (APEDA) Bureau of India Standards (BIS) - Export inspection council (EIC); AGMARK

#### **TEST REPORT**

ULR No.- TC545821000003041F

Test Report No.: ALPL/30112021/1-29A dated 30/11/2021 Page 1 of 3 Issued To: Sample Inward No. 2021/MON-147/60- GW-13 Analysis Start 23/11/2021 M/s Noamundi Iron Mines **Inward Date** 22/11/2021 Analysis End 29/11/2021 (M/s TATA Steel Limited) Reference W.O.- 3000132460/962 Report Issue Date 30/11/2021 Noamundi, Jharkhand Sample Category Water Reference Date 15.05.2020 Postal Code: 833217 Sample Name Sample Source Sample Particulars Location Co-ordinates Quantity Received Ground Water Dugwell Sample Code-GW-13 Lat: 22°9'30.46"N, Long: 85°28'53.38"E 5.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey 19/11/2021 10.40 am to 4.45 pm Noamundi Basti (Nr. Play Ground)

S.N.	Test Parameter	Measurement Unit	Test Method	IS 1050 (Drinking Wate	nent as per 10 : 2012 r Specifications) endment No. 3	Test Result
				Acceptable Limit	Permissible Limit #	
I	Biological Testing 1. Water					
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	Chemical Testing 1. Water					1 100010
2	Alkalinity (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 23): 1986	200	600	128.8
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	IS 3025 (Part 4): 2021	5	15	1
5	Cyanide (as CN)	mg/I	IS 3025 (Part 27): 1986	0.05	No relaxation	BDL (DL - 0.005)
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	48.93
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40): 1991	75	200	34.85
8	Free residual chlorine	mg/l	IS 3025 (Part 26): 2021	Min. 0.2	1	
9	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	1.0	1.5	BDL (DL = 0.1)
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46): 1994	30	100	BDL (DL = 0.1) 12.05
11	Nitrate (as NO <sub>3</sub> )		APHA method 23rd edition: 2017	45	No relaxation	The same of the same of
12	Odour		IS 3025 (Part 5): 1983	Agreeable	Agreeable	9.54
13	pH		IS 3025 (Part 11): 1983	6.5 to 8.5		Agreeable
14	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43): 1992	0.001	No relaxation	7.34 at 25°C
15	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24): 1986	200	0.002	BDL (DL - 0.001)
16	Taste	-	IS 3025 (Part 8): 1984		400	18.74
17	Total dissolved solids	mg/l	IS 3025 (Part 16): 1984	Agreeable 500	Agreeable	Agreeable
18	Turbidity	NTU	IS 3025 (Part 10): 1984	300	2000	232
19	Total hardness (as CaCO <sub>3</sub> )	mg/I	IS 3025 (Part 21): 2009	200	5	0.5
□ PI	ease refer last Page for Note and F		10 3023 (1 att 21) . 2009	200	600	136.62

Please refer last Page for Note and Remarks.

Verified By

Romine Shubhangi Armarkar Technical Manager

Authorized Signatories

Pooja Kathane Technical Manager

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





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 Accredited By Quality Council of India by - NABET and NABL
 Approved by : Food Safety & Standards Authority of India under FSS Act
 Agricultural & Processed Food Products Export Development Authority (APEDA):
 Bureau of India Standards (BIS) • Export inspection council (EIC): AGMARK.

#### TEST REPORT

ULR No.- TC545821000003041F

Test Report No. : ALPL/30112021/1-29A dated 30/11/2021 Page 2 of 3 Issued To: Sample Inward No. 2021/MON-147/60- GW-13 **Analysis Start** 23/11/2021 M/s Noamundi Iron Mines Inward Date 22/11/2021 Analysis End 29/11/2021 (M/s TATA Steel Limited) Reference W.O.- 3000132460/962 Report Issue Date 30/11/2021 Noamundi, Jharkhand

Sample Category Reference Date 15.05.2020 Water Postal Code: 833217 Sample Name Sample Source Sample Particulars Location Co-ordinates Quantity Received Ground Water Dugwell Sample Code-GW-13 Lat: 22°9'30.46"N. Long: 85°28'53.38"E 5.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location

Anacon Representative Mr. K. Pandey 19/11/2021 10.40 am to 4.45 pm Noamundi Basti (Nr. Play Ground)

#### TEST RESULTS

S.N.	Test Parameter	Test Parameter Measurement Unit	Test Method	Require IS 105 (Drinking Wat Including At	Test Result	
				Acceptable Limit	Permissible Limit #	
II	Chemical Testing 2. Residues In Water					
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 1988	0.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2): 2019 / IS 3025 (Part 55): 2003	0.03	0.2	BDL (DL - 0.01)
22	Barium (as Ba)	mg/l	IS 3025 (Part 2): 2019	0.7	No relaxation	BDL (DL - 0.01)
23	Boron (as B)	mg/l	IS 3025 (Part 2): 2019	0.5	2.4	BDL (DL - 0.1)
24	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	0.05	1.5	BDL (DL - 0.03)
25	Cadmium (as Cd)	mg/l	IS 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL - 0.001
26	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	1.0	No relaxation	0.26
27	Lead (as Pb)	mg/I	IS 3025 (Part 2): 2019	0.01	No relaxation	BDL (DL - 0.001)
28	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019	0.1	0.3	BDL (DL - 0.05)
29	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL - 0.0005)
30	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL- 0.001)
31	Total Chromium (as Cr)	mg/i	IS 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL - 0.03)
32	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	5	15	BDL (DL - 0.1)
33	Polynuclear aromatic hydrocarbon (PAH)	μg/l	ANqr RES-30	0.1	No relaxation	BDL(DL-0.03)

Please refer last Page for Note and Remarks.

Verified By

Shashikant Satdeve Sr. Chemist Sonali Gharpure Technical Manager **Authorized Signatory** 

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





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

#### TEST REPORT

ULR No.- TC545821000003041F Test Report No.: ALPL/30112021/1-29A dated 30/11/2021 Page 3 of 3 Issued To: Sample Inward No. 2021/MON-147/60- GW-13 Analysis Start 23/11/2021 M/s Noamundi Iron Mines Inward Date 22/11/2021 Analysis End 29/11/2021 (M/s TATA Steel Limited) Reference W.O.-3000132460/962 Report Issue Date 30/11/2021 Noamundi, Jharkhand Sample Category Water Reference Date 15.05.2020 Postal Code: 833217 Sample Name Sample Source Sample Particulars Location Co-ordinates Quantity Received Ground Water Dugwell Sample Code-GW-13 Lat: 22°9'30.46"N, Long: 85°28'53.38"E 5.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey 19/11/2021 10.40 am to 4.45 pm Noamundi Basti (Nr. Play Ground)

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wat	ment as per 00 : 2012 er Specifications) nendment No. 3	Tes: Result
24	Destinide Desider Community			Acceptable Limit	Permissible Limit#	
34	Pesticide Residues Organoch					
- 1	Alpha-HCH	μg/l	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.01)
ii	Beta HCH	μg/I	ANtr/7.2/RES/01: 20	0.01	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	μg/l	ANtr/7.2/RES/01: 20	18 2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	μg/l	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
v	Alachlor	μg/l	ANtr/7.2/RES/01: 20	18 20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	μg/l	ANtr/7.2/RES/01: 20	18 0.03	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	μg/l	ANtr/7.2/RES/01: 20	18 0.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor	μg/l	ANtr/7.2/RES/01: 20	18 125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	μg/]	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
Х	o,p'-DDE	με/Ι	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	μ <b>g/</b> l	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	μg/l	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL = 0.03)
xiii	o,p'- DDT	μg/l	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
xiv	p.p'- DDT	μg/l	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (OL - 0.03)
XV	Monocrotophos	μg/l	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	μg/l	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	μg/l	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl		ANtr/7.2/RES/01: 20	0.0	TOTOLOGICAL	
xix	Malathion	μg/I	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
XX	Malaoxon		ANtr/7.2/RES/01: 20		TWO TCIANAUON	BDL (DL - 0.03)
xxi	Ethion		ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos		ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
	I a c	1 10		. 50	150 Telakation	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, MIDO Sutibori, Nagpur - 441 122.
Email: support@anacon.in;

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 Export inspection council (EIC); AGMARK.

TEST REPORT

Issued To: M/s Noamundi Iro (M/s TATA Steel L Noamundi, Jharkhar Postal Code: 83321	imited) nd	Sample Inward No. Inward Date Reference Reference Date	2021/MON-147/60- GW-13 22/11/2021 W.O 3000132460/962 15.05.2020	Page 1 of Analysis Sta Analysis En Report Issue Sample Cate	rt d Date	23/11/2021 29/11/2021 30/11/2021 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-13	Location Co-ordi Lat: 22°9'30.46"N, Long:			tity Received Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 19/11/2021	Sampling Time 10.40 am to 4.45 pm	Sampling Location Noamundi Basti (Nr. Play Groun		ocation

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result	
				Acceptable Limit	Permissible Limit #		
I	Chemical Testing 1. Residues In Water			June	Limite ir	<u> </u>	
1	Mineral Oil	mg/l	ANtr/7.2/RES/06: 2018	1	No relaxation	BDL (DL - 0.001)	

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

Verified By

Sonali Gharpure Technical Manager

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

---END OF REPORT----







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

## **TEST REPORT**

ULR No.- TC645821000003041F

Test Report No.: ALPL/30112021/1-30A dated 30/11/2021 Page 1 of 3 Issued To: Sample Inward No. 2021/MON-147/60- GW-14 **Analysis Start** 23/11/2021 M/s Noamundi Iron Mines **Inward Date** 22/11/2021 Analysis End (M/s TATA Steel Limited) 29/11/2021 Reference W.O.- 3000132460/962 Noamundi, Jharkhand Report Issue Date 30/11/2021 Reference Date Sample Category Postal Code: 833217 15.05.2020 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 5.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey 19/11/2021 10.40 am to 4.45 pm Noamundi Bazar (Nr. Petrol Pump)

			TEST RESULTS				
s.N.	Test Parameter	Measuremen Unit	Took Markend	Requirem IS 1050 (Drinking Wate Including Am	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				riosent	Austin	
2	Alkalinity (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 23): 1986	200	600	135.7	
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01	
4	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15		
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 1986	0.05		DDV (DV A AAA	
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	No relaxation	BDL (DL - 0.005	
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40): 1991	75	1000	35.15	
8	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	200	31.68	
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) 2008	1.0		BDL (DL - 0.1)	
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46): 1994		1.5	BDL (DL - 0.1)	
11	Nitrate (as NO <sub>3</sub> )	mg/l	APHA method 23rd edition: 2017	30	100	12.54	
12	Odour	-	IS 3025 (Part 5): 1983	45	No relaxation	8.93	
13	pH		IS 3025 (Part 11): 1983	Agreeable	Agreeable	Agreeable	
14	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l		6.5 to 8.5	No relaxation	7.40 at 25°C	
15	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 43): 1992	0.001	0.002	BDL (DL - 0.001	
16	Taste	mg/1	IS 3025 (Part 24): 1986	200	400	10.11	
17	Total dissolved solids	ma/l	IS 3025 (Part 8): 1984	Agreeable	Agrecable	Agreeable	
18	Turbidity	mg/l	IS 3025 (Part 16): 1984	500	2000	244	
19	Total hardness (as CaCO <sub>3</sub> )	NTU	IS 3025 (Part 10): 1984	1	5	0.5	
	ease refer last Pero for Note and D	mg/l	IS 3025 (Part 21): 2009	200	600	130.68	

Please refer last Page for Note and Remarks. Verified By

> Shubbangi Armarkar Technical Manager

**Authorized Signatories** 

Pooja Kathane Technical Manager

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

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 Agricultural & Processed Food Products Export Development Authority (APEDA);

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

### **TEST REPORT**

ULR No.- TC545821000003041F Test Report No. : ALPL/30112021/1-30A dated 30/11/2021 Page 2 of 3 Issued To: Sample Inward No. 2021/MON-147/60- GW-14 Analysis Start 23/11/2021 M/s Noamundi Iron Mines Inward Date 22/11/2021 Analysis End 29/11/2021 (M/s TATA Steel Limited) Reference W.O.- 3000132460/962 Noamundi, Jharkhand Report Issue Date 30/11/2021 Reference Date Sample Category Postal Code: 833217 15.05.2020 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 5.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey 19/11/2021 10.40 am to 4.45 pm Noamundi Bazar (Nr. Petrol Pump)

-			TEST RESULTS			V start and t
S.N.	Test Parameter	Test Parameter Measurement Unit	Test Method	Require IS 105 (Drinking Wa Including A	Test Result	
				Acceptable Limit	Permissible Limit #	
11	Chemical Testing 2. Residues In Water				Zinite iy	
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 1988	0.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2): 2019 / IS 3025 (Part 55): 2003	0.03	0.2	BDL (DL - 0.01)
22	Barium (as Ba)	mg/l	IS 3025 (Part 2): 2019	0.7	No relaxation	BDL (DL - 0.01)
23	Boron (as B)	mg/l	IS 3025 (Part 2): 2019	0.5	2.4	BDL (DL - 0.1)
24	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	0.05	1.5	BDL (DL - 0.03)
25	Cadmium (as Cd)	mg/l	IS 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL - 0.001)
26	Iron (as Fc)	mg/l	IS 3025 (Part 2): 2019	1.0	No relaxation	0.34
27	Lead (as Pb)	mg/l	IS 3025 (Part 2): 2019	0.01	No relaxation	BDL (DL - 0.001)
28	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019	0.1	0.3	BDL (DL = 0.05)
29	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL - 0.0005)
30	Selenium (as Se)	mg/I	IS 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL- 0.001)
31	Total Chromium (as Cr)	mg/l	IS 3025 (Par. 2): 2019	0.05	No relaxation	BDL (DL - 0.001)
32	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	5	15	
33	Polynuclear aromatic hydrocarbon (PAH)	μg/I	ANqr RES-30	0.1	No relaxation	BDL (DL - 0.1)  BDL(DL-0.03)

Please refer last Page for Note and Remarks.

Verified By

Shashikant Satdeve Sr. Chemist Sonah Gharpure Technical Manager Authorized Signatory

Dr. (Mrs.) S.D. Garway

Quality Manager





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## **TEST REPORT**

ULR No.- TC545821000003041F

Test Report No.: ALPL/30112021/1-30A dated 30/11/2021 Page 3 of 3 Issued To: Sample Inward No. 2021/MON-147/60- GW-14 Analysis Start 23/11/2021 M/s Noamundi Iron Mines Inward Date 22/11/2021 (M/s TATA Steel Limited) Analysis End 29/11/2021 Reference W.O.- 3000132460/962 Report Issue Date Noamundi, Jharkhand 30/11/2021 Sample Category Postal Code: 833217 Reference Date 15.05.2020 Water Sample Name Sample Source Sample Particulars Location Co-ordinates Quantity Received Ground Water

Ground Water Dugwell Sample Code-GW-14 Lat: 22°9′25.41"N, Long: 85°30′21.34"E Sampling Date Sampling Time
Anacon Representative Mr. K. Pandey 19/11/2021 10.40 am to 4.45 pm Noamundi Bazar (Nr. Petrol Pump)

			TEST RESUL		am to 4.45 pm	Noamundi Bazar	(Nr. Petrol Pump)
S.N.	Test Parameter	Test Parameter  Measurement Unit  Requirement as per IS 10500: 2012  (Drinking Water Specifications) Including Amendment No. 3		00 : 2012 er Specifications)	Test Result		
34	Pesticide Residues Organochi			Acc	ceptable Limit	Permissible Limit #	1
i	Alpha-HCH						
ii	Beta HCH	μg/l	ANtr/7.2/RES/01: 2		0.01	No relaxation	BDL (DL - 0.01
iii	Gamma - HCH (Lindane)	μg/	ANtr/7.2/RES/01: 2	2018	0.04	No relaxation	BDL (DL - 0.03
iv	Delta- HCH	μg/]	ANtr/7.2/RES/01: 2	2018	2	No relaxation	BDL (DL - 0.03
v	Alachlor	μg/l	ANtr/7.2/RES/01: 2		0.04	No relaxation	BDL (DL - 0.03
vi	Aldrin	μg/]	ANtr/7.2/RES/01: 2		20	No relaxation	BDL (DL - 0.03
vii	Dieldrin	μg/l	ANtr/7.2/RES/01: 2		0.03	No relaxation	BDL (DL - 0.03
viii		μg/I	ANtr/7.2/RES/01: 2		0.03	No relaxation	BDL (DL - 0.03
ix	Butachlor	μg/l	ANtr/7.2/RES/01: 2	2018	125	No relaxation	BDL (DL - 0.03
	p.p'-DDE		ANtr/7.2/RES/01: 2		1	No relaxation	BDL (DL - 0.03
X	o,p'-DDE	μg/l	ANtr/7.2/RES/01: 2	8103	ı	No relaxation	BDL (DL - 0.03
xi	p,p'-DDD	µg/I	ANtr/7.2/RES/01: 2	018	1 1	No relaxation	BDL (DL - 0.03
xii	o,p'-DDD	μg/l	ANtr/7.2/RES/01: 2	018	1	No relaxation	
xiii	o,p'- DDT	μg/l	ANtr/7.2/RES/01: 2	018	I	No relaxation	BDL (DL - 0.03
xiv	p.p'- DDT	μg/l	ANtr/7.2/RES/01: 2	018	i	No relaxation	BDL (DL - 0.03)
XV	Monocrotophos		ANtr/7.2/RES/01: 2		i	No relaxation	BDL (DL - 0.03)
xvi	Atrazine		ANtr/7.2/RES/01: 20		2		BDL (DL - 0.03)
xvii	Parathion methyl		ANtr/7.2/RES/01: 20		0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl		ANtr/7.2/RES/01: 20		<u> </u>	No relaxation	BDL (DL - 0.03)
xix	Malathion		ANtr/7.2/RES/01: 20		190	31 1	BDL (DL - 0.03)
XX	Malaoxon		ANtr/7.2/RES/01: 20			No relaxation	BDL (DL - 0.03)
xxi	Ethion		ANtr/7.2/RES/01: 20				BDL (DL - 0.03)
xxii	Chlorpyrifos		ANtr/7.2/RES/01: 20		3	No relaxation	BDL (DL - 0.03)
-	e Di	1 1 1	WWW. 1.2/1CES/01: 20	016	30	No relaxation	BDL (DL - 0.03)

NOTE: © Please see watermark "Original Test Report" to confirm the authenticity of this report. © Results shall be referred to tested sample(s) and applicable to tested parameters only, only perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. © "mg/l" is equivalent to "ppm". © "mg/l" is equivalent to "mg/l" is equivalent to "ppm". © "mg/l" is equivalent to "ppm". © "mg/l" is equivalent to "ppm". © "mg/l" is equivalent to "ppm".

REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted, indicating that 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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Export inspection council (EIC); AGMARK.

**TEST REPORT** 

Test Report No. : A Issued To : M/s Noamundi Iro		Sample Inward No.	0/11/2021 2021/MON-147/60- GW-14	Page 1 c	art	23/11/2021
(M/s TATA Steel Li Noamundi, Jharkhar Postal Code: 833217	imited) id	Inward Date Reference Reference Date	22/11/2021 W.O - 3000132460/962 15.05.2020	Analysis End Report Issue Date Sample Category		29/11/2021 30/11/2021 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-14	Location Co-ordina Lat: 22°9'25.41"N, Long: 85	(A)		tity Received
Sample Col Anacon Representati		Sampling Date 19/11/2021	Sampling Time 10.40 am to 4.45 pm	Sampling L Noamundi Bazar (N		

TEST RESULTS Requirement as per IS 10500: 2012 Measurement (Drinking Water Specifications) S.N. Test Parameter Test Method Test Result Unit Including Amendment No. 3 Acceptable Permissible Limit Limit# Chemical Testing 1. Residues In Water 1 Mineral Oil mg/l ANtr/7.2/RES/06: 2018 1 No relaxation BDL (DL - 0.001)

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report Results shall be referred to tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior written approval of Anacon Labs. Liability of Anacon Labs is limited to invoiced amount only. Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. #Permissible limit in absence of an alternate source for drinking water. ANtr/7.2/RES -06: Inhouse validated method

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

Verified By

Sonali Gharpure Technical Manager **Authorized Signatory** 

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

-----END OF REFORT-----

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#### **TEST REPORT**

ULR No.- TC545821000003041F

Test Report No.: ALPL/30112021/1-31A dated 30/11/2021 Page 1 of 3 Sample Inward No. 2021/MON-147/60- GW-15 M/s Noamundi Iron Mines **Analysis Start** 23/11/2021 (M/s TATA Steel Limited) Inward Date 22/11/2321 Analysis End 29/11/2021 Noamundi, Jharkhand Reference W.O.- 3000132460/962 Report Issue Date 30/11/2021 Postal Code: 833217 Reference Date Sample Category 15.05.2020 Water Sample Source Sample Name Sample Particulars Location Co-ordinates Quantity Received Ground Water Dugwell Sample Code-GW-15 Lat: 22°8'54.89"N, Long: 85°31'8.03"E 2.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey 19/11/2021 13.40 am to 4.45 pm Mahudi Village (Railway Station Road)

s.n.	Test Parameter	eter Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
_				Acceptable Limit	Permissible Limit #	
I	Biological Testing 1. Water				Dillit #	
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Aleman
II	Chemical Testing 1. Water			, resent	Absolu	Absent
2	Alkalinity (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 23): 1986	200	600	140.6
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	142.6 BDL (DL = 0.01
4	Colour	Hazen units	IS 3025 (Part 4): 2021	5	10	,
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	15	1
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	No relaxation	BDL (DL - 0.005
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40): 1991	75	1000	40.38
8	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021		200	42.77
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) 2008	Min. 0.2	1	BDL (DL - 0.1)
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	1.0	1.5	BDL (DL - 0.1)
11	Nitrate (as NO <sub>3</sub> )		APHA method 23rd edition: 2017	30	100	10.12
12	Odour		IS 3025 (Part 5) : 1983	45	No relaxation	7.48
13	pH			Agreeable	Agreeable	Agreeable
14	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 11): 1983	6.5 to 8.5	No relaxation	7.41 at 25°C
15	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 43): 1992	0.001	0.002	BDL (DL - 0.001
	Taste	ing/i	IS 3025 (Part 24): 1986	200	400	16.67
7	Total dissolved solids		IS 3025 (Part 8): 1984	Agreeable	Agreeable	Agreeable
	Turbidity	mg/l NTU	IS 3025 (Part 16): 1984	500	2000	242
	Total hardness (as CaCO <sub>3</sub> )		IS 3025 (Part 10): 1984	1	5	0.5
1 Pie	ease refer last Page for Note and R	mg/l	IS 3025 (Part 21): 2009	200	600	148.5

instance and

Shubhangi Armarkar Technical Manager

Verified By

Authorized Signatories

Pooja Kathane Technical Manager

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

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## TEST REPORT

ULR No.- TC545821000003041F Test Report No.: ALPL/30112021/1-31A dated 30/11/2021 Page 2 of 3 Sample Inward No. 2021/MON-147/60- GW-15 M/s Noamundi Iron Mines Analysis Start 23/11/2021 Inward Date (M/s TATA Steel Limited) 22/11/2021 Analysis End 29/11/2021 Noamundi, Jharkhand Reference W.O.- 3000132460/962 Report Issue Date 30/11/2021 Postal Code: 833217 Sample Category Reference Date 15.05.2020 Water Sample Name Sample Source Sample Particulars Location Co-ordinates Quantity Received Ground Water Dugwell Sample Code-GW-15 Lat: 22°8'54.89"N, Long: 85°31'8.03"E 2.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey 19/11/2021 10.40 am to 4.45 pm Mahudi Village (Railway Station Road)

TEST RESULTS Requirement as per IS 10500: 2012 Measurement (Drinking Water Specifications) S.N. Test Parameter Test Method Test Result Unit Including Amendment No. 3 Acceptable Permissible Limit Limit# 11 Chemical Testing 2. Residues In Water 20 Arsenic (as As) mg/l IS 3025 (Part 37): 1988 0.01 No relaxation BDL (DL - 0.01) IS 3025 (Part 2): 2019 / 21 Aluminium (as AI) mg/l 0.03 0.2 IS 3025 (Part 55): 2003 BDL (DL - 0.01) 22 Barium (as Ba) IS 3025 (Part 2): 2019 mg/I 0.7 No relaxation BDL (DL - 0.01) 23 Boron (as B) mg/l IS 3025 (Part 2): 2019 0.5 2.4 BDL (DL - 0.1) 24 Copper (as Cu) mg/l IS 3025 (Part 2): 2019 0.05 1.5 BDL (DL - 0.03) 25 Cadmium (as Cd) mg/l IS 3025 (Part 2): 2019 0.003 No relaxation BDL (DL - 0.001) 26 Iron (as Fc) mg/l IS 3025 (Part 2): 2019 1.0 No relaxation 0.27 27 Lead (as Pb) mg/l IS 3025 (Part 2): 2019 0.01 No relaxation BDL (DL - 0.001) 28 Manganese (as Mn) mg/l IS 3025 (Part 2): 2019 0.1 0.3 BDL (DL - 0.05) 29 Mercury (as Hg) mg/l IS 3025 (Part 48): 1994 0.001 No relaxation BDL (DL - 0.0005) 30 Selenium (as Se) mg/l IS 3025 (Part 56): 2003 No relaxation 0.01 BDL (DL-0.001) Total Chromium (as Cr) 31 mg/l IS 3025 (Part 2): 2019 0.05 No relaxation BDL (DL - 0.03) 32 Zinc (as Zn) mg/l IS 3025 (Part 2): 2019 5 15 BDL (DL - 0.1) Polynuclear aromatic μg/l ANgr RES-30 0.1 hydrocarbon (PAH) No relaxation

Please refer last Page for Note and Remarks.

Verified By

Mary Shashikant Satdeve

Sr. Chemist

Sonali Gharpure Technical Manager Authorized Signatory

BDL(DL-0.03)

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





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#### TEST REPORT

ULR No.- TC545821000003041F

Test Report No.: ALPL/30112021/1-31A dated 30/11/2021 Page 3 of 3 Sample Inward No. 2021/MON-147/60- GW-15 M/s Noamundi Iron Mines Analysis Start 23/11/2021 Inward Date (M/s TATA Steel Limited) 22/11/2021 Analysis End 29/11/2021 Noamundi, Jharkhand Reference W.O.- 3000132460/962 Report Issue Date 30/11/2021 Postal Code: 833217 Reference Date Sample Category Water 15.05.2020 Sample Name Sample Source Sample Particulars Location Co-ordinates Quantity Received Ground Water Dugwell Sample Code-GW-15 Lat: 22°8'54.89"N, Long: 85°31'8.03"E 2.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey 19/11/2021 10.40 am to 4.45 pm Mahudi Village (Railway Station Road)

TEST RESULTS Requirement as per IS 10500: 2012 Measurement S.N. Test Parameter Test Method (Drinking Water Specifications) Unit Test Result Including Amendment No. 3 Acceptable Limit | Permissible Limit # Pesticide Residues Organochlorine 34 Alpha-HCH i  $\mu g/1$ ANtr/7.2/RES/01: 2018 0.01 No relaxation BDL (DL - 0.01) ii Beta HCH ANtr/7.2/RES/01: 2018  $\mu g/I$ 0.04 No relaxation BDL (DL - 0.03) iii Gamma - HCH (Lindane) μg/I ANtr/7.2/RES/01: 2018 2 No relaxation BDL (DL - 0.03) iv Delta- HCH μg/I ANtr/7.2/RES/01: 2018 0.04 No relaxation BDL (DL - 0.03) Alachlor μg/l ANtr/7.2/RES/01: 2018 20 No relaxation BDL (DL - 0.03) vi Aldrin ANtr/7.2/RES/01: 2018 μg/l 0.03 No relaxation BDL (DL - 0.03) vii Dieldrin μg/[ ANtr/7.2/RES/01: 2018 0.03 No relaxation BDL (DL - 0.03) viii Butachlor μg/1 ANtr/7.2/RES/01: 2018 125 No relaxation BDL (DL - 0.03) ix p,p'-DDE  $\mu g \Lambda$ ANtr/7.2/RES/01: 2018 No relaxation 1 BDL (DL - 0.03) o,p'-DDE X µg/l ANtr/7.2/RES/01: 2018 1 No relaxation BDL (DL - 0.03) p,p'-DDD xi ANtr/7.2/RES/01: 2018  $\mu g/l$ 1 No relaxation BDL (DL - 0.03) o,p'-DDD xii ANtr/7.2/RES/01: 2018  $\mu g/l$ 1 No relaxation BDL (DL - 0.03) xiii o,p'- DDT µg/l ANtr/7.2/RES/01: 2018 No relaxation BDL (DL - 0.03) xiv p.p'- DDT ANtr/7.2/RES/01: 2018  $\mu g/I$ No relaxation BDL (DL - 0.03) XV Monocrotophos µg/l ANtr/7.2/RES/01: 2018 No relaxation BDL (DL - 0.03) xvi Atrazine µg/ ANtr/7.2/RES/01: 2018 2 No relaxation BDL (DL - 0.03) xvii Parathion methyl µg/l ANtr/7.2/RES/01: 2018 0.3 No relaxation BDL (DL - 0.03) Paraoxon methyl xviii ANtr/7.2/RES/01: 2018 mg/l BDL (DL - 0.03) xix Malathion ANtr/7.2/RES/01: 2018 µg/l 190 No relaxation BDL (DL - 0.03)  $\mathbf{x}\mathbf{x}$ Malaoxon  $\mu g/I$ ANtr/7.2/RES/01: 2018 -BDL (DL - 0.03) Ethion xxi  $\mu g/I$ ANtr/7.2/RES/01: 2018 3 No relaxation BDL (DL - 0.03) xxii Chlorpyrifos  $\mu g/I$ ANIr/7.2/RES/01: 2018 30 No relaxation BDL (DL - 0.03)

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

Verified By

Sonall Gharpure

Authorized Signatory

Dr. (Mrs.) S.D. Garway

Quality Manager

Technical Manager

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**TEST REPORT** 

Test Report No.: A	LI L/30112021/1-3		0/11/2021	Page 1	of 1	
M/s Noamundi Iro (M/s TATA Steel Li Noamundi, Jharkhar Postal Code: 833217	imited) id	Sample Inward No. Inward Date Reference Reference Date	2021/MON-147/60- GW-15 22/11/2021 W.O 3000132460/962 15.05.2020	Analysis S Analysis E Report Iss Sample Ca	tart nd ue Date	23/11/2021 29/11/2021 30/11/2021 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-15	Location Co-ordin Lat: 22°8'54.89"N, Long: 8			ty Received
Sample Col Anacon Representat		Sampling Date 19/11/2021	Sampling Time 10.40 am to 4.45 pm	Sampling Loca Mahudi Village (Railway		cation

TEST RESULTS Requirement as per IS 10500: 2012 (Drinking Water Specifications) Measurement S.N. Test Parameter Test Method Unit Test Result Including Amendment No. 3 Acceptable Permissible Limit Limit# Chemical Testing 1. Residues In Water Mineral Oil mg/l ANtr/7.2/RES/06: 2018 No relaxation BDL (DL - 0.001)

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior written approval of Anacon Labs. Liability of Anacon Labs is limited to invoiced amount only. Non-perishable and alternate source for drinking water. ANtr/7.2/RES -06: Inhouse validated method REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted, indicating that it

is fit for drinking purpose with respect to tested parameters.

Verified By

Sonali Gharpure Technical Manager Authorized Signatory

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

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





## TEST REPORT

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ULR No.- TC545821000003041F

Test Report No.: ALPL/30112021/1-32A dated 30/11/2021 Page 1 of 3 Sample Inward No. M/s Noamundi Iron Mines 2021/MON-147/60- GW-16 Analysis Start 23/11/2021 **Inward Date** (M/s TATA Steel Limited) 22/11/2021 Analysis End 29/11/2021 Noamundi, Jharkhand Reference W.O.- 3000132460/962 Report Issue Date 30/11/2021 Postal Code: 833217 Reference Date Sample Category 15.05.2020 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 5.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey 19/11/2021 10.40 am to 4.45 pm Bottom Bin (Nr. Barrack)

			TEST RESULTS			
S.N.	Test Parameter	Test Parameter Measurement Unit		Requiren IS 1050 (Drinking Wate Including Am	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				- Trootin	Absent
2	Alkalinity (as CaCO <sub>3</sub> )	mg/I	IS 3025 (Part 23) : 1986	200	600	161
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	IS 3025 (Part 4): 2021	5	15	
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05		DEL CEL
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32):1988	250	No relaxation	BDL (DL - 0.005
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40): 1991	75	1000	47.50
8	Free residual chlorine	mg/l	1S 3025 (Part 26) : 2021	Min. 0.2	200	45.14
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	BDL (DL - 0.1)
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46): 1994	30	1.5	BDL (DL - 0.1)
11	Nitrate (as NO <sub>3</sub> )	mg/l	APHA method 23rd edition: 2017	45	100	12.05
12	Odour	-	IS 3025 (Part 5): 1983	Agreeable	No relaxation	8.36
13	pH	-	IS 3025 (Part 11): 1983	6.5 to 8.5	Agreeable	Agreeable
14	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43): 1992	0.001	No relaxation	7.43 at 25°C
15	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24): 1986	200	0.002	BDL (DL - 0.001
16	Taste	-	IS 3025 (Part 8): 1984		400	13.44
17	Total dissolved solids	mg/l	IS 3025 (Part 16): 1984	Agreeable	Agreeable	Agreeable
18	Turbidity	NTU	IS 3025 (Part 10): 1984	500	2000	270
19	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) : 2009	1 200	5	0.4
DI.	ease refer last Page for Note and I		15 3023 (Fart 21): 2009	200	600	162.36

Please refer last Page for Note and Remarks.

Verified By

Shubhangi Armarkar Technical Manager **Authorized Signatories** 

Pooja Kathane Technical Manager

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

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#### TEST REPORT

ULR No.- TC545821000003041F

Test Report No.: ALPL/30112021/1-32A dated 30/11/2021 Page 2 of 3 Sample Inward No. 2021/MON-147/60- GW-16 M/s Noamundi Iron Mines 23/11/2021 **Analysis Start Inward Date** (M/s TATA Steel Limited) Analysis End 29/11/2021 Noamundi, Jharkhand Reference W.O.-3000132460/962 Report Issue Date 30/11/2021 Postal Code: 833217 Reference Date Sample Category Water 15.05.2020 Sample Name Sample Source Sample Particulars Location Co-ordinates Quantity Received Ground Water Sample Code-GW-16 Dugwell Lat: 22°8'52.58"N, Long: 85°30'28.50"E 5.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey 19/11/2021 10.40 am to 4.45 pm Bottom Bin (Nr. Barrack)

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Require IS 105 (Drinking Wa Including A	Test Result	
				Acceptable Limit	Permissible Limit #	
П	Chemical Testing 2. Residues In Water				Dillit ii	
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 1988	0.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2): 2019 / IS 3025 (Part 55): 2003	0.03	0.2	BDL (DL - 0.01)
22	Barium (as Ba)	mg/l	IS 3025 (Par: 2): 2019	0.7	No relaxation	BDL (DL - 0.01)
23	Boron (as B)	mg/l	IS 3025 (Par. 2): 2019	0.5	2.4	BDL (DL - 0.1)
24	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	0.05	1.5	BDL (DL - 0.03)
25	Cadmium (as Cd)	mg/l	IS 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL - 0.001)
26	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	1.0	No relaxation	0.32
27	Lead (as Pb)	mg/l	IS 3025 (Part 2): 2019	0.01	No relaxation	BDL (DL - 0.001)
28	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019	0.1	0.3	BDL (DL = 0.001)
29	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL - 0.0005)
30	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL-0.0003)
31	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL - 0.001)
32	Zine (as Zn)	mg/l	IS 3025 (Part 2): 2019	5	15	
33	Polynuclear aromatic hydrocarbon (PAH)	μg/l	ANqr RES-30	0.1	No relaxation	BDL (DL - 0.1)  BDL(DL-0.03)

Please refer last Page for Note and Remarks.

