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Letter No: ESL-IOO/HSE/MoEF/24-25/01

Date: 31.05.2024

To,
The Deputy Director General of Forests (C),
Ministry of Environment, Forest, and Climate Change,
Regional Office (Eastern Zone),
A/3, Chandrasekhar, Bhubaneswar – 751023

Sub: Submission of Six-monthly EC compliance report for the Nadidihi Iron Ore Mines of M/s ESL Steel Limited for the period of 1st October 2023 to 31st March 2024.

Ref: - 1. Vesting Order, no 8469/ SM dated 22.10.2021., Bhubaneswar. issued by Govt of Odisha, Steel and Mines Department.

Sir,

We hereby submitting the half yearly Environmental clearance compliance report of reference letter from MoEF &CC, New Delhi- J-11015/135/2012-IA.II (M) dated: 18.06.2019 for Nadidihi Iron Ore Mines of M/S ESL Steel Ltd.

Thanking you

Yours Faithfully
For ESL Steel Ltd



Mr. Biswanath Sahoo
Chief Operating Officer

Copy to:

1. Zonal Office Kolkata, Central Pollution Control Board, South end Conclave, Block 502, 5th and 6th Floors, 1582 Razidanga Main Road, Kolkata, West Bengal 700107.
2. The Member Secretary, State Pollution Control Board, A/118, Nilakantha Nagar, Bhubaneswar, Odisha-751012.
3. The Regional Officer, State Pollution Control Board, Near Panposh Hockey Chawk, Rourkela, Sundargarh, Odisha-769004.

ENVIRONMENT CLEARANCE COMPLIANCE STATUS –Nadidihi Iron Ore Mines.

Six Monthly Compliance report of Environmental Clearance for Nadidihi Iron Ore Mines , ESL Steel Ltd. for the period from-1st October 2023 to 31st March 2024.

Reference letter from MoEF &CC, New Delhi- J-11015/135/2012-IA.II (M) dated: 18.06.2019.
Capacity- 9.0 MTPA of iron Ore Production.

Status- Operating Mine of 2.53 MTPA iron ore production.

A. Specific Conditions

Sr. No.	Specific Conditions	Status
1.	The enhance production shall be on pro-rata basis for the effective period of valid environment clearance herein. The PP shall ensure its compliance by getting concurrence in mining plan approved by concerned authority in this regard.	The mining activity is done on pro-data basis as per approved mining plan from IBM
2.	The EC for expansion proposal (iron ore production from 5.3 million TPA (4.3 MTPA ROM Iron ore + 1.0 MTPA of low grade iron ore from old dump within lease area) to 9.0 million TPA (8.0 MTPA ROM + 1.0 MTPA of low grade iron ore from old dump within lease area)) shall be operational after submission of an undertaking through affidavit to MoEF & CC within 15 days of receipt of this letter, for compliance of all conditions prescribed herein.	We Undertake to comply with all the conditions and submit the status on six monthly basis
3.	Project Proponent and Department of Steel & Mines, Govt. of Odisha shall ensure the implementation of recommendations of carrying capacity study report conducted by CSIR-NEERI w.r.t. mining proposal of Iron ore and/or manganese in the State of Odisha.	The applicable recommendations of NEERI are included in the specific conditions of EC and responses are provided on the same .
4.	Department of Steel & Mines, Govt. of Odisha should prepare 5 years regional plan for annual iron ore requirement from the state, which in turn shall be met from different mines/zones (e.g. Joda, Koira) in the state. Accordingly, sustainable annual production (SAP) for each zone/mine may be followed adopting necessary environmental protection measures.	Department of Steel & Mines, Govt. of Odisha has prepared 5 years Regional Plan for annual Iron Ore Requirement ..
5.	Project Proponent shall construct the cement concrete road from mine entrance and exit to the main road with proper drainage system and green belt development along the roads and construction of road with minimum 300 inside the mine. This should be done within 1 year for existing mines and new mines should have it since the beginning. The Department of Steel & Mines, Govt. of Odisha should ensure the compliance and should not issue the Mining permits, if mine lease holder has not constructed proper cement concrete road as suggested. The EC for the expansion project shall be	The mine exit to main road is provided with Cement concrete road.

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6.	The Committee observed that as per the recommendations of the NEERI report, the PP needs to do regular vacuum cleaning of all minerals carrying roads aiming at “zero dust re-suspension within 3 months”. The EC for the expansion project shall be operated only after the compliance of the specific conditions.	Dust suppression is done by the water sprinkling through mobile tankers hence there is no dust
7.	Project Proponent shall monitor the environmental quality parameters as per EC and CTE/CTO conditions, and implementation of suggested measures for control of road dust and air pollution. Odisha State Pollution Control Board must ensure the compliance of CTE/CTO. Regional office of the MoEF&CC, Bhubaneswar shall monitor the compliance of the EC conditions. Regional Office of the Indian Bureau of Mines (IBM) shall monitor the compliance of mining plan and progressive mine closure plan. Any violation by mine lease holder may invite actions per the provisions of applicable Acts.	Environmental quality parameters are monitored on monthly basis based on EC / CTO condition reports attached in Annexure 1 and measures are taken for control of road dust and air pollution by Sprinkling of water and dry mist canon system and also compliance of Mining plan is submitted to IBM office
8.	Project Proponent shall ensure the compliance of Suggested Ore Transport Mode (SOTM) with association of the State Govt. of Odisha. All existing mines should ensure adoption of SOTM within next 5 years. New mines or mines seeking expansion should incorporate provision of SOTM in the beginning itself and should have system in place within next 5 years.	There is no rail capacity hence we have to depend on Road Transport for most volumes. Out of entire capacity of despatch 15 % is rail transport and rest is road transport
9.	The State Govt. of Odisha shall ensure dust free roads in mining areas wherever the road transportation of mineral is involved. The road shoulders shall be paved with fence besides compliance with IRC guidelines. All the roads should have proper drainage system and apart from paving of entire carriage width, the remaining right of way should have native plantation (dust capturing species). Further, regular maintenance should also be ensured by the Govt. of Odisha. Progress on development of dust free roads, implementation of SOTM, increased use of existing rail network, development of additional railway network/conveyor belt/pipelines, etc. shall be submitted periodically to Regional office of the MoEF&CC.	Full cooperation will be provided from the PP side.
10.	Project Proponent shall develop the parking plazas for trucks with proper basic amenities/facilities inside the mine. This should be done within one year for existing mines and new mines should have since beginning.	As there is no space availability inside the mine, development of parking plaza is difficult the transport trucks are parked at the side of haul road during loading
11.	Department of Steel and Mines shall ensure the construction of NH 215 as minimum 4 lane road with	Government of Odisha has constructed NH 215 as 4

	proper drainage system and plantation and subsequent regular maintenance of the road as per IRC guidelines. Construction of other mineral carrying roads with proper width and drainage system along with roadside plantation to be carried out. This shall be completed within 2 years.	lane road
12.	Regular vacuum cleaning of all mineral carrying roads aiming at “Zero Dust Re-suspension” shall be adopted by PWD/NHAI/Mine Lease Holders within a time period of 3 months for existing roads.	Dust suppression is done by the water sprinkling through mobile tankers hence there is zero dust
13.	In case the total requirement of iron ore exceeds the suggested limit for that year, permission for annual production by an individual mine may be decided depending on approved EC capacity (for total actual dispatch) and actual production rate of individual mine during last year or any other criteria set by the State Govt., i.e. Dept. of Steel & Mines Dept. in consultation with IBM. RO should prepare in advance mine-wise annual production scenario so that demand for iron ore can be anticipated, and actual production/dispatch does not exceed the suggested annual production.	Full Cooperation given to authority, as such there is no requirement if there is any requirement co-operation will be given
14.	R&D studies towards utilization of low-grade iron should be conducted through research/academic institutes like IMMT Bhubaneswar, NMI Jamshedpur and concerned metallurgical departments in IITs, NITs, etc. targeting full utilization of low-grade iron (Fe content upto 45% by 2020 and upto 40% by 2025). LCA of whole process including environmental considerations should be done for techno-economic and environmental viability. R&D studies on utilization of mine wastewater having high concentration of Fe content for different commercial applications in industries such as cosmetics, pharmaceutical, paint industry should also be explored. Responsibility: IBM, Dept of Steel & Mines, Individual Mine Lease Holders	R&D studies was conducted by IMMT for utilization of low grade iron ore. However as it is an auctioned mine according to the lease deed we have not received permission for dump operation and we don't have any low grade iron ore
15.	Develop proper rail network in the Joda-Koira region for mining activities. Rail transport shall not only be pollution free mode but also will be much economical option for iron ore transport. The rail network and/or conveyor belt system upto public railway siding needs to be created. The total length of the conveyor belt system/rail network to be developed from mines to nearest railway sidings by 11 mines in Joda region is estimated to be about 64 km. In Koira region, total length of rail network/conveyor system for 8 mines (under SOTM 1&2) is estimated to be around 95 km. Develop a rail network connecting Banspani (Joda region) and Roxy railway sidings in Koira Region. Responsibility: Dept. of Steel and Mines, Govt. of Odisha and Concerned mines along with Indian	Rail network Developed connecting, Banspani (Joda Region) and Roxy railway siding in Koira region with consultation of State government and Railway Department we will fully complete with govt for development

	<p>Railways. Time period: Max 7 years (by 2025) The Dept. of Steel & Mines, Govt. of Odisha should follow up with the concerned departments and railways so that proposed proper rail network is in place by 2025.</p>	
16.	<p>State Govt. of Odisha shall make all efforts to ensure exhausting all the iron and manganese ore resources in the existing working mines and from disturbed mining leases/zones in Joda and Koira region. The criteria suggested shall be applicable while suggesting appropriate lease area and sustainable mining rate. Responsibility: Dept. of Steel and Mines, Govt. of Odisha</p>	<p>Full cooperation will be provided to Dept of steel and mines, Govt of Odisha.</p>
17.	<p>Mining operations/Process related: Project proponent shall implement the following mitigation measures:</p> <ol style="list-style-type: none"> 1. Appropriate mining process and machinery (viz. right capacity, fuel efficient) should be selected to carry out various mining operations that generate minimal dust/air pollution, noise, wastewater and solid waste e.g. drills should either be operated with dust extractors or equipped with water injection system. 2. After commencement of mining operation, a study should be conducted to assess and quantify emission load generation (in terms of air pollution, noise, wastewater and solid waste) from each of the mining activity (including transportation) on annual basis. Efforts should be made to further eliminate/minimize generation of air pollution/dust, noise, wastewater, solid waste generation in successive years through use of better technology. This shall be ensured by respective mine lease holders. 3. Various machineries/equipment selected (viz. dumpers, excavators, crushers, screen plants etc.) and transport means should have optimum fuel/power consumption, and their fuel/power consumption should be recorded on monthly basis. Inspection and maintenance of all the machineries/equipment/transport vehicles should be followed as per manufacturer's instructions/recommended time schedule and record should be maintained by the respective mine lease holders. 4. Digital processing of the entire lease area using remote sensing technique should be carried out regularly once in 3 years for monitoring land use pattern and mining activity taken place. The 	<ol style="list-style-type: none"> 1. Appropriate Mining process according to IBM approved mining plan is carried out, excavators are selected based on hauling road fleets and also drills are operated with wet drilling system 2. The machinery equipment are maintained properly, and the fuel consumption is recorded on monthly basis the diesel quantity is monitored. 3. Various machineries/equipment selected (viz. dumpers, excavators, crushers, screen plants etc.) are inspected and maintained as per instructions 4. Digital processing of the entire lease area using remote sensing technique should be carried out regularly every year by Geoid Resources

	<p>extent of pit area excavated should also be demarcated based on remote sensing analysis. This should be done by ORSAC (Odisha Space Applications Centre, Bhubaneswar) or an agency of national repute or if done by a private agency, the report shall be vetted/authenticated by ORSAC, Bhubaneswar. Expenses towards the same shall be borne by the respective mine lease holders.</p>	
18.	<p>Air Environment Related: Project Proponent shall implement the following mitigation measures:</p> <ol style="list-style-type: none"> 1. Fugitive dust emissions from all the sources should be controlled regularly on daily basis. Water spraying arrangement on haul roads, loading, and unloading and at other transfer points should be provided and properly maintained. Water fogging system to be used to minimize water consumption. Ensure that the ambient water quality parameters conform to the norms prescribed by the CPCB in this regard. 2. The core zone of mining activity should be monitored on daily basis. Minimum 4 ambient air quality monitoring stations should be established in the core zone for SPM, PM10, PM2.5, SO₂, NO_x, and CO monitoring. Location of air quality monitoring stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board (based on Emission Load Assessment Study). The number of monitoring locations may be more for larger capacity mines and working in larger area. Out of 4 stations, one should be online monitoring station in the mines having more than 3 MTPA EC capacity. 3. Monitoring in buffer zone should be carried out by SPCB or through NABET accredited agency. Air quality parameters (SPM, PM10, PM2.5, SO₂, NO_x and CO) shall be regularly monitored at locations of nearest human habitation including schools and other public amenities located nearest to source of the dust generation as applicable. 4. Emissions from vehicles as well as heavy machinery should be kept under control and regularly monitored. Measures should be taken for regular maintenance of vehicles used in mining operations and in transportation of mineral. 	1.

	<p>5. The vehicles shall be covered with a tarpaulin and should not be overloaded. Possibility of closed container trucks should be explored for direct to destination movement of iron ore. Air quality monitoring at one location should also be carried out along the transport route within the mine (periodically near truck entry and exit gate) Responsibility: Individual mine lease holders and SPCB</p>	
19.	<p>Noise and Vibration related: Project Proponent shall implement the following mitigation measures:</p> <ol style="list-style-type: none"> 1. Blasting operation should be carried out only during daytime. Controlled blasting such as Nonel, should be practiced. The mitigation measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented. 2. Appropriate 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. 3. Noise levels should be monitored regularly (on weekly basis) near the major sources of noise generation within the core zone. Date, time and distance of measurement also be indicated with the noise levels in the report. The data should be used to map the noise generation from different activities and efforts should be made to maintain the noise levels with the acceptable levels of CPCB (CPCB, 2000) 4. Vibration at various sensitive locations should be monitored at least once in a month and mapped for any significant changes due to successive mining operations. Responsibility: Individual mine lease holders 	<ol style="list-style-type: none"> 1. Blasting operations conducted only in day time. Controlled blasting technique is adopted to mitigate ground vibrations and arrest fly rocks. 2. Workers are provided with ear plugs in their PPE kit to control, noise that can affect human environment 3. Noise zone is monitored regular basis in Core and Buffer Zone. 4. Ground vibrations also monitored regularly during blasting record is maintained.
20.	<p>Water/wastewater related: Project Proponent shall implement the following mitigation measures:</p> <ol style="list-style-type: none"> 1. Mining operations should be restricted to above ground water table, and it should not intersect groundwater table. If enough resources are estimated below the ground water table, the same may be explored after conducting detailed geological studies by GSI and hydrogeological studies by CGWB or NIH or Institute of National repute and ensuring that no damage to the land stability/water aquifer system shall happen. The details/outcome of such study may be reflected/incorporated in the EIA/EMP report of the mine appropriately. 2. Natural watercourse and /or water resources 	<ol style="list-style-type: none"> 1. As per hydrogeological report the Depth to water at pre-monsoon is at 507 m but we are currently working at BL of 511 m/ There is no seepage 2. Natural water course exist with in the lease and water resources is not obstructed due to mining operations. Regular monitoring of upstream and downstream is done at karo river stream 3. Regular monitoring of

<p>should not be obstructed due to any mining operations. Regular monitoring of the flow rate of the springs and perennial nallas should be carried out and records should be maintained. Regular monitoring of water quality of nallas and river passing through the mine lease area (upstream and downstream locations) should be carried out on monthly basis.</p> <ol style="list-style-type: none"> 3. Regular monitoring of ground water level and its quality should be carried out within the mine lease area by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out on monthly basis. 4. To optimize water requirement, suitable conservation measures to augment ground water resources in the area should be undertaken in consultation with Central Ground Water Board (CGWB) 5. Suitable rainwater harvesting measures on long term basis should be planned and implemented in consultation with CGWB, to recharge the ground water source. CGWB can prepare a comprehensive plan for the whole region. 6. Appropriate mitigation measures (viz. ETP, STP, garland drains, retaining walls, collection of runoff etc.) should be taken to prevent pollution of nearby river/other water bodies. Water quality monitoring study should be conducted by State Pollution Control Board to ensure quality of surface and ground water sources on regular basis. The study can be conducted through NABL/NABET approved water testing laboratory. The report should be vetted by SPCB. 7. Industrial wastewater (workshop and wastewater from the mine) should be properly collected, treated in ETP to conform to the discharge standards applicable. 8. Oil and grease trap should be installed before discharge of workshop effluents. STP should be installed for the employees/colony, wherever applicable. 9. Mine lease holder should ensure that no silt originating due to mining activity is transported in the surface water course or any other water body. Appropriate measures for prevention and control of soil erosion and management of silt should be undertaken. Quantity of silt/soil generated should be measured on regular basis for its better utilization. 	<p>ground water level is being carried out by piezometers – digital level recorder (piezometer), monitoring is done</p> <ol style="list-style-type: none"> 4. A suitable ground water conservation are followed like harvesting rain water in unused pits and part of its getting recharged 5. Suitable all rainwater diverted in to unused mine pits, harvesting measures on long term basis will be planned and implemented in consultation with CGWB, to recharge the ground water source. CGWB can prepare a comprehensive plan for the whole region. 6. STP installation is completed and it is operational as the current workshop is planned to be shifted outside mine lease ETP will not be required, Water quality reported are submitted to Pollution Control Board six month once 7. Industrial Effluents sources are wheel wash areas which is planned to shift outside the mine lease 8. Oil and grease will be required for ETP alone 9. Ensured that no silt originating due to mining activity is transported in the surface water course or any other water body as the silt is also a material it is been processed 10. Waste dump is protected by providing plantation.
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	<p>10. Erosion from dumps site should be protected by providing geo-textile matting or other suitable material, and thick plantation of native trees and shrubs should be carried out at the dump slopes. Dumps should be protected by retaining walls.</p> <p>11. Trenches/garland drains should be constructed at the foot of dumps to arrest silt from being carried to water bodies. Adequate number of check dams should be constructed across seasonal/perennial nallahs (if any) flowing through the mine lease areas and silt be arrested. De-silting at regular intervals should be carried out and quantity should be recorded for its better utilization, after proper soil quality analysis.</p> <p>12. The water so collected in the reservoir within the mine should be utilized for the sprinkling on haul roads, green belt development.</p> <p>13. There should be zero wastewater discharge from the mine. Based on actual water withdrawal and consumption/utilization in different activities, water balance diagram should be prepared on monthly basis and efforts should be made to optimize consumption of water per ton of ore production in successive years.</p> <p>Responsibility: Individual mine lease holders, SPCB and CGWB</p>	<p>Retaining wall is constructed along the toe of dump. As there is no dump finalized geo-textile s not planned when the dumps are finalized will be done</p> <p>11. Trenches/garland drains constructed at the foot of dumps to arrest silt from being carried to water bodies.</p> <p>12. Mine accumulated water is used for water sprinkling purpose.</p> <p>13. There is zero waste water discharge as the water discharged from mine pits is passed through series of settling ponds and then discharged</p>
<p>21.</p>	<p>Land/soil/overburden related: Project Proponent shall implement the following mitigation measures:</p> <ol style="list-style-type: none"> 1. The topsoil should be temporarily stored at earmarked site(s) only and it should not be kept unutilized for long (not more than 3 years or as per provisions mentioned in the mine plan/scheme). The topsoil should be used for land reclamation and plantation appropriately. 2. Fodder plots should be developed in the non-mineralised area in lieu of use of grazing land, if any. 3. Overburden/low grade ore should be stacked at earmarked dump site(s) only and should not be kept active for long period. The dump height should be decided on case-to-case basis, depending on the size of the mine and quantity of waste material generated. However, slope stability study should be conducted for larger heights, as per IBM approved mine plan and DGMS guidelines. The OB dump should be scientifically vegetated with suitable native species to prevent erosion and surface run-off. 	<ol style="list-style-type: none"> 1. Top soil not available in mine as all the area are already mined by previous lease 2. There is no non mineralized area in the mine lease 3. Overburden is dumped on the active dumps and slope stability is conducted every month. The Ob dumps will be scientifically vegetated by using geo-textiles once the dump in finalized 4. Garland drains and settling ponds are constructed to arrest silt and sediment, Drains are constructed for mine pit, dumps etc and before

	<p>In critical areas, use of geo-textiles should be taken for stabilization of dump. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Proper records should be maintained regarding species, their growth, area coverage etc.</p> <ol style="list-style-type: none"> 4. Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine operation, soil, OB and mineral dumps. The water so collected can be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly de-silted, particularly after monsoon and should be maintained properly. Appropriate documents should be maintained. Garland drains of appropriate size, gradient and length should be constructed for mine pit, soil, OB and mineral dumps and sump capacity should be designed with appropriate safety margin based on long term rainfall data. Sump capacity should be provided for adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and de-silted at regular intervals. 5. Backfilling should be done as per approved mining plan/scheme. There should be no OB dumps outside the mine lease area. The backfilled area should be afforested, aiming to restore the normal ground level. Monitoring and management of rehabilitated areas should continue till the vegetation is established and becomes self-generating. 6. Hazardous waste such as waste oil, lubricants, resin, and coal tar etc. should be disposed of as per provisions of Hazardous Waste Management Rules, 2016, as amended from time to time. Responsibility: Individual mine lease holders 	<p>monsoon</p> <ol style="list-style-type: none"> 5. Backfilling will be done as per approved mining plan/scheme. There is no OB dumps outside the mine lease area. The backfilled area will be afforested, aiming to restore the normal ground level as there is no backfilling area during the reporting period 6. Hazardous waste such as. Used oil generated is disposed of as per provisions of Hazardous Waste Management Rules, 2016,
22.	<p>Ecology/Biodiversity (Flora-Fauna) Related: Project Proponent shall implement the following mitigation measures:</p> <ol style="list-style-type: none"> 1. All precautionary measures should be taken during mining operation for conservation and protection of endangered fauna namely elephant, sloth bear etc. spotted in the study area. Action plan for conservation of flora and fauna should be prepared and implemented in consultation with the State Forest and Wildlife Department within the mine lease area, whereas outside the mine lease area, the same should be 	<ol style="list-style-type: none"> 1. Projects are taken as per Biodiversity Management plan. However, a site specific conservation plan was submitted by previous lessee 2. Plantation is done within the lease to promote biodiversity according to mining plan yearly plantation is carried out,

<p>maintained by State Forest Department.</p> <p>2. Afforestation is to be done by using local and mixed species saplings within and outside the mining lease area. The reclamation and afforestation are to be done in such a manner like exploring the growth of fruit bearing trees which will attract the fauna and thus maintaining the biodiversity of the area. As afforestation done so far is very less, forest department needs to identify adequate land and do afforestation by involving local people in a time bound manner.</p> <p>3. Green Belt development carried out by mines should be monitored regularly in every season and parameters like area under vegetation/plantation, type of plantation, type of tree species/grass species/scrubs etc., distance between the plants and survival rate should be recorded.</p> <p>4. Green Belt is an important sink of air pollutants including noise, development of green cover in mining area will not only help reducing air and noise pollution but also will help improve the ecological conditions and prevent soil erosion to a greater extent. Further, selection of tree species for green belt should constitute dust removal/dust capturing plants since plants can act as efficient biological filters removing significant amounts of particulate pollution. Thus, the identified native trees in the mine area maybe encouraged for plantation. Tree species have small leaf area, dense hair on leaf surface (rough surface), deep channels on leaves should be included for plantation.</p> <p>5. Vetiver plantation on inactive dumps may be encouraged as the grass species has high strength of anchoring besides medicinal value.</p> <p>6. Details of compensatory afforestation done should be recorded and documented by respective forest divisions, and State Forest Department should present mine-wise annual status, along with mine-wise annual status, along with expenditure details. Responsibility: Individual mine lease holders and State Forest & Wildlife Department.</p>	<p>local species like Jamun and medicinal values species like Neem etc are planted</p> <p>3. Green belt is monitored regularly based on survival rate</p> <p>4. Green belt is done in inactive dumps and also planned further when the dumps gets finalized and also plantation is done at safety zones that act as barrier for noise, light and reduce emission</p> <p>5. As dumps are not finalized dumps are in working stage once finalized it will be complied</p> <p>6. Full co-operation is given to Forest division</p>
<p>23. Socio-economic related: Project Proponent shall implement the following mitigation measures:</p> <p>i) Public interaction should be done on regular basis and social welfare activities should be done to meet the requirements of the local communities. Further, basic amenities and infrastructure facilities like education, medical, roads, safe drinking water, sanitation, employment, skill development, training institute, etc should be developed to alleviate the quality of life of the people of the region.</p> <p>ii) Land outtees and land losers/affected people, if any,</p>	<p>1. Being complied. For holistic community development, various community development initiatives such as health care support, children wellbeing & education, Water & Sanitation, Skilling & Livelihood initiatives, community asset creation etc has been carried out,from</p>

	<p>should be compensated and rehabilitated as per the national/state policy on Resettlement and Rehabilitation.</p> <p>iii) The socio-economic development in the region should be focused and aligned with the guidelines/initiatives of Govt. Of India/NITI Aayog around prosperity, equality, justice, cleanliness, transparency, employment, respect to women, hope, etc. This can be achieved by providing adequate and quality facilities for education, medical and developing skills in the people of the region. District administration in association with mine lease holders should plan for “Samagra Vikas” of these blocks as well as other blocks of the district. While planning for different schemes in the region, the activities should be prioritized as per Pradhan Mantri Khanij Kshetra Kalyan Yojna (PMKKKY) notified by Ministry of Mines, Govt. Of India, vide letter no. 16/7/2017-M.VI (Part), dated September 16, 2015. Responsibility: District Administration and Individual Mine Lease Holders</p>	<p>since operation of the mines. Need based assessment survey has been completed and action plan is under implementation for community upliftment.</p> <p>2. Not applicable as there is no affected people of land losers so compensation was not required</p> <p>3. Complied as per the statutory guidelines.</p>
24.	<p>Road Transport Related: Project Proponent shall implement the following mitigation measures:</p> <p>i) All the mine lease holders should follow the suggested ore transport mode (SOTM), based on its EC capacity within next 5 years.</p> <p>ii) The mine lease holders should ensure construction of cement road of appropriate width from and to the entry and exit gate of the mine. Further, maintenance of all the roads should be carried out as per requirement to ensure dust free road transport.</p> <p>iii) Transportation of ore should be done by covering the trucks with tarpaulin or other suitable mechanism so that no spillage of ore/dust takes place. Further, air quality in terms of dust, PM10 should be monitored near the roads towards entry and exit gate on regular basis and be maintained within acceptable limits. Responsibility: Individual Mine Lease Holders and Dept. of Steel and Mines</p>	<p>1) There is no rail capacity hence we have to depend on Road Transport for most volumes. Out of entire capacity of dispatch 15 % is rail transport and rest is road transport</p> <p>2) Construction of Cement road is done at the exit gate of the mine maintenance of the road is done by sprinkling water for dust suppression</p> <p>3) Transportation of ore is done by truck covered by tarpaulin and Ambient Air monitoring is done ta exit gate</p>
25.	<p>Occupational Health Related: Project Proponent shall implement the following mitigation measures:</p> <p>i) Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects periodically.</p> <p>ii) Occupational health surveillance program for all the employees/workers (including casual workers) should</p>	<p>1. Personnel working in the mine are provided protective respiratory devices and are made educated on safety and health aspects periodically by in house training.</p> <p>2. OHS programme of the</p>

<p>be undertaken periodically (on annual basis) to observe any changes due to exposure to dust, and corrective measures should be taken immediately, if needed.</p> <p>iii) Occupational health and safety measures related awareness programs including identification of work-related health hazard, training on malaria eradication, HIV and health effects on exposure to mineral dust, etc should be carried out for all the workers on regular basis. A full-time qualified doctor should be engaged for the purpose. Periodic monitoring (on 6 monthly basis) for exposure to respirable minerals dust on the workers should be conducted and record should be maintained, including health record of all the workers. Review of impact of various health measures undertaken (at an interval of 3 years or less) should be conducted followed by follow-up of actions, wherever required. Occupational health centre should be established near mine site itself. Responsibility: Individual mine lease holders and District Administration (District Medical Officer)</p>	<p>workers are undertaken periodically by team of professional doctors engaged.</p> <p>3. Periodical health monitoring is done by doctor through conducting health camps every month. Dispensary was set up with qualified doctor and paramedical staff</p>
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Sr. No.	Standard Conditions	Status
I.	<u>Statutory Compliance</u>	
1)	This Environment Clearance (EC) is subject to orders/judgement of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.	Implemented by Govt of Odisha
2)	This EC is valid upto 31.03.2071 as the lease validity is valid upto 31 st March 2071 as per the Ammended MMDR Act, 2015	Noted it will be complied
3)	The Project Proponent complies with all the statutory requirements and judgement of Hon'ble Supreme Court dated August 2 nd , 2017, in Writ Petition (Civil) no. 114 of 2014 in matter of Common Cause versus Union of India and Ors. before commencing the mining operations.	Complied and all the statutory documents are renewed on timely basis
4)	The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining and Geology in strict compliance of Judgement of Hon'ble Supreme Court dated 2 nd August 2017 in Writ Petition (Civil) no. 114 of 2014 in matter of Common Cause versus Union of India and Ors.	The mining operation does not have any compensation and hence mining operation is started
5)	This Environmental Clearance shall become operational only after receiving formal NBWL Clearance from MoEF&CC after the recommendations of the Standing Committee of National Board for	Complied by the lessee

	Wildlife, if applicable to the Project.	
6)	This Environmental Clearance shall become operational only after receiving formal Forest Clearance (FC) under the provision of Forest Conservation Act, 1980, if applicable to the project.	Complied by the lessee
7)	Project Proponent (PP) shall obtain Consent to Operate after Grant of EC and effectively implement all the conditions stipulated therein. The mining activity shall not commence prior to obtaining Consent to Establish/Consent to Operate from the concerned State Pollution Control Board/ Committee.	CTO obtained by the PP
8)	The PP shall adhere to the provision of the Mines Act, 1952, Mines and Mineral (Development and Regulation), Act, 2015 and rules & regulations made there under. PP shall adhere to various circulars issued by Directorate General Mines Safety (DGMS) and Indian Bureau of Mines from time to time.	Mines Act and MMDR act is adhered and various circulars issued by Directorate General Mines Safety (DGMS) and Indian Bureau of Mines from time to time.
9)	The Project Proponent shall obtain consents from all the concerned landowners, before start of mining operations, as per the provisions of MMDR Act, 1957 and rules made there under in respect of lands which are not owned by it.	The mine was got from auction hence there is no concerned landowner vesting order is there
10)	The Project Proponent shall follow the mitigation measures provided in MoEFCC's Office Memorandum No. Z-11013/57/2014-IA.II (M), dated 29 th October, 2014, titled "Impact of Mining activities on Habitations- Issues related to the Mining Projects wherein Habitations and villages are the part of mine lease areas in Habitations and villages are surrounded by the mine lease area."	According to the memorandum best mining practices are adopted as per approved mining plan, no water bodies are not disturbed, illuminance and noise level are within the limit during night hours, during blasting vibration study is made as there is no permanent haul road it is not feasible for fixed water sprinklers instead mobile water tankers are used, transportation is carried on bypass roads
11)	The Project Proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water and from CGWA for withdrawal of ground water for the project.	Permission from CGWA in under process, applied for renewal
12)	A copy of EC letter will be marked to concerned Panchayat/local NGO etc. if any, from whom suggestion/representation has been received while processing the proposal.	Complied by the previous lease
13)	State Pollution Control Board/Committee shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collector's office /Tehsildar's Office for 30 days	Complied by the state govt
14)	The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue	Complied by previous lease

	of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board/Committee and website of the Ministry of Environment, Forest and Climate Change (www.parivesh.nic.in). A copy of the advertisement may be forwarded to the concerned MoEFCC Regional Office for compliance and record.	
15)	PP shall inform the MoEF&CC for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred than mining operation shall only be carried out after transfer of EC as per provisions of the para 11 of EIA notification, 2006 as amended from time to time.	As we are operating with the vesting order Change of ownership is in progress
II.	<u>Air quality monitoring and preservation</u>	
16)	The Project Proponent shall install a minimum of 3 online Ambient Air Quality Monitoring Stations with 1 in upwind and 2 in downwind direction based on long term climatological data about wind direction such that an angle of 120 degrees is made between the monitoring locations to monitor critical parameters, relevant for mining operations, of air pollution viz. PM10, PM2.5, NO2, CO and SO2 etc. as per the methodology mentioned in NAAQS Notification No. B-29016/20/90/PCI/I dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main gate of the mine site.	Since presently the mine is producing less than 3 MPTA iron ore per annum, we are carry out ambient air monitoring through manual sampling mode. As per renewed CTO recommendation one CAAQMS is enough for the mine. CAAQMS installation on process and it will completed in FY 24-25
17)	Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. The fugitive dust emissions from all sources shall be regularly controlled by installation of required equipment/machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured air pollution level conform to the standards prescribed by the MoEFF/Central Pollution Control Board.	For prevention of dust generation and subsequent suppression water sprinkling is be carried out in areas prone to air pollution where in high level of pm10 and pm 2.5 are evident and dry mist canon system in installed dry fog system is also installed to reduce water consumption with dust suppression
III.	<u>Water quality monitoring and preservation</u>	
18)	In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case,	As per hydrogeological report the Depth to water at pre-monsoon is at 507 m but we are currently working at BL of 511 m/ There is no seepage

	mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEFCC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydrogeological study of the area.	
19)	Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintained. The natural waterbodies 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 PP has to provide water to the villagers for their use. A provision for regular monitoring of water table in open dug wall located in village should be incorporated to ascertain the impact of mining over ground water table. The Report on changes in Ground Water level and quality shall be submitted on 6-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department/State Pollution Control Board.	The natural water bodies or streams are not disturbed. The ground water table is monitored by Digital water level recorder (piezometer). Till now there is no water scarcity recorded in the area
20)	The Project Proponent shall regularly monitor and maintain records wrt ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezometer installations during the mining operations in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on 6-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department/ State Pollution Control Board.	Complied as per CGWA conditions. The ground water level is recorded by Digital water level recorder (piezometers) system inside the mine premises
21)	The PP shall undertake regular monitoring of natural water course/water resources/springs and perennial nallahs existing/flowing in and around the mine lease and maintain its records. The project proponent shall undertake regular monitoring of water quality upstream and downstream of water bodies passing within and nearby/adjacent to the mine lease and maintain its records. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. PP shall carry out regular monitoring wrt pH and include their water quality vis-à-vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and/or alteration be made to water bodies during mining operations without justification and prior approval of MoEFCC. The monitoring of water courses/bodies existing in lease area shall be carried out four times in a year viz. pre monsoon (April-May), monsoon	The Karo river water at upstream and downstream is monitored on monthly basis and reports are attached as per Annexure 1 as Karo river is adjacent to the mine and ground water is also monitored monthly once as per CPCB guidelines

	(August), post-monsoon (November) and winter (January) and the record of monitored data may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on 6-monthly basis.	
22)	Quality of polluted water generated from mining operations which include Chemical Oxygen Demand (COD) in mines run-off; acid mine drainage and metal contamination in runoff shall be monitored along with Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular no. J-20012/1/2000-IA.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred in this regard.	Maintained and water quality monitored regularly, TSS, TDS, pH, COD, BOD and other parameters are monitored Monitoring data also shared SPCB and MOEFCC.
23)	Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment groundwater resources in the area in consultation with Central Ground Water Board/State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office MoEFCC annually.	Existing non-working pits are used as a Rainwater harvesting measures to recharge the ground water.
24)	Industrial wastewater (workshop and wastewater from the mine) should be properly collected and treated so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through CTO and issued by SPCB. The workshop effluent shall be treated after its initial passage through oil and grease trap.	Industrial workshop which was previously inside the mine lease is planned to shift outside the lease
25)	The water balance/water auditing shall be carried out and measured for reducing the consumption of water shall be taken up and reported to the Regional Office of the MoEFF&CC and State Pollution Control Board/Committee.	Action plan and taken for reducing water consumption, monthly MIS is tracked for water consumption
IV.	<u>Noise and vibration monitoring and prevention</u>	
26)	The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines	PPV at a 500m distance or within the nearest habitation is maintained as per DGMS Guideline.
27)	The illumination and sound at night at project sites disturb the villages in respect to both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not	Complied as per DGMS standard and noise monitoring is done monthly once the value is under the limit prescribed by SPCB/ All the lights which are installed in the mine are focused towards working mine pit hence it does not reach to the village

	disturbed; by orienting the floodlights/masks away from the villagers and keeping the noise levels well within the prescribed limits for day/night hours.	side
28)	The PP shall take measures for control of noise levels below 85 dbA in the work environment. The workers engaged in operations of HEMM, etc should be provided with ear plugs/muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/personnels/labourers are working without personal protective equipment.	Necessary precautions is in place to prevent the noise pollution, workers are provided with ear plugs in PPE kit and also saplings are planted in safety zone area as a barrier
V.	<u>Mining Plan</u>	
29)	PP shall adhere to the working parameters of mining plan which was submitted at the time of EC appraisal wherein year-wise plan was mentioned for total excavation i.e. quantum of mineral, waste, overburden, interburden and topsoil, etc. No change in basic mining proposal like mining technology, total excavation, mineral and waste production, lease area and scope of working, viz. method of mining, overburden and dump management, OB and dump mining, mineral transportation mode, ultimate depth of mining etc.) shall not be carried out without prior approval of Ministry of Environment, Forest and Climate Change, which entail adverse environmental impacts, even if it is a part of approved mining plan modified after grant of EC or granted by State Govt. in the form to Short Term Permit (STP), Query license or any other name.	Complied as per Approved Mining Plan issued by the IBM, Bhubaneswar. No change has been made in bais mining proposal like mining technology, excavation, waste production
30)	The PP shall get the Final Mine Closure Plan along with Financial Assurance approved from Indian Bureau of Mines/ Department of Mining and Geology as required under the provision of the MMDR Act, 1957 and Rules/Guidelines made there under. A copy of approved mine closure plan shall be submitted within 2 months of the approval of the same from the competent authority to the Regional Office of the Ministry of Environment, Forest and Climate Change for record and verification.	Will be complied during mine closure as per Approved Mining Plan issued by the IBM, Bhubaneswar under the provision of MMDR ACT 1957
31)	The land use of the mine lease area at various stages of mining scheme as well as the end of life shall be governed as per the approved Mining Plan. The excavation vis-à-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self-sustaining. The compliance status shall be submitted half-yearly to the MoEFCC and its concerned Regional Office.	The land use of the mine lease area at various stages of mining scheme as well as the end of life is governed as per the approved Mining Plan. The excavation vis-à-vis backfilling in the mine lease area and corresponding afforestation is raised in the reclaimed area is governed as per approved mining plan.

32)	The O.B. generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS wrt safety in mining operations shall be strictly adhered to maintain the stability of topsoil/OB dumps. The topsoil shall be used for land reclamation and plantation.	The O.B. generated during the mining operations is stacked at OB dump. The physical parameters of the OB dumps like height, width and angle of slope is governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS wrt safety in mining operations is adhered to maintain the stability of OB dumps.
33)	The reject/waste generated during the mining operations shall be stacked at earmarked waste dump site(s) only. The physical parameters of the waste dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.	The waste / reject generated is stacked at waste dump and physical parameter like height, width and angle of slope is maintained as per DGMS
34)	The reclamation of waste dump sites shall be done in scientific manner as per the Approved Mining Plan cum Progressive Mine Closure Plan	As the dumps are not finalized they are active dumps hence it is on process
35)	The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozers/compactors thereby ensuring proper filling/levelling of dump mass. In critical areas, use of geo textiles/geo membranes/ clay liners/ bentonite etc. shall be undertaken for stabilization of the dump.	As the dumps are not finalized they are active dumps once it is not finalized it will be vegetated in scientific manner of local species, once the dumps are not finalized laying of geo-textile will be done
36)	The PP shall carry out slope stability study in case the dump height is more than 30 m. The slope stability report shall be submitted to concerned regional office of MoEF&CC.	Slope stability test is conducted every month and it is reported
37)	Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mine yards and topsoil/OB/waste dumps to prevent runoff of water and flow of sediments directly into the water bodies (nallah/river/pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/sedimentation sumps etc. shall be desilted regularly, particularly after monsoon season, and maintained properly.	Settling ponds and check dams are constructed along with retaining wall at toe of dump and garland drain at benches to prevent run off water and collected in pits to be reused
38)	Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining	Check dams are in place and every pre-monsoon the check dam, settling ponds are disilted and maintained

	water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time thereby allowing proper settling of sediments/silt material. The sedimentation pits/sumps shall be constructed at the corners of the garland drains.	regularly
39)	The topsoil, if any, shall temporarily be stored at earmarked site(s) within the mine lease only and should not be kept unutilized for long. The physical parameters of the topsoil dumps like height, width and angle of slope shall be governed as per the approved Mining Plan and as per the guidelines framed by DGMS wrt safety in mining operations shall be strictly adhered to maintain the stability of dumps. The topsoil shall be used for land reclamation and plantation purpose.	As there is no top soil because it is a brownfield mine as the top soil is handled by previous lease
VII.	<u>Transportation</u>	
40)	No transportation of the minerals shall be allowed in case of roads passing through villages/habitations. In such cases, PP shall construct a 'bypass' road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 m) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with Nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers.	Transportation of mineral is done on bypass roads there is no roads passing through village / habitations. Vehicular emissions is kept under control and regularly monitored of Pollution Under Control (PUC) certificate and also water sprinkling is done in mine and exit gate for dust suppression
41)	The main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards, etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be	As there is no permanent haul road in the mine it is not feasible for fixed haul sprinklers, water is sprinkled via mobile tankers and areas like crushing plants are provided with sprinkling system

	installed at crushers, belt conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.	
VIII.	<u>Green Belt</u>	
42)	The Project Proponent shall develop Green Belt in 7.5m wide safety zone all along. The mine lease boundary as per the guidelines of CPCB to arrest pollution emanating from mining operations within the lease. The whole green belt shall be developed within first 5 years starting from windward side of the active mining area. The development of green belt shall be governed as per the EC granted by the Ministry irrespective of the stimulation made in approved mine plan.	The Project Proponent has already developed Green Belt in 7.5m wide safety zone all along the lease.
43)	The PP shall carryout plantation/afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department/Agriculture Department/ Rural Development department/ Tribal welfare department/ Gram Panchayat such that only those species be selected which are of use to the local people. The CPCB guidelines in this regard shall also be adhered. The density of the trees should be around 2500 saplings per Ha. Adequate budgetary provision shall be made for protection and care of trees.	Plantation and afforestation proposal conducted as per Approved Mining Plan and CTO conditions in mining lease area, along the roadside of community and density is also maintained
44)	The PP shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Govt. In this regard, the PP should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded/protected against felling and plantation of such trees should be promoted.	There was no gazing land that was in the mine lease if any is instructed from State Government co-operation will be provided
45)	The PP shall undertake all precautionary measures for conservation and protection of endangered flora and fauna and Schedule-I species during mining operation. A wildlife conservation plan shall be prepared for the same clearly delineating action to be taken for conservation of flora and fauna. The Plan shall be approved by Chief Wild Life warden of the State Govt.	Will take necessary precautions to preserve the endangered flora and fauna and schedule-I species during mining operations.
46)	And implemented in consultation with the State Forest and Wildlife Department. A copy of wildlife conservation plan and its implementation status (annual) shall be submitted to the Regional Office of	Submitted by the earlier lessee.

	the Ministry.	
IX.	Public Hearing and Human Health Issues	
47)	The PP shall appoint an Occupational Health Specialist for Regular as well as Periodical medical examination of the workers engaged in the mining activities, as per the DGMS guidelines. The records shall be maintained properly. PP shall also carry out Occupational Health check-ups in respect of workers who have ailments like BP, diabetes, habitual smoking, etc. The check-ups shall be undertaken once in six months and necessary remedial/preventive measures be taken. A status report on the same day be sent to MoEFCC Regional Office and DGMS on half-early basis.	Appoint a doctor for Regular as well as Periodical medical examination of the workers engaged in the mining activities, as per the DGMS guidelines. The records is maintained properly also carried out Occupational Health check-ups in respect of workers by Health camps
48)	The PP must demonstrate commitment to work towards 'Zero Harm' from their mining activities and carry out HIRA for identification of workplace hazards and assess their potential risks to health and determine appropriate control measures to protect the health and wellbeing of workers and nearby community. The Proponent shall maintain accurate and systematic records of the HRA. The HRA for neighbourhood has to focus on public health problems like Malaria, Tuberculosis, HIV, Anaemia, Diarrhoea in children under 5 years, respiratory infections due to bio mass cooking. The Proponent shall also create awareness and educate the nearby community and workers for Sanitation, Personal Hygiene, Hand washing, not to defecate in open, Women health and hygiene (providing sanitary napkins), hazard of tobacco and alcohol use. The Proponent shall carryout baseline HRA for all the category of workers and thereafter every 5 years.	PP works towards zero harm by identification of various hazards of each and every activity by HIRA and their severity is analysed and action plan was made. HIRA for Occupational health which focuses on infections and activity that affect health. Awareness is created to nearby community on sanitation, Personal hygiene
49)	The Proponent shall carry out Occupational Health surveillance which be a part of HRA and include Biological monitoring where practical and feasible, and then the tests and investigations relevant to the exposure (e.g. for dust a X-Ray chest; for nose audiometric; for lead exposure blood lead; for welders full Ophthalmologic Assessment; for Manganese Miners a complete Neurological Assessment by a Certified Neurologist, and Manganese (Mn) Estimation in Blood; For Inorganic Chromium-Fortnightly skin infection of hands and forearms by a responsible person. Except routine tests, all tests would be carried out in a lab accredited by NABH. Records of Health Surveillance must be kept for 30 years, including results of physical examination and tests. The record of exposure due to materials like Asbestos, Hard Rock Mining, Silica, Gold, Kaolin, Aluminium, Iron, Manganese, Chromium, Lead, Uranium needs to be handed over to the Mining department of the State	Occupational health surveillance is done by health camps

	in case the life of the mine is less than 30 years. It would be obligatory for the State Mines Departments to decide for the safe and secure storage of the records including X-Ray. Only conventional X-Ray will be accepted for record purposes and not the digital one.) X-Ray must meet ILO criteria (17x14 inches and of good quality).	
X.	Corporate Environment Responsibility (CER)	
54)	The activities and budget earmarked for CER as per Ministry's O.M No. 22-65/2017-IA. II (M) dated 01.05.2018 or as proposed by EAC should be kept in a separate bank account. The activities proposed for CER shall be implemented in a time bound manner and annual report of implementation of the same along with documentary proof viz. photographs, purchase documents, latitude and longitude of infrastructure developed and road constructed needs to be submitted to Regional Office MoEF&CC annually along with audited statement.	Complied by the previous lessee
55)	PP shall keep the funds earmarked for environmental protection measures in a separate account and refrain from diverting the same for other purposes. The year wise expenditure of such funds should be reported to the MoEFCC and its concerned Regional Office.	Annual Budget kept for environmental protection measures and also tracking system in place to track the amount spent
XI.	Miscellaneous	
56)	The Project Proponent shall prepare digital map (land use and land cover) of the entire lease area once in 5 years purpose of monitoring land use pattern and submit a report to concerned regional office of the MOEF&CC.	complied
57)	The Project Authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	Will be complied when it will require.
58)	The PP shall submit 6 monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MoEF&CC and its concerned regional office, CPCB and SPCB.	Complied previous report was submitted on 12.12.2023
59)	A separate 'Environmental Management Cell' with suitable qualified manpower should be set-up under the control of a Senior Executive. The Senior Executive shall report directly to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEFCC.	Environmental management cell is already constructed by the site.
60)	The concerned Regional office of the MoEFCC shall randomly monitor compliance of the stipulated conditions. The Project authorities should extend full cooperation to the MoEFCC officer(s) by furnishing the requisite data/information/monitoring reports.	Noted full co-operation will be given to the authorities

Annexures:

1. Copy of Environmental monitoring report
2. Copy of vesting order



Digcare Mining Solutions Pvt. Ltd.

Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample No:	DMSPL/AA/NIO/01-08	Report No:	DMSPL/AA/BIC/2310/001-008
Name & Address of the Project:	M/v Nadidih Iron Ore Mines, Under ESL Steel Limited, (HCO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	1 st Oct. 2023 to 31 st Oct. 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Near Mine Office (A1)	Sample Condition:	Good/Clear
Latitude:	21° 58'09" N	Longitude:	85° 15'33" E

RESULTS

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
02.10.2023	75.3	31.4	17.9	33.2	0.47
03.10.2023	76.5	35.4	18.2	25.3	0.48
09.10.2023	69.4	36.7	19.3	37.3	0.63
10.10.2023	75.3	35.2	17.4	25.3	0.43
16.10.2023	68.3	36.2	18.5	27.2	0.46
17.10.2023	75.9	27.9	17.2	28.2	0.53
23.10.2023	76.2	35.8	18.3	22.9	0.52
24.10.2023	68.9	36.2	19.3	24.3	0.54
30.10.2023	75.2	39.3	18.3	22.1	0.52
31.10.2023	68.9	35.8	18.5	27.3	0.54

Limit as per NAAQS*	Parameter	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
	--	100	60	80	80	4
	Method of Analysis	IS 5182 (Part - 2A)	IS 5182 (Part - 2A)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

National Ambient Air Quality Standards.

End of Test Report



(Checked By)



(Approved By)

- Note: -
1. This report is not to be reproduced entirely or in part and cannot be used as evidence in the court of law
 2. This report should not be used in any advertising media without our special permission in writing.
 3. Sample will be destroyed after one week from the date of issue of test certificate.
 4. The results are related to the test items only.



Digcare Mining Solutions Pvt. Ltd.

Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample No:	DMSPL/AA/NIO/09-16	Report No:	DMSPL/AA/BIC/2310/009-016
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	1 st Oct. 2023 to 31 st Oct. 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Near Mines Gate (A2)	Sample Condition:	Good/Clear
Latitude:	21° 58' 23" N	Longitude:	85° 15' 44" E

RESULTS

Date	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)
02.10.2023	86.9	45.5	19.8	32.5	0.72
03.10.2023	84.7	45.2	18.7	28.4	0.95
09.10.2023	86.2	38.3	16.9	25.7	0.88
10.10.2023	76.9	45.4	17.3	32.5	0.84
16.10.2023	81.4	37.3	19.2	25.6	0.90
17.10.2023	84.5	47.4	15.6	24.5	0.93
23.10.2023	75.3	45.9	18.3	26.7	0.90
24.10.2023	81.4	37.1	17.5	25.7	0.93
30.10.2023	85.0	39.6	18.3	25.9	0.98
31.10.2023	86.7	47.6	16.8	24.6	0.91

Limit as per NAAQS*	Parameter	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)
	--	100	60	80	80	4
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

National Ambient Air Quality Standards.

End of Test Report



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ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample No:	DMSPL/AA/NIO/17-24	Report No:	DMSPL/AA/BIC/2310/017-024
Name & Address of the Project:	M/s Nalidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nalidih, PO - Koira Dist. Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	1 st Oct. 2023 to 31 st Oct. 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nalidih Iron Ore Mines
Location:	Village - Kendahtidi (A3)	Sample Condition:	Good/Clear
Latitude:	21° 59'45" N	Longitude:	85° 16'14" E

RESULTS

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
02.10.2023	75.7	43.2	9.4	17.5	0.73
03.10.2023	74.6	38.5	8.2	16.4	0.85
09.10.2023	68.9	37.2	8.5	15.2	0.77
10.10.2023	75.2	36.4	8.7	19.5	0.82
16.10.2023	76.4	29.3	8.5	18.7	0.81
17.10.2023	65.8	28.0	7.8	17.5	0.79
23.10.2023	76.7	37.6	7.9	17.3	0.74
24.10.2023	68.9	38.8	9.7	19.7	0.82
30.10.2023	68.2	37.4	8.7	18.7	0.85
31.10.2023	78.5	36.8	8.6	18.6	0.79

Limit as per NAAQS*	Parameter	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
	--	100	60	80	80	4
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 8)	IS 5182 (Part - 10)

*National Ambient Air Quality Standards.

****End of Test Report****


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Test Report

Sample No:	DMSPL/AA/NIO/25-32	Report No:	DMSPL/AA/BIC/2310/025-032
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	1 st Oct. 2023 to 31 st Oct. 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Badijada (A4)	Sample Condition:	Good/Clear
Latitude:	21° 58'04" N	Longitude:	85° 18'33" E

RESULTS

Date	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m ³)
04.10.2023	57.3	24.5	5.5	10.7	0.32
05.10.2023	66.2	31.6	5.3	10.6	0.41
11.10.2023	56.5	25.3	5.4	11.6	0.39
12.10.2023	49.8	22.6	6.5	11.3	0.42
18.10.2023	56.5	28.8	5.6	11.1	0.44
19.10.2023	53.2	25.4	5.5	10.6	0.41
25.10.2023	55.6	24.4	6.8	11.5	0.43
26.10.2023	65.9	28.4	5.1	11.1	0.45

Limit as per NAAQS*	Parameter	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m ³)
	--	100	60	80	80	4
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

National Ambient Air Quality Standards.

End of Test Report

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Test Report

Sample No:	DMSPL/AA/NID/33-40	Report No:	DMSPL/AA/BIC/2310/033-040
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	1 st Oct. 2023 to 31 st Oct. 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Jhirapani (A5)	Sample Condition:	Good/Clear
Latitude:	21° 59'58" N	Longitude:	85° 13'10" E

RESULTS

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
04.10.2023	55.6	24.8	5.1	17.3	0.33
05.10.2023	64.6	25.7	7.2	11.6	0.43
11.10.2023	57.8	28.2	7.4	12.6	0.37
12.10.2023	65.7	29.5	5.3	11.5	0.33
18.10.2023	57.8	30.6	5.8	10.8	0.46
19.10.2023	54.3	28.2	7.4	10.5	0.43
25.10.2023	61.6	29.9	9.2	11.0	0.45
26.10.2023	58.9	30.9	5.6	11.4	0.42

Limit as per NAAQS*	Parameter	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
	--		100	60	80	80
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

National Ambient Air Quality Standards.

End of Test Report



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Test Report

Sample No:	DMSPL/AA/NIO/41-48	Report No:	DMSPL/AA/BIC/2310/041-048
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Kuiria Dist. Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	1 st Oct. 2023 to 31 st Oct. 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Kashiara (A6)	Sample Condition:	Good/Clear
Latitude:	21° 55'10" N	Longitude:	85° 45'20" E

RESULTS

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
04.10.2023	55.3	24.3	4.5	12.4	0.46
05.10.2023	57.9	28.3	4.8	10.3	0.42
11.10.2023	56.5	27.4	4.2	10.6	0.48
12.10.2023	62.1	25.6	4.5	10.8	0.43
18.10.2023	58.3	27.8	5.5	11.6	0.44
19.10.2023	64.2	28.2	4.1	11.3	0.50
25.10.2023	59.8	27.9	4.6	11.5	0.46
26.10.2023	55.7	29.2	5.1	10.3	0.49

Limit as per NAAQS*	Parameter	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
	--		100	60	80	80
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

National Ambient Air Quality Standards.

End of Test Report



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Test Report

Sample No:	DMSPL/AA/NIO/49-56	Report No:	DMSPL/AA/BIC/2310/049-056
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) / At Nadidih, PO - Kolra Distt. Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	1 st Oct. 2023 to 31 st Oct. 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Upwind Direction (A7)	Sample Condition:	Good/Clear
Latitude:	21° 58'14" N	Longitude:	85° 15'20" E

RESULTS

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
06.10.2023	56.3	44.8	16.7	25.8	0.61
07.10.2023	64.2	47.3	15.2	25.4	0.63
13.10.2023	67.4	43.9	16.6	35.5	0.64
14.10.2023	74.3	42.8	18.4	23.6	0.62
20.10.2023	62.8	46.5	15.5	33.2	0.64
21.10.2023	71.9	45.1	18.2	29.6	0.71
27.10.2023	67.5	48.6	17.7	28.4	0.68
28.10.2023	63.9	46.4	17.9	25.6	0.63

Limit as per NAAQS*	Parameter	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
	--	100	60	80	80	4
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

National Ambient Air Quality Standards.

End of Test Report



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Test Report

Sample No:	DMSPL/AA/NIO/57-64	Report No:	DMSPL/AA/BIC/2310/057-064
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	1 st Oct. 2023 to 31 st Oct. 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Downwind Direction (AS)	Sample Condition:	Good/Clear
Latitude:	21° 57'19" N	Longitude:	85° 13'34" E

RESULTS

Date	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)
06.10.2023	55.9	26.4	7.2	15.3	0.52
07.10.2023	64.2	25.4	7.1	16.4	0.51
13.10.2023	59.3	31.3	7.5	16.8	0.56
14.10.2023	66.4	27.9	8.1	15.9	0.56
20.10.2023	59.5	30.4	8.5	18.1	0.52
21.10.2023	56.3	27.4	9.0	17.4	0.56
27.10.2023	61.3	21.4	6.5	18.1	0.55
28.10.2023	53.4	26.4	8.5	17.3	0.51

Limit as per NAAQS*	Parameter	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)
	--	100	60	80	80	4
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

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End of Test Report



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Test Report

Sample No:	DMSPL/AA/NIOM/01	Report No:	DMSPL/AAM/BICO/2310/001
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Kaira Distt. Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	October 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Near Mine Office (A1)	Sample Condition:	Good/Clear
Latitude:	21° 58'09" N	Longitude:	85° 15'33" E

RESULTS

Date of Sample	Ozone (ng/m ³)	Ammonia (ng/m ³)	Lead (ng/m ³)	Nickel (ng/m ³)	Arsenic (ng/m ³)	Benzene (ng/m ³)	Benzo(a)pyrene (ng/m ³)
04.10.2023	21.2	31.5	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone (ng/m ³)	Ammonia (ng/m ³)	Lead (ng/m ³)	Nickel (ng/m ³)	Arsenic (ng/m ³)	Benzene (ng/m ³)	Benzo(a)pyrene (ng/m ³)
	--	180	400	1	20	6	5	1
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

*National Ambient Air Quality Standards.

End of Test Report

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Test Report

Sample No:	DMSPL/AA/NIOM/02	Report No:	DMSPL/AAM/BICO/2310/002
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESU Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	October 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Near Mines Gate (A2)	Sample Condition:	Good/Clear
Latitude:	21° 58'23" N	Longitude:	85° 15'44" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead (ng/m^3)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
11.10.2023	10.5	30.6	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead (ng/m^3)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
	--	180	400	1	20	6	5	1
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

*National Ambient Air Quality Standards.

End of Test Report

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Test Report

Sample No:	DMSPL/AA/NIOM/3	Report No:	DMSPL/AAM/BICO/2310/003
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sunbargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	October 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village - Kenduhidi (A3)	Sample Condition:	Good/Clear
Latitude:	21° 59'45" N	Longitude:	85° 16'14" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
19.10.2023	18.3	31.2	<0.05	<0.05	<0.50	<5.0	<1.0

	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
Limit as per NAAQS*	—	180	400	1	20	6	5	1
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

*National Ambient Air Quality Standards.

End of Test Report

(Checked By)

(Approved By)

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Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample No:	DMSPL/AA/NIOM/4	Report No:	DMSPL/AAM/BICO/2310/004
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	October 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Badipada (A4)	Sample Condition:	Good/Clear
Latitude:	21° 58'04" N	Longitude:	85° 18'33" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
07.10.2023	19.2	34.6	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
		–	180	400	1	20	6	5
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

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Test Report

Sample No:	DMSPL/AA/NIOM/5	Report No:	DMSPL/AAM/BCO/2310/005
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	October 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Jhirapani (A5)	Sample Condition:	Good/Clear
Latitude:	21° 59'58" N	Longitude:	85° 13'10" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
14.10.2023	22.5	35.0	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
	--	180	400	1	20	6	5	1
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

*National Ambient Air Quality Standards.

End of Test Report


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Test Report

Sample No:	DMSPL/AA/NIOM/6	Report No:	DMSPL/AAM/BICO/2310/006
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sandargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	Nil.
		Monitoring Period:	October 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Kashira (A6)	Sample Condition:	Good/Clear
Latitude:	21° 55' 10" N	Longitude:	85° 15' 20" E

RESULTS

Date of Sample	Ozone (µg/m ³)	Ammonia (µg/m ³)	Lead (µg/m ³)	Nickel (ng/m ³)	Arsenic (ng/m ³)	Benzene (µg/m ³)	Benzo(a)pyrene (ng/m ³)
21.10.2023	21.6	33.4	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone (µg/m ³)	Ammonia (µg/m ³)	Lead (µg/m ³)	Nickel (ng/m ³)	Arsenic (ng/m ³)	Benzene (µg/m ³)	Benzo(a)pyrene (ng/m ³)
			180	400	1	20	6	5
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

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Test Report

Sample No:	DMSPL/AA/NIOM/7	Report No:	DMSPL/AAM/BICO/2310/007
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	October 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Upwind Direction (A7)	Sample Condition:	Good/Clear
Latitude:	21° 58'14" N	Longitude:	85° 15'20" E

RESULTS

Date of Sample	Ozone (µg/m ³)	Ammonia (µg/m ³)	Lead (µg/m ³)	Nickel (ng/m ³)	Arsenic (ng/m ³)	Benzene (µg/m ³)	Benzo(a)pyrene (ng/m ³)
23.10.2023	17.8	32.2	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone (µg/m ³)	Ammonia (µg/m ³)	Lead (µg/m ³)	Nickel (ng/m ³)	Arsenic (ng/m ³)	Benzene (µg/m ³)	Benzo(a)pyrene (ng/m ³)
	--	180	400	1	20	6	5	1
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

*National Ambient Air Quality Standards.

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Test Report

Sample No:	DMSPL/AA/NIOM/R	Report No:	DMSPL/AAM/BICO/2310/008
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	October 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Downwind Direction (AS)	Sample Condition:	Good/Clear
Latitude:	21° 57'19" N	Longitude:	85° 13'34" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel ($\mu\text{g}/\text{m}^3$)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
30.10.2023	20.2	31.6	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
	--	--	180	400	1	20	6	5
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

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Test Report

Sample No:	DMSPL/AN/NIOM/01-08	Report No:	DMSPL/AN/BICO/2310/001-008
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under EST. Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	1 st Oct, 2023 to 31 st Oct, 2023
		Equipment Used:	Sound Level Meter IS-9989
		Protocol Used:	
Sample Collected By:	DMSPL Representative	Parameter Required:	As per Govt. Standard
Sample Description:	Ambient Noise Monitoring	Customer Name:	Nadidih Iron Ore Mines
Sample Name:	Noise Level Monitoring	Sample Condition:	Good/Clear

RESULTS

Sr. No.	Location	Date	Latitude:	Longitude:	Day Time [dB(A)]	Night Time [dB(A)]
1	Near Mine Office	07.10.2023	21° 58'09" N	85° 15'33" E	63.4	49.3
2	Near Mines Gate	10.10.2023	21° 58'23" N	85° 15'44" E	62.1	52.4
Standard Limit Industrial Area as per CPCB					75.0	70.0
3	Village Kenduhidi	12.10.2023	21° 59'45" N	85° 16'14" E	52.3	44.3
4	Village Badipada	16.10.2023	21° 58'04" N	85° 18'33" E	52.4	39.6
5	Village Jhirapani	18.10.2023	21° 59'58" N	85° 13'10" E	49.3	39.4
6	Village Kishira	22.10.2023	21° 55'10" N	85° 15'20" E	52.5	42.3
7	Upwind Direction	26.10.2023	21° 58'14" N	85° 15'20" E	53.2	42.4
8	Downwind Direction	29.10.2023	21° 57'19" N	85° 13'34" E	54.4	43.2
Standard Limit Residential Area as per CPCB					55.0	45.0

CPCB :- Central Pollution Control Board

End of Test Report



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Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample Number:	DMSPL/NIOM/ST/01	Report No.:	DMSPL/ST/BICO/2310/001
Name & address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Format No.:	7.8 F-03
		Party Reference No.:	NIL
		Reporting Date:	25/10/2023
		Period of Analysis:	18/10/2023 to 25/10/2023
		Receipt Date:	15/10/2023

Sample Description : Stack Emission Monitoring

General Information	
Sampling Location	: Mine Site
Sample Collected by	: DMSPL Lab Representative
Date of Sampling	: 15/10/2023
Sampling Duration (Minutes)	: 43.0 Min
Stack attached to	: DG Set
Make of stack	: MS
Diameter of stack (m)	: 0.30 Meter
Instruments calibration status	: Calibrated
Meteorological Condition	: Clear Sky
Ambient Temperature - T_a ($^{\circ}$ C)	: 32.0
Temperature of stack Gases - T_s ($^{\circ}$ C)	: 220.0
Velocity of stack Gases (m/sec.)	: 9.20
Flow rate of PM (LPM)	: 22.0
Flow rate of Gas (LPM)	: 2.0
Sampling condition	: Isokinetic
Protocol used	: IS:11255

RESULTS

S. No.	Test Parameters	Test Method	Results	Units	Limits as Per CPCB
1.	Particulate Matter (as PM)	IS 11255 (P-1), Gravimetric Method	42.20	mg/Nm ³	75
2.	Oxide of Nitrogen (as NO _x)	IS 11255 (P-7)	160.2	ppm	710
3.	NMHC	DMSPL/ENV/STP/ST/FGA/01, Issue No.- 01/01/11/21	18.2	mg/Nm ³	100
4.	Sulphur Dioxide (as SO ₂)	IS 11255 (P-2), Titrimetric Method	25.4	mg/Nm ³	--
5.	Carbon Monoxide (as CO)	DMSPL/ENV/STP/ST/FGA/01, Issue No.- 01/01/11/21	30.4	mg/Nm ³	150

Note: * STP-Laboratory Standard Testing Procedure.

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Test Report

Sample No:	DMSPL/AAFS/NIOM/01	Report No:	DMSPL/AAFS/BICO/2310/001
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira, Dist. Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	1 st Oct. 2023 to 31 st Oct. 2023
		Equipment Used:	RDS with all accessories
		Protocol Used:	IS-5182
Sample Collected By:	DMSPL Representative	Parameter Required:	As per TOR Letter
Sample Description:	Ambient Air Quality Monitoring		
Sample Type :	Free Silica Composition		

RESULTS

Chemical Composition of PM 10 with Free Silica

Location	Date	PM10 ($\mu\text{g}/\text{m}^3$)	Free Silica %	Ca ($\mu\text{g}/\text{m}^3$)	Mg ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)
Near Mine Office	04.10.2023	68.4	2.6	1.18	0.24	<0.5	0.06
Near Mines Gate	07.10.2023	76.2	2.2	1.20	0.30	<0.5	0.07
Village - Kendubidi	10.10.2023	55.2	2.6	1.22	0.30	<0.5	0.08
Village Bandipada	14.10.2023	57.3	2.4	1.16	0.28	<0.5	0.08
Village Jhirapani	18.10.2023	64.5	2.3	1.24	0.30	<0.5	0.05
Village Kashira	21.10.2023	59.3	2.6	1.26	0.26	<0.5	0.06
Upwind Direction	25.10.2023	76.4	2.7	1.29	0.28	<0.5	0.07
Downwind Direction	29.10.2023	78.2	2.2	1.30	0.30	<0.5	0.08


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Test Report

Sample No:	DMSPL/FD/NIOM/01-08	Report No:	DMSPL/FD/BICO/2310/001-008
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koirā Distt. Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	1 st Oct. 2023 to 31 st Oct. 2023
		Equipment Used:	RDS & Personnel Dust Sampler
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Monitoring	Customer Name:	Nadidih Iron Ore Mines
Sample Name:	Fugitive Dust Sample	Sample Condition:	Good/Clear

RESULTS

Sr. No.	Location	Date	Latitude:	Longitude:	SPM ($\mu\text{g}/\text{m}^3$)
1	Mine Benches Area	06.10.2023	21° 58'10" N	85° 15'16" E	912.40
2	Haul Road	10.10.2023	21° 58'16" N	85° 15'26" E	924.80
3	Crushing Plant	14.10.2023	21° 58'24" N	85° 15'33" E	1120.80
4	Screening Plant	18.10.2023	21° 58'30" N	85° 15'40" E	886.20
5	Ore Loading Area	24.10.2023	21° 58'28" N	85° 15'10" E	992.30
6	Waste Dump Area	28.10.2023	21° 58'30" N	85° 15'42" E	756.90

Limit as per Consent*	Parameter	Suspended Particulate Matter (SPM 1200 $\mu\text{g}/\text{m}^3$)
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State Pollution Control Board, Odisha .

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ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample Number: DMSPL/GW/NIOM/01
Name & Address of the Project: M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.

Report No.: DMSPL/GW/BICO/2310/001
Format No.: 7.8 I-01
Party Reference No.: Nil
Reporting Date: 25/10/2023
Ground Water Level: 3.8 Mtr.

Sample Description: Ground Water Sample
Sample Location: Near Mine Site
Sample Collected by: DMSPL Representative
Sampling and Analysis Protocol: IS 3025 & APHA 23rd Edition 2017
Preservation: Ice Box

Period of Analysis: 14/10/2023-25/10/2023
Receipt Date: 14/10/2023
Sampling Date: 10/10/2023
Sampling Quantity: 5.0 Lit + 250ml
Sampling Type: Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500-2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternative Source
1	pH (at 25°C)	APHA, 4500-H ⁺ B. Electrode Method	8.17	-	6.5 to 8.5	No Relaxation
2	Colour	APHA, 2120 B. Visual Comparison Method	*BLQ (**LOQ 1.0 Hazen)	Hazen	5	15
3	Turbidity	APHA, 2130 B. Nephelometric Method	*BLQ (**LOQ 1.0 NTU)	NTU	1	5
4	Odour	APHA, 2150 B. Threshold Odour Method	Agreeable	-	Agreeable	Agreeable
5	Taste	APHA, 2160 B. Threshold Test Method	Disagreeable	-	Agreeable	Agreeable
6	Total Hardness as CaCO ₃	APHA, 2340 C. EDTA Titrimetric Method	153.8	mg/l	200	600
7	Calcium as Ca ²⁺	APHA, 3500 Ca B. EDTA Titrimetric Method	45.26	mg/l	75	200
8	Alkalinity as CaCO ₃	APHA, 2520 H. Titrimetric Method	121.88	mg/l	200	600
9	Chloride as Cl ⁻	APHA, 4500-Cl B. Argentometric Method	84.32	mg/l	250	1000
10	Cyanide as CN ⁻	APHA, 4500 CN D	*BLQ (**LOQ 0.02 mg/l)	mg/l	0.05	No Relaxation
11	Magnesium as Mg	APHA, 3500 Mg B. Calibration Method	8.47	mg/l	30	100
12	Total Dissolved Solids	APHA, 2540 C. Gravimetric Method	342.81	mg/l	500	2000
13	Sulphate as SO ₄	APHA, 4500 F. Turbidimetric Method	103.17	mg/l	200	400
14	Fluoride as F ⁻	APHA, 4500-F D. SPADNS Method	0.42	mg/l	1.0	1.5
15	Nitrate as NO ₃	IS 3025 (P-34) Chromotropic Method	22.76	mg/l	45	No Relaxation
16	Iron as Fe	IS 3025 (P-65) 2014(RA-2019)	0.23	mg/l	1.0	No relaxation
17	Aluminium as Al	IS 3025 (P-65) 2014(RA-2019)	*BLQ (**LOQ 0.005 mg/l)	mg/l	0.05	0.2
18	Boron	IS 3025 (P-65) 2014(RA-2019)	*BLQ (**LOQ 0.01 mg/l)	mg/l	0.5	2.4
19	Chromium as Cr	IS 3025 (P-65) 2014(RA-2019)	*BLQ (**LOQ 0.002 mg/l)	mg/l	0.05	No Relaxation

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Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample No.: DMSPL/GW/MOM/01			Report No.: DMSPL/GW/BICQ/2310/001			
S. No.	Parameter	Test Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
20	Plumbeic Compounds	APHA, 5530 C Chloroform Extraction Method	*BLQ**LOQ 0.005 mg/l	mg/l	0.01	0.002
21	Miscral (H)	Clause 6 of IS:3025(Part 39)	*BLQ**LOQ 0.1 mg/l	mg/l	1.0	No Relaxation
22	Ammic Ditergenin as MBAS	Annex K of IS 13428, IS 3025 (P-6K)	*BLQ**LOQ 0.05 mg/l	mg/l	0.2	1.0
23	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	0.13	mg/l	5	15
24	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	0.02	mg/l	0.05	1.5
24	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*BLQ**LOQ 0.01 mg/l	mg/l	0.1	0.1
26	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*BLQ**LOQ 0.002 mg/l	mg/l	0.005	No Relaxation
27	Lead as Pb	IS 3025 (P-65):2014(RA:2019)	*BLQ**LOQ 0.002 mg/l	mg/l	0.01	No Relaxation
28	Selenium as Se	IS 3025 (P-65):2014(RA:2019)	*BLQ**LOQ 0.001 mg/l	mg/l	0.01	No Relaxation
29	Arsenic as As	IS 3025 (P-65):2014(RA:2019)	*BLQ**LOQ 0.005 mg/l	mg/l	0.01	No Relaxation
30	Mercury as Hg	IS 3025 (P-65):2014(RA:2019)	*BLQ**LOQ 0.0005 mg/l	mg/l	0.001	No Relaxation
31	Total Coliform	IS 1622,1981, RA-2019	<2	MPN/100ml	Shall not be detectable in any 100 ml sample	
32	E. Coli	IS 1622,1981, RA-2019	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: - *BLQ-Below Limit of Quantification, **LOQ- Limit of Quantification



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Sample Number: DMSPL/GW/NIOM/02 **Test Report** **Report No.:** DMSPL/GW/BICO/2310/002
Name & Address of the Project: M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India. **Format No.:** 7.8 F-01
Party Reference No.: Nil **Reporting Date:** 25/10/2023
Ground Water Level: 4.2 Mtr.

Sample Description: Ground Water Sample **Period of Analysis:** 14/10/2023-25/10/2023
Sample Location: Village Kenduhidi **Receipt Date:** 14/10/2023
Sample Collected by: DMSPL Representative **Sampling Date:** 10/10/2023
Sampling and Analysis Protocol: IS:3025 & APHA 23rd Edition 2017 **Sampling Quantity:** 5.0 Ltr + 250ml
Preservation: Ice Box **Sampling Type:** Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500-2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
1	pH (at 25 °C)	APHA, 4500-H, D. Electrode Method	8.23	--	6.5 to 8.5	No Relaxation
2	Colour	APHA, 2120 B, Visual Comparison Method	*BLQ (**LOQ 1.0 Hazen)	Hazen	5	15
3	Turbidity	APHA, 2130 B, Nephelometric Method	*BLQ (**LOQ 1.0 NTU)	NTU	1	5
4	Odour	APHA, 2150 B, Threshold Odour Method	Agreeable	--	Agreeable	Agreeable
5	Taste	APHA, 2160 B, Threshold Test Method	Disagreeable	--	Agreeable	Agreeable
6	Total Hardness as CaCO ₃	APHA, 2340 C, EDTA Titrimetric Method	265.45	mg/l	200	600
7	Calcium as Ca	APHA, 2300 Ca B, EDTA Titrimetric Method	52.8	mg/l	75	200
8	Alkalinity as CaCO ₃	APHA, 2570 B, Titrimetric Method	133.08	mg/l	200	600
9	Chloride as Cl	APHA, 4500-Cl B, Argentometric Method	62.56	mg/l	250	1000
10	Cyanide as CN	APHA, 4500-CN D	*BLQ (**LOQ 0.02 mg/l)	mg/l	0.05	No Relaxation
11	Magnesium as Mg	APHA, 3500 Mg B, Calculation Method	7.54	mg/l	30	100
12	Total Dissolved Solids	APHA, 2540 C, Gravimetric Method	553.21	mg/l	500	2000
13	Sulphate as SO ₄	APHA, 4500 S, Turbidimetric Method	115.11	mg/l	200	400
14	Fluoride as F	APHA, 4500-F D, SPADNS Method	0.48	mg/l	1.0	1.5
15	Nitrate as NO ₃	IS:3025 (P-34), Chromatographic Method	3.52	mg/l	45	No Relaxation
16	Iron as Fe	IS:3025 (P-65):2014(RA:2019)	0.22	mg/l	1.0	No relaxation
17	Aluminum as Al	IS:3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.005 mg/l)	mg/l	0.03	0.2
18	Boron	IS:3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.01 mg/l)	mg/l	0.5	2.4
19	Chromium as Cr	IS:3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.002 mg/l)	mg/l	0.05	No Relaxation


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Test Report

Report No.: DMSPL/GW/BICO/2310/002

Sample No.: DMSPL/GW/NIOM/02

S. No.	Parameter	Test Method	Result	Unit	Limits of IS:10500-2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
20.	Phenolic Compounds	APHA, 5530 C Chloroform Extraction Method	*BLQ (**LOQ) 0.0005 mg/l	mg/l	0.001	0.002
21.	Mineral Oil	Clause 6 of IS:3025 (Part 39)	*BLQ (**LOQ) 0.1 mg/l	mg/l	1.0	No Relaxation
22.	Anionic Detergents as MBAS	Ames B of IS:13428, IS:3025 (P-68)	*BLQ (**LOQ) 0.05 mg/l	mg/l	0.2	1.0
23.	Zinc as Zn	IS:3025 (P-65):2014(RA:2019)	1.31	mg/l	5	15
24.	Copper as Cu	IS:3025 (P-62):2014(RA:2019)	0.05	mg/l	0.05	1.5
25.	Manganese as Mn	IS:3025 (P-65):2014(RA:2019)	*BLQ (**LOQ) 0.01 mg/l	mg/l	0.1	0.7
26.	Cadmium as Cd	IS:3025 (P-65):2014(RA:2019)	*BLQ (**LOQ) 0.002 mg/l	mg/l	0.003	No Relaxation
27.	Lead as Pb	IS:3025 (P-69):2014(RA:2019)	*BLQ (**LOQ) 0.002 mg/l	mg/l	0.01	No Relaxation
28.	Selenium as Se	IS:3025 (P-65):2014(RA:2019)	*BLQ (**LOQ) 0.003 mg/l	mg/l	0.01	No Relaxation
29.	Arsenic as As	IS:3025 (P-65):2014(RA:2019)	*BLQ (**LOQ) 0.005 mg/l	mg/l	0.01	No Relaxation
30.	Mercury as Hg	IS:3025 (P-65):2014(RA:2019)	*BLQ (**LOQ) 0.0005 mg/l	mg/l	0.001	No Relaxation
31.	Total Coliform	IS:1622,1981, RA:2019	<2	MPN/100ml	Shall not be detectable in any 100 ml sample	
32.	E. Coli	IS:1622,1981, RA:2019	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: *BLQ - Below Limit of Quantification, **LOQ - Limit of Quantification


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Test Report

Sample Number: DMSPL/GW/NOI003
Name & Address of the Project: M/s. Nadidih Iron Ore Mines,
Under ESL Steel Limited, (BICO)
At Nadidih, PO - Koira
Dist. Sundargarh, Odisha India.

Report No.: DMSPL/GW/REC/O/2310/003
Formit No.: 7.8 F-01
Party Reference No.: NIL
Reporting Date: 25/10/2023
Ground Water Level: 4.0 Mtr.

Sample Description: Ground Water - Sample
Sample Location: Village Badiparda
Sample Collected by: DMSPL Representative
Sampling and Analysis Protocol: IS 3025 & APHA 23rd Edition 2017
Preservation: Ice Box

Period of Analysis: 14/10/2023-25/10/2023
Receipt Date: 14/10/2023
Sampling Date: 10/10/2023
Sampling Quantity: 5.0 Lit + 250ml
Sampling Type: Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement t (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA, 4500-H ⁺ B Electrode Method	7.52	—	6.5 to 8.5	No Relaxation
2.	Colour	APHA, 2120 B, Visual Comparison Method	*BLEQ (**LOQ 1.0 Hazen)	Hazen	5	15
3.	Turbidity	APHA, 2130 B, Nephelometric Method	*BLEQ (**LOQ 1.0 NTU)	NTU	1	5
4.	Odour	APHA, 2150 B, Threshold Odour Method	Agreeable	—	Agreeable	Agreeable
5.	Taste	APHA, 2100 B, Threshold Test Method	Agreeable	—	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA, 2310 C, EDTA Titrimetric Method	143.21	mg/l	200	600
7.	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	47.93	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA, 2320 B, Titrimetric Method	116.27	mg/l	200	600
9.	Chloride as Cl	APHA, 4500-Cl ⁻ B, Argentometric Method	86.33	mg/l	250	1000
10.	Cyanide as CN	APHA, 4800 CN D	*BLEQ (**LOQ 0.02 mg/l)	mg/l	0.05	No Relaxation
11.	Magnesium as Mg	APHA, 3500 Mg B, Calculation Method	3.42	mg/l	30	100
12.	Total Dissolved Solids	APHA, 2540 C, Gravimetric Method	225.21	mg/l	500	2000
13.	Sulphate as SO ₄	APHA, 4500 F, Turbidimetric Method	97.40	mg/l	200	400
14.	Fluoride as F	APHA, 4500-F ⁻ D, SPADNS Method	0.58	mg/l	1.0	1.5
15.	Nitrate as NO ₃	IS 3025 (P-34) Chromotropic Method	23.98	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	0.43	mg/l	1.0	No relaxation
17.	Aluminium as Al	IS 3025 (P-65):2014(RA:2019)	*BLEQ (**LOQ 0.005 mg/l)	mg/l	0.05	0.2
		IS 3025 (P-65):2014(RA:2019)	*BLEQ (**LOQ 0.01 mg/l)	mg/l	0.5	2.4
		IS 3025 (P-65):2014(RA:2019)	*BLEQ (**LOQ 0.002 mg/l)	mg/l	0.05	No Relaxation

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Test Report

Sample No.: DMSPL/GW/NIDM/03			Report No.: DMSPL/GW/BICO/2310/003			
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500-2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
20.	Phenolic Compounds	APHA, 5530 C, Chloroform Extraction Method	*BLQ**LOQ 0.0005 mg/l	mg/l	0.001	0.002
21	Mineral Oil	Clause 6 of IS:3025(Part 39)	*BLQ**LOQ 0.1 mg/l	mg/l	1.0	No Relaxation
22.	Anionic Detergents as MBAS	Annex K of IS 13428, IS 3025 (P-68)	*BLQ**LOQ 0.05 mg/l	mg/l	0.2	1.0
23.	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	0.87	mg/l	5	15
24.	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	0.06	mg/l	0.05	1.5
25.	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*BLQ**LOQ 0.01 mg/l	mg/l	0.1	0.3
26.	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*BLQ**LOQ 0.002 mg/l	mg/l	0.003	No Relaxation
27.	Lead as Pb	IS 3025 (P-65):2014(RA:2019)	*BLQ**LOQ 0.002 mg/l	mg/l	0.01	No Relaxation
28.	Selenium as Se	IS 3025 (P-65):2014(RA:2019)	*BLQ**LOQ 0.001 mg/l	mg/l	0.01	No Relaxation
29.	Arsenic as As	IS 3025 (P-65):2014(RA:2019)	*BLQ**LOQ 0.005 mg/l	mg/l	0.01	No Relaxation
30.	Mercury as Hg	IS 3025 (P-65):2014(RA:2019)	*BLQ**LOQ 0.0005 mg/l	mg/l	0.001	No Relaxation
31.	Total Coliform	IS 1622, 1981, RA-2019	<2	MPN/100ml	Shall not be detectable in any 100 ml sample	
32.	E. Coli	IS 1622, 1981, RA-2019	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: *BLQ-Below Limit of Quantification, **LOQ- Limit of Quantification


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Test Report

Sample Number:	DMSPL/GW/NIOM/04	Report No.:	DMSPL/GW/BICO/2310/004
Name & Address of the Project:	M/s Naidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Naidih, PO - Kolra Dist. Sundargarh, Odisha India.	Format No.:	7.8 F-01
		Party Reference No.:	NIL
		Reporting Date:	25/10/2023
		Ground Water Level:	3.6 Mtr.

