

The Additional PCCF(C) MoEF&CC, Govt. of India Bungalow No. A-2, Shyamali Colony Ranchi-834002, Jharkhand

Tel: 0651-2410007, 2410002, Email: ro.ranchi-mef@gov.in

MD/ENV/ 904 /101/2020

Date: 26.11.2020

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

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

period April'20 - September'20 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 April'2020 - September'2020 as per EIA Notification, 2006. Also for the same period vide office memorandum no. Z-11013/57/2014-IA.II (M), dated 29.10.2014, is attached herewith as Annexure -1. The same has been mailed to your good office on email: ro.ranchi-mef@gov.in for your ready reference.

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

Thanking you,

Yours faithfully,

f: M/s Tata Steel Limited

Head (Planning), OMQ

Encl.

: As above

Copy to

: The Chairman, Central Pollution Control Board, Southern Conclave, Block 502, 5th

& 6th Floors, 1582 Rajdanga Main Road, Kolkata - 700107 (W. B.)

: The Member Secretary, State Pollution Control Board, T.A. Division (Ground

Floor), H.E.C. Dhurwa, Ranchi - 834004 (Jharkhand)

: The Regional Officer, JSPCB, MB/12, New Housing Colony, Adityapur,

Jamshedpur - 831013 (Jharkhand)

TATA STEEL LIMITED

Mines Division Joda Keonjhar Odisha 758 034 India Tel 91 7440037036

Registered Office Bombay House 24 Homl 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: April 2020 - September -2020

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

26th Nov., 2020

ENVIRONMENTAL CLEARANCE OF

NOAMUNDI IRON MINE OF TATA STEEL LIMITED

(April 2020 to September 2020)

(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

SI. No	EC Conditions	Compliance
Spec	rific Conditions	
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. Out of 762.42 ha, forest land diverted for mining is 370.92 ha vide letter no. 8-279, 1985 FC (Pt) dated 4th Sept., 2014 & for rest 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



SI. No.	EC Conditions	Compliance	
Specij	Specific 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-1162982 /2017/ 779, dated: 13.06.2017, which is valid till 31.12.2020. All the conditions are being effectively implemented & complied. The mine has already applied for the renewal of CTO.	
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.		
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.	As a part of regular Ambient Air Quality Monitoring, mineralogical composition of air	

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SI. No.	EC Conditions	Compliance
Speci	ific Conditions	
	and the second	of ambient air is attached herewith a (annexure-1).
8.	The beneficiated ore shall be transported to railway sidings only through closed conveyor.	Complied with. The beneficiated ore from processing plant trailway sidings being transported through covere conveyors only. Closed conveyor used in mineral transport
).		Being complied with. The effective safeguard measures such as conditioning of ore before transportation by we 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. Two water tankers of 50KL with spray mist are also installed in mines for effective dust control. Apart from above, the area is adequately covered with mass plantation. Thus dust generation has been controlled and eliminated. 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

l. No.	EC Conditions	Compliance
Specific	c Conditions	
	anners on the Updategor and Recording to the Committee of	installed. Newly installed fixed water sprinkler at near hopper 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 rainwater collected in the mine pits an allowed to be collected in the lowest level sumpto augment the ground water resources gradually Rain water harvesting (RWH) ponds and groun water recharge structures have been constructed and approved by the Ground Water Directorated Jharkhand, Ranchi. **RWH structure for ground water augmentation in the area** The unit has rainwater harvesting approval from Hon. Director, Ground Water Directorate, Water Resources Dept. Jharkhand vide letter no. GW 317/Ranchi, dated 14th Jun, 2012. At Noamuna area the various RWH structures in the form the Check Dams, Saucer ponds, Gabion Structures and contour are made based or recommendation in available area. **RWH structure for ground water augmentation in the area** To augment the ground water about 06 ne additional ponds are constructed in year 2019-2 around Noamundi mine lease at Lepang, Mahud Jampani & Sarbil villages.
11.	Regular monitoring of ground water level and	Newly constructed ponds in surrounding villages (2019-

SI. No	EC Conditions	Compliance
Spec	cific Conditions	
ata man man davia	mine lease by establishing a network of existing wells and installing new piezometer during the mining operation. The periodic monitoring [(at least four times in a year- pre monsoon (April-May), monsoon (August) post-monsoon (November) and winte (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 attached 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 hydrogeological study shall be carried out.	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. An application is made for ground water withdrawal
3.	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. **Natural flow of Balijore nala, at Noamundi** Any kind suggestion from good office of MoEF&CC, Ranchi shall be welcome for protection of Balijore Nallah.
1.	The project proponent shall regularly monitor the flow rate of the Balijore Nallah flowing	Complied with. The flow rate of the Balijore Nallah is being



Sl. No.	EC Conditions	Compliance
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AND SO	through the mine lease and maintain the records.	monitored on monthly basis and the records are maintained (enclosed as annexure-III).
		Complied with. There shall not be any external over burden 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.
	different on the first and deproper a statistic and a 1990- less of the first and or consequently the side of the Ballon of the Control of the first and the	In FY 21 around 12400 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 wind pollution also been practiced as per kind suggestion from MoEF&CC office at mine. Local grass plantation on bunds of haul roads at mine.

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16.

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.

17.

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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disesse en en e disesse en en e	The property of the property o	In this financial year i.e 2020-21 plantation of about 12400 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.	Plantation in Noamundi Mines
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.	Avenue Plantation outside the mine lease Being complied with. Fixed and mobile wate sprinklers are installed and used in the area Regular water sprinkling is also being done of 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.
		Other dust control measures in area
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.	collected in slime pond, where decanted water

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SI. N	o. EC Conditions	Compliance
Spe	cific 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.	
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 monitore regularly and is attached 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
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.
- 1	Ground Water Board.	Being complied with. Three rain water harvesting ponds 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



Sl. No.	EC Conditions	Compliance
Specij	fic Conditions	The value of the second of the
Med.		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.
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 only during day time. Controlled blasting is practiced with delay detonators for control of ground vibrations and to arrest fly rocks. Scientific studies are also being conducted from reputed agencies such as CIMFR, Dhanbad and all the recommendations followed for control of ground 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.	Dust extraction system is provided at Primary Crusher area to eliminate the generation of dust. De-dusting unit are installed at crushing plant &

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	Consent to operate shall be obtained a	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 i valid till 31st Dec 2020.
	the series of th	An application for renewal of consent to operate has been made with application number 8511802 dated 25.08.2020
32.	Sewage treatment plant shall be installed for the colony. ETP shall also be provided for workshop and wastewater generated during mining operation.	Being complied with. Two Sewage Treatment Plant (STP) of 50 KLD each and two Effluent Treatment Plant (ETP) of 10 KLD each are already installed & working smoothly in colony area of Noamundi. Sewage & Effluent Treatment Plant at Noamundi For the workshops and all other areas and oil trap is installed with collection system. The entire water is reused in other activities such as gardening & dust suppressions. No wastewater generated is discharged outside from mine.
3.	regularly once in three years for monitoring land use pattern and report submitted to Ministry of Environment and Forests and its	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 attached as annexure-VI.
4. I	Regular monitoring of ambient air quality	Ambient air quality is regularly monitored and records maintained. All the monitoring details are

I. No.	EC Conditions	Compliance
Specij	fic Conditions	
	records maintained.	attached as annexure-VII.
35.	Pre-placement medical examination and periodical medical examination of the workers 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.	Pre-placement medical examination and periodical examination of the workers engaged is being conducted & record maintained. The schedule of Periodical Medical Examination is once in every 3 years for the employees of age more than 40 years and once in 5 years for the employees of age less than 45 years.
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.	DFO, South Division, Chaibasa, within whose jurisdiction Noamundi Iron mine falls, the Steel Company has deposited Rs. 59,85,000/- towards implementation of the wildlife management plan in order to protect them within our mine and its
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.	is in place. The final mine closure plan along with
Gener	ral 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 plant 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 station	within the core zone and Buffer zone respectively which were located in consultation with th

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	No. EC Conditions	Compliance
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	should be decided based on the meteorological data, topographical features and ecologicall sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board. The data serecorded should be regularly submitted to the Ministry including its Regional office located at Bhubaneswar and the State Pollution Control Board /Central Pollution Control Board once in six months.	Regional office, MoEF&CC, Ranchi half yearly and to JSPCB monthly. Ambient Air Quality report is attached as Annexure-VII. Apart from above three numbers of continuous online ambient quality stations (CAAQMS) are also installed in the core buffer area of mineral policy.
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 attached as Annexure-VIII.
Trad	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.
	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.
	Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and talks.	Periodical Medical Examination of employees and contractor workers are organized regularly to observe any contractions due to exposure to dust and other occupational hazards.



l. No.	EC Conditions	Compliance
Specif	fic Conditions	
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.
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 purposes and not diverted to any other purpose. Expenditure details of environmental protection measures during 2019-20 at Noamundi Iron Mine are attached 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 several 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.	We extend full co-operation to the officers of the Regional Office during their visit and
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.	Complied with. Six monthly compliance reports are being submitted regularly on the status or implementation of the stipulated environmental conditions & safeguards to the MoEF&CC, its Regional Office Ranchi, Central Pollution Control Board Kolkata and State Pollution Control Board Jharkhand. Further, the six monthly compliance reports along with the monitoring results is being uploaded on Tat Steel's website www.tatasteelindia.com an updated periodically.

Sl. No.	EC Conditions	Compliance
Speci	ific Conditions	
13.	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad/ Municipal Corporation, Urban Loca 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 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.	Noted
15. a	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	
in control of the con	rithin 7 days of the issue of the clearance letter aforming that the project has been accorded a rivironmental clearance and a copy of the earance letter is available with the State collution Control Board and also at web site of the Ministry of Environment and Forests at the control of the control Board and also at web site of the Ministry of Environment and Forests at the control of the locality concerned, and the concerned and the concerned, and the concerned and the concer	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 our etter no. MD/ENV/245A/101/2013,dated 19th June'2013, same is attached as Annexure-X.

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Compliance status

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Impact of Mining on Habitations-Issue ..related

Noamundi Iron Mine, TATA Steel Ltd. (April 2020 to September 2020)

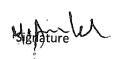
Conditions based on OM dated 29th Oct., 2014 vide no. Z-11013/57/2014-IA.II(M)

S. No.	Condition	Compliance Status
Cle	ame of Project: Noamundi Iron Mine, Tata Steel Ltd. earance Letter no.: J-11015/104/2011-IA.II (M), dated: riod of Compliance: April 2020 to September 2020	
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 are made in mine to arrest the rain water. I addition to that various rain water harvesting.
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 or various villages in & around mine or level.
C	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	from the scorching sun should be scrupulously guarded against felling lest the cattle abandon the grazing ground or return home by noon.	Complied with.
3	Where ever blasting is undertaken as part of mining activity, the Project Authority shall carry out vibration	Vibration study for scientific blasting is regularly been done from CSIR recognized

S. **Compliance Status** Condition No. Name of Project: Noamundi Iron Mine, Tata Steel Ltd. Clearance Letter no.: J-11015/104/2011-IA.II (M), dated: 10/06/2013 Period of Compliance: April 2020 to September 2020 agency. And as per recommendations the studies well before approaching any such habitats or blasting is been done only in day time with other buildings to evaluate the Zone of influence and electronic delay detonators for adequate blast impact of blasting on the neighbourhood. Within 500 and fragmentation. The data for each blast is meters of such sites vulnerable to blasting vibrations, been maintained and no mining is being done avoidance of use of explosives and adoption of alternative means of mineral extraction, such as within 50m of public works. ripper/dozer combination/rock breakers/ surface miners etc. should be seriously considered and practiced wherever practicable. 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. Mobile & Fixed water sprinklers in Noamundi mines 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. Mist type dust suppression measures All the mineral transport shall be done through closed conveyors. Closed conveyor used in mineral transport 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 Not applicable taken by the PP as a precaution to compensate for any Noamundi Iron mine is an operational mine crop loss. The impact zone shall be 5km from the since last several decades, and scientific & G boundary of mine lease-area for such insurance policy. sustainable mining practices are been In case, several mines are located in a cluster, the Associations of owners of the cluster mines, formed interadopted. alia, to sub-serve such an objective, shall take responsibility for securing such Crop Liability Policy.

M'Aules Signature

S.		
No	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	Compliance Status
N	ame of Project: Noamundi Iron Mine, Tata Steel Ltd.	
C	earance Letter no.: J-11015/104/2011-IA.II (M), dated:	10/06/2013
Pe	riod of Compliance: April 2020 to September 2020	
	In case any village is located within the mining leasehold which is not likely to be affected due to	
	mining activities during the life of mine, the Expert.	Noted.
	Appraisal Committee (EAC) should consider the proposal	
Н	of Environmental Clearance (EC) for reduced mining	However no village is legated with:
	area. The Mining lease may be executed for the area for which EC is accorded. The mining plan may also be	lease area and all maining 1
	accordingly revised and required stipulations under the	mineralized.
	MMDR Act, 1957 rind MCR, 1960 met.	
	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	No road transportation is done from mine in
I	could be mitigated. The PP shall bear the cost towards	public road. All the material is transferred by
	the widening and strengthening of existing public road network in case the same is proposed to be used for the	railwave
	Project. No road movement should be allowed on	
	existing village road network without appropriately	
	increasing the carrying capacity of such roads. 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	
J	extent possible rind in case such acquisition is inevitable, alternative arrangements shall be made first	Not applicable
	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.	
	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	
	ines as required under TOR "R&R	Complied.
	Plan/compensation details for the Project affected People (PAP) should be furnished. While preparing the	A. N.
	Nak Plan, the relevant State/National Rehabilitation	As Noamundi Iron Mine is an operational mine from several decades the PAP is not
K	& Resettlement Policy should be kent in view In	applicable. However, various surveys are
	residence of the same office weaker sections of the	been done as per requirement for social
	society in the study area, a need based sample survey, family wise, should be undertaken to assess their	beneficiation.
	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."	
L	The Lia Report.	