Verified By

Shashikant Satdeve Sr. Chemist Sonali Gharpure Technical Manager Authorized Signatory

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





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#### TEST REPORT

ULR No.- TC545821000003041F

Test Report No.: ALPL/30112021/1-32A dated 30/11/2021 Page 3 of 3 Sample Inward No. 2021/MON-147/60- GW-16 Analysis Start M/s Noamundi Iron Mines 23/11/2021 Inward Date (M/s TATA Steel Limited) 22/11/2021 Analysis End 29/11/2021 Noamundi, Jharkhand Reference W.O - 3000132460/962 Report Issue Date 30/11/2021 Postal Code: 833217 Reference Date Sample Category 15.05.2020 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 5.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandev 19/11/2021 10.40 am to 4.45 pm Bottom Bin (Nr. Barrack)

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Including Amendment No. 3		00: 2012 er Specifications) tendment No. 3	Test Result
34	Pesticide Residues Organochi	oring		Acce	ptable Limit	Permissible Limit #	
i	Alpha-HCH	μg/l	ANtr/7.2/RES/01: 2	nate 1	0.01		1
ii	Beta HCH			ATT 175 175 1	0.01	No relaxation	BDL (DL - 0.01
iii	Gamma - HCH (Lindane)	μg/I	ANtr/7.2/RES/01: 2		0.04	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	μg/l	ANtr/7.2/RES/01: 2	-	2	No relaxation	BDL (DL - 0.03)
v	Alachlor	μg/l	ANtr/7.2/RES/01: 2		0.04	No relaxation	BDL (DL - 0.03)
vi	Aldrin	μg/l	ANtr/7.2/RES/01: 2		20	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	μg/l	ANtr/7.2/RES/01: 2		0.03	No relaxation	BDL (DL - 0.03)
viii		μg/l	ANtr/7.2/RES/C1: 2		0.03	No relaxation	BDL (DL - 0.03)
	Butachlor	µg/l	ANtr/7.2/RES/C1: 2		125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE		ANtr/7.2/RES/C1: 2		1	No relaxation	BDL (DL - 0.03)
X	o,p'-DDE	μg/I	ANtr/7.2/RES/C1: 2	018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	μg/l	ANtr/7.2/RES/01; 2	018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	μg/l	ANtr/7.2/RES/01: 2	018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	μg/l	ANtr/7.2/RES/01: 2	018	I	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	. μg/I	ANtr/7.2/RES/01: 2	018	1	No relaxation	
XV	Monocrotophos		ANtr/7.2/RES/01: 2		i	No relaxation	BDL (DL = 0.03)
xvi	Atrazine		ANtr/7.2/RES/01: 20		2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl		ANtr/7.2/RES/01: 20		0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl		ANtr/7.2/RES/01: 20		-	No relaxation	BDL (DL - 0.03)
xix	Malathion		ANtr/7.2/RES/01: 20		190	No subsection	BDL (DL - 0.03)
XX	Malaoxon		ANtr/7.2/RES/01: 20		190	No relaxation	BDL (DL - 0.03)
xxi	Ethion		ANtr/7.2/RES/01: 20				BDL (DL - 0.03)
xxii	Chlorpyrifos		ANtr/7.2/RES/01: 20		3	No relaxation	BDL (DL - 0.03)
		1 10	ANUT 1.2/1CES/01: 20	110	30	No relaxation	BDL (DL - 0.03)

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■ Lability of Anacon Labs is limited to invoiced amount only.
■ Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise.
● #Permissible limit in absence of an alternate source for drinking water. • 'mg/l' is equivalent to 'ppm'. • 'µg/l' is equivalent to 'ppb'. • BDL- Below detection limit. • DL- DL Indicates detection limit of instrument /method and shall be considered as 'absent'. • Result for test no. 11 is not relevant. • ANtr/7.2/RES -01,02,03,04,&05,: Inhouse validated method. • NT indicates not Tested as

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

Verified By

Sonali Gharpure Technical Manager Authorized Signatory

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

---End of Report-

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

Email: support@anacon.in;

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**TEST REPORT** 

		0/11/2021	Page 1 o	1 1		
es	Sample Inward No.   2021/MON-147/60- GW   Inward Date   22/11/2021   Reference   W.O 3000132460/962   Reference Date   15.05.2020		Analysis Start Analysis End Report Issue Date Sample Category		23/11/2021 29/11/2021 30/11/2021 Water	
ple Source Dugwell	Sample Particulars Sample Code-GW-16		- Vann		tity Received	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Time		Sampling Location Bottom Bin (Nr. Barrack)		
2	ple Source Dugwell	Inward Date Reference Reference Date  Ple Source Sample Particulars Sample Code-GW-16 Sy Sampling Date C. Pandey Specific Sampling Date 19/11/2021	Inward Date 22/11/2021 Reference W.O 3000132460/962 Reference Date 15.05.2020  ple Source Sample Particulars Sample Code-GW-16 Lat: 22°8'52.58"N, Long: 85° Sy Sampling Date Sampling Time	Inward Date 22/11/2021 Analysis En Reference W.O 3000132460/962 Report Issue Sample Cate  Ple Source Sample Particulars Sample Code-GW-16 Lat: 22°8'52.58"N, Long: 85°30'28.50"E  Sy Sampling Date Sampling Time Sample Code GW-16 L0.40 am to 4.45 pm Botto	Inward Date 22/11/2021 Analysis End Reference W.O 3000132460/962 Report Issue Date Sample Category  Ple Source Sample Particulars Sample Code-GW-16 Lat: 22°8'52.58"N, Long: 85°30'28.50"E 5.0 L  Sy Sampling Date Sampling Time Sampling L  K. Pandey 19/11/2021 10.40 am to 4.45 pm Bottom Bin (N	

S.N.	Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wat	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3	
				Acceptable Limit	Permissible Limit #	
1	Chemical Testing 1. Residues In Water				EJANGE II	
1	Mineral Oil	mg/l	ANtr/7.2/RES/06: 2018	1	No relaxation	BDL (DL - 0.001)

NOTES: 

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Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise.

#Permissible limit in absence of an alternate source for drinking water. ANtr/7.2/RES -06: Inhouse validated method

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

Verified By

Sonali Gharpure Technical Manager Authorized-Signatory

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

----END OF REPORT----





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

# TEST REPORT

Test Report No. : A	LPL/28022022/1-29	A dated 28	/02/2022	Page 1 of	3	22/02/2022
Issued To: M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand		Sample Inward No. Inward Date Reference Reference Date	2022/MON-32/60- GW-13 22/02/2022 W.O 3000132460/962 15/05/2020	Analysis End Report Issue	Analysis Start Analysis End Report Issue Date Sample Category	
Postal Code: 83321 Sample Name Ground Water	Sample Source	Sample Particulars Sample Code-GW-13	Location Co-ord		-	ntity Received Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 18/02/2022	Sampling Time 10.40 am to 4.45 pm		Sampling Location Noamundi Basti (Nr. Play Gr	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requireme IS 10500 (Drinking Water Including Ame	1: 2012 Specifications)	Test Result
				Acceptable Limit	Permissible Limit #	
1	Biological Testing 1, Water					
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
11	Chemical Testing 1. Water				1	10000
2	Alkalinity (as CaCO <sub>3</sub> )	mg/l	1S 3025 (Part 23) : 1986	200	600	137,64
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	IS 3025 (Part 4): 2021	5	15	1
5	Cyanide (as CN)	mg/i	1S 3025 (Part 27): 1986	0.05	No relaxation	BDL (DL - 0.005)
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32):1988	250	1000	51.29
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	32.68
8	Free residual chlorine	mg/l	IS 3025 (Part 26): 2021	Min. 0.2	1	BDL (DL = 0.1)
9	Fluoride (as F)	mg/l	1S 3025 (Part 60) : 2008	1.0	1.5	0.16
10	Magnesium (as Mg)	mg/l	1S 3025 (Part 46): 1994	30	100	13.47
11	Nitrate (as NO <sub>3</sub> )	mg/l	APHA method 23rd edition: 2017	45	No relaxation	8.26
12	Odour	-	18 3025 (Part 5): 1983	Agreeable	Agrecable	Agreeable
13	pH ·		1S 3025 (Part 11): 1983	6.5 to 8.5	No relaxation	7.14 at 25°C
14	Phenolic compounds (as C <sub>6</sub> H <sub>6</sub> OH	mg/l	1S 3025 (Part 43): 1992	0.001	0.002	BDL (DL = 0.001)
15	Sulphate (as SO <sub>4</sub> )	mg/l	1S 3025 (Part 24): 1986	200	400	16.28
16	Taste	-	IS 3025 (Part 8) : 1984	Agrecable	Agreeable	Agreeable
17	Total dissolved solids	mg/f	IS 3025 (Part 16): 1984	500	2000	256
18	Turbidity	NTU	1S 3025 (Part 10): 1984	1	5	0.4
19	Total hardness (as CaCO <sub>2</sub> )	mg/I	IS 3025 (Part 21): 2009	200	600	137.02

Please refer last Page for Note and Remarks.

Verified By

Shubhangi Armarkar Technical Mana

**Authorized Signatories** 

People Kathan Technical Mimager Dr. (Mrs.) S.D. Garway Quality Manager

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

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

TEST REPORT

Sample Co Anacon Representa		Sampling Date 18/02/2022	Sampling Time 10.40 am to 4.45 pt		mpling I Basti (N	r. Play Ground)	
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-13	Location Co-e Lat: 22*9'30.46"N, Lor	ng: 85°28'53.38"E	5.01	tity Received tr & 250 ml	
M/s Noamundi Iro (M/s TATA Steel Li Noamundi, Jharkhar Postal Codé: 83321'	mited) id	Inward Date 22/02/2022  Reference W.O 3000132460/962  Reference Date 15.05.2020		Analysis End Report Issue Date Sample Category		28/02/2022 Water	
Issued To:		Sample Inward No.	2022/MON-32/60- GW-13	Analysis Star		22/02/2022	
Test Report No. : Al	PL/28022022/1-29	A dated 28		Page 2 of		22/02/2022	

TEST RESELLTS.

S.N.	Test Parameter	Measurement Unit	Test Method	Requirer IS 105 (Drinking Wat Including An	Test Result	
				Acceptable Limit	Permissible Limit#	
11	Chemical Testing 2. Residues In Water					
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 1988	0.01	No relaxation	BDL (DL - 0.01)
21	Alaminium (as Al)	mg/l	IS 3025 (Part 2): 2019 / IS 3025 (Part 55): 2003	0,03	0.2	BDL (DL - 0.01)
22	Barium (as Ba)	mg/l	IS 3025 (Part 2): 2019	0.7	No relaxation	BDL (DL - 0.01)
23	Boron (as B)	mg/I	1S 3025 (Part 2): 2019	0.5	2,4	BDL (DL - 0.1)
24	Copper (as Cu)	mg/l	1S 3025 (Part 2): 2019	0.05	1,5	BDL (DL - 0.03)
25	Cadmium (as Cd)	mg/l	1S 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL - 0.001)
26	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	1.0	No relaxation	0.21
27	Lead (as Pb)	mg/l	1S 3025 (Part 2): 2019	0.01	No relaxation	BDL (DL - 0.001
28	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019	0.1	0.3	BDL (DL - 0.05)
29	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL = 0.0005
30	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL-0.001)
31	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL - 0.03)
32	Zinc (as Zn)	1112/1	IS 3025 (Part 2): 2019	5	15	BDL (DL = 0.1)
33	Polynoclear aromatic instrocarbon (PAH)	µg/i	ANtr/7.2/RES/06: 2018	0.1	No relaxation	BDL(DL-0.03)

Please refer last Page for Note and Remarks.

Verified By

Shashikant Satdeve

Sr. Chemist

Lamerdere Shubhangi Armarkar Technical Manager

**Authorized Signatory** 

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

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

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Export impection council (EIC), AGMARK.

TEST REPORT

Test Report No. : Al	PL/28022022/1-29	A dated 28		Page 3 of	3		
Issued To:		Sample Inward No.	2022/MON-32/69- GW-13	Analysis Sta	rt	22/02/2022	
M/s Noamundi Iro	4/s Noamundi Iron Mines		Inward Date 22/02/2022		d	28/02/2022	
M/s TATA Steel Limited) Noamundi, Jharkband Postal Code: 833217		Reference W.O 3000132460/962 Reference Date 15:05:2020		Report Issue Date Sample Category		28/02/2022 Water	
Sample Name Ground Water	te Sample Source Sample Particu		Location Co-ore Lat: 22°9'30.46"N. Long			tity Received Lir & 250 ml	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 18/02/2022	Sampling Time 10.40 am to 4.45 pm	The second second	Sampling Location Noamundi Basti (Nr. Play Gr		

TEST OFSETT TS

		Measurement Unit	Test Method		Finking Wate Including Am	Test Result	
				Accep	table Limit	Permissible Limit #	
	Mineral Oil	mg/l	ANtr/7.2/RES/06: 2	018	1	No relaxation	BDL (DL - 0.001
35	Pesticide Residues Organochl	orine					-
	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2	2018	0.01	No relaxation	BDL (DL - 0.01
	Beta HCH	ug/l	ANii/7.2/RES/01:2	2018	0.04	No relaxation	BDL (DL - 0.03
	Gamma - HCH (Lindane)	ng1	ANtr/7.2/RES/01: 2		2	No relaxation	BDL (DL = 0.03
	Delta- HCH	µg/l	ANI//7.2/RES/01: 2		0.04	No relaxation	BDL (DL = 0.03
-	Alachior	µg/1	ANI/7.2/KES/01/2	2018	20	No relaxation	BDL (DL = 0.03
vi.	Aldrin	µg/l	ANtr/7.2/RES/01: 2	2018	0.03	No relaxation	BDL (DL = 0.03
	Dieldrin	пря	ANtr/7.2/RES/01: 2	2018	0.03	No relaxation	BDL (DL = 0.0)
ASSESSMENT OF THE PARTY NAMED IN	Butachlor	µg/l	ANtr/7.2/RES/01: 2		125	No relaxation	BDL (DL = 0.03
- Indiana and a	p.p -DDE	119/1	ANtr/7.2/RES/01: 1	2018	1	No relacation	BDL (DL = 0.03
	o.p -DDE	µg/l	ANtr/7.2/RES/01: 2		1	No relaxation	BDL (DL -0.03
	p.p'-DDD	ид/1	ANtr/7.2/RES/01: 2	2018	1	No relaxation	BDL (DL = 0.0)
	o,p'-DDD	μg/1	ANto 7.2/RES/01: 2		1	No relaxation	BDL (DL + 0.0)
	o.p'- DDT	ид/!	AND 7.2/RES/01: 3		1	No relaxation	BDL (DL = 0.0)
	p.p - DDT	ug/l	ANIE 7.2 RES/01: 2	2018	1	No relaxation	BDL (DL = 0.0
	Monocrotophos	ng/l	ANI/7.2/RES/01:	2018		No relaxation	BDL (DL = 0.0.
XVI	Atrazine	ug/l	ANu/7.2/RES/01:3		2	No relaxation	BDL (DL - 0.0.
	Parathion methyl	μg/1	ANtr.7.2/RES/01:		0.3	No relaxation	BDL (DL - 0.0
XVIII	Paraoxon methyl	µg/l	ANtr/7.2/RES/01;				BDL (DL - 0.0
-	Malathion	ug/l	ANu/7.2/RES/01:		190	No relaxation	BDL (DL = 0.0
NIX	A CANADA PARAMETERS	με/1	AND/7.2/RES/01.			-	BDL (DL - 0.0
XX	Malaexon Ethion	12/1	ANI/7.2/RES/01:		3	No relaxation	BDL (DL + 0.0)
XXI	Chiorpyrifos	1027	ANIE 7.2 RES 01:		30	No relaxation	BDL (DL = 0.0

NOTE: Please see waterwark "Original Test Report" to confirm the authenticity of the report # Results shall be referred to tested sample(s) and applicable to tested parameters only ■ The report shall not be expressioned except of full without point written approxised of America Labit with the Expressioned except of full without point written approxised of America Labit with the Expression of the English of America Labit with the English of America Labit with the English of America Labit with the English of Englis

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 Esta End add Separator, Nagsur - 441 122 Email support@anacon.in.

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

Export inspection council (E:C): AGMARK.

TEST REPORT

Test Report No. : A	LPL/28022022/1-30	A dated 28	1/02/2022	Page 1 of	3	
Issued To:		Sample Inward No.	2022/MON-32/60- GW-14	Analysis Sta	rt	22/02/2022
4/s Noamundi Iron Mines		Inward Date 22/02/2022		Analysis End		28/02/2022
(M/s TATA Steel L. Noamundi, Jharkhar Postal Code: 83321	nd	Reference W.O 3000132460/962 Reference Date 15.05.2020		Report Issue Date Sample Category		28/02/2022 Water
Sample Name Ground Water	Sample Source Dogwell	Sample Particulars Location C Sample Code-GW-14 Lat: 22°9'25.41"N, 1		AND THE RESERVE TO SERVE THE PROPERTY OF THE P		tity Received Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 18/02/2022	Sampling Time 10.40 am to 4.45 pm		Sampling Locati Noamendi Bazar (Nr. Pe	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirem IS 1050 (Drinking Water Including Ame	Test Result	
				Acceptable Limit	Permissible Limit #	
8	Biological Testing I. Water					
1	Escherichia coli	Per 100 ml	IS 15185 ; 2016	Absent	Absent	Absent
11	Chemical Testing 1. Water					
2	Alkalinity (as CaCO <sub>1</sub> )	mg/l	1S 3025 (Part 23): 1986	200	600	141.62
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4 .	Cologr	Hazen units	1S 3025 (Part 4): 2021	5	15	1
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 1986	0.05	No relaxation	BDL (DL - 0.005)
6	Chloride (as Cl)	mg/l	18 3025 (Part 32):1988	250	1000	48.25
7	Calcium (as Ca)	mg/I	IS 3025 (Part 40): 1991	75	200	26.31
8	Free residual chlorine	mg/l	IS 3025 (Part 26): 2021	Min. 0.2	1	BDL (DL-0.1)
9	Fluoride (as F)	mg/l	18 3025 (Part 60) : 2008	1.0	1.5	0.18
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46): 1994	30	100	12.64
11	Nitrate (as NO <sub>1</sub> )	mg/l	APHA method 23rd edition: 2017	45	No relaxation	9.17
12	Odour		IS 3025 (Part 5): 1983	Agreeable	Agrecable	Agrecable
13	pH		IS 3025 (Part 11): 1983	6.5 to 8.5	No relocation	6.97 at 25°C
14	Phenolic compounds (as C <sub>u</sub> H <sub>5</sub> OH)	mg/L	IS 3025 (Part 43): 1992	0.001	0.002	BDL (DL - 0.001)
15	Sulphate (as SO <sub>4</sub> )	med	IS 3025 (Part 24): 1986	200	400	17.24
16	Taste	-	18 3025 (Part 8): 1984	Agreeable	Agreeable	Agrecable
17	Total dissolved solids	mg/I	1S 3025 (Part 16): 1984	500	2000	294
18	Turbiday	NTU	1S 3025 (Part 10): 1984	1		0.3
19	Total hardness (as CaCO <sub>1</sub> )	mg/l	IS 3025 (Part 21): 2009	200	600	117.68

Please refer last Page for Note and Remarks.

