

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

MD/ENV/ 57 /101/2021 Date: 27.05.2021

Ref: Environmental Clearance letter no. J-11015/104/2011.IA.II (M) dated: 10.06.2013.

Sub: Half-yearly compliance status report of Environmental Clearance conditions for the period October'20 - March'21 in respect of Noamundi Iron Mine, M/s Tata Steel Ltd.

Dear Sir,

Kindly find attached herewith submitting the six monthly compliance report as on date in respect of the stipulated Environmental Clearance conditions of Noamundi Iron Mine, Tata Steel Ltd. for the period from **October'2020 - March'2021** as per EIA Notification, 2006. Also for the same period vide office memorandum no. Z-11013/57/2014-IA.II (M), dated 29.10.2014, is attached herewith as Annexure -1. The same has been mailed to your good office on email: <u>ro.ranchi-mef@gov.in</u> for your ready reference.

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

Thanking you,

Yours faithfully, f: M/s Tata Steel Limited

Chief (Mine Planning & Projects), OMQ

Encl. : As above

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

- : The Member Secretary, State Pollution Control Board, 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

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



Compliance

to

Environmental Clearance Conditions

of

Noamundi Iron Mine M/s. Tata Steel Limited

For the period: October 2020 - March 2021

(EC Letter No. J-11015/104/2011-IA.II (M) 10/06/2013)

27th May, 2020

ENVIRONMENTAL CLEARANCE OF

NOAMUNDI IRON MINE OF TATA STEEL LIMITED

(October 2020 to March 2021)

(MoEF & CC Letter No. J-11015/104/2011-IA.II (M), DATED: 10/06/2013) FOR PRODUCTION OF 10 MTPA (ROM) & BENEFICIATION OF 18 MTPA (THROUGHPUT) OF IRON ORE

Sl. No.	EC Conditions	Compliance
Specij	fic Conditions	san'i da in kan da a dahara ini
1.	No mining activities will be allowed in forest area for which the Forest Clearance is not available.	Complied with. 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 a forest land & rest is non-forest. Ou of 762.42 ha, forest land diverted for mining is 370.92 ha vide letter no. 8-279, 1985 FC (Pt dated 4 th Sept., 2014 & for rest 383.37 ha including safety zone of 8.14 ha, forest diversion proposal has already been applied & at advanced stage of clearance.
2.	The project proponent will seek and obtain approval under the FC Act, 1980 for diversion of the entire forest land located within the mining lease within a period of two years from 01.02.2013 i.e. the date of issue of guidelines by FC vide there letter F. No. 11-362/ 2012- FC, failing which the mining lease area will be reduced to the non-forest area plus the forest area for which the project proponent has been able to obtain the FC at the end of this time period. In the case of reduction in mine lease area, the project proponent will need to get a revised mining plan approved from the competent authority for reduced area and enter into a new mining lease as per reduced lease area. The EC will be construed to be available for the mining lease area as per the revised mining lease deed.	Complied. New Guidelines for Forest Diversion Proposal by FC vide letter F. No. 11-599/2014-FC dated 01.04.2015 has been issued by MoEF&CC regarding this matter which supressed the previous guidelines issued vide letter F. No. 11- 362/2012-FC dated: 01.02.2013. None of the forest land has been reduced. The mine has already obtained Forest Clearance for 370.92 ha and for balance forest land 383.37 ha forest diversion already applied and is well advance stage before MoEF&CC Govt of India of clearance as per law. The mine has also paid till date Rs. 59,21,75,354.5 as NPV over total forest land of 762.42 ha. Noamundi mine has valid lease as per the amendment of MMDR Act on 2015 till 31.03.2030 and has approved mine plan till 31.03.2022 vide no. RAN/WSP/Fe/MP-06/2019- 20, dated 13.08.2019 by Indian Bureau of Mines, Govt. of India.
3.	Environmental clearance is subject to obtaining clearance under the Wildlife (Protection) Act, 1972 from the Competent authority, as may be applicable to this project.	Not applicable. As no specific clearance under the Wildlife (Protection) Act, 1972 is required for the project. However, we have submitted details of Protection

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Sl. No.	EC Conditions	Compliance
Specij	fic Conditions	
		& Conservation of Wildlife measures to MoEF&CC good office vide our letter No. MD/ENV/204/101/15 dated: 20.04.2015.
4.	Prior environmental clearance from the Standing Committee of the National Board for Wildlife shall be obtained if applicable, due to location of the mine within the core zone of Singhbhum Elephant Reserve, before starting any activity relating to the project at site. All the conditions stipulated by the Standing Committee shall be effectively implemented in the project. It shall be noted that this clearance does not necessarily imply that wildlife clearance shall be granted to the project and that your proposal for wildlife clearance shall be considered by the competent authorities on its merit and decision taken. The investment made in the project, if any based on environmental clearance granted to the project, in anticipation of the clearance from wildlife clearance shall be entirely at the cost and risk of the project proponent and ministry of Environment & Forests shall not be responsible in this regard in any manner.	Not applicable. Prior Environmental Clearance is not required from the Standing Committee of the National Board for Wildlife as per letter no. Vanya Prani- 19/2012/1310, dated. 19.03.2013 of State Govt. of Jharkhand.
5.	The project proponent shall obtain Consent to Establish and Consent to Operate from the State Pollution Control Board, Jharkhand and effectively implement all the conditions stipulated therein.	Complied with. Consent to Establish has been obtained from the Jharkhand State Pollution Control Board vide letter no. PC/NOC/JSR/26/12/B-1848, dated: 09.06.2015. Consent to Operate has also been obtained from State Pollution Control Board, Jharkhand vide letter No. JSPCB/HO/RNC/CTO- 8511802/2020/1942, dated: 16.12.2020, which is valid till 31.12.2025. All the conditions are being effectively implemented & complied.
6.	Environmental Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No. 460 of 2004, as may be applicable to this project.	Noted down. However, there is no National Park, Sanctuaries, Elephant corridor and tiger reserves within 10 Km radius of the core zone.
7.	As part of Ambient Air Quality Monitoring during operational phase of the project, the air samples shall also be analysed for their mineralogical composition and records maintained.	Complied with. As a part of regular Ambient Air Quality Monitoring, mineralogical composition of air samples are also being analysed and submitted to regulatory agency. All the records are adequately maintained. The mineralogical composition report of ambient air is enclosed herewith as

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sl. No.	EC Conditions	Compliance
Specij	fic Conditions	
		(annexure-1).
		Complied with. The beneficiated ore from processing plant to railway sidings being transported through covered conveyors only.
8.	The beneficiated ore shall be transported to railway sidings only through closed conveyor.	Closed conveyor used in mineral transport
	AN I SHOW AND AND A SHOW AND A	Being complied with.
	Effective safeguard measures such as conditioning of ore with water, regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant, loading and unloading point and transfer points. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard	The effective safeguard measures such as conditioning of ore before transportation by wet process is regularly being done. Fixed and mobile water sprinklers are installed and used in the area. Regular water sprinkling is also being done on the haul roads. Mist sprays are also installed in the area along in high dust generated areas. Fog based dust separators also installed and used.
9.		$\int_{Mobile \ \& \ Fixed \ water \ sprinklers \ in \ Noamundi \ mines} \int_{Mobile \ \& \ Fixed \ water \ sprinklers \ in \ Noamundi \ mines} \int_{Mobile \ \& \ Fixed \ water \ sprinklers \ in \ Noamundi \ mines} \int_{Mobile \ \& \ Fixed \ water \ sprinklers \ in \ Noamundi \ mines} \int_{Mobile \ \& \ Sprinklers \ Sprinklers \ in \ Noamundi \ mines} \int_{Mobile \ \& \ Sprinklers \ Sprinklers \ Sprinklers \ in \ Noamundi \ mines} \int_{Mobile \ \& \ Sprinklers \ Sprinklers \ Sprinklers \ in \ Noamundi \ mines} \int_{Mobile \ \& \ Sprinklers \ S$
		with mass plantation. Thus dust generation has been controlled.
		Mist type dust suppression measures
		As per last site visit of MoEF&CC officials and kind instruction a new fixed water sprinkler suggested to install adjacent to the roads near hopper and crusher area which dust prone due to frequent dumper movement. At two new location in area fixed water sprinkling system were

51. No.	EC Conditions	Compliance
Specif	fic Conditions	
-		installed.
		The rainwater collected in the mine pits and allowed to be collected in the lowest level sumps to augment the ground water resources gradually Rain water harvesting (RWH) ponds and ground water recharge structures have been constructed and approved by the Ground Water Directorate Jharkhand, Ranchi.
		RWH structure for ground water augmentation in the area
10.	The project authority shall implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	The unit has rainwater harvesting approval from Hon. Director, Ground Water Directorate, Water Resources Dept. Jharkhand vide letter no. GWD 317/Ranchi, dated 14 th Jun, 2012. At Noamund area the various RWH structures in the form o Check Dams, Saucer ponds, Gabion Structures Trenches and contour are made based on recommendation in available area.
	Dourd.	RWH structure for ground water augmentation in the area To augment the ground water about 06 new additional ponds are constructed in year 2019-20
-		around Noamundi mine lease at Lepang, Mahudi Jampani & Sarbil villages.
		Newly constructed ponds in surrounding villages (2019-20
11.	Regular monitoring of ground water level and quality shall be carried out in and around the	Complied with.

Sl. No.	EC Conditions	Compliance
Specij	fic Conditions	
	mine lease by establishing a network of existing wells and installing new piezometers during the mining operation. The periodic monitoring [(at least four times in a year- pre- monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January); once in each season)] shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office	being monitored periodically in and around the lease areas. All the monitoring results are being submitted to regulatory agencies. At five locations, new piezometric borewell are installed In one of well a telemetric system with online data facility for water level is also been installed The monitoring details are enclosed as annexure- II.
12.	The mining operations shall be restricted to above ground water table and it should not intersect groundwater table. In case of working below ground water table, prior approval of the Ministry of Environment and Forests and Central Ground Water Authority shall be obtained, for which a detailed hydro- geological study shall be carried out.	Being complied with. The mining operations are being restricted to above the ground water table. However, in case of working below ground water table prior approval for CGWA shall be taken.
13.	The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any mining operations. The Balijore Nallah shall be left undisturbed and protected.	Complied with. The nallah has huge ground water recharge potential as lies between two hills of Noamundi. To protect the nallah from soil erosion & siltation the pitching work at some part was done. Various water recharge structures such as storage cum percolation ponds injection wells, contour trenches were also made adjacent of it along with other areas as per hydrogeology study and recommendations from State Ground Water Board. However, the nallah kept protected and undisturbed at various places. Maturel flow of Balijore nala, at Noamundi Any kind suggestion from good office of MoEF&CC, Ranchi shall be welcome for protection of Balijore Nallah.
14.	The project proponent shall regularly monitor the flow rate of the Balijore Nallah flowing through the mine lease and maintain the	Complied with. The flow rate of the Balijore Nallah is being

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Sl. No.	EC Conditions	Compliance
Specij	fic Conditions	
	records.	monitored on monthly basis and the records are maintained (enclosed as annexure-III).
		Complied with. There shall not be any external over burder dumps at the end of mine life. Currently two Over Burden (OB) dumped are being made as per plan at earmarked area. Which are progressively stabilized by native species plantation and grass vegetation as per direction of MoEF&CC. In FY 21 around 12647 saplings were planted in the mine lease area till date.
15.	There shall be no external over burden dumps at the end of the mine life. The reclaimed and rehabilitated area shall be afforested. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on six monthly basis.	Plantation on Waste dump D2 Grassing on bunds of haul roads to control wint pollution also been practiced as per kin suggestion from MoEF&CC office at mine.

Local grass plantation on bunds of haul roads at mine.

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EC Conditions

Compliance

Specific Conditions

Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, soil, mineral and temporary OB dump(s) to prevent run off of water and flow of sediments directly into Balijore Nallah, Kundra Nallah, Jojo Nallah, Mahadev Nallah, Baitarni River and other water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly de-silted particularly after monsoon and maintained properly. Garland drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed both around the mine pit and over burden dump(s) to prevent run off of water and flow of sediments directly into Balijore Nallah, Kundra Nallah, Jojo Nallah, Mahadev Nallah, Baitarni River and other water bodies and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits shall be constructed at the corners of the garland drains and de-silted at regular intervals.

Garland drains with settling pits have been constructed all along the OB dumps. Settling pits have also been provided to arrest the silt flow from area. The de-siltation of these check dams settling pits are done regularly and properly maintained. Sedimentation pits have been constructed at the corners of the garland drains to take care of run off of water even during peak rain fall and they are being de-silted regularly before and after the monsoon. Garland drains, settling tanks and Check dams had been constructed both around the mine pit and over burden dump(s).

Garland drain from jig waste to hopper area has been made newly as per kind suggestion of MoEF&CC officials.



garland drains, Settling pits at mine



De-siltation of slime & check dams before monsoon.

The Water quality report of surrounding natural nallahs such as Balijore Nallah, Kundra Nallah, Jojo Nallah, Mahadev Nallah, Baitarni River is also enclosed here with as annexure IV.

Dimension of the retaining wall at the toe of temporary over burden dumps and OB benches within the mine to check run-off and siltation shall be based on the rain fall data. Retaining wall and Garland drains of appropriate size have been constructed around the OB dumps to check mine run-off.



Toewall at OB dumps

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Sl. No.	EC Conditions	Compliance
Specif	fic Conditions	
		In this financial year i.e 2020-21 plantation of about 12647 saplings is done on Waste dump D2, Kurtha dump and in township areas . In addition to this Avenue plantation is in progress
18.	Plantation shall be raised in an area of 990.601ha including a 7.5m wide green belt in the safety zone around the mining lease, backfilled and reclaimed area, around the higher benches of excavated void to be converted in to water body, roads etc. by planting the native species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500 plants per ha.	
19.	Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of SPM and RPM such as haul road, loading and unloading point and transfer points. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	Being complied with. Fixed and mobile water sprinklers are installed and used in the area. Regular water sprinkling is also being done on the haul roads. Mist sprays are also installed in the area along in high dust generated areas such as loading unloading area. Fog based dust separators also installed at crushers and used along with dust extraction system.
20.	Mine water discharge and/or any waste water shall be properly treated to meet the prescribed standards before reuse/discharge. The run off from temporary OB dumps and other surface run off shall be analysed for iron and in case its concentration is found higher than the permissible limit, the waste water should be treated before discharge/reuse.	There is no waste water discharge from the mine and mineral processing plant, 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.

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Sl. No.	EC Conditions	Compliance
Speci	fic Conditions	
21.	The decanted water from the beneficiation plant and slime/tailing pond shall be re- circulated within the mine and there shall be zero discharge from the mine.	Being complied with
22.	Regular monitoring of the flow rate of the springs and perennial nallahs shall be carried out and records maintained.	Flow rate of Balijhore nallah is monitored regularly and is enclosed as annexure-III.
23.	Regular monitoring of water quality upstream and downstream of Balijore Nallah, Kundra Nallah, Jojo Nallah, Mahadev Nallah shall be carried out and record of monitoring data should be maintained and submitted to Ministry of Environment and Forests, its Regional Office, Bhubneswar, Central Groundwater Authority, Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board.	Water quality monitoring of Balijore Nallah, Kundra Nallah, Jojo Nallah, Mahadev Nallah, are being carried out and monitoring results, so obtained are sent to Regional office, MoEF&CC, Jharkhand State Pollution Control Board, Ranchi and Central Pollution Control Board. Water Quality Analysis is enclosed as annexure-IV.
24.	Appropriate mitigate measures shall be taken to prevent pollution of Baitarni River, if any, in consultation with the State Pollution Control Board.	Baitarani River is flowing at a distance of about 12 Km from the mine and is not being polluted because of mining operations of Noamundi Iron Mine. However, different mitigation measures are being implemented for betterment of environment in and around the mine in consultation with the Jharkhand State Pollution Control Board.
25.	The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water for the project. Ground water shall not be used for the mining operations.	Being complied with. Only Surface water from Baitarani is being used for mining and processing purpose. At present, we have permission for drawl of 9786 KLD of surface water and our operation is being managed well within that quantity. Apart from this, we are recycling our slime dam water to meet basic water requirement of wet plant up to some extent. However, for increased requirement, we have applied for drawl of additional quantity of water to the regulatory agency.
26.	Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with Regional Director, Central Ground Water Board.	Being complied with. Rain water harvesting structures and several ground water recharge structures have been constructed at the mine site hiring the expertise of KRG Foundation, Chennai and they are now operational. Technical approval for design and Plan of Rain Water Harvesting (RWH) for Ground Water Recharge has already been approved by Hon. Director, Ground Water Directorate, Water

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Sl. No.	EC Conditions	Compliance
Specif	ic Conditions	
		Resources Dept. Jharkhand vide letter no. GWD 317/Ranchi, dated 14 th Jun, 2012.
		At Noamundi area the various RWH structures in the form of Check Dams, Saucer ponds, Gabion Structures, Trenches and contour are made based on recommendation of Hon. Director, Ground Water Directorate, Water Resources Dept. Jharkhand and available land in the area.
12		RWH structure for ground water augmentation in the area
27.	Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral from mine face to the beneficiation plant. The vehicles shall be covered with a tarpaulin and shall not be overloaded.	Being complied with.
28.	Blasting operation shall be carried out only during the daytime. Controlled blasting shall be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.	Being complied with. Blasting is carried out onl during day time. Controlled blasting is practice with delay detonators for control of groun vibrations and to arrest fly rocks. Scientifi studies are also being conducted from repute agencies such as CIMFR, Dhanbad and all th recommendations followed for control of groun vibrations and fly rocks & boulders.
29.	Drills shall either be operated with dust extractors or equipped with water injection system.	Being complied with. All the drill are equipped with water injection system.
30.	Mineral handling plant shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.	Being complied with. Dust extraction system is provided at Primar Crusher area to eliminate the generation of dust. De-dusting unit are installed at crushing plant & is being regularly monitored. The last report is enclosed in annexure-V.