Signature



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Approved by Second Safety & Standards Authority of India Under FSS Act Secretary of India India Standards (BIS)

Agricultural & Process Food Products Export Development Authority (APEDA) Agricultural & Export Inspection council (EIC) Agricultural & Process Food Products Export Development Authority (APEDA)

Mineralogical Composition Report-Tune-2020

Report No.: AN/MC/TS-N			Date: 01/07/2020	
Name and Address of	M/s Noamundi	W. O. No. 3000132460/962 15.05.2020		
Industry:-	(M/s TATA Steel Limited) Noamundi, Jharkhand			
Description/Type	Mineralogical Composition	Sample Ref. No.:-	2020/EW-219/NIM/MC-	
Sample Drawn By:-	Anacon Representative (Mr. K. Pandey & Mr. S. Kabiraj)	Sample Inward Date:-	22.06.2020	
Test Started On:-	22.06.2020	Test Completed On:-	24.06.2020	

ate of sampling	Location	Parameter	Unit	Result
		Silica	%	0.67
16.06,2020	Near Mines Area	heO	7/0	0.51
19.00.2020		CaO	%	0.039
		Al ₂ O ₃	%	< 0.01
Thanks for utilizing		P2Os	%	< 0.01

For ANACON LABORATORIES PVT.LTD.

Pallavi Harkare

(Deputy Technical Manager)

Authorized Signatory

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

(Quality Assurance Manager)

Head Office 60, Sajprebhu Nager, Nagour 440,033 India. Ph. No. 9372404004. Email: aupport@enacon in Lab: FP 24-35, Food Park, Pive Star Estate. MIDC Suitori. Nagour: 441122. Mob No. 937227475. Email: isangp@enacon in Support Helplines: Technica: (937228475). Email: labongp@enacon in 441122. Mob No. 937227475. Email: isangp@enacon in Accounts Division (932696051, 937296075). Email: accounts.@enacon.in.

Branches: Maharashtra: Chhattisgarh: Madhya Pradesh: Jharkhand: Deihi



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Food Safety & Standards Authority of India Discharge (SIS)

Approved by
Food Safety & Standards Authority of India Discharge (SIS)

Approved by
Food Safety & Standards Authority of India Discharge (SIS)

Mineralogical Composition Report-September-2020

Mine	ralogical Compositio	n kepon-septembe	1-2020
Report No.: AN/MC/TS-JEIM	/2020/234-5		Date: 03/10/2020
Report Nati Albare 13-31	W. O. No.		
Name and Address of Industry:-	M/s Nonmundi fron Mines (M/s TATA Steel Limited)		3000132460/962 15.05.2020
Sample Description/Type	Mineralogical Composition	Sample Ref. No.:-	2020/Mon-183/NIM/MC-1
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	24.09.2020
Test Started On:-	25.09.2020	Test Completed On:-	25.09.2020

Date of sampling	Location	Parameter ·	Unit	Result
		Silica	%	0.35
18 09,2020	Near Mines Area	FeO	%	0.48
		CaO	%	0.032
		AlıOı	%	< 0.01
		P ₂ O ₈	%	< 0.01

Thanks for utilizing our services.

FOR ANACON LABORATORIES PVILITD.

Verified by

Pallavi Harkare (Technical Manager) Authorized Signatory

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

Annexure 1

Special Condition no. (xi) of EC vide no. J-11015/104/2011-IA.il (M), dated 10th June, 2013 Noamundi Iron Mine, M/s Tata Steel Limited.

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

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 May 2020 and August 2020 are as follows:

SI.	LOCATION		MONTH
No.		May 2020	August 2020
Exist	ing Dug Well Locations:		· · · · · · · · · · · · · · · · · · ·
1.	Mohudi Railway Station, Kash Moudi Inside Home	2 m 78 cm	1 m 46 cm
2.	Noamundi Basti, Near Football field	5 m 92 cm	4 m 38 cm
3	Near Plant Site, In front of Bottom Bin back Gate	2 m 50 cm	2 m 10 cm
4.	Serbil	5 m 36 cm	3 m 57 cm
6.	Mohudi Village exit	1 m 98 cm	1 m 34 cm
7.	Mohudi Village near road	5 m 20 cm	3 m 75 cm
8.	Kash Mohudi Railway Station (Near road)	1 m 68 cm	1 m 38 cm
9.	Natho Sahi (near pond)	1 m 95 cm	1 m 83 cm
10.	Natho Sahi (on the road to Matia home)	1 m 51 cm	1 m 34 cm
11	Noamundi Basti (inside house)	2 m 50 cm	2 m 26 cm
12.	Noamundi Basti (near pond)	1 m 78 cm	1 m 67 cm
	Oug Well Locations:		1 1111 07 0117
13.	Natho Sahi (near Rain water harvesting)	1m 75 cm	1 m 59 cm
14.	College Road	2 m 15 cm	2 m
15.	Noamundi Bazar (In front of Petrol Pump)	3 m 85 cm	2 m
16.	Lakhansahi (Near Manish House)	10 m 50 cm	8 m 57 cm
17.	New Township, Near DAV School, Noamundi	24 m 11 cm	23 m
18.	New Township, Near Aqua Park, Noamundi	24 m 49 cm	23 m 80 cm
19.	Jojo Camp Security Gate, Noamundi	5 m	4 m 13 cm
20.	Bottom Bin near security Barrack	6 m 90 cm	4 m 70 cm
21.	Bottom bin near well	1 m 60 cm	1 m 47 cm
22.	Bore well near power house	17 m 34 cm	16 m





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Test Report No.: ALPL/300620 Issued To: M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217	Samp Inwai Refer	le Inward No. d Date	d 30.06.2020 2020/EW-219/12-3 22.06.2020 W.O 3000132460/962 15.05.2020	Anni	Page 1 : yeis Start yeis End ple Category	22.06.2020 29.06.2020 Water
Sample Name Ground Water	Sampl	e Particulars e Code-GW-1	Sample Cond Sealed & Ice Pro			y Received & 250 mi
Saraple Collected By Anacon Representative Mr. Krishnendu Pandey		Sampling Dat 18.06.2020			Sampling I	Location

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	
-	Biological Testing 1.Water Escherichia coli					
II		Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
2	Chemical Testing 1.Water				1	Absolu
3	Turbidity	-	IS 3025 (Part 11): 1983	6.5 to 8.5	No relaxation	7.18 AT 25°C
4	Colour	NTU	IS 3025 (Part 10): 1984	1	5	0.2
5	Odour	Hazen units	IS 3025 (Part 4): 1983	5	15	1
6	Taste	-	IS 3025 (Part 5): 2018	Agrecable	Agreeable	Agreeable
7	Free residual chlorine		IS 3025 (Part 8): 1984	Agrecable	Agreeable	Agreeable
8	Total dissolved solids	mg/l	IS 3025 (Part 26): 1986	Min. 0.2	1	BDL(DL-0.1)
9	Fluoride (as F)	mg/l	IS 3025 (Part 16): 1984	500	2000	232
10	Cyunide (as CN)	mg/l	IS 3025 (Part 60): 2008	1.0	1.5	BDL(DL-0.1)
11	Chloride (as CI)	mg/l	IS 3025 (Part 27): 1986	0.05	No relaxation	BDL(DL-0.005)
12		mg/I	IS 3025 (Part 32):1988	250	1000	40.6
13	Total Alkalinity (as CaCO ₃) Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 23): 1986	200	600	131.12
14	Calcium (as Ca)	mg/l	IS 3025 (Part 21): 2009	200	600	146,52
15		mg/l	IS 3025 (Part 40): 1991	75	200	35.64
16	Magnesium (as Mg) Sulphate (as SO ₄)	mg/l	IS 3025 (Part 46) · 1994	30	100	13.98
17	Nitrate (as NO ₂)	mg/l	IS 3025 (Part 24): 1986	200	400	6.88
		mg/l	APHA Method 23rd Edition	45	No relaxation	3.14
18	Phenolic compounds (as C _o 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	BDI (DL-0.01)

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Verified By

Swati Shrivastava Technical Manager Authorized Signatories

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

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

Head Office: 60, Sajprabhu Nagar, Nagpur-440 633 India Ph.: 9372464924 E-mail: support@anacon.in Lab: FP-34.35 Food Park, 5 Star Estate, MIDC Butbort, Nagpur-441 122, Mob.: 9373287475, E-mail: labngp@anacon.in Support Help Lines: Technical (9373287475), E-mail: labngp@anacon.in, Offer: (9598945450), E-mail: support@anacon.in Accounts Division: (9326960061, 937260079), E-mail: accounts@anacon.in
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Food Safety & Standards Authority of India Under FSS Act

Bureau of India by - NABET & NAST.

Advicultural & Process Food Products Expert Development Authority (APEDA)

Expert inspection council (EIC)

Agricultural

Test Report No.: ALPL/3006202 Issued To: M/s Noamundi Iron Mines		e Inward No.	dated 30.06.2020 2020/EW-219/12-3		Page 2	of 3
(M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217	Inward Date Reference		22.06.2020 W.O 3000132460/962 15.05.2020		alysis Start alysis End	22.06.2020 29.06.2020
Sample Name Ground Water	Sample	Particulars Code-GW-1	Sample Cond	ition	Iple Category	Water Received
Sample Collected By Anacon Representative Mr. Krishnendu Pandey		Sampling Date	Scaled & Ice Pro		2.0 Ltr	₹ 250 ml
		Sampling Date Sampling 18.06.2020 Not Ment		e	Sampling L Noamundi	ocation

Chemical Testing	Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wat Including An	ment as per 80 : 2012 er Specifications) tendment No. 2	Test Result
	Chemical Testing 2. Residues In Water			Acceptable Limit	Permissible Limit "	
20	Iron (as Fe)		Apple of the Control of the			
21	Copper (as Cu)	mg/I	IS 3025 (Part 2): 2004	1.0	7	
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2004	0.05	No relaxation	0.12
23	Mercury (as Hg)	mg/l	IS 3025 (Part 2) + 2004	0.03	1.5	BDL(DI0.0
24	Cadmium (as Cd)	mg/I	IS: 3025 (Part 48): 1994	0.001	0.3	BDL(DL-0.0
25	Selenium (as Se)	mg/l	15:3025 (Part 41): 1992	0.003	No relaxation	BDL(DL-0.00
26	Arsenie (as As)	mg/l	IS: 3025 (Part 56): 2003	0.003	No relaxation	BDL(DL-0.00
27	Aluminium (as AI)	mg/l	IS: 3025 (Part 37): 1988	0.01	No relaxation	BDL(DL-0.00
8	Lead (as Pb)	mg/l	IS 15302 : 2003	0.03	No relaxation	BDL(DL-0.00
9	Zinc (as Zn)	mg/l	IS 3025 (Part 47): 2003	The state of the s	0.2	BDL(DL-0.0)
0	Total Chromium (as Cr)	mg/l	15 3025 (Part 2): 2004	0.01	No relaxation	BDL(DL-0.01
1	Boron (as B)	mg/l	IS 3025 (Part 2): 2004	3	15	BDL(DL-0.01
2	Polynuclear aromatic	mg/l	IS 3025 (Part 2): 2004	0.05	No relaxation	BDL(DL-0.01
4	hydrocarbon (PAH)	µg/l		0.5	2.4	BDL(DL-0.1)
3	Mineral Oil		ANqt RES-30	1.0	No relaxation	
	Please see watermark "Original Test R it shall not be reproduced except in full	me/l	ANgr RES-40	0.5	No relaxation	BDL(DL-0.03

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Verified By

Martin Pallavi Harkare Deputy Technical Manager Authorized Signatory

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

Head Office: 60, Sajiprabhu Nagar, Nagpur-440 033 India Ph. 9372404924 E-mail: support@anacon in Lab: FP-34,35,Food Park, 5 Star Estate, MIDC Butibori, Nagpur-441 122, Mob.: 9373287475, E-mail: lebngo@anacon.in Support Help Linea: Technical (9373287475), E-mail: lebngo@anacon.in Accounts Division: (9326960681, 9372960773), E-mail: lebngo@anacon.in Accounts Division: (9326960681, 9372960773), E-mail: accounts@anacon.in You may also visit us at www.anaconlaboratories.com





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Test Report No.: ALPL/3006202 Issued To: M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217	Samp Inwai Refer	le Inward No. d Date ence ence Date	2020 22.06 W.O.	ated 30.06.2020 /EW-219/12-3 5.2020 - 30001324-60/962 5.2020	Anal	Page 3 (lysis Start lysis End ple Category	22.06.2020 29.06.2020 Water
Ground Water Sampl		ple Particulars ple Code-GW-1		Sample Condition Scaled & Ice Preserv	South		ity Received
Sample Collected By Anacon Representative Mr. Krishnen	du Pandey	Sampling Dat 18.06.2020	e	Sampling Time Not Mentioned	ca	Sampling I	