Verified By

Sumuelane Shubbangi Armarkar Technical Manager

**Authorized Signatories** 

Peeja Kathana Technical Manager Dr. (Mrs.) S.D. Garway Quality Manager

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

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Export inspection council (EIC); AGMARK.

TEST REPORT

Test Report No. : A	LPL/28022022/1-30	A dated 28		Page 2 of		
Issued To:		Sample Inward No. 2022/MON-32/60- GW-14		Analysis Sta	K.E.	22/02/2022
M/s Noamundi Iron Mines		Inward Date 22/02/2022		Analysis En	ā	28/02/2022
(M/s TATA Steel L Noamundi, Jharkhar Postal Code: 83321	imited) nd	Reference W.O 3000132460/962 Reference Date 15.05.2020		Report Issue Date Sample Category		28/02/2022 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-14	The second secon		SECTION AND ADDRESS OF THE PERSON ADDRESS OF THE PERSON AND ADDRESS OF THE PERSON AND ADDRESS OF THE PERSON ADDRESS	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 18/02/2022	Sampling Time 10.40 am to 4.45 pm	100	Sampling I Noasaundi Bazar (1	

TEST RESULTS

s.N.	Test Parameter	Measurement Unit	Test Method	Requirer IS 105 (Drinking Wat Including An	Test Result	
				Acceptable Limit	Permissible Limit #	
11	Chemical Testing 2. Residues In Water					
20	Aesenic (as As)	mg/l	IS 3025 (Part 37): 1988	0.01	No relaxation	BDL (DL = 0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2): 2019 / IS 3025 (Part 55): 2003	0.03	0.2	BDL (DL - 0.01)
22	Basium (as Ba)	mg/l	IS 3025 (Part 2): 2019	0.7	No relaxation	BDL (DL = 0.01)
23	Boron (as B)	mg/l	(S-3025 (Part 2): 2019	0.5	2,4	BDL (DL = 0.1)
24	Copper (as Cu)	mg/l	1S 3025 (Part 2): 2019	0.05	1.5	BDL (DL -0.03)
25	Cadmium (as Cd)	mg/l	1S 3025 (Part 2): 2019	0.003	No relocation	BDL (DL = 0.001)
26	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	1.0	No relaxation	0.18
27	Lead (as Pb)	mg I	1S 3025 (Part 2): 2019	0.01	No relaxation	BDL (DL - 0.001)
28	Manganese (as Mn)	mg/l	1S 3025 (Part 2): 2019	0.1	0.3	BDL (DL - 0.05)
29	Mercury (as Hg)	mg/l	1S 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL = 0:0005)
30	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL-0.001)
31	Total Chromoum (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL = 0.03)
32	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	5	15	BDL (DL = 0.1)
33	Polynuclear aromatic hydrocarbon (PAH)	μg/1	ANto/7.2/RES/06: 2018	0.1	No relaxation	BDL(DL-0.03)

Please refer last Page for Note and Remarks.

Verified By

Shashikant Satdeve Sr. Chemist

Somewhere Shubhangi Armarkar Technical Manager

Authorized Signatory

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

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Export inspection council (EIC); AGMARK.

#### TEST REPORT

Test Report No. : Al	LPL/28022022/1-30	A dated 28		Page 3 o		22 102 (2022
Issued To: M/s Noamundi tro (M/s TATA Steel L Noamundi, Jharkhar Postal Code: 83321	n Mines imited) ad	Sample Inward No. Inward Date Reference Reference Date	2022/MON-32/60- GW- 22/02/2022 W.O 3000132460/962 15/65/2020	Analysis Er	sd se Date	22/02/2022 28/02/2022 28/02/2022 Water
Sample Name Geound Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-14		Co-ordinates Long: 85°30'21.34"E		Ltr & 250 ml
Sample Co Anacon Representa	llected By	Sampling Date 18/02/2022	Sampling To 10.40 am to 4.		ampling l di Bazar ()	Location Nr. Petrol Pump

TEST RESULTS

S.N.	* Test Parameter	Measurement Unit	Test Method	Requirement as per 1S 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3			Test Result	
				Acce	ptable Limit	Permissible Limit#		
34	Mineral Oil	mg/l	ANtr/7.2/RES/06: 2	2018	1	No relaxation	BDL (DL - 0.001)	
35	Pesticide Residues Organoch	lorine						
1	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 7	2018	0.01	No relaxation	BDL (DL - 0.01)	
ii	Beta HCH	μg/l	ANtr/7.2/RES/01: 7	2018	0.04	No relaxation	BDL (DL - 0.03)	
iii	Gamma - HCH (Lindane)	pg/l	ANtr/7.2/RES/01: 1		2	No relaxation	BDL (DL - 0.03)	
iv	Delta- HCH	µg/l	ANtr. 7.2/RES/01: 3	2018	0.04	No relaxation	BDL (DL - 0.03)	
V	Alachlor	ug/l	ANte/7.2/RES/01:		20	No relaxation	BDL (DL - 0.03)	
vi	Aldrin	μg/I	ANtr/7.2/RES/01.		0.03	No relaxation	BDL (DL - 0.03)	
vii	Dieldrin	µg/l	ANtr/7.2/RES/01:		0.03	No relaxation	BDL (DL - 0.03)	
viti	Butachlor	ng/l	ANtr/7.2/RES/01:	2018	125	No relaxation	BDL (DL - 0.03)	
-	p,p'-DDE	ng/l	ANtr/7.2/RES/01:		1	No relaxation	BDL (DL - 0.03)	
ix	o.p'-DDE	µg/I	ANii/7.2/RES/01:		1	No relaxation	BDL (DL - 0.03	
×		ив/1	ANtr/7.2/RES/01:		1	No relaxation	BDL (DL - 0.03	
XI.	p.p'-DDD	ид/1	ANtr/7.2/RES/01:	2018	1	No relaxation	BDL (DL - 0.03	
xii	o,p'-DDD	μg/I	ANtr/7.2/RES/01:		1	No relocation	BDL (DL - 0.03	
30111	o.p - DDT	µg/1	ANtr/7.2/RES/01:		1	No relaxation	BDL (DL - 0.03	
NEV	p.p'- DDT	μg/1	ANtr/7.2/RES/01:		1	No relaxation	BDL (DL - 0.03	
XV	Mohocrotophos Atrazine	μg/1	ANtr/7.2/RES/01:		2	No relaxation	BDL (DL - 0.03	
NVI	Parathion methyl	μg/Ι	ANti/7.2/RES/01:		0.3	No relaxation	BDL (DL - 0.03	
NVII	1 111 1	The second secon	ANII/7.2/RES/01:			-	BDL (DL - 0.03	
XVIII	Paraoxon methyl	μg/1	ANtr/7.2/RES/01:		190	No relaxation	BDL (DL - 0.03	
XiX	Malathion	µg/1	ANtr/7.2/RES/01:				BDL (DL - 0.03	
XX	Malaoxon	μg/l	ANII/7.2/RES/01:		3	No relaxation	BDL (DL - 0.03	
xxi	Ethion	µg/l	ANII/7.2/RES/01		30	No relaxation	BDL (DL + 0.03	
xxii	Chlorpyrifos	µg/l	AME AZ KESAL	#01B	30	100000000000000000000000000000000000000		

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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. : A	LPL/28022022/1-31	A dated 28		Page 1 of	3	
Issued To :		Sample Inward No. 2022/MON-32/60- GW-15		Analysis Sta	rt	22/02/2022
M/s Noamundi Iron Mines		Inward Date	22/02/2022	Analysis En	Analysis End	
(M/s TATA Steel L. Noamundi, Jharkhai Postal Code: 83321	nd	Reference Reference Date	W.O 3000132460/962 15.05,2020	The second secon	Report Issue Date 28/0 Sample Category Water	
Sample Name Ground Water	Sample Source Dugweil	Sample Particulars Sample Code-GW-15	Location Co-ord Lat: 22°8'54.89"N, Long		Statement of the state of the state of	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 18/02/2022	Sampling Time 10.40 am to 4.45 pm		Sampling Location Mahadi Village (Railway Station Road	

S.N.	Test Parameter	Measurement Unit	t Test Method	Requirem IS 1050 (Drinking Water Including Amo	Test Result	
				Acceptable Limit	Permissible Limit #	
1	Biological Testing 1. Water				OH ROLLEY	
-1	Excherichia coli	Per 100 ml	IS 15185 ; 2016	Absent	Absent	Absent
11	Chemical Testing 1. Water					
2	Alkalinity (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 23): 1986	200	600	172.16
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL-0.01)
4	Colour	Hazen units	1S 3025 (Part 4): 2021	- 5	1.5	1
5	Cyanide (as CN)	mg/l	IS 3025 (Pare 27): 1986	0.05	No relaxation	BDL (DL = 0.005)
6	Chloride (as Cl)	mg/l	1S 3025 (Part 32):1988	250	1000	26.82
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40)   1991	75	200	46.19
8	Free residual chlorine	mg/l	1S 3025 (Part 26): 2021	Min. 0.2	1	BDL (DL -0.1)
9	Fluoride (as F)	mg/l	1S 3025 (Part 60) : 2008	1.0	1.5	0.17
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46): 1994	30	100	13.58
11	Nitrate (as NO <sub>1</sub> )	mg/l	APHA method 23nf edition: 2017	45	No relaxation	8.16
12	Odour		IS 3025 (Part 5): 1983	Agreeable	Agreeable	Agreeable
13	pH	*	IS 3025 (Part 11): 1983	6.5 to 8.5	No relaxation	7.03 at 25°C
14	Phenolic compounds (as C <sub>5</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43): 1992	0.001	0.002	BDL (DL - 0.001)
15	Sulphate (as SO <sub>4</sub> )	mg/I	IS 3025 (Part 24): 1986	200	400	18.32
16	Taste		1S 3025 (Part 8): 1984	Agrecable	Agrecable	Agreeable
17	Total dissolved solids	mg/l	1S 3025 (Part 16): 1984	500	2000	287
18	Turbidity	NTU	IS 3025 (Part 10): 1984	1	5	0.6
19	Total hardness (as CaCO <sub>3</sub> )	10152/1	IS 3025 (Part 21): 2009	200	600	171.25

Please refer last Page for Note and Remarks.

Verified By

Shubhangi Armarkar Technical Manager

Authorized Signatories

People Kathung

Technical Manager

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

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TEST REPORT

Fest Report No. : Al Issued To : M/s Noamundi Iroi (M/s TATA Steel Li Noamundi, Jharkhai	n Mines imited) nd	A dated 28 Sample Inward No. Inward Date Reference Reference Date	2022/MON-32/60- GW-15 22/02/2022 W.O3000132469/962 15.05,2020	Analysis Sta Analysis End Report Issue Sample Cate	rt I Date	22/02/2022 28/02/2022 28/02/2022 Water	
Postal Code: 83321 Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-15			Quantity Received 5.0 Ltr & 250 ml		
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 18/02/2022	Sampling Time 10.40 am to 4.45 pm	12 116	Sampling Location Mahudi Village (Railway Station Road)		

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	1S 105 (Drinking Wat	nent as per 00 : 2012 er Specifications) nendment No. 3 Permissible Limit #	Test Result
11	Chemical Testing			Z.Hillion		
	2. Residues In Water		200 1000	2.01	No relaxation	BDL (DL - 0.01)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 1988	0.01	NO relaxation	13121 (131) - 0.017
21	Alaminium (as Al)	mg/I	15 3025 (Part 2) : 2019 / 15 3025 (Part 55): 2003	0.03	0.2	BDL (DL - 0.01)
-		mg/l	IS 3025 (Part 2): 2019	0.7	No relaxation	BDL (DL - 0.01)
22	Barium (as Ba)	mg/l	IS 3025 (Part 2): 2019	0.5	2.4	BDL (DL - 0.1)
23	Boron (as B)		IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL + 0.03)
24	Copper (as Cu)	mg/l		0.003	No relaxation	BDL (DL - 0.001
25	Cadmium (as Cd)	mg/l	18 3025 (Part 2): 2019	1.0	No relocation	0.21
26	Iron (as Fe)	mg/i	18 3025 (Part 2): 2019		No relaxation	BDL (DL - 0.001
27	Lead (as Pb)	mg/l	18 3025 (Part 2): 2019	0.01	0.3	BDL (DL - 0.05)
28	Manganese (as Mn)	mg/l	JS 3025 (Part 2): 2019	0.1	- Control of the Cont	BDL (DL - 0.0005
29	Mercury (as Hg)	mg/l	1S 3025 (Part 48): 1994	0.001	No relaxation	
30	Selenium (as Se)	mg/l	1S 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL- 0.001)
	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL - 0.03
31	The state of the s	mg/l	IS 3025 (Part 2): 2019	5	15	BDL (DL - 0.1)
32	Zinc (as Zn)	Ing/i			No. of the last of	DDI/DI ((75)
33	Polynuclear aromatic hydrocarbon (PAH)	ид/1	ANtr/7.2/RES/06: 2018	0.1	No relaxation	BDL(DL-0.03)

Please refer last Page for Note and Remarks.

Verified By

Shashikant Satdeve Sr. Chemist

Shubhangi Armarkar Technical Manager

**Authorized Signatory** 

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

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TEST REPORT

Test Report No. : A	LPL/28022022/1-31	A dated 28	/02/2022	Page 3 of	3	
Issued To:		Sample Inward No.	2022/MON-32/60- GW-15	5 Analysis Start		22/02/2022
M/s Nonmundi Iron Mines		Inward Date 22/02/2022		Analysis End		28/02/2022
(M/s TATA Steel L. Noamundi, Jharkha Postal Code: 83321	nd	Reference W.O 3000132460/962 Reference Date 15.05,2020		Report Issue Date Sample Category		28/02/2022 Water
Sample Name Ciround Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-15	Location Co-ord Lat: 22°8′54.89°N, Long:			
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 18/02/2022	Sampling Time 10.40 am to 4.45 pm		Sampling Location Mahodi Village (Railway Station Road)	

TEST RESULTS Requirement as per IS 10500: 2012 Measurement Test Result (Drinking Water Specifications) Test Parameter Test Method

5.N.	l'est Parameter	Unit	1 est stethou		neluding An	Ton Account	
				Accept	table Limit	Permissible Limit #	
34.	Mineral Oil	mg/l	ANR/7.2/RES/06: 2	018	1	No relaxation	BDL (DL - 0.001
35	Pesticide Residues Organochlo	rine					
1	Alpha-HCH	µg/1	ANB/7.2/RES/01: 2	018	0.01	No relaxation	BDL (DL = 0.01
ii	Beta HCH	ng/l	ANI/7.2/RES/01: 2	3018	0.04	No relaxation	BDL (DL = 0.03
iii	Gamma - HCH (Lindane)	ие/1	ANtr/7.2/RES/01: 2	2018	2	No relaxation	BDL (DL = 0.03
iv	Delta- HCH	ng/l	ANtr/7.2/RES/01: 2	2018	0.04	No relaxation	BDL (DL = 0.03
V	Alachlor	µg/l	ANtr/7.2/RES/01: 2	8102	20	No relaxation	BDL (DL = 0.03
vi	Aldrin	µg/l	ANii/7.2/RES/01: 3	2018	0.03	No relaxation	BDL (DL = 0.03
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 2	2018	0.03	No relaxation	BDL (DL = 0.03
viii	Butachlor	ug/l	ANte/7.2/RES/0112	2018	125	No relaxation	BDL (DL - 0.0)
ix	p.p'-DDE	µg/l	ANtr/7.2/RES/01: 3	2018	1	No relaxation	BDL (DL = 0.03
X	o.p'-DDE	µg/l	ANtr/7.2/RES/01: 3	2018	1	No relaxation	BDL (DL = 0.03
xi	p.p'-DDD	μg/1	ANte/7.2/RES/01: 7	2018	1	No relaxation	BDL (DL - 0.0)
XII	e,p'-DDD	µg/1	ANte/7.2/RES/01: 2	2018	1	No relaxation	BDL (DL = 0.0)
xiii	o,p'- DDT	ng/l	ANtr/7.2/RES/01: 7	2018	1	No relaxation	BDL (DL = 0.0)
xiv	p.p - DDT	μg/1	ANtr/7.2/RES/01:	2018	1	No relaxation	BDL (DL - 0.0)
XV	Monocrotophos	ид/1	ANtr/7.2/RES/01:3	2018	1	No relaxation	BDL (DL - 0.0)
avi	Atrazine	µg/1	ANtr/7.2/RES/01:	2018	2	No relaxation	BDL (DL - 0.0)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01;	2012	0.3	No relaxation	BDL (DL = 0.0)
xviii	Paraoxon methyl	ug/I	ANti/7.2/RES/01:				BDL (DL = 0.0)
xix	Malathion	μg/1	ANtr/7.2/RES/01;		190	No relaxation	BDL (DL - 0.0)
XX	Malaoxon	µg/I	ANto 7.2/RES/01:	2018			BDL (DL - 0.0)
XXI	Ethion	ug/l	ANtr/7.2/RES/01:	2018	3	No relaxation	BDL (DL - 0.0
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01:	2018	30	No relaxation	BDL (DL - 0.0
_	The state of the s			-			

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

Verified By

Authorized Signatory

Dr. (Mrs.) S.D. Garway

Laboratory address: FP-34TechnicathManagerStar Industrial Estate, MIDC Bullbori, Nagpur - 441 122. Email support@anacon.in

Quality Manager

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---End of Report-

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

#### TEST REPORT

Fest Report No. : Al Issued To : M/s Noamundi Iro (M/s TATA Steel Li Noamundi, Jharkhar	n Mines imited) ad	Sample Inward No. Inward Date	02/2022 2022/MON-32/60- GW- 22/02/2022 W O - 3000132460/962 15 05 2020	Analysis En	rt I Date	22/02/2022 28/02/2022 28/02/2022 Water	
Postal Code: 83321' Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-16		Co-ordinates Long: 85°30°28.50"E	The state of the s	ontity Received O Ltr & 250 ml	
Sample Co Anacon Representa	llected By	Sampling Date 18/02/2022	Sampling To 10.40 am to 4.	1 2000	mpling Lo m Bin (Nr.		