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Specij	fic Conditions	August and a second
		Dust Extraction system at crusher Noamundi
31.	Consent to operate shall be obtained from State Pollution Control Board prior to start of enhanced production from the mine.	Noamundi has valid consent to operate from Jharkhand State Pollution Control Board, which is valid till 31 st Dec 2025.
32.	Sewage treatment plant shall be installed for the colony. ETP shall also be provided for workshop and wastewater generated during mining operation.	
33.	Digital processing of the entire lease area using remote sensing technique shall be carried out regularly once in three years for monitoring land use pattern and report submitted to Ministry of Environment and Forests and its Regional Office, Bhubaneswar.	The digital processing of entire lease area is being carried out regularly. The current land use pattern is made by M/s Geo Consultants Pvt. Ltd. the authorized agency by ORSAC, Bhubaneshwar. The land use land cover change map as on date is enclosed as annexure-VI.
34.	Regular monitoring of ambient air quality including free silica shall be carried out and records maintained.	Ambient air quality is regularly monitored and records maintained. All the monitoring details are enclosed as annexure-I.
35.	Pre-placement medical examination and periodical medical examination of the workers	Pre-placement medical examination and periodical examination of the workers engaged is being

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Sl. No.	EC Conditions	Compliance
Specij	fic Conditions	
	engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.	conducted & record maintained. The schedule of Periodical Medical Examination is once in every 3 years for the employees of age more than 40 years and once in 5 years for the employees of age less than 45 years.
36.	The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna such as wolf, elephant, sloth bear, rhesus macaque etc. spotted in the core and buffer zone of the mine and contribute towards the cost of implementation of the plan and/or Regional Wildlife Management Plan for conservation of flora and fauna so prepared by the State Forest and Wildlife Department. The amount so contributed shall be included in the project cost. A copy of action plan shall be submitted to the Ministry and its Regional Office, Bhubaneswar within 3 months.	The site specific wildlife conservation plan (SSWLCP) has been approved by Chief Wildlife Warden on 28.08.2020. The impact of mining project on wildlife of the study area and detailed mitigative measures are part of this plan. The total approved cost for implementation of SSWLCP is Rs.25.26 crores (to be spent over a 10-year period). As required, a site specific wild life conservation plan has also been submitted to the Ministry and its Regional Office, Bhubaneswar.
37.	A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.	A progressive mine closure plan approved by IBM is in place. The final mine closure plan along with details of Corpus fund will be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.
Genera	l Conditions	
1.	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	Being complied with. We are operating as per the approved mining technology and scope of working mentioned in Environmental Clearance granted to us and No change in mining technology and scope of working shall been made and adhered to the condition of MoEF&CC.
2.	No change in the calendar plan including excavation, quantum of mineral iron ore and waste should be made.	Being complied with. No change in calendar plan is made.
3.	At least four ambient air quality-monitoring should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10 micron i.e., PM10) and NOX monitoring. Location of the stations should be decided based on the meteorological data, topographical features and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board. The data so recorded should be regularly submitted to the Ministry including its Regional office located	Ambient Air Quality monitoring is being regularly carried out at four different stations within the core zone and Buffer zone respectively, which were located in consultation with the visiting officers of State Pollution control Board, Jharkhand and reports are being submitted to Regional office, MoEF&CC, Ranchi half yearly and to JSPCB monthly. Ambient Air Quality report is enclosed as Annexure-VII. Apart from above three numbers of continuous online ambient quality stations (CAAQMS) are

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Sl. No.	EC Conditions	Compliance
Specij	fic Conditions	
	at Bhubaneswar and the State Pollution Control Board /Central Pollution Control Board once in six months.	also installed in the core buffer area of mine Various parameters such as PM ₁₀ , PM _{2.5} , SOx NOx is being monitored for every 15 minutes and the date of same is continuously uploaded in Pollution Control Board server. The data is same is also been displayed using electronic display board in public domain.
		CAAQMS station of Noamundi
4.	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM etc. should be provided with ear plugs / muffs.	Adequate measures are being taken care. All the machines of high noise generated are covered with acoustic enclosure, in separate closed room. Noise generation is eliminated at source by regular maintenance of machines and proper enclosures. Apart from above adequate PPE is also provided to all persons working in the mines. All HEMM operator's cabins are made of soundproofs with air conditioning system. Noise monitoring of area is regularly being done the data of same is enclosed as Annexure-VIII.
5.	There will be zero waste water discharge from the plant.	Being complied. No water is being discharged from plant. Entire process water is recycled and reused. The High Rate Thickener is installed for rapid recovery of water from system in place of conventional thickeners.
6.	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.	Adequate dust masks are provided to employees engaged in dusty areas. The employees are also given regular awareness training on safety and health aspects as part of implementation process of OHSAS- 18001 & SA 8000 systems.
7.	Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	Periodical Medical Examination of employees and contractor workers are organized regularly to observe any contractions due to exposure to dust and other occupational hazards.
8.	A separate environmental management cell with suitable qualified personnel should be set- up under the control of a Senior Executive who will report directly to the Head of the Organization.	Complied with. A separate environmental management cell is in place with the people having relevant qualification on environmental science.

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Sl. No.	EC Conditions	Compliance
Specif	fic Conditions	
9.	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneswar.	Funds allocated for environmental management are spent only for environment related purpose and not diverted to any other purpose Expenditure details of environmental protection measures during 2020-21 at Noamundi Iron Mine- are enclosed as annexure-IX.
10.	The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	Not applicable. Noamundi is an operational Iron mine of TATA Steel Ltd from last severa decades. Thus financial closure & it's approval is not applicable.
11.	The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data/ information/ monitoring reports.	Being complied with. We extend full co-operation to the officers of the Regional Office during their visit and furnish the required data, information and monitoring reports.
12.	The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Office Bhubaneswar, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar, the respective Zonal Officer of Central Pollution Control Board and the State Pollution Control Board.	Six monthly compliance reports are being submitted regularly on the status of implementation of the stipulated environmenta conditions & safeguards to the MoEF&CC, its Regional Office Ranchi, Central Pollution Control Board and State Pollution Contro Board Jharkhand. Further, the six-monthly compliance reports along with the monitoring results is being uploaded on Tata Steel's website www.tatasteelindia.com and updated
13.	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	Complied with
14.	The State Pollution Control Board should	Noted.

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Compliance status

on

Impact of Mining on Habitations-Issue ..related

Noamundi Iron Mine, TATA Steel Ltd.

(October 2020 to March 2021)

Conditions based on OM dated 29th Oct., 2014 vide no. Z-11013/57/2014-IA.II(M)

S. No.	Condition	Compliance Status
Clea	ne of Project: Noamundi Iron Mine, Tata Steel Ltd. arance Letter no.: J-11015/104/2011-IA.II (M), dated: od of Compliance: October 2020 to March 2021	
A	The Project Authority shall adopt Best Mining Practice for the given mining conditions. In the mining area, adequate number of check dams, retaining walls/structures, garland drains and settling ponds should be provided to arrest the wash – off with rain water in catchment area.	Adequate no. of check dams, retaining wall / structures, garland drains and settling pond
В	The natural water bodies and or streams which are flowing in and around the village should not be disturbed. The Water Table should be nurtured so as not to go down below the pre-mining period. In case of any water scarcity in the area, the Project Authorities have to provide water to the villagers for their use. A provision for regular monitoring of water table in open dug well located in village should be incorporated to ascertain the impact of mining over ground water table.	Complied with. The water level in open dug well are regularly been monitored at desired frequency of various villages in & around mine of Noamundi. Various rain water harvesting structures are also made in and around mine.
с	The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right to darkness and minimal noise levels at night. The Project Proponents (PPs) must ensure that the biological clock of the villagers is not disturbed by orienting the floodlights/ masks away from the noise levels well within the prescribed limit's for day/night hours.	Being complied. The mine is being operated in hill top of iron ore deposit & the habitation is far away from mining operations. However, various technologies are used to reduce the noise level from mining & processing operations. Thick green vegetation cover is also being maintained to absorb noise from the area apart from various other measures.
D	The Project Authority shall make necessary alternative arrangements, where required, in consultation with the State Government to provide alternate areas for livestock grazing. In this context, Project Authority should implement the directions of the Hon'ble Supreme Court with regard to acquiring grazing land. The sparse trees on such grazing ground, which provide mid – day shelter from the scorching sun should be scrupulously guarded against felling lest the cattle abandon the grazing ground or return home by noon.	Complied with.
E	Where ever blasting is undertaken as part of mining activity, the Project Authority shall carry out vibration studies well before approaching any such habitats or	Vibration study for scientific blasting is regularly been done from CSIR recognized agency. And as per recommendations the blasting is been done only in day time with

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Sl. No.	EC Conditions	Compliance					
Specij	Specific Conditions						
14	display a copy of the clearance letter at the Regional office, District Industry Centre and the Collector's office/ Tehsildar's Office for 30 days.						
15.	The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Office of the Ministry of Environment and Forests, Bhubaneswar by email	The environmental statement for financial year 2019-20 has been submitted to the State Pollution Control Board on vide letter no. MD/ENV/810/120/2020, dated: 15.09.2020 and the same has been hosted on Company's website www.tatasteelindia.com. Further, compliance status on environmental clearance conditions was also sent to the Regional Office of the Ministry of Environment and Forests, Ranchi.					
16.	The project authorities should advertise at least in two local newspapers of the District or State in which the project is located and widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar.	Details of Environment Clearance with regard to Noamundi Iron Mine were published both in English and Hindi in local newspapers named "The Hindustan Times" and "Dainik Jagran' respectively on 15th June, 2013. The copy of the newspaper advertisement was sent to the Regional Office, MoEF, Bhubaneswar vide ou letter no. MD/ENV/245A/101/2013,dated 19 th June'2013, same is enclosed as Annexure-X.					

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No.	Condition	Compliance Status	
Clea	ne of Project: Noamundi Iron Mine, Tata Steel Ltd. arance Letter no.: J-11015/104/2011-IA.II (M), dated:	10/06/2013	
rent	od of Compliance: October 2020 to March 2021 impact of blasting on the neighbourhood. Within 500 meters of such sites vulnerable to blasting vibrations, avoidance of use of explosives and adoption of alternative means of mineral extraction, such as ripper/dozer combination/rock breakers/ surface miners etc. should be seriously considered and practiced wherever practicable.	and fragmentation. The data for each blast been maintained and no mining is being dor within 500m of public works.	
F	Main haulage road in the mine should be provided with permanent water sprinklers and other roads should be regularly wetted with water tankers fitted with sprinklers. Crusher and material transfer points should invariably be provided with Bag filters and or dry logging system. Belt- conveyors should be fully covered to avoid air borne dust.	The main haulage road in the mine is provided with permanent water sprinklers Apart from above, mobile and spray mist type sprinklers are also used in mine.	
G	The Project Authority shall ensure that the productivity of agricultural crops is not affected due to mining operations. Crop Liability Insurance Policy has to be taken by the PP as a precaution to compensate for any crop loss. The impact zone shall be 5km from the boundary of mine lease-area for such insurance policy. In case, several mines are located in a cluster, the Associations of owners of the cluster mines, formed inter-	Image: Closed conveyor used in mineral transport Closed conveyor used in mineral transport Not applicable Noamundi Iron mine is an operational mine since last several decades, and scientific & sustainable mining practices are been adopted.	

BL H Signature

S. No.	Condition	Compliance Status
	e of Project: Noamundi Iron Mine, Tata Steel Ltd.	
	rance Letter no.: J-11015/104/2011-IA.II (M), dated: 1	0/06/2013
	od of Compliance: October 2020 to March 2021	
	In case any village is located within the mining	
Н	leasehold which is not likely to be affected due to mining activities during the life of mine, the Expert. Appraisal Committee (EAC) should consider the proposal of Environmental Clearance (EC) for reduced mining	Noted. However, no village is located within mine
	area. The Mining lease may be executed for the area for which EC is accorded. The mining plan may also be accordingly revised and required stipulations under the MMDR Act, 1957 rind MCR, 1960 met.	lease area and all mining lease area are mineralized.
I	Transportation of the minerals by road passing through the village shall not be allowed. A 'bypass' road should be constructed (say, leaving a gap of at least 200 meters) for the purpose of transportation of the minerals so that the impact of sound, dust and accidents could be mitigated. The PP shall bear the cost towards the widening and strengthening of existing public road network in case the same is proposed to be used for the Project. No road movement should be allowed on existing village road network without appropriately increasing the carrying capacity of such roads.	No road transportation is done from mine in public road. All the material is transferred by railways.
J	Likewise, alteration or re-routing of foot paths, pagdandies, cart roads, and village infrastructure/public utilities or roads (for purposes of land acquisition for mining) shall be avoided to the extent possible rind in case such acquisition is inevitable, alternative arrangements shall be made first and then only the area acquired. In these types of cases, Inspection Reports by site visit by experts may be insisted upon which should be done through reputed Institutes.	Not applicable
K	As CSR activities by Companies including the Mining Establishments has become mandatory up to 2% of their financial turn-over, Socio Economic Development. of the neighborhood Habitats could also be planned and executed by the PPs more systematically based on the 'Need based door to door survey' by established Social Institutes/Workers on the lines as required under TOR. "R&R Plan/compensation details for the Project affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SC's /ST's and other weaker sections of the society in the study area, a need based sample survey, family wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village located in the mine lease area will be shifted or not. The issues related to shifting of village including their R&R and socio-economic aspects should be discussed in the EIA Report."	Complied. As Noamundi Iron Mine is an operationa mine from several decades the PAP is no applicable. However, various surveys ar been done as per requirement for socia beneficiation.

LIST OF ANNEXURES

NOAMUNDI IRON MINE

Annexure 1	Mineralogical reports from Oct 20 to Mar 21
Annexure 2	Ground water level and quality reports from Oct 20 to Mar 21
Annexure 3	Flow rate of balijhore nallah
Annexure 4	Surface water quality reports from Oct 20 to Mar 21
Annexure 5	Stack emission reports from Oct 20 to Mar 21
Annexure 6	Land use
Annexure 7	Air quality reports
Annexure 8	Ambient Noise quality
Annexure 9	Environment Expenditure
Annexure 10	Copy of advertisements

Annexure-1

TEST REPORT



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

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Mineralogical Composition Report-December-2020

Report No.: AN/MC/TS-NIM	eport No.: AN/MC/TS-NIM/2020/323-10			
Name and Address of	Jame and Address of M/s Noamundi Iron Mines			
Industry:-	(M/s TATA S		3000132460/962 15.05.2020	
Sample Description/Type	Mineralogical Composition	Sample Ref. No.:-	2020/Mon-249/NIM/MC-1	
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	22.12.2020	
Test Started On:-	22.12.2020	Test Completed On:-	24.12.2020	

Date of sampling	Location	Parameter	Unit	Result
		Silica	%	0.031
		FeO	%	0.043
16.12.2020	Near Mines Area	CaO	%.	0.028
		Al ₂ O ₃	%	< 0.01
т. Э		P2O5	%	< 0.01

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For ANACON LABORATORIES PVT.LTD.

Verified by

Shashikant Satdeve (Sr. Chemist)

Authorized Signatory

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

ANAC MILAN

Laboratory address : EP-34, 35, Food Park, 5 Star Industrial Estate, MIDO Button, Nagpur - 441 122. Email : support@enacon.in

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

TEST REPORT

Mineralogical Composition Report-March-2021 Date: 02/04/2021 Report No.: AN/MC/TS-NIM/2021/14-11 W. O. No. Name and Address of **M/s Noamundi Iron Mines** 3000132460/962 Industry:-(M/s TATA Steel Limited) 15.05.2020 Mineralogical Sample Description/Type Sample Ref. No .:-2021/Mon-74/NIM/MC-1 Composition Sample Drawn By:-Anacon Representative Sample Inward Date:-15.03.2021 Test Started On:-16.03.2021 **Test Completed On:-**18.03.2021

Date of sampling	Location	Parameter	Unit	Result
	21 y	Silica	%	0.032
11.03.2021	Near Mines Area	FeO	%	0.041
		, CaO	~ %	0.026
		Al ₂ O ₃	%	< 0.01
		P2O5	~ ~%	< 0.01

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For ANACON LABORATORIES PVT.LTD.

Verified by

Shashikant Satdeve (Sr. Chemist)

Authorized Signatory

Chinmay Garway (Deputy Quality Manager)

ANAC IN

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Ground Water Level

Special condition no. (xi) Of EC vide no.J-11015/104/2011-IA.II (M), dated 10th June, 2013.