S.N.	Test Parameter	Measurement Unit	Test Method	(Drinking Wat	nent as per 00 : 2012 er Specifications) lendment No. 2	Test Result	
II	II Chemical Testing			Acceptable Limit	Permissible Limit"		
34	2. Residues In Water						
-	Pesticide Residues						
li .	Alpha-HCH	μg/[ANor RES-28	7 001			
iii	Beta HCH	ug/l	ANgr RES-28	0.01	No relaxation	BDL(DL-0.01	
	Delta- HCH	μg/l	ANgr RES-28	0.04	No relaxation	BDL(DL-0.03	
iv	Alachlor	це/!	ANgr RES-28	0.04	No relaxation	BDL(DL-0.03	
V	Aldrin / Dieldrin	µg/I	ANgr RES-28	20	No relaxation	BDL(DL-0.03	
vi	Atrazine	μ <u>ρ</u> /Ι		0.03	No relaxation	BDL(DL-0.03	
vii	Butachlor	μα/Ι	ANgr RES-29	2	No relaxation	BDL(DL-0.03	
viii	Chlorpyrifos	µg/I	ANgr RES-29	125	No relaxation	BDL(DL-0.03	
ix	DDT and its Isomers	µg/1	ANgr RES-28	30	No relaxation	BDL(DL-0.03	
X	Gamma - HCH (Lindane)	μg/l	ANgr RES 28		No relaxation	BDL(DL-0.03	
xi	2.4-Dichlorophenoxyacetic acid	µg/1	ANgr RES-28	2	No relaxation	BDL(DL-0.03	
xii	Endosulphan	The state of the s	ANgr RES-29	30	No relaxation	BDL(DL-0.03)	
ciii	Ethion	<u>µg/l</u>	ANgr RES-28	0.4	No relaxation	BDL(DL-0.03)	
civ	Isoproturon	µg/l	ANgr RES-29	3	No relaxation	BDL(DL-0.03)	
KV	Malathion	j1g/l	ANgr RES-29	9	No relaxation	BDL(DL-0.03)	
	Methyl Parathion	μg/1	ANgr RES-29	190	No relaxation		
	Monocrotophos	I/g/I	ANgr RES-29	0.3	No relaxation	BDL(DL-0.03)	
	Phorate	μg/l	ANyr RES-29	1	No relaxation	BDL(DL-0.03)	
		μ <u>ε</u> /Ι	ANgr RES-29	2	No relaxation	BDL(DL-0.03) BDL(DL-0.03)	

NOTES: • Press see watermark. Original Lest Report to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested javaneters only, pertiable sample(s) shall be disposed off after 30 days and 15 days respectively from the class of same of Lest Report, unless specified otherwise, • 'mg/l' is equivalent to ppin'. • BDL-masses variedated method.

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

Authorized Signatory

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

Dams

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TEST REPORT

ARAGUN LABURATURIES PVI. LTD.

ISO 9001 2015, ISO 14001 2015, ORSAS 18001 2007 Certified O unitios ion Recognized By Ministry of Environment & Forests (MoEF), New Delhy Approved by :

Approved by :

Food Safety & Standards Authority of India Duder FSS Act & Bureau of India Dy - INDEET & MASIL.

Approved by :

Food Products Export Development Authority (APEDA) & Export Inspection council (EIC) & Agmants

Test Report No.: ALPL/3006202 Issued To: M/s Noamundi Iron Mines	Samp	de Inward No.	dated 30.06.2020 2020/EW-219/12-4		Page 1	of 3
(M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217	Refer	ence	22.06.2020 W.O 3000132460/962		lysis Start lysis End	22.06.2020 29.06.2020
Sample Name Ground Water	Sample Particulars		15.05.2020		ple Category	Water
Sample Collected By Anacon Representative Mr. Krishnen	Sample Code-GW-2		Sample Con Senied & Ice P Sampling Tie	reserved	Quantity Received 2.0 Ltr & 250 ml	
The set taille	idu Pandey	18.06.2020	Not Mentione RESULTS	ed	Sampling L Nr. Railway	ocation

S.N.	165t Parameter	Measuremen Unit	Test Method	(Drinking Wa	ement as per 500 : 2012 iter Specifications) mendment No. 2	Fest Resu
1	Biological Testing 1.Water Escherichia coli			Acceptable Limit	Permissible Limit "	
AII	Chemical Testing 1.Water	Per 100 ml	IS 15185 : 2016			
2	pH value		10 100 1 2010	Absent	Absent	7
3	Turbidity		IS 3025 (Part 11) . 1983			Absent
4	Colour	NTU	IS 3025 (Part 10): 1984	6.5 to 8.5	No relaxation	7
5	Odour	Hazen units	IS 3025 (Part 10): 1984	1	5	7.22 at 25°C
6	Taste	-	IS 3025 (Part 4): 1983	5	15	0.2
7	Free residual chlorine		IS 3025 (Part 5): 2018	Agreeable	Agrecable	1
8	Total dissolved solids	mg/l	IS 3025 (Part 8): 1984	Agreeable		Agreeable
9	Fluoride (as F)	mg/l	IS 3025 (Part 26): 1986	Min. 0.2	Agreeable	Agreeable
0	Cyanide (as CN)	ma/	IS 3025 (Part 16): 1984	500	2000	BDL(DL-0.1)
T	Chloride (as Cl)	mg/	IS 3025 (Part 60) : 2008	1.0	2000	238
2	Total All-II	mg/	IS 3025 (Part 27): 1986	0.05	1.5	BDL(DL-0.1
	Total Alkalinity (as CaCO ₃)	mg/l	1S 3025 (Part 32) :1988	250	No relaxation	BDL(DL-0.005
	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 23): 1986	200	1000	30.44
_	Calcium (as Ca)	me/l	IS 3025 (Part 21): 2009	200	600	124.12
-	Magnesium (as Mg)	mg/l	15 3025 (Part 40) - 1001	75	600	130.68
	Sulphate (as SO ₄)	mg/	15 3025 (Part 46): 1904	30	200	30.09
	Nitrate (as NO ₁)	1000	18 3025 (Part 24) - 1094	200	100	13:49
	Phenolic compounds	mer	APHA Method 23rd Edition	45	400	5.4
	(as C ₅ H ₅ OH)	mg/I	IS 3025 (Part 43): 1992	43	No relaxation	2.82
16	Anionic detergents as MBAS)			0.001	0.002	BDL(DL-0.001)
	Please see watermark "Original Test Report 4 shall not be reproduced except in full with imple(s) shall be discovered.	mg/l	IS 13428 : 2005 Annex K	0.2	1.0	BDL(DL-0.01)

NOTES:

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Results shall be referred to tested sample(s) and applicable to tested perameters only.

Test report shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise.

BDL- Below detection limit

DL- Indicates detection limit of instrument/method and shall be considered as "absent".

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TEST REPORT

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Accepted by United Process Food Safety & Standards Authority of India Under FSS Act ◆ Bureau of India Standards (BIS)
◆ Agricultural & Process Food Products Export Development Authority (4FEDA) ◆ Export Inspection council (EIC) ◆ Agricultural

M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand	Inward Date 2 Reference V		dated 30.06.2020 2020/EW-219/12-4 22.06.2020 W.O 3000132460/962 15.05.2020		lysis Start lysis End ple Category	Page 2 of 3 22.06.2020 29.06.2020 Water	
^ -		Particulars Code-GW-2		Sample Condition Scaled & Ice Preserved		Quantity Received	
Sample Collected By Anacon Representative Mr. Krishnendu Pandey		Sampling Date 18.06,2020	Sumprise time		Sampling Location Nr. Railway Station		

S.N.	Test Parameter	Measurement Unit	Test Method	Requiren IS 1050 (Drinking Wate Including Am	Test Result	
				Acceptable Limit	Permissible	1000
II	Chemical Testing 2. Residues in Water					
20	Iron (as Fc)	mg/l	IS 3025 (Part 2): 2004	1.0	No relaxation	0.15
21	Copper (as Cu)	mg/l	IS 3025 (Part 2) . 2004	0.05	1.3	The second secon
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2004	0.1	0.3	BDL(DL-0.03)
23	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994	0.001		BDL(DL-0.05)
24	Cadmium (as Cd)	mg/l	IS: 3025 (Part 41): 1992	0.003	No relaxation	BDL(DL-0.002
25	Scienium (as Se)	mg/l	IS: 3025 (Part 56): 2003	0.003	No relaxation	BDL(DL-0.001
26	Arsenic (as As)	mg/l	IS: 3025 (Part 37): 1988	The second second	No relaxation	BDL(DL-0.001
27	Aluminium (as Al)	mg/l	IS 15302 : 2003	0.01	No relaxation	BDL(DL-0.004
28	Lead (as Pb)	mg/l	The second secon	0.03	0.2	BDL(DL-0.01)
29	Zine (as Zn)	mg/l	IS 3025 (Part 47) : 2003	0.01	No relaxation	BDL(DL-0.01)
30	Total Chromium (as Cr)		IS 3025 (Part 2): 2004	5	15	BDL(DL-0.01)
31	Boron (as B)	mg/l	IS 3025 (Part 2): 2004	0.05	No relaxation	BDL(DL-0.01)
-	Polynuclear aromatic	mg/l	IS 3025 (Part 2): 2004	0.5	2.4	BDL(DL-0.1)
32	hydrocarbon (PAH)	μg/l	ANqr RES-30	0.1	No relaxation	BDL(DL-0.03)
33	Mineral Oil	mg/l	ANor RES-40	0.5	No relaxation	BDL(DL-0.001)

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Verified By

foreskere Pallavi Harkare Deputy Technical Manager Authorized Signatory

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

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Agricultural & Process Food Products Export Cevelopment Authority (APEDA) & Export Inspection council (EIC) & Agricultural

TEST REPORT

Issued To: M/s Noamundi Iron Mines (M/s TATA Stee! Limited) Noamundi, Jharkhand Postal Code: 833217 Sample Name	Inwai Refer Refer	ence Date	dated 30.06.2020 2020/EW-219/12-4 22.06.2020 W.O 3000132460/962 15.05.2020	Analysis Start Analysis End Sample Category	Page 3 of 3 22.06 2020 29.06.2020 Water
Ground Water San		e Particulars : Code-GW-2	Sample Condition Sealed & Ice Preserved	Quan	fity Received
Sample Collected By Anacon Representative Mr. Krishnendu Pandey		Sampling Date	Sampling Time	2.01	ar & 250 ml
- Since Sin. Krishnen	du Pandey	18.06.2020	Not Mentioned	Nr. Raily	g Location way Station

<u> </u>			TEST RESULTS	ot Mentioned	Nr. Raily	vay Station
S.N. Test Parameter Chemical Testing	Test Parameter	Measurement Unit	Test Method	Require IS 105 (Drinking Wat Including As	Test Resul	
	Chemical Testing 2. Residues In Water			Acceptable Limit	Permissible Limit	
34	Pesticide Residues	-				
i	Alpha-HCH					_
ii	Beta HCH	1/8/1	ANgr RES-28	0.01		
iii	Delta- HCH	112/1	ANgr RES-28	0.04	No relaxation	BDL(DL-0.0
iv	Alachlor	119/1	ANgr RES-28	0.04	No relaxation	BDL(DL-0.0
v	Aldrin / Dieldrin	μ2/1	ANgr RES-28	20	No relaxation	BDL(DL-0.0
vi	Atrazine	µg/1	ANgr RES-28	0.03	No relaxation	BDL(DL-0.0.
vii	Butachlor	µg/I	ANgr RES-29	0.03	No relaxation	BDL(DL-0.03
viii	Chlorpyrifos	μg/1	ANgr RES-29	The state of the s	No relaxation	BDL(DL-0.0.
ix	DDT and its Isomers	μg/1	ANgr RES-28	125	No relaxation	BDL(DL-0.03
X	Gamma - HCH (Lindane)	μg/l	ANgr RES-28	30	No relaxation	BDL(DL-0.03
xi	2,4-Dichlorophenoxyacetic acid	μg/1	ANgr RES-28	2	No relaxation	BDL(DL-0.03
xii	Endosulphan	µg/1	ANgr RES-29	The state of the s	No relaxation	BDL(DL-0.03
iii	Ethion	μg/l	ANgr RES-28	30	No relaxation	BDL(DL-0.03
iv	Isoproturon	ug/l	ANgr RES-29	0.4	No relaxation	BDL(DL-0.03
CV	Malathion	118/1	ANgr RES-29	3	No relaxation	BDL(DL-0.03
vi	Methyl Parathion	Hg/1	ANgr RES-29	9	No relaxation	BDL(DL-0.03
vii	Monocrotophos	μg/l	ANgr RES-29	190	No relaxation	BDL(DL-0.03
/iii	Phorate	μα/1	ANgr RES-29	0.3	No relaxation	BDL(DL-0.03)
		μα/Ι	ANor RES. 20		No relaxation	BDL(DL-0.03)
TES:	Please see watermark "Original Test Reported shall not be reproduced except in full with		100-27	2	No relaxation	BDL(DL-0.03)

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TEST REPORT

	W 0700000001 7	Antek	25.09.20	20		Page I of	
Test Report No.: Al. Issued To: M/s Nonmundi Iron (M/s TATA Steel Li. Noamundi. Jharkhan Postal Code: 833217	Mines mited)	Sample Inward No. Inward Date Reference Reference Date	2620/MC 18,09.20	N-09/4/18-3 20 00132460/962	Analys Analys Sample		18 69 2020 25 69 2020 Water
Sample Name Sample Source Oround Water Dugwell		Sample Particular Sample Code-GW-				Quantity Receive d 2.0 Ltr & 250 ml	
Sample	Collected By stative Mr. K. Pande	Sampling Da 12,09 2020		Sampling Time Not Mentioned	Noa	Sampling I mundi Basti (N	neation fr. Play Ground