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requireme IS 10500 (Drinking Water Including Ame	: 2012 Specifications)	Test Result
				Acceptable Limit	Permissible Limit #	
1	Biological Testing 1. Water		1			
1 1	Excherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
11	Chemical Testing 1. Water				1 200	146.27
2	Alkalinity (as CaCO <sub>2</sub> )	mg/l	IS 3025 (Part 23): 1986	200	600	146.27
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL-0:01)
4	Colour	Hazen units	1S 3025 (Part 4): 2021	5	15	1
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 1986	0.05	No relaxation	BDL (DL -0.005)
6	Chloride (as Cl)	mg/I	1S 3025 (Part 32):1988	250	1000	32.95
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40): 1991	75	200	51.26
	Free residual chlorine	mg/l	IS 3025 (Part 26): 2021	Min. 0.2		BDL (DL - 0.1)
8	Fluoride (as F)	100/1	IS 3025 (Part 60); 2008	1.0	1.5	0.14
	The same and the s	mg/l	IS 3025 (Part 46): 1994	30	100	13.27
10	Magnesium (as Mg) Nitrate (as NO <sub>1</sub> )	mg/l	APEA method 23rd edition: 2017	45	No relaxation	9.14
11	Odour	-	15 3025 (Part 5): 1983	Agreeable	Agreeable	Agrecable
13	pH		1S 3025 (Part 11): 1983	6.5 to 8.5	No relaxation	6.82 at 25°C
	Phenolic compounds (as C <sub>0</sub> H <sub>3</sub> OH	mg/l	IS 3025 (Part 43): 1992	0.001	0.002	BDL (DL - 0:001
14		mg/l	IS 3025 (Part 24): 1986	200	400	16.24
15	Sulphate (as SO <sub>4</sub> )	11101	15 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
16	Taste	mg/l	IS 3025 (Part 16): 1984	500	2000	291
17	Total disselved solids	NIU	IS 3025 (Part 10): 1984	1	5	0.4
18	Turbidity Total hardness (as CoCO <sub>3</sub> )	mg/l	1S 3025 (Part 21) : 2009	200	600	182.65

Please refer last Page for Note and Remarks.

Verified By

Shubhangi Amarkar Technical Manar

**Authorized Signatories** 

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

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

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

TEST REPORT

Test Report No. : A	LPL/28022022/1-32	A dated 28	/02/2022	Page 2 of	3	
Issued To; M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No.	2022/MON-32/60- GW-16	Analysis Sta	rt	22/02/2022
		Inward Date	22/02/2022	Analysis En	ű	28/02/2022
		Reference W.O 3000132460/962 Reference Date 15.05.2020		Report Issue Date Sample Category		28/02/2022 Water
Sample Name Sample Source Ground Water Dugwell		Sample Particulars Sample Code-GW-16	Location Co-ord Lat: 22'8'52.58'N, Long:			tity Received Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 18/02/2022	Sampling Time 10.40 am to 4.45 pm	1,100	Sampling Location Bottom Bin (Nr. Barrack)	

S.N.	Test Parameter	Measurement Unit	Test Method	Requirer IS 105 (Drinking Wat Including An	Test Result	
				Acceptable Limit	Permissible Limit #	
11	Chemical Testing 2. Residues In Water					
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 1988	0.01	No relaxation	BDL (DL = 0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2): 2019 / IS 3025 (Part 55): 2003	0.03	0.2	BDL (DL = 0.01)
22	Barium (as Ba)	rug/1	1S 3025 (Part 2): 2019	0.7	No relaxation	BDL (DL = 0.01)
23	Boron (as B)	mg/l	IS 3025 (Part 2) (2019	0.5	2.4	BDL (DL = 0.1)
24	Copper (as Cu)	mg/l	15 3025 (Part 2): 2019	0.05	1.5	BDL (DL + 0.03)
25	Cudmium (as Cd)	mg/l	1S 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL = 0.001)
26	Iroh (as Fe)	mg/l	1S 3025 (Part 2): 2019	1.0	No relaxation	0.17
27	Lead (as Pb)	mg/l	IS 3025 (Part 2): 2019	0.01	No relaxation	BDL (DL = 0.001)
28	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019	0.1	0.3	BDL (DL - 0.05)
29	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL = 0.0005)
30	Sclenium (as Se)	mg/l	1S 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL= 0.001)
31	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL - 0.03)
32	Zinc (as Zn)	mg/l	1S 3025 (Part 2) : 2019	5	15	BOL (DL = 0.1)
33	Polynuclear aromatic bydrocarbon (PAH)	μg/1	ANtr/7.2/RES/06: 2018	0.1	No relaxation	BDL(DL-0.03)

Please refer last Page for Note and Remarks.

Verified By

Shashikant Satdeve Sr. Chemist

amerilare Shabhangi Armarkar

Technical Manager

Authorized Signatory

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

1 and



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

Export inspection council (EIC), AGMARK.

# TEST REPORT

Test Report No. : A	LPL/28022022/1-32	A dated 28	/02/2022	Page 3 of	3		
Issued To:		Sample Inward No.	2022/MON-32/60- GW-16	Analysis Sta	ri	22/02/2022	
M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Inward Date   22/02/2022		Analysis End	d	28/02/2022	
					Report Issue Date Sample Category		
Sample Name Sample Source Ground Water Dugwell		Sample Particulars Sample Code-GW-16	Location Co-o Lat: 22°8'52.58"N, Lon		750000	Ltr & 250 ml	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 18/02/2022	Sampling Time 10.40 am to 4.45 pt		Sampling Lo Bottom Bin (Nr.		

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method		Requiren IS 1050 (Drinking Wate Including Am	Test Result					
				Ace	ceptable Limit	Permissible Limit#					
34	Mineral Oil	mg/l	ANtr/7.2/RES/06:	2018	1	No relaxation	BDL (DL - 0.001)				
35	Pesticide Residues Organochlorine										
1	Alpha-HCH	пр/1	ANu/7.2/RES/01:	2018	0.01	No relaxation	BDL (DL - 0.01)				
11	Beta HCH	µg/1	ANtr/7.2/RESAIL:	2018	0.04	No relaxation	BDL (DL - 0:03)				
lii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01:	2018	2	No relaxation	BDL (DL - 0.03)				
iv	Delta- HCH	μg/1	ANtr/7.2/RES/01:	2018	0.04	No relaxation	BDL (DL - 0.03)				
¥	Alachfor	µg/l	ANtr/7.2/RES/01:	2018	20	No relaxation	BDL (DL - 0.03)				
V	Aldrin	µg/l	ANti/7.2/RES/01:	2018	0.03	No relaxation	BDL (DL - 0.03)				
vii	Dieldrin	μg/l	ANtr/7.2/RES/01:	Sile between the con-	0.03	No relaxation	BDL (DL = 0.03)				
viii	Butachlor	µg/l	ANte/7.2/RES/01:	2018	125	No relaxation	BDL (DL - 0.03)				
ix	p.p'-DDE	µg/l	ANtr/7.2/RES/01:	2018	1	No relaxation	BDL (DL = 0.03)				
X	a.pDDE	μρ/1	ANtr/7.2/RES/01:	2018	1	No relaxation	BDL (DL - 0.03)				
xi	p.p -DDD	µg/1	ANti/7.2/RES/01:	2018	1	No relaxation	BDL (DL + 0.03)				
XII	o.pDDD	µg/l	ANte/7.2/RES/01:	2018	1	No relaxation	BDL (DL - 0.03)				
XIII	o.p - DDT	µg/l	ANIe/7.2/RES/01:	2018		No relaxation	BDL (DL - 0.03)				
xiv	p.p - DDT	µg/l	ANtr/7.2/RES/01:	2018	1	No relaxation	BDL (DL - 0.03)				
XV	Monocratophos	µg/l	ANG/7.2/RES/01:	2018	1	No relaxation	BDL (DL = 0.03				
svi	Atrazine	ng/t	AND/7.3/RES/01:	2018	2	No relaxation	BDL (DL - 0.03				
xvii	Panabion methyl	µg/l	AND 7.2/RES/01:	2018	0.3	No relaxation	BDL (DL - 0.03)				
XVIII	Paraoxon methyl	μg/l	ANn 7.2 RES/01:				BDL (DL + 0.03				
XiX.	Malathion	µg/l	ANn 7.2/RES-91:	2018	190	No relaxation	BDL (DL - 0.03				
XX	Malaoxon	µg/l	ANte/7.2/RES/01:	2018			BDL (DL - 0.03				
XXI	Ethion	ug/l	ANte/7.2/RES/01:	2018	-3	No relaxation	BDL (DL - 0.03				
xxii	Chlorpyrifes	ng/l	ANto 7.2/RES/01	2018	30	No relaxation	BDL (DL - 0.03				

NOTE: # Please see watermark. "Original Test Report" to confirm the authoritory of this report. # Results shall be referred to tested annulos; and applicable to rested parameters only ■ Test report shall not be reproduced except to full welcome prior written approach of America Labs. ■ Limbility of America Labs in bestied to invoiced amount only. ■ Non-periodable and prior written approach of a better the periodable amount only in the dependent of the 30 days and 15 days and 15 days are the date of issue of Test Report, solves specified observace. ● SPermanifel to invoiced amount only. ■ Non-periodable and abstract asserted in disability and a service for disability and service. ● Inp. To operwhele to 'pope'. ● ap. To operwhele to 'pope'. ● BDL. Below detection limit, ● DL. Bit Indicates detection limit of instrument (method and shall be considered as 'absent'. ● Scrult for test no. E is not relevant. ● ANIC 7.2 RES 40.06, Inhouse validated method. ● 50° reduction is accepted as accepted as

REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with 15:10500;2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

Verified By

Sonair Charpure **Technical Manager**  Authorized Signatory

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

Jan

----End of Report----

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

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#### Ground Water level details.

# Noamundi Iron Mine, M/s Tata Steel Limited

Compliance to 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.

Regular monitoring of ground water level in and around the mine lease of existing dug-well & piezometers are regularly been done in desired frequency.

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

OL N.		Month			
SI. No.	Location	November 2021	February 2022		
Dug We	Il Locations:				
1.	Mohudi Railway Station, Kash Moudi Inside Home	1.4 m	1, 5 m		
2.	Near Bottom Bin Gate	3.5 m	3.6 m		
3.	Noamundi Basti (inside house)	2.5 m	2.3 m		
4.	Noamundi Bazar (In front of Petrol Pump)	2.2 m	2.4 m		
Piezome	eter Locations:				
5.	Balijharan, Near Aqua Park, Noamundi	20.0 m	21. 2 m		
6.	Jojo Camp	5, 8 m	6.1 m		
7.	Bottom bin	1.6 m	1.59 m		
8.	Near Power House	15.8 m	15.2 m		

Senior Manager Environment



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**TEST REPORT** 

Issued To:	: ALPL/30112021/1		dated 30/			Page I of I		
	man Bd:	Sample Inward No.		2021/MON-147/60- SW-5 & 6		Analysis Start	23/11/2021	
M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217  Sample Name Surface Water Surface Water Sample Collected By Anacon Representative Mr. K. Pandey		Inward Date		22/11/2021		Analysis End	29/11/2021	
		Reference	erence		000132460/962	Report Issue Dat	te 30/11/2021	
		Reference Date Sample Particulars Sample Code-SW-5 & 6		15.05.2020 Location Coord SW-5 Lat: 22°8'59.1"N: Lor SW-6 Lat: 22°9'35.88"N; Lo		Sample Category	Witter	
						rdinate Quantity R ong: 85°29'37.62"		
		Sampling Date 19/11/2021			g Time Sampling Location			

		TEST RESULTS			
Test Parameter	Measurement	Total Mathed	Standards as per	Test	Result
	Unit	rest iviethed		SW-5	SW-6
Biological Testing 1.Water			Common C		
Total Coliforn	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
Chemical Testing 1.Water				intro(trine)	DDL(D(F2)
		IS 3025 (Part 11): 1983	6.0 to 9.0	7.43 at 25°C	7.38 at 25°C
The second secon	Hazen units	IS 3025 (Part 4): 2021		1.45 41 25 C	7.30 at 23 C
	mg/l	IS 3025 (Part 38):1989		60	6,2
	mg/l				BDL(DL-10
	mg/l		3.0		BDL(DL-10
Chemical oxygen demand	mg/l				
	mg/l			THE REAL PROPERTY AND ADDRESS OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS	BDL(DL-4)
	mg/l			The second secon	218
	mg/l			THE RESERVE OF THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAME	BDI (DL-0.0)
Sulphate (as SO <sub>4</sub> )	mg/l			The second secon	62.19
Nitrate (as NO <sub>3</sub> )	mg/l			-	10.11
Fluoride (as F)	mg/l		The second secon		7.69
Cyanide (as CN)	mg/l				0.35
Phenolic compounds (as C6H5OH)	mg/l				BDL(DL-0.00
	mg/l			THE RESERVE THE PERSON NAMED IN COLUMN 2 IS NOT THE OWNER.	BDL(DL-0.00
	In Water		1.57	DDL(DL-0.01)	BDL(D10.01
	mg/l	IS 3025 (Part 2): 2019	0.5	0.02	0.50
Cadmium (as Cd)	mg/l				0.50
Selenium (as Se)	mg/l				BDL(DL-0.00
	mg/l		The state of the s		BDL(D10.00)
Lead (as Pb)	mg/l				BDL(DL-0.00
Zinc (as Zn)	mg/l				BDL(DL-0.05
Hexa Chromium (as Cr16)					BDL(D1,-0.05
Mercury (as Hg)	-				BDL(DL-0.00
Manganese (as Mn)	-			The state of the s	BDL(DL-0.005 BDL(DL-0.05
	pH value  Colour  Dissolved Oxygen  Total Suspended Solid (as TSS)  BOD (3 days at 27°C)  Chemical oxygen demand  Total Dissolved Solids (TDS)  Copper (as Cu)  Chloride (as Cl)  Sulphate (as SO <sub>2</sub> )  Nitrate (as NO <sub>3</sub> )  Fluoride (as I')  Cyanide (as I')  Cyanide (as CN)  Phenolic compounds (as C6H5OH)  Anionic Detergent  Chemical Testing 2. Residues  Iron (as Fe)  Cadmium (as Cd)  Sclenium (as Sc)  Arsenic (as As)  Lead (as Pb)  Zinc (as Zn)  Hexa Chromium (as Cr <sup>16</sup> )  Mercury (as Hg)	Biological Testing 1.Water  Total Colifon MPN/100ml  Chemical Testing 1.Water pH value - Colour Hazen units  Dissolved Oxygen mg/l  Total Suspended Solid (as TSS) mg/l  BOD (3 days at 27°C) mg/l  Chemical oxygen demand rag/l  Total Dissolved Solids (TDS) mg/l  Copper (as Cu) mg/l  Chloride (as Cl) mg/l  Sulphate (as SO <sub>c</sub> ) mg/l  Nitrate (as NO <sub>3</sub> ) mg/l  Fluoride (as CN) mg/l  Cyanide (as CN) mg/l  Anionic Detergent mg/l  Chemical Testing 2. Residues in Water  Iron (as Fe) mg/l  Cadmium (as Cd) mg/l  Selenium (as Se) mg/l  Arsenic (as As) mg/l  Lead (as Pb) mg/l  Zinc (as Zn) mg/l  Hexa Chromium (as Cr <sup>16</sup> ) mg/l  Mercury (as Hg) mg/l	Test Parameter	Test Parameter	Test Parameter

NOTES: © Please see watermark "Original Test Report" to confirm the authenticity of this report. © Results shall be referred to tested sample(s) and app tentile to tested parameters only perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. © 'mg/l' is equivalent to 'ppm'. © HDL
Below detection limit © DL- Indicates detection limit of instrument/method and shall be considered as 'absent'. REMARKS: As requested by the client, sample was tested for above parameters only.

Verified By

Shashikant Satdeve Sr. Chemist

Con

Brush Shubhangi Armarkar 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 Bullbori, Nagour - 441 122.

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   Export expective council (EXCs AGMARK).