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

Noamundi Iron Mine of M/s Tata Steel Limited is an operational opencast captive iron mine. Regular monitoring of ground water level in and around the mine lease of existing well is regularly been done in desired frequency. As per recent hydro-geological study & regulatory approval, few additional locations are also incorporated along with proposed piezometers in the area. Monitored water level for of area for the month of November 2020 and January 2021 are as follows:

SI. No.	Location	Mo	nth
51. NO.	Location	November 2020	January 2021
Existing	Dug Well Locations:		
1.	Mohudi Railway Station, Kash Moudi Inside Home	2 m 50 cm	2 m 40 cm
2.	Noamundi Basti, Near Football field	5 m 60 cm	6 m 90 cm
3	Near Plant Site, In front of Bottom Bin back Gate	2 m 41 cm	2 m 30 cm
4.	Serbil	3 m 90 cm	4 m 40 cm
6.	Mohudi Village exit	1 m 50 cm	1 m 60 cm
7.	Mohudi Village near road	4 m 90 cm	5 m 20 cm
8.	Kash Mohudi Railway Station (Near road)	1 m 40 cm	1 m 50 cm
9.	Natho Sahi (near pond)	2 m 32 cm	2 m 40 cm
10.	Natho Sahi (on the road to Matia home)	1 m 25 cm	1 m 32 cm
11	Noamundi Basti (inside house)	2 m 19 cm	2 m 28 cm
12.	Noamundi Basti (near pond)	1 m 50 cm	1 m 80 cm
New Dug	y Well Locations:		
13.	Natho Sahi (near Rain water harvesting)	1m 74 cm	1 m 80 cm
14.	College Road	2 m 13 cm	2 m 14 cm
15.	Noamundi Bazar (In front of Petrol Pump)	3 m 45 cm	3 m 50 cm
16.	Lakhansahi (Near Manish House)	10 m 40 cm	10 m 50 cm
Newly C	onstructed Piezometer Locations:		
17.	New Township, Near DAV School, Noamundi	22 m 90 cm	22 m 65 cm
18.	New Township, Near Aqua Park, Noamundi	23 m 06 cm	22 m 50 cm
19.	Jojo Camp Security Gate, Noamundi	6 m 87 cm	7 m 26 cm
20.	Bottom Bin near security Barrack	8 m 87 cm	7 m 12 cm
21.	Bottom bin near well	1 m 72 cm	2 m 40 cm
22.	Bore well near power house	15 m 51 cm	16 m 00 cm



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TEST REPORT

Test Report No. : ALPL/30112020/01-3 Issued To : M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: \$33217		Sample Inward No. Inward Date Reference Reference Date	ate 23.11.2020 W.O 3000132460/962		Page 1 of 3 rt 23.11.2020 d 30.11.2020 sgory Water
Sample Name	Sample Source	Sample Particulars	Location Co-ordi		Quantity Received
Ground Water	Dugwell	Sample Code-GW-1	Lat: 22%30.46"N, Long:		2.0 Lir & 250 ml
Sample Collected By		Sampling Date	Sampling Time Sampling I		mpling Location
Anacon Representative Mr. K. Pandey		18.11.2020			Basti (Nr. Play Ground

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requiren IS 1050 (Drinking Wate Including Am	Test Result	
4				Acceptable Limit	Permissible Limit [#]	
1	Biological Testing 1.Water					
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
п	Chemical Testing 1.Water		The second se			
2	pH value		IS 3025 (Part 11) : 1983	6.5 to 8.5	· No relaxation	7.36 at 25°C
3	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.6
4	Colour	Hazen units	IS 3025 (Part 4): 1983	5	15	1
5	Odour	-	IS 3025 (Part 5) : 2018	Agrecable	Agreeable	Agrecable
6	Taste		IS 3025 (Part 8) : 1984	Agrecable	Agreeable	Aerceable
7	Free residual chlorine	mg/l	IS 3025 (Part 26) : 1986	Min. 0.2	1	BDL(DL-0.1)
8	Total dissolved solids	mg/l	1S 3025 (Part 16) : 1984	500	2000	238
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	BDL(DL-0,1)
10	Cyanide (as CN)	mgA	1S 3025 (Part 27): 1986	0.05	No relaxation	BDL/DL-0.005)
11	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	45.33
12	Total Alkalinity (as CaCO ₁)	mg/l	IS 3025 (Part 23) : 1986	200	600	126
13	Total hardness (as CaCO ₁)	mig/l	IS 3025 (Part 21) : 2009	200	600	166.6
14	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	37.63
15	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	17.66
16	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	11.14
17	Nitrate (as NO ₁)	mg/l	APHA Method 23rd Edition	45	No relaxation	7.16
18	Phenolic compounds (as C ₆ H ₂ OH)	mg/l	IS 3025 (Part 43) ; 1992	0.001	0.002	BDL(DL-0.001
19	Anionic detergents (as MBAS)	mg/l	IS 13428 : 2005 Annex K	0.2	1.0	BDL(DL-0.01)

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Verified By Authorized Signatories 1 a 1au Swati Shrivastava Dr.(Mrs.) Anupa Tankhiwale Dr. (Mrs.) S.D. Garway Peops Katha Technical Manager Technical Manager Sr.Technical Mnnager Quality Manager AHAC HILLOS Head Office : 60, Bajprabhu Nagar, Nagpur - 440033 India. Ph. No. 9372404924, Email : support@anacon.in Lab : FP 34-35, Food Park, 5 Star Estate, MIDC Butibon, Nagpur - 441122, Nob. No. 9373287475, Email : https://enacon.in Support Help Lines ; Technical (9373287476) Email : labngp@anacon.in, Offer (8698946450) Email : support@anacon.in, Accounts Division (9326960661, 6372960079) Email : accounts@enacon.in 111 4.1 You may also visit us at www.unaconlaboratories.com Branches : Maharashtra | Chhattisgarh | Madhya Pradesh | Jharkhand | Delhi



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TEST REPORT

	Test Report No. : AL	PL/30112020/01-3		dated 30.11.2020		Page 2 of 3		
ſ	M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand		Sample Inward No.	2020/MON-11/8/18-3		Contraction of the second s		
			Inward Date Reference Reference Date	23.11.2020 W.O 3000132460/962 15.05.2020				
ĺ			Sample Particulars Sample Code-GW-1	Location Co-ord Lat: 22'9'30.46"N, Long:	and the second state of th			
			Sampling Date 18.11.2020	Sampling Time Not Mentioned	Sampling Location Nonmundi Basti (Nr. Play Gro			

TEST RESULTS.

s.n.	Test Parameter	Measurement Unit	Test Method	Requirem IS 1950 (Drinking Wate Including Am	Test Result	
				Acceptable Limit	Permissible Limit [#]	
п	Chemical Testing 2. Residues In Water					
2.0	Iron (as Fe)	mg/l	1S 3025 (Part 2) : 2019	1.0	No relaxation	0.09
21	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	- 0.05	1.5	BDL(DL-0.03)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL(DL-0.05
23	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994	0.001	No relaxation	BDL(DL-0.000
24	Cadmium (as Cd)	mg/l	IS: 3025 (Part 41): 1992	0.003	No relaxation	BDL(DL-0.001
25	Selenium (as Se)	mg/l	IS: 3025 (Part 56): 2003	0.01	No relaxation	BDL(DL-0.00)
26	Arsenic (as As)	mg/l	IS: 3025 (Part 37): 1988	0.01	No relaxation	BDL(DL-0.01
27	Aluminium (as Al)	mg/l	18 15302 ± 2003	0.03	0.2	BDL(DL-0.01)
28	Lead (as Pb)	mg/l	1S 3025 (Part 47) : 2003	0.01	No relaxation	BDL(DL-0.001
29	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL(DL-0.1)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL(DL-0.03)
31	Boron (as B)	mg/I	IS 3025 (Part 2) : 2019	0.5	2.4	BDL(DL-0.1)
32	Polynuclear aromatic hydrocarbon (PAH)	µg/l	ANgr RES-30	0.1	No relaxation	BDL(DL-0.03)
33	Mineral Oil	mg/l	ANgr RES-40	0.5	No relaxation	BDL(DL-0.001

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Perform the discovery of the flow of the flow polytoper and 15 days reporting in mit the discovery of Test Report, miles specified otherwise.

Perform the flow detection limit • DL-Indicates detection limit of intrament/method and shall be considered as "absent".

Angr RES-39 & 40 : Inhesse validated method.

Verified By

llein shiftant Satóeve Sr. Chemist

Sonali Gharpare Technical Manager

Authorized Signatory

1 yaw Dr. (Mrs.) S.D. Garway

Quality Manager

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TEST REPORT

Test Report No. : Al	.PL/30112020/01-3	8	dated 30.11.2020		Page 3 (of 3
Issued To :	I/s Noamundi Iron Mines		2020/MON-11/8/18-3	Analysis Sta	Analysis Start Analysis End	
			23.11.2020	Analysis En		
(M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Reference Reference Date	W.O 3000132460/962 15.05.2020	Sample Cat	Sample Category	
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-1	Location Co-ord Lat: 22"9"30.46"N, Long:	and the second se		tity Received Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 18.11.2020	Sampling Time Not Mentioned		Sampling Location Noamundi Basti (Nr. Play Groun	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 ; 2012 (Drinking Water Specifications) Including Amendment No. 2		Test Result
				Acceptable Limit	Permissible Limit #	
п	Chemical Testing 2. Residues In Water	2				
34	Pesticide Residues	1				
1	Alpha-HCH	µg/l	ANgr RES-28	0.01	No relaxation	BDL(DL-0.01)
ü	Beta HICH	µg/l	ANgr RES-28	0.04	No relaxation	BDL/DL-0.03
iii	Delta- HCH	μg/l	ANgr RES-28	0.04	 No relaxation 	BDL(DL-0.03
fv	Alachior	μg/l	ANor RES-28	20	No relaxation	BDL(DL-0.03
¥.	Aldrin / Dieldrin	µg/l	ANgr RES-28	0.03	No relaxation	BDL(DL-0.03
vi	Atrazine	μ <u>g</u> /l	ANgr RES-29	2	No relaxation	BDL(DL-0.03
vii	Butachlor	µg/l	ANgr RES-29	125	No relaxation	BDL(DL-0.03
viai	Chlarpyrifos	µg/l	ANgr RES-28	30	No relaxation	BDL(DL-0.03
ix	DDT and its Isomers	μg/l	ANgr RES-28	1	No relaxation	BDL(DL-0.03
x	Gamma - HCH (Lindane)	µg/l	ANor RES-28	2	No relaxation	BDL(DL-0.03
xi	2,4-Dichlorophenoxyacetic acid	μ <u>g</u> /l	ANgr RES-29	30	No relaxation	BDL(DL-0.03
xii	Endosulphan	μg/l	ANgr RES-28	0.4	No relaxation	BDL/DL-0.03
xiii	Ethion	μg/l	ANgr RES-29	3	No relaxation	BDL/DL-0.03
KİV	Isoproturon	μgri	ANgr RES-29	9	No relaxation	BDL(DL-0.03
XV	Malathion	µg/l	ANgr RES-29	190	No relaxation	BDL(DL-0.03
xvi	Methyl Parathion	pig/l	ANgr RES-29	0.3	No relaxation	BDL/DL-0.03
xvii	Monocrotophos	μg/I	ANgr RES-29	1	No relaxation	BDL/DL-0.03
xsili	Phorate	µg/l	ANgr RES-29	2	No relaxation	BDL(DL-0.03

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

Verified By

Ge.

Sonall Gharpure Technical Manager

Authorized Signatory

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

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TEST REPORT

Test Report No.	: ALPL/30112020/01-	4	dated 30.11.2020		Page 1 of 3		
Issued To : M/s Noaznundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. Inward Date Reference Reference Date	2020/MON-11/8/18-4 23.11.2020 W.O 3000132460/962 15.05.2020	Analysis Start Analysis End Sample Category		23.11.2020 30.11.2020 Water	
Sample Nam Ground Wate	of the second	Sample Particulars Sample Code-GW-2	Location Co-ordi Lat: 22'9'25.41"N, Long:	A			
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 18.11.2020				Location (Nr. Petrol Pump)	

TEST RESULTS

	S.N.	Test Parameter	Measurement Unit	Test Method	Requires IS 1056 (Drinking Wate Including Am	Test Result	
		1			Acceptable Limit	Permissible Limit"	
T	I	Biological Testing L.Water			CH LINE AND THE		
	1	Escherichia coll	Per 100 ml	15 15185 : 2016	Absent	Absent	Absent
	11	Chemical Testing LWater					
	2	pH value		15 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.38at 25°C
E	3	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.6
	4	Colour	Hazen units	IS 3025 (Part 4) : 1983	5	15	1
	5	Odour		1S 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
T	6	Taste		IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
	7	Free residual chlorine	mg/l	IS 3025 (Part 26): 1986	Min. 0.2	1	BDL(DL-0.1)
	8	Total dissolved salids	mg/l	15 3025 (Part 16) : 1984	500	2000	242
	9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	BDL(DL-0.1)
E	10	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL(DL-0,005)
	11	Chloride (as Cl)	mg/l	1S 3025 (Part 32) :1988	250	1000	31.54
	12	Total Alkalinity (as CaCO ₁)	mg/l	15 3025 (Part 23) : 1986	200	600	132
	13	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	129.36
	14	Calcium (as Ca)	mg/i	IS 3025 (Part 40) : 1991	75	200	30,58
E	15	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	- 100	12.89
E	16	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	9.07
	17	Nitrate (as NO ₃)	mg/l	APHA Method 23rd Edition	45	No relaxation	6.22
	18	Phenolic compounds (as C ₈ H ₅ OH)	mg/l	IS 3025 (Part 43) : 1992	0.001	0.002	BDL(DL-0.001)
	19	Anionic detergents (as MBAS)	mg/3	IS 13428 : 2005 Annex K	0.2	1.0	BDL(DL-0.01)

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Verified By

ater Swati Shrivastawa Technical Manager

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Beola Kathahe Technical Manager

Authorized Signatories Elimate

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

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

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TEST REPORT

ssued To : M/s Noamundi Iror M/s TATA Steel Li Noamundi, Jharkhan Postal Code: 833217	mited) d	Sample Inward Nn. Inward Date Reference Reference Date	2020/MON-11/8/18-4 23.11.2020 W.O 3000132460/962 15.05.2020	Analysis Sta Analysis En Sample Cat	art id	Page 2 of 3 23.11.2020 30.11.2020 Water
Sample Name Ground Water Dugwell Sample Collected By Annoon Representative Mr. K. Pundey		Sample Particulars Sample Code-GW-2	Location Co-ordis Lat: 22°9'25.41"N, Long: 8	Contract which the Contract of the	Quantity Receiv 2.0 Ltr & 250 m	
		Sampling Date 18.11.2020				pling Location Sazar (Nr. Petrol Pump)

TEST RESULTS

Ś.N.	I est Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 2		Test Result
				Acceptable Limit	Permissible Limit "	
п	Chemical Testing 2. Residues In Water					h.
20	Iron (as Fe)	mg/i	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.13
21	Copper (as Cu)	mg/1	IS 3025 (Part 2) : 2019	0.05	1.5	BDL(DL-0.03)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL(DL-0.05)
23	Mercury (as Hg)	mgyl	IS: 3025 (Part 48): 1994	0.001	No relaxation	BDL(DL-0.0005
24	Cadmium (as Cd)	mg/l	IS: 3025 (Part 41): 1992	0.003	No relaxation	BDL(DL-0.001)
25	Selenium (as Se)	mg/l	1S: 3025 (Part 56): 2003	0.01	. No relaxation	BDL(DL-0.001)
26	Arsenic (as As)	mg/l	IS: 3025 (Part 37): 1988	0.01	No relaxation	BDL(DL-0.01)
27	Aluminium (as Al)	. mg/l	IS 15302 : 2003	0.03	0.2	BDL(DL-0.01)
28	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.01	No relaxation	BDL(DL-0.001)
29	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL(DL-0.1)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL(DL-0.03)
31	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL(D10.1)
32	Polynuclear aromatic hydrocarbon (PAH)	μg/l	ANgr RES-30	0.1	No relaxation	BDL(DL-0.03)
33	Mineral Oil	mg/l	ANgr RES-40	0.5	No relaxation	BDL(DL-0.001)

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Verified By hen

Shashikant Satdeve Sr. Chemist

ю Sonali Gharpure Technical Manager

Authorized Signatory

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

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TEST REPORT

1	Test Report No. : Al	PL/30112020/01-	ł	dated 30.11.2020	.+		Page 3 of 3	
	Issued To : M/s Noamandi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand		Sample Inward No. Inward Date Reference	2020/MON-11/8/18-4 23.11.2020 W.O 3000132460:962	Analysis Start Analysis End Sample Category		23.11.2020 30.11.2020 Water	
	Postal Code: 833217	1	Reference Date 15.05.2020					
	Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-2	Location Co-ordi Lat: 22°9"25.41"N, Long:		Canada Anter		
1	Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 18.11.2020			ampling Location di Bazar (Nr. Petrol Pump		

TEST RESULTS

S.N.	Test Parameter	Mensurement Unit	Test Method	Requirem IS 1050 (Drinking Wate Including Am	Test Result	
				Acceptable Limit	Permissible Limit*	
п	Chemical Testing 2. Residues In Water	1				
34	Pesticide Residues					
i	Alpha-HCH	µg/l	ANgr RES-28	0.01	No relaxation	BDL(DL-0.01)
ii	Beta HCH	μg/l	ANor RES-28	0.04	No relaxation	BDL(DL-0.03)
iii	Deitn- HCH	μ <u>g</u> /l	ANor RES-28	0.04	No relaxation	BDL(DL-0.03)
iv	Alachior	µg/1	ANgr RES-28	20	No relaxation	BDL(DL-0.03)
v	Aldrin / Dieldrin	µg/l	ANgr RES-28	0.03	No relaxation	BDL(DL-0.03
vi	Atrazine	μg/1	ANgr RES-29	2	No relaxation	BDL(DL+0.03)
vii	Butachlor	µg/l	ANgr RES-29	125	No relaxation	BDL(DL-0.03)
Viti	Chlorpyrifos	µg/I	ANgr RES-28	30	No relaxation	BDL(DL-0.03)
-ix	DDT and its Isomers	μg/l	ANgr RES-28	1	No relaxation	BDL(DL-0.03)
X	Gamma - HCH (Lindane)	µg/1	ANG RES-28	2	No relaxation	BDL(DL+0.03)
. si	2,4-Dichlorophenoxyacetic acid	µg/1	ANgr RES-29	30	No relaxation	BDL(DL-0.03)
xii	Endosulphan	μg/l	ANgr RES-28	0, 4	No relaxation	BDL(DL-0.03)
xili	Ethion	µg/l	ANgr RES-29	3	No relaxation	BDL(DL-0.03)
xiv	Isoprotuzon	μg/l	ANor RES-29	9	No relaxation	BDL(DL-0.03
XV	Mainthion	µg/l	ANgr RES-29	190	No relaxation	BDL(DL-0.03)
XVÎ	Methyl Parathion	μ <u>g</u> /1	ANgr RES-29	0.3	No relaxation	BDL(DL-0.03)
xvii	Monocrotophos	µg/l	ANgr RES-29	1	No relaxation	BDL(DL=0.03)
aviii	Phorate	μø/l	ANG RES-29	2	No relaxation	BDL(DL-0.03

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

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Authorized Signatory

Jan D

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

ANACOMILASS

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TEST REPORT

Test Report No. : A	LPL/30112020/01-	i	dated 30.11.2020	and the second second	Page 1 of 3		
M/s Noamundi Iro	I/s Noamundi Iron Mines		2020/MON-11/8/18-5 Analysis 3		lart	23.11.2020	
(M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		nward Date 23.11.2020		Analysis End		30.11.2020	
		Reference Reference Date	W.O 3000132460-962 15.05.2020	Sample Category		Water	
Sample Name Sample Source Ground Water Dugwell		Sample Particulars Sample Code-GW-3			100000000000000000000000000000000000000	antity Received 0 Ltr & 250 ml	
-	AND DESCRIPTION OF THE OWNER.	and the second se	Real	Service and a subscription of the subscription			

Sample Collected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr. K. Pandey Mahudi Village (Railway Station Road) 18.11.2020 Not Mentioned