			TEST RESULTS			A second second
S.N.	Test Parameter	Measurement Unit	Test Method	Requirem IS 1050 (Drinking Water Including Am	Test Result	
				Acceptable Limit	Permissible Limit "	
1	Biological Testing 1.Water					Absent
1	Escherichia coti	Per 100 ml	15 15185 : 2016	Absent	Absent	Amen
11	Chemical Testing 1.Water					7 21 at 25°C
2	pH value		IS 3025 (Part 11): 1983	6.5 to 8.5	No relucation	0.3
3	Turbidity	NTU	IS 3025 (Part 10): 1984		3	0.3
4	Colour	Hazen units	IS 3025 (Part 4): 1983	5	15	
4	Odour		IS 3025 (Part 5): 2018	Agreeable	Agreeable	Agrecable
6	Taste		IS 3025 (Part 8): 1984	Agreeable	Agreeable	Agreeable
7	Free residual chiorine	mg/l	IS 3025 (Part 26): 1986	Min. 0.2		BDL(DL-0.1)
-	Total dissolved solids	mg/l	15 3025 (Part 16): 1984	500	2000	230
9	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	1.0	1.5	BDL(DL-0.1)
10	Cyanide (as CN)	mg/l	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	42.88
_	Total Alkalinity (as CaCO ₂)	mg/l	IS 3025 (Part 23): 1986	200	600	132
12	Total hardness (as CaCO ₁)	mg/l	IS 3025 (Part 21): 2009	200	600	150.48
13	Calcium (as Ca)	mg/l	15 3025 (Part 40): 1991	75	200	34.05
14	A STATE OF THE PARTY OF THE PAR	mg/l	IS 3025 (Part 46): 1994	30	100	15.91
15	Magnesium (as Mg)	mg/l	IS 3025 (Part 24): 1986	200	400	7.77
16	Sulphate (as SO ₄)	and the same of th	APHA Method 23 st Edition	45	No relaxation	4.45
17	Nitrate (as NO ₅) Phenolic compounds (as C _n H ₂ OH)	mg1	IS 3025 (Part 43): 1992	0.001	0.002	BDL(DL-0.001
19	Anionic detergents (as MBAS)	mg/l	15 13428 : 2005 Annex K	0.2	1.0	BDL(DL-901)

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Verified By

Swati Shrivastava Technical Manager

Sr. Technical Manager

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Export respection council (EIC)

Agreed

Test Report No.: All Issued To: M/s Nonsuundi Irror (M/s TATA Steel Li Noamundi Burkhan Postal Code: 833217	Mines oited)	Sample Inward No. Inward Date	2020 MON. 18.09 2020 W () - 3600 15.05 2020	132460-952	Analysis Start Analysis End Saturdo Catomary	2 of 3 18 09 2020 25 09 2020 Water
Sample Name Ground Water	Sample Source Dopueli	Sample Particulars Sample Code-GW-)		Sample Condition		ity Received
Sample Collected By Anacon Representative Mr. K. Pundey		Sampling Date 12 09 2020			2.0 Ltr & 250 orl Sampling Location Notement Barti (Nr. Play Green	

			TEST RESULTS			
S.N.	Test Parameter	Measurement Unit	Test Method	Requirem IS 1989 (Drinking Wass Including Am	Test Result	
			A STATE OF THE STA	Acceptable Limit	Permissible	
11	Chemical Testing 2. Residues in Water			Lamin	Limit"	1
20	Iron (as Fe)	mg/1	15 3025 (Part 2): 2019		T	
21	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	1.0	No relevation	0.14
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL(DL-0.03
23	Mercury (as Hg)	mg/l	15 3023 (Part 2) : 2019	0.1	0.3	BDL(DL-0.05
24	Cadmium (as Cd)		IS: 3025 (Part 48): 1994	0.001	No relaxation	BDL(DL-0.000
25	Selenium (as Se)	mg/l	IS: 3025 (Part 41): 1992	0.003	No relaxation	BDL(DL-0.001
26	Arsenic (as As)	mg/l	15: 3025 (Part 56): 2003	0.01	No relaxation	BDL(DL-0.001
27	Aluminium (as Al)	mg/l	IS: 3025 (Part 37): 1988	0.01	No relaxation	BDL(DL-0.01
28	Lead (as Pb)	mg/l	IS 15302 : 2003	0.03	0.2	BDL(DL-0.01
29	Zinc (as Zn)	mg/l	IS 3025 (Part 47): 2003	0.01	No releastion	BDL(Dt0.001
30		tng/l	IS 3025 (Part 2): 2019	5	15	BDL(DL-0.1)
31	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	
71	Boron (as ft)	mg/I	IS 3025 (Part 2) ; 2019	0.5	2.4	BDL(DL-0.03)
32	Polynuclear aromatic hydrocarbon (PAH)	Гдц	ANgr RES-30	0.1	No relaxation	BDL(DL-0.1)
33	Mineral Oil	mg/l	ANgr RES-40	0.5	No reluxation	BDL(DL-0.001)

NOTES: © Plane for contrasts "Control Two Report to consider the automorphy of the report to Books, in History description to an application to the Automorphy of the Report to the Automorphy of the Automorphy of

Verified By

Pallavi Harkare **Fechnical Manager**

Sonali Gharpure Technical Manager Authorized Signatory Dear

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TEST REPORT

				4 25 00 2020		Page 3 o	
Test Report No. ; ALPL/25092020:01- Issued To : M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi Jbarkhand Postal Code: 833217 Sample Name Ground Water Sample Collected By Anscon Representative Mr. K. Pand		Sample Inward No. Inward Date Reference Reference Date			Analysis Start Analysis End Sample Category		18 09 2020 25 09 2020 Water
		Sample Particul				d 2.0 Lir & 250 mi	
		Sample Code-GW-1 Sampling Date 12.09.2020		Sampling Time Not Mentioned		Sampling Location Noamundi Basti (Nr. Play Groun	

	Test Parameter	Measurement	Test Method	Requirem IS 10500 (Drinking Water Including Ame	Test Result	
S.N.		Unit		Acceptable Limit	Permissible Limit "	
11	Chemical Testing 2. Residues In Water			_		
34	Pesticide Residues		13/10 DES 39	0.01	No relaxation	BDL(DL-0.01)
	Alpha-HCH	ив/1	ANdr RES-28	0.04	No refaxation	BDL(DL-0 03)
ii	Betn HCH	µg/l	ANgr RES-28 ANgr RES-28	0.04	No retaxation	BDL(DL-0.0)
iii	Delta- HCH	ид/1		20	No relaxation	BDL(DL-0.03
iv	Alachlor	pg1	ANgr RES-28 ANgr RES-28	0.03	No refundation	BDL(DL-0.03
V	Aldrin / Dieldrin	ug/l	ANgr RES-29	2	No relaxation	BDL(DL-0.03
vi	Atrazine	Hg/l	ANgr RES-29	125	No relaxation	BDL(DL-0.03
vii	Butnehior	µg/l	ANgr RES-28	30	No relaxation	BDL(DL-0.0)
viii	Chlorpyrifos	μg/l	ANGERES-28		No relaxation	BDL(DL-0.0
ix	DDT and its Isomers	µg/l	ANGERES-28	2	No relaxation	BDL(DL-0.0.
×	Gomma - HCH (Lindane)	ир1	ANgr RES-29	30	No relaxation	BDL(DL-0.0
xi	2.4-Dichlorophenoxyacetic acid	ид/1	ANGT RES-28	0.4	No relaxation	BDL(DL-0.0
xii	Endosulphan	14E/1	ANgr RES-29	3	No relaxation	BDL(DL-0.0
NIII	Ethion	μg/1	ANgr RES-29	9	No relaxation	BDL(DL-0.0
xiv	Isoproturon	ир1	ANgr RES-29	190	No relaxation	BDL(DL-0.0
XV	Malathion	μg/1	ANgr RES-29	0.3	No relaxation	BDL(DL-0.0
xvi	Methyl Parathion	µg/1	ANgr RES-29		No relaxation	BDL(DL-0.0
XVII		µg/1	ANgr RES-29	1	No relaxation	BDL(DL-0.0
xvii		pg/l		and the entire of the tested		

Please are naternark "Uniqued Lest Report" to confirm the act shall not be reported on the fact that not be reported on the fact that so the fact that the

REMARKS. As requested by the client, sample was tested to be delegated to tested parameters

Verified By

Sonali Gharpure

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TEST REPORT

luned to:

Test Report No. : ALPL/25092020 01-4 dated 25:09 2020 2020 MON-09-4 18-4 Page Lof 3 Sample Inward No. Analysis Start 18.09,2020 M/s Nonmondi Iron Mines loward Date 18.09.2020 Analysis End 25 (89, 2020) (M s TATA Steel Limited) Reference W.O. - 3600132460.962 Noamundi, Barkhand Postal Code: 833217 Reference Date 15.05.2020 Sample Category Water

Sample Name Sample Source Sample Particulars Sample Condition Quantity Received Ground Water Dugwell Sample Code-GW-2 Scaled & Ice Preserved 2.0 Lu & 250 ml Sample Cullected By Sampling Date Sampling Time Sampling Location Anacon Representative Mr K. Pandey 12.69.2020 Nor Mentioned Noamandi Barar (Nr. Petrol Pun

TEST DERING TO

s.n.	Test Parameter	Measurement Unit	Test Muthod	Requires 1S 105 (Drinking Wat Including As	Test Result	
		100		Acceptable Limit	Permissible Limit	
_	Biological Testing 1.Water					
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
11	Chemical Testing 1.Water					
2	pH value	E Charles and the	15 3025 (Part 11): 1983	6.5 to 8.5	No relaxation	7.25 at 25°C
3	Turbidity	NTU	15 3025 (Part 10): 1984	1	5	0.3
4	Colour	Hazen units	15 3025 (Part 4): 1983	5	15	
5	Odour	****	15 3025 (Part 5): 2018	Agrecable	Agrecable	Agrocable
6	Taste	*	15 3025 (Purt 8): 1984	Agreeable	Agrocable	Agreeable
7	Free residual chlorine	mg/l	15 3025 (Part 26): 1986	Min. 0.2	1	BDL(DL-0.1)
8	Total dissolved solids	mg/l	IS 3025 (Part 16): 1984	500	2000	234
9	Fluoride (as F)	mg/l	1S 3025 (Part 60) : 2008	1.0	15	BDL(DL-0.1)
10	Cyanide (as CN)	mg/i	IS 3025 (Part 27) 1986	0.05	No relaxation	BDL(DL-0.005
11	Chloride (as CI)	mg/l	IS 3025 (Part 32) 1988	250	1000	27.56
12	Total Alkalinity (as CaCO ₃)	mg/1	IS 3025 (Part 23): 1986	200	600	126
13	Total hardness (as CaCO ₃)	mg/l	15 3025 (Part 21) : 2009	200	600	126.72
14	Culcium (as Ca)	mg/l·	IS 3025 (Part 40): 1991	75	200	26.92
15	Magnessum (as Mg)	mg/l	IS 3025 (Part 46): 1994	30	100	9.64
16	Sulphate (as SO ₄)	mg/1	IS 3025 (Part 24): 1986	200	400	6.48
17	Nitrate (as NO ₃)	mg/l	APHA Method 23 rd Edition	45	No relaxation	3.24
18	Phenolic compounds (as C _s 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)

NOTES: © Please and understank "Crissical Year Report" to used into the articularity of this separt © Report shall be redemand to tested complete) and applicable to heated parameters only.

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Technical Manager

Authorized Signatories

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

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Fixed Safety & Standards Authority of India Under FSS Act - Bureau of Indian Standards - BIS.

TEST REPORT

♣ Agricultural & Process Food Products Export Development Authority (APEDA) ♠ Export respection council (EIC) ♠ Agricultural

Test Report No. : ALPL/25092020/03- Issued To : 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. Pand		Inward Date Reference	28282 18 09 W.O	18 09 2020 W O - 1000132460/962		Page 2 of 3 art 18,09 2020 ad 25 09 2020 tegory Water
		Sample Particula Sample Code-GW				Quantity Received 2.0 Ltr & 250 ml
		Sampling Date		Sampling Time Not Mentioned	1	Sampling Location Nonmundi Bazar (Nr. Petrol Pum

			TEST RESULTS	cunter to the s		
	Test Parameter	Measurement Unit	Test Method	Requirements 105 10500 (Drinking Water Including Ame	Test Result	
s.N.				Acceptable Limit	Permissible Limit "	
	Chemical Testing					
11	2. Residues In Water		ar No. 21 (2010)	1.0	No relaxation	0.16
20	Iron (as Fc)	nig/1	IS 3025 (Part 2) 2019	0.05	1.5	BDL(DL-0.03
21	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL(DL-0.05
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.001	No relaxation	BDL(DL-0.000
23	Mercury (as Hg)	mg/l	15 : 3025 (Part 48) : 1994	0.003	No relaxation	BDL(DL-0.00
24	Cadmium (as Cd)	mg/l	IS: 3025 (Part 41): 1992	0.01	No relaxation	BDL(DL-0.00
25	Selenium (as Se)	mg/l	1S: 3025 (Part 56): 2003	0.01	No relaxation	BDL(DL-0.01
26	Arsenic (as As)	mg/l	15 : 3025 (Part 37) : 1988	0.03	0.2	BDL(DL-0.0)
27	Aluminium (as Al)	mg/l	IS 15302 : 2003	0.01	No relaxation	BDL(DL-0.00
28	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	5	15	BDL(DL-0.1
29	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL(DL-0.03
30	Total Chromium (as Cr)	mg/1	1S 3025 (Part 2) : 2019	0.5	2.4	BDL(DL-0,1
31	Boron (as B)	mg/1	IS 3025 (Part 2) : 2019	-		BDL(DL-0.0)
and the last	Polynuciear aromatic	µg/l	ANor RES-30	8.1	No relexation	
32	hydrocarbon (PAH)		ANgr RES-40	0.5	No relaxation	BDL(DL-0.00)
33	Mineral Oil	mg/l	Andr RES-49			