Sample Description:	Ground Water Sample	Period of Analysis:	14/10/2023-25/10/2023
Sample Location:	Village Jhirajanti	Receipt Date:	14/10/2023
Sample Collected by:	DMSPL Representative	Sampling Date:	10/10/2023
Sampling and Analysis Protocol:	IS 3025 & APHA 23 rd Edition 2017	Sampling Quantity:	5.0 Ltr + 250ml
Preservation:	Ice Box	Sampling Type:	Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500-2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA ,4500-H ⁺ B Electronic Method	7.83	--	6.5 to 8.5	No Relaxation
2.	Colour	APHA ,2120-B, Visual Comparison Method	*BLQ (**LOQ) 1.0 Hazen)	Hazen	5	15
3.	Turbidity	APHA ,2130-B, Nephelometric Method	*BLQ (**LOQ) 1.0 NTU)	NTU	1	5
4.	Odour	APHA ,2150-B, Threshold Odour Method	Agreeable	--	Agreeable	Agreeable
5.	Taste	APHA ,2160-B, Threshold Taste Method	Disagreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA ,2340-C, EDTA Titrimetric Method	147.26	mg/l	200	600
7.	Calcium as Ca	APHA ,3500-Ca-B, EDTA Titrimetric Method	37.67	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA ,2320-B, Titrimetric Method	136.82	mg/l	200	600
9.	Chloride as Cl	APHA ,4500-Cl ⁻ B, Argentometric Method	96.98	mg/l	250	1000
10.	Cyanide as CN	APHA ,4500-CN-D	*BLQ (**LOQ) 0.02 mg/l)	mg/l	0.05	No Relaxation
11.	Magnesium as Mg	APHA ,3500-Mg-B, Calculation Method	12.34	mg/l	30	100
12.	Total Dissolved Solids	APHA ,2540-C, Gravimetric Method	163.87	mg/l	500	2000
13.	Sulphate as SO ₄	APHA ,4500-F, Turbidimetric Method	134.26	mg/l	200	400
14.	Fluoride as F	APHA ,4300-F-D, SPADNS Method	1.05	mg/l	1.5	1.5
15.	Nitrate as NO ₃	IS 3025 (P-38) ,Chromotropic Method	23.89	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-65) 2014(RA-2019)	0.22	mg/l	1.0	No relaxation
17.	Aluminium as Al	IS 3025 (P-65) 2014(RA-2019)	*BLQ (**LOQ) 0.005 mg/l)	mg/l	0.03	0.2
18.	Boron	IS 3025 (P-65) 2014(RA-2019)	*BLQ (**LOQ) 0.01 mg/l)	mg/l	0.5	2.4
19.	Chromium as Cr	IS 3025 (P-65) 2014(RA-2019)	*BLQ (**LOQ) 0.002 mg/l)	mg/l	0.03	No Relaxation

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Test Report

Sample No.: DMSPL/GW/NTOM/04					Report No.: DMSPL/GW/BICQ/2310/064	
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
20.	Pesticide Compounds	APHA, 5530 C Chloroform Extraction Method	*BLQ (**LOQ 0.0005 mg/l)	mg/l	0.001	0.002
21.	Mineral Oil	Clause 6 of IS:3025(PART 2)	*BLQ (**LOQ 0.1 mg/l)	mg/l	1.0	No Relaxation
22.	Atomic Detergents as MBAS	Annex K of IS 13428: IS 3025 (P-68)	*BLQ (**LOQ 0.05 mg/l)	mg/l	0.2	1.0
23.	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	1.17	mg/l	5	15
24.	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	0.05	mg/l	0.05	1.5
25.	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.01 mg/l)	mg/l	0.1	0.3
26.	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.002 mg/l)	mg/l	0.003	No Relaxation
27.	Lead as Pb	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.002 mg/l)	mg/l	0.01	No Relaxation
28.	Selenium as Se	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.001 mg/l)	mg/l	0.01	No Relaxation
29.	Arsenic as As	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.005 mg/l)	mg/l	0.01	No Relaxation
30.	Mercury as Hg	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.0005 mg/l)	mg/l	0.001	No Relaxation
31.	Total Coliform	IS 1622:1981, RA-2019	<2	MPN/100ml	Should not be detectable in any 100 ml sample	
32.	E. Coli	IS 1622:1981, RA-2019	Absent	MPN/100ml	Should not be detectable in any 100 ml sample	

Note: - *BLQ-Below Limit of Quantification, **LOQ- Limit of Quantification



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Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample Number:	DMSPL/NIOM/S/01	Report No.:	DMSPL/S/BICO/2310/001
Name & Address of Party:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.	Format No.:	S-10 F-01
		Party Reference No.:	NIL
Sample Description:	SOIL	Reporting Date:	30/10/2023
Sampling Location:	Inside Mine Area	Receipt Date:	24/10/2023
Sample Collected by:	DMSPL, Lab Representative	Sampling Date:	20/10/2023
		Type of Sampling:	Composite
Sampling & Analysis Protocol:	IS 2720 & USDA	Sampling Quantity:	2.0 Kg
		Depth of Sampling:	30 cm
		Packing Status:	Temp Sealed

S. No.	Parameter	Protocol	Result	Unit
1.	pH (at 25 °C)	IS-2720 (I-26,1987)	8.20	—
2.	Conductivity	IS:14767-2000 Reaffirmed 2006	0.30	mS/cm
3.	Soil Texture	USDA Method, 1968	Silty	—
4.	Color	USDA Method, 1968	Yellowish	—
5.	Water holding capacity	USDA Method, 1968	22.40	%
6.	Bulk density	USDA Method, 1968	1.32	gm/cc
7.	Chloride as Cl	USDA Method, 1968	25.20	mg/100gm
8.	Calcium as Ca	USDA Method, 1968	32.50	mg/100gm
9.	Sodium as Na	USDA Method, 1968	28.20	mg/100gm
10.	Potassium as K	USDA Method, 1968	57.20	kg/hec.
11.	Organic Matter	IS-2720 (I-22, 1972)	0.50	%
12.	Magnesium as Mg	USDA Method, 1968	11.20	mg/100gm
13.	Available Nitrogen as N	IS:14684, 1999	175.20	kg/hec.
14.	Available Phosphorus	USDA, APHA-4500PC	35.20	kg/hec.
15.	Zinc as Zn	APHA-3030D, APHA-3111B	4.20	mg/100gm
16.	Manganese as Mn	APHA-3030D, APHA-3111B	2.70	mg/100gm
17.	Chromium as Cr	APHA-3030D, APHA-3111B	1.20	mg/100gm
18.	Lead as Pb	APHA-3030D, APHA-3111B	0.80	mg/100gm
19.	Cadmium as Cd	APHA-3030D, APHA-3111B	1.68	mg/100gm
20.	Copper as Cu	APHA-3030D, APHA-3111B	3.12	mg/100gm



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ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Sample Number:	DMSPL/NIOM/SW/01	Test-Report	Report No.:	DMSPL/SW/BICO/2310/001
Name of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.		Format No.:	7.8 F-01
			Party Reference No.:	NIL
			Reporting Date:	25/10/2023
Sample Description:	Surface Water Sample		Period of Analysis:	18/10/2023- 25/10/2023
Sampling Location:	River Sample (Near Mines Upstream)		Receipt Date:	18/10/2023
Sample Collected by:	DMSPL Lab Representative		Sampling Date:	15/10/2023
Preservation:	Ice Box		Sampling Quantity:	2.0 Ltr + 250ml
Sampling and Analysis Protocol:	APHA & IS, 23 rd Edition 2017		Sampling Type:	Composite

S. No.	Parameter	Test Method	Result	Unit
1.	pH (at 25 °C)	APHA, 4500-H ⁺ B. Electrode Method	7.20	-
2.	Colour	APHA, 2120 B. Visual Comparison Method	5.0	Hazen
3.	Turbidity	APHA, 2130 B. Nephelometric Method	<1	NTU
4.	Odour	APHA, 2150 B. Threshold Test Method	Agreeable	-
5.	Total Hardness as CaCO ₃	APHA, 2340 C. EDTA Titrimetric Method	88.2	mg/l
6.	Calcium as Ca	APHA, 3500 Ca II EDTA Titrimetric Method	25.2	mg/l
7.	Alkalinity as CaCO ₃	APHA, 2320 B. Titrimetric Method	72.5	mg/l
8.	Chloride as Cl ⁻	APHA, 4500-Cl ⁻ B. Argentometric Method	42.2	mg/l
9.	Residual free Chlorine	IS 3025 P-26. Ortho-toluidine Method	*BDL (**DL: 0.15mg/l)	mg/l
10.	Cyanide as CN ⁻	APHA, 4500 CN ⁻ D. Barbituric Acid Method	*BDL (**DL: 0.02 mg/l)	mg/l
11.	Magnesium as Mg	APHA, 3500 Mg B. Calculation Method	6.15	mg/l
12.	Total Dissolved Solids	APHA, 2540 C. Gravimetric Method	248	mg/l
13.	Total Suspended Solids	APHA, 2540 D. Gravimetric Method	21.0	mg/l
14.	Dissolved Oxygen	APHA, 4500 O ₂ B. Iodometric Method	6.2	mg/l
15.	Sulphate as SO ₄ ²⁻	APHA, 4500 E. Turbidimetric Method	26.2	mg/l
16.	Fluoride as F ⁻	APHA, 4500-F ⁻ D. SPADNS Method	0.20	mg/l
17.	BOD (3 Days at 27°C)	APHA, 5210 C / IS 3025 P-44	12.10	mg/l
18.	COD	APHA, 5220 B. Open Reflux Method	38.20	mg/l



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Test Report

Sample No.: DMSPL/NIOM/SW/01			Report No.: DMSPL/SW/BICO/2310/001	
S. No.	Parameter	Test-Method	Result	Unit
19.	Conductivity (at 25 °C)	APHA, 2510 B, Conductivity Meter Method	0.42	mS/cm
20.	Nitrate as NO ₃ ⁻	IS 3025 (P-34) Chromotropic Method	4.2	mg/l
21.	Sodium as Na	APHA, 3500 Na B, Flame Photometric Method	18.5	mg/l
22.	Potassium as K	APHA 3500 K B, Flame Photometric Method	4.20	mg/l
23.	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	0.20	mg/l
24.	Aluminium as Al	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.002 mg/l)	mg/l
25.	Boron	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.002 mg/l)	mg/l
26.	Chromium as Cr	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.002 mg/l)	mg/l
27.	Phenolic Compounds	APHA, 5530 C Chloroform Extraction Method	*BDL (**DL 0.0004mg/l)	mg/l
28.	#Mineral Oil	Clause 6 of IS:3025(Part 39)	*BDL (**DL 0.1 mg/l)	mg/l
29.	#Anionic Detergents as MBAS	APHA, 5540 C MBAS Method	*BDL (**DL 0.05 mg/l)	mg/l
30.	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.05 mg/l)	mg/l
31.	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.1 mg/l)	mg/l
32.	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.01 mg/l)	mg/l
33.	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.002 mg/l)	mg/l
34.	Total Coliform	IS 1622:1981, RA-2019	300	MPN/100ml
35.	Fecal Coliform	IS 1622:1981, RA-2019	190	MPN/100ml

*BDL- Below Detection Limit, **DL- Detection Limit

(Checked By)

(Approved By)

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Test Report

Sample Number:	DMSPL/NIOM/SW/02	Report No.:	DMSPL/SW/BICIO/2310/002
Name of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Format No.:	7.8 F-01
		Party Reference No.:	NIL
		Reporting Date:	25/10/2023
Sample Description:	Surface Water - Sample	Period of Analysis:	18/10/2023 - 25/10/2023
Sampling Location:	River Sample (Near Mines Downstream)	Receipt Date:	18/10/2023
Sample Collected by:	DMSPL Lab Representative	Sampling Date:	15/10/2023
Preservation:	Ice Box	Sampling Quantity:	2.0 Ltr = 250ml
Sampling and Analysis Protocol:	APHA & IS, 23 rd Edition 2017	Sampling Type:	Composite

S. No.	Parameter	Test-Method	Result	Unit
1	pH (at 25 °C)	APHA, 4500-H ⁺ B. Electrode Method	7.20	--
2	Colour	APHA, 2120 B. Visual Comparison Method	10.0	Hazen
3	Turbidity	APHA, 2130 B. Nephelometric Method	<1	NTU
4	Odour	APHA, 2150 B. Titration Test Method	Agreeable	--
5	Total Hardness as CaCO ₃	APHA, 2340 C. EDTA Titrimetric Method	82.1	mg/l
6	Calcium as Ca	APHA, 3500 Ca B. EDTA Titrimetric Method	24.2	mg/l
7	Alkalinity as CaCO ₃	APHA, 2320 B. Titrimetric Method	70.2	mg/l
8	Chloride as Cl	APHA, 4500-Cl B. Argentometric Method	32.20	mg/l
9	Residual free Chlorine	IS: 3025 P-26, Ortho-toluidine Method	*BDL (**DL: 0.15mg/l)	mg/l
10	Cyanide as CN	APHA, 4500 CN D. Barbituric Acid Method	*BDL (**DL: 0.02 mg/l)	mg/l
11	Magnesium as Mg	APHA, 3500 Mg B. Calculation Method	5.28	mg/l
12	Total Dissolved Solids	APHA, 2540 C. Gravimetric Method	238.0	mg/l
13	Total Suspended Solids	APHA, 2540 D. Gravimetric Method	20.0	mg/l
14	Dissolved Oxygen	APHA, 4500 O B. Iodometric Method	6.2	mg/l
15	Sulphate as SO ₄ ²⁻	APHA, 4500-E. Turbidimetric Method	32.14	mg/l
16	Fluoride as F	APHA, 4500-F D. SPADNS Method	0.25	mg/l
17	BOD (3 Days at 27°C)	APHA, 5210 C : IS: 3025 P-44	9.20	mg/l
18	COD	APHA, 5220 B. Open Reflux Method	34.10	mg/l



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Test Report

Sample No.: DMSPL/NIOM/SW/02			Report No.: DMSPL/SW/BICO/2310/002	
S. No.	Parameter	Test-Method	Result	Unit
19.	Conductivity (at 25 °C)	APHA, 2510 B, Conductivity Meter Method	0.390	mS/cm
20.	Nitrate as NO ₃	IS 3025 (P-34), Chromatopic Method	4.20	mg/l
21.	Sodium as Na	APHA, 3500 Na B, Flame Photometric Method	20.20	mg/l
22.	Potassium as K	APHA 3500 K B, Flame Photometric Method	5.40	mg/l
23.	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	*BDL(**DL 0.002 mg/l)	mg/l
24.	Aluminium as Al	IS 3025 (P-65):2014(RA:2019)	*BDL(**DL 0.002 mg/l)	mg/l
25.	Boron	IS 3025 (P-65):2014(RA:2019)	0.20	mg/l
26.	Chromium as Cr	IS 3025 (P-65):2014(RA:2019)	*BDL(**DL 0.002 mg/l)	mg/l
27.	Phenolic Compounds	APHA, 5530 C Chloroform Extraction Method	*BDL(**DL 0.0004mg/l)	mg/l
28.	#Mineral Oil	Clause 6 of IS:3025(Part 39)	*BDL(**DL 0.1 mg/l)	mg/l
29.	#Anionic Detergents as MBAS	APHA, 5540 C MBAS Method	*BDL(**DL 0.05 mg/l)	mg/l
30.	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	*BDL(**DL 0.05 mg/l)	mg/l
31.	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	*BDL(**DL 0.1 mg/l)	mg/l
32.	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*BDL(**DL 0.01 mg/l)	mg/l
33.	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*BDL(**DL 0.002 mg/l)	mg/l
34.	Total Coliform	IS 1622, 1981, RA-2019	280	MPN/100ml
35.	Fecal Coliform	IS 1622, 1981, RA-2019	180	MPN/100ml

*BDL - Below Detection Limit, **DL - Detection Limit



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Test Report

Sample Number:	DMSPL/SW/N10M01	Report No.:	DMSPL/WW/BICO/2310/001
Name & Address of Party:	M/s. Nadidih Iron Ore Mines, Under ESI Steel Limited, (BICO) At Nadidih, PO - Koiria Dist. Sundargarh, Odisha India.	Formal No.:	7.8 F-03
Sample Description:	Waste Water	Party Reference No.:	Nil
Sampling Location:	Washing Water Inlet	Reporting Date:	20/10/2023
Sample Collected by:	DMSPL Representative	Period of Analysis:	20/10/2023 to 20/10/2023
Preservation:	Refrigerated	Receipt Date:	12/10/2023
Sampling & Analysis Protocol:	IS-3025 & APHA	Sampling Date:	10/10/2023
		Sampling Sealed:	Grab
		Sampling Quantity:	2.5 Ltr.

TEST RESULTS

S. No.	Parameter	Test-Method	Result	Unit
1	pH (at 25 °C)	IS-3028 (P-11)	8.10	-
2	Total Dissolved Solids	IS-3025 (P-16)	580	Mg/L
3	Total Suspended Solids	IS-3025 (P-17)	150	Mg/L
4	Chemical Oxygen Demand	IS-3025 (P-30)	540	Mg/L
5	Biochemical Oxygen Demand	IS-3025 (P-44)	130	Mg/L
6	Oil & Grease	IS-3025 (P-29)	14	Mg/L
7	Total Coliform	APHA 22nd Edition: 9221E (RA-2019)	600	MPN/100 ml

*BLQ: Below Limit of Quantification. **LOQ: Limit of Quantification

End of Report



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Test Report

Sample Number:	DMSPL/SW/NIOM02	Report No.:	DMSPL/WW/BICO/2310/002
Name & Address of Party:	M/s. Nadidih Iron Ore Mines, Under ESI, Steel Limited, (BICO) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.	Format No.:	7.8 F-03
Sample Description:	Waste Water	Party Reference No.:	Nil
Sampling Location:	Washing Water Discharge	Reporting Date:	20/10/2023
Sample Collected by:	DMSPL Representative	Period of Analysis:	20/10/2023 to 20/10/2023
Preservation:	Refrigerated	Receipt Date:	12/10/2023
Sampling & Analysis Protocol:	IS-3025 & APHA	Sampling Date:	10/10/2023
		Sampling Sealed:	Grab
		Sampling Quantity:	2.5 Ltr.

TEST RESULTS

S. No.	Parameter	Test-Method	Result	Unit	Standards for Discharge as per CPCB		
					In-Land Surface Water	Public Sewers	Land for Irrigation
1.	pH at 25 °C	IS-3025 (P-11)	7.30	-	5.5-9.0	5.5-9.0	5.5-9.0
2.	Total Dissolved Solids	IS-3025 (P-10)	690	Mg/l	--	--	2100
3.	Total Suspended Solids	IS-3025 (P-17)	22.3	Mg/l	100	600	200
4.	Chemical Oxygen Demand	IS-3025 (P-08)	86.2	Mg/l	250.0	--	--
5.	Biochemical Oxygen Demand	IS-3025 (P-04)	12.2	Mg/l	30.0	350.0	100.0
6.	Oil & Grease	IS-3025 (P-34)	5.8	Mg/l	10.0	20.0	10.0
7.	Total Calcium	APHA 23rd Edition 9221C (RA-2019)	120	MG/100 ml	--	--	--

Note:- This Report Complies as per IS-3025
 *BLQ-Below Limit of Quantification, **LOQ- Limit of Quantification

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Test Report

Sample No:	DMSPL/AA/NIO/01-09	Report No:	DMSPL/AA/BIC/2311/001-009
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.	Reporting Date:	06/12/2023
		Ref. No:	NIL
		Monitoring Period:	1 st Nov. 2023 to 30 th Nov. 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Near Mine Office (A1)	Sample Condition:	Good/Clear
Latitude:	21° 58'09" N	Longitude:	85° 15'33" E

RESULTS

Date	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)
01.11.2023	64.2	47.3	15.2	25.4	0.63
04.11.2023	67.4	43.9	16.6	35.5	0.64
05.11.2023	74.3	42.0	18.4	23.6	0.62
11.11.2023	62.8	46.5	15.5	33.2	0.64
12.11.2023	71.9	45.1	18.2	29.6	0.71
18.11.2023	75.9	27.9	17.2	28.2	0.53
19.11.2023	76.2	35.8	18.3	22.9	0.52
25.11.2023	68.9	26.2	19.3	24.3	0.54
26.11.2023	75.2	39.3	18.3	22.1	0.52

Limit as per NAAQS*	Parameter	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)
	--	100	60	80	80	4
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

National Ambient Air Quality Standards.

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Test Report

Sample No:	DMSPL/AA/NIO/10-18	Report No:	DMSPL/AA/BIC/2311/010-018
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/12/2023
		Ref. No:	NH.
		Monitoring Period:	1 st Nov. 2023 to 30 th Nov. 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Near Mines Gate (A2)	Sample Condition:	Good/Clear
Latitude:	21° 58' 23" N	Longitude:	85° 15' 44" E

RESULTS

Date	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)
01.11.2023	86.9	45.5	19.8	32.5	0.72
04.11.2023	84.7	45.2	18.7	28.4	0.95
05.11.2023	86.2	38.3	16.9	25.7	0.88
11.11.2023	76.9	45.4	17.3	32.5	0.84
12.11.2023	81.4	37.3	19.2	25.6	0.98
18.11.2023	84.5	47.4	15.6	24.5	0.93
19.11.2023	67.4	43.9	16.6	35.5	0.64
25.11.2023	74.3	42.8	18.4	23.6	0.62
26.11.2023	62.8	46.5	15.5	33.2	0.64

Limit as per NAAQS*	Parameter	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)
	--	100	60	80	80	4
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

*National Ambient Air Quality Standards.

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Test Report

Sample No:	DMSPL/AA/NIO/19-27	Report No:	DMSPL/AA/BIC/2311/019-027
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Kotra Dist. Sundargarh, Odisha India.	Reporting Date:	06/12/2023
		Ref. No:	NIL
		Monitoring Period:	1 st Nov. 2023 to 30 th Nov. 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village - Kenduhidi (A3)	Sample Condition:	Good/Clear
Latitude:	21° 59' 45" N	Longitude:	85° 16' 14" E

RESULTS

Date	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m ³)
02.11.2023	67.5	48.6	17.7	28.4	0.68
06.11.2023	64.2	25.4	7.1	16.4	0.51
07.11.2023	59.3	31.3	7.5	16.8	0.56
13.11.2023	66.4	27.9	8.1	15.9	0.56
14.11.2023	59.5	30.4	8.5	18.1	0.52
20.11.2023	67.5	48.6	17.7	28.4	0.68
21.11.2023	64.2	25.4	7.1	16.4	0.51
27.11.2023	59.3	31.3	7.5	16.8	0.56
28.11.2023	68.2	37.4	8.7	18.7	0.85

Limit as per NAAQS*	Parameter	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m ³)
		—	100	60	80	80
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)*

National Ambient Air Quality Standards.

End of Test Report



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Test-Report

Sample No:	DMSPL/AA/NIQ/28-36	Report No:	DMSPL/AA/BIC/2311/028-036
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/12/2023
		Ref. No:	NIL
		Monitoring Period:	1 st Nov. 2023 to 30 th Nov. 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Badipada (A4)	Sample Condition:	Good/Clear
Latitude:	21° 58' 04" N	Longitude:	85° 18' 53" E

RESULTS

Date	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)
02.11.2023	74.3	42.8	10.4	23.6	0.62
06.11.2023	62.8	46.5	15.5	33.2	0.64
07.11.2023	71.9	45.1	18.2	29.6	0.71
13.11.2023	67.5	48.6	17.7	28.4	0.68
14.11.2023	64.2	25.4	7.1	16.4	0.51
20.11.2023	59.3	31.3	7.5	16.8	0.56
21.11.2023	66.4	27.9	8.1	15.9	0.56
27.11.2023	59.5	30.4	8.5	18.1	0.52
28.11.2023	62.8	46.5	15.5	33.2	0.64

Limit as per NAAQS*	Parameter	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)
	-	100	60	80	80	4
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

National Ambient Air Quality Standards.

End of Test Report



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Test Report

Sample No:	DMSPL/AA/NIO/37-45	Report No:	DMSPL/AA/BIC/2311/037-045
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.	Reporting Date:	06/12/2023
		Ref. No:	NIL
		Monitoring Period:	1 st Nov. 2023 to 30 th Nov. 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Jhirapani (A5)	Sample Condition:	Good/Clear
Latitude:	21° 59'58" N	Longitude:	85° 13'10" E

RESULTS

Date	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m ³)
03.11.2023	56.3	44.8	16.7	25.8	0.61
08.11.2023	64.2	47.3	15.2	25.4	0.63
09.11.2023	67.4	43.9	16.6	35.5	0.64
15.11.2023	74.3	42.8	18.4	23.6	0.62
16.11.2023	62.8	46.5	15.5	33.2	0.64
22.11.2023	71.9	45.1	18.2	29.6	0.71
23.11.2023	67.5	48.6	17.7	28.4	0.68
29.11.2023	63.9	46.4	17.9	25.6	0.63
30.11.2023	61.3	21.4	6.5	18.1	0.55

Limit as per NAAQS*	Parameter	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m ³)
	--		100	60	80	80
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

National Ambient Air Quality Standards.

End of Test Report



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Test Report

Sample No:	DMSPL/AA/NIO/46-54	Report No:	DMSPL/AA/BIC/2311/046-054
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/12/2023
		Ref. No:	NIL
		Monitoring Period:	1 st Nov. 2023 to 30 th Nov. 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Kashira (A6)	Sample Condition:	Good/Clear
Latitude:	21° 55' 10" N	Longitude:	85° 15' 20" E

RESULTS

Date	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m ³)
05.11.2023	66.4	27.9	8.1	15.9	0.56
08.11.2023	59.5	30.4	8.5	18.1	0.52
09.11.2023	56.3	27.4	9.0	17.4	0.56
15.11.2023	61.3	21.4	6.5	18.1	0.55
16.11.2023	53.4	26.4	8.5	17.3	0.51
22.11.2023	59.5	30.4	8.5	18.1	0.52
23.11.2023	56.3	27.4	9.0	17.4	0.56
29.11.2023	61.3	21.4	6.5	18.1	0.55
30.11.2023	62.8	46.5	15.5	33.2	0.64

Limit as per NAAQS*	Parameter	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m ³)
	--	100	60	80	80	4
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)*	IS 5182 (Part - 2)	IS-5182 (Part - 6)	IS 5182 (Part - 10)

National Ambient Air Quality Standards.

End of Test Report



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Test Report

Sample No:	DMSPL/AA/NIOM/01	Report No:	DMSPL/AAM/BICO/2311/001
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under: ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarb, Odisha India.	Reporting Date:	06/12/2023
		Ref. No:	NIL
		Monitoring Period:	November 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Near Mine Office (A1)	Sample Condition:	Good/Clear
Latitude:	21° 58'09" N	Longitude:	85° 15'33" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene ($\mu\text{g}/\text{m}^3$)
02.11.2023	26.2	36.5	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
	--	--	180	400	1	20	6	5
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

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Test Report

Sample No:	DMSPL/AA/NIOM/02	Report No:	DMSPL/AAM/BICO/2311/002
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/12/2023
		Ref. No:	NIL
		Monitoring Period:	November 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Near Mines Gate (A2)	Sample Condition:	Good/Clear
Latitude:	21° 58'23" N	Longitude:	85° 15'44" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
06.11.2023	225	35.6	<0.05	<0.05	<0.50	<5.0	<1.0

	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
Limit as per NAAQS*	-	180	400	1	20	6	5	1
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

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Test Report

Sample No:	DMSPL/AA/NIOM/3	Report No:	DMSPL/AAM/BICO/2311/003
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India,	Reporting Date:	06/12/2023
		Ref. No:	NIL
		Monitoring Period:	November 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village - Kendubidi (A3)	Sample Condition:	Good/Clear
Latitude:	21° 59'45" N	Longitude:	85° 16'14" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
12.11.2023	24.3	38.2	<0.05	<0.05	<0.50	<5.0	<1.0

	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
Limit as per NAAQS*	-	180	400	1	20	6	5	1
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

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Test Report

Sample No:	DMSPL/AA/NIOM/4	Report No:	DMSPL/AAM/BICO/2311/004
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESU Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/12/2023
		Ref. No:	NIL
		Monitoring Period:	November 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Badipada (A4)	Sample Condition:	Good/Clear
Latitude:	21° 58'04" N	Longitude:	85° 18'33" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
16.11.2023	25.2	39.6	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
	-	180	400	1	20	6	5	1
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

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Test Report

Sample No:	DMSPL/AA/NIOM/5	Report No:	DMSPL/AAM/BICO/2311/005
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Kaira Distt. Sundargarh, Odisha India.	Reporting Date:	06/12/2023
		Ref. No:	NIL
		Monitoring Period:	November 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Jhirapani (A5)	Sample Condition:	Good/Clear
Latitude:	21° 59'58" N	Longitude:	85° 13'10" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
20.11.2023	26.5	39.8	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
	--		180	400	1/	20	6	5
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

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Test Report

Sample No:	DMSPL/AA/NIOM/6	Report No:	DMSPL/AAAM/BICO/2311/006
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under KSL Steel Limited, (BICO) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.	Reporting Date:	06/12/2023
		Ref. No:	NIL
		Monitoring Period:	November 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Kashira (A6)	Sample Condition:	Good/Clear
Latitude:	21° 55' 10" N	Longitude:	85° 15' 20" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
25.11.2023	26.6	40.4	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
		--	180	400	1	20	6	5
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

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End of Test Report



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Test Report

Sample No:	DMSPL/AN/NIOM/01-88	Report No:	DMSPL/AN/BICO/2311/001-008
Name & Address of the Project:	M/s Nadiidih Iron Ore Mines, Under ESI, Steel Limited, (BICO) At Nadiidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/12/2023
		Ref. No:	NIL
		Monitoring Period:	1 st Nov. 2023 to 30 th Nov. 2023
		Equipment Used:	Sound Level Meter
		Protocol Used:	IS-9989
Sample Collected By:	DMSPL Representative	Parameter Required:	As per Govt. Standard
Sample Description: Sample Name:	Ambient Noise Monitoring Noise Level Monitoring	Customer Name:	Nadiidih Iron Ore Mines
		Sample Condition:	Good/Clear

RESULTS

Sr. No.	Location	Date	Latitude:	Longitude:	Day Time [dB(A)]	Night Time [dB(A)]
1	Near Mine Office	04.11.2023	21° 58'09" N	85° 15'33" E	66.3	59.4
2	Near Mines Gate	09.11.2023	21° 58'23" N	85° 15'44" E	64.4	51.3
Standard Limit Industrial Area as per CPCB					75.0	70.0
3	Village Kendubidi	13.11.2023	21° 59'45" N	85° 16'14" E	53.4	42.2
4	Village Badipoda	17.11.2023	21° 58'04" N	85° 18'33" E	53.5	40.5
5	Village Jhirapani	19.11.2023	21° 59'58" N	85° 13'10" E	50.6	40.2
6	Village Kaskira	21.11.2023	21° 55'10" N	85° 15'20" E	53.6	39.1
7	Upwind Direction	25.11.2023	21° 58'14" N	85° 15'20" E	52.4	41.6
8	Downwind Direction	28.11.2023	21° 57'19" N	85° 13'34" E	52.3	44.5
Standard Limit Residential Area as per CPCB					55.0	45.0

CPCB :- Central Pollution Control Board

End of Test Report



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Digcare Mining Solutions Pvt. Ltd.

Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample No:	DMSPL/AAFS/NIOM/01	Report No:	DMSPL/AAFS/BICO/2311/1-6
Name & Address of the Project:	M/s. Naddih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Naddih, PO - Koira Dist. Sundergarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	1 st Nov. 2023 to 30 th Nov. 2023
		Equipment Used:	RDS with all accessories
		Protocol Used:	IS-5182
Sample Collected By:	DMSPL Representative	Parameter Required:	As per TOR Letter
Sample Description:	Ambient Air Quality Monitoring		
Sample Type:	Free Silica Composition		

RESULTS

Chemical Composition of PM 10 with Free Silica

Location	Date	PM10 ($\mu\text{g}/\text{m}^3$)	Free Silica %	Ca ($\mu\text{g}/\text{m}^3$)	Mg ($\mu\text{g}/\text{m}^3$)	Ni ($\mu\text{g}/\text{m}^3$)	Pb ($\mu\text{g}/\text{m}^3$)
Near Mine Office	05.11.2023	74.3	2.0	1.02	0.26	<0.5	0.09
Near Mines Gate	11.11.2023	76.9	1.8	1.10	0.28	<0.5	0.08
Village - Kenduhidi	13.11.2023	66.4	2.1	1.12	0.20	<0.5	0.07
Village Bandipada	20.11.2023	59.3	2.0	1.05	0.24	<0.5	0.09
Village Jhirapani	23.11.2023	67.5	1.9	1.10	0.25	<0.5	0.08
Village Kashira	29.11.2023	61.3	2.0	1.12	0.20	<0.5	0.09

End of Report



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Test-Report

Sample No: Name & Address of the Project:	DMSPL/FD/NIOM/01-08 M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) ✓ At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Report No: Reporting Date: Ref. No: Monitoring Period: Equipment Used: Protocol Used:	DMSPL/FD/BICO/2311/001-008 06/12/2023 NIL 1 st Nov, 2023 to 30 th Nov, 2023 RDS & Personnel Dust Sampler IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter.
Sample Description: Sample Name:	Ambient Air Monitoring Fugitive Dust Sample	Customer Name: Sample Condition	Nadidih Iron Ore Mines Good/Clear

RESULTS

Sr. No.	Location	Date	Latitude:	Longitude:	SPM ($\mu\text{g}/\text{m}^3$)
1	Mine Benches Area	06.11.2023	21° 58'10" N	85° 15'16" E	940.40
2	Haul Road	10.11.2023	21° 58'16" N	85° 15'26" E	955.80
3	Crushing Plant	14.11.2023	21° 58'24" N	85° 15'33" E	1080.80
4	Screening Plant	18.11.2023	21° 58'30" N	85° 15'40" E	870.20
5	Ore Loading Area	24.11.2023	21° 58'28" N	85° 15'10" E	920.30
6	Waste Dump Area	28.11.2023	21° 58'30" N	85° 15'42" E	790.90

Limit as per Consent*	Parameter	Suspended Particulate Matter (SPM 1200 $\mu\text{g}/\text{m}^3$)
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State Pollution Control Board, Odisha.

End of Test Report



(Checked By)



(Approved By)

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Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample Number: DMSPL/GW/NIQML01
Name & Address of the Project: M/s. Nadidih Iron Ore Mines,
Under ESL Steel Limited, (BICO)
At Nadidih, PO - Kolra
Distt. Sundargarh, Odisha India.

Report No.: DMSPL/GW/HCO/2311/001
Format No.: 7.8 F-01
Party Reference No.: NH
Reporting Date: 25/11/2023
Ground Water Level: 3.9 Mtr.

Sample Description: Ground Water Sample
Sample Location: Near Mine Site
Sample Collected by: DMSPL Representative
Sampling and Analysis Protocol: IS 3025 & APHA 23rd Edition 2017
Preservation: Ice Box

Period of Analysis: 14/11/2023-25/11/2023
Receipt Date: 14/11/2023
Sampling Date: 10/11/2023
Sampling Quantity: 5.0 Ltr + 250ml
Sampling Type: Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
1.	pH at 25 °C	APHA -4500-F: B. Electrometric Method	7.90	-	6.5 to 8.5	No Relaxation
2.	Colour	APHA-2120-B. Visual Comparison Method	*BLQ (**LOQ 1.0 Hazen)	Hazen	5	15
3.	Turbidity	APHA-2130-B. Nephelometric Method	*BLQ (**LOQ 1.0 NTU)	NTU	1	5
4.	Odour	APHA-2150-B. Threshold Odour Method	Agreeable	-	Agreeable	Agreeable
5.	Taste	APHA-2160-B. Threshold Test Method	Disagreeable	-	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA-2140-C. EDTA Titrimetric Method	160.20	mg/l	200	600
7.	Calcium as Ca	APHA-3500-Ca-B. EDTA Titrimetric Method	50.20	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA-2320-B. Titrimetric Method	124.30	mg/l	200	600
9.	Chloride as Cl	APHA-4500-Cl-B. Argentometric Method	80.30	mg/l	250	1000
10.	Cyanide as CN	APHA-4500-CN-D	*BLQ (**LOQ 0.02 mg/l)	mg/l	0.05	No Relaxation
11.	Magnesium as Mg	APHA-3500-Mg-B. Calculation Method	7.30	mg/l	30	100
12.	Total Dissolved Solids	APHA-2540-C. Gravimetric Method	360.20	mg/l	500	2000
13.	Sulphate as SO ₄	APHA-4500-F. Turbidimetric Method	80.20	mg/l	200	400
14.	Fluoride as F	APHA-4500-F-D. SPADNS Method	0.40	mg/l	1.0	1.5
15.	Nitrite as NO ₂	IS 3025 (P-34). Chromotropic Method	21.50	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	0.24	mg/l	1.0	No relaxation
17.	Aluminium as Al	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.005 mg/l)	mg/l	0.05	0.2
18.	Boron	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.01 mg/l)	mg/l	0.5	2.4
19.	Chromium as Cr	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.002 mg/l)	mg/l	0.05	No Relaxation



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Test-Report

Sample No.: DMSPL/GW/N1MM/01			Report No.: DMSPL/GW/2311/001			
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS: 10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
20.	Phenolic Compounds	APHA, 5530 C Chloroform Extraction Method	*BLQ (**LOQ 0.0005 mg/l)	mg/l	0.001	0.002
21.	Mineral Oil	(Clause 9 of IS-3025 (Part 39))	*BLQ (**LOQ 0.1 mg/l)	mg/l	1.0	No Relaxation
22.	Anionic Detergents as MBAS	Ames K of IS 13428, IS 3025 (P-68)	*BLQ (**LOQ 0.05 mg/l)	mg/l	0.2	1.0
23.	Residual free Chlorine	IS 3025 P-26, Ortho-tolidine Method	*BDL (**DL 0.15mg/l)	mg/l	--	--
24.	Sodium as Na	APHA, 3500 Na B. Flame Photometric Method	19.50	mg/l	--	--
25.	Potassium as K	APHA, 3500 K B. Flame Photometric Method	6.20	mg/l	--	--
26.	Pb as Zn	IS 3025 (P-65):2014(RA:2019)	0.40	mg/l	5	15
27.	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	0.20	mg/l	0.05	1.5
28.	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.01 mg/l)	mg/l	0.1	0.3
29.	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.002 mg/l)	mg/l	0.003	No Relaxation
30.	Lead as Pb	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.002 mg/l)	mg/l	0.01	No Relaxation
31.	Selenium as Se	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.001 mg/l)	mg/l	0.01	No Relaxation
32.	Arsenic as As	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.005 mg/l)	mg/l	0.01	No Relaxation
33.	Mercury as Hg	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.0005 mg/l)	mg/l	0.001	No Relaxation
34.	Total Coliform	IS 1622,1981, RA-2019	<2	MPN/100ml	Shall not be detectable in any 100 ml sample	
35.	E. Coli	IS 1622,1981, RA-2019	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: - *BLQ-Below Limit of Quantification, **LOQ- Limit of Quantification



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Sample Number: DMSPL/GW/NIOM/02 **Test Report**
Name & Address of the Project: M/s. Nadidih Iron Ore Mines,
Under ESL Steel Limited, (BICO)
At Nadidih, PO - Koira
Distt. Sundargarh, Odisha India.

Report No.: DMSPL/GW/BICO/2311/002
Format No.: 7.8 F-01
Party Reference No.: NIL
Reporting Date: 25/11/2023
Ground Water Level: 4.4 Mtr.

Sample Description: Ground Water Sample
Sample Location: Village Kenduhidi
Sample Collected by: DMSPL Representative
Sampling and Analysis Protocol: IS 3025 & APHA 23rd Edition 2017
Preservation: Ice Box

Period of Analysis: 14/11/2023-25/11/2023
Receipt Date: 14/11/2023
Sampling Date: 10/11/2023
Sampling Quantity: 5.0 Ltr + 250ml
Sampling Type: Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA ,4500-H ⁺ B Electrode Method	7.08	--	6.5 to 8.5	No Relaxation
2.	Colour	APHA ,2120 B; Visual Comparison Method	*BLQ (**LOQ 1.0 Hazen)	Hazen	5	15
3.	Turbidity	APHA, 2130 B; Nephelometric Method	*BLQ (**LOQ 1.0 NTU)	NTU	1	5
4.	Odour	APHA, 2150 B, Threshold Odour Method	Agreeable	--	Agreeable	Agreeable
5.	Taste	APHA ,2160 B, Threshold Test Method	Disagreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA , 2340 C, EDTA Titrimetric Method	270.20	mg/l	200	600
7.	Calcium as Ca	APHA, 3500 Ca B; EDTA Titrimetric Method	50.20	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA , 2520 B, Titrimetric Method	148.28	mg/l	200	600
9.	Chloride as Cl ⁻	APHA, 4500-C ⁻ H, Argentometric Method	78.20	mg/l	250	1000
10.	Cyanide as CN ⁻	APHA, 4500 CN D	*BLQ (**LOQ 0.02 mg/l)	mg/l	0.05	No Relaxation
11.	Magnesium as Mg	APHA , 3500 Mg B, Calculation Method	8.10	mg/l	30	100
12.	Total Dissolved Solids	APHA , 2540 C, Gravimetric Method	340.20	mg/l	500	2000
13.	Sulphate as SO ₄	APHA , 4500 E, Turbidimetric Method	48.20	mg/l	200	400
14.	Fluoride as F ⁻	APHA , 4500-F ⁻ D, SPADNS Method	0.10	mg/l	1.0	1.5
15.	Nitrate as NO ₃	IS 3025 (P-34), Chromotropic Method	2.50	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-65):2014(IA:2019)	0.24	mg/l	1.0	No relaxation
17.	Aluminium as Al	IS 3025 (P-65):2014(IA:2019)	*BLQ (**LOQ 0.005 mg/l)	mg/l	0.05	0.2
18.	Boron	IS 3025 (P-65):2014(IA:2019)	*BLQ (**LOQ 0.01 mg/l)	mg/l	0.5	2.4
19.	Chromium as Cr	IS 3025 (P-65):2014(IA:2019)	*BLQ (**LOQ 0.002 mg/l)	mg/l	0.05	No Relaxation



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Test-Report

Sample No.: DMSPL/GW/NTMM/02			Report No.: DMSPL/GW/2311/002			
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
20.	Phenolic Compounds	APHA, 5510 C Chloroform Extraction Method	*BLQ**LOQ 0.0005 mg/l	mg/l	0.001	0.002
21.	Mineral Oil	Clause 6 of IS:3025 (Part 39)	*BLQ**LOQ 0.1 mg/l	mg/l	1.0	No Relaxation
22.	Anionic Detergents as MBAS	Ames K of IS 13428, IS 3025 (P-68)	*BLQ**LOQ 0.05 mg/l	mg/l	0.2	1.0
23.	Residual Free Chlorine	IS 3025 P-26, Ortho-tolidine Method	*BDL**DL 0.15mg/l	mg/l	--	--
24.	Sodium as Na	APHA, 3500 Na B. Flame Photometric Method	17.50	mg/l	--	--
25.	Potassium as K	APHA 3500 K B. Flame Photometric Method	5.20	mg/l	--	--
26.	Zinc as Zn	IS 3025 (P-65), 2014 (RA-2019)	1.24	mg/l	5	15
27.	Copper as Cu	IS 3025 (P-65), 2014 (RA-2019)	0.10	mg/l	0.05	1.5
28.	Manganese as Mn	IS 3025 (P-65), 2014 (RA-2019)	*BLQ**LOQ 0.01 mg/l	mg/l	0.1	0.3
29.	Cadmium as Cd	IS 3025 (P-65), 2014 (RA-2019)	*BLQ**LOQ 0.002 mg/l	mg/l	0.001	No Relaxation
30.	Lead as Pb	IS 3025 (P-65), 2014 (RA-2019)	*BLQ**LOQ 0.002 mg/l	mg/l	0.01	No Relaxation
31.	Selenium as Se	IS 3025 (P-65), 2014 (RA-2019)	*BLQ**LOQ 0.001 mg/l	mg/l	0.01	No Relaxation
32.	Arsenic as As	IS 3025 (P-65), 2014 (RA-2019)	*BLQ**LOQ 0.005 mg/l	mg/l	0.01	No Relaxation
33.	Mercury as Hg	IS 3025 (P-65), 2014 (RA-2019)	*BLQ**LOQ 0.0005 mg/l	mg/l	0.001	No Relaxation
34.	Total Coliform	IS 1622, 1981, RA-2019	<2	MPN/100ml	Shall not be detectable in any 100 ml sample	
35.	E. Coli	IS 1622, 1981, RA-2019	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: - *BLQ-Below Limit of Quantification, **LOQ-Limit of Quantification



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Test Report

Sample Number:	DMSPL/GW/NIOM03	Report No.:	DMSPL/GW/BICO/2311/003
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Format No.:	7.8 F-01
		Party Reference No.:	NIL
		Reporting Date:	25/11/2023
		Ground Water Level:	4.6 Mtr.

Sample Description:	Ground Water - Sample	Period of Analysis:	14/11/2023-25/11/2023
Sample Location:	Village Badipada	Receipt Date:	14/11/2023
Sample Collected by:	DMSPL Representative	Sampling Date:	10/11/2023
Sampling and Analysis Protocol:	IS 3025 & APHA 23 rd Edition 2017	Sampling Quantity:	5.0 Ltr = 250ml
Preservation:	Ice Box	Sampling Type:	Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
1	pH (at 25°C)	APHA ,4500-H ⁺ B-Electrometric Method	7.40	--	6.5 to 8.5	No Relaxation
2	Colour	APHA, 2120 B, Visual Comparison Method	*BLQ (**LOQ 1.0 Hazen)	Hazen	5	15
3	Turbidity	APHA, 2130 B, Nephelometric Method	*BLQ (**LOQ 1.0 NTU)	NTU	1	5
4	Odour	APHA, 2150 B, Threshold Odour Method	Agreeable	--	Agreeable	Agreeable
5	Taste	APHA, 2160 B, Threshold Test Method	Agreeable	--	Agreeable	Agreeable
6	Total Hardness as CaCO ₃	APHA , 2340 C, EDTA Titrimetric Method	148.20	mg/l	200	600
7	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	90.20	mg/l	75	200
8	Alkalinity as CaCO ₃	APHA , 2320 B, Titrimetric Method	121.30	mg/l	200	600
9	Chloride as Cl	APHA, 4500-Cl ⁻ B, Argentometric Method	31.20	mg/l	250	1000
10	Cyanide as CN	APHA , 4800 CN ⁻ D	*BLQ (**LOQ 0.02 mg/l)	mg/l	0.05	No Relaxation
11	Magnesium as Mg	APHA , 3500 Mg B, Calculation Method	3.50	mg/l	30	100
12	Total Dissolved Solids	APHA , 2540 C, Gravimetric Method	368.20	mg/l	500	2000
13	Sulphate as SO ₄	APHA , 4500 E, Turbidimetric Method	92.40	mg/l	200	400
14	Fluoride as F	APHA , 4500-F ⁻ D, SPADNS Method	0.50	mg/l	1.0	1.5
15	Nitrate as NO ₃	IS 3025 (P-34), Chromotropic Method	24.50	mg/l	45	No Relaxation
16	Iron as Fe	IS 3025 (P-65), 2014(RA:2019)	0.34	mg/l	1.0	No relaxation
17	Aluminium as Al	IS 3025 (P-65), 2014(RA:2019)	*BLQ (**LOQ 0.005 mg/l)	mg/l	0.03	0.2
18	Boron	IS 3025 (P-65), 2014(RA:2019)	*BLQ (**LOQ 0.01 mg/l)	mg/l	0.5	2.4
19	Chromium as Cr	IS 3025 (P-65), 2014(RA:2019)	*BLQ (**LOQ 0.003 mg/l)	mg/l	0.05	No Relaxation



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Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample No.: DMSPL/GW/NDMM/03			Report No: DMSPL/GW/2311/003			
S. No.	Parameter	Test Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
20.	Phenolic Compounds	APHA 5530 C Chloroform Extraction Method	*BLQ(**)LOQ 0.0005 mg/l	mg/l	0.001	0.002
21.	Mineral Oil	Clause 6 of IS-3025(Part 39)	*BLQ(**)LOQ 0.1 mg/l	mg/l	1.0	No Relaxation
22.	Arsonic Detergents as MBAS	Annex K of IS 12428, IS 3025 (P-68)	*BLQ(**)LOQ 0.05 mg/l	mg/l	0.2	1.0
23.	Residual free Chlorine	IS 3025 P-26, Ortho-chloridine Method	*BDL(**)DL 0.15mg/l	mg/l	-	-
24.	Sulfate as Na	APHA 3500 Na-B, Flame Photometric Method	31.50	mg/l	-	-
25.	Pyrosulfate as K	APHA 3500 KB, Flame Photometric Method	6.80	mg/l	-	-
26.	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	0.80	mg/l	5	15
27.	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	0.10	mg/l	0.05	1.5
28.	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*BLQ(**)LOQ 0.01 mg/l	mg/l	0.1	0.3
29.	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*BLQ(**)LOQ 0.002 mg/l	mg/l	0.003	No Relaxation
30.	Lead as Pb	IS 3025 (P-65):2014(RA:2019)	*BLQ(**)LOQ 0.002 mg/l	mg/l	0.01	No Relaxation
31.	Selenium as Se	IS 3025 (P-65):2014(RA:2019)	*BLQ(**)LOQ 0.001 mg/l	mg/l	0.01	No Relaxation
32.	Arsenic as As	IS 3025 (P-65):2014(RA:2019)	*BLQ(**)LOQ 0.005 mg/l	mg/l	0.01	No Relaxation
33.	Mercury as Hg	IS 3025 (P-65):2014(RA:2019)	*BLQ (**)LOQ 0.0005 mg/l	mg/l	0.001	No Relaxation
34.	Total Coliform	IS 1622:1981, RA-2019	<2	MPN/100ml	Shall not be detectable in any 100 ml sample	
35.	E. Coli	IS 1622:1981, RA-2019	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: *BLQ-Below Limit of Quantification, **LOQ- Limit of Quantification



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Digcare Mining Solutions Pvt. Ltd.

Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample Number: DMSPL/GW/NIOM/04 Report No: DMSPL/GW/BI/CO/2311/004
 Name & Address of the Project: M/s. Nadidih Iron Ore Mines, Under: ESL Steel Limited, (BICO) At: Nadidih, PO: Koirn Dist: Sundargarh, Odisha India. Format No.: 7.8 F-01
 Party Reference No.: Nil Reporting Date: 25/11/2023 Ground Water Level: 4.0 Mtr.

Sample Description: Ground Water Sample Period of Analysis: 14/11/2023-25/11/2023
 Sample Location: Village Jhirapani Receipt Date: 14/11/2023
 Sample Collected by: DMSPL Representative Sampling Date: 10/11/2023
 Sampling and Analysis Protocol: IS 3025 & APHA 23rd Edition 2017 Sampling Quantity: 5.0 Ltr + 250ml
 Preservation: Ice Box Sampling Type: Grab

S. No	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA, 4500H ⁺ B Electronic Method	7.92	--	6.5 to 8.5	No Relaxation
2.	Colour	APHA, 2120 B, Visual Comparison Method	*BLQ (**LDQ) (0 Hazen)	Hazen	5	15
3.	Turbidity	APHA, 2130 B, Nephelometric Method	*BLQ (**LDQ) (0 NTU)	NTU	1	5
4.	Odour	APHA, 2150 B, Threshold Odour Method	Agreeable	--	Agreeable	Agreeable
5.	Taste	APHA, 2160 B, Threshold Test Method	Dis-Agreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA, 2340 C, EDTA Titrimetric Method	150.20	mg/l	200	600
7.	Calcium as Ca	APHA, 3800 Ca B, EDTA Titrimetric Method	38.29	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA, 2320 B, Titrimetric Method	148.50	mg/l	200	600
9.	Chloride as Cl	APHA, 4500-C ₂ B, Argentometric Method	86.50	mg/l	250	1000
10.	Cyanide as CN	APHA, 4500 CN D	*BLQ (**LDQ) 0.02 (mg/l)	mg/l	0.05	No Relaxation
11.	Magnesium as Mg	APHA, 3500 Mg B, Calculation Method	14.20	mg/l	30	100
12.	Total Dissolved Solids	APHA, 2540 C, Gravimetric Method	350.20	mg/l	500	2000
13.	Sulfate as SO ₄	APHA, 4500 E, Turbidimetric Method	54.20	mg/l	200	400
14.	Fluoride as F ⁻	APHA, 4500-F ⁻ D, SPADNS Method	1.20	mg/l	1.0	1.5
15.	Nitrate as NO ₃	IS 3025 (P-54), Chromogenic Method	23.10	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-65), 2014 (RA:2019)	0.28	mg/l	1.0	No relaxation
17.	Aluminium as Al	IS 3025 (P-65), 2014 (RA:2019)	*BLQ (**LDQ) 0.005 (mg/l)	mg/l	0.05	0.2
18.	Boron	IS 3025 (P-65), 2014 (RS:2019)	*BLQ (**LDQ) 0.01 (mg/l)	mg/l	0.5	2.4
19.	Chromium as Cr	IS 3025 (P-65), 2014 (RA:2019)	*BLQ (**LDQ) 0.002 (mg/l)	mg/l	0.05	No Relaxation



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ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample No.: DMSPL/GW/NTMM/04

Report No.: DMSPL/GW/2311/004

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500-2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
20	Phenolic Compounds	APHA 5530 C Chloroform Extraction Method	*BLQ/**LOQ 0.0005 mg/l	mg/l	0.001	0.002
21	Mixed Oil	Clause 6 of IS:3025(Part-39)	*BLQ/**LOQ 0.1 mg/l	mg/l	1.0	No Relaxation
22	Anionic Detergents as MBAS	Amex K of IS 13428, IS 3025 (P-68)	*BLQ/**LOQ 0.05 mg/l	mg/l	0.2	1.0
23	Residual free Chlorine	IS 3025 P-26, Ortho-toluidine Method	*BDL/**DL 0.15mg/l	mg/l	--	--
24	Sodium as Na	APHA 3500 Na B, Flame Photometric Method	18.20	mg/l	--	--
25	Potassium as K	APHA 3500 K B, Flame Photometric Method	5.30	mg/l	--	--
26	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	1.28	mg/l	5	15
27	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	0.10	mg/l	0.05	1.5
28	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*BLQ/**LOQ 0.01 mg/l	mg/l	0.1	0.3
29	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*BLQ/**LOQ 0.002 mg/l	mg/l	0.002	No Relaxation
30	Lead as Pb	IS 3025 (P-65):2014(RA:2019)	*BLQ/**LOQ 0.002 mg/l	mg/l	0.01	No Relaxation
31	Selenium as Se	IS 3025 (P-65):2014(RA:2019)	*BLQ/**LOQ 0.001 mg/l	mg/l	0.01	No Relaxation
32	Arsenic as As	IS 3025 (P-65):2014(RA:2019)	*BLQ/**LOQ 0.005 mg/l	mg/l	0.01	No Relaxation
33	Mercury as Hg	IS 3025 (P-65):2014(RA:2019)	*BLQ/**LOQ 0.0005 mg/l	mg/l	0.001	No Relaxation
34	Total Coliform	IS 1622,1981, RA-2019	<2	MPN/100ml	Shall not be detectable in any 100 ml sample	
35	E. Coli	IS 1622,1981, RA-2019	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: - *BLQ-Below Limit of Quantification, **LOQ-Limit of Quantification



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Tax Invoice

(Original for Recipient)

Digcare Mining Solutions Private Limited A 7, Spaze Privy, Sector 72, Gurgaon Haryana 122101 GST No. 06AAHCD0265C125		Invoice No. – Dig/2023-24/026		Dated – 12/12/2023	
		Delivery Note -		Mode Terms of Payments – 15 Days	
		Supplier's Ref.		Other Reference	
		Purchase Order No.		Dated	
Buyer to: NARAYANI SONS India PVT LTD. (BICO) STATION ROAD, NEAR OMC OFFICE, BARBIL, Keonjhar, Odisha, 758035 GST no 21AADCM7262N1ZA		Dispatch Documents No.		Delivery Note Date	
		Dispatch Through		Destination	
		Terms of Delivery			
		Bill for		October-2023	
S. No.	Description of Goods	HSN Code	Quantity	Rate Per Unit (Rs)	Amount (Rs)
1	Ambient Air Quality (5 parameter)	9983	54	900.00	48,600.00
2	Ambient Air Quality (12 parameter)	9983	6	1,500.00	9,000.00
3	Fugitive Dust Emission	9983	6	500.00	3,000.00
4	Stack Monitoring	9983	1	1,600.00	1,600.00
5	Noise Level Monitoring	9983	8	150.00	1,200.00
6	Surface Water Quality	9983	2	2,000.00	4,000.00
7	Ground water	9983	4	500.00	2,000.00
8	Soil sample	9983	1	2,000.00	2,000.00
9	Ground water level	9983	4	400.00	1,600.00
10	Free Silica	9983	6	1,000.00	6,000.00
Amount					79,000.00
GST @ 18 %					14,220.00
Grand Total					93,220.00
Amount Chargeable (In Words) Rupees Ninety Three Thousand Two Hundred Twenty only					

Payment Details	
Name of Recipient	Digcare Mining Solutions Pvt. Ltd.
Bank	Axis Bank Ltd.
Account Number	923020006694847
Branch	Sector 49 Gurgaon 122018
IFSC Code	UTIB0001262
Pan Number	AAHCD0265C
GST Number	06AAHCD0265C125

For Digcare Mining Solutions Pvt. Ltd.

Authorized Signatory



Declaration:

- 1 Our Liability is Invoice Value Only
- 2 Kindly Send the acknowledgement after making payment against tax invoice
- 3 All dispute are subjected to Gurgaon, Jurisdiction

Tax Invoice

(Original For Recipient)

Digcare Mining Solutions Private Limited A 7, Spaze Privy, Sector 72, Gurgaon Haryana 122101 GST No. 06AAHCD0265C125		Invoice No. – Dig/2023- 24/027		Dated – 12/12/2023	
		Delivery Note -		Mode Terms of Payments – 15 Days	
		Supplier's Ref.		Other Reference	
		Purchase Order No.		Dated	
Buyer to: NARAYANI SONS India PVT LTD, (Feegrade) STATION ROAD, NEAR OMC OFFICE, BARBIL, Keonjhar, Odisha, 758035 GST no 21AADCM7262N1ZA		Dispatch Documents No.		Delivery Note Date	
		Dispatch Through		Destination	
		Terms of Delivery			
		Bill for		December-2023	
S. No.	Description of Goods	HSN Code	Quantity	Rate Per Unit (Rs)	Amount (Rs)
1	Ambient Air Quality (5 parameter)	9983	54	900.00	48,600.00
2	Ambient Air Quality (12 parameter)	9983	6	1,500.00	9,000.00
3	Fugitive Dust Emission	9983	6	500.00	3,000.00
4	Stack Monitoring	9983	1	1,600.00	1,600.00
5	Noise Level Monitoring	9983	8	150.00	1,200.00
6	Surface Water	9983	2	2,000.00	4,000.00
7	Ground water	9983	4	500.00	2,000.00
8	Soil sample	9983	1	2,000.00	2,000.00
9	Ground water level	9983	4	400.00	1,600.00
10	Free Silica	9983	6	1,000.00	6,000.00
Total Amount					79,000.00
GST @ 18 %					14,220.00
Grand Total					93,220.00
Amount Chargeable (In Words). Rupees Ninety-Three Thousand Two Hundred Twenty Only					

Payment Details	
Name of Recipient	Digcare Mining Solutions Pvt. Ltd.
Bank	Axis Bank Ltd.
Account Number	923020006694847
Branch	Sector 49 Gurgaon 122018
IFSC Code	UTIB0001262
Pan Number	AAHCD0265C
GST Number	06AAHCD0265C125

For Digcare Mining Solutions Pvt. Ltd.

Authorized Signatory



Declaration:-

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Digcare Mining Solutions Pvt. Ltd.

Plot No. 672/18, First Floor, Khandasa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample Number:	DMSPL/NIOM/S/01	Report No.:	DMSPL/S/BICO/2311/001
Name & Address of Party:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Format No.:	5.10 F-01
		Party Reference No.:	NIL
Sample Description:	SOIL	Reporting Date:	30/11/2023
Sampling Location:	Inside Mine Area	Receipt Date:	24/11/2023
Sample Collected By:	DMSPL Lab Representative	Sampling Date:	20/11/2023
		Type of Sampling:	Composite
Sampling & Analysis Protocol:	IS 2720 & USDA	Sampling Quantity:	2.0 Kg
		Depth of Sampling:	30 cm
		Packing Status:	Temp Sealed

S. No.	Parameter	Protocol	Result	Unit
1.	pH (at 25 °C)	IS - 2720 (P-26, 1987)	8.10	--
2.	Conductivity	IS:14767:2000 Reaffirmed 2006	0.32	mS/cm
3.	Soil Texture	USDA Method, 1968	Silty Loam	--
4.	Color	USDA Method, 1968	Yellowish	--
5.	Water holding capacity	USDA Method, 1968	21.40	%
6.	Bulk density	USDA Method, 1968	1.30	gm/cc
7.	Chloride as Cl	USDA Method, 1968	25.50	mg/100gm
8.	Calcium as Ca	USDA Method, 1968	30.50	mg/100gm
9.	Sodium as Na	USDA Method, 1968	29.30	mg/100gm
10.	Potassium as K	USDA Method, 1968	55.40	kg/hect.
11.	Organic Matter	IS:2720 (P-22, 1972)	0.42	%
12.	Magnesium as Mg	USDA Method, 1968	11.30	mg/100gm
13.	Available Nitrogen as N	IS:14684, 1999	180.40	kg/hect.
14.	Available Phosphorus	USDA, APHA-4500P	33.40	kg/hect.
15.	Zinc as Zn	APHA-3030D, APHA-3111B	4.30	mg/100gm
16.	Manganese as Mn	APHA-3030D, APHA-3111B	2.50	mg/100gm
17.	Chromium as Cr	APHA-3030D, APHA-3111B	1.40	mg/100gm
18.	Lead as Pb	APHA-3030D, APHA-3111B	0.60	mg/100gm
19.	Cadmium as Cd	APHA-3030D, APHA-3111B	1.70	mg/100gm
20.	Copper as Cu	APHA-3030D, APHA-3111B	3.10	mg/100gm



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Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample Number:	DMSPL/NIOM/ST/01	Report No.:	DMSPL/ST/BICO/2311/001
Name & address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Format No.:	7.8 F-03
		Party Reference No.:	NIL
		Reporting Date:	25/11/2023
		Period of Analysis:	18/11/2023 to 25/11/2023
		Receipt Date:	15/11/2023

Sample Description : Stack Emission Monitoring

General Information

Sampling Location	:	Mine Site
Sample Collected by	:	DMSPL Lab Representative
Date of Sampling	:	12/11/2023
Sampling Duration (Minutes)	:	45.0 Min
Stack attached to	:	DG Set
Make of stack	:	MS
Diameter of stack (m)	:	0.30 Meter
Instruments calibration status	:	Calibrated
Meteorological Condition	:	Clear Sky
Ambient Temperature - Ta (°C)	:	26.0
Temperature of stack Gases - Ts (°C)	:	216.0
Velocity of stack Gases (m/sec.)	:	9.10
Flow rate of PM (LPM)	:	22.0
Flow rate of Gas (LPM)	:	2.0
Sampling condition	:	Isokinetic
Protocol used	:	IS:11255

RESULTS

S. No.	Test Parameters	Test Method	Results	Units	Limits as Per CPCB
1.	Particulate Matter (as PM)	IS:11255 (P-1), Gravimetric Method	40.20	mg/Nm ³	75
2.	Oxide of Nitrogen (as NOx)	IS:11255 (P-7)	154.2	ppm	710
3.	NMHC	DMSPL/ENV/STP/ST/FGA/01, Issue No.- 01/01/11/21	16.2	mg/Nm ³	100
4.	Sulphur Dioxide (as SO ₂)	IS:11255 (P-2), Titrimetric Method	24.4	mg/Nm ³	--
5.	Carbon Monoxide (as CO)	DMSPL/ENV/STP/ST/FGA/01, Issue No.- 01/01/11/21	28.4	mg/Nm ³	150

Note: * ICP Laboratory Standard Testing Procedure

*** End of Report ***



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Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test-Report

Sample Number: DMSPL/NIOM/SW/02
Name of the Project: M/s Nadidih Iron Ore Mines,
Under ESL Steel Limited, (BICO)
At Nadidih, PO - Koira
Distt. Sundargarh, Odisha India.

Report No.: DMSPL/SW/BICIO/2311/002
Format No.: 7.8 F-01
Party Reference No.: Nil
Reporting Date: 25/11/2023

Sample Description: Surface Water Sample
Sampling Location: River Sample (Near Mines Downstream)
Sample Collected by: DMSPL Lab Representative
Preservation: Ice Box
Sampling and Analysis Protocol: APHA & IS, 23rd Edition 2017

Period of Analysis: 18/11/2023 - 25/11/2023
Receipt Date: 18/11/2023
Sampling Date: 15/11/2023
Sampling Quantity: 2.0 Ltr + 250ml.
Sampling Type: Composite

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	APHA ,4500-H ⁺ H Electronic Method	7.50	--
2.	Colour	APHA ,2120 B, Visual Comparison Method	25.0	Hzm
3.	Turbidity	APHA, 2130 B, Nephelometric Method	<1	NTU
4.	Odour	APHA, 2150 B, Threshold Test Method	Agreeable	--
5.	Total Hardness as CaCO ₃	APHA , 2340 C, EDTA Titrimetric Method	98.1	mg/l
6.	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	28.2	mg/l
7.	Alkalinity as CaCO ₃	APHA , 2320 B, Titrimetric Method	72.2	mg/l
8.	Chloride as Cl	APHA, 4500-Cl ⁻ B, Argentometric Method	40.20	mg/l
9.	Total Residual Chlorine	IS 3025 P:26, Ortho-tolidine Method	*BDL (**DL: 0.15mg/l)	mg/l
10.	Cyanide as CN ⁻	APHA , 4500 CN ⁻ D, Barbituric Acid Method	*BDL (**DL: 0.02 mg/l)	mg/l
11.	Magnesium as Mg	APHA , 3500 Mg B, Calculation Method	5.40	mg/l
12.	Total Dissolved Solids	APHA , 2540 C, Gravimetric Method	250.0	mg/l
13.	Total Suspended solids	APHA,2540 D Gravimetric Method	19.0	mg/l
14.	Dissolved Oxygen	APHA, 4500 O B, Iodometric Method	6.1	mg/l
15.	Sulphide	IS 3025 (P-29):2022	32.20	mg/l
16.	Fluoride as F ⁻	APHA , 4500-F D, SPADNS Method	0.40	mg/l
17.	BOD (3 Days @ 20°C)	APHA, 5210 C / IS 3025,P-44	10.20	mg/l
18.	COD	APHA, 5220 B, Open Reflux Method	36.40	mg/l

(Checked By)

(Approved By)

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Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample No.: DMSPL/NIOM/SW/02			Report No.: DMSPL/SW/BICO/2311/002	
S. No.	Parameter	Test-Method	Result	Unit
19.	Conductivity (at 25 °C)	APHA, 2510 B, Conductivity Meter Method	0.410	mS/cm
20.	Nitrate as NO ₃	IS 3025 (P-34), Chromotropic Method	4.42	mg/l
21.	Sodium as Na	APHA, 3500 Na B, Flame Photometric Method	24.20	mg/l
22.	Potassium as K	APHA 3500 KB, Flame Photometric Method	5.60	mg/l
23.	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.002 mg/l)	mg/l
24.	Aluminum as Al	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.002 mg/l)	mg/l
25.	Boron	IS 3025 (P-65):2014(RA:2019)	0.44	mg/l
26.	Hexavalent Chromium as Cr	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.002 mg/l)	mg/l
27.	Phenolic Compounds	APHA, 5530 C Chloroform Extraction Method	*BDL (**DL 0.0004mg/l)	mg/l
28.	Mineral Oil	Clause 6 of IS:3025(Part 39)	*BDL (**DL 0.1 mg/l)	mg/l
29.	Anionic Detergent as MBAS	APHA, 5540 C MBAS Method	*BDL (**DL 0.05 mg/l)	mg/l
30.	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.05 mg/l)	mg/l
31.	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.1 mg/l)	mg/l
32.	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.01 mg/l)	mg/l
33.	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.002 mg/l)	mg/l
34.	Temperature	IS 3025 (P-9):2021	24.8	°C
35.	Oil & Grease	IS 3025 (P-39):2021	*BDL (**DL 2.0 mg/l)	mg/l
36.	Free Ammonia	IS 3025 (P-34):1988	*BDL (**DL 0.20 mg/l)	mg/l
37.	Total Kjeldahl Nitrogen	IS 3025 (P-34):1988	*BDL (**DL 0.20 mg/l)	mg/l
38.	Nickel	Standard Operating Procedure	*BDL (**DL 0.02 mg/l)	mg/l
39.	Vanadium	Standard Operating Procedure	*BDL (**DL 0.02 mg/l)	mg/l
40.	Ammonical Nitrogen	IS 3025 (P-34):1988	*BDL (**DL 0.20 mg/l)	mg/l
41.	Total Coliform	IS 1622:1981, RA:2019	300	MPN/100ml
42.	Fecal Coliform	IS 1622:1981, RA:2019	180	MPN/100ml

*BDL-Below Detection Limit, **DL- Detection Limit.



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Digcare Mining Solutions Pvt. Ltd.

Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Sample Number:	DMSPL/NIOM/SW/01	Test-Report	Report No.:	DMSPL/SW/BICO/2311/001
Name of the Project:	M/s. Naddidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Naddidih, PO - Koira Distt. Sundargarh, Odisha India.		Format No.:	7.8 F-01
			Party Reference No.:	Nil.
			Reporting Date:	25/11/2023
Sample Description:	Surface Water Sample		Period of Analysis:	18/11/2023 - 25/11/2023
Sampling Location:	River Sample (Near Mines Upstream)		Receipt Date:	18/11/2023
Sample Collected by:	DMSPL Lab Representative		Sampling Date:	15/11/2023
Preservation:	Ice Box		Sampling Quantity:	2.0 Ltr + 250ml.
Sampling and Analysis Protocol:	APHA & IS: 23 rd Edition 2017		Sampling Type:	Composite

S. No.	Parameter	Test-Method	Result	Unit
1	pH (at 25 °C)	APHA, 4500-H ⁺ B. Electrometric Method	7.40	--
2	Colour	APHA, 2120 B. Visual Comparison Method	20.0	Hazen
3	Turbidity	APHA, 2130 B. Nephelometric Method	<1	NTU
4	Odour	APHA, 2150 B. Threshold Test Method	Agreeable	--
5	Total Hardness as CaCO ₃	APHA, 2340 C. EDTA Titrimetric Method	90.2	mg/l
6	Calcium as Ca	APHA, 3500 Ca B. EDTA Titrimetric Method	24.2	mg/l
7	Alkalinity as CaCO ₃	APHA, 2320 B. Titrimetric Method	78.5	mg/l
8	Chloride as Cl ⁻	APHA, 4500-Cl ⁻ B. Argentometric Method	46.2	mg/l
9	Total Residual Chlorine	IS 3025 P-26. Orthotoluidine Method	*BDL (**DL: 0.15mg/l)	mg/l
10	Cyanide as CN ⁻	APHA, 4500 CN ⁻ D. Barbituric Acid Method	*BDL (**DL: 0.02 mg/l)	mg/l
11	Magnesium as Mg	APHA, 3500 Mg B. Calculation Method	5.40	mg/l
12	Total Dissolved Solids	APHA, 2540 C. Gravimetric Method	260	mg/l
13	Total Suspended Solids	APHA 2540 D. Gravimetric Method	29.0	mg/l
14	Dissolved Oxygen	APHA 4500 O B. Iodometric Method	6.0	mg/l
15	Sulphide	IS 3025 (P-29):2022	4.2	mg/l
16	Fluoride as F ⁻	APHA, 4500-F ⁻ D. SPADNS Method	0.22	mg/l
17	BOD (3 Days at 27°C)	APHA, 5210 C IS 3025:P-44	14.10	mg/l
18	COD	APHA, 5220 B. Open Reflux Method	39.20	mg/l



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Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
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Test Report

Sample No.: DMSPL/NIOM/SW/01			Report No.: DMSPL/SW/BICO/2311/001	
S. No.	Parameter	Test-Method	Result	Unit
19.	Conductivity (at 25 °C)	APHA, 2510 B, Conductivity Meter Method	0.430	mS/cm
20.	Nitrate as NO ₃	IS 3025 (P-34), Chromotropic Method	4.10	mg/l
21.	Sodium as Na	APHA, 3500 Na B, Flame Photometric Method	19.50	mg/l
22.	Potassium as K	APHA 3500 K B, Flame Photometric Method	6.20	mg/l
23.	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	0.40	mg/l
24.	Aluminium as Al	IS 3025 (P-65):2014(RA:2019)	*BDL(**DL 0.002 mg/l)	mg/l
25.	Boron	IS 3025 (P-65):2014(RA:2019)	*BDL(**DL 0.002 mg/l)	mg/l
26.	Hexavalent Chromium as Cr	IS 3025 (P-65):2014(RA:2019)	*BDL(**DL 0.002 mg/l)	mg/l
27.	Phenolic Compounds	APHA, 5530 C, Chloroform Extraction Method	*BDL(**DL 0.0004mg/l)	mg/l
28.	#Mineral Oil	Clause 6 of IS:3025(Para: 39)	*BDL(**DL 0.1 mg/l)	mg/l
29.	#Anionic Detergents as MBAS	APHA, 5540 C, MBAS Method	*BDL(**DL 0.05 mg/l)	mg/l
30.	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	*BDL(**DL 0.05 mg/l)	mg/l
31.	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	*BDL(**DL 0.1 mg/l)	mg/l
32.	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*BDL(**DL 0.01 mg/l)	mg/l
33.	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*BDL(**DL 0.002 mg/l)	mg/l
34.	Leopentate	IS 3025 (P-9):2021	24.3	mg/l
35.	Oil & Grease	IS 3025 (P-19):2021	*BDL(**DL 2.0 mg/l)	mg/l
36.	Free Ammonia	IS 3025 (P-34):1988	*BDL(**DL 0.20 mg/l)	mg/l
37.	Total kjeldahl Nitrogen	IS 3025 (P-34):1988	*BDL(**DL 0.20 mg/l)	mg/l
38.	Nickel	Standard Operating Procedure	*BDL(**DL 0.02 mg/l)	mg/l
39.	Vanadium	Standard Operating Procedure	*BDL(**DL 0.02 mg/l)	mg/l
40.	Ammonical Nitrogen	IS 3025 (P-34):1988	*BDL(**DL 0.20 mg/l)	mg/l
41.	Total Coliform	IS 1622,1981, RA-2019	280	MPN/100ml
42.	Fecal Coliform	IS 1622,1981, RA-2019	160	MPN/100ml

*BDL - Below Detection Limit, **DL - Detection Limit



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Test-Report

Sample No:	DMSPL/AA/NIO-01-09	Report No:	DMSPL/AA/BIC/2312/001-009
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO), At Nadidih, PO - Kaira, Distt. Sundargarh, Odisha India.	Reporting Date:	06/01/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Dec. 2023 to 31 st Dec. 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Near Mine Office (A1)	Sample Condition:	Good/Clear
Latitude:	21° 58'09" N	Longitude:	85° 15'33" E

RESULTS

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
01.12.2023	63.2	45.3	16.2	27.4	0.61
04.12.2023	65.4	41.9	15.6	33.5	0.62
05.12.2023	72.3	41.8	16.4	24.6	0.63
11.12.2023	61.8	44.5	16.5	31.2	0.62
12.12.2023	70.9	43.1	17.2	27.6	0.70
18.12.2023	73.9	29.9	18.2	29.2	0.56
19.12.2023	74.2	37.8	17.3	24.9	0.54
25.12.2023	64.9	28.2	18.3	26.3	0.56
26.12.2023	73.2	37.3	19.3	24.1	0.54

Limit as per NAAQS*	Parameter	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
	--	--	100	60	80	80
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

National Ambient Air Quality Standards.

End of Test Report



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Test Report

Sample No:	DMSPL/AA/NIO/10-18	Report No:	DMSPL/AA/BIC/2312/010-018
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/01/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Dec. 2023 to 31 st Dec. 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Near Mines Gate (A2)	Sample Condition:	Good/Clear
Latitude:	21° 58'23" N	Longitude:	85° 15'44" E

RESULTS

Date	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)
01.12.2023	84.9	43.5	10.0	30.5	0.74
04.12.2023	82.7	42.2	19.7	29.4	0.92
05.12.2023	85.2	39.3	17.9	26.7	0.86
11.12.2023	77.9	44.4	18.3	34.5	0.82
12.12.2023	83.4	39.3	17.2	26.6	0.96
18.12.2023	82.5	45.4	16.6	25.5	0.95
19.12.2023	69.4	45.9	15.6	33.5	0.66
25.12.2023	72.3	44.8	17.4	26.6	0.64
26.12.2023	64.8	45.5	18.5	32.2	0.66

Limit as per NAAQS*	Parameter	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)
	100	60	80	80
Method of Analysis	..	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

*National Ambient Air Quality Standards.

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Test Report

Sample No:	DMSPL/AA/NIO/19-27	Report No:	DMSPL/AA/BIC/2312/019-027
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/01/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Dec. 2023 to 31 st Dec. 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village - Kendubadi (A3)	Sample Condition:	Good/Clear
Latitude:	21° 59'45" N	Longitude:	85° 16'14" E

RESULTS

Date	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)
02.12.2023	63.5	46.6	15.7	27.4	0.65
06.12.2023	65.2	23.4	8.1	18.4	0.53
07.12.2023	58.3	30.3	9.5	17.8	0.54
13.12.2023	64.4	29.9	7.1	16.9	0.56
14.12.2023	57.5	31.4	9.5	19.1	0.54
20.12.2023	65.5	46.6	15.7	26.4	0.66
21.12.2023	62.2	24.4	7.1	14.4	0.53
27.12.2023	58.3	30.3	7.3	15.8	0.58
28.12.2023	66.2	36.4	8.5	17.7	0.83

Limit as per NAAQS*	Parameter	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)
	-	-	100	60	80	80
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

*National Ambient Air Quality Standards.

End of Test Report



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Test-Report

Sample No:	DMSPL/AA/NIO/28-36	Report No:	DMSPL/AA/BIC/2312/028-036
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESI, Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sandargarh, Odisha India.	Reporting Date:	06/01/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Dec. 2023 to 31 st Dec. 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Badipada (A4)	Sample Condition:	Good/Clear
Latitude:	21° 58'04" N	Longitude:	85° 18'33" E

RESULTS

Date	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)
02.12.2023	72.3	40.8	16.4	25.6	0.60
06.12.2023	64.8	44.5	17.5	31.2	0.62
07.12.2023	73.9	43.1	16.2	27.6	0.70
13.12.2023	65.5	46.6	19.7	26.4	0.66
14.12.2023	66.2	28.4	8.1	17.4	0.53
20.12.2023	57.3	33.3	7.5	16.6	0.54
21.12.2023	64.4	29.9	7.1	17.9	0.58
27.12.2023	57.5	32.4	8.3	15.1	0.56
28.12.2023	60.8	42.5	13.5	31.2	0.62

Limit as per NAAQS*	Parameter	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)
		--	100	60	80	80
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

*National Ambient Air Quality Standards.

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Test Report

Sample No:	DMSPL/AA/NIO/37-45	Report No:	DMSPL/AA/BIC/2312/037-045
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Kaira Dist. Sundargarh, Odisha India.	Reporting Date:	06/01/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Dec. 2023 to 31 st Dec. 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Jhirapani (A5)	Sample Condition:	Good/Clear
Latitude:	21° 59' 58" N	Longitude:	85° 13' 10" E

RESULTS

Date	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m ³)
03.12.2023	58.3	42.8	18.7	26.8	0.60
08.12.2023	62.2	45.3	17.2	27.4	0.61
09.12.2023	65.4	45.9	18.6	33.5	0.62
15.12.2023	72.3	44.8	17.4	25.6	0.64
16.12.2023	60.8	44.5	16.5	35.2	0.66
22.12.2023	70.9	46.1	17.2	27.6	0.70
23.12.2023	65.5	47.6	15.7	26.4	0.64
29.12.2023	65.9	48.4	17.5	26.6	0.61
30.12.2023	63.3	23.4	8.5	16.1	0.52

Limit as per NAAQS*	Parameter	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m ³)
		..	100	60	80	80
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

*National Ambient Air Quality Standards.

End of Test Report



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Test Report

Sample No:	DMSPL/AA/NIO/46-54	Report No:	DMSPL/AA/BIC/2312/046-054
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESI, Steel Limited. (BICO) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.	Reporting Date:	06/01/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Dec. 2023 to 31 st Dec. 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Kashira (A6)	Sample Condition:	Good/Clear
Latitude:	21° 55' 10" N	Longitude:	85° 15' 20" E

RESULTS

Date	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m ³)
03.12.2023	64.4	25.9	7.1	17.9	0.58
08.12.2023	58.5	31.4	9.5	16.1	0.54
09.12.2023	57.3	25.4	8.0	18.4	0.55
15.12.2023	60.3	23.4	7.5	17.1	0.56
16.12.2023	55.4	24.4	9.5	16.3	0.53
22.12.2023	57.5	32.4	9.5	17.1	0.54
23.12.2023	58.3	26.4	8.0	16.4	0.55
29.12.2023	60.3	23.4	8.5	17.1	0.54
30.12.2023	61.8	44.5	17.5	31.2	0.62

Limit as per NAAQS*	Parameter	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m ³)
	--	100	60	80	80	4
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

National Ambient Air Quality Standards.

End of Test Report



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Test Report

Sample No:	DMSPL/AA/NIOM/01	Report No:	DMSPL/AAM/BICO/2312/001
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/01/2024
		Ref. No:	NIL
		Monitoring Period:	December 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Near Mine Office (A1)	Sample Condition:	Good/Clear
Latitude:	21° 58'09" N	Longitude:	85° 15'33" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
02.12.2023	20.2	32.4	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
	--		180	400	1	20	6	5
Method of Analysis		IS 5182 (Part-9)	IS 5182 (Part-25)	IS 5182 (Part-22)	IS 5182 (Part-26)	As per CPCB By AAS	IS 5182 (Part-11)	IS 5182 (Part-12)

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End of Test/Report



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ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample No:	DMSPL/AA/NIOM/02	Report No:	DMSPL/AAM/BICO/2312/002
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Kaira Dist. Sundargarh, Odisha India.	Reporting Date:	06/01/2024
		Ref. No:	NIL
		Monitoring Period:	December 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Near Mines Gate (A2)	Sample Condition:	Good/Clear
Latitude:	21° 58' 23" N	Longitude:	85° 15' 44" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
06.12.2023	24.6	31.7	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
	--		180	400	1	20	6	5
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

*National Ambient Air Quality Standards.

End of Test Report



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Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample No:	DMSPL/AA/NIOM/3	Report No:	DMSPL/AAAM/BICO/2312/003
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, (Under ESL, Steel Limited, (BICO) At Nadidih, PO - Koira Dist. Sundergarh, Odisha India.	Reporting Date:	06/01/2024
		Ref. No:	NIL
		Monitoring Period:	December 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village - Kendahidi (A3)	Sample Condition:	Good/Clear
Latitude:	21° 59'45" N	Longitude:	85° 16'14" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead (ng/m^3)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
12.12.2023	21.5	15.6	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
	--		180	400	1	20	6	5
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

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Test Report

Sample No:	DMSPL/AA/NIOM/4	Report No:	DMSPL/AAM/BICO/2312/004
Name & Address of the Project:	M/s. Nadilih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadilih, PO - Koira, Distt. Sundargarh, Odisha India.	Reporting Date:	06/01/2024
		Ref. No:	NIL
		Monitoring Period:	December 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadilih Iron Ore Mines
Location:	Village Badipada (A4)	Sample Condition:	Good/Clear
Latitude:	21° 58'04" N	Longitude:	85° 18'33" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
16.12.2023	23.8	38.2	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
	--	180	400	1	20	6	5	1
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

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Test Report

Sample No:	DMSPL/AA/NIOM/5	Report No:	DMSPL/AA/BI/CO/2312/005
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.	Reporting Date:	06/01/2024
		Ref. No:	NIL
		Monitoring Period:	December 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Jhirapani (AS)	Sample Condition:	Good/Clear
Latitude:	21° 59' 58" N	Longitude:	85° 13' 10" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
20.12.2023	23.6	36.5	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia (ng/m^3)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
	--	180	400	1	20	6	5	1
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

*National Ambient Air Quality Standards.

End of Test Report



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Test Report

Sample No:	DMSPL/AA/NIOM/6	Report No:	DMSPL/AAM/BICO/2312/006
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/01/2024
		Ref. No:	NIL
		Monitoring Period:	December 2023
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Kashira (A6)	Sample Condition:	Good/Clear
Latitude:	21° 55' 10" N	Longitude:	85° 15' 20" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
25.12.2023	24.6	36.4	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
	-	180	400	1	20	6	5	1
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

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End of Test Report



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Test-Report

Sample No:	DMSPL/AN/NIOM/01-08	Report No:	DMSPL/AN/BICO/2312/001-008
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESI. Steel Limited, (BICO) At Nadidih, PO - Koira, Dist. Sundargarh, Odisha India.	Reporting Date:	06/01/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Dec. 2023 to 31 st Dec. 2023
		Equipment Used:	Sound Level Meter
		Protocol Used:	IS-9989
Sample Collected By:	DMSPL Representative	Parameter Required:	As per Govt. Standard
Sample Description:	Ambient Noise Monitoring	Customer Name:	Nadidih Iron Ore Mines
Sample Name:	Noise Level Monitoring	Sample Condition	Good/Clear

RESULTS

Sr. No.	Location	Date	Latitude:	Longitude:	Day Time [dB(A)]	Night Time [dB(A)]
1	Near Mine Office	04.12.2023	21° 58'09" N	85° 15'33" E	64.4	52.2
2	Near Mines Gate	09.12.2023	21° 58'23" N	85° 15'44" E	65.5	53.6
Standard Limit Industrial Area as per CPCB					75.0	70.0
3	Village Kenduhidi	13.12.2023	21° 59'45" N	85° 16'14" E	51.6	41.3
4	Village Badipada	17.12.2023	21° 58'04" N	85° 18'33" E	51.2	44.4
5	Village Jhirapani	19.12.2023	21° 59'58" N	85° 13'10" E	52.7	42.3
6	Village Kashira	21.12.2023	21° 55'10" N	85° 15'20" E	51.6	40.2
7	Upwind Direction	25.12.2023	21° 58'14" N	85° 15'20" E	52.3	40.4
8	Downwind Direction	28.12.2023	21° 57'19" N	85° 13'34" E	53.5	42.3
Standard Limit Residential Area as per CPCB					55.0	45.0

CPCB :: Central Pollution Control Board

End of Test Report



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Test Report

Sample No:	DMSPL/AAFS/NIOM/01	Report No:	DMSPL/AAFS/BICO/2312/1-6
Name & Address of the Project:	M/s Naidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Naidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/01/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Dec. 2023 to 31 st Dec. 2023
		Equipment Used:	RDS with all accessories
		Protocol Used:	IS-5182
Sample Collected By:	DMSPL Representative	Parameter Required:	As per TOR Letter
Sample Description:	Ambient Air Quality Monitoring		
Sample Type :	Free Silica Composition		

RESULTS

Chemical Composition of PM 10 with Free Silica

Location	Date	PM10 ($\mu\text{g}/\text{m}^3$)	Free Silica %	Cu ($\mu\text{g}/\text{m}^3$)	Mg ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)
Near Mine Office	05.12.2023	72.3	2.0	1.04	0.24	<0.5	0.08
Near Mines Gate	11.12.2023	74.9	1.6	1.08	0.26	<0.5	0.09
Village - Kendubidi	13.12.2023	64.4	2.1	1.10	0.22	<0.5	0.08
Village Bandipada	20.12.2023	57.3	2.0	1.05	0.22	<0.5	0.07
Village - Jhirapani	23.12.2023	65.5	1.7	1.12	0.23	<0.5	0.08
Village Kashira	29.12.2023	60.3	2.0	1.10	0.22	<0.5	0.09

End of Report



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ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test-Report

Sample No:	DMSPL/FD/NIOM/01-08	Report No:	DMSPL/FD/BICO/2312/001-006
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Kaira, Distt. Sundargarh, Odisha India.	Reporting Date:	06/01/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Dec. 2023 to 31 st Dec. 2023
		Equipment Used:	RDS & Personnel Dust Sampler
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description: Sample Name:	Ambient Air Monitoring Fugitive Dust Sample	Customer Name:	Nadidih Iron Ore Mines
		Sample Condition	Good/Clear

RESULTS

Sr. No.	Location	Date	Latitude:	Longitude:	SPM ($\mu\text{g}/\text{m}^3$)
1	Mine Benches Area	06.11.2023	21° 58'10" N	85° 15'16" E	980.40
2	Haul Road	10.11.2023	21° 58'16" N	85° 15'26" E	977.80
3	Crushing Plant	14.11.2023	21° 58'24" N	85° 15'33" E	1040.80
4	Screening Plant	18.11.2023	21° 58'30" N	85° 15'40" E	920.20
5	Ore Loading Area	24.11.2023	21° 58'28" N	85° 15'10" E	980.30
6	Waste Dump Area	28.11.2023	21° 58'30" N	85° 15'42" E	820.90

Limit as per Consent*	Parameter	Suspended Particulate Matter (SPM 1200 $\mu\text{g}/\text{m}^3$)
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State Pollution Control Board, Odisha .

End of Test Report



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ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample Number:
Name & Address of the Project:

DMSPL/GW/NIOM/01
M/s Nadih Iron Ore Mines,
Under ESL Steel Limited, (BICO)
At Nadih, PO - Koira
Distt. Sundargarh, Odisha India.

Report No.: DMSPL/GW/BICO/2312/001
Format No.: 7.8 F-01
Party Reference No.: NIL
Reporting Date: 25/12/2023
Ground Water Level: 3.8 Mtr.