TEST RESULTS

8.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No, 2 Accentable Baselible		Test Result	
				Acceptable Limit	Permissible Limit ⁴		
1	Biological Testing 1.Water						
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Abseat	Absent	
П	Chemical Testing 1. Water						
2	pH value		IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.47 at 25°C	
_ 3	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.8	
4	Colour	Hazen units	IS 3025 (Part 4) : 1983	3	15	1	
5	Odour		1S 3025 (Part 5) : 2018	Agreeable	Agreeable	Agrocable	
6	Taste	-	IS 3025 (Part 8) ; 1984	Agreeable	Agreeable	Agregable	
7	Free residual chlorine	ngA	1S 3025 (Part 26) : 1986	Min. 0.2	1	BDL(DL-0.1)	
8	Total dissolved solids	mg/l	15 3025 (Part 16) : 1984	500	2000	248	
9	Fluoride (as F)	img/l	IS 3025 (Part 60) : 2008	1.0	1.5	BDL(DL-0.1)	
10	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL(DL-0.005)	
11	Chloride (as Cl)	mg/l	1S 3025 (Part 32) :1988	250	1000	41.39	
12	Total Alkalinity (as CaCO ₅)	mg/l	IS 3025 (Part 23) : 1986	200	600	134	
13	·Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	162.68	
14	Calcium (as Ca)	tng/l	IS 3025 (Part 40) : 1991	75	200	45,47	
15	Magnesium (as Mg)	mg/l	18 3025 (Part 46) : 1994	30	100	11.93	
16	Sulphate (as SO ₄)	mg/1	15 3025 (Part 24) : 1986	200	400	13.22	
17	Nitrate (as NO ₁)	mg/l	APHA Method 23th Edition	45	No relaxation	5.67	
18	Phenolic compounds (as C ₀ H ₂ OH)	mg/l	IS 3025 (Part 43) ; 1992	0.001	0.002	BDL(DL-0.001)	
. 19	Anionic detergents (as MBAS)	mgi	IS 13428 : 2005 Annex K	0.2	1.0	BDL(DL-0.01)	

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Verified By Thaking wati ShrivaStawa Poola Kataane Technical Manager Technical Manager

Authorized Signatories san

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

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

AHACOMLAS

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TEST REPORT

Test Report No. :	ALPL/30112020/01-	5	dated 30.11.2020		Page 2 d	of 3	
M/s Noamundi I (M/s TATA Steel Noamundi, Jhark Postal Code; 833)	Limited) hand	Sample Inward No. Inward Date Reference Reference Date	2020/MON-11/8/18-5 23.11.2020 W.O 3000132460/962 15.05.2020	Analysis St Analysis Er Sample Cat	nd	23.11.2020 30.11.2020 Water	
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-3	Location Co-ore Lat: 22°8'54.89"N, Long			tity Received Ar & 250 ml	
	Collected By tative Mr. K. Pandey	Sampling Date 18.11.2020	Sampling Time Sampling Not Mentioned Mahudi Village (Rai		A.C	ocation	

TEST RESULTS

S.N.	Test Parameter	Test Parameter Measurement Unit	Test Method	Requirement as per IS 10509 : 2012 (Drinking Water Specifications) Jocluding Amendment No. 2		Test Result
				Acceptable Limit	Permissible Limit [#]	
п	Chemical Testing 2. Residues In Water		Commence of the second			
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.20
21	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL(DL-0.03)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL(DL-0.05)
23	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994	0.001	No relaxation	BDL(DL-0.000)
24	Cadmium (as Cd)	mg/l	IS: 3025 (Part 41): 1992	0.003	No relaxation	BDL(DL-0.001
25	Selenium (as Se)	mg/l	IS: 3025 (Part 56): 2003	0.01	No relaxation	BDL(DL-0.001
26	Arsenic (as As)	mg/l	IS: 3025 (Part 37): 1988	0.01	No relaxation	BDL(DL-0.01
27	Aluminium (as Al)	mg/l	IS 15302 : 2003	0.03	0.2	BDL(DL-0.01
28	Lead (as Pb)	mg/1	IS 3025 (Part 47) : 2003	0.01	No relaxation	BDL(DL-0.001
29	Zine (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL(DL-0.1)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL(DL-0.03)
31	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL(DL-0.1)
32	Polynuclear aromatic hydrocarbon (PAH)	µg/l	ANgr RES-30	0.1	No relaxation	BDL(DL-0.03)
33	Misseral Oil	mgri	ANGT RES-40	0.5	No relaxation	BDL/DL-0.001)

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Verified By Shashikant Satdeve Sr. Chemist

Sonali Ghimpure Technical Manager

Authorized Signatory

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

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ANDC WELLD

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TEST REPORT

Test Report No. : A	LPL/30112020/01-	5	dated 30.11.2020		Page 3 c	of 3	
M/s Noamundi Iro	l/s Noamundi Iron Mines		2020/MON-11/8/18-5	Analysis S	tart	23.11.2020	
M/s TATA Steel Limited)		Inward Date	23.11.2020	Analysis E	Analysis End		
Noamundi, Jharkhar Postal Code: 83321		Reference Reference Date	W.O 3000132460/962 15.05.2020	Sample Ci	itegory	Water	
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-3	Location Co-ordi		ALC: NOT A	ity Received tr & 250 ml	
Sample Collocted By Anacon Representative Mr. K. Pandey		Sampling Date 18.11.2020	Sampling Time Sampli		mpling Lo see (Railwa	NUMBER OF TAXABLE PARTY OF TAXABLE PARTY	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	IS 1050 (Drinking Wate	ent as per 0 : 2012 r Specifications) endment No. 2	Test Result
_				Acceptable Limit	Permissible Limit #	
п	Chemical Testing 2. Residues In Water			1.		
34	Pesticide Residues			and the second		
î	Alpha-HCH	µg/l	ANgr RES-28	0.01	No relaxation	BDL(DL-0.01
'ii	Beta HCH	μg/l	ANgr RES-28	0.04	No relaxation	BDL(DL-0.03
iii	Delta- HCH	μg/l	ANgr RES-28	0.04	No relaxation	BDL(DL-0.0)
iv	Alachior	µg/l	ANgr RES-28	20	No relaxation	BDL(DL-0.0
¥.	Aldrin / Dieldrin	Pgq	ANgr RES-28	0.03	No relaxation	BDL(DL-0.0
vi	Atrazine	µg/l	ANgr RES-29	2	No relaxation	BDL(DL-0.0)
vii	Butachlor	µg/1	ANgr RES-29	125	No relaxation	BDL(D10.0)
wiil	Charpyrifos	Pis/1	ANgr RES-28	30	No relaxation	BDL(DL-0.0.
ix	DDT and its Isomers	µg/l	ANgr RES-28	1	No relaxation	BDL(DL-0.0
X	Gamma - HCH (Lindane)	pg/l	ANgr RES-28	2	No relaxation	BDL(DL-0.0
хi	2,4-Dichlorophenoxyacctic acid	µg/I	ANgr RES-29	30	No relaxation	BDL(DL-0.0
xii	Endosulphan	HB/1	ANor RES-28	0, 4	No relaxation	BDL(DL-0.0
xiii	Ethion	µg/l	ANgr RES-29	3	No relaxation	BDL(DL-0.0
xiv	Isoprotuzon	μg/1	ANgr RES-29	9	No relaxation	BDL(DL-0.0
XV	Malathion	µg/1	ANor RES-29	190	No relaxation	BDL(DL-0.0
xvî	Methyl Parathion	µg/l	ANor RES-29	0.3	No relaxation	BDL(DL-0.0
xvii	Monocrotophos	µg/l	ANgr RES-29	1	No relaxation	BDL(DL-0.0
xviii	Phorate	pg/l	ANgr RES-29	2	No relaxation	BDL(DL-0.0

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REMARKS : As requested by the client, sample was tested for above parameters only. Sample complies with IS:10600:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

Verified By ta Sonali Gharpure Technical Manager

Authorized Signatory

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

ANAC MPLAN

ETHAL

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TEST REPORT

Test Report No. : Al	.PL/30112020/01-0	6	dated 30.11.2020	OL LOW MARKED BOOM	Page 1 d	of 3		
M/s Noamundi Iron (M/s TATA Steel Li Noamundi, Jharkhan Postal Code: 833217	mited) id	Sample Inward No. Inward Date Reference Reference Date	2020/MON-11/8/18-6 23.11.2020 W.O 3000132460/962 15.05.2020	Analysis Str Aņalysis En Sample Cat	d	23.11.2026 30.11.2026 Water		
Sample Name Ground Water					Location Co-ordi Lat: 22*8*52.58"N, Loog:			tity Received Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 18.11.2020	Sampling Time Sampl			g Location (Nr. Barrack)		

TEST RESULTS

s.N.	Test Parameter	Measurement Unit	Test method	IS 1050 (Drinking Wate	rent as per 10 : 2012 er Specifications) endment No. 2	Test Result
1	· · · · · · · · · · · · · · · · · · ·			Acceptable Limit	Permissible Limit [#]	
1	Biological Testing L.Water					
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
п	Chemical Testing 1. Water			THE RECEIPTION OF		- I
2	pH value		IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.35 at 25°C
3	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.5
4	Colour	Hazen units	IS 3025 (Part 4) : 1983	5	15	1
5	Odour		IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
б	Taste		IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agrecable
7	Free residual chlorine	mg/l	1S 3025 (Part 26) : 1986	Min. 0.2	1	BDL(DL/0.1)
8	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	268
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.4)	1.5	BDL(DL-0.1)
10	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL(DL-0.005)
11	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	38.43
12	Total Alkalinity (as CaCO ₃)	mg/l	15 3025 (Part 23) : 1986	200	680	156
13	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	680	150.92
14	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	260	42.34
15	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	10.98
16	Sulphate (as SO ₄)	mg/l	1S 3025 (Part 24) : 1986	200	400	12.44
17	Nitrate (as NO ₁)	mg/l	APHA Method 23rd Edition	45	No relaxation	6.81
18	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43) : 1992	0.001	0.002	BDL(DL-0.001
19	Anionic detergents (as MBAS)	mg/l	IS 13428 : 2005 Annex K	0.2	• 1.0	BDL(DL-0.01)

NOTES:
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• Liability of Annon Labs is limited to involved annout only.
• Non-persistable main prior to be excepted and the disposed of after 30 days and 15 days respectively from the date of sizes of Test Report, unless specified otherwise.
• 'mgil' is equivalent to 'ppat'.
• Result for test on 7 is not relevant.
• BDL- Below detection limit • DL- Indicates detection limit of instrument/method and shall be considered as "absent".

Verified By **Authorized Signatories** Swell Ruary 1 Cak 605 Swoti Shrivastava Dr.(Mrs.) Anupa Tankhiwale Dr. (Mrs.) S.D. Garway Phona Kalaane Tochnical Manager Technical Manager Sr.Technical Manager Quality Manager ANAC WEAR Head Office : 60, Bajiprabhu Negar, Nagpur - 440033 India. Ph. No. 9372404924, Email : support@enacon.in Lab : FP 34-35, Food Park, 5 Star Estate, MIDC Butibon, Nagpur - 441122, Nob. No. 9373287475, Email : labegp@enacon.in Support Help Lines : Technical (9373287475) Email : Jabegp@anacon.in, Offer (8698845456) Email : support@anacon.in, Accounts Division (9326960061, 6372960079) Email : accounts@anacon.in You may also visit us at www.anncontaboratories.com



TEST REPORT

Test Report No. : Al	LPL/30112020/01-	6	dated 30.11.2020		Page 2 d	of 3	
M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No.	2020/MON-11/8/18-6	a second s	Analysis Start		
		Inward Date 23.11,2020 Reference W.O 3000132460/962 Reference Date 15.05,2020		Called And Wights of	Annlysis End Sample Category		
Sample Name Ground Water	and a second		Location Co-ordi Lat: 22°8°52.58"N, Long:				
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 18.11.2020	Sampling Time Samp		umpling l	ng Location n (Nr. Barrock)	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	t Test Method	Requirement as per IS 1050Q : 2012 (Drinking Water Specifications) Including Amendment No. 2		Test Result
	1. March 1997			Acceptable Limit	Permissible. Limit "	
11	Chemical Testing 2. Residues In Water					
20	Iron (as Fe)	mġ/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.21
21	Copper (as Cu)	mg/l	18 3025 (Part 2) : 2019	0.05	1.5	BDL(DL-0.03)
22	Monganese (as Mn)	mg/l	18 3025 (Part 2) : 2019	0.1	0.3	BDL(DL-0.05)
23	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994	0.001	No relaxation	BDL/DL-0.0005
24	Cadmium (as Cd)	mg/l	IS: 3025 (Part 41): 1992	0.003	No relaxation	BDL(DL-0.001)
25	Selenium (as Se)	mg/l	IS : 3025 (Part 56) : 2003	0.01	No relaxation	BDL(DL-0.001)
26	Arsenic (as As)	mg/l	1S: 3025 (Part 37): 1988	0.01	No relaxation	BDL(DL-0.01)
27	Aluminium (as Al)	mg/l	18 15302 : 2003	0.03	0.2	BDL(DL-0.01)
28	Lead (as Pb)	mgA	IS 3025 (Part 47) : 2003	0.01	No relaxation	BDL(DL-0.001)
29	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL(DL-0.1)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL(DL-0.03)
31	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL(DL-0.1)
32	Polynuclear aromatic hydrocarbon (PAH)	µg/l	ANqr RES-30	0.1	No relaxation	BDL(DL-0.03)
33	Mineral Oil	mg/l	ANgr RES-40	0.5	No relaxation	BDL(DL-0.001)

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Verified By Hini (tu 1 10 Shashikant Satdewe Sr. Chemist

U 10 Sonali Gharpure Technical Manager

Authorized Signatory

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

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TEST REPORT

Test Report No. : A	LPL/30112020/01-0	6	dated 30.11.2020		Page 3 d	of 3	
M/s Noamundi Iro	n Mines	Sample Inward No.	2020/MON-11/8/18-6	Analysis Sta	urt	23.11.2020	
M/s TATA Steel Limited)		Inward Date	23.11.2020	Analysis En	Analysis End		
Noamundi, Jharkhar Postal Code: 83321	D/EA	Reference Reference Date	W.O 3000132460/962 15.05.2020	Sample Cat	egory	Water	
Sample Name Ground Water			Location Co-ord Lat: 22'8'52.58"N, Long:			tity Received .tr & 250 ml	
Sample Collected By Annoon Representative Mr. K. Pandey		Sampling Date 18.11.2020	Sampling Time Not Mentioned	Sampling Location Bottom Bin (Nr. Barrack)		Location	

TEST RESULTS

- 5.N.	Test Parameter	Measurement Unit	Foot Mathad	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 2		Test Result
				Acceptable Limit	Permissible Limit *	
п	Chemical Testing 2. Residues In Water					
34	Pesticide Residues					
i	Alpha-HCH	µg/l	ANqr RES-28	0.01	No relaxation	BDL(DL-0.01
ii	Beta HCH	µg/l	ANG RES-28	0.04	No relaxation	BDL(DL-0.03
tii	Delta- HCH	µg/1	ANqr RES-28	0.04	No relaxation	BDL(DL-0.03
ÎV.	Alachlor	jkg/l	ANqr RES-28	20	No relaxation	BDL(DL-0.0)
v	Aldrin / Dieldrin	µg/l	ANG RES-28	0.03	No relaxation	BDL(DL-0.0)
vi	Atrazine	µg/l	ANgr RES-29	2	No relaxation	BDL(DL-0.0)
vii	Butachlor	µg/1	ANg: RES-29	125	No relaxation	BDL(DL-0.0
viii	Chlorpyrifes	µg/l	ANG RES-28	30	No relaxation	BDL(DL-0.0)
ix	DDT and its Isomers	μg/l	ANq: RES-28	1	No relaxation	BDL(DL-0.0
x	Gamma - HCH (Lindane)	μg/1	ANgr RES-28	2	No relaxation	BDL(DL-0.0
xi	2,4-Dichlorophenoxyacetic acid	µg/l	ANg: RES-29	- 30	No relaxation	BDL(DL-0.0)
χü	Endosulphan	µg/l	ANg: RES-28	0.4	No relaxation	BDL(DL-0.0
xiii	Ethion	µg/l	ANgr RES-29	3	No relaxation	BDL(DL-0.0
xiv	Isoproturen	µg/l	ANgr RES-29	9	No relaxation	BDL(DL-0.0
XY	Malathion	µg/l	ANg RES-29	190	No relaxation	BDL(DL-0.0
XVi	Methyl Parathion	µg/1	ANgr RES-29	0.3	No relaxation	BDL(DL-0.0
xvii	Monocrotophos	μg/1	ANg: RES-29	1	No relaxation	BDL(DL-0.0)
NYIII	Phonute	μ <u>g</u> /1	ANG RES-29	2	No relaxation	BDL(DL-0.0

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"Below detection limit of the date of issue of the date of issue of Test Report, unless specified otherwise.
"Below detection limit of the date of issue of the date of issue of the date of issue of the test at 0.7 is not relevant.
ANyr RES-28, 18, 30 & 40 : Indonese validated method.

REMARKS : As requested by the client, sample was tested for above parameters only. Sample complies with IS:10509:2012, for tests conducted, indicating that it is fit for chinking purcess with respect to tested parameters.

Verified By 0o Sonali Gharpure

Technical Manager

Authorized Signatory

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Dr. (Mrs.) S.D. Garway, 8.6 Quality Manager

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

TEST REPORT

Test Report No. : A		1	dated 27/02/2021		Page 1 of 3		
Issued To :		Sample Inward No.	2021/MON-21/60-44	Analysis Sta	rt	22/02/2021	
M/s Noamundi Iron Mines M/s TATA Steel Limited) Noamundi, Jharkhand		Inward Date 22/02/2021 Reference W.O 3000132460/962		Analysis End	Analysis End		
Postal Code: 83321		Reference Date	15.05.2020	Sample Cate	Sample Category V		
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-1	Location Co-ord Lat: 22°9'30.46"N, Long		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 16/02/2021	Sampling Time 2.20 pm		Sampling Location Noamundi Basti (Nr. Play Gro		

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requiren IS 1050 (Drinking Wate Including Am	Test Result	
	-	1		Acceptable Limit	Permissible Limit *	
I	Biological Testing 1.Water					
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
П	Chemical Testing 1.Water					
2	pH value	-	IS 3025 (Part 11): 1983	6.5 to 8.5	No relaxation	7.33 at 25°C
3	Turbidity	NTU	IS 3025 (Part 10) : 1984	ľ	5 .	0.4
4	Colour	Hazen units	IS 3025 (Part 4) : 1983	5	15	1
5	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
6	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
7	Free residual chlorine	mg/l	IS 3025 (Part 26) : 1986	Min. 0.2	1	BDL(DL-0.1)
8.	Total dissolved solids	mg/l	IS 3025 (Part 16): 1984	500	2000	232
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	BDL(DL-0.1)
10	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL(DL-0.005)
11	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	47.59
12	Total Alkalinity (as CaCO3)	mg/l	IS 3025 (Part 23): 1986	200	600	124
13	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21): 2009	200	600	156.42
14	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	34.92
15	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	16.06
16	Sulphate (as SO ₄)	mg/l	1S 3025 (Part 24) : 1986	200	400	14.25
17	Nitrate (as NO ₃)	mg/l	APHA Method 23rd Edition	45	No relaxation	8.29
18	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43) : 1992	0.001	0.002	BDL(DL-0.001)
19	Anionic detergents (as MBAS)	mg/l	IS 13428 : 2005 Annex K	0.2	1.0	BDL(DL-0.01)

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"map", Result for test no. 7 is not relevant.