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Verified By

Pallavi Harkare Technical Manager

Sonali Gharpure Technical Manager Authorized Signatory 1 Gamp

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





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Fest Report No. : A	PL-25092020/01-	4	dated 25.09 2020		Page 3 of 3
Issued To: M/s Noamundi fro (M/s TATA Steel f.) Noamundi, Jharkhu Postal Code: 83321	n Mines imited)	Sample Inward No. Inward Date Reference Reference Date	2020 MON-09-4/18-4 18:09-2020 W.D 3000172460/962 15:05:2020	Analysis Start Analysis End Sample Category	18 09 2020 25 09 2020 Water
Sample Name Ground Water	Sample Source Duon ell	Sample Particulars Sample Code-GW-2	The second second		ty Received A 250 ml
-	Collected By tative Mr. K., Pande	Sampling Date 12.09,2020	Sampling Time Not Mentioned	Sampling Noumundi Bazar	Location (Nr. Petrol Pump)

TE5	TRE	SULTS
-	-	The same of the sa

s.n.	Test Parameter	Measurement Unit	Test Method	Requirement as per 18 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 2		Test Hesult
				Acceptable Limit	Permissible Limit	THE CHARLES
II	Chemical Testing 2. Residues in Water					
34	Pesticide Residues					
1	Alpha-HCH	ug/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
tii	Delta- HCH	µg/l	ANgr RES-28	0.04	No relaxation	BDL(DL-0.03
iv	Alachior	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
ví	Atrazine	ир/1	ANgr RES-29	2	No relaxation	BDL(DL-0.03
vii	Butachlor	µg/1	ANgr RES-29	125	No relaxation	BDL(DL-0.03
viii	Chlorpyrifos	µg1	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
X	Gamma - HCH (Lindane)	µg/l	ANgr RES-28	2	No relaxation	BDL/DL-0.03
Xi	2,4-Dichlorophenoxyacetic acid	ив1	ANgr RES-29	30	No relaxation	BDL/DL-0.03
XII	Endosulphan	ив?	ANgr RES-28	0.4	No relaxation	BDL(DL-0.03
xiii	Ethion	μg/1-	ANgr RES-29	3	No relavation	BDL(DL-0.03
xiv	Isopromeron	pg/1	ANgr RES-29	9	No relaxation	BDL/DL-0.03
XV	Malathios	µg/l	ANgr RES-29	190	No relaxation	BDL(DL-0.03
XVi	Methyl Parathion	pg/l	ANgr RES-29	0.3	No relaxation	BDL/DL-0 03
xvii_	Monocrotophos	µg/1	ANgr RES-29		No relaxation	BDL(DL-0.03
xviii	Phorate	нд/1	ANgr RES-29	2	No relaxation	BDE(DL-0.03

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Sonali Gharpure **Technical Manager** **Authorized Signatory** David

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TEST REPORT

Page i of 3 dated 25.09.2020 2020/MON-09/4/18-5 Test Report No. : ALPL/25092020/01-5 Analysis Start Sample Inward No. M/s Noamundi Iron Mines 25 09 2020 Analysis End 18.09.2020 Inward Date (M/s TATA Steel Limited) W.O. 3000132460/962 Reference Noamundi, Jharkhand Sample Category Water 15.05 2020 Postal Code: 833217 Reference Date Quantity Received Sample Condition Sample Particulars Sample Source Sample Name 2.0 Ler & 250 ml Souled & Ice Preserv Sample Code-GW-3 Ground Water Dugwell Sampling Location Sampling Time Sampling Date Sample Collected By Mahudi Village (Nr. Railway Satation) 12.09.2020 Not Mentioned in Representative Mr. K. Pande

			TEST RESULTS			
S.N.	Test Parameter	Measurement	Test Method	Requirem IS 1050 (Drinking Wate Including Am	Test Result	
Sulva	fert Language.	Unit		Acceptable Limit	Permissible Limit *	
	Biological Testing 1, Water				Absent	Africat
-	Escherichia coli	Per 100 ml	15 15185 : 2016	Absent	Attach	
11	Chemical Testing 1.Water				No relaxation	7.35 at 25°C
7	pił value	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	IS 3025 (Part 11): 1983	6.5 to 8.5	No reparent	0.4
-	Turbidity	NTU	IS 3025 (Part 10): 1984		15	
+	Colour	Hazen units	15 3025 (Part 4): 1983	2	Agrecable	Agreeable
-	Odour		IS 3025 (Part 5): 2018	Agreeable	Agrocable	Agreesble
6	Taste		IS 3025 (Part 8): 1984	Agreeable	Agrocaosc	BDL(DL-0.1)
-	Free residual chilorine	mg/l	IS 3025 (Part 26): 1986	Min. 0.2	2000	240
-	Total disselved solids	mg/l	1S 3025 (Part 16): 1984	500	1.5	BDL(DL-0.1)
8		mg/l	15 3025 (Part 60) : 2008	1.0	The second second	BDL(DL-0.005)
9	Fluoride (as F)	mg/l	1S 3025 (Part 27): 1986	0.05	No relaxation	45.94
10	Cyanide (as CN)	mg/l	IS 3025 (Part 32):1988	250	1000	138
11	Chloride (as C1)	mg/l	IS 3025 (Part 23): 1986	200	600	
12	Total Alkalinity (as CaCO ₁)	mg/l	IS 3025 (Part 21): 2009	200	600	156.42
13	Total hardness (as CaCO ₁)	mg/1	15 3025 (Part 40); 1991	75	200	50.68
14	Calcium (as Ca)	rog/l	IS 3025 (Part 46): 1994	30	100	7,23
15	Magneslum (at Mg)	mg/l	IS 3025 (Part 24): 1986	200	400	8.29
16	Sulphate (as SO ₄)	The second secon	APHA Method 23 st Edition	45	No relaxation	3.53
17	Nitrate (as NO ₃) Phenolic compounds	mg/l	IS 3025 (Part 43): 1992	0.001	0.002	BDL(DL-0.001)
19	(as C _a H ₂ OH) Anionic detergents (as MBAS)	mg/l	15 13428 : 2005 Annex K	0.2	1.0	BDL(DL-0.01)

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Test Report No. : Al	PL/25092020/01-	9	dated 25.09.2020	Page 2	of 3
M/s Noamundi Iron (M/s TATA Steel Lir Noamundi, Jharkhan Postal Code: 833217	nited)	Sample Inward No. Jaward Date Reference Reference Date	2020 MON.09 478-5 18 09 2020 W.O - 3000132460/962 15 05 2020	Analysis Start Analysis End Sample Category	18 09,2020 25 89 2020 Water
Sample Name	Sample Source	Sample Particulars	Sample Condition	-	y Received
Ground Water	Dagwell	Sample Code-GW-3	Scaled & fee Preserv		& 250 ml
Rample C	offected By	Sampling Dute	Sampling Time	Sampling Lo	-
Amcon Represent	nise Mr. K. Pende	12.09 2020	Not Mentaned	Manudi Village (Nr. R.	

TEST RESULTS.

s.n.	Test Parameter	Measurement Unit	Test Method	Requirem IS 1050 (Drinking Wate Including Am	Test Result	
				Acceptable Limit	Permissible Limit	
11	Chemical Testing					
20	Iron (as Fe)	mg/l	15 3025 (Part 2): 2019	1.0	No relaxation	0.18
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/DI-0.051
23	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994	0.001	No relaxation	BDL/DL-0.0003
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	15: 3825 (Part 37): 1988	0.01	No relaxation	BDL(DL-0.01)
27	Aluminium (as Al)	mg/I	15 15302 : 2003	0.03	0.2	BDL(DL-0.01)
28	Lead (as Ph)	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	1S 3025 (Part 2): 2019	0.05	No relaxation	BDL(DL-0.03)
31	Boron (as B)	mg/l	1S 3025 (Part 2): 2019	0.5	2.4	BDL(DL-0.1)
32	Polynuclear aromatic hydrocarbon (PAH)	l'gu	AND RES-30	0.1	No relaxation	BDL(DL-6.03)
33	Mineral Oil	mg/l	ANgr RES-46	0.5	No relaxation	BDL(DL-0.001)

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Technical Manager

Sonali Gharpure

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TEST REPORT

Test Report No. ; Al.P M/s Noamundi Iron	Mines	Sample Inward No.		25.09.2020 0N-09/4/18-5 20	1	Page 3 o ysis Start ysis End	18,09 2020 25,69 2020
(M/s TATA Steel Liu Noamundi, Jharkhand Postal Code: 833217	inted)	Reference Date	W.O 30 15.05.20	000132460/962 20	Samp	ple Category	Water
Sample Name Ground Water	Sample Source Durwell	Sample Particulars Sample Code-GW-3		Sample Condition Sealed & Ice Preser		2.0 Ltr	& 250 ml
Sample C	offected By ntive Mr. K. Pande	Sampling Dat	te	Sampling Time Not Mentioned	Maho	Sampling Lo di Village (Nr. R.	cation aitway Satation

			TEST RESULTS			
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 16500 : 2012 (Drinking Water Specifications) Including Amendment No. 2		Test Result
3.7.		UNI		Acceptable Limit	Permissible Limit "	
п	Chemical Testing 2. Residues In Water					
34	Pesticide Residues	CARL STATE OF THE	131 - 000 30	1 0.01	No reluxation	BDL(DL-0.01
	Alpha-HCH	ир/1	ANgr RES-28	0.04	No relaxation	BDL(DL-0.03
ii	Beta HCH	µg/1	ANgr RES-28	0.04	No relaxation	BDL(DL-0.03
ili	Delta- HCH	ug/l	ANgr RES-28	20	No relaxation	BDL(DL-0.03
iv	Alachlor	µg/l	ANgr RES-28	0.03	No relaxation	BDL(DL-0.03
¥	Aldrin / Dieldrin	µg/1	ANgr RES-28	2	No relaxation	BDL(DL-0.0
vi.	Atrazine	μg/1	ANgr RES-29	125	No reluxation	BDL(DL-0.0
vii	Butachlor	με/1	ANGERES-29	30	No relaxation	BDL(DL-0.0
viii	Chlorpyrifos	µg/l	ANgr RES-28	1	No relaxation	BDL(DL-0.0
ix	DDT and its Isomers	µg/1	ANgr RES-28	- 2	No relaxation	BDL(DL-0.0
X.	Gamma - HCH (Lindane)	µg/l	ANgr RES-28	30	No relaxation	BDL(DL-0.0
xi	2,4-Dichlorophenoxyacetic acid	µg/l	ANgr RES-29	0.4	No relaxation	BDL(DL-0.0
xii	Endosulphan	µg/l	ANgr RES-28	1	No relaxation	BDL(DL-0.0
xiii	Ethion	ид/!	ANgr RES-29	- 0	No relaxation	BDL(DL-0.0
xiv	Isoproturon	дд/1	ANgr RES-29	190	No relaxation	BDL(DL-0.0
XV	Malathion	µg/1	ANdr RES-29	0.3	No relaxation	BDL(DL-0.0
XVI.	Methyl Parathton	µg/l	ANgr RES-29	- 03	No relaxation	BDL(DL-0.0
xvii	Monnerotophos	μg/1	ANgr RES-29	3	No relaxation	BDL(DL-0.0
xviii	Phorate	μg/1	ANgr RES-29			10000

offers the audients, my of the report © Results shall be referred to tested samples is and applicable to tested parameters only or written approval of Assecon Labs. © Liability of Assecon Labs in based to stronged attenual only. © Non-perchable and laps respectively from the date of time of Tost Report, unless specified otherwise. © 'mpil' to approvident on 'spec.' © BDE-need inclind and shall be considered as 'alread.' © Result for test no. T is not tolerant. © Adap RES-28, 29, 30 d. do. NOTES: © Please set watermark "Original Test Report" to confirm the authention.
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permisable sample(s) shall be disposed off after this days and 15 days respectively. In
lations which the D. RE. Indicates detection limit of maximum imitiod and is
lankwere validated method.