Sample Description:
Sample Location:
Sample Collected by:
Sampling and Analysis Protocol:
Preservation:

Ground Water Sample
Near Mine Site
DMSPL Representative
IS 3025 & APHA 23rd Edition 2017
Ice Box

Period of Analysis: 14/12/2023-25/12/2023
Receipt Date: 14/12/2023
Sampling Date: 16/12/2023
Sampling Quantity: 5.0 Lit + 250ml
Sampling Type: Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
1	pH @ 25 °C	APHA 4500-H ⁺ B Electrode Method	7.88	--	6.5 to 8.5	No Relaxation
2	Colour	APHA 2120 B, Visual Comparison Method	*BLQ (**LOQ 1.0 Hazen)	Hazen	5	15
3	Turbidity	APHA 2170 B, Nephelometric Method	*BLQ (**LOQ 1.0 NTU)	NTU	1	5
4	Odour	APHA 2150 B, Threshold Odour Method	Agreeable	--	Agreeable	Agreeable
5	Taste	APHA 2160 B, Threshold Test Method	Disagreeable	--	Agreeable	Agreeable
6	Total Hardness as CaCO ₃	APHA 2340 C, EDTA Titrimetric Method	158.20	mg/l	200	300
7	Calcium as Ca	APHA 3500 Ca-B, EDTA Titrimetric Method	52.20	mg/l	75	200
8	Alkalinity as CaCO ₃	APHA 2320 B, Titrimetric Method	122.30	mg/l	200	600
9	Chloride as Cl	APHA 4500-Cl B, Argentometric Method	78.30	mg/l	250	1000
10	Cyanide as CN	APHA 4800 CN-D	*BLQ (**LOQ 0.02 mg/l)	mg/l	0.05	No Relaxation
11	Magnesium as Mg	APHA 3500 Mg B, Calculation Method	7.48	mg/l	30	100
12	Total Dissolved Solids	APHA 2540 C, Gravimetric Method	355.20	mg/l	500	2000
13	Sulphate as SO ₄	APHA 4500 E, Turbidimetric Method	82.20	mg/l	200	400
14	Fluoride as F	APHA 4500-F I, SPADNS Method	0.44	mg/l	1.0	1.5
15	Nitrate as NO ₃	IS 3025 (P-34), Chromotropic Method	20.50	mg/l	45	No Relaxation
16	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	0.26	mg/l	1.0	No relaxation
17	Aluminium as Al	IS 3025 (P-67):2014(RA:2019)	*BLQ (**LOQ 0.005 mg/l)	mg/l	0.05	0.2
18	Boron	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.01 mg/l)	mg/l	0.5	2.4
19	Chromium as Cr	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.002 mg/l)	mg/l	0.05	No Relaxation



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Test-Report

Sample No.: DMSPL/GW/NO/01			Report No.: DMSPL/GW/RICD/2312/001			
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
20	Phenolic Compounds	APHA, 5310 C, Chloroform Extraction Method	*HLQ (**LOQ) 0.0005 mg/l	mg/l	0.001	0.002
21	Mineral Oil	Clause 6 of IS:3025(Part-39)	*HLQ (**LOQ) 0.1 mg/l	mg/l	1.0	No Relaxation
22	Arithmetic Detergents as MBAS	Ames K of 15 13428, IS 3025 (P-68)	*HLQ (**LOQ) 0.05 mg/l	mg/l	0.2	1.0
23	Residual free Chlorine	IS 3025 P-26, (Orthotolidine Method)	*HDL (**DL) 0.15mg/l	mg/l	--	--
24	Sodium as Na	APHA, 3500 Na B, Flame Photometric Method	17.50	mg/l	--	--
25	Potassium as K	APHA 3500 KB, Flame Photometric Method	6.22	mg/l	--	--
26	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	0.36	mg/l	5	15
27	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	0.10	mg/l	0.05	1.5
28	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*HLQ (**LOQ) 0.01 mg/l	mg/l	0.1	0.3
29	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*HLQ (**LOQ) 0.002 mg/l	mg/l	0.003	No Relaxation
30	Lead as Pb	IS 3025 (P-65):2014(RA:2019)	*HLQ (**LOQ) 0.002 mg/l	mg/l	0.01	No Relaxation
31	Selenium as Se	IS 3025 (P-65):2014(RA:2019)	*DL (**LOQ) 0.001 mg/l	mg/l	0.01	No Relaxation
32	Arsenic as As	IS 3025 (P-65):2014(RA:2019)	*HLQ (**LOQ) 0.005 mg/l	mg/l	0.01	No Relaxation
33	Mercury as Hg	IS 3025 (P-65):2014(RA:2019)	*HLQ (**LOQ) 0.0005 mg/l	mg/l	0.001	No Relaxation
34	Total Coliform	IS 1622, 1981, RA-2019	<2	MPN/100ml	Shall not be detectable in any 100 ml sample	
35	E. Coli	IS 1622, 1981, RA-2019	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: *HLQ-Higher Limit of Quantification, **LOQ- Limit of Quantification



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Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Sample Number: DMSPL/GW/NIOM/02
Name & Address of the Project: M/s. Nadidih Iron Ore Mines,
Under ESL Steel Limited, (BICO)
At Nadidih, PO - Koira
Dist. Sundargarh, Odisha India.

Test Report

Report No.: DMSPL/GW/BICO/2312/002
Format No.: 7.8 F-01
Party Reference No.: NIL
Reporting Date: 25/12/2023
Ground Water Level: 4.2 Mtr.

Sample Description: Ground Water Sample
Sample Location: Village Kenduhidi
Sample Collected by: DMSPL Representative
Sampling and Analysis Protocol: IS 3025 & APHA 23rd Edition 2017
Preservation: Ice Box

Period of Analysis: 14/12/2023-25/12/2023
Receipt Date: 14/12/2023
Sampling Date: 10/12/2023
Sampling Quantity: 5.0 Ltr + 250ml
Sampling Type: Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA , 8500-H' B Electrometric Method	7.95	--	6.5 to 8.5	No Relaxation
2.	Colour	APHA , 2120 B, Visual Comparison Method	*BLQ (**LOQ 1.0 Hazen)	Hazen	5	15
3.	Turbidity	APHA, 2150 B, Nephelometric Method	*BLQ (**LOQ 1.0 NTU)	NTU	1	5
4.	Odour	APHA, 2150 H - Threshold Odour Method	Agreeable	--	Agreeable	Agreeable
5.	Taste	APHA , 2160 B, Threshold Test Method	Disagreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA , 2340 C, EDTA-Titrimetric Method	265.20	mg/l	200	600
7.	Calcium as Ca	APHA, 2500 Ca B, EDTA Titrimetric Method	55.40	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA , 2320 B, Titrimetric Method	146.28	mg/l	200	600
9.	Chloride as Cl ⁻	APHA, 4500-Cl ⁻ II, Argentometric Method	56.20	mg/l	250	1000
10.	Cyanide as CN ⁻	APHA , 4500 CN ⁻ D	*BLQ (**LOQ 0.01 mg/l)	mg/l	0.05	No Relaxation
11.	Magnesium as Mg	APHA , 3500 Mg B, Calculation Method	8.10	mg/l	30	100
12.	Total Dissolved Solids	APHA , 2540 C, Gravimetric Method	338.20	mg/l	500	2000
13.	Sulphate as SO ₄	APHA , 4500 E, Turbidimetric Method	46.20	mg/l	200	400
14.	Fluoride as F ⁻	APHA , 4500-F ⁻ D, SPADNS Method	0.12	mg/l	1.0	1.5
15.	Nitrate as NO ₃	IS 3025 (P-54) , Chromatographic Method	2.52	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-65) 2014 (RA-2019)	0.26	mg/l	1.0	No relaxation
17.	Aluminium as Al	IS 3025 (P-65) 2014 (RA-2019)	*BLQ (**LOQ 0.005 mg/l)	mg/l	0.03	0.2
18.	Boron	IS 3025 (P-65) 2014 (RA-2019)	*BLQ (**LOQ 0.01 mg/l)	mg/l	0.5	2.4
19.	Chromium as Cr	IS 3025 (P-65) 2014 (RA-2019)	*BLQ (**LOQ 0.002 mg/l)	mg/l	0.05	No Relaxation



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ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample No.: DMSPL/GW/NDM/02			Report No.: DMSPL/GW/HCO/2312/002			
Sl. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
20.	Phenolic Compounds	APHA, 5539 C, Chloroform Extraction Method	*BLQ (**LOQ 0.0005 mg/l)	mg/l	0.001	0.002
21.	Mineral Oil	Clause 6 of IS:3025(Part-39)	*BLQ (**LOQ 0.1 mg/l)	mg/l	1.0	No Relaxation
22.	Aromatic Hydrocarbons as MHAS	Ames K of IS 13428, IS 3025 (P-68)	*BLQ (**LOQ 0.05 mg/l)	mg/l	0.2	1.0
23.	Residual free Chlorine	IS 3025 P-26, Ortho-toluidine Method	*BDL (**LOQ 0.15mg/l)	mg/l	--	--
24.	Sodium as Na	APHA, 3500 Na-B, Flame Photometric Method	20.30	mg/l	--	--
25.	Potassium as K	APHA, 3500 K-B, Flame Photometric Method	6.20	mg/l	--	--
26.	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	1.26	mg/l	5	15
27.	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	0.12	mg/l	0.05	1.5
28.	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.01 mg/l)	mg/l	0.1	0.3
29.	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.002 mg/l)	mg/l	0.003	No Relaxation
30.	Lead as Pb	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.002 mg/l)	mg/l	0.01	No Relaxation
31.	Selenium as Se	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.001 mg/l)	mg/l	0.01	No Relaxation
32.	Arsenic as As	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.005 mg/l)	mg/l	0.01	No Relaxation
33.	Mercury as Hg	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.0005 mg/l)	mg/l	0.001	No Relaxation
34.	Total Coliform	IS 1672, 1981, RA-2019	<2	MPN/100ml	Shall not be detectable in any 100 ml sample	
35.	F. Coli	IS 1672, 1981, RA-2019	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: *BDL-Below Limit of Quantification; **LOQ- Limit of Quantification



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Plot No. 672/18, First Floor, Khandasa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample Number: DMSPL/GW/NIDM/03
 Name & Address of the Project: M/s. Nadidih Iron Ore Mines,
 Under ESL Steel Limited, (BICO)
 At Nadidih, PO - Kaira
 Distt. Sundargarh, Odisha India.

Report No.: DMSPL/GW/BICO/2312/003
 Format No.: 7.8 F-01
 Party Reference No.: NIL
 Reporting Date: 25/12/2023
 Ground Water Level: 4.5 Mtr.

Sample Description: Ground Water - Sample
 Sample Location: Village Badipada
 Sample Collected by: DMSPL Representative
 Sampling and Analysis Protocol: IS 3025 & APHA 23rd Edition 2017
 Preservation: Ice Box

Period of Analysis: 14/12/2023-25/12/2023
 Receipt Date: 14/12/2023
 Sampling Date: 10/12/2023
 Sampling Quantity: 5.0 Ltr = 250ml
 Sampling Type: Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
1	pH (at 25 °C)	APHA , 4500-H ⁺ B Electrometric Method	7.45	--	6.5 to 8.5	No Relaxation
2	Colour	APHA , 2120 B, Visual Comparison Method	*BLQ (**LOQ 1.0 Hazen)	Hazen	5	15
3	Turbidity	APHA, 2130 B, Nephelometric Method	*BLQ (**LOQ 1.0 NTU)	NTU	1	5
4	Odour	APHA, 2150 B, Threshold Odour Method	Agreeable	-	Agreeable	Agreeable
5	Taste	APHA , 2160 B, Threshold Test Method	Agreeable	-	Agreeable	Agreeable
6	Total Hardness as CaCO ₃	APHA , 2340 C, EDTA Titrimetric Method	150.20	mg/l	200	600
7	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	48.20	mg/l	75	200
8	Alkalinity as CaCO ₃	APHA , 2320 B, Titrimetric Method	120.30	mg/l	200	600
9	Chloride as Cl ⁻	APHA, 4500-Cl ⁻ B, Argentometric Method	80.20	mg/l	250	1000
10	Cyanide as CN ⁻	APHA , 4500 CN- D	*BLQ (**LOQ 0.02 mg/l)	mg/l	0.05	No Relaxation
11	Magnesium as Mg	APHA , 3500 Mg B, Calculation Method	3.50	mg/l	30	100
12	Total Dissolved Solids	APHA , 2540 C, Gravimetric Method	366.20	mg/l	500	2000
13	Sulphate as SO ₄ ²⁻	APHA , 4500 S, Turbidimetric Method	90.40	mg/l	200	400
14	Fluoride as F ⁻	APHA , 4500-F ⁻ D, SPADNS Method	0.52	mg/l	1.0	1.5
15	Nitrate as NO ₃ ⁻	IS 3025 (P-34) , Chromotropic Method	26.50	mg/l	45	No Relaxation
16	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	0.36	mg/l	1.0	No relaxation
17	Aluminium as Al	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.005 mg/l)	mg/l	0.02	0.2
18	Borax	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.01 mg/l)	mg/l	0.5	2.4
19	Chromium as Cr	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.002 mg/l)	mg/l	0.05	No Relaxation



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Test-Report

Sample No.: DMSPL/GW/N10M43			Report No.: DMSPL/GW/HIC O/2312/003			
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
20	Phenolic Compounds	APHA, 5510 C Chloroform Extraction Method	*BLQ>**LOQ 0.0005 mg/l	mg/l	0.001	0.002
21	Mineral Oil	Clause 6 of IS:3025(Part 39)	*BLQ>**LOQ 0.1 mg/l	mg/l	1.0	No Relaxation
22	Anticorrosive Detergents as MBAS	Annex K of IS 13428, IS 3025 (P-68)	*BLQ>**LOQ 0.05 mg/l	mg/l	0.2	1.0
23	Residual free Chlorine	IS:3025 P-26, Ortho-toluidine Method	*BLQ>**LOQ 0.15 mg/l	mg/l	--	--
24	Sodium as Na	APHA,3500 Na B, Flame Photometric Method	10.50	mg/l	--	--
25	Potassium as K	APHA,3500 K B, Flame Photometric Method	5.40	mg/l	--	--
26	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	0.82	mg/l	5	15
27	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	0.22	mg/l	0.05	1.5
28	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*BLQ>**LOQ 0.01 mg/l	ug/l	0.1	0.3
29	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*BLQ>**LOQ 0.002 mg/l	mg/l	0.003	No Relaxation
30	Lead as Pb	IS 3025 (P-65):2014(RA:2019)	*BLQ>**LOQ 0.002 mg/l	mg/l	0.01	No Relaxation
31	Selenium as Se	IS 3025 (P-65):2014(RA:2019)	*BLQ>**LOQ 0.001 mg/l	mg/l	0.01	No Relaxation
32	Arsenic as As	IS 3025 (P-65):2014(RA:2019)	*BLQ>**LOQ 0.005 mg/l	mg/l	0.01	No Relaxation
33	Mercury as Hg	IS 3025 (P-65):2014(RA:2019)	*BLQ>**LOQ 0.0005 mg/l	mg/l	0.001	No Relaxation
34	Total Coliform	IS 1622,1981, RA-2019	<2	MPN/100ml	Shall not be detectable in any 100 ml sample	
35	E. Coli	IS 1622,1981, RA-2019	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: *BLQ-Below Limit of Quantification; **LOQ-Limit of Quantification.



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Test-Report

Sample Number:	DMSPL/GW/NIOM/04	Report No.:	DMSPL/GW/HC0/2312004
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Format No.:	7.8 F-01
		Party Reference No.:	Nil.
		Reporting Date:	25/12/2023
		Ground Water Level:	4.2 Mtr.
Sample Description:	Ground Water Sample	Period of Analysis:	14/12/2023-25/12/2023
Sample Location:	Village Jhirapani	Receipt Date:	14/12/2023
Sample Collected by:	DMSPL Representative	Sampling Date:	10/12/2023
Sampling and Analysis Protocol:	IS 3025 & APHA 23 rd Edition 2017	Sampling Quantity:	5.0 Ltr + 250ml
Preservation:	Ice Box	Sampling Type:	Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS: 10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
1	pH (at 25 °C)	APHA, 4500-H ⁺ B. Electrode Method	7.90	-	6.5 to 8.5	No Relaxation
2	Colour	APHA, 2120 B, Visual Comparison Method	*BLQ (**LOQ) 0 Hazen	Hazen	5	15
3	Turbidity	APHA, 2130 B, Nephelometric Method	*BLQ (**LOQ) 1.0 NTU	NTU	1	5
4	Odour	APHA, 2150 B, Threshold Odour Method	Agreeable	--	Agreeable	Agreeable
5	Taste	APHA, 2160 B, Threshold Test Method	Disagreeable	--	Agreeable	Agreeable
6	Total Hardness as CaCO ₃	APHA, 2340 C, EDTA Titrimetric Method	155.20	mg/l	200	600
7	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	40.20	mg/l	75	200
8	Alkalinity as CaCO ₃	APHA, 2320 B, Titrimetric Method	146.50	mg/l	200	600
9	Chloride as Cl	APHA, 4500 Cl B, Argentometric Method	84.50	mg/l	250	1000
10	Cyanide as CN	APHA, 4500 CN D	*BLQ(LOQ) 0.02 mg/l	mg/l	0.05	No Relaxation
11	Magnesium as Mg	APHA, 3500 Mg B, Calculation Method	12.20	mg/l	30	100
12	Total Dissolved Solids	APHA, 2540 C, Gravimetric Method	345.20	mg/l	500	2000
13	Sulphate as SO ₄	APHA, 4500 E, Turbidimetric Method	56.20	mg/l	200	400
14	Fluoride as F	APHA, 4500-F D, SPADNS Method	1.22	mg/l	1.0	1.5
15	Iron as Fe	IS 3025 (P-34) Colorimetric Method	25.10	mg/l	45	No Relaxation
16	Iron as Fe	IS 3025 (P-65) 2014(RA:2019)	0.30	mg/l	1.0	No relaxation
17	Aluminium as Al	IS 3025 (P-65) 2014(RA:2019)	*BLQ (**LOQ) 0.005 mg/l	mg/l	0.03	0.2
18	Boron	IS 3025 (P-65) 2014(RA:2019)	*BLQ (**LOQ) 0.01 mg/l	mg/l	0.5	2.4
19	Chromium as Cr	IS 3025 (P-65) 2014(RA:2019)	*BLQ (**LOQ) 0.002 mg/l	mg/l	0.05	No Relaxation



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Test Report

Sample No.: DMSPL/GW/NIDME04			Report No.: DMSPL/GW/BICO/2312/004			
S. No.	Parameter	Test Method	Result	Unit	Limits of IS:10500-2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
20.	Phenolic Compounds	APHA-5530 C.Chloroform Extraction Method	*BLQ(**LOQ 0.0005 mg/l)	mg/l	0.001	0.002
21.	Microbial Oil	Clause 0 of IS:3025(Part:30)	*BLQ(**LOQ 0.1 mg/l)	mg/l	1.0	No Relaxation
22.	Aromatic (Atergent) as MBAS	Annex K of IS 13428, IS-3025 (P-68)	*BLQ(**LOQ 0.05 mg/l)	mg/l	0.2	1.0
23.	Residual free Chlorine	IS-3025 P-26; Ortho-toluidine Method	*BLQ(**DL 0.15mg/l)	mg/l	--	--
24.	Sodium as Na	APHA,3500 Na B, Flame Photometric Method	18.60	mg/l	--	--
25.	Potassium as K	APHA 3500 K B, Flame Photometric Method	6.50	mg/l	--	--
26.	Zinc as Zn	IS-3025 (P-65):2014(RA:2019)	3.20	mg/l	5	15
27.	Copper as Cu	IS-3025 (P-65):2014(RA:2019)	0.12	mg/l	0.05	1.5
28.	Manganese as Mn	IS-3025 (P-65):2014(RA:2019)	*BLQ(**LOQ 0.01 mg/l)	mg/l	0.1	0.3
29.	Cadmium as Cd	IS-3025 (P-65):2014(RA:2019)	*BLQ(**LOQ 0.002 mg/l)	mg/l	0.003	No Relaxation
30.	Lead as Pb	IS-3025 (P-65):2014(RA:2019)	*BLQ(**LOQ 0.002 mg/l)	mg/l	0.01	No Relaxation
31.	Selenium as Se	IS-3025 (P-65):2014(RA:2019)	*BLQ(**LOQ 0.001 mg/l)	mg/l	0.01	No Relaxation
32.	Arsenic as As	IS-3025 (P-65):2014(RA:2019)	*BLQ(**LOQ 0.005 mg/l)	mg/l	0.01	No Relaxation
33.	Mercury as Hg	IS-3025 (P-65):2014(RA:2019)	*BLQ(**LOQ 0.0005 mg/l)	mg/l	0.001	No Relaxation
34.	Total Coliform	IS 1622:1981, RA-2019	<2	MPN/100ml	Shall not be detectable in any 100 ml sample	
35.	E. Coli	IS 1622, 1981, RA-2019	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: - *BLQ-Below Limit of Quantification, **LOQ- Limit of Quantification



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Plot No. 672/18, First Floor, Khandasa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample Number: DMSPL/NIOM/S/01
Name & Address of Party: M/s Naidih Iron Ore Mines,
Under ESL Steel Limited, (BICO)
At Naidih, PO - Kojra
Distt. Sundargarh, Odisha India.

Report No.: DMSPL/S/BICO/2312/001
Format No.: S-10 F-01
Party Reference No.: NIL

Sample Description: SOIL
Sampling Location: Inside Mine Area
Sample Collected by: DMSPL Lab Representative

Reporting Date: 30/12/2023
Receipt Date: 24/12/2023
Sampling Date: 20/12/2023
Type of Sampling: Composite
Sampling Quantity: 2.0 Kg
Depth of Sampling: 30 cm
Packing Status: Temp Sealed

Sampling & Analysis Protocol: IS 2720 & USDA

S. No.	Parameter	Protocol	Result	Unit
1	pH (at 25 °C)	IS- 2720 (P-26, 1987)	8.12	--
2	Conductivity	IS:14767-2000 Reaffirmed 2006	0.30	mS/cm
3	Soil Texture	USDA Method, 1968	Silty Loam	--
4	Color	USDA Method, 1968	Yellowish	--
5	Water holding capacity	USDA Method, 1968	21.50	%
6	Bulk density	USDA Method, 1968	1.22	gm/cc
7	Chloride as Cl ⁻	USDA Method, 1968	24.80	mg/100gm
8	Calcium as Ca	USDA Method, 1968	31.20	mg/100gm
9	Sodium as Na	USDA Method, 1968	29.60	mg/100gm
10	Potassium as K	USDA Method, 1968	60.20	kg/hec
11	Organic Matter	IS 2720 (P-22, 1972)	0.40	%
12	Magnesium as Mg	USDA Method, 1968	10.50	mg/100gm
13	Available Nitrogen as N	IS/14681, 1999	188.50	kg /hec
14	Available Phosphorus	USDA, APHA-4500PC	34.20	kg /hec
15	Zinc as Zn	APHA-3030D, APHA-3111B	4.50	mg/100gm
16	Manganese as Mn	APHA-3030D, APHA-3111B	2.45	mg/100gm
17	Chromium as Cr	APHA-3030D, APHA-3111B	1.20	mg/100gm
18	Lead as Pb	APHA-3030D, APHA-3111B	0.20	mg/100gm
19	Cadmium as Cd	APHA-3030D, APHA-3111B	1.44	mg/100gm
20	Copper as Cu	APHA-3030D, APHA-3111B	3.10	mg/100gm



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Digcare Mining Solutions Pvt. Ltd.

Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample Number:	DMSPL/NIOM/ST/01	Report No.:	DMSPL/ST/BICO/2312/001
Name & address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESI, Steel Limited, (BICO) At Nadidih, PO - Kotra Dist. Sundargarh, Odisha India.	Format No.:	7.8 F-03
		Party Reference No.:	NIL
		Reporting Date:	25/12/2023
		Period of Analysis:	18/12/2023 to 25/12/2023
		Receipt Date:	15/12/2023

Sample Description : Stack Emission Monitoring

General Information	
Sampling Location	: Mine Site
Sample Collected by	: DMSPL Lab Representative
Date of Sampling	: 12/12/2023
Sampling Duration (Minutes)	: 42.0 Min
Stack attached to	: DG Set
Make of stack	: MS
Diameter of stack (m)	: 0.30 Meter
Instruments calibration status	: Calibrated
Meteorological Condition	: Clear Sky
Ambient Temperature - T_a ($^{\circ}$ C)	: 20.0
Temperature of stack Gases - T_s ($^{\circ}$ C)	: 210.0
Velocity of stack Gases (m/sec.)	: 8.20
Flow rate of PM (LPM)	: 22.0
Flow rate of Gas (LPM)	: 2.0
Sampling condition	: Isokinetic
Protocol used	: IS : 11255

RESULTS

S. No.	Test Parameters	Test Method	Results	Units	Limits as Per CPCB
1.	Particulate Matter (as PM)	IS 11255 (P-1), Gravimetric Method	41.20	mg/Nm ³	75
2.	Oxide of Nitrogen (as NOx)	IS 11255 (P-7)	150.20	ppm	710
3.	NMHC	DMSPL/ENV/ST/PGA/01, Issue No.- 01/01/13/21	16.80	mg/Nm ³	100
4.	Sulphur Dioxide (as SO ₂)	IS 11255 (P-2), Titrimetric Method	22.40	mg/Nm ³	--
5.	Carbon Monoxide (as CO)	DMSPL/ENV/ST/PGA/01, Issue No.- 01/01/13/21	26.40	mg/Nm ³	150

Note: *STP Laboratory Standard Testing Procedure.

End of Report



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Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample Number:	DMSPL/NIOM/SW/01	Report No.:	DMSPL/SW/BICO/2312/001
Name of the Project:	Mix Nadiidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadiidih, PO - Koira Distt. Sundargarh, Odisha India.	Format No.:	7.8 F-01
		Party Reference No.:	NIL
		Reporting Date:	25/12/2023
Sample Description:	Surface Water Sample	Period of Analysis:	18/12/2023-25/12/2023
Sampling Location:	River Sample (Near Mines Upstream)	Receipt Date:	18/12/2023
Sample Collected by:	DMSPL Lab Representative	Sampling Date:	15/12/2023
Preservation:	Ice Box	Sampling Quantity:	2.0 Ltr + 250ml.
Sampling and Analysis Protocol:	APHA & IS, 23 rd Edition 2017	Sampling Type:	Composite

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	APHA .4500-H ⁺ B Electrometric Method	7.38	--
2.	Colour	APHA .2120 B, Visual Comparison Method	22.0	Hazen
3.	Turbidity	APHA. 2130 B, Nephelometric Method	<1	NTU
4.	Oxide	APHA. 2150 B: Threshold Test Method	Agreeable	--
5.	Total Hardness as CaCO ₃	APHA . 2340 C, EDTA Titrimetric Method	88.2	mg/l
6.	Calcium as Ca	APHA. 3500 Ca B, EDTA Titrimetric Method	26.2	mg/l
7.	Alkalinity as CaCO ₃	APHA. 2520 B, Titrimetric Method	76.5	mg/l
8.	Chloride as Cl ⁻	APHA. 4500-Cl ⁻ B, Argentometric Method	44.2	mg/l
9.	Total Residual Chlorine	IS 3025 P-26, Orthotolidine Method	*BDL**DL 0.15mg/l	mg/l
10.	Cyanide as CN	APHA . 4500 CN ⁻ D, Barbituric Acid Method	*BDL**DL 0.02 mg/l	mg/l
11.	Magnesium as Mg	APHA . 3500 Mg B, Calculation Method	5.44	mg/l
12.	Total Dissolved Solids	APHA . 2540 C, Gravimetric Method	258	mg/l
13.	Total Suspended solids	APHA.2540 D Gravimetric Method	27.0	mg/l
14.	Dissolved Oxygen	APHA.4500 O ₂ W Iodometric Method	6.0	mg/l
15.	Sulphide	IS 3025 (P-29) 2022	4.4	mg/l
16.	Fluoride as F ⁻	APHA . 4500-F ⁻ D, SPADNS Method	0.26	mg/l
17.	BOD (3 Days at 27°C)	APHA. 5210 C : IS 3025 P-44	12.10	mg/l
18.	COD	APHA. 5220 B, Open Reflux Method	38.20	mg/l



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Test-Report

Sample No.: DMSPL/NIOM/SW/01			Report No.: DMSPL/SW/BICO/2312/001	
S. No.	Parameter	Test-Method	Result	Unit
19	Conductivity (at 25 °C)	APHA 2510 B, Conductivity Meter Method	0.435	µS/cm
20	Nitrate as NO ₃	IS 3025 (P-34), Chromotropic Method	6.10	mg/l
21	Sodium as Na	APHA 3500 Na B, Flame Photometric Method	18.50	mg/l
22	Potassium as K	APHA 3500 K B, Flame Photometric Method	6.22	mg/l
23	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	0.44	mg/l
24	Aluminium as Al	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.002 mg/l)	mg/l
25	Barium	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.002 mg/l)	mg/l
26	Hexavalent Chromium as Cr	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.002 mg/l)	mg/l
27	Phenolic Compounds	APHA 5530 C Chloroform Extraction Method	*BDL (**DL 0.0004 mg/l)	mg/l
28	Mineral Oil	Clause 6 of IS:3025(Part 39)	*BDL (**DL 0.1 mg/l)	mg/l
29	Anionic Detergents as MBAS	APHA 5540 C MBAS Method	*BDL (**DL 0.05 mg/l)	mg/l
30	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.05 mg/l)	mg/l
31	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.1 mg/l)	mg/l
32	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.01 mg/l)	mg/l
33	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.002 mg/l)	mg/l
34	Temperature	IS 3025 (P-9):2023	26.3	mg/l
35	Oil & Grease	IS 3025 (P-39):2021	*BDL (**DL 2.0 mg/l)	mg/l
36	Free Ammonia	IS 3025 (P-34):1988	*BDL (**DL 0.20 mg/l)	mg/l
37	Total Kjeldahl Nitrogen	IS 3025 (P-34):1988	*BDL (**DL 0.20 mg/l)	mg/l
38	Nickel	Standard Operating Procedure	*BDL (**DL 0.02 mg/l)	mg/l
39	Vanadium	Standard Operating Procedure	*BDL (**DL 0.02 mg/l)	mg/l
40	Ammonical Nitrogen	IS 3025 (P-34):1988	*BDL (**DL 0.20 mg/l)	mg/l
41	Total Coliform	IS 1622:1981, RA-2019	286	MPN/100ml
42	Focal Coliform	IS 1622:1981, RA-2019	164	MPN/100ml

*BDL - Below Detection Limit, **DL - Detection Limit



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Test Report

Sample	DMSPL/NIOM/SW	Report No.:	DMSPL/SW/BIC/O/2312/002
Name of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Format No.:	7.8 E-01
		Party Reference No.:	NIL
		Reporting Date:	25/12/2023
Sample Description:	Surface Water - Sample	Period of Analysis:	18/12/2023 - 25/12/2023
Sampling Location:	River Sample (Near Mines Downstream)	Receipt Date:	18/12/2023
Sample Collected by:	DMSPL Lab Representative	Sampling Date:	15/12/2023
Preservation:	Ice Box	Sampling Quantity:	2.0 Ltr + 250ml
Sampling and Analysis Protocol:	APHA & IS, 23 rd Edition 2017	Sampling Type:	Composite

	Parameter	Test Method	Result	Unit
1	pH (at 25 °C)	APHA, 4500-H ⁺ B Electrometric Method	6.50	-
2	Colour	APHA 2120 B, Visual Comparison Method	27.0	Hazen
3	Turbidity	APHA, 2130 B, Nephelometric Method	<1	NTU
4	Odour	APHA, 2150 B, Threshold Test Method	Agreeable	--
5	Total Hardness as CaCO ₃	APHA, 2340 C, EDTA Titrimetric Method	97.1	mg/l
6	Calcium as Ca	APHA, 3500 Ca H, EDTA Titrimetric Method	26.2	mg/l
7	Alkalinity as CaCO ₃	APHA, 2320 B, Titrimetric Method	70.2	mg/l
8	Chloride as Cl ⁻	APHA, 4500-Cl ⁻ B, Argentometric Method	42.20	mg/l
9	Total Residual Chlorine	IS 3025 P-26, Ortho-toluidine Method	*BDL (**DL: 0.15mg/l)	mg/l
10	Cyanide as CN	APHA, 4500 CN D, Barbituric Acid Method	*BDL (**DL: 0.02 mg/l)	mg/l
11	Magnesium as Mg	APHA, 3500 Mg B, Calculation Method	6.40	mg/l
12	Total Dissolved Solids	APHA : 2540 C, Gravimetric Method	252.0	mg/l
13	Total Suspended Solids	APHA, 2540 D, Gravimetric Method	20.0	mg/l
14	Dissolved Oxygen	APHA, 4500 O H, Isometric Method	6.5	mg/l
15	Sulphide	IS 3025 (P-29) 2002	30.20	mg/l
16	Fluoride as F ⁻	APHA, 4500-F D, SPADNS Method	0.42	mg/l
17	BOD (3 Days at 27°C)	APHA, 5210 C / IS 3025 P-44	12.20	mg/l
18	COD	APHA, 5220 B, Open Reflux Method	34.40	mg/l



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Test-Report

Sample No.: DMSPL/NIOM/SW/02			Report No.: DMSPL/SW/HCO/2312/002	
S. No.	Parameter	Test-Method	Result	Unit
19	Conductivity (at 25 °C)	APHA, 2510 B, Conductivity Meter Method	0.412	mS/cm
20	Nitrate as NO ₃	IS 3025 (P-34) Chromotropic Method	6.42	mg/l
21	Sodium as Na	APHA, 3500 Na B, Flame Photometric Method	26.20	mg/l
22	Potassium as K	APHA 3500 K B, Flame Photometric Method	5.64	mg/l
23	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.002 mg/l)	mg/l
24	Aluminium as Al	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.002 mg/l)	mg/l
25	Boron	IS 3025 (P-65):2014(RA:2019)	0.44	mg/l
26	Hexavalent Chromium as Cr	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.002 mg/l)	mg/l
27	Phenolic Compound	APHA, 5530 C Chloroform Extraction Method	*BDL (**DL 0.0004mg/l)	mg/l
28	#Mineral Oil	Clause 6 of IS:3025(Part 39)	*BDL (**DL 0.1 mg/l)	mg/l
29	#Anionic Detergents as MBAS	APHA, 5540 C MBAS Method	*BDL (**DL 0.05 mg/l)	mg/l
30	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.05 mg/l)	mg/l
31	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.1 mg/l)	mg/l
32	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.01 mg/l)	mg/l
33	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.002 mg/l)	mg/l
34	Temperature	IS 3025 (P-9):2023	26.8	mg/l
35	Oil & Grease	IS 3025 (P-39):2021	*BDL (**DL 2.0 mg/l)	mg/l
36	Free Ammonia	IS 3025 (P-34):1988	*BDL (**DL 0.20 mg/l)	mg/l
37	Total Kjeldahl Nitrogen	IS 3025 (P-34):1988	*BDL (**DL 0.20 mg/l)	mg/l
38	Nickel	Standard Operating Procedure	*BDL (**DL 0.02 mg/l)	mg/l
39	Vanadium	Standard Operating Procedure	*BDL (**DL 0.02 mg/l)	mg/l
40	Ammonical Nitrogen	IS 3025 (P-34):1988	*BDL (**DL 0.20 mg/l)	mg/l
41	Total Coliform	IS 1622:1981, RA-2019	300	MPN/100ml
42	Focal Coliform	IS 1622:1981, RA-2019	180	MPN/100ml

*BDL - Below Detection Limit, **DL - Detection Limit



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Test Report

Sample No:	DMSPL/AA/NIOM/01	Report No:	DMSPL/AAM/BICO/2401/001
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/02/2024
		Ref. No:	NIL
		Monitoring Period:	January 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Near Mine Office (A1)	Sample Condition:	Good/Clear
Latitude:	21° 58'09" N	Longitude:	85° 15'33" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
03.01.2024	30.2	35.2	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
	-	180	400	1	20	6	5	1
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

*National Ambient Air Quality Standards.

End of Test Report



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Test Report

Sample No:	DMSPL/AA/NIOME02	Report No:	DMSPL/AAM/BICO/2401/002
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Kaira Distt. Sundargarh, Odisha India.	Reporting Date:	05/02/2024
		Ref. No:	Nil.
		Monitoring Period:	January 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Near Mines Gate (A2)	Sample Condition:	Good/Clear
Latitude:	21° 58'23" N	Longitude:	85° 15'44" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
08.01.2024	26.20	32.50	<0.05	<0.05	<0.50	<5.0	<1.0

	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
Limit as per NAAQS*	--	180	400	1	20	6	5	1
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

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Test Report

Sample No:	DMSPL/AA/NIOM/3	Report No:	DMSPLAAM/BICO/2401/003
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sunilargarh, Odisha India.	Reporting Date:	05/02/2024
		Ref. No:	NIL
		Monitoring Period:	January 2024
Sample Collected By:	DMSPL Representative	Equipment Used:	RDS & FPS with all accessories
Sample Description:	Ambient Air Quality Monitoring	Protocol Used:	IS-5182 & CPCB Guidelines
Location:	Village - Kenduhidi (A3)	Parameter Required:	As per EC Letter
Latitude:	21° 59'45" N	Customer Name:	Nadidih Iron Ore Mines
		Sample Condition:	Good/Clear
		Longitude:	85° 16'14" E

RESULTS

Date of Sample	Ozone (µg/m ³)	Ammonia (µg/m ³)	Lead (µg/m ³)	Nickel (ng/m ³)	Arsenic (ug/m3)	Benzene (µg/m ³)	Benzo(a)pyrene (ng/m3)
14.01.2024	22.50	36.20	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone (µg/m ³)	Ammonia (µg/m ³)	Lead (µg/m ³)	Nickel (ng/m ³)	Arsenic (ug/m3)	Benzene (µg/m ³)	Benzo(a)pyrene (ng/m3)
	--		180	400	1	20	6	5
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

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Test Report

Sample No:	DMSPL/AA/NIOM/4	Report No:	DMSPL/AAM/BICO/2401/004
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESI, Steel Limited, (BICO) At Nadidih, PO - Kotra Dist. Sundargarh, Odisha India.	Reporting Date:	05/02/2024
		Ref. No:	NIL
		Monitoring Period:	January 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per E.C Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Badlipada (A4)	Sample Condition:	Good/Clear
Latitude:	21° 58' 04" N	Longitude:	85° 18' 53" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
18.01.2024	24.50	36.20	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
	--	--	180	400	1	20	6	5
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

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Test Report

Sample No:	DMSPL/AA/NOME/5	Report No:	DMSPL/AAM/BICO/2401/005
Name & Address of the Project:	M/A Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Kotra Distt. Sundargarh, Odisha India.	Reporting Date:	05/02/2024
		Ref. No:	NIL
		Monitoring Period:	January 2024
Sample Collected By:	DMSPL Representative	Equipment Used:	RDS & FPS with all accessories.
Sample Description:	Ambient Air Quality Monitoring	Protocol Used:	IS-5182 & CPCB Guidelines
Location:	Village Jhirapani (A5)	Parameter Required:	As per EC Letter
Latitude:	21° 59'58" N	Customer Name:	Nadidih Iron Ore Mines
		Sample Condition:	Good/Clear
		Longitude:	85° 13'10" E

RESULTS

Date of Sample	Ozone (µg/m ³)	Ammonia (µg/m ³)	Lead (µg/m ³)	Nickel (ng/m ³)	Arsenic (ng/m ³)	Benzene (µg/m ³)	Benzo(a)pyrene (ng/m ³)
13.01.2024	21.50	34.20	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone (µg/m ³)	Ammonia (µg/m ³)	Lead (µg/m ³)	Nickel (ng/m ³)	Arsenic (ng/m ³)	Benzene (µg/m ³)	Benzo(a)pyrene (ng/m ³)
		--	180	400	1	20	6	5
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

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Test Report

Sample No:	DMSPL/AA/NIOM/6	Report No:	DMSPL/AAM/BICO/2401/006
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ISL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/02/2024
		Ref. No:	NIL
		Monitoring Period:	January 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Kashira (A6)	Sample Condition:	Good/Clear
Latitude:	21° 55'10" N	Longitude:	85° 15'20" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
28.01.2024	25.6	35.20	<0.05	<0.05	<0.50	<5.0	<1.0

	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
Limit as per NAAQS*	--	180	400	1	20	6	5	1
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

*National Ambient Air Quality Standards.

End of Test Report



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Test Report

Sample No:	DMSPL/AA/NIO/01-09	Report No:	DMSPL/AA/BIC/2401/001-009
Name & Address of the Project:	M/s. Naidih Iron Ore Mines, Under ESL Steel Limited, (BICO) A1 Naidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/02/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Jan. 2024 to 31 st Jan. 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Naidih Iron Ore Mines
Location:	Near Mine Office (A1)	Sample Condition:	Good/Clear
Latitude:	21° 58'09" N	Longitude:	85° 15'33" E

RESULTS

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
01.01.2024	62.2	45.3	16.2	26.4	0.61
02.01.2024	65.4	41.9	15.6	33.5	0.62
08.01.2024	73.3	43.0	16.4	25.6	0.64
09.01.2024	64.8	44.5	18.5	31.2	0.62
15.01.2024	70.9	43.1	15.2	28.6	0.70
16.01.2024	73.9	29.9	19.2	29.2	0.55
22.01.2024	74.2	33.0	16.3	24.9	0.54
23.01.2024	66.9	28.2	17.3	26.3	0.52
29.01.2024	73.2	37.3	16.3	24.1	0.54

Limit as per NAAQS*	Parameter	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
			100	60	80	80
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

*National Ambient Air Quality Standards,

End of Test Report



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Test-Report

Sample No:	DMSPL/AA/NIO/10-18	Report No.:	DMSPL/AA/BIC/2401/010-018
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.	Reporting Date:	05/02/2024
		Ref. No.:	NIL
		Monitoring Period:	1 st Jan. 2024 to 31 st Jan. 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Near Mines Gate (A2)	Sample Condition:	Good/Clear
Latitude:	21° 58' 23" N	Longitude:	85° 15' 44" E

RESULTS

Date	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)
01.01.2024	84.9	43.5	18.8	30.5	0.70
02.01.2024	86.7	44.2	19.7	26.4	0.93
08.01.2024	84.2	39.3	18.9	27.7	0.86
09.01.2024	74.9	43.4	19.3	32.5	0.82
15.01.2024	80.4	38.3	18.2	27.6	0.96
16.01.2024	82.5	46.4	16.6	26.5	0.91
22.01.2024	65.4	41.9	15.6	33.5	0.62
23.01.2024	72.3	44.8	15.4	25.6	0.60
29.01.2024	60.8	42.5	18.5	31.2	0.62

Limit as per NAAQS*	Parameter	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)
	--		100	60	80	80
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

*National Ambient Air Quality Standards.

End of Test Report



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Test Report

Sample No:	DMSPL/AA/NIO/19-27	Report No:	DMSPL/AA/BIC/2401/019-027
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/02/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Jan, 2024 to 31 st Jan, 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village - Kenduhilli (A3)	Sample Condition:	Good/Clear
Latitude:	21° 59'45" N	Longitude:	85° 16'14" E

RESULTS

Date	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m ³)
03.01.2024	65.5	46.6	15.7	26.4	0.64
04.01.2024	66.2	27.4	7.1	18.4	0.53
10.01.2024	57.3	30.3	7.3	17.0	0.58
11.01.2024	64.4	29.9	8.2	16.9	0.57
17.01.2024	57.5	31.4	8.3	15.1	0.55
18.01.2024	65.5	46.6	15.7	26.4	0.66
24.01.2024	66.2	26.4	7.3	18.4	0.53
25.01.2024	58.3	30.3	7.1	15.8	0.58
31.01.2024	66.2	35.4	8.5	18.5	0.83

Limit as per NAAQS*	Parameter	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m ³)
	--	100	60	80	80	4
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

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Test Report

Sample No:	DMSPL/AA/NIO/28-36	Report No:	DMSPL/AA/BIC/2401/028-036
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/02/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Jan, 2024 to 31 st Jan, 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & C PCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Badijada (A4)	Sample Condition:	Good/Clear
Latitude:	21° 58' 04" N	Longitude:	85° 18' 33" E

RESULTS

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
03.01.2024	72.3	40.8	17.4	25.6	0.64
04.01.2024	64.0	44.5	18.5	31.2	0.62
10.01.2024	73.9	43.1	16.2	28.6	0.70
11.01.2024	65.5	45.6	15.7	29.4	0.66
17.01.2024	62.2	27.4	9.1	18.4	0.53
18.01.2024	57.3	30.3	7.3	17.8	0.58
24.01.2024	64.4	29.0	7.1	16.9	0.54
25.01.2024	57.5	28.4	8.7	15.1	0.55
31.01.2024	60.8	44.5	16.5	31.2	0.62

Limit as per NAAQS*	Parameter	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
	--		100	60	80	80
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

*National Ambient Air Quality Standards.

End of Test Report



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Test Report

Sample No:	DMSPL/AA/NIO/37-45	Report No:	DMSPL/AA/BIC/2401/037-045
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt, Sundargarh, Odisha India.	Reporting Date:	05/02/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Jan, 2024 to 31 st Jan, 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Jhirapani (A5)	Sample Condition:	Good/Clear
Latitude:	21° 59'58" N	Longitude:	85° 13'10" E

RESULTS

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
05.01.2024	58.3	42.8	18.7	24.8	0.63
06.01.2024	62.2	45.3	16.2	26.4	0.61
12.01.2024	65.4	41.9	15.6	33.5	0.62
13.01.2024	72.3	40.8	16.4	25.6	0.64
19.01.2024	64.8	44.5	18.5	31.2	0.63
30.01.2024	70.9	43.1	16.2	27.6	0.70
26.01.2024	65.5	46.6	19.7	26.4	0.66
27.01.2024	61.9	44.4	18.9	26.6	0.65
30.01.2024	60.3	23.4	8.5	16.1	0.56

Limit as per NAAQS*	Parameter	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
	--	100	60	80	80	4
	Method of Analysis	IS 5182 (Part - 25)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

National Ambient Air Quality Standards.