BDL-Below detection limit.

DL-Indicates detection limit of instrument/ins

Verified By é Swati Shrivastava Technical Manager

6 Pooja Kathane Technical Manager

Authorized Signatories

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

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TEST REPORT

ssued To : M/s Noamundi Iron Mines M/s TATA Steel Limited)		Sample Inward No. Inward Date	2021/MON-21/60-44 22/02/2021	Analysis Star Analysis End	
Noamundi, Jharkhar Postal Code: 833217	nd	Reference Reference Date	W.O 3000132460/962 15.05.2020	Sample Cate	gory Water
Sample Name	Sample Source	Sample Particulars	Location Co-ord		Quantity Received
Ground Water	Dugwell	Sample Code-GW-1	Lat: 22°9'30.46"N, Long:		2.0 Ltr & 250 ml
Sample Collected By		Sampling Date	Sampling Time	Contraction and Contraction	mpling Location
Anacon Representative Mr. K. Pandey		16/02/2021	2.20 pm		Basti (Nr. Play Groun

TEST RESULTS Requirement as per IS 10500 : 2012 Measurement (Drinking Water Specifications) S.N. Test Parameter Test Method Test Result Unit Including Amendment No. 2 Acceptable Permissible Limit Limit Chemical Testing II 2. Residues In Water 20 Iron (as Fe) mg/l IS 3025 (Part 2): 2019 1.0 No relaxation 0.07 21 Copper (as Cu) IS 3025 (Part 2): 2019 mg/l 0.05 15 BDL(DL-0.03) 22 Manganese (as Mn) IS 3025 (Part 2) : 2019 mg/l 0.1 0.3 BDL(DL-0.05) 23 Mercury (as Hg) mg/l IS: 3025 (Part 48): 1994 0.001 No relaxation BDL(DL-0.0005) 24 Cadmium (as Cd) IS: 3025 (Part 41): 1992 mg/l 0.003 No relaxation BDL(DL-0.001) 25 Selenium (as Se) IS: 3025 (Part 56): 2003 mg/l 0.01 No relaxation BDL(DL-0.001) 26 IS: 3025 (Part 37): 1988 Arsenic (as As) mg/l 0.01 No relaxation BDL(DL-0.01) 27 Aluminium (as Al) mg/l IS 15302 : 2003 0.03 0.2 BDL(DL-0.01) 28 Lead (as Pb) mg/l IS 3025 (Part 47): 2003 0.01 No relaxation BDL(DL-0.001) 29 Zinc (as Zn) IS 3025 (Part 2) : 2019 mg/l 5 15 BDL(DL-0.1) 30 Total Chromium (as Cr) IS 3025 (Part 2): 2019 mg/l 0.05 No relaxation BDL(DL-0.03) 31 Boron (as B) mg/l IS 3025 (Part 2): 2019 0.5 BDL(DL-0.1) 2.4 Polynuclear aromatic 32 ANqr RES-30 µg/1 0,1 No relaxation BDL(DL-0.03) hydrocarbon (PAH) 33 Mineral Oil mg/l ANgr RES-40 0.5 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. NOTES' = resource on each matching of the report of communication of the second second part of the second se

Verified By 88

Shashikant Satdeve Sr. Chemist

Sonali Gharpure Technical Manager

Authorized Signatory Jawf

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

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Test Report No. : AL	FL/2/022021/01-3		d 27/02/2021		Page 3 of 3		
Issued To :	existent for	Sample Inward No.	2021/MON-21/60-44	Analysis Sta	rt	22/02/2021	
A/s Noamundi Iron Mines		Inward Date	Inward Date 22/02/2021		1	27/02/2021	
(M/s TATA Steel Lin Noamundi, Jharkhand Postal Code: 833217		Reference Reference Date	W.O 3000132460/962 15.05.2020	Sample Cate	Sample Category W		
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-1	Location Co-ord Lat: 22°9'30.46"N, Long:		Zaumin'		
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 16/02/2021	Sampling Time 2.20 pm	Sa	Sampling Location Noamundi Basti (Nr. Play Gro		

			TEST RESULTS				
S.N.	Test Parameter	est Parameter Mensurement Unit	Test Mothod	IS 1050 (Drinking Wate	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 2		
				Acceptable Limit	Permissible Limit #	1	
п	Chemical Testing 2. Residues In Water	4					
34	Pesticide Residues		and the second sec				
i	Alpha-HCH	μg/l	ANgr RES-28	0.01	No relaxation	BDL(DL-0.01)	
ii	Beta HCH	μg/l	ANgr RES-28	0.04	No relaxation	BDL(DL-0.03)	
iii	Delta- HCH	μg/l	ANgr RES-28	0.04	No relaxation	BDL(DL-0.03	
iv	Alachlor	μg/l	ANgr RES-28	20	No relaxation	BDL(DL-0.03	
٧	Aldrin / Dieldrin	μg/l	ANgr RES-28	0.03	No relaxation	BDL(DL-0.03	
vi	Atrazine	μg/l	ANgr RES-29	2	No relaxation	BDL(DL-0.03	
vii	Butachlor	μg/l	ANgr RES-29	-125	No relaxation	BDL(DL-0.03	
viii	Chlorpyrifos	μg/l	ANgr RES-28	30	No relaxation	BDL(DL-0.03	
ix.	DDT and its Isomers	μg/1	ANgr RES-28	1	No relaxation	BDL(DL-0.03	
х	Gamma - HCH (Lindane)	μg/l	ANgr RES-28	2	No relaxation	BDL(DL-0.03	
xi	2,4-Dichlorophenoxyacetic acid	μg/l	ANgr RES-29	. 30	No relaxation	BDL(DL-0.03	
xii	Endosulphan	μg/l	ANgr RES-28	0.4	No relaxation	BDL(DL-0.03	
xiii	Ethion	μg/l	ANgr RES-29	3	No relaxation	BDL(DL-0.03	
xiv	Isoproturon	μg/l	ANgr RES-29	9	No relaxation	BDL(DL-0.03	
xv	Malathion	μg/l	ANgr RES-29	190	No relaxation	BDL(DL-0.03	
xvi	Methyl Parathion	μg/l	ANqr RES-29	0.3	No relaxation	BDL(DL-0.03	
xvii	Monocrotophos	μg/l	ANgr RES-29	1	No relaxation	BDL(DL-0.03	
xviii	Phorate	μg/l	ANgr RES-29	2	No relaxation	BDL(DL-0.03	

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

Verified By

Sonali Gharpure Technical Manager

. Authorized Signatory

ANACOMLASS

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

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TEST REPORT

Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 16/02/2021	e Sampling Time Samp		mpling L		
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-2	Location Co-ordin Lat: 22°9'25.41"N, Long: 8			Quantity Received 2.0 Ltr & 250 ml	
M/s Noamundi Iro (M/s TATA Steel L/ Noamundi, Jharkhan Postal Code: 83321	imited) 1d	Inward Date Reference Reference Date	22/02/2021 W.O 3000132460/962 15.05.2020		Sample Category		
Issued To :		Sample Inward No.	2021/MON-21/60-45	Analysis Start		22/02/2021 27/02/2021	

S.N.	Test Parameter	Measurement Unit	Test Method	IS 1050 (Drinking Wate	ient as per 00 : 2012 er Specifications) endment No. 2	Test Result
				Acceptable Limit	Permissible Limit [#]]
1	Biological Testing 1.Water			(
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
п	Chemical Testing 1.Water					
2	pH value	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.42 at 25°C
3'	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.7
4	Colour	Hazen units	IS 3025 (Part 4) : 1983	. 5	15	1
5	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
6	Taste	-	IS 3025 (Part 8): 1984	Agreeable	Agreeable	Agreeable
7	Free residual chlorine	mg/l	IS 3025 (Part 26) : 1986	Min. 0.2	1	BDL(DL-0.1)
8	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	240
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	BDL(DL-0.1)
10	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 1986	0.05	No relaxation	BDL(DL-0.005
11	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	33.99
12	Total Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	130
13	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	130.68
14	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	31.82
15	Magnesium (as Mg)	mg/l	1S 3025 (Part 46): 1994	30	100	11.81
16	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	9.85
17	Nitrate (as NO ₃) .	mg/l	APHA Method 23rd Edition	45	No relaxation	7.48
18	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43) : 1992	0.001	0.002	BDL(DL-0.001
19	Anionic detergents (as MBAS)	mg/l	IS 13428 : 2005 Annex K	0.2	1.0	BDL(DL-0.01)

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Verified By 5 TALS Swati Shrivastava Technical Manager

Authorized Signatories dingle Pooja Kathane Technical Manager

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

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TEST REPORT

a tart a tart a second sec		Sample Inwar Inward Date Reference Reference Dat		2021/MON-21/6 22/02/2021 W.O 30001324 15.05.2020		Analysis Start Analysis End Sample Category		22/02/2021 27/02/2021 Water
Sample N Ground V	and the second s	e Sample Par Sample Cod			ation Co-ordinate 41"N, Long: 85°3			tity Received tr & 250 ml
	esentative Mr. K. Pandey		Sampling Date 16/02/2021		ling Time 40 pm	Sampling Location Noamundi Bazar (Nr. Petrol		
*			TEST	RESULTS				
e ar		Measurement			IS 10	ement as per 500 : 2012 ater Specificati	0.000)	

\$.N.	Test Parameter	Measurement Unit	Test Method		r Specifications) andment No. 2	Test Result
				Acceptable Limit	Permissible Limit #	
п	Chemical Testing 2. Residues In Water					
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.16
21	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL(DL-0.03)
22	Manganese (as Mn)	- mg/l	IS 3025 (Part 2): 2019	0.1	0.3	BDL(DL-0.05)
23	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994	0.001	No relaxation	BDL(DL-0.0005)
24,	Cadmium (as Cd)	mg/l	IS: 3025 (Part 41): 1992	0.003	No relaxation	BDL(DL-0.001)
25	Selenium (as Se)	mg/l	IS: 3025 (Part 56): 2003	0.01	No relaxation	BDL(DL-0.001)
26	Arsenic (as As)	mg/l	IS: 3025 (Part 37): 1988	0.01	No relaxation	BDL(DL-0.01)
27	Aluminium (as Al)	mg/l	IS 15302 : 2003	0.03	0.2	BDL(DL-0.01)
28	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.01	No relaxation	BDL(DL-0.001)
29	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL(DL-0.1)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	BDL(DL-0.03)
31	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	. 0.5	2.4	BDL(DL-0,1)
32	Polynuclear aromatic hydrocarbon (PAH)	μg/l	ANqr RES-30	0.1	No relaxation	BDL(DL-0.03)
33.	Mineral Oil	mg/l	ANgr RES-40	0.5	No relaxation	BDL(DL-0.001)

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Verified By 38.8

Shashikant Satdeve Sr. Chemist

Sonali Gharpure Technical Manager

Authorized Signatory

ian

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

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M/s i (M/s	ed To : Noamundi Iror TATA Steel Lin nundi, Jharkhan	mited)	Sample Inward No. Inward Date Reference		2021/MON-21/60-45 22/02/2021 W.O 3000132460/962		Analysis Start Analysis End		22/02/2021 27/02/2021	
Posta	d Code: 833217		Reference Date		15.05.2020		Sample Ca	tegory	Water	
	ample Name round Water	Sample Source Dugwell	Sample Parti Sample Code			ation Co-ordinate .41"N, Long: 85°3		0.300.00	antity Received 0 Ltr & 250 ml	
Ana	Sample Coll con Representation	ected By ve Mr. K. Pandey	Sampling 1 16/02/202			oling Time .40 pm	Sampling Noamundi Bazar		Location	
				TEST	RESULTS		_	and an and the A	and a state of a state	
s.n.	Test Pi	nameter	Measurement Unit	leasurement Test		Requirement as per IS 10500 : 2012 (Drinking Water Specification Including Amendment No. 2		0500 : 2012 (ater Specifications) Amendment No. 2		
						Acceptable Limit		missible .imit [#]		
п	Chemical Testi 2. Residues In			12						
34	Pesticide Residu	ıes						19		
i	Alpha-HCH		μg/l	AN	Ngr RES-28	0.01	No re	laxation	BDL(DL-0.01	
ii	Beta HCH		μg/l		Ngr RES-28	0.04		laxation	BDL(DL-0.03	
iii	Delta- HCH		μg/l	AN	Ngr RES-28	0.04	No re	laxation	BDL(DL-0.03	
iv	Alachlor		μg/1	AN	Ngr RES-28	20	No re	laxation	BDL(DL-0.0.	
V	Aldrin / Dieldrin	n	μg/l		Ngr RES-28	0.03	No re	laxation	BDL(DL-0.0	
vi	Atrazine		μg/l		Ngr RES-29	2	No re	laxation	BDL(DL-0.03	
vii	Butachlor		μg/l		Nqr RES-29	. 125	No re	laxation	BDL(DL-0.0.	
viii	Chlorpyrifos		μg/l		Ngr RES-28	30		laxation	BDL(DL-0.03	
ix	DDT and its Iso		μg/l		Ngr RES-28	1	and the second design of the s	laxation	BDL(DL-0.0.	
x	Gamma - HCH		µg/l		Ngr RES-28	2		laxation	BDL(DL-0.0	
xi xii	2,4-Dichlorophe Endosulphan	enoxyacetic acid	μg/l		Ngr RES-29	30		laxation	BDL(DL-0.0.	
xiii	Ethion		μg/l		Ngr RES-28	0.4		laxation	BDL(DL-0.03	
xin	Isoproturon		μg/l		Ngr RES-29	3		laxation	BDL(DL-0.03	
xiv	Malathion		μg/l		Nqr RES-29	9		laxation	BDL(DL-0.03	
xv	Malathion Methyl Parathio		μg/l		Ngr RES-29	190		laxation	BDL(DL-0.03	
xvii	Monocrotophos		μg/l		Ngr RES-29	0.3		laxation	BDL(DL-0.0.	
AVII	monocrotophos		μg/l	AN	Ngr RES-29	1	No re	laxation	BDL(DL-0.03	

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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 01

Dr. (Mrs.) S.D. Garway

Quality Manager

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Test Report No. : ALPL/27022021/01-37 dated 27/02/2021 Page 1 of 3 Sample Inward No. 2021/MON-21/60-46 Analysis Start 22/02/2021 M/s Noamundi Iron Mines 22/02/2021 (M/s TATA Steel Limited) Inward Date Analysis End 27/02/2021 Noamundi, Jharkhand Reference W.O.- 3000132460/962 Postal Code: 833217 Sample Category Water **Reference** Date 15.05.2020 Sample Name Sample Source Sample Particulars Location Co-ordinates Quantity Received Ground Water Dugwell Sample Code-GW-3 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 16/02/2021 3.20 pm Mahudi Village (Railway Station Road) TEST DESILI TO

5.N.	I est Parameter	Measurement Unit	Test Method	(Drinking Wate	tent as per 10 : 2012 or Specifications) endment No. 2	Test Result
				Acceptable Limit	Permissible Limit [#]	
I	Biological Testing 1.Water					<i>0</i>
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
П	Chemical Testing 1.Water					
2	pH value		IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.42 at 25°C
3	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.6
4	Colour	Hazen units	IS 3025 (Part 4) : 1983	5	15	1
5	Odour	•	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
6	Taste	-	IS 3025 (Part 8): 1984	Agreeable	Agreeable	Agreeable
7	Free residual chlorine	mg/l	IS 3025 (Part 26) : 1986	Min. 0.2	1	BDL(DL-0.1)
8	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	244
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	BDL(DL-0.1)
10	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 1986	0.05	No relaxation	BDL(DL-0.005
11	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	44.68
12	Total Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	130
13	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	168.3
14	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	.75	200	48.89
15	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	10.39
16	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	14.77
17	Nitrate (as NO ₃)	mg/l	APHA Method 23rd Edition	45	No relaxation	6.07
18	Phenolic compounds (as C_6H_5OH)	mg/l	IS 3025 (Part 43) : 1992	. 0.001	0.002	BDL(DL-0.001
19	Anionic detergents (as MBAS)	mg/l	IS 13428 : 2005 Annex K	0.2	1.0	BDL(DL-0.01

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Verified By .16 Swati Shrivastava Technical Manager

Authorized Signatories Poora Kathane Technical Manager

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

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hydrocarbon (PAH)

Mineral Oil

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	Noamundi Iron TATA Steel Li	a transference	Sample Inwar Inward Date	d No.	2021/MON-21/60 22/02/2021	-46	Page 2 Analysis 8 Analysis 1	Start	22/02/2021 27/02/2021	
	undi, Jharkhan		Reference		W.O 300013246	0/967			L HOLILOLI	
	l Code: 833217		Reference Dat	e	15.05.2020	0/902	Sample C	ategory	Water	
	mple Name ound Water	Sample Source Dugwell	Sample Pa Sample Cos			on Co-ordinate 9"N, Long: 85°3	~		tity Received Ltr & 250 ml	
Апа	Sample Col acon Representat	llected By ive Mr. K. Pandey	Samplin 16/02/2		Sampling 3.20	g Time	Sampling I Mahudi Village (Rai		ocation	
				TEST	RESULTS			-Be (store	any charlon reducty	
S.N.	Test Pi	Test Par amotor		Measurement Unit Test Method Unit Requirement as IS 10500 : 201 (Drinking Water Speet Including Amendmen		10500 : 2012 Water Specifications)		Test Result		
						Acceptable	Permissible			
п.	Chemical Test 2. Residues In									
20	Iron (as Fe)		mg/l	IS 3025	5 (Part 2) : 2019	1.0	Nore	laxation	0.17	
21	Copper (as Cu))	mg/l	IS 302:	5 (Part 2) : 2019	0.05		1.5	BDL(DL-0.03)	
22	Manganese (as	Mn)	mg/l	IS 302:	5 (Part 2) : 2019	0.1		0.3	BDL(DL-0.05)	
23	Mercury (as Hg	g) ·	mg/l	IS: 3025	5 (Part 48) : 1994	0.001	No re	laxation	BDL(DL-0.000	
24	Cadmium (as C	Cd)	mg/l	IS: 3025	5 (Part 41) : 1992	0.003	No re	laxation	BDL(DL-0.001	
25	Selenium (as S	- Augusta - Augu	mg/l	IS: 3025	5 (Part 56) : 2003	0.01	Nore	laxation	BDL(DL-0.001	
26	Arsenic (as As)		mg/l	IS: 3025	5 (Part 37) : 1988	0.01	Nore	laxation	BDL(DL-0.01)	
27	Aluminium (as	Al)	mg/l	IS 1	5302:2003	02:2003 0.03		0.2	BDL(DL-0.01)	
28	Lead (as Pb)		mg/l	18 3025	(Part 47): 2003	0.01	Nore	laxation	BDL(DL-0.001	
29	Zinc (as Zn)		mg/l	IS 302:	5 (Part 2) : 2019	5		15	BDL(DL-0.1)	
30	Total Chromiun	m (as Cr)	mg/l	IS 302	5 (Part 2) : 2019	0.05	No re	laxation	BDL(DL-0.03)	
31	Boron (as B)		mg/l	IS 3025	5 (Part 2) : 2019	0.5		2.4	BDL(DL-0.1)	
32	Polynuclear are		ug/l	A1	Nor RES-30	0.1	Nor	lavation	BDI (DI -0.03)	