REMARKS: As requested by the chart, sample was firsted for above ps
in fit for detection oursesse with respect to tested parameters. eters only. Sample compiles with IS:10600:3012, for tests conducted, indicating that it

Verified By

Sonali Gharpure

Dr. (Mrs.) S.D. Garwa

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Flood Selenty & Standards Authority of Index Dy Authority Council of Index Dy Authority of Index Date (MoEF)
Agricultural & Process Food Products Export Development Authority (APEDA)
Export emperior council (EIC)

Test Report No. : A	LPL/25092020/01-	-	dated 25.09.2020	Page	Lof 3
M/s Neamundi fro (M/s TATA Steel L Noamutdi, Jharkha Postal Code: 83321	imited)	Sample Inward No. Inward Date Reference Reference Date	2020/MON-09-4-18-6 18-09-2020 W.O3000132460/962 15-05-2020	Analysis Start Analysis End Sample Category	18 to 2020 25 to 2020 Water
Sample Name Ground Water	Sample Source Dignell	Sample Particulars Sample Code-GW-3	Satople Condition Scaled & Ice Preserve		tity Received Ar & 250 est
	Cultected By stative Mr. K. Pando	Sumpling Dat 12 09 7020		Samplin	g Location

			TEST RESULTS			
s.n.	Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wat	ment as per 60 : 2612 ur Sperifications) nendment No. 2	Test Resul
				Acceptable Limit	Permissible Limit "	The 12
+	Biological Testing 1.Water				-	-
	Excherichia coli	Per 100 ml	15 15185 : 2016	Absent	Absent	Alment
11	Chemical Testing 1.Water					I removem
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	0.3
4	Colour	Hazen units	IS 3025 (Part 4): 1983	5	15	1
2	Odour	-	1S 3025 (Part 5): 2018	Agrocable	Agreeable	Agrecable
0	Taste		IS 3025 (Part 8): 1984	Agreesble	Agreeable	Agreeable
7	Free residual chlorine	mg/l	IS 3025 (Part 26): 1986	Min. 0.2	1	BDL(DL-0.1
8	Total dissolved solids	mg/l	IS 3025 (Part 16): 1984	500	2000	262
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	
10	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 1986	0.05	No relaxation	BDL(DL-0.1)
11	Chloride (as CI)	mg/l	IS 3025 (Part 32):1988	250	1000	44.92
12	Total Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23): 1986	200	600	150
13	Total hardness (as CaCO ₂)	mg/l	IS 3025 (Part 21): 2009	200	600	152.46
14	Calcium (as Ca)	mg/1-	IS 3025 (Part 40): 1991	75	200	The second district of the last of the las
15	Magnerium (as Mg)	mg/I	IS 3025 (Part 46): 1994	30	100	46,72
16	Sulphate (as SO ₄)	mg/I	IS 3025 (Part 24): 1986	200	400	8.67
17	Nitrate (as NO ₃)	mg/l	APHA Method 23 rd Edition	45	No relaxation	5.96
18	Phenolic compounds (as C ₀ H ₁ OH)	mg/l	IN 3025 (Part 43): 1992	0.001	0.002	3.82 BDL(D1-0.00
19	Anionic detergents (as MBAS)	mg1	IS 13428 : 2005 Annex K	0.2	1.0	BDL(DL-0.0)

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Verified By

Technical Manager

Technical Manager

Authorized Signaturies

Sr. Technical Manager

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

Head Office: 60. Bergrathic Nagar, Nagar: 640033 India: Ph. No. 9372404924. Email: aupport@enacon in Lab : FP 34-35. Food Park, 5 Stat Estate. MIDC Buttori, Nagour: 441122. Mob. No. 9373257475. Email: labngo@enacon in Support Help Lines: Technical (9373257475). Email: labngo@enacon in. Offer (9696941450). Email: support@enacon in. Accounts Division (932696005). 8372860579; Email: accounts@enacon in. Offer (9696941450). Email: support@enacon in. You may also year us of www. anaconstorous com





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TEST REPORT

			dated 25.6	19 2020	Page 2 o	
	A Nonunndi Iron Mines Sample Inward Date		2020/MON-09 18.09.2020	/4/18-6	Analysis Start Analysis End	18.09.2020 25.09.2020
's Nonmend From Vinces Fs TATA Steel Limited) samundi, Jharkhand stal Code: 833217		Reference Reference Date	W C) M09132460-962		Sample Category	Water
Sample Name	Sample Source	7	~	Sample Condition uted & Ice Preserved	2.0 Lar	Received & 250 ml
Ground Water Sample C	Dugwell Collected By tative Mr. K. Pande	Sampling Da	te 8	ampling Time Not Mentioned	Sampling Bottom Bin (Nr. Barrick)

	nacon Representative State		TEST RESULTS			
		Measurement	Test Method	Requireme IS 10500 (Drinking Water Including Ame	Specifications) adment No. 2	Test Result
s.N.	Fest Parameter	Unit		Acceptable Limit	Permissible Limit	
	Chemical Testing	100000000000000000000000000000000000000				6.22
11	2. Residues In Water		IS 3025 (Part 2): 2019	1.0	No relevation	0.22
20	Iron (as Fe)	ing/1	IS 3025 (Part 2) : 2019	0.05	1.5	BDI4DL-0.03
21	Copper (as Cu)	mg/l	IS 3025 (Part 2) 2019	0.1	0.3	BDL(DL-0.05
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.001	No relaxation	BDL(DL-0.000
	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994	0.003	No relaxation	BDL(DL-0.00
23	Cadmium (as Cd)	mg/l	18: 3025 (Part 41): 1992	0.01	No relaxation	BDL(DL-0.00
24		mg/l	15: 3025 (Part 56): 2003	The second secon	No relaxation	BDL(DL-0.0
25	Selenium (as Se)	mg/l	IS: 3025 (Part 37): 1988	0.01	0.2	BDL(DL-0.0
26	Arsenic (as As)	nsg/l	IS 15302 : 2003	0.03	No relaxation	BDL(DL-0.00
27	Aluminium (as Al)		1S 3025 (Part 47): 2003	0.01	No relaxation	BDL(DL-0.
28	Lead (as Ph)	mg/l	(S 3025 (Part 2): 2019	5	13	BDL(DL-0.0
29	Zinc (as Zn)	mg/l	(S 3025 (Part 2): 2019	0.05	No relaxation	ant mt.a.

Andrik (B. As)
Aluminiam (as Al)
Lead (as Ph)
Zinc (as Zn)
Total Chromium (as C
Boron (ns B)
Polynuclear aromatic
hydrocarbon (PAH)
Mineral Oil No relaxation ANgr RES-40 of this report. © Excults shall be referred to tested uniquie(s) and applicable to Assected Labo. © Liability of Assected Labo in formed to recovered amount only the date of misse of Test Seport, unless specified otherwise. © 'mpt' to agent a considered as 'about'. © A Vagr RES-30 di 40 ; Inhouse validated method.

IS 3025 (Part 2) : 2019 IS 3025 (Part 2) : 2019

ANgr RES-30

Verified By

mg/l

μp/I

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No relaxation

BDL(Dt-0.1)

HDL(DL-0.03)

BDL(DL-0.001)

0.1

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

Head Office: 60, Bapprathu Negar, Regain: 440033 India, Ph. No. 9372404924, Email: supportigianacon in Lab: FP.34-35, Floor Park, 5 Stat Estate, MIDC Bukkon, Nagaur: 441122, Mob. No. 9373287475, Email: sabaga@anacon in Support Help Lines: Technical (\$373287475), Email: sabaga@anacon in Office (\$325945450), Email: support@anacon in Accounts Division (\$325960081, 9372960075), Email: accounts Division (\$325960081, 9372960075), Email: accounts Division (\$325960081, 9372960075).





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SO SIGEL 2015, ISO 140CT 2015, GREAK 18001 2007 Certified Organization Recognized By Ministry of Environment & Forests MicCFT, New Dehr Accredited By Quality Council of hids by MASET & NASI Ministry of India Union FSS Act & Bureau of Indias Standards (Bioty Authority of India Union FSS Act & Bureau of Indias Standards (Bioty Authority (APEDA) & Expect inspection council (EIC) & Agreen. Approved by • Food Safety & Standards Authority
• Agricultural & Process Food Products Export Development Aug

Test Report No. : A		Sample Inward No.	dated 25 09 2020		Page 3 of 3		
M's Noamundi Ira (M's TATA Soul L Noamundi Jisakha Postal Code: 83221	imited)	Inward Date Reference Reference Date	2020/MON-09/4/18-6 18:09/2020 W.O 300013246//962 15:03/2026	Analysis Start Analysis End Sample Cutegory	18 09-2020 25 09-2020 Water		
Sample Name Ground Water Sample Source Dagwell Sample Collected By Anacon Representative Mr. K. Pander		Sample Particulars Sample Code-GW-4	- member of name integral	Countries.	Received		
		Sampling Date 12 09 2020		2.0 Ltr & 250 ml Sampling Location Bottom Bin (Nr. Barrack)			

			TEST RESULTS			(Nr. Barrack)
S.N.		Measurement Unit	Test Method	(Drinking Wat	nent as per 00 : 2012 er Specifications) tendment No. 2	Test Result
			Max Glaine	Acceptable Limit	Permissible Limit	
11	2. Residues In Water					_
34	Pesticide Residues				The state of the state of	
i	Alpha-HCH	I was I	AND DESCRIPTION			***************************************
61	Beta HCH	μg/I μg/I	ANgr RES-28	0.01	No relaxation	BDL(DL-0.0
iši.	Delta- HCH	μg/l	ANgr RES-28	0.04	No relaxation	BDL(DL-0.03
iv	Alachlor	μg/1	ANgr RES-28	0.04	No relaxation	BDL(DL-0.0
¥	Aldrin / Dieldrin	µg/l	ANgr RES-28	20	No relaxation	BDL(DL-0.0)
VÍ	Atrazine		ANgr RES-28	0.03	No relaxation	BDL(DL-0.03
vii	Butachlor	μg/l μg/l	ANgr RES-29	2	No relaxation	BDL(DL-0.0)
riii	Chlorpyrifos	µg/1	ANgr RES-29	125	No relaxation	BDL(Dt0.03
ix.	DDT and its fromers	ug/1	ANgr RES-28	30	No relaxation	BDL(Dt-0.03
N	Gamma - HCH (Lindane)		ANgr RES-28		No relaxation	BDL(DL-0.03
KÍ.	2,4-Dichlorophenosyacetic acid	Гди	ANgr RES-28	2	No relaxation	BDL(D) -0.03
ii .	Endosulphan	µg/l	ANgr RES-29	30	No relaxation	BDL(DL-0.0)
iii	Ethion	μg/1	ANgr RES-28	0.4	No relaxation	BDL(DL-0.03
iv	Isoproturue	ug/l-	ANgr RES-29	3	No relaxation	BDL(DL-0.03
V	Malathion	Pg/l	ANgr RES-29	9	No relaxation	BDL(DL-0 03
vi	Methyl Paramicer	pg1	ANgr RES-29	190	No relaxation	BDL(DL-0.03
ii	Monocrotophos	lon lon	ANgr RES-29	0.3	No relexation	BDL(DL-0.03)
iii	Phorate		ANgr RES-29	1	No relocation	BDL(DL-0.03
	Please too to decreased. The stand Town Reason	µg/1	ANgr RES-29	2	No relaxation	BDL(DL-0.03)

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Verified By

Sonali Charpure Technical Manager **Authorized Signatury**

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

Head Office 60, Bargraph, Nager, Nager, 440033 India, Ph. No. 9372404924, Erral, support@miscon.in Lab FP 34-25, Food Park, 5 Star Estale, MIDC Builbon, Nagour - 441122, Mob. No. 9373287475, Erral (isongo@anacon.in Bupport Heip Lines: Technical (9373287475), Erral (isongo@anacon.in, Office (8636845450), Erral (isongo.in, Office (8636845450), Er

Flow Rate of Balijhor Nalla

(April 2020 – September 2020)

ANALYSIS OF WATER QUALITY Sample collected from Balijhore Nalla

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

There is no any industrial effluents discharge from the mine.

4. Alex



TEST REPORT

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

Issued To: M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand		Sample Inwar Inward Date Reference		2020/MON-09/4/1 18.09.2020 W.O 3000132460		Analysis Star Analysis End		18.09.2020 25.09.2020
Postal Code: 83321		Reference Dat	e	15.05.2020		Sample Categ	ory	Water
Sample Name Surface Water	Sample 1. Upstream 2. D			ple Particulars Code-SW-1 & 2		le Condition		Received
	Collected By ntative Mr. K. Pande		ing Date 9.2020	Sampling Ti	me	 Jojo Nallah 	2.0 Ltr ng Location Upstream (5	SW-3)

I.N.	Test Parameter	Measurement Unit	Test Method	Tes	Result
1	Biological Testing 1.Water	The state of the s	rest Method	SW-1	SW-2
1	Total Coliforn	I same viscos			1041-4
П	Chemical Testing 1.Water	MPN/100ml	IS 1622 : 1981	<2	<2
2	pH value				
3	Colour	-	IS 3025 (Part 11): 1983	7.31 at 25°C	7.35 at 25°C
4	Dissolved Oxygen	Hazen units	IS 3025 (Part 4): 1983	1	1.33 at 23 C
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 38) :1989	6.2	6.1
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 17):1984	BDL(DL-10)	BDL(DL-10)
7	Chamical constant	mg/l	IS 3025 (Part 44):1993	3.92	
8	Chemical oxygen demand	mg/l	IS 3025 (Part 58) :2006	16	6.18
9	Total Dissolved Solids (TDS) Copper (as Cu)	mg/l	IS 3025 (Part 16): 1984	222	20
0		mg/l	IS 3025 (Part 2): 2019	BDL(DL-0.05	236
1	Chloride (as CI)	mg/l	IS 3025 (Part 32) :1988	61.25	BDL(DL-0.05
2	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24): 1986	4.92	65.34
	Nitrate (as NO ₁)	mg/l	IS 3025 (Part 34): 1988	3.11	6.34
3	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008		4.16
4	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 1986	BDL(DL-0.1)	BDL(DL-0.1)
5	Phenolic compounds			BDL(DL-0.005)	BDL(DL-0.005
-	(as C6H5OH)	mg/l	IS 3025 (Part 43):1001	BDL(DL-0.001)	BDL(DL-0.001)
6	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	DDI DI ASI	
	Chemical Testing 2. Residues In W	ater	25 15420 : 2005 Affilex K	BDL(DL-0.01)	BDL(DL-0.01)
7	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019		
8	Cadmium (as Cd)	mg/l	IS 3025 (Part 41): 1992	0.17	0.16
9	Selenium (as Se)	mg/l		BDL(DL-0.001)	BDL(DL-0.001)
0	Arsenic (as As)	mg/l	IS 3025 (Part 2) : 2019	BDL(DL-0.001)	BDL(DL-0.001)
1	Lead (as Pb)	mg/l	IS 3025 (Part 37): 1988	BDL(DL-0.01)	BDL(DL-0.01)
2	Zinc (as Zn)	mg/l	IS 3025 (Part 47) : 2003	BDL(DL-0.001)	BDL(DL-0.001)
3	Hexa Chromium (as Cr ⁻⁶)		IS 3025 (Part 2): 2019	BDL(DL-0.1)	BDL(DL-0.1)
4	Mercury (as Hg)	mg/l	IS 3025 (Part 2) :2019	BDL(DL-0.03)	BDL(DL-0.03)
5	Manganese (as Mn)	mg/l	IS: 3025 (Part 48): 1994	BDL(DL-0.0005)	BDL(DL-0.0005)
_	The truth	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 perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. • 'mg/l' is equivalent to 'ppm'. • BDL-REMARKS: As requested by the client, sample was tested for above parameters only.