End of Test Report



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Test Report

Sample No:	DMSPL/AA/NIO/46-54	Report No:	DMSPL/AA/BIC/2401/046-054
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/02/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Jan. 2024 to 31 st Jan. 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Kashira (A6)	Sample Condition:	Good/Clear
Latitude:	21° 55' 10" N	Longitude:	85° 15' 20" E

RESULTS

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
05.01.2024	65.4	29.9	9.1	18.9	0.54
06.01.2024	58.5	28.4	8.3	15.1	0.56
12.01.2024	57.3	29.4	9.0	19.4	0.52
13.01.2024	60.3	23.4	6.7	16.1	0.53
19.01.2024	55.4	24.4	11.3	15.3	0.52
20.01.2024	57.5	31.4	8.7	16.1	0.51
26.01.2024	58.3	28.4	9.2	18.4	0.54
27.01.2024	63.3	20.4	6.3	17.1	0.53
30.01.2024	60.8	44.5	15.3	31.2	0.62

Limit as per NAAQS*	Parameter	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
	--	100	60	80	80	4
	Method of Analysis	IS 5182 (Part - 13)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

*National Ambient Air Quality Standards.

End of Test Report



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Test Report

Sample No:	DMSPL/AN/NIOM/01-08	Report No:	DMSPL/AN/BICO/2401/001-008
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/02/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Jan. 2024 to 31 st Jan. 2024
		Equipment Used:	Sound Level Meter
		Protocol Used:	IS-9989
Sample Collected By:	DMSPL Representative	Parameter Required:	As per Govt. Standard
Sample Description:	Ambient Noise Monitoring	Customer Name:	Nadidih Iron Ore Mines
Sample Name:	Noise Level Monitoring	Sample Condition	Good/Clear

RESULTS

Sr. No.	Location	Date	Latitude:	Longitude:	Day Time [dB(A)]	Night Time [dB(A)]
1	Near Mine Office	02.01.2024	21° 58'09" N	85° 15'33" E.	65.5	50.4
2	Near Mines Gate	07.01.2024	21° 58'23" N	85° 15'44" E.	64.4	51.8
Standard Limit Industrial Area as per CPCB					75.0	70.0
3	Village Kenduhidi	12.01.2024	21° 59'45" N	85° 16'14" E.	52.4	42.5
4	Village Badipada	16.01.2024	21° 58'04" N	85° 18'33" E.	50.8	41.4
5	Village Jhirapani	21.01.2024	21° 59'58" N	85° 13'10" E.	54.7	41.7
6	Village Kashira	23.01.2024	21° 55'10" N	85° 15'20" E.	53.9	43.8
7	Upwind Direction	27.01.2024	21° 58'14" N	85° 15'20" E.	50.5	42.9
8	Downwind Direction	30.01.2024	21° 57'19" N	85° 13'34" E.	54.6	43.8
Standard Limit Residential Area as per CPCB					55.0	45.0

CPCB :- Central Pollution Control Board

End of Test Report



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Test-Report

Sample No:	DMSPL/AAFS/NIOM/01	Report No:	DMSPL/AAFS/BICO/2401/1-6
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESI, Steel Limited, (BICO) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.	Reporting Date:	05/02/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Jan. 2024 to 31 st Jan. 2024
		Equipment Used:	RDS with all accessories
		Protocol Used:	IS-5182
Sample Collected By:	DMSPL Representative	Parameter Required:	As per TOR Letter
Sample Description:	Ambient Air Quality Monitoring		
Sample Type:	Free Silica Composition		

RESULTS

Chemical Composition of PM 10 with Free Silica

Location	Date	PM10 ($\mu\text{g}/\text{m}^3$)	Free Silica %	Ca ($\mu\text{g}/\text{m}^3$)	Mg ($\mu\text{g}/\text{m}^3$)	Ni ($\mu\text{g}/\text{m}^3$)	Pb ($\mu\text{g}/\text{m}^3$)
Near Mine Office	05.01.2024	72.5	2.2	1.20	0.22	<0.5	0.07
Near Mines Gate	11.01.2024	70.2	1.9	1.18	0.26	<0.5	0.09
Village - Kenduhidi	13.01.2024	68.5	2.4	1.10	0.24	<0.5	0.08
Village Bandipada	20.01.2024	62.5	2.5	1.22	0.22	<0.5	0.08
Village Jhirapani	25.01.2024	64.2	2.5	1.10	0.22	<0.5	0.07
Village Kashira	29.01.2024	67.6	2.4	1.18	0.18	<0.5	0.08

End of Report



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Test Report

Sample No:	DMSPL/FD/NIOM/01-08	Report No:	DMSPL/FD/BICO/2401/001-006
Name & Address of the Project:	M/s Naldih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Naldih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/02/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Jan. 2024 to 31 st Jan. 2024
		Equipment Used:	RDS & Personnel Dust Sampler
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Monitoring	Customer Name:	Naldih Iron Ore Mines
Sample Name:	Fugitive Dust Sample	Sample Condition:	Good/Clear

RESULTS

Sr. No.	Location	Date	Latitude:	Longitude:	SPM ($\mu\text{g}/\text{m}^3$)
1	Mine Benches Area	06.01.2024	21° 58'10" N	85° 15'16" E	895.40
2	Haul Road	10.01.2024	21° 58'16" N	85° 15'26" E	920.80
3	Crushing Plant	14.01.2024	21° 58'24" N	85° 15'33" E	988.80
4	Screening Plant	18.01.2024	21° 58'30" N	85° 15'40" E	1020.20
5	Ore Loading Area	24.01.2024	21° 58'28" N	85° 15'10" E	1030.00
6	Waste Dump Area	28.01.2024	21° 58'30" N	85° 15'42" E	920.90

Limit as per Consent*	Parameter	Suspended Particulate Matter (SPM 1200 $\mu\text{g}/\text{m}^3$)
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State Pollution Control Board, Odisha.

End of Test Report



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Digcare Mining Solutions Pvt. Ltd.

Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample Number: DMSPL/GW/NOID01
Name & Address of the Project: M/s. Nalidih Iron Ore Mines,
Under ESI, Steel Limited, (BICO)
At Nalidih, PO - Koira
Distt. Sundargarh, Odisha India.

Report No.: DMSPL/GW/BICO/2401/001
Format No.: 7.8 F-01
Party Reference No.: NIL
Reporting Date: 22/01/2024
Ground Water Level: 3.8 Mtr.

Sample Description: Ground Water - Sample
Sample Location: Near Mine Site
Sample Collected by: DMSPL Representative
Sampling and Analysis Protocol: IS 3025 & APHA 23rd Edition 2017
Preservation: Ice Box

Period of Analysis: 14/01/2024-20/01/2024
Receipt Date: 14/01/2024
Sampling Date: 12/01/2024
Sampling Quantity: 5.0 Ltr + 250ml
Sampling Type: Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA -4500-H- B Electrometric Method	7.80	--	6.5 to 8.5	No Relaxation
2.	Colour	APHA -2120 B, Visual Comparison Method	*BLQ (**LOQ 1.0 Hazen)	Hazen	5	15
3.	Turbidity	APHA, 2130 B, Nephelometric Method	*BLQ (**LOQ 1.0 NTU)	NTU	1	5
4.	Odour	APHA, 2150 B, Threshold Odour Method	Agreeable	--	Agreeable	Agreeable
5.	Taste	APHA -2160 B, Threshold Test Method	Disagreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA - 2140 C, EDTA Titrimetric Method	158.20	mg/l	200	600
7.	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	52.20	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA - 2520 B, Titrimetric Method	122.30	mg/l	200	600
9.	Chloride as Cl	APHA, 4500-Cl B, Argentometric Method	82.50	mg/l	250	1000
10.	Cyanide as CN	APHA - 4500 CN- D	*BLQ (**LOQ 0.02 mg/l)	mg/l	0.05	No Relaxation
11.	Magnesium as Mg	APHA - 3500 Mg H, Calculation Method	7.52	mg/l	30	100
12.	Total Dissolved Solids	APHA - 2540 C, Gravimetric Method	358.20	mg/l	500	2000
13.	Sulphate as SO ₄	APHA - 4500 S, Turbidimetric Method	82.30	mg/l	200	400
14.	Fluoride as F	APHA - 4500-F D, SPADNS Method	0.42	mg/l	1.0	1.5
15.	Nitrate as NO ₃	IS 3025 (P-34), Chromotropic Method	23.50	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	0.22	mg/l	1.0	No relaxation
17.	Aluminium as Al	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.005 mg/l)	mg/l	0.01	0.2
18.	Barium	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.01 mg/l)	mg/l	0.5	2.4
19.	Chromium as Cr	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.002 mg/l)	mg/l	0.05	No Relaxation



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ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample No.: DMSPL/GW/NIGM01			Report No.: DMSPL/GW/BICO/2401/001			
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) - Limit	Permissible limit in the Absence of Alternate Source
20.	Phenolic Compounds	APHA, 5530 C Chloroform Extraction Method	*BLQ/**LOQ 0.0005 mg/l	mg/l	0.001	0.002
21.	Mineral Oil	Clause 6 of IS:3025 (Part 39)	*BLQ/**LOQ 0.1 mg/l	mg/l	1.0	No Relaxation
22.	Anionic Detergents as MBAS	Ames K of IS 13428, IS 3025 (P-68)	*BLQ/**LOQ 0.05 mg/l	mg/l	0.2	1.0
23.	Residual free Chlorine	IS 3025 P-26, Ortho-tolidine Method	*BDL/**DL 0.15mg/l	mg/l	--	--
24.	Sodium as Na	APHA, 3500 Na B, Flame Photometric Method	19.52	mg/l	--	--
25.	Potassium as K	APHA 3500 K B, Flame Photometric Method	6.24	mg/l	--	--
26.	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	0.40	mg/l	5	15
27.	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	0.12	mg/l	0.05	1.5
28.	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*BLQ/**LOQ 0.01 mg/l	mg/l	0.1	0.3
29.	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*BLQ/**LOQ 0.002 mg/l	mg/l	0.003	No Relaxation
30.	Lead as Pb	IS 3025 (P-65):2014(RA:2019)	*BLQ/**LOQ 0.002 mg/l	mg/l	0.01	No Relaxation
31.	Selenium as Se	IS 3025 (P-65):2014(RA:2019)	*BLQ/**LOQ 0.001 mg/l	mg/l	0.01	No Relaxation
32.	Arsenic as As	IS 3025 (P-65):2014(RA:2019)	*BLQ/**LOQ 0.005 mg/l	mg/l	0.01	No Relaxation
33.	Mercury as Hg	IS 3025 (P-68):2014(RA:2019)	*BLQ/**LOQ 0.0005 mg/l	mg/l	0.001	No Relaxation
34.	Total Coliform	IS 1822,1981, RA:2019	<2	MPN/100ml	Shall not be detectable in any 100 ml sample	
35.	E. Coli	IS 1622,1981, RA:2019	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: - *BLQ-Below Limit of Quantification, **LOQ- Limit of Quantification



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Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test-Report

Sample Number:
Name & Address of the Project:

DMSPL/GW/NIOM/02
M/s. Nadidih Iron Ore Mines,
Under ESL Steel Limited, (BICO)
At Nadidih, PO - Koira
Distt. Sundargarh, Odisha India.

Report No.: DMSPL/GW/BICO/2401/002
Format No.: 7.8 V-01
Party Reference No.: Nil
Reporting Date: 22/01/2024
Ground Water Level: 4.8 Mtr.

Sample Description:
Sample Location:
Sample Collected by:
Sampling and Analysis Protocol:
Preservation:

Ground Water Sample
Village Kendubidi
DMSPL Representative
IS 3025 & APHA 23rd Edition 2017
Ice Box

Period of Analysis: 14/01/2024-20/01/2024
Receipt Date: 14/01/2024
Sampling Date: 12/01/2024
Sampling Quantity: 5.0 Ltr. + 250ml
Sampling Type: Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500.-2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
1.	pH (at 25°C)	APHA, 4500-11 B. Electrode Method	7.96	--	6.5 to 8.5	No Relaxation
2.	Colour	APHA, 2120 B. Visual Comparison Method	*BLQ (**LOQ 1.0 Hazen)	Hazen	5	15
3.	Turbidity	APHA, 2130 B. Nephelometric Method	*BLQ (**LOQ 1.0 NTU)	NTU	1	5
4.	Odour	APHA, 2150 B. Threshold Odour Method	Agreeable	--	Agreeable	Agreeable
5.	Taste	APHA, 2160 B. Threshold Test Method	Disagreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA, 2340 C. EDTA Titrimetric Method	268.20	mg/l	200	600
7.	Calcium as Ca	APHA, 3500 Ca B. EDTA Titrimetric Method	52.30	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA, 2320 B. Titrimetric Method	150.28	mg/l	200	600
9.	Chloride as Cl ⁻	APHA, 4500-Cl ⁻ B. Argentometric Method	76.20	mg/l	250	1000
10.	Cyanide as CN ⁻	APHA, 4500 CN ⁻ D	*BLQ (**LOQ 0.02 mg/l)	mg/l	0.05	No Relaxation
11.	Magnesium as Mg	APHA, 3500 Mg B. Calculation Method	8.12	mg/l	30	100
12.	Total Dissolved Solids	APHA, 2540 C. Gravimetric Method	342.20	mg/l	500	2000
13.	Sulphate as SO ₄ ²⁻	APHA, 4500 S. Turbidimetric Method	50.20	mg/l	200	400
14.	Fluoride as F ⁻	APHA, 4500-F ⁻ D. SPADNS Method	0.50	mg/l	1.0	1.5
15.	Nitrate as NO ₃ ⁻	IS 3025 (P-34) Chromotropic Method	2.52	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-65) 2014(RA-2019)	0.26	mg/l	1.0	No relaxation
17.	Aluminium as Al	IS 3025 (P-65) 2014(RA-2019)	*BLQ (**LOQ 0.005 mg/l)	mg/l	0.05	0.2
18.	Boron	IS 3025 (P-65) 2014(RA-2019)	*BLQ (**LOQ 0.01 mg/l)	mg/l	0.5	2.0
19.	Chromium as Cr	IS 3025 (P-65) 2014(RA-2019)	*BLQ (**LOQ 0.002 mg/l)	mg/l	0.05	No Relaxation



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Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample No.: DMSPL/GW/S10M02			Report No.: DMSPL/GW/BICD/2401/002			
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
20	Phenolic Compounds	APHA, 5520 C Chloroform Extraction Method	*BLQ>**LOQ 0.005 mg/l	mg/l	0.001	0.002
21	Mineral Oil	Clause 6 of IS:3025(Part 39)	*BLQ**LOQ 0.1 mg/l	mg/l	1.0	No Relaxation
22	Anionic Detergents as MBAS	Ames K of IS 13428, IS-3025 (P-68)	*BLQ**LOQ 0.05 mg/l	mg/l	0.2	1.0
23	Residual Free Chlorine	IS 3025 P-26, Orthotolidine Method	*BDL(**DL, 0.15mg/l)	mg/l	--	--
24	Sodium as Na	APHA 3500 Na B Flame Photometric Method	20.50	mg/l	--	--
25	Potassium as K	APHA 3500 K B Flame Photometric Method	4.22	mg/l	--	--
26	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	1.26	mg/l	5	15
27	Copper as Cu	IS 3025 (P-63):2014(RA:2019)	0.12	mg/l	0.05	1.5
28	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*BLQ**LOQ 0.01 mg/l	mg/l	0.1	0.3
29	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*BLQ**LOQ 0.002 mg/l	mg/l	0.003	No Relaxation
30	Lead as Pb	IS 3025 (P-65):2014(RA:2019)	*BLQ**LOQ 0.002 mg/l	mg/l	0.01	No Relaxation
31	Selenium as Se	IS 3025 (P-65):2014(RA:2019)	*BLQ**LOQ 0.001 mg/l	mg/l	0.01	No Relaxation
32	Arsenic as As	IS 3025 (P-65):2014(RA:2019)	*BLQ**LOQ 0.005 mg/l	mg/l	0.01	No Relaxation
33	Mercury as Hg	IS 3025 (P-65):2014(RA:2019)	*BLQ**LOQ 0.0005 mg/l	mg/l	0.001	No Relaxation
34	Total Coliform	IS:1622,1981, RA-2019	<2	MPN/100ml	Shall not be detectable in any 100 ml sample	
35	E. Coli	IS:1622,1981, RA-2019	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: *BLQ-Below Limit of Quantification, **LOQ- Limit of Quantification



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Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample Number: DMSPL/GW/NIOM/03
Name & Address of the Project: M/s. Nadidih Iron Ore Mines,
Under: ESL Steel Limited, (BICO)
At Nadidih, PO - Koira
Distt. Sundargarh, Odisha India.

Report No.: DMSPL/GW/BICO/2401/003
Format No.: 7.8 F-01
Party Reference No.: NIL
Reporting Date: 22/01/2024
Ground Water Level: 4.8 Mtr.

Sample Description: Ground Water Sample
Sample Location: Village Badipada
Sample Collected by: DMSPL Representative
Sampling and Analysis Protocol: IS 3025 & APHA 23rd Edition 2017
Preservation: Ice Box

Period of Analysis: 14/01/2024-20/01/2024
Receipt Date: 14/01/2024
Sampling Date: 12/01/2024
Sampling Quantity: 5.0 Lit + 250ml
Sampling Type: Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
1.	pH @ 25 °C	APHA, 4500-11 B Electrometric Method	7.42	-	6.5 to 8.5	No Relaxation
2.	Colour	APHA, 2120 B, Visual Comparison Method	*BLQ (**LOQ 1.0 Hazoo)	Hazoo	5	15
3.	Turbidity	APHA, 2130 B, Nephelometric Method	*BLQ (**LOQ 1.0 NTU)	NTU	1	5
4.	Odour	APHA, 2110 B, Threshold Odour Method	Agreeable	--	Agreeable	Agreeable
5.	Taste	APHA, 2160 B, Threshold Test Method	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA, 2340 C, EDTA Titrimetric Method	150.20	mg/l	200	600
7.	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	52.20	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA, 2320 B, Titrimetric Method	122.30	mg/l	200	600
9.	Chloride as Cl	APHA, 4500-Cl B, Argentometric Method	82.20	mg/l	250	1000
10.	Cyanide as CN	APHA, 4500 CN D	*BLQ (**LOQ 0.02 mg/l)	mg/l	0.05	No Relaxation
11.	Magnesium as Mg	APHA, 3500 Mg B, Calculation Method	4.30	mg/l	30	100
12.	Total Dissolved Solids	APHA, 2540 C, Gravimetric Method	370.20	mg/l	500	2000
13.	Sulphate as SO ₄	APHA, 4500 E, Turbidimetric Method	90.40	mg/l	200	400
14.	Fluoride as F	APHA, 4500-F D, SPADNS Method	0.52	mg/l	1.0	1.5
15.	Nitrate as NO ₃	IS 3025 (P-34) Chromotropic Method	24.48	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-65):2014(RA-2019)	0.36	mg/l	1.0	No relaxation
17.	Aluminium as Al	IS 3025 (P-65):2014(RA-2019)	*BLQ (**LOQ 0.005 mg/l)	mg/l	0.03	0.2
18.	Boron	IS 3025 (P-65):2014(RA-2019)	*BLQ (**LOQ 0.01 mg/l)	mg/l	0.5	2.4
19.	Chromium as Cr	IS 3025 (P-65):2014(RA-2019)	*BLQ (**LOQ 0.002 mg/l)	mg/l	0.05	No Relaxation



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Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample No.: DMSPL/GW/NIOM/03			Report No: DMSPL/GW/BI/C0/2401/003			
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
20.	Phenolic Compounds	APHA, 5530 C Chloroform Extraction Method	*BLQ>**LOQ 0.0005 mg/l	mg/l	0.001	0.002
21.	Metal Oil	Clause 6 of IS:3025(Part 39)	*BLQ>**LOQ 0.1 mg/l	mg/l	1.0	No Relaxation
22.	Arsenic Detergent as MBAS	Ames K of IS 1342B, IS 3025 (P-68)	*BLQ>**LOQ 0.05 mg/l	mg/l	0.2	1.0
23.	Residual Free Chlorine	IS 3025 (P-26, Ortho-tolidine Method)	*BLQ (**DL 0.15mg/l)	mg/l	--	--
24.	Sodium as Na	APHA 3500 Na B Flame Photometric Method	16.50	mg/l	--	--
25.	Potassium as K	APHA 3500 K B Flame Photometric Method	3.42	mg/l	--	--
26.	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	0.82	mg/l	5	15
27.	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	0.22	mg/l	0.05	1.5
28.	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*BLQ>**LOQ 0.01 mg/l	mg/l	0.1	0.5
29.	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*BLQ>**LOQ 0.002 mg/l	mg/l	0.003	No Relaxation
30.	Lead as Pb	IS 3025 (P-65):2014(RA:2019)	*BLQ>**LOQ 0.002 mg/l	mg/l	0.01	No Relaxation
31.	Selenium as Se	IS 3025 (P-65):2014(RA:2019)	*BLQ>**LOQ 0.001 mg/l	mg/l	0.01	No Relaxation
32.	Arsenic as As	IS 3025 (P-65):2014(RA:2019)	*BLQ>**LOQ 0.005 mg/l	mg/l	0.01	No Relaxation
33.	Mercury as Hg	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.0005 mg/l)	mg/l	0.001	No Relaxation
34.	Total Coliform	IS 1622,1981, RA-2019	<2	MPN/100ml	Shall not be detectable in any 100 ml sample	
35.	E. Coli	IS 1622,1981, RA-2019	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: *BLQ-Below Limit of Quantification, **LOQ-Limit of Quantification



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Digcare Mining Solutions Pvt. Ltd.

Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test-Report

Sample Number:	DMSPL/GW/NIDM/04	Report No.:	DMSPL/GW/III/CO/2401/004
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Format No.:	7.8 F-01
		Party Reference No.:	NIL
		Reporting Date:	22/01/2024
		Ground Water Level:	3.8 Mtr.

Sample Description:	Ground Water Sample	Period of Analysis:	14/01/2024-20/01/2024
Sample Location:	Village Jhirapani	Receipt Date:	14/01/2024
Sample Collected by:	DMSPL Representative	Sampling Date:	12/01/2024
Sampling and Analysis Protocol:	IS 3025 & APHA 23 rd Edition 2017	Sampling Quantity:	5.0 Ltr + 250ml
Preservation:	Ice Box	Sampling Type:	Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500-2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA - 4500-H ⁺ B Electrometric Method	7.90	-	6.5 to 8.5	No Relation
2.	Colour	APHA 2120 B, Visual Comparison Method	*BLQ (**LOQ 1.0 Hazen)	Hazen	5	15
3.	Turbidity	APHA, 2130 B, Nephelometric Method	*BLQ (**LOQ 1.0 NTU)	NTU	1	5
4.	Odour	APHA, 2150 B: Threshold Odour Method	Agreeable	-	Agreeable	Agreeable
5.	Taste	APHA, 2160 B: Threshold Test Method	Disagreeable	-	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA - 2340 C: EDTA Titrimetric Method	148.20	mg/l	200	600
7.	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	40.20	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA - 2320 B: Titrimetric Method	150.50	mg/l	200	600
9.	Chloride as Cl	APHA, 4500-Cl B, Argentometric Method	84.50	mg/l	250	1000
10.	Cyanide as CN	APHA - 4500 CN D	*BLQ (LOQ 0.02 mg/l)	mg/l	0.05	No Relation
11.	Magnesium as Mg	APHA - 3500 Mg B, Calculation Method	16.20	mg/l	30	100
12.	Total Dissolved Solids	APHA - 2540 C: Gravimetric Method	352.20	mg/l	500	2000
13.	Sulphate as SO ₄	APHA - 4500 E: Turbidimetric Method	56.20	mg/l	200	400
14.	Fluoride as F	APHA - 4500-F D, SPADNS Method	1.20	mg/l	1.0	1.5
15.	Nitrate as NO ₃	IS 3025 (P:34):Chemotrophic Method	22.10	mg/l	45	No Relation
16.	Iron as Fe	IS 3025 (P:65):2014(RA:2019)	0.26	mg/l	1.0	No relation
17.	Aluminium as Al	IS 3025 (P:65):2014(RA:2019)	*BLQ (**LOQ 0.095 mg/l)	mg/l	0.03	0.2
18.	Boron	IS 3025 (P:65):2014(RA:2019)	*BLQ (**LOQ 0.01 mg/l)	mg/l	0.5	2.4
19.	Chromium as Cr	IS 3025 (P:65):2014(RA:2019)	*BLQ (**LOQ 0.002 mg/l)	mg/l	0.05	No Relation



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Digcare Mining Solutions Pvt. Ltd.

Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Report No.: DMSPL/GW/WIC/2401/004

Sample No.: DMSPL/GW/WIC/04

S. No.	Parameter	Test Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
20.	Phenolic Compounds	APHA, 5530.C Chloroform Extraction Method	*BLQ/**LOQ 0.0005 mg/l	mg/l	0.001	0.002
21.	Mineral Oil	Clause 6 of IS:3025 (Part-39)	*BLQ/**LOQ 0.1 mg/l	mg/l	1.0	No Relaxation
22.	Anionic Detergents as MBAS	Arnes K of IS 13428, IS 3025 (P-68)	*BLQ/**LOQ 0.05 mg/l	mg/l	0.2	1.0
23.	Residual free Chlorine	IS:3025 P-26, Ortho-tolidine Method	*BDL/**DL 0.13mg/l	mg/l	--	--
24.	Sodium as Na	APHA, 3500 Na B, Flame Photometric Method	18.60	mg/l	--	--
25.	Potassium as K	APHA 3500 K B, Flame-Photometric Method	4.52	mg/l	--	--
26.	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	1.22	mg/l	5	15
27.	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	0.12	mg/l	0.05	1.5
28.	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*BLQ/**LOQ 0.01 mg/l	mg/l	0.1	0.3
29.	Cadmium as Cd	IS:3025 (P-65):2014(RA:2019)	*BLQ/**LOQ 0.002 mg/l	mg/l	0.005	No Relaxation
30.	Lead as Pb	IS 3025 (P-65):2014(RA:2019)	*BLQ/**LOQ 0.002 mg/l	mg/l	0.01	No Relaxation
31.	Selenium as Se	IS 3025 (P-65):2014(RA:2019)	*BLQ/**LOQ 0.001 mg/l	mg/l	0.01	No Relaxation
32.	Arsenic as As	IS 3025 (P-65):2014(RA:2019)	*BLQ/**LOQ 0.005 mg/l	mg/l	0.01	No Relaxation
33.	Mercury as Hg	IS 3025 (P-65):2014(RA:2019)	*BLQ/**LOQ 0.0005 mg/l	mg/l	0.001	No Relaxation
34.	Total Coliform	IS 1622:1981, RA-2019	<2	MPN/100ml	Shall not be detectable in any 100 ml sample	
35.	E. Coli	IS 1622:1981, RA-2019	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: - *BLQ-Below Limit of Quantification, **LOQ- Limit of Quantification



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Plot No. 672/18, First Floor, Khandasa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample Number:	DMSPL/NIOM/S/01	Report No.:	DMSPL/S/BICO/2401/001
Name & Address of Party:	M/s. Nadidih Iron Ore Mines, Under ESI, Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Form No.:	5.10 F-01
		Party Reference No.:	NIL
Sample Description:	SOIL	Reporting Date:	25/01/2024
Sampling Location:	Inside Mine Area	Receipt Date:	18/01/2024
Sample Collected by:	DMSPL Lab Representative	Sampling Date:	15/01/2024
		Type of Sampling:	Composite
Sampling & Analysis Protocol:	IS 2720 & USDA	Sampling Quantity:	2.0 Kg
		Depth of Sampling:	30 cm
		Packing Status:	Temp Sealed

S. No.	Parameter	Protocol	Result	Unit
1.	pH (at 25 °C)	IS - 2720 (P-26, 1987)	8.22	—
2.	Conductivity	IS:14767-2000 Reaffirmed 2006	0.32	mS/cm
3.	Soil Texture	USDA Method, 1968	Silty Loam	—
4.	Colour	USDA Method, 1968	Yellowish	—
5.	Water holding capacity	USDA Method, 1968	22.40	%
6.	Bulk density	USDA Method, 1968	1.45	gm/cc
7.	Chloride as Cl	USDA Method, 1968	26.50	mg/100gm
8.	Calcium as Ca	USDA Method, 1968	32.50	mg/100gm
9.	Sodium as Na	USDA Method, 1968	30.22	mg/100gm
10.	Potassium as K	USDA Method, 1968	62.50	kg/hec.
11.	Organic Matter	IS:2720 (P-22, 1972)	0.48	%
12.	Magnesium as Mg	USDA Method, 1968	11.50	mg/100gm
13.	Available Nitrogen as N	IS:14696, 1999	195.40	kg/hec.
14.	Available Phosphorus	USDA, APHA-4500PC	32.40	kg/hec.
15.	Zinc as Zn	APHA-3030D, APHA-3111B	6.50	mg/100gm
16.	Manganese as Mn	APHA-3030D, APHA-3111B	2.50	mg/100gm
17.	Chromium as Cr	APHA-3030D, APHA-3111B	1.22	mg/100gm
18.	Lead as Pb	APHA-3030D, APHA-3111B	0.40	mg/100gm
19.	Cadmium as Cd	APHA-3030D, APHA-3111B	1.25	mg/100gm
20.	Copper as Cu	APHA-3030D, APHA-3111B	3.25	mg/100gm



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Test-Report

Sample Number:	DMSPL/NIOMST/01	Report No.:	DMSPL/ST/BICO/2401/001
Name & address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Kolar Dist. Sundergarh, Odisha India.	Format No.:	7.8 F-03
		Party Reference No.:	NIL
		Reporting Date:	25/01/2024
		Period of Analysis:	18/01/2024 to 25/01/2024
		Receipt Date:	15/01/2024

Sample Description : Stack Emission Monitoring

General Information

Sampling Location	:	Mine Site
Sample Collected by	:	DMSPL Lab Representative
Date of Sampling	:	12/01/2024
Sampling Duration (Minutes)	:	40.0 Min
Stack attached to	:	DG Set
Make of stack	:	MS
Diameter of stack (m)	:	0.30 Meter
Instrument calibration status	:	Calibrated
Meteorological Condition	:	Clear Sky
Ambient Temperature - Ta (°C)	:	22.0
Temperature of stack Gases - Ts (°C)	:	220.0
Velocity of stack Gases (m/sec.)	:	7.20
Flow rate of PM (LPM)	:	22.0
Flow rate of Gas (LPM)	:	2.0
Sampling condition	:	Isokinetic
Protocol used	:	IS : 11255

RESULTS

S. No.	Test Parameters	Test Method	Results	Units	Limits as Per CPCB
1.	Particulate Matter (as PM)	IS 11255 (P-1), Gravimetric Method	38.20	mg/Nm ³	75
2.	Oxide of Nitrogen (as NOx)	IS 11255 (P-7)	140.20	ppm	710
3.	SO ₂	DMSPL/ENV/STP/ST/FGA/01, Issue No.: 01/01/11/21	16.80	mg/Nm ³	100
4.	Sulphur Dioxide (as SO ₂)	IS 11255 (P-2), Titrimetric Method	20.40	mg/Nm ³	--
5.	Carbon Monoxide (as CO)	DMSPL/ENV/STP/ST/FGA/01, Issue No.: 01/01/11/21	24.40	mg/Nm ³	150

Note: * STP Laboratory Standard Testing Procedure

End of Report



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Sample Number:	DMSPL/NIOM/SW/01	Test-Report	Report No.:	DMSPL/SW/BICO/2401/001
Name of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.		Format No.:	7.8 F-01
			Party Reference No.:	NIL
			Reporting Date:	25/01/2024
Sample Description:	Surface Water Sample		Period of Analysis:	18/01/2024 - 25/01/2024
Sampling Location:	River Sample (Near Mines Upstream)		Receipt Date:	18/01/2024
Sample Collected by:	DMSPL Lab Representative		Sampling Date:	15/01/2024
Preservation:	Ice Box		Sampling Quantity:	2.0 Ltr + 250ml.
Sampling and Analysis Protocol:	APHA & IS, 23 rd Edition 2017		Sampling Type:	Composite

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25°C)	APHA, 4500-H ⁺ B Electrode Method	7.42	--
2.	Colour	APHA, 2120 B, Visual Comparison Method	22.0	Hazen
3.	Turbidity	APHA, 2130 B, Nephelometric Method	<1	NTU
4.	Odour	APHA, 2150 B, Threshold Test Method	Agreeable	--
5.	Total Hardness as CaCO ₃	APHA, 2340 C, EDTA Titrimetric Method	88.2	mg/l
6.	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	22.2	mg/l
7.	Alkalinity as CaCO ₃	APHA, 2320 B, Titrimetric Method	76.5	mg/l
8.	Chloride as Cl	APHA, 4500-Cl ⁻ B, Argentometric Method	44.2	mg/l
9.	Total Residual Chlorine	IS 3025 P-26, Ortho-toluidine Method	*BDL (**DL: 0.15mg/l)	mg/l
10.	Cyanide as CN ⁻	APHA, 4500 CN ⁻ D, Barbituric Acid Method	*BDL (**DL: 0.02 mg/l)	mg/l
11.	Magnesium as Mg	APHA, 3500 Mg II, Calculation Method	5.42	mg/l
12.	Total Dissolved Solids	APHA, 2540 C, Gravimetric Method	258	mg/l
13.	Total Suspended Solids	APHA, 2540 D, Gravimetric Method	27.0	mg/l
14.	Dissolved Oxygen	APHA, 4500 O ₂ B, Iodometric Method	6.0	mg/l
15.	Sulphate	IS 3025 (P-29) 2022	4.4	mg/l
16.	Fluoride as F	APHA, 4500-F ⁻ D, SPADNS Method	0.24	mg/l
17.	BOD (5 Days at 27°C)	APHA, 5210 C / IS 3025 P-44	16.10	mg/l
18.	COD	APHA, 5220 B, Open Reflux Method	38.20	mg/l



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Test Report

Sample No.: DMSPL/NIOM/SW/01			Report No.: DMSPL/SW/BICO/2401/001	
S. No.	Parameter	Test-Method	Result	Unit
19.	Conductivity (at 25 °C)	APHA, 2510 B, Conductivity Meter Method	0.432	mS/cm
20.	Nitrate as NO ₃	IS 3025 (P-34) Chromotopic Method	6.10	mg/l
21.	Sodium as Na	APHA, 3500 Na B, Flame Photometric Method	17.50	mg/l
22.	Potassium as K	APHA 3500 K B, Flame Photometric Method	6.22	mg/l
23.	Iron as Fe	IS 3025 (P-65)-2014(RA:2019)	0.42	mg/l
24.	Aluminium as Al	IS 3025 (P-65)-2014(RA:2019)	*BDL(**DL 0.002 mg/l)	mg/l
25.	Boron	IS 3025 (P-65)-2014(RA:2019)	*BDL(**DL 0.002 mg/l)	mg/l
26.	Hexavalent Chromium as Cr	IS 3025 (P-65)-2014(RA:2019)	*BDL(**DL 0.002 mg/l)	mg/l
27.	Phenolic Compounds	APHA, 5530 C Chloroform Extraction Method	*BDL(**DL 0.0004mg/l)	mg/l
28.	#Mineral Oil	Clause 6 of IS:3025(Part 39)	*BDL(**DL 0.1 mg/l)	mg/l
29.	#Anionic Detergents as MBAS	APHA, 5540 C MBAS Method	*BDL(**DL 0.05 mg/l)	mg/l
30.	Zinc as Zn	IS 3025 (P-65)-2014(RA:2019)	*BDL(**DL 0.05 mg/l)	mg/l
31.	Copper as Cu	IS 3025 (P-65)-2014(RA:2019)	*BDL(**DL 0.1 mg/l)	mg/l
32.	Manganese as Mn	IS 3025 (P-65)-2014(RA:2019)	*BDL(**DL 0.01 mg/l)	mg/l
33.	Cadmium as Cd	IS 3025 (P-65)-2014(RA:2019)	*BDL(**DL 0.002 mg/l)	mg/l
34.	Temperature	IS 3025 (P-9)-2021	22.3	mg/l
35.	Oil & Grease	IS 3025 (P-39)-2021	*BDL(**DL 2.0 mg/l)	mg/l
36.	Free Ammonia	IS 3025 (P-34)-1988	*BDL(**DL 0.20 mg/l)	mg/l
37.	Total kjeldhal Nitrogen	IS 3025 (P-34)-1988	*BDL(**DL 0.20 mg/l)	mg/l
38.	Nickel	Standard Operating Procedure	*BDL(**DL 0.02 mg/l)	mg/l
39.	Vanadium	Standard Operating Procedure	*BDL(**DL 0.02 mg/l)	mg/l
40.	Ammonical Nitrogen	IS 3025 (P-34)-1988	*BDL(**DL 0.20 mg/l)	mg/l
41.	Total Coliform	IS 1622:1981, RA-2019	200	MPN/100ml
42.	Fecal Coliform	IS 1622:1981, RA-2019	160	MPN/100ml

*BDL-Below Detection Limit, **DL- Detection Limit



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Test Report

Sample Number	DMSPL/NIDM/SW/02	Report No.:	DMSPL/SW/BICO/2401/002
Name of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited. (BICO) At Nadidih, PO - Koiru Distt. Sundargarh, Odisha India.	Format No.:	7.8 E-01
		Party Reference No.:	NIL
		Reporting Date:	25/01/2024
Sample Description:	Surface Water Sample	Period of Analysis:	18/01/2024-25/01/2024
Sampling Location:	River Sample (Near Mines Downstream)	Receipt Date:	18/01/2024
Sample Collected by:	DMSPL Lab Representative	Sampling Date:	15/01/2024
Preservation:	Ice Box	Sampling Quantity:	2.0 Ltr + 250ml.
Sampling and Analysis Protocol:	APHA & IS, 23 rd Edition 2017	Sampling Type:	Composite

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	APHA ,4500-H ⁺ B Electrometric Method	7.48	--
2.	Colour	APHA ,2120 B. Visual Comparison Method	24.0	Hazen
3.	Turbidity	APHA, 2130 B. Nephelometric Method	<1	NTU
4.	Odour	APHA, 2150 B. Threshold Test Method	Agreeable	--
5.	Total Hardness as CaCO ₃	APHA , 2540 C, EDTA Titrimetric Method	96.1	mg/l
6.	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	26.2	mg/l
7.	Alkalinity as CaCO ₃	APHA , 2320 H. Titrimetric Method	70.2	mg/l
8.	Chloride as Cl	APHA, 4500-Cl ⁻ B, Argentometric Method	42.20	mg/l
9.	Total Residual Chlorine	IS 3025 P-26, Ortho-tolidine Method	*BDL**DI. 0.15mg/l	mg/l
10.	Cyanide as CN ⁻	APHA , 4500 CN ⁻ D. Barbituric Acid Method	*BDL**DI. 0.02 mg/l	mg/l
11.	Magnesium as Mg	APHA , 3500 Mg B. Calculation Method	5.42	mg/l
12.	Total Dissolved Solids	APHA , 2540 C. Gravimetric Method	248.0	mg/l
13.	Total Suspended Solids	APHA,2540 D Gravimetric Method	19.0	mg/l
14.	Dissolved Oxygen	APHA,4500 O B. Iodometric Method	6.4	mg/l
15.	Sulphide	IS 3025 (P-29):2022	10.20	mg/l
16.	Fluoride as F	APHA , 4500-F D, SPADNS Method	0.40	mg/l
17.	BOD (3 Days at 27°C)	APHA, 5210 C -IS 3025,P-44	12.20	mg/l
18.	COD	APHA, 5220 B, Open Reflux Method	36.42	mg/l



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Test Report

Sample No.: DMSPL/NIOM/SW/02			Report No.: DMSPL/SW/BICO/2401/002	
S. No.	Parameter	Test-Method	Result	Unit
19	Conductivity (at 25 °C)	APHA, 2510 B, Conductivity Meter Method	0.412	mS/cm
20	Nitrate as NO ₃	IS 3025 (P-34), Chromotropic Method	4.40	mg/l
21	Sodium as Na	APHA, 3500 Na B, Flame Photometric Method	2.20	mg/l
22	Potassium as K	APHA 3500 K B, Flame Photometric Method	5.62	mg/l
23	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL: 0.002 mg/l)	mg/l
24	Aluminium as Al	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL: 0.002 mg/l)	mg/l
25	Boron	IS 3025 (P-65):2014(RA:2019)	0.44	mg/l
26	Hexavalent Chromium as Cr	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL: 0.002 mg/l)	mg/l
27	Phenolic Compounds	APHA, 5530 C Chloroform Extraction Method	*BDL (**DL: 0.0004mg/l)	mg/l
28	#Mineral Oil	Clause 6 of IS:3025 (Part 39)	*BDL (**DL: 0.1 mg/l)	mg/l
29	#Anionic Detergents as MBAS	APHA, 5540 C MBAS Method	*BDL (**DL: 0.05 mg/l)	mg/l
30	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL: 0.05 mg/l)	mg/l
31	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL: 0.1 mg/l)	mg/l
32	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL: 0.01 mg/l)	mg/l
33	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL: 0.002 mg/l)	mg/l
34	Temperature	IS 3025 (P-9):2021	24.8	mg/l
35	Oil & Grease	IS 3025 (P-39):2021	*BDL (**DL: 2.0 mg/l)	mg/l
36	Free Ammonia	IS 3025 (P-34):1988	*BDL (**DL: 0.20 mg/l)	mg/l
37	Total kjeldhal Nitrogen	IS 3025 (P-34):1988	*BDL (**DL: 0.20 mg/l)	mg/l
38	Nickel	Standard Operating Procedure	*BDL (**DL: 0.02 mg/l)	mg/l
39	Vanadium	Standard Operating Procedure	*BDL (**DL: 0.02 mg/l)	mg/l
40	Ammonical Nitrogen	IS 3025 (P-34):1988	*BDL (**DL: 0.20 mg/l)	mg/l
41	Total Coliform	IS 1622:1981, RA-2019	300	MPN/100ml
42	Fecal Coliform	IS 1622:1981, RA-2019	180	MPN/100ml

*BDL - Below Detection Limit; **DL - Detection Limit



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Test Report

Sample No:	DMSPL/AA/NIO/01-09	Report No:	DMSPL/AA/BIC/2402/001-009
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koxra Dist. Sundargarh, Odisha India.	Reporting Date:	05/03/2024
Sample Collected By:	DMSPL Representative	Ref. No:	NIL
Sample Description:	Ambient Air Quality Monitoring	Monitoring Period:	1 st Feb. 2024 to 29 th Feb. 2024
Location:	Near Mine Office (A1)	Equipment Used:	RDS & FPS with all accessories
Latitude:	21° 58'09" N	Protocol Used:	IS-5182 & CPCB Guidelines
		Parameter Required:	As per EC Letter
		Customer Name:	Nadidih Iron Ore Mines
		Sample Condition:	Good/Clear
		Longitude:	85° 15'33" E

RESULTS

Date	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)
01.02.2024	63.2	45.3	16.2	26.4	0.65
04.02.2024	65.4	41.9	15.6	33.5	0.66
08.02.2024	72.3	43.8	17.4	25.6	0.64
10.02.2024	61.0	42.5	16.5	31.2	0.62
15.02.2024	70.9	43.1	17.2	27.6	0.70
16.02.2024	73.9	29.9	15.2	26.2	0.56
20.02.2024	74.2	32.0	19.3	24.9	0.54
23.02.2024	66.9	28.2	18.3	26.3	0.55
26.02.2024	73.2	37.3	18.6	24.1	0.56

Limit as per NAAQS*	Parameter	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)
		--	100	60	80	80
	Method of Analysis	IS 5182 (Part - 2.5)	IS 5182 (Part - 2.4)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

*National Ambient Air Quality Standards.

** End of Test Report**



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ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample No:	DMSPL/AA/NIO/10-18	Report No:	DMSPL/AA/BIC/2402/010-018
Name & Address of the Project:	M/s. Naldih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Naldih, PO - Koira Dist. Sundargarh, Odisha India.	Reporting Date:	05/05/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Feb, 2024 to 29 th Feb, 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Naldih Iron Ore Mines
Location:	Near Mines Gate (A2)	Sample Condition:	Good/Clear
Latitude:	21° 58' 25" N	Longitude:	85° 15' 44" E

RESULTS

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
01.02.2024	64.9	47.5	18.8	30.5	0.70
04.02.2024	82.7	43.2	19.7	29.4	0.93
08.02.2024	83.2	39.3	17.9	27.7	0.86
10.02.2024	74.9	46.4	16.3	31.5	0.62
13.02.2024	80.8	35.3	18.2	26.6	0.96
16.02.2024	82.5	46.4	16.6	25.5	0.91
20.02.2024	65.4	45.9	17.6	34.5	0.66
23.02.2024	72.3	44.8	19.4	25.6	0.64
26.02.2024	64.8	48.5	16.5	35.2	0.66

Limits as per NAAQS*	Parameter	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
	-	-	100	60	80	80
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

National Ambient Air Quality Standards.