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ANgr RES-30

ANqr RES-40

Verified By 0

Ś Shashikant Satdeve Sr. Chemist

Sonali Gharpure Technical Manager

µg/l

mg/l

Authorized Signatory 1an

No relaxation

0.1

0.5

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

ANAC INLASS

BDL(DL-0.03)

No relaxation BDL(DL-0.001)

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TEST REPORT

(M/s Noan	I/s Noamundi Iron Mines M/s TATA Steel Limited) Ioamundi, Jharkhand ostal Code: 8 33217		Sample Inward Inward Date Reference Reference Date	Inward Date 22/02/2021 j Reference W.O 3000132460/962 j Reference Date 15.05.2020 j		Analysis End 27/02		22/02/2021 27/02/2021 Water		
	ample Name round Water	Sample Source Dugwell	Sample Part Sample Code			tion Co-ordinate .89"N, Long: 85°	- Quin		tity Received	
Ana	Sample Col acon Representat	lected By ive Mr. K. Pandey	Sampling 16/02/20			ing Time 0 pm	Sampling Location Mahudi Village (Railway Station F			
	17			TEST	RESULTS			<u> </u>		
S.N.	Test P	arameter .	Measurement Unit	Te	st Method	IS (Drinking V		lcations)	Test Result	
п	Chemical Test 2. Residues In									
34	Pesticide Resid	ues								
i ·	Alpha-HCH		µg/l	AN	gr RES-28	0.01	Not	elaxation	BDL(DL-0.01)	
ii	Beta HCH		μg/l	AN	gr RES-28	. 0.04		claxation	BDL(DL-0.03	
tii	Delta- HCH		μg/1	AN	qr RES-28	0.04		elaxation	BDL(DL-0.03	
iv	Alachlor		μ g /l	AN	qr RES-28	20	No	elaxation	BDL(DL-0.03	
v	Aldrin / Dieldri	n	μg/1	AN	gr RES-28	0.03	Non	elaxation	BDL(DL-0.03	
vi	Atrazine		μg/l	AN	qr RES-29	2	Noi	elaxation	BDL(DL-0.03	
vii	Butachlor		μg/1	AN	qr RES-29	125	Non	elaxation	BDL(DL-0.03	
viii	Chlorpyrifos	1	μg/1	AN	qr RES-28	30	No	elaxation	BDL(DL-0.03	
ix	DDT and its Isc		μg/l	AN	qr RES-28	1	Not	elaxation	BDL(DL-0.03	
x	Gamma - HCH		μg/1		qr RES-28	2	Non	elaxation	BDL(DL-0.03	
xi		enoxyacetic acid	μg/l	AN	qr RES-29	30	No	elaxation	BDL(DL-0.03	
xii	Endosulphan		μg/1		qr RES-28	0.4	Not	elaxation	BDL(DL-0.03	
xiii	Ethion		μg/l		gr RES-29	3	Nor	elaxation	BDL(DL-0.03	
xiv	Isoproturon		μg/l		gr RES-29	.9	Noi	elaxation	BDL(DL-0.03	
XV	Malathion		μg/l		qr RES-29	190	Non	elaxation	BDL(DL-0.03	
xvi	Methyl Parathic	12.7	µg/l		gr RES-29	0.3	Noi	elaxation	BDL(DL-0.03	
xvii	Monocrotophos		µg/l		gr RES-29	. 1 .	~ No i	elaxation	BDL(DL-0.03	
xviii	Phorate		μg/l	AN	gr RES-29	2	31	elaxation	BDL(DL-0.03	

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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

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TEST REPORT

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

M/s Noamundi Iron	Mines	Sample Inward No.	2021/MON-21/60-47	Analysis Start		22/02/2021
M/s TATA Steel Limited)		Inward Date	22/02/2021	Analysis En	d	27/02/2021
Noamundi, Jharkhan Postal Code: 833217	-10 C	Reference Reference Date	W.O 3000132460/962 15.05.2020	Sample Cate	egory	Water
Sample Name Ground Water Dugwell Sample Collected By Anacon Representative Mr. K. Pandey		Sample Particulars Sample Code-GW-4	Location Co-ordina Lat: 22°8'52.58"N, Long: 85	Samuerel Morent		
		Sampling Date 16/02/2021	Sampling Time 3.50 pm	Sa	Sampling Location Bottom Bin (Nr. Barrack	

S.N.	Test Parameter	Measurement Unit	Test Method	IS 1050 (Drinking Wate) Including Am	tent as per 10 : 2012 or Specifications) endment No. 2	Test Result
				Acceptable Limit	Permissible Limit [#]	
1	Biological Testing 1.Water					
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
П	Chemical Testing 1.Water					
2	pH value	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.42 at 25°C
3 .	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.4
4	Colour	Hazen units	IS 3025 (Part 4) : 1983	5	15	1
5	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
6	Taste	•	IS 3025 (Part 8): 1984	Agreeable	Agreeable	Agrecable
7	Free residual chlorine	mg/l	IS 3025 (Part 26) : 1986	Min. 0.2	1	BDL(DL-0.1)
8	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	264
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	BDL(DL-0.1)
10	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 1986	0.05	No relaxation	BDL(DL-0.005)
11	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	42.74
12	Total Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	160
13	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	. 200	600	154.44
14	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	45.01
15	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	9.45
16	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	10.63
17	Nitrate (as NO ₃)	mg/l	APHA Method 23rd Edition	45	No relaxation	7.46
18	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43) : 1992	0.001	0.002	BDL(DL-0.001
19	Anionic detergents (as MBAS)	mg/l	IS 13428 : 2005 Annex K	0.2	1.0	BDL(DL-0.01)

NOTES:

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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.

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Verified By ello

Swati Shrivastava Technical Manager

Khiwall Pooj Kathane Technical Manager

Authorized Signatories

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

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TEST REPORT

M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217 Sample Name Ground Water Sample Collected By Anacon Representative Mr. K. Pandey		Sample Inward No. Inward Date Reference Reference Date	2021/MON-21/60-47 22/02/2021 W.O 3000132460/962	Analysis End 27/02/ Sample Category Water tes Quantity Receiv		22/02/2021 27/02/2021 Water
		Sample Particulars Sample Code-GW-4	15.05.2020 Location Co-ordinate Lat: 22°8'52.58"N, Long: 85°3			Received
		Sampling Date 16/02/2021	Sampling Time S		ampling Location om Bin (Nr. Barrack)	

S.N.	Test Parameter	Test Parameter Measurement Unit	Test Method	IS 1050 (Drinking Wate	ent as per 0 : 2012 • Specifications) endment No. 2	Tost Rosult
6e)	3			Acceptable Limit	Permissible Limit "	
п	Chemical Testing 2. Residues In Water			50 - 2 ⁵ 4		
20	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	1.0	No relaxation	0.24
21	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL(DL-0.03)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL(DL-0.05)
23	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994	* 0.001	No relaxation	BDL(DL-0.0005
24	Cadmium (as Cd)	mg/l	IS: 3025 (Part 41): 1992	0.003	No relaxation	BDL(DL-0.001)
25	Selenium (as Se)	mg/l	IS: 3025 (Part 56): 2003	0.01	No relaxation	BDL(DL-0.001
26	Arsenic (as As)	mg/l	IS: 3025 (Part 37): 1988	0.01	No relaxation	BDL(DL-0.01)
27	Aluminium (as Al)	mg/l	IS 15302 : 2003	0.03	0.2	BDL(DL-0.01)
28	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.01	No relaxation	BDL(DL-0.001)
29	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL(DL-0.1)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL(DL-0.03)
31	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL(DL-0.1)
32.	Polynuclear aromatic hydrocarbon (PAH)	μg/l	ANqr RES-30	0.1	No relaxation	BDL(DL-0.03)
33	Mineral Oil	mg/l	ANgr RES-40	0.5	No relaxation	BDL(DL-0.001)

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'mgl' is equivalent to 'ppm',
BDLBelow detection limit
OL- Indicates detection limit of instrument/method and shall be considered as 'absent'.

Avgr RES-30 & 40 : Inhouse validated method.

Verified By

38 5 Shashikant Satdeve Sr. Chemist

Sonali Gharpure Technical Manager

Authorized Signatory Jar

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

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TEST REPORT

	report rior r /r	LPL/27022021/01-	1000			dated 27/02/2021			Page 3 of 3	
M/s I	Noamundi Iro	n Mines	Sample Inward	No.	2021/MON-21/	60-47	Analysis Sta	irt	22/02/2021	
	TATA Steel L		Inward Date		22/02/2021		Analysis En	d	27/02/2021	
Noan	nundi, Jharkhar	ıd	Reference		W.O 3000132	460/962				
Posta	l Code: 83321'	7	Reference Date		15.05.2020		Sample Cat	egory	Water	
	mple Name round Water	Sample Source Dugwell	Sample Partie Sample Code-		the second	cation Co-ordinate 2.58"N, Long: 85°3	No Van		ntity Received Ltr & 250 ml	
Ana	Sample Col con Representati	lected By ive Mr. K. Pandey	Sampling D 16/02/202		Sam	pling Time .50 pm	S	mpling	Location Nr. Barrack)	
					RESULTS	ioo pin	Dent	an Din C	NI. Dallack)	
\$.N:	Test P	arameter	Measurement Unit	Т	est Method	IS 1 (Drinking W	rement as per 0500 : 2012 /ater Specifications) Amendment No. 2		fest Result	
				1		Acceptable Limit		issible nit [#]		
п	Chemical Test 2. Residues In									
34	Pesticide Resid	ues				· · · · · · · · · · · · · · · · · · ·				
i	Alpha-HCH		μg/l	Al	Ngr RES-28	0.01	No rela	axation	BDL(DL-0.0	
ii	Beta HCH		μg/l	A	Nqr RES-28	0.04	No rela	axation	BDL(DL-0.0.	
iii	Delta-HCH		μg/l		Nqr RES-28	0.04	No rela	axation	BDL(DL-0.0	
iv	Alachlor		μg/l	Al	Ngr RES-28	20	No rela	axation	BDL(DL-0.0	
v	Aldrin / Dieldri	n	μg/l	Al	Nqr RES-28	0.03	No rela	axation	BDL(DL-0.0	
vi	Atrazine		µg/l	A	Nqr RES-29	2	No rela	axation	BDL(DL-0.0	
vii	Butachlor	· · · · · · · · · · · · · · · · · · ·	μg/l		Ngr RES-29	125	No rela	axation	BDL(DL-0.0	
viii	Chlorpyrifos	- F.	μg/1		Ngr RES-28	30	No rela	axation	BDL(DL-0.0	
ix	DDT and its Iso		μg/l		Nqr RES-28	1	No rela	axation	BDL(DL-0.0	
x	Gamma - HCH		μg/l		Nqr RES-28	2	- No rela	axation	BDL(DL-0.0	
xi		enoxyacetic acid	μg/l		Nqr RES-29	30	No rela	axation	BDL(DL-0.0	
xii	Endosulphan		μg/1		Nqr RES-28	0.4	No reli	axation	BDL(DL-0.0	
xiii	Ethion		μg/1		Nqr RES-29	3	No rela	axation	BDL(DL-0.0	
xiv.	Isoproturon		μg/l		Ngr RES-29	. 9	No rela	axation	BDL(DL-0.0	
XV	Malathion		μg/l		Nqr RES-29	190	No rela	axation	BDL(DL-0.0	
xvi	Methyl Parathie		μg/1		Nqr RES-29	0.3	No rela	axation	BDL(DL-0.0	
xvii	Monocrotophos	5	μg/1		Nqr RES-29	1	No rela	axation	BDL(DL-0.0.	
xviii	Phorate		µg/l	A	Ngr RES-29	2	No rela	axation	BDL(DL-0.0	

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'mgt' is equivalent to 'ppm'.

Below detection limit

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

Result for test no. 7 is not relevant.

ANGr RES-28, 29, 30 & 40: 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

Authorized Signatory

ANACONLASS

Sonali Gharpure Technical Manager

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

Quality Manager

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Annexure-3

Flow Rate of Balijhor Nalla

(October 2020 – March 2021)

ANALYSIS OF WATER QUALITY Sample collected from Balijhore Nalla

Parameters	Oct- 20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21
BOD mg/l	1.45	1.9	1.80	1.60	1.70	1.50
CPCB Limit (30 mg/l)	21.10					
TSS mg/l	35.80	12.60	14.9	24.50	19.60	29.60
CPCB Limit (100 mg/l)		12100	2.110	2.100	19100	
Flow Rate Cum/hr	88.3	29.4	30.8	41.06	35.33	54.55

* There is no any industrial effluents discharge from the mine.

Manager (Environment)



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HEDDOVED BY . WE FOUND SAME IN A CONTAINANT POLITICITY OF THEM CHARTER TO A FRAME WE DEFINED	in automic sets was no hered.	
Agricultural & Process Food Products Export Development Authority (APEDA) Export Inspection	s council (EIC) 🧇 Agmark	

Test Report No. :	ALPL/30112020/01	-7£88 da	ted 30.1	1.2020		Page	el of 1
Issued To : M/s Noamundi I (M/s TATA Steel Noamundi, Jharkl Postal Code: 8332	Limited) hand	Sample Inward N Inward Date Reference Reference Date	0.	23,11.20	000132460/962	Analysis Start Analysis End Sample Category	23.11.2020 30.11.2020 Water
Sample Name Surface Water	Sample Source Balijhora Nallah	Sample Partie Sample Code-SV			Location Coordinate Lat: 22'8'59.1"N; Long: 85°29'37:62"E Lat: 22'9'35.88"N; Long: 85°29'49.87"E		Quantity Received 2.0 Ltr & 250 ml
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date Sampling Til 18.11.2020 Not Mention		-	Sampling Location Balijhore Nallah (SW-1; Nr. Aqua Park) 2, (SW-2		

Balijhore Nallah (SW-1; Nr. Aqua Park) 2. (SW-2; Nr. DVC) 18.11.2020 Not Mentioned TEST RESULTS

	-	and the second second	a source restances	Standards as	Test F	leault
S.N.	Test Parameter	Mensurement Unit	Test Method	per IS 2296:1992 Class C	SW-1	SW-2
1	Biological Testing 1.Water					
1	Total Coliform	MPN/100ml	IS 1622 : 1981	\$000	<2	<2
11	Chemical Testing 1.Water				Names in the state of a state of the	
2	pH value	-	18.3025 (Part 11): 1983	6.0 to 9.0	7.46 at 25°C	7.42 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4) : 1983	3400	1	1
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	4.0	6.3	6.2
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) :1984		* BDL(DL=10)	BDL(DL-10)
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Fart 44):1993	3,0	2,37	2.75
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) :2006		12	16
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	1500	212	224
9	Cooper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	1.5	BDL(DL-0.03)	BDL(DL-0.03)
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32):1988	600	53.22	60.12
11	Sulphote (as SO ₄)	mg/l	IS 3025 (Part 24) ; 1986	400	4.15	8.81
12	Nitrate (as NO ₂)	mg/l	IS 3025 (Part 34) : 1988	50	6.03	5.06
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.23	0.46
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 1986	0.05	BDL(DL-0.005)	BDL(DL-0.005)
15	Phenolic compounds (as OSHSCH)	mg/l	1S 3025 (Part 43) :1001	0.005	BDL(DL-0.001)	BDL(DL-0.001)
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	1.0	BDL(DL-0.01)	BDL(DL-0.01)
-	Chemical Testing 2. Residue	s In Water				
17	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	0.5	0.13	0.17
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41): 1992	0.01	BDL(DL-0.001)	BDL(DL-0.001)
19	Selenium (as Se)	mg/l	1S 3025 (Part 2) : 2019	0.05	BDL(DL-0.001)	BDL(DL-0.001)
20	Arsenic (as As)	mg/l	1S 3025 (Part 37) : 1988	0.2	BDL(DL-0.001)	BDL(DL-0.001)
21	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.05)	BDL(DL-0.05)
22	Zinc (as Zn)	mg/l	1S 3025 (Part 2) : 2019	15	BDL(DL-0.05)	BDL(DL-0.05)
23	Hexa Chromium (as Cr ⁴⁰)	mg/l	IS 3025 (Part 2) :2019	0.05	BDL(DL-0.001)	BDL(DL-0.001)
24	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994		BDL(DL-0.005)	BDL(DL-0.005)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	10-00	BDL(DL-0.05)	BDL(DL-0.05)

NOTES: • Please see waremark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable in vested parameters only. • Test report shall not be reproduced oncept in full without prior written approval of Assoon Labs. • Lability of Assoon Labs is limited to invoiced assnart only. • Non-periodable and periodable sample(s) shall be disposed off after 50 days and 15 days respectively from the date of asseo of Test Report, unless specified otherwise. • "mp?" is equivalent to "ppm". • SDL-Below detection limit • DL- Indicates detection limit of instrument/starticid and shall be considered as "dates". **REMARKS**: As moussied by the client, sample was tested for above carameters only.