Verified By

Pallavi Harkare Technical Manager

Technical Manager

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

Authorized Signatories

Technical Manager

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Issued To: M/s Noamundi i	MA Noumundi Iron Mines (M's TATA Steel Limited)		04 25 09 2020 2020 MON 09 4 18 11 09 3920 W.O 2000132460	962	Analysis Start Analysis End	18.09 2020 25.09 2020
Noamundi, Jharki Postai Code: 833		Reference Date	15.05.2020		Sample Catego	-
Sample Name Surface Water	The state of the s	e Source Upstronu (SW-1) Downstream (SW-2)	Sample Particulars Sample Code-SW-1 & 2		te Condition	Quantity Received 2.0 to \$ 250 ml
	Callected By tative Mr. K. Pandey	Sampling Date 12.09.20302	Sampling Time Not Mentioned 1. Halipho	ne Nalinit I	Sampling Lucati pstream (SW-1)	ion 2. Downstream (SW-)

TEST RESULTS Test Result per IS 2296:1992 Class C Test Method Test Parameter S.N. 5W-2 SW-I Unit Biological Testing 1. Water . 7 IS 1622: 1981 MPN/100ml Chemical Testing L.Water pH value Colour Dissolved Oxygen IS 3025 (Part 11) 1983 IS 3025 (Part 11) 1983 IS 3025 (Part 38) 1989 IS 3025 (Part 17) 1984 IS 3025 (Part 17) 1984 IS 3025 (Part 18) 2006 IS 3025 (Part 18) 2006 IS 3025 (Part 2) 2019 IS 3025 (Part 2) 1988 IS 3025 (Part 24) 1988 6.0 to 9.8 6.1 BDL(DL-10) 4.0 6.2 BDL(DL-10) Total Suspended Solid (as TSS) BOD (3 days at 2°°C) Chemical oxygen demand Total Dissolved Solids (TDS) mg/l 3.0 4.30 mg mg/l 228 BDL(DL-0.03) 56.15 5.44 1500 208 BDL(DL-0.03) 51.04 8 Total Dissolved So
9 Copper (as Ct)
10 Chloride (as Ct)
11 Sulphate (as SO₄)
12 Nitrale (as NO₄)
13 Fluoride (as F)
14 Cyanide (as CN)
15 Phenolic compount
(as Chionic Determent mg1 mg 5.99 3.87 mg/l mg/l IS 3025 (Part 60): 2008 IS 3025 (Part 27): 1986 BDL(DL-8 005) BDL(DL 0.005) 0.05 1110/ BDL(DL-0.001) BDL(DL-0.001) IS 3025 (Part 43): 1001 0.005 mg/I 15 13428 : 2005 Annex K BDL(DL-0.01) BDL(DL-0.01) 1.0 0.12 0.16

BDL(DL-0.001) BDL(DL-0.001)

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BDL(DL-0.005) BDL(DL-0.005) IS 3025 (Part 2): 2019 IS 3025 (Part 41): 1992 IS 3025 (Part 2): 2019 IS 3025 (Part 37): 1988 IS 3025 (Part 47): 2003 IS 3025 (Part 47): 2019 IS 3025 (Part 2): 2019 IS 3025 (Part 2): 2019 0.01

the authoritors of this report © Results shall be referred to bound unspires) and applicable to tended pursued ten approved of Amazere Lide. © Limitely of Amazere Lides in limited to invested amount only. © Non-parish appealisely them the date of some of Test Report, unless specified otherwise. © use it's a approximat to "pass" shall and shall be considered as "absent". NOTES: 0 Please we untertack "Original Fact Report" to confine the a 0 Year report shall not be expressed enough in full without price ventor to paradiate complete, but be exposed off after 30 date and 15 dates report factors described in a C.C. Saleputas detection from of conference compared factors described in a C.C. Saleputas detection from of conference compared

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

Haulirchmanl Manager (Inchestal Manager 23 (Beclinical Manager 1974



TEST REPORT

ISO 9001:2015, ISO 14001:2015, OHSAS 18001:2007 Certified Organization Recognized By Ministry of Environment & Prorests (MoEF), New Delhi Approved by :

Approved by : Food Safety & Standards Authority of India Under FSS Act

Apricultural & Process Food Products Export Development Authority (APEDA)

Export Inspection council (EIC)

Agmark

Issued To:	Sample Inward No.	20202 (02) 02///2 7		Page 1 of 1		
M/s Noamundi Iron Mines 1	nward Date Reference	2020/MON-09/4/12-78 18.09.2020 W.O 3000132460/962		Analysis Start Analysis End	18.09.2020 25.09.2020	
Postal Code: 833217	Reference Date	15.05.2020	No.	Sample Category	Water	
	irce nstream	Sample Particulars Sample Code-SW-1 & 2		mple Condition	Quantity Received	
Anacon Representative Mr. K. Pandey 15.09.2020		Sampling Time	Scaled & Ice Preserved 2.0 Ltr & 25 Sampling Location 1.Mahadev Nallah (Murga Nallah) Upstream (SW- 2.Mahadev Nallah (Murga Nallah) Downstream (

TEST DESILI TO

S.N.	Test Parameter	Measurement	Test Method	Test	Result
I	Biological Testing 1.Water	Unit	rest intellion	SW-1	SW-2
i	Total Coliform				1 1011-2
n	Chemical Testing 1.Water	MPN/100ml	IS 1622 : 1981	2	<2
2	pH value				-
3	Colour	-	IS 3025 (Part 11): 1983	7.32 at 25°C	7.34 at 25°C
4		Hazen units	IS 3025 (Part 4): 1983	1	1.34 at 25 C
2	Dissolved Oxygen	mg/l	IS 3025 (Part 38):1989	6.2	
6	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17):1984	BDL(DL-10)	6.1
7	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44):1993	4.16	BDL(DL-10)
8	Chemical oxygen demand	mg/l	IS 3025 (Part 58) :2006	12	5.82
3	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16): 1984	224	16
	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	BDL(DL-0.05)	236
0	Chloride (as Cl)	mg/l	IS 3025 (Part 32):1988	64.32	BDL(DL-0.05
1	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24): 1986	5.44	67.38
2	Nitrate (as NO ₃)	mg/l	IS 3025 (Part 34): 1988	4.12	6.48
3	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008		3.80
4	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 1986	BDL(DL-0.1)	BDL(DL-0.1)
5	Phenolic compounds			BDL(DL-0.005)	BDL(DL-0.005
	(as C6H5OH)	mg/l	IS 3025 (Part 43):1001	BDL(DL-0.001)	BDL(DL-0.001
6	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	DDI (DI AA)	
	Chemical Testing 2. Residues In W	ater	TO THE LOCK PRINCE R	BDL(DL-0.01)	BDL(DL-0.01
7	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	1 010	
	Cadmium (as Cd)	mg/l	IS 3025 (Part 41): 1992	0.18	0.17
)	Selenium (as Se)	mg/l	IS 3025 (Part 2): 2019	BDL(DL-0.001)	BDL(DL-0.001
0	Arsenic (as As)	·mg/l	IS 3025 (Part 37): 1988	BDL(DL-0.001)	BDL(DL-0.001
	Lead (as Pb)	mg/l		BDL(DL-0.01)	BDL(DL-0.01)
	Zinc (as Zn)	mg/l	IS 3025 (Part 47) : 2003	BDL(DL-0.001)	BDL(DL-0.001
	Hexa Chromium (as Cr ⁺⁶)	mg/l	IS 3025 (Part 2) : 2019	BDL(DL-0.1)	BDL(DL-0.1)
	Mercury (as Hg)	mg/l	IS 3025 (Part 2) :2019	BDL(DL-0.03)	BDL(DL-0.03)
	Manganese (as Mn)	mg/l	IS: 3025 (Part 48): 1994	BDL(DL-0.0005)	BDL(DL-0.0005
	• W	mg/1	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 on Prest report shall not be reproduced except in full without prior written approval of Anacon Labs. • Liability of Anacon Labs is limited to invoiced amount only. • Non-perishable ample(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' • BD REMARKS: As requested by the client, sample was tested for above parameters only.

Verified By

Pallavi Harkare Technical Manager

Pooja Kathane Technical Manager

Authorized Signatories

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

Swati Shrivastava Technical Manager

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Approved by:
Approved by: Food Safety & Standards Authority of India Under FSS Act.
Bureau of Indian Standards (BIS)

Agricultural & Process Food Products Export Development Authority (APEDA) Export inspection council (EIC) Agriant

Test Report No. :	ALPL/25092020/01-16	0&11		dated	25.09.2020		Page 1 of	1	
Issued To: M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217.		Sample Inwa nward Date Reference		2020/MON-09/ 18.09.2020 W.O 3000132	Analysis End		sis End	18.09.2020 25.09.2020	
		Reference Date		15.05.2020		Sample Category		Water	
Sample Name Surface Water	Sample Sour 1.Upstream 2. Dow			le Particulars Code-SW-1 & 2	Sample Condit Sealed & Ice Pres		Quantity 2.0 Ltr &		
	Collected By ative Mr. V. P. Sharma	Samplir 09.09		Not Mentioned		a Nallah	Oling Location (Nr. Joda Pump F (Nr. Banaikala V		

TEST RESULTS

-		3.5	Test Method	Test R	
S.N.	Test Parameter	Measurement Unit	1 est Method	SW-1	SW-2
1	Biological Testing 1.Water				
1	Total Coliforn	MPN/100ml	IS 1622 : 1981	2	2
11	Chemical Testing 1.Water	The second second second			
2	pH value		IS 3025 (Part 11): 1983	7.51 at 25°C	7.54 at 25°C
3	Colour	Colour Hazen units 1S 3025 (Part 4): 1983		2	2
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	6.2	6.1
5	Total Suspended Solid (as TSS)	mg/l	1S 3025 (Part 17):1984	44	56
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) :1993	6.60	7.33
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) :2006	28.0	36
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16): 1984	166	172
9	Copper (as Cu)	mg/l	15 3025 (Part 2): 2019	0.01	0.02
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	46.96	55.13
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24): 1986	5.18	6.73
12	Nitrate (as NO ₁)	mg/l	IS 3025 (Part 34): 1988	2.89	2.31
13	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	0.31	0.39
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 1986	BDL(DL-0.005)	BDL(DL-0.005)
15	Phenolic compounds (as C6H5OH)	mg/I	IS 3025 (Part 43):1001	BDL(DL-0.001)	BDL(DL-0.001)
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	BDL(DL-0.01)	BDL(DL-0.01)
	Chemical Testing 2. Residues In V	ater		The art of the state of the sta	
17	Iron (as Fe)	mg/l	1S 3025 (Part 2): 2019	0.27	0.27
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41): 1992	BDL(DL-0.001)	BDL(DL-0.001)
19	Selenium (as Se)	-mg/l	IS 3025 (Part 2): 2019	BDL(DL-0.001)	BDL(DL-0.001)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 1988	BDL(DL-0.01)	BDL(DL-0.01)
21	Lead (as Pb)	mg/l	IS 3025 (Part 47): 2003	BDL(DL-0.001)	BDL(DL-0.001)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	BDL(DL-0.1)	BDL(DL-0.1)
23	Hexa Chromium (as Cr*6)	mg/l	IS 3025 (Part 2) :2019	BDL(DL-0.03)	BDL(DL-0.03)
24	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994	BDL(DL-0.0005)	BDL(DL-0.0005
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019	BDL(DL-0.05)	BDL(DL-0.05)

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only.