TEST REPORT

Issued To :	ALPL/28622622/1			Pag	Page 1 of 1		
M/s Noamundi Iron Mines M/s TATA Steel Limited)		Sample Inward No.	2022/MON-1266-5W-5 & 6	Analysis Start	22/02/2022 28/02/2022		
		Inward Date	22/02/2022	Analysis End			
Neamundi, Hurk		Reference	W O = 30001124an sug3	Report Issue Dat	e 28 (152022		
Postal Code 833.	217	Reference Date	15052030	Sample Category	Water		
Sample Name Surface Water	Sample Source Balishora Nallah	Sample Particulars Sample Code-SW-5 & 6	Location Coord SW-5 Lat 22 8 59 1 Pt Lo	linate no: 85°29°37 63°E	Quantity Received		
	offected By stive Mr. E. Pandey		SW-6 Lat: 22 9/35 88 N; Lo ng Time oci 45 pm   Balighere Nellah es	Sampling Location			

TEST RESULTS

S.N.	Test Parameter	Measurement	Test Method	Standards as per IN 2296:1992	Test Result	
-		Unit	Total Statement	Class C	SW-5	SW-6
	Biological Testing LWater					
1	Total Coliforn	MPN 100ml	IN 1622 : 1981	5000	HOLDE-21	BOLDES
H	Chemical Testing I.Water		C1671. 10		1	I MARKA
-	pH value.	-	15 3025 (Part 11) , 1981	6.916.96	7.47 at 25%	7.36ut 25%
4	Colour	Hazen again	15 3025 (Pari 4) 2021	300	1	15,High 22 1
4	Dissolved Oxygen	mg1	18 8025 (Part 18) 1989	4.0	6.1	6.3
3	Total Suspended Solid (as TSS)	ng1	15 3025 (Part 17) 1984		BDt (D) - Im	DDL(DL-16
6	BOD (3 days at 27°C)	mg I	18 3025 (Part 44) 1993	10	100 (101-2)	
7	Chemical oxygen demand	mg/I	1S 3025 (Part 38) 2006		100001-41	Tend of the
8	Total Dissolved Solids (TDS)	Ing/I	FC 3025 (Part 16): 1984	1500	309	BOLDE 4
9	Copper (as Cu)	mg/I	15 3025 (Part 2) : 2019	1.5	BDGD -0.03	212
0	Chloride (as Ct)	mg/l	Cs 3025 (Part 32) 1988	600	51.63	BOLEN OF
1	Sulphute (as SO <sub>4</sub> )	sug/I	15 3025 (Part 24): 1986	400	1124	38.77
2	Nitrate (us NO),)	mg/l	15 3025 (Part 34) : 1988	50	6.82	7.19
3	Fluoride (us F)	100	FS 3025 (Part 66) : 2008	15	0.31	
4	Cyanide (as CN)	mgT	15:3025 (Part 27):1986	0.05	BDL(DL-0.005)	0.28
3	Phenolic compounds (act service)	ting 4	-18 3025 (Part 43): 1001	0.005	BDL (DL-0 001)	mucht on
6	Anionic Detergent	mg/l	18 13428 2005 Annex K	1.9		BDL(DL 0.0
	Chemical Testing 2. Residues	In Water		1.0	Material and the second	METALDS AND
7	Iron (as Fe)	102.1	15 3025 (Part 2) 2019	0.5	0.44	
H	Cadmium (as f.d)	melt	15-3025 (Part 41) 1992	(1.5)	(1.16)	6.71
9	Scientum (as Se)	100.1	18 3025 (Part 2) - 2019	0.05	BDL(DL a oot)	indian no
0	Arsenic (as As)	101gt T	15 3025 (Part 37): 1988	Contract Contract	BDI (190 00))	BDI (DI -0 o
	Lead (as Ph)	1997	15 1025 (Pag 47) 2001	6.1	BIN ON CHEST	PINGH-00
2	Zitic (as Zn)	mg/l	5 3025 (Pan 2) 2019	15	DDL(DL-0.05)	BDL(DL-0.0
3	Hexa Chromium (as Cr.)	mp/l	18 3028 (Pag 2) - 2010	1105	BENEFIT OF	BDL(DL-0.0
4	Mercury (as Hg)	ane.	IS: 3025 (Part 48): 1994	100	HIN (101 -0.00) 1	100 (th-00)
5	Manganese (as Mn)	mg/l			HDL(DE-0.005)	DEPT CHILD OF
		100.1	18 3025 (Part 2) (2019)	**	BOLDI-0.05	BDUDE-08

NOTES & Proceedings of the control o

REMARKS: As requested by the cirent, sample was fested for above constructors only

Verified By

Shashikani Satdeve Sr. Chemist

Shubbang Amurkar Technical Man

Authorized Signatories

Popel Kathane Technical Manager

Dr. (Mn. 18 D. Garvin Quality Missigns

Laboratory address: FP-34, 35, Food Park, 5 Star Industrial Estate, MiCO Bullton, Nagour - 441 122 Email support@arracon.in

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 Agricultural & Processed Food Products Export Development Authority (APEDA).
 Bureau of India Standards (BIS) - Export Inspection council (EIC), ACMARIA.

#### TEST REPORT

ULR No.- TC545822000000856F

Issued To: M/s Noamundi (M/s TATA Ster Noamundi, Jhar Postal Code: 83.	Iron Mine of Limited) kband	Sample In Inward D Reference Reference	nward No. Jate e	8/02/2022 2022/MON-32/60-118 22/62/2022 W.O 3000132460/96 15.05.2020	2	Page 1 of 2 Analysis Start Analysis End Report Issue D Sample Catego	22/02/2022 28/02/2022 ate 28/02/2022	
Sample Name Sewage Water	Sample Source New Town Ship STP 50 Inlet & Outlet	KLD		ple Particulars Code-WW-11 & 12		e Condition	Quantity Received 5.0 Ltr & 250 ml	
Sample Collected By Anacon Representative Mr. K. Pandey			Sampling Date Sampling Ti 18/02/2022 11.50 am to 4.2			New Town	pling Location o Ship STP 50 KLD let & Outlet	

TEST RESULTS

S.N.	est rarameter	Measurement Unit	Test Method	Standards (In Land Surface	Test Result	
		S.HEH.		Water)	Inlet	Outlet
I	Chemical Testing Pollution & Environment				1	- Switter
1	pH value		IS 3025 (Part 11): 1983	5.5 to 9.0	I man asiles	
2	Oil & Grease	mg/l	IS 3025 (Part 39): 1991	-	7.21 at 25°C	7,28 at 25%
3	Total Suspended Solid (TSS)	mg/l		10	BDL(DL-4)	BDL(DL-4
4	Ammonical Nitrogen (as N)		IS 3025 (Part 17): 1984	100	85	26
4	Total Kjeldahl Nitrogen (as N)	mg/l	IS 3025 (Part 34):1988	50	10.26	5.28
6	nordel 1	mg/I	1S 3025 (Part 34): 1988	100	20	- 0
0.	BOD <sup>1</sup> (3 days at 27°C)	mg/l	1S 3025 (Pagt 44):1993	30	10	
1	Chemical Oxygen Demand	mg/I	18 3025 (Part 58) 2006	250		. 0
8	Cyanide (as CN)	me/l	IS 3025 (Part 27): 1986	-	158	28
9	Phenolic Compounds (as CallaCH)	mg/l		0.2	BDL(DL-0.1)	BDL(DL-0.
-	1 100 100 110 110	HIER	IS 3025 (Part 43): 1992	1.0	BDL(DL-0.1)	BDL(DL-0

NOTES: 

Picture see watermark "Original Test Report" to confirm the authenticity of this report. 

Results shall be referred to tested samplers) and applicable to tested parameters only perishable samplers) shall be deposed off after 30 days and 15 days respectively from the date of muc of Test Report, unless specified otherwise. 

"mg." to equivalent to 'ppea'. 

BILL
Holow detection limit 

DL- Indicates detection limit of instruments method and shall be considered as 'about."

Verified By

Shubhangi Armarkar Technical Manager Authorized Signatory

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





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

#### TEST REPORT

ULR No.- TC545822000000856F Test Report No. : ALPL/28022022/1-12A

dated 28/02/2022 Sample Inward No.

22/02/2022

2022/MON-32/60-11&12 Analysis Start Analysis End

22/02/2022 28/02/2022 28/02/2022

M/s Noamundi Iron Mine (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217

Inward Date Reference Reference Date

W.O.-3000132460/962 15.05.2020

Sample Category

Page 2 of 2

Report Issue Date

Water

Sample Name Sewage Water

Issued To:

Sample Source New Town Ship STP 50 KLD Inlet & Outlet

Sample Particulars Sample Code-WW-11 & 12

Sample Condition Scaled & Ice Preserved

Quantity Received 5.0 Ltr & 250 ml

Sample Collected By Anacon Representative Mr. K. Pandey

Sampling Date 18/02/2022

Sampling Time 11.50 am to 4.20 pm

Sampling Location New Town Ship STP 50 KLD

Inlet & Outlet

S.N.	THE STANLEY	Measurement	Test Method	Standards (In Land	Test Result	
		Cua	1072.1124.1130	Surface Water)	lules	Outlet
П	Chemical Testing 2. Residues In Water		•	2224		
10	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	3.0	0.10	
11	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	3.0	0.18	0.14
2	Manganese (as Mn)	me/l	1S 3025 (Part 2) : 2019	THE RESIDENCE OF THE PARTY OF T	BDL(DL-5)	BDL(DL-5)
3	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1904	2.0	BDL(DL-0.1)	BDL(DL-0.1
4	Cadmium (as Cd)	mg/l	18 : 3025 (Part 41) : 1902	0.01	BDL(DL-0.01)	BDL(DL-0.01
5	Selenium (as Se)	mg/l		2.0	BDL(DL-0.1)	BDL(DL-0.1
6	Lead (as Ph)		IS : 3025 (Part 56)	0.05	BDL(DL-0.1)	BDL(DL-0.1
7	Arsenic (as As)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.1)	BDL(DL-0.1
8	Nickel (as Ni)	mg/l	IS: 3025 (Part 37): 1988	0.2	BDL(DL-0.05)	BDL(DL-0.05
9	A Total And Marketon	mg/l	IS:13428 : 2005(Annexure L.)	3.0	BDL(DL-0.1)	BDL(DL-0.1
	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5.0	BDL(DL-5)	AND DESCRIPTION OF THE PARTY OF
0	Total Chromium	mg/1	IS 3025 (Part 2): 2019	2.0	BDL(DL-0.1)	BDL(D15)
1	Vanadium (as V)	mg/l	ES 3025 (Part 2): 2019	0.2	BDL(DL-0.1)	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

---End of Report---

Authorized Signatory

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



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

Export inspection council (EIG): AGMARK.

TEST REPORT

Issued To: M/s Nonmundi (M/s TATA Stee Noamundi, Jharl Postal Code: 83)	Iron Mine I Limited) hand		Inward No. Date ce	8/02/2022 2022/MON-32/60-11& 22/02/2022 W.O 3000132460/96, 15.05.2020	Page 1 of 1 Analysis Start Analysis End Report Issue D Sample Catego	The state of the s	
Sample Name Sewage Water	Nav. Tone Ship STD so ru s		Sample Particulars Sample Code-WW-11 & 12		Condition	Quantity Received	
Sample Collected By Amscon Representative Mr. K. Pandey		S	Sampling Date Sampling Ti 18/02/2022 11:50 am to 4:2			oling Location a Ship STP 50 KLD	

-	I	,	TEST RESULTS			
S.N.	Test Parameter	Measurement Unit	Test Method	Standards (In Land Surface	Test	Result
				Water)	Inlet	Outlet
I	Biological Testing 1.Water					•
1	Faccal coliform	MPN/100 ml	IS 1622 : 1981	I	63	58
11	Chemical Testing Pollution & Environment		and the state of	1	1 00	20
2	Colour	Hazen units	IS 3025 (Part 4): 1983	Colourless	2	0.00-11-1
3	Odour		1S 3025 (Part 5): 2018	Odourless	Disagrecable	0 (Colouriess 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 <sub>3</sub> )	mg/l	APHA Method	interest to attack	BDL(DL-0.1)	Partie of the control
8	Fluoride (as F)	mg/t	IS 3025 (Part 60) : 2008	2.0	0.36	BDL(DL-0.1)
9	Sulphide (as S)	mg/l	1S 3025 (Part 29): 1986	2.0	BDL(DL-0.03)	BDL(DL-0.1)
10	Nitrate Nitrogen	mg/l	APHA Method	10	-	BDL(DL-0.03)
11	Bio Assay Test	%	APHA 22nd Edition	90% Survival of fish after 96 hours in 100% effluent	83%	BDL(D12) 96%
12	Hexavalent Chromium (as Cr <sup>26</sup> )	mg/l	IS 3025 (Part 2): 2019	0.1	BDL(DL-0.01)	BDL(DL-0.01)
13	Dissolved Phosphate (as P)	mg/i	IS 3025 (Part 31): 1988	5.0	BDL(DL-0,1)	BDL(DL-0.1)

NOTES: These see watermark. Degreed Test Report to concluse the authorizes of this report. Results shall be referred to tested samples() and applicable to tested parameters only perishable samples() shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. Singl' is equivalent to 'ppm'. Results and test to 5 is not relevant. BDL-Below detection limit. DL-Indicates detection from a fundament method and shall be considered as 'absent'. REMARKS: As requested by the client, sample was tested for above parameters only

Verified By

Shashikant Satdeve Sr. Chemist

Broneis our Shubilangi Armarkar Technical Manager

Authorized Signatories

Poeta Kathbrie Technical Manager

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

End of Report-

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

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# TEST REPORT

ULR No.- TC545822000000856F

Test Report No. : ALPL/28022022/1-13A dated 28/02/2022 Issued To: Page 1 of 2 Sample Inward No. 2022/MON-32/60-15&16 M/s Noamundi Iron Mine Analysis Start 22/02/2022 Inward Date 22/02/2023 (M/s TATA Steel Limited) Analysis End 28/02/2022 Reference Noamundi, Jharkhand W.O.- 3000132460/962 Report Issue Date 28/02/2022 Postal Code; 833217 Reference Date Sample Category 15.05.2020 Water Sample Name Sample Source Sample Particulars Sample Condition Quantity Received Central Camp STP 50 KLD Sewage Water Sample Code-WW-15 & 16 Inlet & Outlet Scaled & Ice Preserved 5.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr.K. Pandey 18/02/2022 Central Camp STP 50 KLD 11.50 am to 4.20 pm Inlet & Outlet

TEST RESULTS

i.N.	Test Parameter	Measurement Unit	Test Method	Standards (In Land Surface	Test Result	
I	Chemical Testing			Water)	Inlet	Outlet
1	Pollution & Environment pH value		10 2025			
2	Oil & Grease	mod	18 3025 (Part 11): 1983	5.5 to 9.0	7.10 at 25°C	7.26 at 25%
3 ]	Total Suspended Solid (TSS)	mg/l	IS 3025 (Part 39): 1991	10	BDL(DL-4)	BDL(DL-4
	Ammonical Nitrogen (as N)	mg/i	IS 3025 (Part 17): 1984	100	80	20
5	Total Kjeldahl Nitrogen (as N)	mg/I	IS 3025 (Part 34):1988	-50	7.20	BDL(DL-1
	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 34): 1988	100	13.0	4.10
	Chemical Oxygen Demand	mg/l	15 3025 (Part 44) :1993	30	30	
	Counties oxygen Demand	mgi	1S 3025 (Part 58) :2006	250	150	6.5
	Cyanide (as CN) Phenolic Compounds (as C <sub>4</sub> H <sub>4</sub> OH)	mg/l	1S 3025 (Part 27): 1986	0.2	BDL(DL-0.1)	BDL(DL-0.

NOTES: 

Please we selection. Conjugal Test Report to continue the autoentacty of the report. 

Remain shall be referred to bested sample(s) and applicable to tested parameters only perceivable sample(s) shall be disposed off after All days and 15 days respectively from the date of most of rest Report, unless specified otherwise. 

"mgT is equivalent to "ppm". 

### IDC-

Verified By

Shubhangi Armarkar Technical Manager Authorized Signatory

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





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#### TEST REPORT

ULR No.- TC545822000000856F Test Report No.: ALPL/28022022/1-13A dated 28/02/2022 Page 2 of 2 Issued To: Sample Inward No. 2022/MON-32/60-15&16 Analysis Start 22/02/2022 M/s Noamundi Iron Mine Inward Date 22/02/2022 Analysis End 28/02/2022 (M/s TATA Steel Limited) Reference W.O.- 3000132460/962 Report Issue Date 28/02/2022 Noamundi, Jharkhand Sample Category Water Reference Date 15.05.2020 Postal Code: 833217 Sample Name Sample Source Sample Particulars Sample Condition Quantity Received Central Camp STP 50 KLD Sewage Water Sample Code-WW-15 & 16 Scaled & Ice Preserved 5.0 Ltr & 250 ml Infet & Outlet Sample Collected By Sampling Date Sampling Time Sampling Location Central Camp STP 50 KLD Attacon Representative Mr.K. Pandey 18/02/2022 11.50 am to 4.20 pm Inlet & Outlet

TEST RESULTS

S.N.	Test Parameter	Measurement	1 Test Method	Standards (In Land	Test Result	
		Unit	test Method	Surface Water)	Inlet	Outlet
11	Chemical Testing 2. Residues In Water		,			
10	fron (as Fc)	mg/l	1S 3025 (Part 2): 2019	3.0	0.18	0.13
11	Copper (as Cu)	mg/l	1S 3025 (Part 2): 2019	3.0	BDL(DL-5)	BDL(DL-5)
12	Manganese (as Mn)	mg/l	15 3025 (Part 2) : 2019	2.0	BDL(DL-0.1)	BDL(DL-0.1)
13	Mercury (as Hg)	mg/l	18: 3025 (Part 48): 1994	0.01	BDL(DL-0.01)	BDL(DL-0.01
14	Cadmium (as Cd)	mg/l	1S:3025 (Part 41): 1992	2.0	BDL/DL-0.D	BDL(DL-0.1)
15	Selenium (as Se)	mg/l	18: 3025 (Part 56)	0.05	BDL(DL-0.1)	BDL(DL-0.1)
16	Lead (us Pb)	mg/l	1S 3025 (Part 47) : 2003	0.1	BDIaDI-0.11	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	18/13428 2005(Annexure L)	3.0	BDL(DL-0.1)	BDL(DL-0.1)
19	Zinc (as Zn)	mg/l	1S 3025 (Part 2) 2019	5.0	BDL(DL-5)	BDL(DL-5)
20	Total Chromium (as Cr)	mg/l	1S 3025 (Part 2): 2019	2.0	HDL(DL-0.1)	BDL(DL-0.1)
21	Variadium (as V)	mg/l	IS 3025 (Part 2) : 2019	0.2	BDL(DL-0.1)	BDL(DL-0.1)

NOTES: • Please are watermark. Original Fed Report to confirm the antermorary of this report. • Results shall be referred to rested sample of and applicable to tested parameters only employed and the separate of the separa

Verified By

Shashikani Satdeve Sr. Chemist

---End of Report---

Authorized Signatory

Dr. (Mrs.) S.D. Garway

Quality Manager

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

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TEST REPORT

est Report No.: ALPL/28022022/1-13 Issued To: M/s Noamundi Iron Mine (M/s TATA Steel Limited) Noamundi, Jharkhand		Sample Inward No. Inward Date Reference		28/08/022 2022/MON-32/60-15&16 22/02/2022 W.O 3000132460/962		Analysis Start Analysis End		22/02/2022 28/02/2022
ostal Code: 83321		Reference		15.05.2020	2400.05/0.2		t Issue Date le Category	28/02/2022 Water
Sample Name Sewage Water	Sample Name Sample Su Sewage Water Central Camp ST Inlet & Ou		50 KLD		Particulars Sample Com- c-WW-15 & 16 Scaled & Ice Pr			Received
Sample Collected By Anacon Representative Mr.K. Pandey			Sampling Date 18/02/2022		Sampling Time 11.50 am to 4.20 pm		Sampling Location Central Camp STP 50 K	

S.N.	Test Parameter	Measurement Unit	Test Method	Standards (In Land Surface	Test	Result
1	Biological Testing L.Water			Water)	Inlet	Outlet
1	Faccal coliform	MPN/100 mt	10 1433 1003	1		

1	Faccal coliform	MPN/100 ml	IS 1622;: 1981	1	1	1
11	Chemical Testing Pollution & Environment		1		109	84
2	Colour	Hazen units	IS 3025 (Part 4): 1983	1 3:		
3	Odogr		IS 3025 (Part 5) : 2018	Colourless	2	0 (Colourless
	-		13 3023 (Pan 3) : 2018	Odourless	Disagrecable	Agreeable
4	Temperature	°C	APHA Method	Shall not exceed 5°C above the receiving water temperature	25°C	25°C
3	Free residual chlorine	mg/i	1S 3025 (Part 26): 1986	1.0	DISTANCE OF	
6	Particulate size of SS				BDL(DL-0.1)	BDL(DL-0.1)
-			Gravimetric Method	Shall pass 850 micron IS Sieve	<850	<850
	Free Ammonia (as NH <sub>1</sub> )	mg/l	APITA Method	t to the t	DDI THE	
1	Fluoride (as F)	mg/I	1S 3025 (Part 60) : 2008	2.0	BDL(DL-0.1)	BDL/DL-0.1
,	Sulphide (as S)	mg/l	15 3023 (Part 29) : 1986		BDL(DL-0.1)	BDL(DL-0.1
0	Nitrate Nitrogen			2.0	BDL(DL-0.03)	BDL(D1-0.03
		mg/l	APHA Method	10	7.23	BDL(DL-2)
1	Bio Assay Test	%	APHA 22nd Edition	90% Survival of fish after 96 hours	81%	95%
2	Hexavalent Chromium (as Cr16)	mal	IS 2024 (Bern 2) 2020	in 100% effluent		

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"mg?" to operate to "ppi". 