Verified By -pliabus alli Wati Shrivastava For Whollin Shushikant Satdeve SFOR

TEST REPORT

Authorized Signatories anthinale Dr.(Mrs.) Anupa Tankhiwale

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

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Baitanni River (SW-3)

Noamundi - Mine Pit Water (SW-4)

ISO 9001:2015, ISO 14001:2015, OHSAS 16001:2007 Certified Organization Recognized By Ministry of Environment & Forests (MoEF), New Delhi

TEST REPORT

Test Report No.	ALPL/30112020/01-9	Allo dated	30,11.2020		Pag	elof 1
Issued To : M/s Noamundi I (M/s TATA Stee Noamundi, Jhark Postal Code: 833	l Limited) hand	Sample Inward No. Inward Date Reference Reference Date	23,11.2020	-11/8/18-9&10 132460/962	Analysis Start Analysis End Sample Categor	23.11.2020 30.11.2020 y Water
Sample Name Sample Sour Surface Water 1, River (SW-3) 2, Mine Pi					Sample Condition caled & Ice Preserved	Quantity Received 2.0 Ltr & 250 ml
Samp	le Collected By	Sampling Da	te Sampling	Time	Sampling L	ocation

Anacon Representative Mr. K. Pandev

TEST RESULTS

18.11.2020

Not Mentioned

			a constantina a	Standards as	Tost F	lesult
5.N.	Test Parameter	Measurement Unit	Test Method	per IS 2296:1992 Class C	· SW-1	SW-2
1	Biological Testing 1.Water					
1	Total Coliforn	MPN/100ral	IS 1622 : 1981	\$000	<2	<2
п	Chemical Testing 1.Water					
2	pH value		IS 3025 (Part 11): 1983	6.0 to 9.0	7.42 at 25°C	7.47 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4) : 1983	300	1	1
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	4.0	6.2	6.2
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) :1984		BDL(DL-10)	BDL(DL-10)
. 6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44):1993	3.0	2.50	2.81
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) :2006		8	12
8	Total Dissolved Solids (TDS)	img/l	1S 3025 (Part 16) : 1984	1.500	214	218
9	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	1,5	BDL(DL-0.03)	BDL(DL-0.03)
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32):1988	600	55.19	64.06
11	Sulphnie (as SO ₄)	mg/l	1S 3025 (Part 24) : 1986	400	9.07	8.63
12	Nitrate (as NO ₂)	mg/l	IS 3025 (Part 34) : 1988	50	6.03	5.50
13	Fluoride (as F)	m _i c/l	1S 3025 (Part 60) : 2008	1.5	0.32	0.40
14	Cyanide (as CN)	m:e/l	IS 3025 (Part 27): 1986	0.05	BDL(DL-0.005)	BDL(DL-0.005
15	Phenolic compounds (as C6H5CH)	mg/l	1S 3025 (Part 43) :1001	0.005	BDL(DL-0.001)	BDL(DL-0.001)
16	Anionic Detergent	mg/I	1S 13428 : 2005 Annex K	1.0	*BDL(DL-0.01)	BDL(DL-0.01)
	Chemical Testing 2. Residue	s In Water			and the condition of the state	
17	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.5	0.14	0.18
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41) : 1992	0.01	BDL(DL-0.001)	BDL(DL=0.001)
19	Selenium (as Se)	mg/l	1S 3025 (Part 2) : 2019	0.05	BDL(DL-0.001)	BDL(DL-0.001)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.2	BDL(DL-0.001)	BDL(DL-0.001)
21	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.05)	BDL(DL-0.05)
22	Zinc (as Zn)	mg/l	1S 3025 (Part 2) : 2019	15	BDL(DL-0.05)	BDL(DL-0.05)
23	Hexa Chromium (as Cr*6)	mg/l	IS 3025 (Part 2) :2019	0.05	BDL(DL-0.001)	BDL(DL-0.001
24	Mercury (as Hg)	mg/I	IS: 3025 (Part 48): 1994		BDL(DL-0.005)	BDL/DL-0.005
25	Manganese (as Mn)	ing/l	1S 3025 (Part 2) : 2019	-	BDL(DL-0.05)	BDL(DL-0.05)

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Verified By

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Pooja Katiane Dr.(Mrs.) Anupa Tankhiwale +

Authorized Signatories

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

Technical Munager Sr. Chemist Technical Manager Sr. Technical Manager (Mead Office | 60, Bajiprabhu Nagar, Nagpur - 440033 India, Ph. No, 9372404924, Email : supportigionacon.in (Lab : FP 34-35, Feed Park, 5 Star Estate, MIDC Butthori, Nagpur - 441122, Mob. No. 9373287475, Email : labngr@janacon.in Support Help Lines : Technical (9373287475) Email : latingp@anacon.in, Offer (8688945456) Email : support@anacon.in, Accounts Division (9326960081, 9372960079) Email : accounts@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): AGMARK.

TEST REPORT

the second s	Fest Report No. : ALPL/27022021/01-39			da	ted 27/02/2021	-	Page 1 of 1	
Issued To : M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. Inward Date Reference Reference Date		2021/MON-21/60-48&49 22/02/2021 W.O. 3000132460/962 15.05.2020		Analysis Start Analysis End Sample Category	23/02/2021 27/02/2021 Water	
Sample NameSample SourceSurface WaterBalijhora Nallah		Sample Particulars Sample Code-SW-1 & 2		Location Coordinate SW-1 Lat: 22°8'59.1"N; Long: 85°29'37.62"E SW-2 Lat: 22°9'35.88"N; Long: 85°29'49.87"E		ng: 85°29'37.62"E	Quantity Received 2.0 Ltr & 250 ml	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling Date 16/02/2021			Balijhore Nallah (S	Sampling Location SW-1; Nr. Aqua Park) 2. (SW-2; Nr. DV0		

TEST RESULTS Standards as ner

10000		Measurement		Standards as per	Test F	lesult
5.N.	Test Parameter	Unit	Test Method	IS 2296:1992 Class C	SW-1	SW-2
I	Biological Testing 1.Water					0
1.	Total Coliforn	MPN/100ml	IS 1622 . 1981	5000	~2	~2
П	Chemical Testing 1.Water					
2	pH value	-	IS 3025 (Part 11) : 1983	6.0 to 9.0	7.40 at 25°C	7.44 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4) : 1983	300	1	1
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	4.0	6.1	6.0
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) :1984	1. J.S.	BDL(DL-10)	BDL(DL-10)
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) :1993	3.0	BDL(DL-2)	BDL(DL-2)
7	Chemical oxygen demand	mg/l	1S 3025 (Part 58) :2006		BDL(DL-4)	BDL(DL-4)
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16): 1984	1500	210	222
9	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	. 1.5	BDL(DL-0.03)	BDL(DL-0.03)
10-	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	600	55.31	63.14
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	400	5.70	7.26
12	Nitrate (as NO ₃)	mg/l	IS 3025 (Part 34) : 1988	50	6.53	5.44
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.21	0.43
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	BDL(DL-0.005)	BDL(DL-0.005
15	Phenolic compounds (as C6H5OH)	mg/l	IS 3025 (Part 43) :1001	0.005	BDL(DL-0.001)	BDL(DL-0.001)
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	1.0	BDL(DL-0.01)	BDL(DL-0.01)
	Chemical Testing 2. Residue	s In Water				
17	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.5	0.14	0.16
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41) : 1992	0.01	BDL(DL-0.001)	BDL(DL-0.001)
19.	Selenium (as Se)	mg/l	IS 3025 (Part 2): 2019	0.05	BDL(DL-0.001)	BDL(DL-0.001)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.2	BDL(DL-0.001)	BDL(DL-0.001)
21	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.05)	BDL(DL-0.05)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	15	BDL(DL-0.05)	BDL(DL-0.05)
23	Hexa Chromium (as Cr ⁺⁶)	mg/l	IS 3025 (Part 2) :2019	0.05	BDL(DL-0.001)	BDL(DL-0.001
24	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994		BDL(DL-0.005)	BDL(DL-0.005
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019		BDL(DL-0.05)	BDL(DL-0.05)

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

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Shashikant Satdeve

Sr. Chemist

Sach Swati Shrivastava Technical Manager

Authorized Signatories

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K Pooja Kathane

Technical Manager

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

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

Issued To : M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Sample Inward No. Inward Date Reference Reference Date		2021/MON-21/60-502 22/02/2021 W.O 3000132460/90 15.05.2020		Analysis Start Analysis End Sample Categor	23/02/2021 27/02/2021 Water
Sample Name Surface Water			1.100	Sample Particulars Sample Condition Sample Code-SW-3 & 4 Sealed & Ice Preserved		Quantity Received 2.0 Ltr & 250 ml	
Sample Collected By Anacon Representative Mr. K. Pandey		Sampling I 29 16/02/202		ate Sampling Time		Sampling Lo Baitarani River (Noamundi - Min	

1			TEST RESULTS			
C . N	Test Descentes	Measurement	The set Difference of	Standards as per IS 2296:1992	Test F	Result
S.N.	Test Parameter	Unit	Test Method	Class C	SW-1	SW-2
1	Biological Testing 1.Water					
1	Total Coliforn	MPN/100ml	IS 1622 : 1981	. 5000	<2	<2
п	Chemical Testing 1.Water					
2	pH value	¥	IS 3025 (Part 11) : 1983	6.0 to 9.0	7.38 at 25°C	7.44 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4) : 1983	300	1	1
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	4.0	6.1	6.0
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) :1984		BDL(DL-10)	BDL(DL-10)
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) :1993	3.0	BDL(DL-2)	BDL(DL-2)
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) :2006		BDL(DL-4)	BDL(DL-4)
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16): 1984	1500	212	220
9	Copper (as Cu)	mg/l	1S 3025 (Part 2): 2019	1.5	BDL(DL-0.03)	BDL(DL-0.03)
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	600	49.54	60.22
11-	Sulphate (as SO ₄)	mg/l	1S 3025 (Part 24): 1986	400	11.40	9.31
12	Nitrate (as NO ₃)	mg/l	IS 3025 (Part 34) : 1988	50	6.11	6.55
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.30	0.38
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	BDL(DL-0.005)	BDL(DL-0.005
15	Phenolic compounds (as C6H5OH)	mg/l	IS 3025 (Part 43) :1001	0.005	BDL(DL-0.001)	BDL(DL-0.001
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	1.0	BDL(DL-0.01)	BDL(DL-0.01)
	Chemical Testing 2. Residue	s In Water		6		
17	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.5	0.17	0.21
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41): 1992	0.01	BDL(DL-0.001)	BDL(DL-0.001
19	Selenium (as Se)	mg/l	IS 3025 (Part 2) : 2019	0.05	BDL(DL-0.001)	BDL(DL-0.001
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 1988	0.2	BDL(DL-0.001)	BDL(DL-0.001
21	Lead (as Pb)	mg/l	IS 3025 (Part 47): 2003	0.1	BDL(DL-0.05)	BDL(DL-0.05)
22	Zinc (as Zn)	mg/l	1S 3025 (Part 2): 2019	15	BDL(DL-0.05)	BDL(DL-0.05)
23	Hexa Chromium (as Cr ⁺⁶)	mg/l	IS 3025 (Part 2) :2019	0.05	BDL(DL-0.001)	BDL(DL-0.001
24	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994		BDL(DL-0.005)	BDL(DL-0.005
25	Manganese (as Mn)	· mg/l	1S 3025 (Part 2) : 2019	144	BDL(DL-0.05)	BDL(DL-0.05)

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

Verified By tusto Swafi Shrivastava Shashikant Satdeve Technical Manager Sr. Chemist

taiting Pooja Kathane Technical Manager

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TEST REPORT

		1						TEST	REPORT
1	ANAC	N	ABS						
E	MARK OF PROGRESS FOR	BETTER ENVIRO	NMENT & HEALTH	1					
	NACON LABO								
:	ISO 9001:2015, ISO Recognized By Minis	14001:2015, try of Environ	OHSAS 18001: ment & Forests	(MoEF), N	fied lew Delhi				
	Approved by : Food 5 Bureau of Indian Star	safety & Stan	dards Authority	of India un	der FSS Act;	and Development		a cancoas	
	Export inspection cou	ncil (EIC); Al	GMARK.	Incessed I	OUG FIODUCE E	thour mexemplations	- second	ing (or Eron))	
Tes	t Report No. : ALPL	31122020/1	0-485		dated 3	1.12.2020		Page 1	of 1
	ied To :	JIII LOLO III	Sample Inwa	ard No.	2020/MON-12		Anal	ysis Start	23.12.2020
	s Noamundi Iron M		Inward Date	e	23.12.2020		Anal	ysis End	30.12.2020
10000	's TATA Steel Limite amundi, Jharkhand	ed)	Reference		W.O 3000133	1460/962	Same	ole Category	Water
	tal Code: 833217		Reference D	ate	15.05.2020		Samp	ne Category	w aler
9180									
	ample Name urface Water 1.U	Sample S pstream & 2.	Downstream		Particulars ode-SW-1 & 2	Sample Conditi Sealed & Ice Prese			y Received & 250 ml
-	Sample Collect		Samplin		Sampling Time		Samp	ling Location	
9	Anacon Representative	Mr. K.Pande	y 18.12.	2020	11.40 am				p House) (SW-1) Village) (SW-2)
				TES	T RESULTS		1	T (T III ESGI IIII) SUIT	·
EN.	Test Param	1	Measurement	T	est Method	Standards as p IS 2296:1992		Test	Result
and a		5990	Unit		est pretirou	Class C	0-1-	SW-1	SW-2
1	Biological Testing 1. Total Coliforn	Water	MPN/100ml	1 15	5 1622 : 1981	5000		<2	4
п	Chemical Testing 1.	Vater	MILLO FOUND		1044 . 1201	5000	1	~	-4
2	pH value Colour		Hazen units		5 (Part 11) : 1983 25 (Part 4) : 1983	6.0 to 9.0 300		7.48 at 25%	7.57 at 25°C
4	Dissolved Oxygen		mg/l		(5 (Part 38) :1985	4,0	-	2 6.4	3
5	Total Suspended Solid	(as TSS)	mg/l	IS 302	5 (Part 17) :1984	(/ m		48	54
6	BOD (3 days at 27°C) Chemical oxygen dema		mg/l		S (Part 44) :1993	3.0	_	BDL(DL-2)	BDL(DL-2)
8	Total Dissolved Solids		mg/l mg/l		(Part 58) :2006 5 (Part 16) : 1984	1500	-	BDL(DL-4) 173	BDL(DL-4) 181
9	Copper (as Cu)		mg/l		25 (Part 2) : 2019	1.5		0.02	0.03
10	Chloride (as Cl)		mg/l		5 (Part 32) :1988	600		48,27	54.93
11 12	Sulphate (as SO ₄) Nitrate (as NO ₃)		mg/l mg/l		5 (Part 24) : 1986 5 (Part 34) : 1988	400	-	5.31	6.14 2.92
13	Fluoride (as F)		mg/l		5 (Part 60) : 2008	1.5	-	0.27	0.31
14	Cyanide (as CN)		mg/l		5 (Part 27) : 1986	0.05		BDL(DL-0.005)	BDL(DL-0.005
15	Phenolic compounds (as C6H5OH)		mg/l	IS 302	5 (Part 43) :1001	0.005	- 3	BDL(DL-0.001)	BDL(DL-0.001)
16	Anionic Detergent		mg/1 -	IS 1342	28 : 2005 Annex K	1.0		BDL(DL-0.01)	BDL(DL-0.01)
1.7	Chemical Testing 2. Iron (as Fe)	Residues In W		1 10 100		1	-		
17	Cadmium (as Cd)		mg/l mg/l		5 (Part 2) : 2019 5 (Part 41) : 1992	0.5	-	0.26 BDL(DL-0.001)	0.28 BDL(DL-0.001)
19	Selenium (as Se)		mg/i		25 (Part 2) : 2019	0.01		BDL(DL-0.001)	BDL(DL-0.001) BDL(DL-0.001)
20	Arsenic (as As)		mg/l		5 (Part 37) : 1988	0.2		BDL(DL-0.01)	BDL(DL-0.01)
21	Lead (as Pb) Zinc (as Zn)		mg/l		5 (Part 47) : 2003	0.1	1	BDL(DL-0.001)	BDL(DL-0.001)
23	Hexa Chromium (as Cr		mg/l mg/l		25 (Part 2) : 2019 25 (Part 2) :2019	15 0.05	-	BDL(DL-0.1) BDL(DL-0.03)	BDL(DL-0.1) BDL(DL-0.03)
24	Mercury (as Hg)		mg/l	IS: 3025	(Part 48) : 1994		I	3DL(DL-0.0005)	BDL(DL-0.0005
25	Manganese (as Mn)	Children I	mg/l		25 (Part 2) : 2019	**		BDL(DL-0.05)	BDL(DL-0.05)
peris Belo	TES: • Please see watermar st report shall not be reprodu- holte sample(s) shall be disp w detection limit • DL- India MARKS : As requested Veri	sed off after 30 a tes detection lin	days and 15 days resp nit of instrument/meth	in approval of pectively from bod and shall b	Anacon Labs. Liab the date of issue of T se considered as 'abses	ility of Anacon Labs is li est Report, unless specifie	mited to d otherv	invoiced amount on vise. • 'mg/l' is equi	
	aug	Ge	æ		0	Rie		Stan	J-form
S	wati Shrivastava	Shashikan			Pooji	Kathane	D	r. (Mrs.) S.D. G	arway
	cchnical Manager	Sr. Cher	and and		Technologi	d Manager		Quality Man	

TEST REPORT

OF PROGRESS FOR BETTER ENVIRONMENT & HEALTH

ANACON LABORATORIES PVT. LTD.