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

Verified By

Pallavi Harkare Technical Manager

Pooja Kathane Technical Manager

Authorized Signatories

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

Swati Shrivastava Technical Manager

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Accounts Division (9328980081, 9372980079) Email: accounts@anacon.in
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Food Safety & Standards Authority of India Under FSS Act
Bureau of Indian Standards (BIS)
Agricultural & Process Food Products Export Development Authority (APEDA)
Export inspection council (EIC)
A

Issued To: M/s Noamundi Iron Mines (M/s TATA Steel Limited) Noamundi, Jharkhand Postal Code: 833217 Sample Name	Refer Refer	ence Date	2020/E W-219/12-7&; 22.06.2020 W.O 3000132460/96 15.05.2020	52	Page 1 c Analysis Start Analysis End Jample Cotegory	22.06.2020 29.06.2020 Water
Surface Water Sample Cool Sample Collected By		le-SW-1 & 2	Sample Condition Scaled & Ice Preserved		Quantity	Received
Anacon Representative Mr. Krishn		Sampling Date 18.06.2020	Sampling Time Not Mentioned	1. 1	Sampling Location Saitarani River Upstra Saitarani River Down	non (CIII) 15

S.N.	Test Parameter	Measurement		Standards as	Te	st Result
1		Unit	Test Method	per IS 2296:1992	SW-1	
+	Biological Testing 1.Water		1	Class C		SW-2
II	Total Coliforn	MPN/100ml	70 1600 100			
2	Chemical Testing 1.Water		IS 1622 : 1981	5000	Absent	Absent
3	pH value	-	IS 3025 (P			I Absent
4	Colour	Hazen units	IS 3025 (Part 11): 1983	6.0 to 9.0	7.44 at 25°C	7.49 2.60
5	Dissolved Oxygen	me/l	IS 3025 (Part 4): 1983	300		7.48 at 25°
6	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 38):1989	4.0	6.1	1 60
0	BOD (3 days at 27°C)	ma/l	IS 3025 (Part 17):1984		BDL(DL-10)	6.0
0	Chemical oxygen demand	mg/I	IS 3025 (Part 44):1993	3.0	4.80	BDL(DL-10
9	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 58) :2006	**	14.12	5.94
	Copper (as Cu)	mg/l	IS 3025 (Part 16): 1984	1500	210	16.88
10	Chloride (as Cl)	mg/l	IS 3025 (Part 2) : 2004	1.5	BDL(DL-0.03)	225
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 32):1988	600	54.42	BDL(DL-0.03
2	Nitrate (as NO ₃)	mg/l	IS 3025 (Part 24): 1986	400	6,24	57.6
3	Fluoride (as F)	me/l	IS 3075 (Part 34): 1988	50	4.12	5.86
4	Cyanide (as CN)	mg/l	IS 3025 (Part 60): 2008	1.5	0.30	3.96
5	Phenolic compounds	INTEL I	IS 3025 (Part 27): 1986	0.05		0.38
	(as C6H5OH)	mg/I	15 3025 (Part 43) :1001		BDL(DL-0.005)	BDL(DL-0.00:
6	Anionic Detergent	m2/1		0.005	BDL(DL-0.001)	BDL(DL=0.001
	Chemical Testing 2, Residues 1	m Water	IS 13428 : 2005 Annex K	1.0		
	Iron (as Fe)	n yrater			BDL(DL-0.01)	BDL(DL-0,01)
8	Cadmium (as Cd)	mg/l	18 3025 (Part 2): 2004	0.5	2.11	
9	Selenium (as Se)	mg/i	IS 3025 (Part 41): 1992	The same of the sa	0.11	0.15
)	Arsenic (as As)	mg/l	IS 3025 (Part 2): 2004		BDL(DL-0.001)	BDL(DL-0.001
	Lead (as Pb)	mg/l	15 3025 (Part 37): 1988		BDL(DL-0.001)	BDL(DL-0.001
	Zinc (as Zn)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.001)	BDL(DL-0.001)
	Hexa Chromium (as Cr ¹⁰)	mg/l	15 3025 (Part 2) : 2004		BDL(DL-0.05)	BDL(DL-0.05)
	Mercury (as Hg)	mg/l	IS 3025 (Part 2) -2004	1.0	BDL(DL-0.05)	BDL(DL-0.05)
1	Manganese (as Mn)	mg/l I	5:3025 (Part 48):1994	THE RESERVE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAME	BDL(DL-0.001)	BDL(DL-0.001)
	Please see watermark "Original Test Report"			-	BDL(DL-0.005)	BDL(DL-0.005)

NOTES: © Please are watermark "Original Test Report" to confirm the authenticity of this report. © Results shall be sufered to tested sample(s) and applicable to tested parameters only.

© Test report shall not be reproduced except in full without price written approval of Anacon Lales, © Lability of Anacon Lake is limited to invoiced amount only. © Non-pertubable and Relow detection limit © DL- indicates detection limit of instrumentmethod and shall be considered as "aluent."

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

Verified By

Authorized Signatories

Dr. (Mrs.) S.D. Garway Quality Assurance Manager Dr.(Mrs.) Anupa Tankhiwale

Swat Shrivastava Pallavi Harkere Pooja Kahane Dr. (Mrs.) Anupa Tsnichiwal Lab : FP was 6, Food Park, Five Star Estate, MIDC Sustion, Naspur - 441122, Mob. No. 9373287475, Ernal : sabrage star is broad anaporat Metallines : Tachrical (937287476, Ernal : sabrage star considerated blaines of the chical (947287476, Ernal : sabrage star considerated blaines of the chical (947287476, Ernal : sabrage star considerated blaines of the chical (947287476, Ernal : sabrage star considerated anaporated star considerated anaporated star considerated anaporated star considerated anaporated anaporated star considerated anaporated anapor



ISO 9001 2015, ISO 14001 2015, CNESAS 18001 2007 Cartified Departuring Recognised By Ministry of Environment & Foreste MinEF1, New Cell According By Quality Council of Instituty NASE

TEST REPORT

Agricultural & Process Food Products Espan Development Authority (APEDA) Φ. Espant impector council (EUC) Φ. Agricultural & Process Food Products

Report No.: AN/SE/TS-N	IIM/2020/238-5		Date: 03/10/2020
issued to	M/s Noamun	di Iron Mine	Order Reference
taanen to	(M/s TATA :	Steel Limited)	3000132460/962, date: 15.05.20
Sample Description/Type	Stack Emission Monitoring	Sample Collected by	Anacon Representative
Sampling Location	Crusher	Sample Quantity/ Packing	Thumble: 1 X 1 No. SOr: 30 mL X 1 No. PVC Bottle NOv: 25 mL X 1 No. PVC Bottle
Date of Sampling	10th Sept, 2020	Sample Inward Date	14 th September, 2020
Sample Reference No.	2020/Mon-183-5/8		
Analysis Start date	14th September, 2020	Analysis End date	15* September, 2020

Stack Emission Report for the month of September-2020

Stack details:			
Stack Identity		De-Dusting Unit	
Stack attached to		Primary Crusher	
Material of construction		MS	
Shape of Stack		Circular	
Stack diameter		0.15	Meter
Height of sampling point from G	L	9.5	Meter
Parameter	Units	Results	Method Reference
Flue gas temperature	*C	49	IS:11255 (Part 3)
Flue gas velocity	m/s	11.82	I5:11255 (Part 3)
Total gas quantity	m³/h	752.26	IS:11255 (Part 3)
Total gas quantity at NTP	Nm ¹ /h	059.55	IS:11255 (Part 3)
Total Particulate Matter (PM)	mg/Nm³	27,45	IS:11255 (Part 1)

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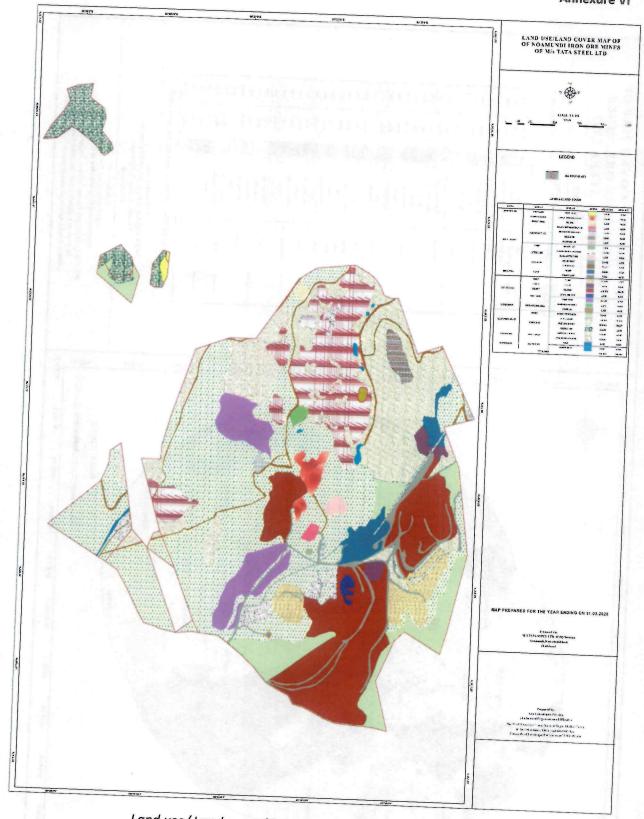
Verified by

Mr. Sandip Bakde (Technical Manager) Authorized Signatory

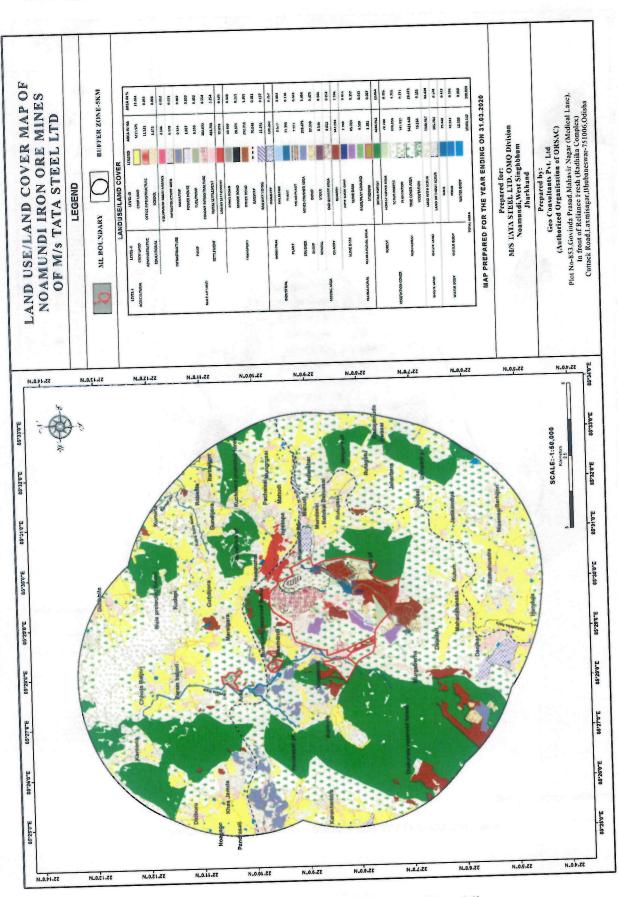
Dr. (Mrs.) S.D. Garway (Quality Manager)

Need Office: 60, Bupprachs, Nager, Neger: 440033 India: Ph. No. 3372404924. Email: supporting snarror in Lab: FP 34-35, Food Park, 5-Shar Estate, MIDC Builbon, Nageur: 441122, Mob. No. 9373287475. Email: labregodfanaron in Support Help Lines: 1 Inchesoa (\$373287475). Email: labregodfanaron in, Office (\$698945450). Email: supporting analysis.

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



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

NOAMUNDI IRON MINE AVERAGE AIR QUALITY REPORT (CORE ZONE)

4		MR	MRSS Building	ding			B	Bottom Bin	in			Z	Near WTP	٩						ŀ
	PM ₁₀	PM25	so,	Š	5	DAA	940											near nospital	orai	
		_		Š	3	r IVI 10	PIM2.5	202	XON	8	PM ₁₀	PM _{2.5}	202	NOX	8	PM ₁₀	PM _{2.5}	202	NOX	8
Apr 20																				
May 20																				
	6	1																		
Jun 20	49.53	49.53 27.7	4.38	11.7		55.1	32.1	5.36	12.89		53.56	31.1	5.5	14.2		51.8	29.3	8.8	12.7	
0	65.7	32.2	82	171	0.406	70.7	, ,,	0	1											
Jul 20			1		5,00	7.07	36.4	9.3	18.5	0.36	67.5	34.2	8.7	16.6	0.362	64.8	31.6	9.0	17.4	0.382
000	43.0	20.6	5.6	12.4	0 233	46.8	22.2	7 9	,	100			_							
Aug 20							5.5.3	4.0	13.1	0.25	39.9	20.2	5.3	11.2	0.210	43.5	22.0	0.9	12.0	0.224
	61.5	78.1	6 0	16.7	7700	1		3												
Sep 20)	1.07	7.0	10.7	0.341	63.5	30.7	8.4	17.2	0.36	58.5	26.2	8.2	15.8	0.317	9.09	25.3	8.3	17.4	0.363

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

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AMBIENT NOISE QUALITY AT NOAMUNDI

(April 2020 – September 2020)

	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)
	Hospital Premises	50.70		38.77	
Residential area	Training Centre	52.97	55.00	40.13	45.00
	Chief Office	53.57		39.23	43.00
	Township	55.67		42.50	
Industrial	Mining area	67.40	75.00	54.70	
area	Plant area	62.53	75.00	51.77	70.00

Manager (Environment)

Environmental Expenditure (2019-20)

Noamundi Iron Mine, TATA Steel Ltd

		Expenditure (Lakhs)		
SI. No.	Heads / Item	Capital	Recurring	
1.	General housekeeping at HEMM shed & upkeeping	-	04,11,696.00	
	of recycling pit at mega center Haz. waste disposal to common Haz. Waste facility		01,26,315.00	
2	Operation of Parks & Gardens at Railway sidness		02,45,232.00	
3 4.	Operation of mobile water sprinklers at Railway		11,64,000.00	
	sidings		64,00,000.00	
5. 6.	Spillage recover of material Operation & Maintenance of dry fog system at Railway sidings (1000TPH)		07,20,000.00	
7.	Housekeeping & maintenance of Rapid Loading System, stackers, bins, Over Laying Conveyors at		2,50,00,000.00	
	Railway siding areas Operation & maintenance of STPs & ETPs		36,00,000.00	
9.	Operation & maintenance of municipal solid waste (collection, segregation, development of compost) in		36,00,000.00	
	colony & Other area		1,23,00,000.00	
10.	Development & maintenance of Gardens		93,00,000.00	
11.	Development of Nursery & sapling for plantation Tree Planation & maintenance in & around			
12.			56,28,000.00	
	Noamundi Special studies at Noamundi Mines (Biodiversity)		10,00,000.00	
13.	Environmental monitoring in & around Noamundi		10,95,000.00	
14.	CAAQMS maintenance & operation & display board		5,45,000.00	
15. 16.	Desilting of thickeners & check dam, Housekeeping of plant, spillage control measures at Processing		02,28,30,836.7	
17.	Operation & assistance in waste collection & check dam de-siltation, disposal of slime at dump, housekeeping of plant etc		00,31,33,284.7	
18.	Maintenance & upkeeping of High rate Thickener, flocculent addition etc		02,72,20,000.0	
19.	Water recycling & reusing system in plant		05,54,76,000.0	
13.	Total		17,97,95,364.5	

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