Result for test so. 3 is not relevant. • BDL- Below detection from • DL- Indicates detection band of instrument method and shall be considered as 'absent REMARKS: As requested by the client, sample was tested for above parameters only

IS 3025 (Part 2): 2019

IS 3025 (Pari 31): 1988

Verified By

Hexavalent Chromium (as Cr16)

Dissolved Phosphate (as P)

Shashik int Satdeve Sr. Chemist

End of Report-

Dimuelare Shubbangi Armarkar Technical Manager

**Authorized Signatories** 

OI

5.0

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

BDL(DL-0.61

BDL(DL-0.1)

BDL(DL-0.01)

BDL(DL-0.1)

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

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

## TEST REPORT

ULR No.- TC545822000000856F

Test Report No.: ALPL/28022022/1-14A dated 28/02/2022 Page I of 2 Issued To: Sample Inward No. 2022/MON-32/60-17&18 Analysis Start 22/02/2022 M/s Noamundi Iron Mine Inward Date 22/02/2022 (M/s TATA Steel Limited) Analysis End 28/02/2022 Reference W.O.-3000132460/962 Noamundi, Jharkhand Report Issue Date 28/02/2022 Postal Code: 833217 Reference Date 15,05,2020 Sample Category Water Sample Name Sample Source Sample Particulars Sample Condition Quantity Received Hospital ETP 10 KLD Sewage Water Sample Code-WW-17 & 18 Inlet & Outlet Scaled & Ice Preserved 5.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr.K. Pandey 18/02/2022 11.50 am to 4.20 pm Hospital ETP 10 KLD Inlet & Outle

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards (In Land Surface	Test Result	
-				Water)	Inlet	Outlet
1	Chemical Testing Pollution & Environment				L.	
1	pH value	- 1	IS 3025 (Part 11): 1983	5.5 to 9.0	T = 22 - 226	
2	Oil & Grease	me/l	IS 3025 (Part 39): 1991		6.21 at 25°C	7.16 at 25°C
3	Total Suspended Solid (TSS)	mg/l	15: 3025 (Part 17): 1984	10	BDL(DL-4)	BDL(DL-I)
4	Ammonical Nitrogen (as N)	me/l		100	134	26
5	Total Kjeldahl Nitrogen (as N)		IS 3025 (Part 34):1988	50	7.20	4.12
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 34): 1988	100	20	10
7		mg/i	IS 3025 (Part 44):1993	30	40	9.2
1	Chemical Oxygen Demand	mg/l	IS 3025 (Part 58) :2006	250	140	
8	Cyanide (as CN)	mgl	IS 3025 (Part 27): 1986	The second secon		40
9	Phenolic Compounds ins C.H.OH)	mg/l	IS 3025 (Part 43): 1992	0.2	BDL(DL-0.1)	BDL(DL-0.)
			13 3023 (FBH 43): 1992 [	1.0	BDL(DL-0.1)	BDL(DL-0.)

NOTES: 

Pease see watermark. "Original Test Report" to confirm the authenticity of this report. 

Results shall be referred to tested snapples) and applicable to tested parameters only periodable samples; shall be disposed off after 10 days and 15 days respectively from the date of issue of Test Report, solves specified otherwise. 

"mg1" is equivalent to 'ppin'. 

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Verified By

Shubbangi Armarkar Technical Manager Authorized Signatory

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





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## TEST REPORT

ULR No.- TC545822000000856F

Test Report No.: ALPL/28022022/1-14A dated 28/02/2022 Page 2 of 2 Issued To: Sample Inward No. 2022/MON-32/60-17&18 Analysis Start M/s Noamundi Iron Mine 22/02/2022 Inward Date 22/02/2022 (M/s TATA Steel Limited) Analysis End 28/02/2022 Reference W.O.- 3000132460/962 Noamundi, Jharkhand Report Issue Date 28/02/2022 Postal Code: 833217 Reference Date 15.05.2020 Sample Category Water Sample Name Sample Source Sample Particulars Sample Condition

Sewage Water Hospital ETP 10 KLD Inlet & Outlet Sample Code-WW-17 & 18 Scaled & Ice Preserved Solution Sample Collected By Sampling Date Sampling Time Sampling Location

Anacon Representative Mr.K. Pandey 18/02/2022

2022 11.50 am to 4.20 pm Hospital ETP 10 KLD Injer & Outlet

S.N.	'Test Parameter	Measurement Unit	Test Method	Standards (In Land	Test Result	
11	Chemical Testing	1		Surface Water)	Inlet	Outlet
	2. Residues In Water					
10	Iron (as Fe)	mg/I	IS 3025 (Part 2): 2019			
11	Copper (as Cu)	- Coleman	IS 2024 (Part 2) 2019	3.0	0.18	0.13
12	Manganese (as Mn)	mg/l mg/l	1S 3025 (Part 2) : 2019	3.0	BDL(DL-5)	BDL(DL-5
13	Mercury (as Hg)		18 3025 (Part 2): 2019	2.0	BDL(DL-0.1)	BDL(DL-0
4	Cadmium (as Cd)	mg/l	IS: 3025 (Part 48): 1994	0.01	BDL(DL-0.01)	BDL(D10.0
5		mg/l	IS: 3025 (Part 41): 1992	2.0	BDL(DL-0.1)	The second secon
_	Selenium (as Se)	mg/l	IS: 3025 (Part 56)	0.05	BDL(DL-0.1)	BDL(DL-0.
6	Lead (as Pb)	mg/I	1S-3025 (Part 47) : 2003	9.1	THE RESERVE OF THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAME	BDL(DL-0.
7	Arienic (as As)	mg/l	IS: 3025 (Part 37): 1988	0.2	BDL(DL-0.1)	BDL(DL-0.1
8	Nickel (as Ni)	mg/I	IS:13428 : 2005(Annexure L)	11 0100000000	BDL(DL-0.05)	BDL(DL-0.0
9	Zinc (as Zn)	mg/l	15 3025 (Pag 2) 2010	3.0	BDL(DL-0.1)	BDL(DL-0.1
0	Total Chromium (as Cr)	mg/l	15 3025 (Part 2) : 2019	5,0	BDL(DL-5)	BDL(DL-5
	Vanadium (as V)		1S 3025 (Part 2): 2019	2.0	HDL(DL-0.1)	BDL(DL-0.1
-	7	1. mg/l	IS 3025 (Part 2): 2019	0.2	BDL(DL-0.1)	BDL(DL-0.1

NOTES: 

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Results shall be referred to rested sample(s) and applicable to tested parameters only periodoble sample(s) and applicable to tested parameters only periodoble sample(s) shall be deposed off after 30 days and 15 days responsively from the date of issue of Test Report, unless specified observace. 

The property of the deposed off after 30 days and 15 days responsively from the date of issue of Test Report, unless specified observace. 

The property of the

Shashikant Sardeve

Stashikatti Saidev St. Chemist

---End of Report----

Authorized Signatory

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

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

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- Recognized By Ministry of Environment & Forests (MoEF), New Deits
- Approved by : Food Safety & Standards Authority of India under FSS Act.
- Bureau of Indian Standards (BIS): Agricultural & Processed Food Products Export Development Authority (APEDA):

Export inspection council (EIC); AGMARK

TEST REPORT

issued To: M/s Noamundi Iron M/s TATA Steel Lin Noamundi, Jharkhand Postal Code: 833217	Mine Inwinited) Refe	ple Inward No. ord Date rence rence Date	2022/MON-32 22/02/2022 W.O 300013 15/05/2020		Anai	ysis Start ysis End ort Issue Date ple Category	Page 1 of 2 22/02/2022 28/02/2022 28/02/2022 Water
Sample Name Sewage Water	Sample Source Hospital ETP 10 KLD Inlet & Outlet		Particulars le-WW-17 & 18	Sample Cond Scaled & Ice Pre			ty Received r & 250 ml
Sample Collected By Anacon Representative Mr.K. Pandey			Sampling Date 18/02/2022		pm	Sampling Location Hospital ETP 10 KLD lalet & Oc	

		,	TEST RESULTS			
S.N.	Test Parameter	Measurement Unit	Test Method	Standards (In Land Surface	Test	Result
				Water)	Inlet	Outlet
1	Biological Testing 1. Water					
1	Faccal coliform	MPN/100 ml	IS 1622 : 1981	-	109	46
11	Chemical Testing Pollution & Environment			1		40
2	Colour	Hazen units	IS 3025 (Part 4): 1983	Colourless	T 3	
3	Odeur		15 3025 (Part 5): 2018	Odourless	2 Disagrecable	0 (Colourless
4	Temperature	°C	APHA Method	Shall not exceed 5°C above the receiving water temperature	25°C	Agreeable 25°C
5	Free residual chlorine	mg/l	IS 3025 (Part 26): 1986	1.0	BDL(DL-6.1)	BDL(DL-0.1)
6	Particulate size of SS		Gravimetric Method	Shall pass 850 micron IS Sieve	<850	<850
7	Free Ammonia (as NH,)	mg/l	APHA Method	11100.000 10 31040	BDL(DL-0.1)	F1000 -000 -0 -0
8	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	2.0	0.42	BDL(DL-0.1
9	Sulphide (as S)	mg/l	IS 3025 (Part 29): 1986	2.0	BDL(DL-0.03)	BDL(DL-0.1
10	Nitrate Nitrogen	mg/I	APHA Method	10	6.31	BDL(DL-0.03
11	Bio Assay Test %		APHA 22nd Edition	90% Survival of fish after 96 hours in 100% effluent	82%	BDL(DL-2) 93%
12	Hexavalent Chromium (as Cr )	mg/l	1S 3025 (Part 2): 2019	0.1	BDL(DL-0.01)	BDL(DL-0.01)
13	Dissolved Phosphate (as P)	mg/l	15 3025 (Part 31): 1988	5.0	BDL(DL-0.1)	BDL(DL-0.1)

NOTES: 

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Results shall be referred to tested samples) and applicable to tested parameters only perchable samples) shall be disposed off after 36 skys and 15 days unspectively from the date of issue of Test Report, unless specified otherwise. 

May respectively from the date of issue of Test Report, unless specified otherwise. 

May respectively from the date of issue of Test Report, unless specified otherwise. 

May respectively from the date of issue of Test Report, unless specified otherwise. 

May be a provided to tested as a specified or invariant to the self-contact of the tested of the tested of the self-contact of the tested REMARKS: As requested by the client, sample was tested for above parameters only

Verified By

Shashikant Saideve Sr. Chemist

Shubhangi Armarkar Technical Manager

Authorized Signatories

Technical Manager

Dr. (Mrs.) S.D. Garway

Quality Manager

-End of Report-

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

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 \* Accredited By Quality Council of India by - NABET and NABL
 \* Approved by : Food Safety & Standards Authority of India under FSS Act
 \* Agricultural & Processed Food Products Expart Development Authority (APEDA)
 \* Bureau of India Standards (BIS) \* Export Impection council (EIC); AGMARIC

# TEST REPORT

ULR No.- TC545822000000856F

Test Report No.: Al Issued To: M/s Noamundi Iron (M/s TATA Steel Lis Noamundi, Jharkhan Postal Code: 833217	Mine mited)	Sample Iov Ioward Dai Reference Reference I	vard No. te	8/02/2022 2022/MON-32/60 22/02/2022 W.O 300013246 15:05:2020		Analysis ! Analysis ! Report Is Sample C	End sue Date	22/02/2022 28/02/2022 28/02/2022 Water
Sample Name Sewage Water	Sample Sou Bottom Bin ETP Inlet & Out	10 KLD		le Particulars ode-WW-13 & 14	Sample Co Scaled & Ice			ity Received ir & 250 ml
Sample Co Anacon Representat			npling Date 8/02/2022	-	mpling Time am to 4.20 pm		Sampling Bottom Bin	Location ETP 10 KLD

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards (In Land Surface	Test Result	
		Case		Water)	Inlet	Outlet
1	Chemical Testing Pollution & Environment					Count
1	pH value	+ 1	IS 3025 (Part 11): 1983	5.5 to 9.0	T - 15 - 10 -	
2	Oil & Grease	mg/l	IS 3025 (Part 39): 1991		6,12 at 25°C	7.20 at 25°C
3	Total Suspended Solid (TSS)	mg/l	IS 3025 (Part 17): 1984	10	BDL(DL-4)	BDL(DL-4)
4	Ammonical Nitrogen (as N)			100	96	23
5	Total Kjeldahl Nitrogen (as N)	mg/l	IS 3025 (Part 34):1988	50	7.14	6.2
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 34): 1988	100	16.20	8.9
7	Chaminal O. C.	mg/l	IS 3025 (Part 44):1993	30	28.8	7.2
8	Chemical Oxygen Demand	mg/l	IS 3025 (Part 58) :2006	250	80	30
	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 1986	0.2	DDL/DL a is	
9	Phenolic Compounds on Catacito	mg/l	IS 3025 (Port 43): 1992	1.0	BDL(DL-0.1) BDL(DL-0.1)	BDL(DL-0.1

NOTES: 

Please sor watermark. "Original Test Report" to confirm the molecularity of this report. 

Results shall be referred to tested sample(s) and applicable to tested parameters only periodable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of same of Test Report, unless specified otherwise. 

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Theire describes that 

OL- Indicates detection limit of instrument method and mail be considered as 'absent'.

Verified By

Shubhangi Armarkar Technical Manuger Authorized Signatory

1 au

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





ISO 9891-2915, ISO 14001-2015, ISO 45001-2016 Certifled
 Recognized By Ministry of Environment & Forests (MoEF), New Diete
 Accredited By Quality Council of India by - NABET and NABE
 Approved by : Food Safety & Standards Authority of India under FSS Act.
 Agricultural & Processed Food Products Export Development Authority (APEDA).
 Bureau of India Standards (BIS) - Export Inspection council (EIC): AGMARX.

#### TEST REPORT

ULR No.- TC545822000000856F

Test Report No.: ALPL/28022022/1-12A dated 28/02/2022 Page 2 of 2 Issued To: Sample Inward No. 2022/MON-32/60-13&14 Analysis Start M/s Noamundi Iron Mine 22/02/2022 Inward Date 22/02/2022 (M/s TATA Steel Limited) Analysis End 28/02/2022 Reference Noamundi, Jharkhand W.O.+3000132460/962 Report Issue Date 28/02/2022 Postal Code: 833217 Reference Date Sample Category 15.05.2020 Water Sample Name Sample Source Sample Particulars Sample Condition Quantity Received Bettom Bin ETP 10 KLD Sewage Water Sample Code-WW-13 & 14 Inlet & Outlet Scaled & Ice Preserved 5.0 Ltr & 250 ml

Sample Collected By Sampling Date Sampling Time Sampling Location
Anacon Representative Mr. K. Pandey 18/02/2022 11.50 am to 4.20 pm Bottom Bin ETP 30 KLD
Injet & Outlet

S.N.	Test Parameter	Test Parameter Measurement	Test Method	Standards (In Land	Test Result	
		Unit		Surface Water)	Inlet	Outlet
11	Chemical Testing 2. Residues In Water					I
10	Iron (as Fe)	mg/I	18 3025 (Part 21: 2019	2.6	0.14	
11	Copper (as Cu)	mg/l	IS 3025 (Part 2) 2019	3.0	0.14	0.11
12	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	2.0	BDL(DL-5)	BDL(DL-5
1,3	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994	0.01	BDL(DL-0.1)	BDL(DL-0.)
4	Cadmium (as Cd)	mg/I	IS: 3025 (Part 41): 1992	ALTONOMIC MARKET	BDL(DL-0.01)	BDL(DL-0.0
5	Selenium (as Se)	mg/f	18 : 3025 (Part 56)	2.0	BDL(DL-0.1)	BDL(DL-0.1
6	Lead (as Pb)	mg/l		0.05	BDL(DL-0.1)	BDL(DL-0.1
7	Arsenic (as As)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.1)	BDL(DL-0.1
8	Nickel (as Ni)	The second secon	IS: 3025 (Part 37): 1988	0.2	BDL(DL-0.05)	BDL(DL-0.05
9	Zinc (as Zn)	mg/l	IS:13428: 2005(Annexure L)	3.0	BDL(DL-0.1)	RDL(DL-0.1
0	Total Chromouni	mg/i	IS 3025 (Part 2): 2019	5.0	BDL(DL-5)	BDL(DL-5)
1	Vanadium (as V)	mg/I	18 3025 (Part 2) : 2019	2.0	BDL(DL-0.1)	BDL(DL=0.1
_	The state of the s	mg/l	IS 3025 (Part 2): 2019	0.2	BDL(DL-0.1)	BDL(DL-0.1

NOTES: 

Please see watermark. Original Test Report to conform the authorizing of this report. 

Resolts shall be referred to troud satisfies a majorized by the tested parameters only probable samples is shall be deposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. 

Below detection from 

Of limitates detection base of matrix-order and shall be come detection.