End of Test Report



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Test Report

Sample No:	DMSPL/AA/NIO/19-27	Report No:	DMSPL/AA/BIC/2402/019-027
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/03/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Feb. 2024 to 29 th Feb. 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village - Kendubidi (A3)	Sample Condition:	Good/Clear
Latitude:	21° 59'45" N	Longitude:	85° 16'14" E

RESULTS

Date	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)
02.02.2024	65.5	46.6	15.7	26.4	0.66
05.02.2024	66.2	26.4	9.1	18.4	0.53
09.02.2024	60.3	30.3	8.5	17.8	0.58
11.02.2024	64.4	25.9	7.1	16.9	0.57
14.02.2024	58.5	30.6	9.5	17.1	0.55
17.02.2024	65.5	46.6	16.7	26.4	0.66
21.02.2024	66.2	26.4	9.1	18.4	0.53
24.02.2024	57.3	30.3	8.6	17.8	0.55
27.02.2024	66.2	35.4	9.7	19.7	0.83

Limit as per NAAQS*	Parameter	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)
	-	100	60	80	80	4
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

National Ambient Air Quality Standards.

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Test Report

Sample No:	DMSPL/AA/NIO/28-36	Report No:	DMSPL/AA/BIC/2402/028-036
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundergarh, Odisha India.	Reporting Date:	05/03/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Feb. 2024 to 29 th Feb. 2024.
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Badipaila (A4)	Sample Condition:	Good/Clear
Latitude:	21° 58' 04" N	Longitude:	85° 18' 33" E

RESULTS

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
02.02.2024	72.3	40.0	10.4	25.6	0.63
05.02.2024	60.8	44.5	16.5	31.2	0.62
09.02.2024	70.9	43.1	19.2	27.6	0.70
11.02.2024	65.5	46.6	18.7	26.4	0.66
14.02.2024	63.2	27.4	8.1	18.4	0.53
17.02.2024	57.3	30.3	9.5	17.8	0.54
21.02.2024	65.4	29.9	7.1	16.9	0.52
24.02.2024	50.5	30.6	8.7	19.1	0.56
27.02.2024	60.0	44.5	16.5	31.2	0.62

Limit as per NAAQS*	Parameter	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
		--	100	60	80	80
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

*National Ambient Air Quality Standards.

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Test Report

Sample No:	DMSPL/AA/NIO/37-45	Report No:	DMSPL/AA/BIC/2402/037-045
Name & Address of the Project:	M/s. Naldih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Naldih, PO - Kutra Distt. Sundargarh, Odisha India.	Reporting Date:	05/03/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Feb. 2024 to 29 th Feb. 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Naldih Iron Ore Mines
Location:	Village Jhirapatti (AS)	Sample Condition:	Good/Clear
Latitude:	21° 59'58" N	Longitude:	85° 13'10" E

RESULTS

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
03.02.2024	58.3	42.8	18.7	23.8	0.63
06.02.2024	62.2	45.3	17.2	24.4	0.65
10.02.2024	65.4	44.9	15.6	33.5	0.62
12.02.2024	72.3	46.8	17.4	25.6	0.68
15.02.2024	61.8	45.5	16.5	31.2	0.63
18.02.2024	70.9	47.1	18.6	28.6	0.70
22.02.2024	65.5	46.6	16.7	29.4	0.66
25.02.2024	65.8	44.4	17.7	26.6	0.65
28.02.2024	63.3	23.4	7.5	19.1	0.57

Limits as per NAAQS*	Parameter	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
	--	--	100	60	80	80
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

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Test Report

Sample No:	DMSPL/AA/NIO/46-54	Report No:	DMSPL/AA/BIC/2402/046-054
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/03/2024
Sample Collected By:	DMSPL Representative	Ref. No:	NIL
Sample Description:	Ambient Air Quality Monitoring	Monitoring Period:	1 st Feb, 2024 to 29 th Feb, 2024
Location:	Village Kashira (AG)	Equipment Used:	RDS & FPS with all accessories
Latitude:	21° 55'10" N	Protocol Used:	IS-5182 & CPCB Guidelines
		Parameter Required:	As per EC Letter
		Customer Name:	Nadidih Iron Ore Mines
		Sample Condition:	Good/Clear
		Longitude:	85° 15'20" E

RESULTS

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
03.02.2024	64.1	28.9	9.1	16.9	0.58
06.02.2024	38.5	30.6	0.7	17.1	0.56
10.02.2024	57.3	29.8	9.3	18.4	0.58
12.02.2024	60.3	23.4	7.5	17.1	0.57
15.02.2024	55.4	20.4	7.7	18.3	0.53
18.02.2024	57.5	30.6	8.3	17.1	0.55
22.02.2024	58.3	25.4	9.6	18.4	0.54
25.02.2024	60.1	23.4	6.3	18.3	0.56
28.02.2024	61.8	44.5	15.2	31.2	0.62

Limit as per NAAQS*	Parameter	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
		--	100	60	80	80
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

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End of Test Report



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Test-Report

Sample No:	DMSPL/AA/NIOM/01	Report No:	DMSPL/AAM/BICO/2402/001
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under EML Steel Limited. (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/03/2024
		Ref. No:	NIL
		Monitoring Period:	February 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Near Mine Office (A1)	Sample Condition:	Good/Clear
Latitude:	21° 58'09" N	Longitude:	85° 15'33" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
01.02.2024	26.10	36.2	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
	-	-	180	400	1	20	6	5
Method of Analysis		IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

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Test Report

Sample No:	DMSPL/AA/NIOM/02	Report No:	DMSPL/AAM/BICO/2402/002
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ISL Steel Limited, (BICO) At Nadidih, PO - Kaira Dist. Sundargarh, Odisha India.	Reporting Date:	05/03/2024
		Ref. No:	NIL
		Monitoring Period:	February 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Near Mines Gate (A2)	Sample Condition:	Good/Clear
Latitude:	21° 58'23" N	Longitude:	85° 15'44" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
05.02.2024	27.40	33.20	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene ($\mu\text{g}/\text{m}^3$)
	-	-	180	400	1	20	6	5
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

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Test Report

Sample No:	DMSPL/AA/NIDM/3	Report No:	DMSPL/AAM/BICO/2402/003
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESI, Steel Limited, (BICO) At Nadidih, PO - Kaira Dist. Sundargarh, Odisha India.	Reporting Date:	05/03/2024
		Ref. No:	NIL
		Monitoring Period:	February 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village - Kculuhidi (A3)	Sample Condition:	Good/Clear
Latitude:	21° 59'45" N	Longitude:	85° 16'14" E

RESULTS

Date of Sample	Ozone (µg/m ³)	Ammonia (µg/m ³)	Lead (µg/m ³)	Nickel (ng/m ³)	Arsenic (ng/m ³)	Benzene (µg/m ³)	Benzo(a)pyrene (ng/m ³)
14.02.2024	24.10	38.20	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone (µg/m ³)	Ammonia (µg/m ³)	Lead (µg/m ³)	Nickel (ng/m ³)	Arsenic (ng/m ³)	Benzene (µg/m ³)	Benzo(a)pyrene (ng/m ³)
	--	--	180	400	1	20	6	5
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

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Test-Report

Sample No:	DMSPL/AA/NIQM/4	Report No:	DMSPL/AA/M/BCC/2402/004
Name & Address of the Project:	M/s. Nalidih Iron Ore Mines, Under ISI, Steel Limited, (BICO) At Nalidih, PO - Koira Dist. Sundargarh, Odisha India.	Reporting Date:	05/03/2024
		Ref. No:	NIL
		Monitoring Period:	February 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nalidih Iron Ore Mines
Location:	Village Badipada (A4)	Sample Condition:	Good/Clear
Latitude:	21° 38'04" N	Longitude:	85° 18'33" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel ($\mu\text{g}/\text{m}^3$)	Arsenic ($\mu\text{g}/\text{m}^3$)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
19.02.2024	26.30	37.50	<0.05	<0.05	<0.50	<5.0	<1.0

Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel ($\mu\text{g}/\text{m}^3$)	Arsenic ($\mu\text{g}/\text{m}^3$)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
Limit as per NAAQS*	180	400	1	20	6	5	1
Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

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Test Report

Sample No:	DMSPL/AA/NIOM/5	Report No:	DMSPL/AAM/HICO/2402/005
Name & Address of the Project:	M/S Naidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Naidih, PO - Koira, Dist. Sundargarh, Odisha India.	Reporting Date:	05/03/2024
		Ref. No:	Nil.
		Monitoring Period:	February 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Naidih Iron Ore Mines
Location:	Village Jhirapani (A5)	Sample Condition:	Good/Clear
Latitude:	21° 39' 58" N	Longitude:	85° 13' 10" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene ($\mu\text{g}/\text{m}^3$)
23.02.2024	22.40	35.20	<0.05	<0.05	<0.50	<5.0	<1.0

Limits per NAAQS*	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene ($\mu\text{g}/\text{m}^3$)
			180	400	1	20	6	5
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB by AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

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Test Report

Sample No:	DMSPL/AA/NIDM/6	Report No:	DMSPL/AAM/BICO/2402/006
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under JSI Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Suralgarh, Odisha India.	Reporting Date:	05/03/2024
Sample Collected By:	DMSPL Representative	Ref. No:	NIL
Sample Description:	Ambient Air Quality Monitoring	Monitoring Period:	February 2024
Location:	Village Kashira (A6)	Equipment Used:	RDS & FPS with all accessories
Latitude:	24° 55'10" N	Protocol Used:	IS-5182 & CPCB Guidelines
		Parameter Required:	As per TEC Letter
		Customer Name:	Nadidih Iron Ore Mines
		Sample Condition:	Good/Clear
		Longitude:	85° 15'20" E

RESULTS

Date of Sample	Ozone (µg/m ³)	Ammonia (µg/m ³)	Lead (µg/m ³)	Nickel (ng/m ³)	Arsenic (ng/m ³)	Benzene (ng/m ³)	Benzo(a)pyrene (ng/m ³)
28.02.2024	<1.50	<10.40	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone (µg/m ³)	Ammonia (µg/m ³)	Lead (µg/m ³)	Nickel (ng/m ³)	Arsenic (ng/m ³)	Benzene (ng/m ³)	Benzo(a)pyrene (ng/m ³)
	-	-	180	400	1	20	6	5
Method of Analysis		IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB by AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

*National Ambient Air Quality Standards:

** End of Test Report **

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Test Report

Sample No:	DMSPL/AAFS/NIGM/01	Report No:	DMSPL/AAFS/HICO/2402/1-6
Name & Address of the Project:	M/s. Naldih Iron Ore Mines, Under ESI, Steel Limited, (HICO) At Naldih, PO - Koira Distt: Sundargarh, Odisha India.	Reporting Date:	05/03/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Feb, 2024 to 29 th Feb, 2024
		Equipment Used:	RDS with all accessories
		Protocol Used:	IS-5182 ⁻¹
Sample Collected By:	DMSPL Representative	Parameter Required:	As per TOR Letter
Sample Description:	Ambient Air Quality Monitoring		
Sample Type:	Free Silica Composition		

RESULTS

Chemical Composition of PM₁₀ with Free Silica

Location	Date	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	Free Silica %	Ca ($\mu\text{g}/\text{m}^3$)	Mg ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)
Near Mine Office	02.02.2024	66.2	2.10	1.15	0.20	<0.5	0.08
Near Mines Gate	10.02.2024	69.8	1.80	1.20	0.25	<0.5	0.08
Village Kendubidi	14.02.2024	62.4	2.10	1.20	0.28	<0.5	0.07
Village Bamnipada	10.02.2024	58.3	2.20	1.18	0.24	<0.5	0.07
Village Jhirapani	24.02.2024	60.6	2.30	1.15	0.20	<0.5	0.08
Village Kuthira	29.02.2024	58.8	1.90	1.20	0.25	<0.5	0.09

End of Report



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Test Report

Sample No:	DMSP/ED/NIOM/01-08	Report No:	DMSP/ED/BICO/2402/001-006
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Towler-ESI, Steel Limited, (BICO) At Nadidih, PO - Kotra Distt. Sundargarh, Odisha, India.	Reporting Date:	05/03/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Feb. 2024 to 29 th Feb. 2024
		Equipment Used:	RDS & Personnel Dust Sampler
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSP, Representative	Parameter Required:	As per EC Letter
Sample Description: Sample Name:	Ambient Air Monitoring Fugitive Dust Sample	Customer Name:	Nadidih Iron Ore Mines
		Sample Condition:	Good/Clear

RESULTS

Sr. No.	Location	Date	Latitude	Longitude	SPM ($\mu\text{g}/\text{m}^3$)
1	Mine Benches Area	04.02.2024	21° 58'10" N	85° 15'16" E	915.40
2	Haal Road	08.02.2024	21° 58'16" N	85° 15'26" E	940.00
3	Crushing Plant	12.02.2024	21° 58'24" N	85° 15'33" E	952.80
4	Screening Plant	18.02.2024	21° 58'30" N	85° 15'40" E	1040.20
5	Ore Loading Area	24.02.2024	21° 58'28" N	85° 15'10" E	1020.00
6	Waste Dump Area	28.02.2024	21° 58'30" N	85° 15'42" E	960.90

Limit as per Consent*	Parameter	Suspended Particulate Matter (SPM 1200 $\mu\text{g}/\text{m}^3$)
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State Pollution Control Board, Odisha.

End of Test Report



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Test Report

Sample Number:	DMSPL/GW/N10M01	Report No.:	DMSPL/GW/BICO/2402/001
Name & Address of the Project:	M/s. Naidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Naidih, PO - Kaira Distt. Sundargarh, Odisha India.	Form No.:	7.8 F-01
		Party Reference No.:	NIL
		Reporting Date:	18/02/2024
		Ground Water Level:	4.1 Mt.
Sample Description:	Ground Water - Sample	Period of Analysis:	12/02/2024-18/02/2024
Sample Location:	Near Mine Site	Receipt Date:	12/02/2024
Sample Collected by:	DMSPL Representative	Sampling Date:	10/02/2024
Sampling and Analysis Protocol:	IS 3025 & APHA 23 rd Edition 2017	Sampling Quantity:	5.0 Ltr + 250ml
Preservation:	Ice Box	Sampling Type:	Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
1.	pH (at 25°C)	APHA - 4505 (I) - Potentiometric Method	7.92	--	6.5 to 8.5	No Restriction
2.	Colour	APHA - 2130 B, Visual Comparison Method	*BLQ (**LOQ 1.0 Hazen)	Hazen	5	15
3.	Turbidity	APHA - 2130 B, Nephelometric Method	*BLQ (**LOQ 1.0 NTU)	NTU	1	5
4.	Odour	APHA - 2150 B, Threshold Odour Method	Agreeable	--	Agreeable	Agreeable
5.	Taste	APHA - 2160 B, Threshold Test Method	Disagreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA - 2140 C, EDTA Titrimetric Method	162.20	mg/l	200	600
7.	Calcium as Ca	APHA - 3500 Ca (B), EDTA Titrimetric Method	52.20	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA - 2320 B, Titrimetric Method	122.30	mg/l	200	600
9.	Chloride as Cl ⁻	APHA - 4500-Cl ⁻ B, Argentometric Method	82.30	mg/l	250	1000
10.	Fluoride as F ⁻	APHA - 4500 CN-D	*BLQ (**LOQ 0.02 mg/l)	mg/l	0.05	No Restriction
11.	Magnesium as Mg	APHA - 3500 Mg (B), Calculation Method	7.54	mg/l	30	100
12.	Total Dissolved Solids	APHA - 2540 C, Gravimetric Method	188.20	mg/l	500	2000
13.	Sulphate as SO ₄	APHA - 4500 S, Turbidimetric Method	82.20	mg/l	200	400
14.	Iron as Fe	APHA - 4500 (F-D), SPADNS Method	0.44	mg/l	1.0	1.5
15.	Silica as SiO ₂	IS 3025 (P-31) - Chromatographic Method	26.50	mg/l	45	No Restriction
16.	Iron as Fe	IS 3025 (P-65) 2014 (RA-2019)	0.29	mg/l	1.0	No restriction
17.	Ammonium as N	IS 3025 (P-65) 2014 (RA-2019)	*BLQ (**LOQ 0.005 mg/l)	mg/l	0.03	0.2
18.	Boron	IS 3025 (P-65) 2014 (RA-2019)	*BLQ (**LOQ 0.01 mg/l)	mg/l	0.5	2.4
19.	Chloride as Cl ⁻	IS 3025 (P-65) 2014 (RA-2019)	*BLQ (**LOQ 0.002 mg/l)	mg/l	0.05	No Restriction



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Test-Report

Sample No.: DMSPL/UA/NIGMUBI			Report No.: DMSPL/GW/BICD/2402/001			
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
20	Fluoride Compounds	APHA, 8530 Calcium Oxide Extraction Method	*BLQ (**LQ) 0.005 mg/l	mg/l	0.001	0.002
21	Mineral Oil	Clause 6 of IS:3025 (Part 39)	*BLQ (**LQ) 0.1 mg/l	mg/l	1.0	No Relaxation
22	Acute Toxicity as MBAS	Amey K of IS 13428, IS 3025 (P-68)	*BLQ (**LQ) 0.05 mg/l	mg/l	0.2	1.0
23	Residual Free Chlorine	IS 3025 P-26, Ortho-toluidine Method	*BLQ (**LQ) 0.15 mg/l	mg/l	--	--
24	Sodium as Na	APHA, 3500 Na II, Flame Photometric Method	20.50	mg/l	--	--
25	Potassium as K	APHA, 3000 K II, Flame Photometric Method	6.22	mg/l	--	--
26	Zinc as Zn	IS 3025 (P-65):2014(RA-2019)	0.36	mg/l	5	15
27	Copper as Cu	IS 3025 (P-68):2014(RA-2019)	0.12	mg/l	0.05	1.5
28	Manganese as Mn	IS 3025 (P-65):2014(RA-2019)	*BLQ (**LQ) 0.01 mg/l	mg/l	0.1	0.3
29	Cadmium as Cd	IS 3025 (P-65):2014(RA-2019)	*BLQ (**LQ) 0.002 mg/l	mg/l	0.003	No Relaxation
30	Lead as Pb	IS 3025 (P-65):2014(RA-2019)	*BLQ (**LQ) 0.002 mg/l	mg/l	0.01	No Relaxation
31	Nickel as Ni	IS 3025 (P-65):2014(RA-2019)	*BLQ (**LQ) 0.001 mg/l	mg/l	0.01	No Relaxation
32	Arsenic as As	IS 3025 (P-65):2014(RA-2019)	*BLQ (**LQ) 0.005 mg/l	mg/l	0.01	No Relaxation
33	Mercury as Hg	IS 3025 (P-65):2014(RA-2019)	*BLQ (**LQ) 0.0015 mg/l	mg/l	0.001	No Relaxation
34	Total Coliforms	IS 1622, 1981, RA-2019	<1	MPN/100ml	Shall not be detectable in any 100 ml sample	
35	F. Coli	IS 1622, 1981, RA-2019	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: *BLQ=Below Limit of Quantification; **LQ= Limit of Quantification



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Test-Report

Sample Number: DMSPL/GW/NDM/02
 Name & Address of the Project: M/s. Nadidih Iron Ore Mines,
 Under ESL Steel Limited, (BICO)
 At Nadidih, PO - Koira
 Dist. Sundargarh, Odisha India.

Report No.: DMSPL/GW/BICO/2402/002
 Format No.: 7.8 F-01
 Party Reference No.: NIL
 Reporting Date: 18/02/2024
 Ground Water Level: 4.0 Mtr.

Sample Description: Ground Water Sample
 Sample Location: Village Keinfuhidi
 Sample Collected by: DMSPL Representative
 Sampling and Analysis Protocol: IS:3025 & APHA 23rd Edition 2017
 Preservation: Ice Box

Period of Analysis: 12/02/2024-18/02/2024
 Receipt Date: 12/02/2024
 Sampling Date: 10/02/2024
 Sampling Quantity: 5.0 Ltr + 250ml
 Sampling Type: Grab

S. No.	Parameter	Test Method	Result	Unit	Limits of IS:10500-2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
1.	pH (at 25°C)	APHA, 4500-11.3, Electrode Method	7.90	--	6.5 to 8.5	No Relaxation
2.	Color	APHA, 1120 B, Visual Comparison Method	*BLQ (**LQ) 1.0 Hazen	Hazen	5	15
3.	Turbidity	APHA, 2130 B, Nephelometric Method	*BLQ (**LQ) 1.0 NTU	NTU	1	5
4.	Odor	APHA, 2150 B, Threshold Odour Method	Agreeable	--	Agreeable	Agreeable
5.	Taste	APHA, 2100 B, Threshold Test Method	Disagreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA, 2340 C, EDTA Titrimetric Method	268.20	mg/l	200	600
7.	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	52.30	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA, 2330 B, Titrimetric Method	198.20	mg/l	200	600
9.	Chloride as Cl	APHA, 4500-Cl B, Argentometric Method	76.20	mg/l	250	1000
10.	Cyanide as C ₂	APHA, 4300 CN- D	*BLQ (**LQ) 0.02 mg/l	mg/l	0.05	No Relaxation
11.	Magnesium as Mg	APHA, 3500 Mg B, Calculation Method	10.17	mg/l	50	100
12.	Total Dissolved Solids	APHA, 2540 C, Gravimetric Method	342.20	mg/l	500	2000
13.	Sulphate as SO ₄	APHA, 4500 S, Turbidimetric Method	50.20	mg/l	200	400
14.	Fluoride as F	APHA, 4500-F- D, SPADNS Method	0.14	mg/l	1.0	1.5
15.	Nitrate as NO ₃	IS:3025 (P-34) Chromatographic Method	2.56	mg/l	45	No Relaxation
16.	Iron as Fe	IS:3025 (P-65) 2014 (RA:2019)	0.26	mg/l	1.0	No Relaxation
17.	Ammonia as N	IS:3025 (P-63) 2014 (RA:2019)	*BLQ (**LQ) 0.005 mg/l	mg/l	0.05	0.2
18.	Nitrite	IS:3025 (P-63) 2014 (RA:2019)	*BLQ (**LQ) 0.01 mg/l	mg/l	0.5	2.4
19.	Chromium as Cr	IS:3025 (P-45) 2014 (RA:2019)	*BLQ (**LQ) 0.002 mg/l	mg/l	0.05	No Relaxation



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Test Report

Sample No.: DMSPL/GW/NDM02			Report No.: DMSPL/GW/BICG/2402/002			
S. No.	Parameter	Test Method	Result	Unit	Limits of IS:10500-2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
20	Fluoride (ppm as F)	APHA, 8530 C: Chloroform Extraction Method	*BLQ**LOQ 0.0005 mg/l	mg/l	0.001	0.002
21	Manganese (ppm)	Clause 6 of IS: 3025 (Part 39)	*BLQ**LOQ 0.1 mg/l	mg/l	1.0	No Relaxation
22	Ammonia Nitrogen as NH ₄ N	Annex K of IS: 13428: IS:3025 (P-68)	*BLQ**LOQ 0.05 mg/l	mg/l	0.2	1.0
23	Residual Free Chlorine	IS: 3025 P-26: Ortho-tolidine Method	*BDL**DL 0.15 mg/l	mg/l	--	--
24	Sodium as Na	APHA, 2500 Na B: Flame Photometric Method	30.50	mg/l	--	--
25	Potassium as K	APHA 2500 K B: Flame Photometric Method	4.22	mg/l	--	--
26	Zinc as Zn	IS: 3025 (P-65): 2014(RA:2019)	1.76	mg/l	3	15
27	Copper as Cu	IS: 3025 (P-65): 2014(RA:2019)	0.12	mg/l	0.05	1.5
28	Manganese as Mn	IS: 3025 (P-65): 2014(RA:2019)	*BLQ**LOQ 0.01 mg/l	mg/l	0.1	0.5
29	Cadmium as Cd	IS: 3025 (P-65): 2014(RA:2019)	*BLQ**LOQ 0.002 mg/l	mg/l	0.005	No Relaxation
30	Lead as Pb	IS: 3025 (P-65): 2014(RA:2019)	*BLQ**LOQ 0.002 mg/l	mg/l	0.01	No Relaxation
31	Selenium as Se	IS: 3025 (P-65): 2014(RA:2019)	*BLQ**LOQ 0.001 mg/l	mg/l	0.01	No Relaxation
32	Arsenic as As	IS: 3025 (P-65): 2014(RA:2019)	*BLQ**LOQ 0.005 mg/l	mg/l	0.01	No Relaxation
33	Mercury as Hg	IS: 3025 (P-65): 2014(RA:2019)	*BLQ**LOQ 0.0015 mg/l	mg/l	0.001	No Relaxation
34	Total Coliform	IS: 1622:1981, RA-2019	<2	MPN/100ml	Shall not be detectable in any 100 ml sample	
35	Total Sol	IS: 1622:1981, RA-2019	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: *BLQ (Below Limit of Quantification), **LOQ (Limit of Quantification)



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Test Report

Sample Number:	DMSP/GW/NDM03	Report No.:	DMSP/GW/HCO/2402/003
Name & Address of the Project:	M/s. Nandih Iron Ore Mines, Under JSI, Steel Limited, (BICO) At Nandih, PO - Koira Distt. Sundargarh, Odisha India.	Format No.:	7.8 E-01
		Party Reference No.:	NIL
		Reporting Date:	18/02/2024
		Ground Water Level:	4.4 Mtr.
Sample Description:	Ground Water Sample	Period of Analysis:	12/02/2024-18/02/2024
Sample Location:	Village- Badipada	Receipt Date:	12/02/2024
Sample Collected by:	DMSP, Representative	Sampling Date:	10/02/2024
Sampling and Analysis Protocol:	IS 3025 & APHA 23 rd Edition 2017	Sampling Quantity:	5.0 Ltr + 250ml
Preservation:	Ice Box	Sampling Type:	Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible Limit in the Absence of Alternate Source
1	pH (at 25°C)	APHA - 4505-H B Electrode Method	7.44	--	6.5 to 8.5	No Relaxation
2	Colour	APHA - 2120 B, Visual Comparison Method	*BLQ (**LOQ 1.0 Pt-Co)	Haze n	5	15
3	Turbidity	APHA - 2130 B, Nephelometric Method	*BLQ (**LOQ 1.0 NTU)	NTU	1	5
4	Odour	APHA - 2150 B, Threshold Odour Method	Agreeable	--	Agreeable	Agreeable
5	Taste	APHA - 2160 B, Threshold Test Method	Agreeable	--	Agreeable	Agreeable
6	Total Hardness as CaCO ₃	APHA - 2540 C/ EDTA Titrimetric Method	150.20	mg/l	200	600
7	Calcium as Ca	APHA - 3500 Ca B, EDTA Titrimetric Method	52.20	mg/l	75	200
8	Magnesium as CaCO ₃	APHA - 3120 B, Titrimetric Method	122.30	mg/l	200	600
9	Chloride as Cl	APHA - 4500-Cl B, Argentometric Method	82.20	mg/l	250	1000
10	Cyanide as C _N	APHA - 8500 C _N D	*BLQ (**LOQ 0.02 mg/l)	mg/l	0.05	No Relaxation
11	Manganese as Mn	APHA - 3500 Mn B, Calcium Method	5.50	mg/l	30	100
12	Total Dissolved Solids	APHA - 2540 C, Gravimetric Method	270.20	mg/l	500	2000
13	Sulfate as SO ₄	APHA - 4100 C, Turbidimetric Method	91.00	mg/l	200	400
14	Fluoride as F	APHA - 4500-F D, SPADNS Method	0.57	mg/l	1.0	1.5
15	Nitrate as NO ₃	IS 3025 (P-5) Chromogenic Method	22.50	mg/l	45	No Relaxation
16	Iron as Fe	IS 3025 (P-65) 2014 (RA:2019)	0.36	mg/l	1.0	No relaxation
17	Aluminium as Al	IS 3025 (P-63) 2014 (RA:2019)	*BLQ (**LOQ 0.005 mg/l)	mg/l	0.03	0.2
18	Barium	IS 3025 (P-63) 2014 (RA:2019)	*BLQ (**LOQ 0.01 mg/l)	mg/l	0.5	2.4
19	Chromium as Cr	IS 3025 (P-65) 2014 (RA:2019)	*BLQ (**LOQ 0.002 mg/l)	mg/l	0.05	No Relaxation

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Test Report

Sample No: DMSPL/GW/S1010103		Report No: DMSPL/GW/RICD/2402/003				
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500-2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
20.	Mercuric Compounds	APHA 5530 C Chloroform Extraction Method	*BLQ (**LOQ 0.0005 mg/l)	mg/l	* 0.001	0.002
21.	Mineral Oil	Clause 6 of IS:3025[Part 30]	*BLQ (**LOQ 0.1 mg/l)	mg/l	1.0	No Relaxation
22.	Aromatic Hydrocarbons in M.O.S	Annex K of IS 13428 IS 3025 (P-68)	*BLQ (**LOQ 0.05 mg/l)	mg/l	0.2	1.0
23.	Residual Free Chlorine	IS 3025 (P-26):2014(RA:2019) Method	*BLQ (**LOQ 0.15 mg/l)	mg/l	--	--
24.	Sodium as Na	APHA 3500 Na B Flame Photometric Method	16.50	mg/l	--	--
25.	Potassium as K	APHA 3500 K B Flame Photometric Method	3.44	mg/l	--	--
26.	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	0.84	mg/l	5	15
27.	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	0.22	mg/l	0.05	1.5
28.	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.01 mg/l)	mg/l	0.1	0.3
29.	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.002 mg/l)	mg/l	0.003	No Relaxation
30.	Lead as Pb	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.002 mg/l)	mg/l	0.04	No Relaxation
31.	Selenium as Se	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.001 mg/l)	mg/l	0.01	No Relaxation
32.	Arsenic as As	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.005 mg/l)	mg/l	0.01	No Relaxation
33.	Mercury as Hg	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.0005 mg/l)	mg/l	0.001	No Relaxation
34.	Total Chlorides	IS 1622:1991, RA-2019	<2	MPN/100ml	Shall not be detectable in any 100 ml sample	
35.	E. Coli	IS 1622:1991, RA-2019	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: *BLQ-Below Limit of Quantification, **LOQ-Limit of Quantification



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Digcare Mining Solutions Pvt. Ltd.

Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample Number:	DMSPL/GW/NIDM/04	Report No.:	DMSPL/GW/BCO/2402/004
Name & Address of the Project:	M/s. Nadihli Iron Ore Mines, (Under ESI, Steel Limited, (BICO)) At Nadihli, PO - Koira Dist. Sundergarh, Odisha India.	Format No.:	7.8F-01
		Party Reference No.:	NIL
		Reporting Date:	18/02/2024
		Ground Water Level:	3.9 Mtr.
Sample Description:	Ground Water Sample	Period of Analysis:	12/02/2024-18/02/2024
Sample Location:	Village Jhirapani	Receipt Date:	12/02/2024
Sample Collected by:	DMSPL Representative	Sampling Date:	10/02/2024
Sampling and Analysis Protocol:	IS 3025 & APHA 23 rd Edition 2017	Sampling Quantity:	5.0 Lit + 25ml
Preservation:	Ice Box	Sampling Type:	Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
1.	pH (at 25°C)	APHA, 4500 H ₊ B Electronic Method	7.90	—	6.5 to 8.5	No Relaxation
2.	Colour	APHA, 2120 B, Visual Comparison Method	*BLQ (**LOQ) 1.0 Hazen	Hazen	5	15
3.	Turbidity	APHA, 2130 B, Nephelometric Method	*BLQ (**LOQ) 1.0 NTU	NTU	1	5
4.	Oxide	APHA, 2150 B, Threshold Oxide Method	Agreeable	—	Agreeable	Agreeable
5.	Taste	APHA, 2160 B, Threshold Test Method	Disagreeable	—	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA, 2340 C, EDTA Titrimetric Method	148.20	mg/l	200	600
7.	Calcium as Ca	APHA, 3910 Ca B, EDTA Titrimetric Method	40.20	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA, 2520 B, Titrimetric Method	146.50	mg/l	200	600
9.	Fluoride as F ⁻	APHA, 4500 F-1, Argentometry Method	84.30	mg/l	250	1000
10.	Chloride as Cl ⁻	APHA, 4500 Cl ⁻ D	*BLQ (**LOQ) 0.01 mg/l	mg/l	0.05	No Relaxation
11.	Manganese as Mn	APHA, 3500 Mn B, Calculation Method	16.20	mg/l	50	100
12.	Total Dissolved Solids	APHA, 2540 C, Gravimetric Method	352.20	mg/l	500	2000
13.	Sulfate as SO ₄	APHA, 4500 E, Turbidimetric Method	52.20	mg/l	200	400
14.	Iron as Fe	APHA, 4500 F-1, SPADNS Method	1.22	mg/l	1.0	1.5
15.	Ammonia as NH ₃	IS 3025 (P-10) Colorimetric Method	25.10	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-6) (RA-2019)	0.26	mg/l	1.0	No relaxation
17.	Aluminium as Al	IS 3025 (P-6) (RA-2019)	*BLQ (**LOQ) 0.005 mg/l	mg/l	0.05	0.2
18.	Barium	IS 3025 (P-65) (RA-2019)	*BLQ (**LOQ) 0.01 mg/l	mg/l	0.5	2.4
19.	Chromium as Cr	IS 3025 (P-65) (RA-2019)	*BLQ (**LOQ) 0.002 mg/l	mg/l	0.05	No Relaxation



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Plot No. 672/18, First Floor, Khandasa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test-Report

Sample No.: DMSPL/GW/N/103/04			Report No.: DMSPL/GW/BICO/2402/004			
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2017	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
20.	Phenolic Compounds	APHA, 5530 C Chloroform Extraction Method	*BLQ (**LOQ) 0.0005 mg/l	mg/l	0.001	0.002
21.	Manganese (Mn)	Clause 6 of IS:3025 (Part-29)	*BLQ (**LOQ) 0.1 mg/l	mg/l	1.0	No Relaxation
22.	Ammonia Nitrogen as NH ₄ S	Section 4 of IS:17428, IS:3025 (Part-29)	*BLQ (**LOQ) 0.05 mg/l	mg/l	0.2	1.0
23.	Residual Free Chlorine	IS 3025 P-26, Ortho-tolidine Method	*BLQ (**LOQ) 0.15mg/l	mg/l	--	--
24.	Sulfur as S ₂	APHA, 3500 S ₂ B, Flame Photometric Method	18.60	mg/l	--	--
25.	Iron as Fe	APHA, 3500 Fe B, Flame Photometric Method	4.56	mg/l	--	--
26.	Zinc as Zn	IS 3025 (P-65) (2014) (RA:2019)	2.20	mg/l	5	15
27.	Copper as Cu	IS 3025 (P-65) (2014) (RA:2019)	0.16	mg/l	0.05	1.5
28.	Manganese as Mn	IS 3025 (P-65) (2014) (RA:2019)	*BLQ (**LOQ) 0.01 mg/l	mg/l	0.1	0.3
29.	Cadmium as Cd	IS 3025 (P-65) (2014) (RA:2019)	*BLQ (**LOQ) 0.002 mg/l	mg/l	0.003	No Relaxation
30.	Lead as Pb	IS 3025 (P-65) (2014) (RA:2019)	*BLQ (**LOQ) 0.002 mg/l	mg/l	0.01	No Relaxation
31.	Selenium as Se	IS 3025 (P-65) (2014) (RA:2019)	*BLQ (**LOQ) 0.001 mg/l	mg/l	0.01	No Relaxation
32.	Arsenic as As	IS 3025 (P-65) (2014) (RA:2019)	*BLQ (**LOQ) 0.005 mg/l	mg/l	0.01	No Relaxation
33.	Mercury as Hg	IS 3025 (P-65) (2014) (RA:2019)	*BLQ (**LOQ) 0.0005 mg/l	mg/l	0.001	No Relaxation
34.	Total Coliform	IS-1622:1981, RA-2019	<2	MPN/100ml	Shall not be detectable in any 100 ml sample	
35.	E. Coli	IS-1622:1981, RA-2019	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: *BLQ-Below Limit of Quantification; **LOQ- Limit of Quantification



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Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample No:	DMSPL/AN/NION/01-08	Report No:	DMSPL/AN/BICO/2402/001-008
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Surlargarh, Odisha India,	Reporting Date:	05/03/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Feb, 2024 to 29 th Feb, 2024
		Equipment Used:	Sound Level Meter
		Protocol Used:	IS-9989
Sample Collected By:	DMSPL Representative	Parameter Required:	As per Govt. Standard
Sample Description:	Ambient Noise Monitoring	Customer Name:	Nadidih Iron Ore Mines
Sample Name:	Noise Level Monitoring	Sample Condition:	Good/Clear

RESULTS

Sr. No.	Location	Date	Latitude:	Longitude:	Day Time [dB(A)]	Night Time [dB(A)]
1	Near Mine Office	03.02.2024	21° 58'09" N	85° 15'33" E	64.1	51.9
2	Near Mines Gate	08.02.2024	21° 58'23" N	85° 15'44" E	63.2	52.7
Standard Limit Industrial Area as per CPCB					75.0	70.0
3	Village Kuntuhidi	12.02.2024	21° 59'45" N	85° 16'14" E	51.3	43.6
4	Village Badipadu	17.02.2024	21° 58'04" N	85° 18'33" E	49.4	42.5
5	Village Aharapani	21.02.2024	21° 59'58" N	85° 13'10" E	53.5	42.4
6	Village Koshien	23.02.2024	21° 55'10" N	85° 15'20" E	52.6	42.3
7	Upwind Direction	27.02.2024	21° 58'14" N	85° 15'20" E	49.2	43.2
8	Downwind Direction	29.02.2024	21° 57'19" N	85° 13'34" E	53.8	46.1
Standard Limit Residential Area as per CPCB					55.0	45.0

CPCB :- Central Pollution Control Board

End of Test Report



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Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample Number: DMSPL/NIOM/S/01
Name & Address of Party: M/s Nadidih Iron Ore Mines,
Under ESL Steel Limited, (BICO)
At Nadidih, PO - Koira
Distt. Sundargarh, Odisha India.