ISO 9001:2015, ISO 14001:2015, OHSAS 18001:2007 Certified

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

	.: ALPL/31122020/			dated 31	1	Page 1 of 1		
M/s Noamundi Iron Mines I (M/s TATA Steel Limited) I Noamundi Ibackhand			nple Inward No.	2020/MON-12/10	#24-6827	Analysis Start	23.12.2020	
		Inv	vard Date	23.12.2020		Analysis End	30.12.2020	
		Ref	erence	W.O 3000132460/962 15.05.2020				
		Ref	erence Date			Sample Category	Water	
Sample Name	Sample Source	S	mple Particulars	Le	Quantity Received			
Surface Water	Mahadev Nallah	Sam	ple Code-SW-3 & 4			Long: 85°28'8.97"E Long: 85°28'10.41"E	2.0 Ltr & 250 ml	
Sample Collected By Anacon Representative Mr. K. Pandey			Sampling Date 18.12.2020	Sampling Time 12.20 pm		Sampling Loca v Nallah (Murga Nallah) v Nallah (Murga Nallah)		

		Measurement		Standards as per	Test I	Result
S.N.	Test Parameter	Unit	Test Method	IS 2296:1992 Class C	SW-3	SW-4
1	Biological Testing 1.Water	Concernance and	and the second se			· · · · · · · · · · · · · · · · · · ·
1	Total Coliform	MPN/100ml	IS 1622 : 1981	5000	<2	<2
Ш	Chemical Testing 1.Water		all states and state second	and the second se	and and and	and the second
2	pH value		IS 3025 (Part 11) ; 1983	6.0 to 9.0	7.43 at 25°C	7.31 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4): 1983	300	1	1
-4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	4.0	6.2	6.1
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) :1984	100 P	BDL(DL-10)	BDL(DL-10)
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) :1993	3.0	BDL(DL-2)	BDL(DL-2)
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) :2006		BDL(DL-4)	BDL(DL-4)
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	1.500	241	259
9	Copper (as Cu)	mg/I	IS 3025 (Part 2): 2019	1.5	BDL(DL-0.05)	BDL(DL-0.05
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	600	68.94	71.62
11	Sulphate (as SO ₄)	mg/I	IS 3025 (Part 24) : 1986	400	9.27	12.46
12	Nitrate (as NO ₃)	mg/l	IS 3025 (Part 34): 1988	50	7.42	6.97
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	BDL(DL-0.1)	BDL(DL-0.1)
14	Cyanide (as CN)	mg/l	1S 3025 (Part 27) : 1986	0.05	BDL(DL-0.005)	BDL(DL-0.005
15	Phonolic compounds (as C6H5OH)	mg/l	IS 3025 (Part 43) :1001	0.005	BDL(DL-0.001)	BDL(DL-0.001
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	1.0	BDL(DL-0.01)	BDL(DL-0.01
ш	Chemical Testing 2. Residu	ies In Water				
17	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	0.5	0.21	0.17
18	Cadmium (as Cd)	mg/ī	IS 3025 (Part 41) : 1992	0.01	BDL(DL-0.001)	BDL(DL-0.001
19	Selenium (as Se)	mg/l	IS 3025 (Part 2) : 2019	0.05	BDL(DL-0.001)	BDL(DL-0.001
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 1988	0.2	BDL(DL-0.01)	BDL(DL-0.01
21	Lead (as Pb)	mg/l	15 3025 (Part 47) : 2003	0.1	BDL(DL-0.001)	BDL(DL-0.001
22	Zinc (as Zn)	mg/l	1S 3025 (Part 2) : 2019	15	BDL(DL-0.1)	BDL(DL-0.1)
23	Hexa Chromium (as Cr*6)	mg/l	IS 3025 (Part 2) :2019	0.05	BDL(DL-0.03)	BDL(DL+0.03
24	Mercury (as Hg)	mg/l	1S: 3025 (Part 48): 1994		BDL(DL-0.0005)	BDL(DL-0.000
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019		BDL(DL-0.05)	BDL(DL-0.05

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 fall without prior written approval of Anacon Labs. • Linbility of Anacon Labs is limited to invoiced amount only. • Non-periabable and periabable 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'. • BDL-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 here L Swati Shrivastava Shashikant Satdeve

Technical Manager

Authorized Signatories

Pooja Kathane

Technical Manager

P 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

Sr. Chemist

TEST REPORT

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 Export inspection council (EIC); AGMARK.

Test Rep	ort No. : A	LPL/31122020	/10-6&7		dated	i 31.12.2020	45	Page 1 of 1
Issued To : M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217		Inwar Refere	le Inward No. d Date ence ence Date	23.12.2020	132460/962	Analysis Start Analysis End Sample Category	23.12.2020 30.12.2020 Water	
- 10/100 dd				Particulars ode-SW-5 & 6	SW 3. Lat: 3207140.06"N Long: 95029107.91"E			Quantity Received 2.0 Ltr & 250 ml
Ana		le Collected By sentative Mr. K.		Sampling Date 18.12.2020	San	2,30 pm		ocation pstream (SW-5) ownstream (SW-6)
				TES	ST RESULT	'S		
			Measurement			Standards as per	Test	Result
S.N.	Test P	arameter	Unit	Test Me	thod	IS 2296:1992	CITY &	530L C

S.N.	Test Parameter	Unit	Test Method	15 2296:1992 Class C	SW-5	SW-6
1	Biological Testing 1.Water	Samon and			11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
1	Total Coliform	MPN/100ml	IS 1622 ; 1981	5000	2	<2
н	Chemical Testing 1.Water		a constant of a second of	and the second se	and the second second second	
2	pH value	-F.	IS 3025 (Part 11) : 1983	6.0 to 9.0	7.31 at 25°C	7.38 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4): 1983	300	2	1
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	4.0	6.3	6.0
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) :1984	-	BDL(DL-10)	BDL(DL-10)
б	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) :1993	3.0	BDL(DL-2)	BDL(DL-2)
7	Chemical oxygen demand	mg/l	1S 3025 (Part 58) 2006	**	BDL(DL-4)	BDL(DL-4)
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	1500	246	253
9	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	1.5	BDL(DL-0.05)	BDL(DL-0.05)
10	Chloride (as CI)	mg/l	IS 3025 (Part 32) :1988	600	62.91	59.27
11	Sulphate (as SO ₂)	mg/l	1S 3025 (Part 24) : 1986	400	8.16	11.24
12	Nitrate (as NO ₃)	mg/l	IS 3025 (Part 34): 1988	50	7.29	8.16
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	BDL(DL-0.1)	BDL(DL-0.1)
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	BDL(DL-0.005)	BDL(DL-0.005
15	Phenolic compounds (as C6H5OH)	mg/l	IS 3025 (Part 43) :1001	0.005	BDL(DL-0.001)	BDL(DL-0.001)
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	1.0	BDL(DL-0.01)	BDL(DL-0.01)
ш	Chemical Testing 2. Residu	ues In Water			1.	
17	Iron (as Fc)	mg/l	IS 3025 (Part 2) : 2019	0.5	0.18	0.21
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41) : 1992	0.01	BDL(DL-0.001)	BDL(DL-0.001)
19	Selenium (as Se)	mg/l	IS 3025 (Part 2) : 2019	0.05	BDL(DL-0.001)	BDL(DL-0.001)
20	Arsenic (as As)	mg/l	1S 3025 (Part 37) : 1988	0.2	BDL(DL-0.01)	BDL(DL-0.01)
21	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.001)	BDL(DL-0.001
22	Zine (as Zn)	mg/l	IS 3025 (Part 2): 2019	15	BDL(DL-0.1)	BDL(DL-0.1)
23	Hexa Chromium (as Cr*6)	mg/l	IS 3025 (Part 2) :2019	0.05	BDL(DL-0.03)	BDL(DL-0.03)
24	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994		BDL(DL-0,0005)	BDL(DL-0.0005
25	Manganese (as Mn)	mg/I	IS 3025 (Part 2): 2019	4 · · · ·	BDL(DL-0.05)	BDL(DL-0.05)

NOTES:
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'mg/' is equivalent to 'ppm'.
BDL-Below detection limit OL_{-} 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 Authorized Signatories Bask 3.6 Hand Jard J Dr. (Mrs.) S.D. Garway Swati Shrivastava Shashikant Satdeve Pooja Kathane Laboratory address Email: support@anacon.in Quality Manager support@anacon.in

Annexure-5

TEST REPORT



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

Stack Emission Report for the month of December-2020

Issued to	M/s Noamund (M/s TATA S	Order Reference 3000132460/962, date: 15.05.20	
Sample Description/Type	Stack Emission Monitoring	Sample Collected by	Anacon Representative
Sampling Location	Crusher	Sample Quantity/ Packing	Thimble: 1 X 1 No. SOI: 30 mL X 1 No. PVC Bottle NOX: 25 mL X 1 No. PVC Bottle
Date of Sampling	10 th Dec, 2020	Sample Inward Date	14th December, 2020
Sample Reference No.	2020/Mon-249-5/8		
Analysis Start date	14ª December, 2020	Analysis End date	15 th December, 2020

Stack details:		10	
Stack Identity		De-Dusting Unit	1
Stack attached to		Primary Crusher	-
Material of construction	4.11	MS '.	-
Shape of Stack	3.3	Circular	-
Stack diameter		0.15	Meter
Height of sampling point from GL	1000	9.5	Meter
Parameter	Units	Results	Method Reference
Flue gas temperature	℃ 2°	45	IS:11255 (Part 3)
Flue gas velocity	m/s	11.47	IS:11255 (Part 3)
Total gas quantity	m³/h	729.98	IS:11255 (Part 3)
Total gas quantity at NTP	Nm ³ /h	665.37	IS:11255 (Part 3)
Total Particulate Matter (PM)	mg/Nm ³	28.92	IS:11255 (Part 1)

Thanks for utilizing our services.

For ANACON LABORATORIES PVT.LTD.

Verified by 18

Mr. Sandip Bakde (Technical Manager)

Authorized Signatory

and

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

ANAC OMLARS

DINAL

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



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

Crusher

16.03.2021

22nd March, 2021

2020/Mon-74-S/1

Issued to

Sampling Location

Date of Sampling

Analysis Start date

Sample Reference No.

-

Date: 02/04/2021 Report No.: AN/SE/TS-NIM/2021/12-6 **Order Reference** M/s Noamundi Iron Mine (M/s TATA Steel Limited) 3000132460/962, date: 15.05.20 Stack Emission Sample Collected by Anacon Representative Sample Description/Type Monitoring

Packing

Sample Quantity/

Sample Inward Date

Analysis End date

Stack Emission Report for the month of March-2021

Stack details:	,		8
Stack Identity		De-Dusting Unit	
Stack attached to		Primary Crusher	
Material of construction	100 M	MS	
Shape of Stack		Circular	
Stack diameter		0.15	Meter
Height of sampling point from GL		9,5	Meter
Parameter	Units	Results	Method Reference
Flue gas temperature	°C	47	IS:11255 (Part 3)
Flue gas velocity	m/s	11.75	IS:11255 (Part 3)
Total gas quantity	m³/h	747.80	IS:11255 (Part 3)
Total gas quantity at NTP	Nm³/h	677.36	IS:11255 (Part 3)
Total Particulate Matter (PM)	mg/Nm ³	25.92	IS:11255 (Part 1)

Thanks for utilizing our services.

For ANACON LABORATORIES PVT.LTD.

Verified by Sor Mr. Sandip Bakde

(Technical Manager)

Authorized Signatory

ANAC INLAR

TEST REPORT

Thimble: 1 X 1 No.

SO2: 30 mL X 1 No. PVC Bottle

NOx: 25 mL X 1 No. PVC Bottle

22nd March, 2021

23rd March, 2021

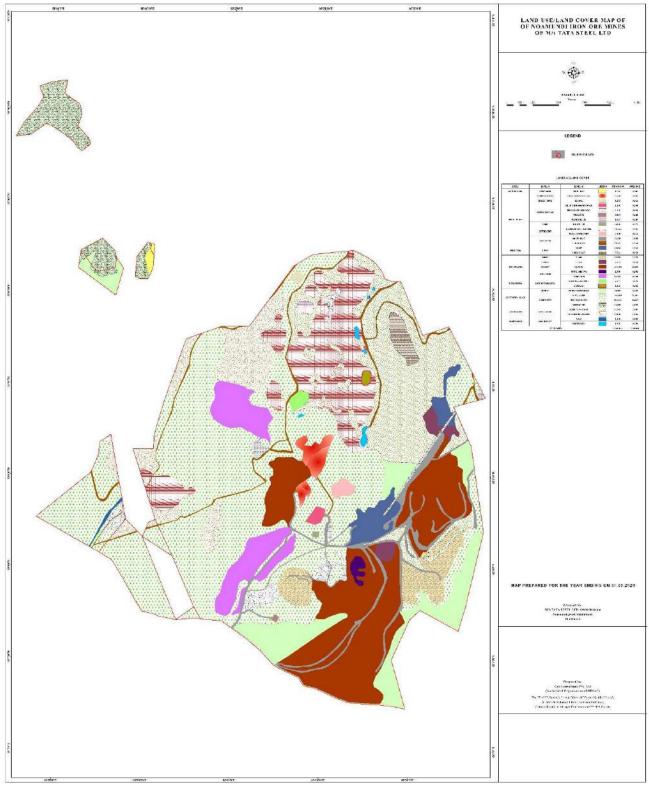
Chinmay Garway (Deputy Quality Manager)

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

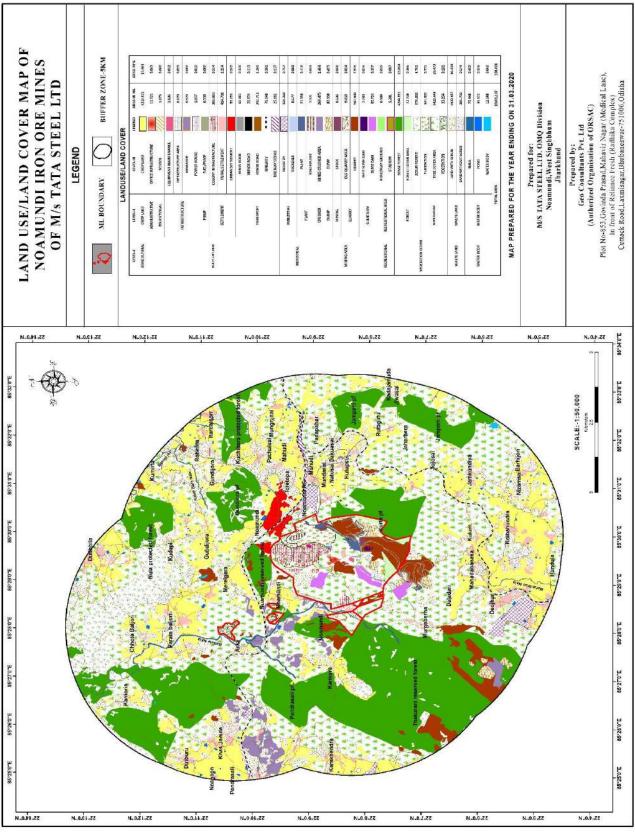
Thanks for your faith and trust in our services. We at Anacon Laboratories cherish our relationship. We put in a lot of hard work to ensure that you have a seamless experience at every step of our relationship.

In order to ensure that your next experience will be significantly better, we welcome your feedback over email on feedback@anacon.in.

Annexure 6



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



Land use/ Land cover (Buffer Zone) - Noamundi Iron Mine

AVE	
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REPORT (MINE
CORE	
ZONE)	

Manth	INDUM	Oct 20	Nov 20	Dec 20	Jan 21	Feb 21	Mar21
	PM10	60.5	59.3	58.7	64.7	58.8	63.1
M	PM2.5	26.5	25.0	24.5	26.3	23.2	23.5
MRSS Building	SO2	8.1	7.8	8.7	10.3	9.8	8.7
ding	NOx	18.7	17.6	18.5	19.7	19.3	19.0
	8	0.369	0.357	0.306	0.340	0.298	0.296
	PM10	64.6	62.9	62.8	63.3	59.3	59.5
-	PM _{2.5}	28.2	26.6	26.6	24.7	27.2	21.7
Bottom Bin	SO ²	8.6	8.2	8.9	10.2	10.6	9.5
Bin	NOx	17.6	18.1	18.5	19.6	20.0	18.4
	8	0.358	0.343	0.342	0.312	0.322	0.304
	PM ₁₀	57.1	58.1	56.2	57.1	58.6	56.3
_	PM25	25.0	23.9	22.4	22.7	22.0	20.3
Near WTP	SO2	7.8	8.0	8.2	8.8	9.4	8.9
P	NOX	16.5	17.0	17.8	18.9	18.6	17.4
	8	0.326	0.321	0.335	0.340	0.314	0.306
	PM ₁₀	62.2	60.2	61.4	62.7	54.3	51.4
z	PM2.5	26.2	23.2	23.1	23.1	19.0	17.5
Near Ho:	SO2	8.5	7.6	7.8	8.6	7.5	7.6
r Hospital	NOX	17.9	18.0	18.8	20.6	18.6	17.0
	8	0.385	0.340	0.318	0.325	0.319	0.294

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Month		Tan	Tankura Village	llage			Mira	Miralgara Village	illage			Kita	Kitabeda Village	illage			B	Balita Village	age	
MOILUI	PM10	PM _{2.5}	SO2	NOX	6	PM10	PM2.5	50 ₂	NOx	8	PM10	PM2.5	SO2	NOX	8	PM10	PM2.5	SO2	NOx	8
Oct 20	51.1	19.4	7.9	11.2	0.243	52.3	21.5	6.8	7.8	0.217	50.5	21.7	7.1	15.6	0.289	57.2	20.8	7.9	15.9	0.281
Nov 20	52.5	17.3	7.4	10.2	0.233	55.2	20.3	6.5	9.0	0.207	51.5	20.6	7.9	16.5	0.3	55.8	20.6	7.4	16.7	0.296
Dec 20	58.7	20.5	8.1	15.2	0.286	57.4	19.9	7.8	14.9	0.272	56.7	21.5	8.4	17.2	0.303	57.6	21.4	8.1	17.0	0.303
Jan 21	55.0	18.0	7.7	12.3	0.254	49.5	15.6	6.7	13.2	0.228	49.7	17.2	7.8	17.2	0.263	53.6	20.5	10.5	17.7	0.287
Feb 21	51.1	17.2	7.9	12.0	0.212	50.0	15.6	6.8	13.8	0.227	54.2	18.9	10.3	17.5	0.288	49.6	17.3	8.3	17.2	0.273
Mar21	54.5	17.4	8.0	12.0	0.215	50.2	15.5	6.9	14.3	0.199	51.1	17.9	9.2	16.8	0.272	46.0	16.8	8.0	15.6	0.205

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

,

H. A. L.S. Manager (Environment)

Annexure-8

AMBIENT NOISE QUALITY AT NOAMUNDI

(October 2020 – March 2021)

	Location	Day Time 8.00 am to 10.00 pm	Limits in dB(A) Leq	Night Time 8.00 am to 10.00 pm	Limits in dB(A) Leq	
	Hospital Premises	47.82		38.10		
Residential	Training Centre	52.27	55.00	41.47	45.00	
area	Chief Office	53.57		41.15	-	
	Township	52.55		41.68		
Industrial	Mining area	66.07	75.00	53.42	70.00	
area	Plant area	64.97	75.00	52.40	70.00	

Manager (Environment)

Annexure 9

Environmental Expenditure (2020-21)

Noamundi Iron Mine, TATA Steel Ltd

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