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

--- End of Report---

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

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

TEST REPORT

Issued To: M/s Noamundi Irot (M/s TATA Steel Li Noamundi, Jharkhan Postal Code: 833217	Mine mited)	sample Inv nward Dat teference teference I	vard No. te	2022/MON-32/60 22/02/2022 W.O 300013246 15/05/2020		Analysis Analysis Report I Sample (	End ssue Date	22/02/2022 28/02/2022 28/02/2022 Water
Sample Name Sewage Water	Sample Sour Bottom Bin ETP 1 Inlet & Outl	0 KLD		e Particulars de-WW-13 & 14		Condition ce Preserved		tity Received atr & 250 ml
Sample Coffected By Anacon Representative Mr. K. Pandey					Sampling Time 11.50 am to 4.20 pm		Sampling Location Bottom Bin ETP 10 KLD Inlet & Outlet	

			TEST RESULTS			te ouise
S.N.	Test Parameter	Measurement Test Method		Standards (In Land Surface	Test Result	
				Water)	Inlet	Outlet
1	Biological Testing L.Water					
1	Faccal coliform	MPN/100 ml	IS 1622 : 1981	1	109	94
п	Chemical Testing Pollution & Environment				]	74
2	Colour	Hazen units	15 3025 (Part 4): 1983	Colouriess	1	0.001
3	Odeur		15 3025 (Part 5): 2018	Odourless	Disagrecable	0 (Colourless
4	Temperature	°C	APHA Method	Shall not exceed 5°C above the receiving water temperature	25°C	Agreeable 25°C
5	Free residual chlorine	mg/l	1S 3025 (Part 26): 1986	1.0	BDL(DL-0.1)	BDL(DL-0.1)
6	Particulate size of SS		Oravimetric Method	Shall pass 850 micron IS Sieve	<b>350</b>	<850
7	Free Ammonia (as NH <sub>1</sub> )	mg/l	APHA Method	4	BDL(DL-0.1)	DESCRIPTION
8	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	2.0	0.40	BDL(DL-0.1
9	Sulphide (as S)	mg/l	IS 3025 (Part 29): 1986	2.0	BDL(DL-0.03)	BDL(DL-0.1
10	Nitrate Nitrogen	mg/l	APHA Method	10		BDL(DL-0.03
11	Bio Assay Test	96	APHA 22nd Edition	90% Survival of 6sh after 96 hours in 100% effluent	6.20 83%	97%
12	Hexavalent Chromium (as Cr 7)	mg/i	JS 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-6.1)	BDL(DL-0.1)

NOTES: 
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Results shall be referred to tested sample(s) and applicable to tested parameters only ◆ Test report shall not be reproduced except to full without prior written approval of Anaeco Labs. ● Labshity of Anaeco Labs is limited to provide an application to tested parameters only perchable sample(s) shall be disposed off after 10 days and 15 days respectively from the date of uses of Test Report, unless specified otherwise. ● 'mg T' is equivalent to 'ppm'. ● Result for test no. 5 is not relevant. ● BDL, Below detection limit ● DL, Indicates detection less of realisament method and shall be considered as 'absent'.

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

Verified By

Shashikani Satdeve Sr. Chemist

Quemuseleure Slaibhangi Armarkar Technical Manager

Authorized Signatories

Technical Mitnager

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

---End of Report-

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# Annual Progress Report

Point wise compliance of the conditions of Site-specific Wildlife Conservation Plan approval vide letter no. 1251 dated 28.08,2020 in favour of Tata Steel Limited of Noamundi Iron mine in West Singhbhum District of Jharkhand.

# CHAPTER-IV

To be implemented by Project Authorities.

past.	(A)	No.
(a) Payment towards cost of establishing wild animal Rescue team including services of One Veterinary Doctor@60000/-, One paramedics/Paravet@15000/- and three daily wage worker@6689.6x3=20069/-per month stationed at Chaibasa for lease period under the supervision of DFO, Chaibasa. Expenditure will be incurred based on demand note and direction received from the DFO, Chaibasa. (for rescue and treating wild animals)	Wild Animal Rescue and Release	Conditions
We have established wild animal rescue team under the guidance of Veterinary Doctor (Dr. Faisal Niaz), Paramedics Sri Shyam Kishor and daily wage worker Sikandar Hessa, Jairam Champia.		Compliance

@300	Doubl	<u>B</u>				
@30000x2=60000/-,Nvlon	Double barrel dart gun (Dan inject) @5.5 lakh, Portable cage	Equipment				
vlon	ı (Dan i	for				
	inject) @5.5	wild				
	lakh, Porta	animal				
	ble cage	rescue				
		Nylon net, Stretcher, first aid kit will be provided.	Portable cage is ready will be provided.	B/2021 Dt. 19.07.2021.	We have submitted undertaking vide letter no. GM/LO/149/441-	We are in the process of procuring Dart Gun and other accessories.



net@30000/,stretcher@20000x2=40000/-, First aid kit for staff-20000/- Medicine for tranquilization etc. 20000/, and Training of forest officials-2.00 lakh as per specification from DFO, Chaibasa.

received from the DFO, Chaibasa. (c) One vehicle for housing cage, dart gun etc. as per direction



Division, Chaibasa, Courtesy by Tata Steel".

Painted the vehicle as "Wildlife Rescue Vehicle, Chaibasa Forest

of animal rescue team, Driver - Neeraj Guchhait.

JH 06P 1274 stationed at Noamundi has been deployed at the disposal For Animal rescue, one vehicle - Tata 407 Gold bearing Registration no.

2	(B)	
a) Establishment of a GIS Cell at Division headquarters. (including software and other accessories)	Forest Conservation, fire protection and GIS Cell	(d) Operational cost Rs.1.00 lakh per year
All necessary software and hardware as per direction of DFO's office have been purchased. We shall install it in GIS Cell after completion of its interior construction, Screen/TV, Cordless Mic, to be installed. 01 (one) HP Desktop Computer and 01 (one) HP Printer have been handed over to DFO's office vide letter no. GM/LO/181/441-B/21 Dt. 11.08.2021.  Workstation for GIS, PC and ARCGIS software Dongle with Licence Key: EFL438019559 have been handed over to DFO's office vide letter no. GM/LO/40/441-B/22 Dt. 07.02.2022.  01 (one) Plotter cum Scanner of HP have been handed over. 04 (Four) Air Conditions have been installed.		Incidental operational cost is being borne by us.

(c) Office furniture and accessory to house GIS Cell and forest fire management centre as per specification from respective office.		(b) Wages of two skilled persons one GIS expert @ 35000/- and one computer operator@9589/- per month, Expenditure will be incurred based on demand note and direction received from the DFO, Chaibasa.	
A responsible of the second se	Office furniture such as Thirty-two office Chairs, conference table, five Executive chairs and tables for GIS Cell / forest fire management centre have been delivered to DFO's office vide letter no. GM/LO/286/441-B/21 dt. 03.11.2021 and GM/LO/05/441-B/22 dt. 05.01.2022.	We have hired Computer Operator (Ms. Aseema Dungdung) for GIS Cell.  We are in the process of hiring GIS expert who will be deployed after completion of GIS Cell's interior construction.	A STAND CHARLY A STAND AND A STAND A STAND AND A STAND AND A STAND AND A STAND

blowers@60000/-, Bush cutter-10@Rs. 25000/-, Firefighting suit-10@Rs.7000/ As per specification from DFO, Chaibasa.	f) Purchase of firefighting equipment with 10 nos. of fire	e) One fire protection squad stationed at Range Forest Office, Noamundi with 10 members with hired vehicle for 5 five months for the year @ Rs. 6.50 lakhs each over the plan, Expenditure will be incurred based on demand note and direction received from the RFO, Noamundi	(d) Ten (10) motorcycles to be procured by UA for RFO Office @ 125000x10 nos. as per specification from respective office for patrolling.	
- 09	1155 NA-197		ed by UA for RFO Office on from respective office	Ter forc
10 (ten) no. sets of Firefighting suits consisting Jacket& trouser, hood, helmet, gloves, and boots have been handed over to Range forest office, Noamundi, vide letter no. GM/LO/190/441-B/21 Dt. 18.08.2021.	10(ten) no. Fire blowers and 10(ten) nos. Bush cutters have been handed over to Range forest office, Noamundi vide letter no. GM/LO/1018/441/21 Dt. 23.02.2021.	10 manpower namely Desai Hemrom, Dumbi Laguri, Jadu Purty, Bishal Horo, Mukesh Kerai, Parmeshwar Sinku, Narsingh Angrai, Milu Hemrom, Anil Purty and Gono Chatomba with a hired vehicle (Scorpio JH 05 BD 8205) are being provided to Range Office Noamundi from February'2022 to June'2022 is continuing.		Ten motorcycles have been procured, registered in the name of state forest dept., and handed over to Range office, Noamundi vide letter no. GM/LO/101/441/21 Dt. 23.02.2021.

sp (i)	d: E e (r		a p O (s	
(i) Provision for use of Drones fitted with cameras for monitoring of wild animals in stress in forest area. As per the specification from DFO, Chaibasa	(h) Procurement of anti-depredation items like crackers, torch etc., @1.0 lakh per year each for the plan period of 10 years Expenditure will be incurred based on demand note and direction received from the DFO, Chaibasa.		(g) One anti-depredation squad stationed at Range Forest Office, Noamundi with 5 members@ 6689.6 per year over the plan period, Expenditure will be incurred based on demand note and direction received from the DFO, Chaibasa.	
We are in the process of procuring Drone.	HIGH POWER LED  WINDSHIPS  WINDSHIP  WINDSHI	Crackers delivered to RFO, Noamundi vide letter no. GM/LO/58/441-B/22 Dt.15.02.2022.  10 (ten) no. Torches (LED Search light) have been handed over to DFO's office vide letter no. GM/LO/182/441-B/21 Dt. 11.08.2021.	Anti-depredation squad with 5 members have been deployed and stationed at Range Forest Office, Noamundi vide letter no. GM/LO/968/441/21 dt.15.01.2021 they are - Sanny Sanpuria, Sunil Laguri, Ravindra Gope, Boyar Laguri and Mohan Gope.	

(j) Procurement of night vision binoculars - 03 pieces, Digital camera-01 piece. As per the specification from Handheld GPS -03 pcs., Order placed for Digital Camera which will provide. Night vision binocular have been handed over to DFO's office. Dt.11.08.2021.

handed over to DFO's office vide letter no. GM/LO/182/441-B/21 03 (three) no. Handheld GPS (GARMIN Montana 680) have been



office vide letter no. GM/LO/103/441-B/21 Dt. 18.06.2021.

02 (Two) nos. All in one Desktop computer, 02 (two) nos. A4 size

Printer cum scanner/copier will be provide.

01 (one) DG set (Kirloskar koel green) have been handed over to DFO's

DFO, Chaibasa.



and Range office. Chaibasa. (k) Providing one DG set, Computer, printer to Division office As per the specification from DFO,



			ev.	0	
(d) Cost for vehicle repair etc @50000/- per year per vehicle for 10 years as per demand note from respective office.	c) POL @ 10 litres per day for 300 days per year for 10 years x 2 vehicle as per demand note from DFO, Chaibasa	b) Payment of Wages for 2 daily wages driver @2.30 lakh per year for 10 years, Expenditure will be incurred as per demand note from DFO. Chaibasa	a) 2 vehicles procured by UA (one Vehicle for DFO, Chaibasa @20.00 lakh & one for RFO, Noamundi@15.00 lakh each for monitoring of Site-Specific Wildlife Scheme as per specification from respective office.	Monitoring and supervision of site-specific plan	(I) Operational cost for maintaining motorcycle and firefighting equipment. Expenditure will be incurred based on demand note and direction received from the DFO, Chaibasa.
Cost of vehicle repair is being paid by User agency.	POL is being provided as and when demanded by office of DFO Chaibasa and RFO Noamundi respectively.	One driver (Turi Laguri) deployed at REO, Noamundi and one driver (Neeraj Guchhait) appointed and deployed with Animal rescue vehicle as per directive received by DFO.	02 (Two) vehicles vide letter no. GM/LO/840-1/441/20 Dt. 06.10.2020 and bearing Registration No. JH06N-2331 and JH06N-9744, handed over to DFO's office Chaibasa.		Will be complied upon receiving direction from DFO

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actual bill received	(e) 2 Unskilled @6689.6x2=13379.20/- and one computer operator@9589/- per month	(d) Aesthetic plantation/Medicinal garden/lotus pond etc	(c) Live hedge fencing with entrance gate	(b) Mini library, visual display multimedia system (LED TV to runs wildlife/nature documentary.	(a) Construction of Nature interpretation centre at Chaibasa with bore bell with pump	Public Awareness and education	(e) Contingency @2.00 lakhs/year x 10 years Expenditure will be incurred by UA as per demand note from DFO, Chaibasa
			Foundation stone had laid on 30.01.2022.	MOA has been signed with CEE, Ahmedabad, and TATA STEEL regarding the development of NIC. Site drawings and detailed engineering are being developed by CEE. Architectural drawings for the Nature Interpretation Centre at Chaibasa have prepared by CEE.	Since land provided at Sikursai, was disputed by local people the work could not start. Hence, alternate site has been provided at Forest Training School, Chaibasa by DFO.		Will be Paid as and when direction from DFO's office Chaibasa are received.

Un .	180	
(a) Public awareness by organising wildlife week, Run for wildlife, Wildlife painting and essay competition etc. in collaboration and direction from DFO, Chaibasa @6.0 lakh per years. Expenditure will be incurred as per the demand note of DFO, Chaibasa.	(h) Installation of 8 KW Solar Panels	(g) D.G. set @ 5.00 lakh as per demand note from respective office.
Wildlife week was celebrated from 02.10.21 to 08.10.2021 in which wildlife theme painting at Dist. Collectorate Building, Chaibasa, distribution of bags, masks, caps, screening of wildlife movies & documentaries at Tata Steel Auditorium, walk for wildlife, speech addressed in protecting forest and wildlife by DC, W. Singhbhum, SP, W. Singhbhum and DFO Saranda, DFO Kolhan, DFO Chaibasa, DFO Porahat and attached officer at Forest Training School, Chaibasa. Football match was organised at Chaibasa and Siyaljoda, Painting, Essay writing at different schools at Chaibasa and Noamundi etc. was undertaken.		



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	<u>ئ</u>		(E)	
(a) Installation of ANIDERS: An Animal Intrusion Detection & Repellent System is proposed to effectively solve Human-Wildlife Conflict. It works as a Smart Scarecrow. Solar powered, Uses IR sensors and alarm system to repel. Makes multiple sounds and light pattern. Uses GSM for real time communication. Installation of such system for 18 KMs (1 Km per Forest Fringe village Boundary); 6 active system and 6 passive system per km; @ Rs. 31500 per Active system; @ Rs. 12,100 per Passive system	Mitigative measures to protect Sambhar Deer, Elephant, Wild Boar, Hare and other wildlife to avoid Human-Wildlife Conflict	Training and capacity building of front-line staff and daily wages engage in wildlife rescue Expenditure will be incurred as per the demand note of DFO, Chaibasa.	Capacity building	(b) Signages at strategic places.
ANIDERS have been Installed at village Angardiha and has been communicated to DFO's office vide letter no. GM/LO/978/21 Dt. 25.01.2021.  More such ANIDERS will be installed after selection of appropriate place for installation.		Arrangement will be made as when the things are normalised after COVID pandemic.		Visual signages have been procured and installed at sites. Some shall more be installed it very soon.  वन पमंद्रत माईपासा के सोजन्य से  जंगल की सुरक्षा, वन्यजीवों की रक्षा

		00	(G)		
(c) Solar Panel of 4 kwh	(b) CCTV 4 nos.	(a) Automated Barrier, Wheel mounted barrier	Strengthening of infrastructure for forest and wildlife protection: Upgradation of forest check post @Bada Jamda	(b) Maintenance for above system	
		Solar Panel set with UPS, 04 nos. CCTV, 01 no. PoE NVR, 01 no. 32" LED, 01 no. 9U Rack, 02 nos. Automated barrier set, and 04 nos. wheel mounted barrier have been installed at Bada Jamda Check Post on 26.10 2021.			



# CHAPTER- V

Interventions to be implemented by Forest Department.

			_	Zo.	SI.
	Conservation Plan in to State CAMPA Fund.	department under the approved Site-Specific Wildlife	Payment against activities to be undertaken by State forest		Condition
Dt. 12.01.2021.	into State CAMPA fund, Jharkhand vide letter no. GM/LO/965/441-B/21	department under the approved Site-Specific Wildlife ninety-eight lakh seventy thousand only) through RTGS on 28.12.2020	Payment against activities to be undertaken by State forest   Deposited online an amount of Rs. 14,98,70,000/- (Rupees fourteen crore		Compliance

# **Environment Expenditure at Noamundi Iron Mine**

# FY 2021-22

SI. No.	Heads / Item	Expenditure (Lakhs)		
			Recurring	
1	General housekeeping at HEMM shed & upkeeping of recycling pit at mega center		4.00	
2	Haz. waste disposal to common Haz. Waste facility		1.50	
3	Operation & Maintenance of dry fog system at Railway sidings (1000TPH)	**	7.50	
4	Housekeeping & maintenance of Rapid Loading System, stackers, bins, Over Laying Conveyors at Railway siding areas	<u>-</u>	250.00	
5	Air pollution control measures such as closed conveyors & DFDS in new C&S plant	100		
6	installation of 30 KLD CETP	80		
7	Operation & maintenance of STPs & ETPs		38.00	
8	Installation of WTP	500		
.9	Operation & maintenance of WTP		35.00	
10	Installation of STP at Sangram sahi	250		
11	Operation & maintenance of municipal solid waste (collection, segregation, development of compost) in colony & Other area		36.00	
12.	Development of Nursery, gardens, sapling plantation & maintenance in and around Noamundi		490.00	
13	Supply & laying of coir mat along with grass seeding		33.00	
14	Operation and maintenance of mobile water sprinklers		160.00	
15	Consent fees		29.70	
16	Environmental monitoring in & around Noamundi		11.00	
17	CAAQMS maintenance & operation & display board		47.40	
18	Desilting of thickeners & check dam, Housekeeping of plant, spillage control measures at Processing plant	42	2.00	
19	Operation & assistance in waste collection & check dam de-siltation, disposal of slime at dump, housekeeping of plant etc.		30	
	Total	930	1,175.10	
	Environmental Expenditure for the year 2021-22 at Noamundi Iron Mine	Rs. 21.05		

Sonior Managar Environment

Senior Manager Environment