Report No.: DMSPL/S/BICO/2402/001
Form No.: 5.10 F-01
Party Reference No.: NIL

Sample Description: SOIL
Sampling Location: Inside Mine Area
Sample Collected by: DMSPL Lab Representative

Reporting Date: 20/02/2024
Receipt Date: 12/02/2024
Sampling Date: 10/02/2024
Type of Sampling: Composite
Sampling Quantity: 2.0 Kg
Depth of Sampling: 30 cm
Packing Status: Tmp Sealed

Sampling & Analysis Protocol: IS 2720 & USDA

S. No.	Parameter	Protocol	Result	Unit
1	pH in 25°C	IS-2720 (IS:26:1987)	8.10	-
2	Conductivity	IS:14767-2000 Reconfirmed 2006	0.35	mS/cm
3	Soil Texture	USDA Method, 1968	Silty Loam	-
4	Color	USDA Method, 1968	Yellowish	-
5	Water holding capacity	USDA Method, 1968	24.20	%
6	Bulk density	USDA Method, 1968	1.30	gm/cc
7	Chloride as Cl	USDA Method, 1968	28.20	mg/100gm
8	Calcium as Ca	USDA Method, 1968	30.20	mg/100gm
9	Sulfur as S	USDA Method, 1968	28.50	mg/100gm
10	Potassium as K	USDA Method, 1968	60.20	kg/hect.
11	Organic Matter	IS:2720 (P-22, 1972)	0.50	%
12	Magnesium as Mg	USDA Method, 1968	10.20	mg/100gm
13	Available Nitrogen as N	IS:14684, 1999	225.20	kg/hect.
14	Available Phosphorus	USDA, APHA-4500P	30.10	kg/hect.
15	Zinc as Zn	APHA-3030D, APHA-3111B	5.40	mg/100gm
16	Manganese as Mn	APHA-3030D, APHA-3111B	2.20	mg/100gm
17	Chromium as Cr	APHA-3030D, APHA-3111B	1.40	mg/100gm
18	Lead as Pb	APHA-3030D, APHA-3111B	0.60	mg/100gm
19	Cadmium as Cd	APHA-3030D, APHA-3111B	1.40	mg/100gm
20	Copper as Cu	APHA-3030D, APHA-3111B	1.20	mg/100gm



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Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample Number:	DMSPL/NIOM/ST/01	Report No.:	DMSPL/ST/BICO/2402/001
Name & address of the Project:	M/s. Naddih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Naddih, PO - Koira Distt. Soudargarh, Odisha India.	Format No.:	7.8.1-03
		Party Reference No.:	NIL
		Reporting Date:	25/02/2024
		Period of Analysis:	15/02/2024 to 25/02/2024
		Receipt Date:	12/02/2024

Sample Description : Stack Emission Monitoring

General Information	
Sampling Location	: Mine Site
Sample Collected by	: DMSPL Lab Representative
Date of Sampling	: 10/02/2024
Sampling Duration (Minutes)	: 36.0 Min
Stack attached to	: DG Set
Make of stack	: MS
Diameter of stack (m)	: 0.30 Meter
Instruments calibration status	: Calibrated
Meteorological Condition	: Clear Sky
Ambient Temperature - Ta (°C)	: 26.0
Temperature of stack Gases - Ts (°C)	: 202.0
Velocity of stack Gases (m/sec.)	: 7.20
Flow rate of PM (LPM)	: 22.0
Flow rate of Gas (LPM)	: 2.0
Sampling condition	: Isokinetic
Protocol used	: IS:11255

RESULTS

S. No	Test Parameters	Test Method	Results	Units	Limits as Per CPCB
1.	Particulate Matter (as PM10)	IS:11255 (P-3), Gravimetric Method	32.10	mg/Nm ³	75
2.	Total of Nitrogen (as NOx)	IS:11255 (P-7)	126.10	µgm	710
3.	ASHG	DMSPL/ENV/STP/ST/TGA/01, Issue No.- 01/01/11/21	14.20	mg/Nm ³	100
4.	Sulphur Dioxide (as SO2)	IS:11255 (P-2), Gravimetric Method	18.20	mg/Nm ³	-
5.	Carbon Monoxide (as CO)	DMSPL/ENV/STP/ST/TGA/01, Issue No.- 01/01/11/21	20.20	mg/Nm ³	150

Note: *SPL/Inhouse Standard Testing Procedure

End of Report



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Sample Number:	DMSPL/NIOM/SW/01	Test Report	Report No.:	DMSPL/SW/BICO/2402/001
Name of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.		Format No.:	7.8 F-01
			Party Reference No.:	NIL
			Reporting Date:	18/02/2024
Sample Description:	Surface Water Sample		Period of Analysis:	12/02/2024-18/02/2024
Sampling Location:	River Sample (Near Mines Upstream)		Receipt Date:	12/02/2024
Sample Collected by:	DMSPL Lab Representative		Sampling Date:	10/02/2024
Preservation:	Ice Box		Sampling Quantity:	2.0 Lit + 250ml
Sampling and Analysis Protocol:	APHA & IS, 23 rd Edition 2017		Sampling Type:	Composite

S. No.	Parameter	Test-Method	Result	Unit
1	pH (at 25 °C)	APHA, 4500-H ⁺ B Electrometric Method	7.44	--
2	Colour	APHA, 2120 B, Visual Comparison Method	22.0	Hazen
3	Turbidity	APHA, 2130 B, Nephelometric Method	<1	NTU
4	Odour	APHA, 2150 B, Threshold Test Method	Agreeable	--
5	Total Hardness as CaCO ₃	APHA, 2340 C, EDTA Titrimetric Method	92.2	mg/l
6	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	22.2	mg/l
7	Alkalinity as CaCO ₃	APHA, 2320 B, Titrimetric Method	76.5	mg/l
8	Chloride as Cl ⁻	APHA, 4500-Cl ⁻ B, Argentometric Method	44.2	mg/l
9	Total Residual Chlorine	IS 3025 P-26, Ortho-tolidine Method	*BDL (**DL: 0.15mg/l)	mg/l
10	Cyanide as CN	APHA, 4500 CN D, Barbituric Acid Method	*BDL (**DL: 0.02 mg/l)	mg/l
11	Magnesium as Mg	APHA, 3500 Mg B, Calculation Method	5.44	mg/l
12	Total Dissolved Solids	APHA, 2540 C, Gravimetric Method	262	mg/l
13	Total Suspended Solids	APHA 2500 D Gravimetric Method	27.0	mg/l
14	Dissolved Oxygen	APHA, 4500 O B, Iodometric Method	7.0	mg/l
15	Sulphide	IS 3025 (P-29):2022	4.4	mg/l
16	Fluoride as F ⁻	APHA, 4500-F D, SPADNS Method	0.24	mg/l
17	BOD ₅ (at 20°C)	APHA, 5210 C IS 3025 P-44	16.10	mg/l
18	COD	APHA, 5220 B, Open-Reflux Method	38.20	mg/l



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Test Report

Sample No.: DMSPL/NDOMSW/01			Report No.: DMSPL/SW/HCO/2402/001	
S. No.	Parameter	Test-Method	Result	Unit
19	Conductivity @ 25°C	APHA, 2510 B, Conductivity Meter Method	6.434	mS/cm
20	Sulfate as SO ₄	IS 3025 (P-34), Chromatographic Method	6.10	mg/l
21	Sodium as Na	APHA, 3500 Na B, Flame Photometric Method	17.50	mg/l
22	Potassium as K	APHA 3500 K B, Flame Photometric Method	6.22	mg/l
23	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	0.44	mg/l
24	Aluminium as Al	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.002 mg/l)	mg/l
25	Boron	IS 3025 (P-68):2014(RA:2019)	*BDL (**DL 0.002 mg/l)	mg/l
26	Hexavalent Chromium as Cr	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.002 mg/l)	mg/l
27	Phenolic Compounds	APHA, 5530 C Chloroform Extraction Method	*BDL (**DL 0.004 mg/l)	mg/l
28	#Mineral Oil	Clause 6 of IS:3025 (Part 39)	*BDL (**DL 0.1 mg/l)	mg/l
29	#Anionic Detergents as MBAS	APHA, 5540 C MBAS Method	*BDL (**DL 0.05 mg/l)	mg/l
30	#Oil as Oil	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.05 mg/l)	mg/l
31	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.1 mg/l)	mg/l
32	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.01 mg/l)	mg/l
33	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.002 mg/l)	mg/l
34	Temperature	IS 3025 (P-9):2021	22.3	mg/l
35	Oil & Grease	IS 3025 (P-39):2021	*BDL (**DL 2.0 mg/l)	mg/l
36	Free Ammonia	IS 3025 (P-34):1988	*BDL (**DL 0.20 mg/l)	mg/l
37	Total Kjeldahl Nitrogen	IS 3025 (P-34):1988	*BDL (**DL 0.20 mg/l)	mg/l
38	Nickel	Standard Operating Procedure	*BDL (**DL 0.02 mg/l)	mg/l
39	Zinc	Standard Operating Procedure	*BDL (**DL 0.02 mg/l)	mg/l
40	Ammonical Nitrogen	IS 3025 (P-34):1988	*BDL (**DL 0.20 mg/l)	mg/l
41	Total Coliform	IS 1622:1981, I.A.-2019	270	MPN/100ml
42	Fecal Coliform	IS 1622:1981, I.A.-2019	150	MPN/100ml

*BDL - Below Detectable Limit, **DL - Detection Limit



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Plot No. 672/18, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test Report

Sample Number:	DMSPL/NIOM/SW/02	Report No.:	DMSPL/SW/BICO/2402/002
Name of the Project:	M/s Naidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Naidih, PO - Koira Distt. Sundargarh, Odisha India.	Format No.:	TS F-01
		Party Reference No.:	Nil.
		Reporting Date:	18/02/2024
Sample Description:	Surface Water Sample	Period of Analysis:	12/02/2024-18/02/2024
Sampling Location:	River Sample (Near Mines Downstream)	Receipt Date:	12/02/2024
Sample Collected by:	DMSPL Lab Representative	Sampling Date:	10/02/2024
Preservation:	Ice Box	Sampling Quantity:	2.0 Ltr + 250ml
Sampling and Analysis Protocol:	APHA & IS, 23 rd Edition-2017	Sampling Type:	Composite

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	APHA, 4500-H ⁺ B Electrometric Method	7.52	-
2.	Colour	APHA, 2120 B, Visual Comparison Method	24.0	Hazen
3.	Turbidity	APHA, 2130 B, Nephelometric Method	<1	NTU
4.	Colour	APHA, 2150 B, Threshold Test Method	Agreeable	-
5.	Total Hardness (as CaCO ₃)	APHA, 2140 C, EDTA Titrimetric Method	96.1	mg/l
6.	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	26.2	mg/l
7.	Alkalinity (as CaCO ₃)	APHA, 2320 B, Titrimetric Method	70.2	mg/l
8.	Chloride as Cl	APHA, 4500-Cl ⁻ B, Argentometric Method	42.20	mg/l
9.	Total Residual Chlorine	IS 3025 (P-26), Orthotolidine Method	*BDL**DL: 0.13(mg/l)	mg/l
10.	Cyanide as CN	APHA, 4500 CN D, Barbituric Acid Method	*BDL**DL: 0.02 mg/l	mg/l
11.	Magnesium as Mg	APHA, 3500 Mg B, Calculation Method	5.44	mg/l
12.	Total Dissolved Solids	APHA, 2540 C, Gravimetric Method	252.0	mg/l
13.	Total Suspended Solids	APHA, 2540 D, Gravimetric Method	17.0	mg/l
14.	Dissolved Oxygen	APHA, 4500 O B, Iodometric Method	6.3	mg/l
15.	Sulphide	IS 3025 (P-29):2022	30.20	mg/l
16.	Fluoride as F	APHA, 4500-F D, SPADNS Method	0.44	mg/l
17.	Hardness (Dissolved) (27°C)	APHA, 3210 C / IS 3025 (P-4)	12.20	mg/l
18.	TOT	APHA, 5220 H, Color Reflec Method	34.40	mg/l



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Test-Report

Sample No.: DMSPL/NTOM/SW/02			Report No.: DMSPL/SW/BICO/2402/002	
S. No.	Parameter	Test-Method	Result	Unit
19.	Conductivity @ 25 °C	APHA, 2510 B, Conductivity Meter Method	0.512	µS/cm
20.	Nitrate as NO ₃	IS: 3025 (P-34), Chromatopic Method	4.44	mg/l
21.	Sulfur as S	APHA, 3500 Na B, Flame Photometric Method	22.20	mg/l
22.	Phosphorus as P	APHA 3500 K B, Flame Photometric Method	5.64	mg/l
23.	Iron as Fe	IS: 3025 (P-65), 2014 (RA: 2019)	*BDL (**DL: 0.002 mg/l)	mg/l
24.	Aluminium as Al	IS: 3025 (P-65), 2014 (RA: 2019)	*BDL (**DL: 0.002 mg/l)	mg/l
25.	Barium	IS: 3025 (P-65), 2014 (RA: 2019)	0.46	mg/l
26.	Hexavalent Chromium as Cr	IS: 3025 (P-65), 2014 (RA: 2019)	*BDL (**DL: 0.002 mg/l)	mg/l
27.	Formic Compounds	APHA, 5530 C, Chloroform Extraction Method	*BDL (**DL: 0.0004 mg/l)	mg/l
28.	Mineral Oil	Clause 6 of IS: 3025 (Part 39)	*BDL (**DL: 0.1 mg/l)	mg/l
29.	Alkylaromatic Detergents as MBAS	APHA, 5540 C MBAS Method	*BDL (**DL: 0.05 mg/l)	mg/l
30.	Iron as Fe	IS: 3025 (P-65), 2014 (RA: 2019)	*BDL (**DL: 0.05 mg/l)	mg/l
31.	Copper as Cu	IS: 3025 (P-65), 2014 (RA: 2019)	*BDL (**DL: 0.1 mg/l)	mg/l
32.	Mercury as Hg	IS: 3025 (P-65), 2014 (RA: 2019)	*BDL (**DL: 0.01 mg/l)	mg/l
33.	Cadmium as Cd	IS: 3025 (P-65), 2014 (RA: 2019)	*BDL (**DL: 0.002 mg/l)	mg/l
34.	Temperature	IS: 3025 (P-9), 2023	22.8	mg/l
35.	Oil & Grease	IS: 3025 (P-34), 2021	*BDL (**DL: 2.0 mg/l)	mg/l
36.	Total Ammonia	IS: 3025 (P-34), 1998	*BDL (**DL: 0.20 mg/l)	mg/l
37.	Total Suspended Solids	IS: 3025 (P-34), 1998	*BDL (**DL: 0.20 mg/l)	mg/l
38.	Nickel	Standard Operating Procedure	*BDL (**DL: 0.02 mg/l)	mg/l
39.	Vanadium	Standard Operating Procedure	*BDL (**DL: 0.02 mg/l)	mg/l
40.	Ammonical Nitrogen	IS: 3025 (P-34), 1998	*BDL (**DL: 0.20 mg/l)	mg/l
41.	Total Coliform	IS: 1622, 1981, RA-2019	298	MPN/100ml
42.	Fecal Coliform	IS: 1622, 1981, RA-2019	182	MPN/100ml

*BDL: Below Detection Limit, **DL: Detection Limit



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Test Report

Sample No:	DMSPL/AA/NIO/01-10	Report No:	DMSPL/AA/BIC/2403/001-010
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/04/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Mar. 2024 to 31 st Mar. 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Near Mine Office (A1)	Sample Condition:	Good/Clear
Latitude:	21° 58'09" N	Longitude:	85° 15'33" E

RESULTS

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
01.03.2024	63.2	45.3	16.2	26.4	0.65
04.03.2024	65.4	41.9	15.6	33.5	0.66
08.03.2024	72.6	42.6	17.7	26.2	0.62
10.03.2024	62.2	45.3	17.2	24.4	0.65
13.03.2024	65.4	44.9	15.6	33.5	0.62
16.03.2024	71.5	46.8	17.4	25.6	0.60
20.03.2024	75.2	33.6	18.2	25.1	0.53
23.03.2024	67.0	34.0	18.6	27.2	0.54
26.03.2024	72.2	36.8	19.2	24.2	0.54

Limit as per NAAQS*	Parameter	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
	--		100	60	80	80
	Method of Analysis	IS 5182 (Part-23)	IS 5182 (Part-24)	IS 5182 (Part-2)	IS 5182 (Part-6)	IS 5182 (Part-10)

*National Ambient Air Quality Standards.

End of Test Report



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Test Report

Sample No:	DMSPL/AA/N10/10-19	Report No:	DMSPL/AA/BIC/2403/010-019
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sandargarh, Odisha India.	Reporting Date:	05/04/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Mar. 2024 to 31 st Mar. 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Near Mines Gate (A2)	Sample Condition:	Good/Clear
Latitude:	21° 58'23" N	Longitude:	85° 15'44" E

RESULTS

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
01.03.2024	85.0	47.6	18.6	30.2	0.72
04.03.2024	82.8	43.0	20.6	30.1	0.94
08.03.2024	84.2	40.2	18.1	28.1	0.90
10.03.2024	74.9	46.4	16.3	31.5	0.82
13.03.2024	81.4	36.3	18.6	27.2	0.98
16.03.2024	82.7	47.1	16.9	26.1	0.90
20.03.2024	72.2	42.6	17.7	26.2	0.62
23.03.2024	62.2	45.1	17.1	24.2	0.64
26.03.2024	65.4	44.8	15.5	33.9	0.61

Limit as per NAAQS*	Parameter	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
	--	100	60	80	80	4
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

*National Ambient Air Quality Standards.

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Test Report

Sample No:	DMSPL/AA/NIO/19-28	Report No:	DMSPL/AA/BIC/2403/019-028
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koirn Distt. Sundargarh, Odisha India.	Reporting Date:	05/04/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Mar. 2024 to 31 st Mar. 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village - Kenduhidi (A3)	Sample Condition:	Good/Clear
Latitude:	21° 59'45" N	Longitude:	85° 16'14" E

RESULTS

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
02.03.2024	66.9	44.6	15.2	28.0	0.69
05.03.2024	68.0	27.10	16.2	29.0	0.55
09.03.2024	62.2	27.4	8.1	18.4	0.53
11.03.2024	57.3	30.3	9.5	17.8	0.54
14.03.2024	64.4	29.9	7.1	16.9	0.52
17.03.2024	58.5	30.6	8.7	19.1	0.56
21.03.2024	62.2	45.3	17.2	24.4	0.65
27.03.2024	65.4	44.9	15.6	33.5	0.62
30.03.2024	66.5	49.9	15.8	29.2	0.89

Limit as per NAAQS*	Parameter	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
	--	100	60	80	80	4
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

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Test Report

Sample No:	DMSPL/AA/NIO/28-37	Report No:	DMSPL/AA/BIC/2403/028-037
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/04/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Mar, 2024 to 31 st Mar, 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Badipada (A4)	Sample Condition:	Good/Clear
Latitude:	21° 58'04" N	Longitude:	85° 18'33" E

RESULTS

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
02.03.2024	73.8	43.2	20.1	29.3	0.72
05.03.2024	72.8	44.9	15.6	33.5	0.62
09.03.2024	71.5	46.8	17.4	25.6	0.60
11.03.2024	65.4	29.8	10.2	16.9	0.56
14.03.2024	58.5	30.6	9.7	19.1	0.58
17.03.2024	62.2	45.3	17.2	24.4	0.65
21.03.2024	65.4	44.9	15.6	33.5	0.62
24.03.2024	59.5	31.2	11.2	20.2	0.58
27.03.2024	61.4	37.6	16.6	30.0	0.66

Limit as per NAAQS*	Parameter	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
	--	100	60	80	80	4
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

*National Ambient Air Quality Standards.

End of Test Report



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Test Report

Sample No:	DMSPL/AA/NIO/37-46	Report No:	DMSPL/AA/BIC/2403/037-046
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/04/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Mar. 2024 to 31 st Mar. 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Jhirapani (A5)	Sample Condition:	Good/Clear
Latitude:	21° 59' 58" N	Longitude:	85° 13' 10" E

RESULTS

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
03.03.2024	58.5	30.6	8.7	19.1	0.56
06.03.2024	62.2	45.3	17.2	24.4	0.65
10.03.2024	65.4	44.9	15.6	33.5	0.62
12.03.2024	68.4	42.9	18.1	27.8	0.63
15.03.2024	63.9	45.5	16.5	31.2	0.63
18.03.2024	58.5	30.6	8.7	19.1	0.56
22.03.2024	62.2	45.3	17.2	24.4	0.65
25.03.2024	67.8	42.5	18.3	27.8	0.68
28.03.2024	63.3	23.4	7.5	19.1	0.60

Limit as per NAAQS*	Parameter	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
	--		100	60	80	80
	Method of Analysis	IS 5182 (Part - 23)	IS 5182 (Part - 24)	IS 5182 (Part - 2)	IS 5182 (Part - 6)	IS 5182 (Part - 10)

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End of Test Report



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Test-Report

Sample No:	DMSPL/AA/NIO/46-55	Report No:	DMSPL/AA/BIC/2403/046-05
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/04/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Mar, 2024 to 31 st Mar, 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron Ore Mines
Location:	Village Kishira (A6)	Sample Condition:	Good/Clear
Latitude:	21° 55' 10" N	Longitude:	85° 15' 20" E

RESULTS

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
03.03.2024	65.5	46.6	18.7	26.4	0.66
06.03.2024	62.2	27.4	8.1	18.4	0.53
10.03.2024	58.6	30.3	9.5	17.8	0.54
12.03.2024	58.3	23.4	7.5	17.1	0.57
15.03.2024	58.5	30.6	9.7	19.1	0.58
18.03.2024	62.2	45.3	17.2	24.4	0.65
22.03.2024	65.4	44.9	15.6	33.5	0.62
27.03.2024	59.5	31.2	11.2	20.2	0.58
30.03.2024	64.6	44.3	16.3	32.4	0.60

Limit as per NAAQS*	Parameter	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
	--	100	60	80	80	4
	Method of Analysis	IS 5182 (Part-23)	IS 5182 (Part-24)	IS 5182 (Part-2)	IS 5182 (Part-6)	IS 5182 (Part-10)

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Test Report

Sample No:	DMSPL/AA/NIMM/01	Report No:	DMSPL/AAM/2403/001
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/04/2024
		Ref. No:	NIL
		Monitoring Period:	March 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron & Mn Mines
Location:	Village Kashira (A6)	Sample Condition:	Good/Clear
Latitude:	21° 58' 10" N	Longitude:	85° 15' 20" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
08.03.2024	25.6	36.4	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
	--	180	400	1	20	6	5	1
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

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End of Test Report



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Test-Report

Sample No:	DMSPL/AA/NIMM/02	Report No:	DMSPL/AAM/2403/002
Name & Address of the Project:	M/s Nadiidih Iron & Mn Mines, Under ESL Steel Limited, (BICO) At Nadiidih, PO - Kaira Distt. Sundargarh, Odisha India.	Reporting Date:	05/04/2024
		Ref. No:	NIL
		Monitoring Period:	March 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadiidih Iron & Mn Mines
Location:	Village Jhirapani (A5)	Sample Condition:	Good/Clear
Latitude:	21° 59'58" N	Longitude:	85° 13'10" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
10.03.2024	23.60	36.90	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
	--	180	400	1	20	6	5	1
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

*National Ambient Air Quality Standards.

End of Test Report



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Test Report

Sample No:	DMSPL/AA/NIMM/3	Report No:	DMSPL/AAM/2403/003
Name & Address of the Project:	M/a Nadidih Iron & Mn Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO- Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/04/2024
		Ref. No:	NIL
		Monitoring Period:	March 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron & Mn Mines
Location:	Village Badipada (A4)	Sample Condition:	Good/Clear
Latitude:	21° 58'04" N	Longitude:	85° 15'33" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
14.03.2024	23.30	39.20	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
	--	180	400	1	20	6	5	1
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

*National Ambient Air Quality Standards.

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Test Report

Sample No:	DMSPL/AA/NIMMI/4	Report No:	DMSPL/AAM/2403/004
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/04/2024
		Ref. No:	NIL
		Monitoring Period:	March 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron & Mn Mines
Location:	Village Kenduhidi (A3)	Sample Condition:	Good/Clear
Latitude:	21° 59'45" N	Longitude:	85° 16'14" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
19.03.2024	22.5	39.5	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
	--		180	400	1	20	6	5
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

*National Ambient Air Quality Standards.

End of Test Report



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Test-Report

Sample No:	DMSPL/AA/NIMM/5	Report No:	DMSPL/AAM/2403/005
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under EST. Steel Limited, (BICO) At Nadidih, PO - Keira Distt. Sundargarh, Odisha India.	Reporting Date:	05/04/2024
		Ref. No:	NIL
		Monitoring Period:	March 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron & Mn Mines
Location:	Near Mines Gate (A2)	Sample Condition:	Good/Clear
Latitude:	21° 59'52" N	Longitude:	85° 13'09" E

RESULTS

Date of Sample	Ozone (µg/m ³)	Ammonia (µg/m ³)	Lead (µg/m ³)	Nickel (µg/m ³)	Arsenic (ng/m ³)	Benzene (µg/m ³)	Benzo(a)pyrene (ng/m ³)
27.03.2024	25.10	36.10	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone (µg/m ³)	Ammonia (µg/m ³)	Lead (µg/m ³)	Nickel (ng/m ³)	Arsenic (ng/m ³)	Benzene (µg/m ³)	Benzo(a)pyrene (ng/m ³)
	--		180	400	1	20	6	5
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

*National Ambient Air Quality Standards.

End of Test Report



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Test-Report

Sample No:	DMSPL/AA/NIMM/6	Report No:	DMSPL/AAM/2403/006
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sunfargarh, Odisha India.	Reporting Date:	05/04/2024
		Ref. No:	NIL
		Monitoring Period:	March 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron & Mn Mines
Location:	Near Mine Office (A1)	Sample Condition:	Good/Clear
Latitude:	21° 58'09" N	Longitude:	85° 15'33" E

RESULTS

Date of Sample	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
30.03.2024	27.40	31.50	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone ($\mu\text{g}/\text{m}^3$)	Ammonia ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Benzene ($\mu\text{g}/\text{m}^3$)	Benzo(a)pyrene (ng/m^3)
	--	180	400	1	20	6	5	1
	Method of Analysis	IS 5182 (Part - 9)	IS 5182 (Part - 25)	IS 5182 (Part - 22)	IS 5182 (Part - 26)	As per CPCB By AAS	IS 5182 (Part - 11)	IS 5182 (Part - 12)

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End of Test Report



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Test-Report

Sample No:	DMSPL/FD/NIMM/01-09	Report No:	DMSPL/FD/2403/001-009
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.	Reporting Date:	05/04/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Mar. 2024 to 31 st Mar. 2024
		Equipment Used:	RDS & Personnel Dust Sampler
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Monitoring	Customer Name:	Nadidih Iron & Mn Mines
Sample Name:	Fugitive Dust Sample	Sample Condition:	Good/Clear

RESULTS

Sr. No.	Location	Date	Latitude:	Longitude:	SPM ($\mu\text{g}/\text{m}^3$)
1	Mine Benches Area	08.03.2023	21° 57' 40" N	85° 15' 10" E	980.10
2	Haul Road	11.03.2023	21° 57' 48" N	85° 15' 16" E	950.0
3	Crushing Plant	16.03.2023	21° 57' 35" N	85° 15' 13" E	962.0
4	Screening Plant	20.03.2023	21° 57' 12" N	85° 15' 21" E	975.20
5	Ore Loading Area	26.03.2023	21° 57' 26" N	85° 15' 23" E	967.50
6	Waste Dump Area	30.03.2023	21° 57' 33" N	85° 15' 07" E	879.50

Limit as per Consent*	Parameter	Suspended Particulate Matter (SPM 1200 $\mu\text{g}/\text{m}^3$)
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State Pollution Control Board, Odisha.

End of Test Report



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Test-Report

Sample No:	DMSPL/AAFS/NIMM/01-09	Report No:	DMSPL/AAFS/2024/001-09
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/04/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Mar. 2024 to 31 st Mar. 2024
		Equipment Used:	RDS with all accessories
		Protocol Used:	IS-5182
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EC Letter
Sample Description:	Ambient Air Quality Monitoring		
Sample Type :	Free Silica Composition		

RESULTS

Chemical Composition of PM₁₀ with Free Silica

Location	Date	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	Free Silica %	Ca ($\mu\text{g}/\text{m}^3$)	Mg ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)
Near Mine Office	04.03.2023	55.8	2.0	1.03	0.31	<0.5	0.08
Near Mines Gate	11.03.2023	52.3	2.0	1.04	0.21	<0.5	0.08
Village Kenduhidi	14.03.2023	55.1	2.1	1.03	0.29	<0.5	0.08
Village Bandipada	20.03.2023	55.0	1.9	1.11	0.30	<0.5	0.09
Village Jhirapani	23.03.2023	62.0	2.1	1.13	0.27	<0.5	0.07
Village Kashira	30.03.2023	59.3	2.1	1.07	0.30	<0.5	0.08

** End of Report**

(Checked By)

(Approved By)

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Test Report

Sample Number:	DMSPL/GW/NIOM/01	Report No.:	DMSPL/GW/BICO/2403/001
Name & Address of the Project:	M/s. Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Kaira Distt. Sundargarh, Odisha India.	Format No.:	7.8 F-01
		Party Reference No.:	Nil.
		Reporting Date:	18/03/2024
		Ground Water Level :	4.2 Mtr.
Sample Description:	Ground Water Sample	Period of Analysis:	12/03/2024-18/03/2024
Sample Location:	Near Mine Site	Receipt Date:	12/03/2024
Sample Collected by:	DMSPL Representative	Sampling Date:	10/03/2024
Sampling and Analysis Protocol:	IS 3025 & APHA 23 rd Edition 2017	Sampling Quantity:	5.0 Ltr + 250ml
Preservation:	Ice Box	Sampling Type:	Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA ,4500-H ⁺ B Electrometric Method	7.85	--	6.5 to 8.5	No Relaxation
2.	Colour	APHA ,2120 B, Visual Comparison Method	*BLQ (**1.0Q 1.0 Hazen)	Hazen	5	15
3.	Turbidity	APHA, 2130 B, Nephelometric Method	*BLQ (**1.0Q 1.0 NTU)	NTU	1	5
4.	Odour	APHA, 2150 B, Threshold Odour Method	Agreeable	--	Agreeable	Agreeable
5.	Taste	APHA , 2160 B, Threshold Test Method	Disagreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA , 2340 C, EDTA Titrimetric Method	163.0	mg/l	200	600
7.	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	53.2	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA , 2320 B, Titrimetric Method	123.5	mg/l	200	600
9.	Chloride as Cl	APHA, 4500-Cl ⁻ B, Argentometric Method	83.5	mg/l	250	1000
10.	Cyanide as CN	APHA , 4500 CN ⁻ D	*BLQ (**1.0Q 0.02 mg/l)	mg/l	0.05	No Relaxation
11.	Magnesium as Mg	APHA , 3500 Mg B, Calculation Method	7.56	mg/l	30	100
12.	Total Dissolved Solids	APHA , 2540 C, Gravimetric Method	359.3	mg/l	500	2000
13.	Sulphate as SO ₄	APHA , 4500 E, Turbidimetric Method	83.2	mg/l	200	400
14.	Fluoride as F ⁻	APHA , 4500-F ⁻ D, SPADNS Method	0.46	mg/l	1.0	1.5
15.	Nitrate as NO ₃	IS 3025 (P-34) ,Chromotropic Method	21.0	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	0.27	mg/l	1.0	No relaxation
17.	Aluminium as Al	IS 3025 (P-65):2014(RA:2019)	*BLQ (**1.0Q 0.005 mg/l)	mg/l	0.05	0.2
18.	Boron	IS 3025 (P-65):2014(RA:2019)	*BLQ (**1.0Q 0.01 mg/l)	mg/l	0.5	2.4
19.	Chromium as Cr	IS 3025 (P-65):2014(RA:2019)	*BLQ (**1.0Q 0.002 mg/l)	mg/l	0.05	No Relaxation



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Test-Report

Sample No.: DMSPL/GW/NTOM/01			Report No.: DMSPL/GW/BICO/2403/001			
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
20.	Phenolic Compounds	APHA, 5530 C Chloroform Extraction Method	*BLQ(**LOQ 0.0005 mg/l)	mg/l	0.001	0.002
21.	Mineral Oil	Clause 6 of IS:3025(Part-39)	*BLQ(**LOQ 0.1 mg/l)	mg/l	1.0	No Relaxation
22.	Anionic Detergents as MBAS	Annex K of IS 13428; IS 3025 (P-68)	*BLQ(**LOQ 0.05 mg/l)	mg/l	0.2	1.0
23.	Residual free Chlorine	IS 3025 P-26, Ortho-toluidine Method	*BDL(**)DL 0.15mg/l)	mg/l	-	-
24.	Sodium as Na	APHA,3500 Na B, Flame Photometric Method	201.50	mg/l	-	-
25.	Potassium as K	APHA 3500 KB, Flame Photometric Method	6.50	mg/l	-	-
26.	Zinc as Zn	IS 3025 (P-65):2014(RA-2019)	0.38	mg/l	5	15
27.	Copper as Cu	IS 3025 (P-65):2014(RA-2019)	0.15	mg/l	0.05	1.5
28.	Manganese as Mn	IS 3025 (P-65):2014(RA-2019)	*BLQ(**)LOQ 0.01 mg/l)	mg/l	0.1	0.3
29.	Cadmium as Cd	IS 3025 (P-65):2014(RA-2019)	*BLQ(**)LOQ 0.002 mg/l)	mg/l	0.003	No Relaxation
30.	Lead as Pb	IS 3025 (P-65):2014(RA-2019)	*BLQ(**)LOQ 0.002 mg/l)	mg/l	0.01	No Relaxation
31.	Selenium as Se	IS 3025 (P-65):2014(RA-2019)	*BLQ(**)LOQ 0.001 mg/l)	mg/l	0.01	No Relaxation
32.	Arsenic as As	IS 3025 (P-65):2014(RA-2019)	*BLQ(**)LOQ 0.005 mg/l)	mg/l	0.01	No Relaxation
33.	Mercury as Hg	IS 3025 (P-65):2014(RA-2019)	*BLQ (**)LOQ 0.0005 mg/l)	mg/l	0.001	No Relaxation
34.	Total Coliform	IS 1622,1981, RA-2019	<2	MPN/100ml	Shall not be detectable in any 100 ml sample	
35.	E. Coli	IS 1622,1981, RA-2019	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: - *BLQ-Below Limit of Quantification, **LOQ- Limit of Quantification



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Sample Number: DMSPL/GW/NIOM/02

Report No.: DMSPL/GW/BICO/2403/002

Name & Address of the Project: **Test Report**
M/S Nandam Iron Ore Mines
Under ESL Steel Limited, (BICO)
At Nalidih, PO – Koira
Distt. Sundargarh, Odisha India.

Format No.: 7.8 F-01
Party Reference No.: NIL
Reporting Date: 18/03/2024
Ground Water Level: 4.1 Mtr.

Sample Description: Ground Water Sample
Sample Location: Village Kenduhidi
Sample Collected by: DMSPL Representative
Sampling and Analysis Protocol: IS 3025 & APHA 23rd Edition 2017
Preservation: Ice Box

Period of Analysis: 12/03/2024-18/03/2024
Receipt Date: 12/03/2024
Sampling Date: 10/03/2024
Sampling Quantity: 5.0 Ltr + 250ml
Sampling Type: Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA ,4500-H ⁺ B Electrometric Method	7.95	-	6.5 to 8.5	No Relaxation
2.	Colour	APHA ,2120 B, Visual Comparison Method	*BLQ (**LOQ 1.0 Hazen)	Hazen	5	15
3.	Turbidity	APHA , 2130 B, Nephelometric Method	*BLQ (**LOQ 1.0 NTU)	NTU	1	5
4.	Odour	APHA , 2150 B , Threshold Odour Method	Agreeable	-	Agreeable	Agreeable
5.	Taste	APHA , 2160 B, Threshold Test Method	DisAgreeable	-	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA , 2340 C, EDTA Titrimetric Method	269.50	mg/l	200	600
7.	Calcium as Ca	APHA , 3500 Ca B, EDTA Titrimetric Method	53.20	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA , 2320 B, Titrimetric Method	147.30	mg/l	200	600
9.	Chloride as Cl	APHA , 4500-Cl ⁻ B, Argentometric Method	77.10	mg/l	250	1000
10.	Cyanide as CN	APHA , 4500 CN ⁻ D	*BLQ (**LOQ 0.02 mg/l)	mg/l	0.05	No Relaxation
11.	Magnesium as Mg	APHA , 3500 Mg B, Calculation Method	10.15	mg/l	30	100
12.	Total Dissolved Solids	APHA , 2540 C, Gravimetric Method	343.20	mg/l	500	2000
13.	Sulphate as SO ₄	APHA , 4500 E, Turbidimetric Method	53.10	mg/l	200	400
14.	Fluoride as F	APHA , 4500-F ⁻ D, SPADNS Method	0.15	mg/l	1.0	1.5
15.	Nitrate as NO ₃	IS 3025 (P-34) ,Chromotropic Method	2.58	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	0.28	mg/l	1.0	No relaxation
17.	Aluminium as Al	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.005 mg/l)	mg/l	0.03	0.2
18.	Boron	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.01 mg/l)	mg/l	0.3	2.4
19.	Chromium as Cr	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.002 mg/l)	mg/l	0.05	No Relaxation



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Test-Report

Sample No.: DMSPL/GW/NIDM/02			Report No.: DMSPL/GW/BICO/2403/002			
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
20.	Phenolic Compounds	APHA, 5530 C Chloroform Extraction Method	*BLQ(**LOQ 0.0005 mg/l)	mg/l	0.001	0.002
21.	Mineral Oil	Clause 6 of IS:3025(Part 39)	*BLQ(**LOQ 0.1 mg/l)	mg/l	1.0	No Relaxation
22.	Anionic Detergents as MBAS	Annex K of IS 13428, IS 3025 (P-68)	*BLQ(**LOQ 0.05 mg/l)	mg/l	0.2	1.0
23.	Residual free Chlorine	IS 3025 P-26, Ortho-toluidine Method	*BDL(**IDL 0.15mg/l)	mg/l	--	--
24.	Sodium as Na	APHA 3500 Na B, Flame Photometric Method	20.80	mg/l	--	--
25.	Potassium as K	APHA 3500 K B, Flame Photometric Method	4.30	mg/l	--	--
26.	Zinc as Zn	IS 3025 (P-65):2014(RA-2019)	1.29	mg/l	5	15
27.	Copper as Cu	IS 3025 (P-65):2014(RA-2019)	0.15	mg/l	0.05	1.5
28.	Manganese as Mn	IS 3025 (P-65):2014(RA-2019)	*BLQ(**LOQ 0.01 mg/l)	mg/l	0.1	0.3
29.	Cadmium as Cd	IS 3025 (P-65):2014(RA-2019)	*BLQ(**LOQ 0.002 mg/l)	mg/l	0.003	No Relaxation
30.	Lead as Pb	IS 3025 (P-65):2014(RA-2019)	*BLQ(**LOQ 0.002 mg/l)	mg/l	0.01	No Relaxation
31.	Selenium as Se	IS 3025 (P-65):2014(RA-2019)	*BLQ(**LOQ 0.001 mg/l)	mg/l	0.01	No Relaxation
32.	Arsenic as As	IS 3025 (P-65):2014(RA-2019)	*BLQ(**LOQ 0.005 mg/l)	mg/l	0.01	No Relaxation
33.	Mercury as Hg	IS 3025 (P-65):2014(RA-2019)	*BLQ(**LOQ 0.0005 mg/l)	mg/l	0.001	No Relaxation
34.	Total Coliform	IS 1622,1981, RA-2019	<2	MPN/100ml	Shall not be detectable in any 100 ml sample	
35.	E. Coli	IS 1622,1981, RA-2019	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: - *BLQ-Below Limit of Quantification, **LOQ- Limit of Quantification



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Test Report

Sample Number:	DMSPL/GW/NTGM/03	Report No.:	DMSPL/GW/BICO/2403/003
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Format No.:	7.8 F-01
		Party Reference No.:	NH.
		Reporting Date:	18/03/2024
		Ground Water Level:	4.5 Mtr.

Sample Description:	Ground Water Sample	Period of Analysis:	12/03/2024-18/03/2024
Sample Location:	Village Badipada	Receipt Date:	12/03/2024
Sample Collected by:	DMSPL Representative	Sampling Date:	10/03/2024
Sampling and Analysis Protocol:	IS 3025 & APHA 23 rd Edition 2017	Sampling Quantity:	5.0 Ltr + 250ml
Preservation:	Ice Box	Sampling Type:	Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA ,4500-H* B Electrometric Method	7.50	--	6.5 to 8.5	No Relaxation
2.	Colour	APHA ,2120 B, Visual Comparison Method	*BLQ (**LOQ 1.0 Hazen)	Hazen	5	15
3.	Turbidity	APHA ,2130 B, Nephelometric Method	*BLQ (**LOQ 1.0 NTU)	NTU	1	5
4.	Odour	APHA ,2150 B , Threshold Odour Method	Agreeable	--	Agreeable	Agreeable
5.	Taste	APHA , 2160 B, Threshold Test Method	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA , 2540 C, EDTA Titrimetric Method	151.20	mg/l	200	600
7.	Calcium as Ca	APHA , 3500 Ca B, EDTA Titrimetric Method	53.20	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA , 2320 B, Titrimetric Method	125.10	mg/l	200	600
9.	Chloride as Cl	APHA , 4500-Cl B, Argentometric Method	83.10	mg/l	250	1000
10.	Cyanide as CN	APHA , 4500 CN- D	*BLQ (**LOQ 0.02 mg/l)	mg/l	0.05	No Relaxation
11.	Magnesium as Mg	APHA , 3500 Mg B, Calculation Method	5.60	mg/l	30	100
12.	Total Dissolved Solids	APHA , 2540 C, Gravimetric Method	371.20	mg/l	500	2000
13.	Sulphate as SO ₄	APHA , 4500 E, Turbidimetric Method	95.50	mg/l	200	400
14.	Fluoride as F	APHA , 4500-F D, SPADNS Method	0.54	mg/l	1.0	1.5
15.	Nitrate as NO ₃	IS 3025 (P-54) ,Chromotropic Method	22.80	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	0.38	mg/l	1.0	No relaxation
17.	Aluminium as Al	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.005 mg/l)	mg/l	0.03	0.2
18.	Boron	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.01 mg/l)	mg/l	0.5	2.4
19.	Chromium as Cr	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.002 mg/l)	mg/l	0.05	No Relaxation

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Sample No.: DMSPL/GW/NIOM/03			Test Report		Report No: DMSPL/GW/BICO/2403/003	
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
20.	Phenolic Compounds	APHA, 5530 C Chloroform Extraction Method	*BLQ(**LOQ 0.0005 mg/l)	mg/l	0.001	0.002
21.	Mineral Oil	Clause 6 of IS:3025(Part 39)	*BLQ(**LOQ 0.1 mg/l)	mg/l	1.0	No Relaxation
22.	Anionic Detergents as MBAS	Annex K of IS 13428, IS 3025 (P-68)	*BLQ(**LOQ 0.05 mg/l)	mg/l	0.2	1.0
23.	Residual free Chlorine	IS 3025 P-26, Ortho-toluidine Method	*BDL(**DL 0.15mg/l)	mg/l	-	-
24.	Sodium as Na	APHA,3500 Na B, Flame Photometric Method	17.0	mg/l	-	-
25.	Potassium as K	APHA 3500 K B, Flame Photometric Method	3.50	mg/l	-	-
26.	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	0.89	mg/l	5	15
27.	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	0.23	mg/l	0.05	1.5
28.	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*BLQ(**LOQ 0.01 mg/l)	mg/l	0.1	0.3
29.	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*BLQ(**LOQ 0.002 mg/l)	mg/l	0.003	No Relaxation
30.	Lead as Pb	IS 3025 (P-65):2014(RA:2019)	*BLQ(**LOQ 0.002 mg/l)	mg/l	0.01	No Relaxation
31.	Selenium as Se	IS 3025 (P-65):2014(RA:2019)	*BLQ(**LOQ 0.001 mg/l)	mg/l	0.01	No Relaxation
32.	Arsenic as As	IS 3025 (P-65):2014(RA:2019)	*BLQ(**LOQ 0.005 mg/l)	mg/l	0.01	No Relaxation
33.	Mercury as Hg	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.0005 mg/l)	mg/l	0.001	No Relaxation
34.	Total Coliform	IS 1622,1981, RA-2019	<2	MPN/100ml	Shall not be detectable in any 100 ml sample	
35.	E. Coli	IS 1622,1981, RA-2019	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: *BLQ-Below Limit of Quantification, **LOQ- Limit of Quantification



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Test Report

Sample Number:	DMSPL/GW/NION/04	Report No.:	DMSPL/GW/BICO/2403/004
Name & Address of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Format No.:	7.8 F-01
		Party Reference No.:	NIL
		Reporting Date:	18/03/2024
		Ground Water Level :	4.3 Mtr.

Sample Description:	Ground Water Sample	Period of Analysis:	12/03/2024-18/03/2024
Sample Location:	Village Jhirapani	Receipt Date:	12/03/2024
Sample Collected by:	DMSPL Representative	Sampling Date:	10/03/2024
Sampling and Analysis Protocol:	IS 3025 & APHA 23 rd Edition 2017	Sampling Quantity:	5.0 Ltr + 250ml
Preservation:	Ice Box	Sampling Type:	Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA ,4500-41' B Electrometric Method	7.85	-	6.5 to 8.5	No Relaxation
2.	Colour	APHA ,2120 B, Visual Comparison Method	*BLQ (**LOQ 1.0 Hazen)	Hazen	5	15
3.	Turbidity	APHA, 2130 B, Nephelometric Method	*BLQ (**LOQ 1.0 NTU)	NTU	1	5
4.	Odour	APHA, 2150 B , Threshold Odour Method	Agreeable	-	Agreeable	Agreeable
5.	Taste	APHA , 2160 B, Threshold Test Method	DisAgreeable	-	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA , 2340 C, EDTA Titrimetric Method	149.6	mg/l	200	600
7.	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	41.20	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA , 2320 B, Titrimetric Method	148.20	mg/l	200	600
9.	Chloride as Cl	APHA, 4500-Cl' B, Argentometric Method	85.12	mg/l	250	1000
10.	Cyanide as CN	APHA , 4500 CN' D	*BLQ(LOQ 0.02 mg/l)	mg/l	0.05	No Relaxation
11.	Magnesium as Mg	APHA , 3500 Mg B, Calculation Method	17.20	mg/l	30	100
12.	Total Dissolved Solids	APHA , 2540 C, Gravimetric Method	356.20	mg/l	500	2000
13.	Sulphate as SO ₄	APHA , 4500 E, Turbidimetric Method	53.10	mg/l	200	400
14.	Fluoride as F	APHA , 4500-F' D, SPADNS Method	1.25	mg/l	1.0	1.5
15.	Nitrate as NO ₃	IS 3025 (P-34) ,Chromotropic Method	25.20	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	0.28	mg/l	1.0	No relaxation
17.	Aluminium as Al	IS 3025 (P-65):2014(RA:2019)	*BLQ(**LOQ 0.005 mg/l)	mg/l	0.03	0.2
18.	Boron	IS 3025 (P-65):2014(RA:2019)	*BLQ(**LOQ 0.01 mg/l)	mg/l	0.5	2.4
19.	Chromium as Cr	IS 3025 (P-65):2014(RA:2019)	*BLQ(**LOQ 0.002 mg/l)	mg/l	0.05	No Relaxation



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Test-Report

Sample No.: DMSPL/GW/NIOM/04			Report No.: DMSPL/GW/BICO/2403/004			
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Sources
20.	Phenolic Compounds	APHA, 5530 C Chloroform Extraction Method	*BLQ(**LOQ 0.0005 mg/l)	mg/l	0.001	0.002
21.	Mineral Oil	Clause 6 of IS:3025(Part 39)	*BLQ(**LOQ 0.1 mg/l)	mg/l	1.0	No Relaxation
22.	Anionic Detergents as MBAS	Annex K of IS 13428, IS 3025 (P-68)	*BLQ(**LOQ 0.05 mg/l)	mg/l	0.2	1.0
23.	Residual free Chlorine	IS 3025 P-26, Ortho-tolidine Method	*BDL(**DL 0.13mg/l)	mg/l	--	--
24.	Sodium as Na	APHA,3500 Na B, Flame Photometric Method	18.70	mg/l	--	--
25.	Potassium as K	APHA 3500 K B, Flame Photometric Method	4.65	mg/l	--	--
26.	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	2.30	mg/l	5	15
27.	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	0.18	mg/l	0.05	1.5
28.	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*BLQ(**LOQ 0.01 mg/l)	mg/l	0.1	0.3
29.	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*BLQ(**LOQ 0.002 mg/l)	mg/l	0.003	No Relaxation
30.	Lead as Pb	IS 3025 (P-65):2014(RA:2019)	*BLQ(**LOQ 0.002 mg/l)	mg/l	0.01	No Relaxation
31.	Selenium as Se	IS 3025 (P-65):2014(RA:2019)	*BLQ(**LOQ 0.001 mg/l)	mg/l	0.01	No Relaxation
32.	Arsenic as As	IS 3025 (P-65):2014(RA:2019)	*BLQ(**LOQ 0.005 mg/l)	mg/l	0.01	No Relaxation
33.	Mercury as Hg	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.0005 mg/l)	mg/l	0.001	No Relaxation
34.	Total Coliform	IS 1622,1981, RA-2019	<2	MPN/100ml	Shall not be detectable in any 100 ml sample	
35.	E. Coli	IS 1622,1981, RA-2019	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: - *BLQ-Below Limit of Quantification, **LOQ-Limit of Quantification



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Test-Report

Sample No:	DMSPL/AN/NIMM/01-01	Report No:	DMSPL/AN/2403/001-01
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/04/2024
		Ref. No:	NIL
		Monitoring Period:	1 st Mar. 2024 to 31 st Mar. 2024
		Equipment Used:	Sound Level Meter
		Protocol Used:	IS-9989
Sample Collected By:	DMSPL Representative	Parameter Required:	As per Govt. Standard
Sample Description:	Ambient Noise Monitoring	Customer Name:	Nadidih Iron Ore Mines
Sample Type :	Noise Level Monitoring	Sample Condition:	Good Clear

RESULTS

Sr. No.	Location	Date	Latitude	Longitude	Day Time {dB(A)}	Night Time {dB(A)}
1	Near Mine office	03.03.2024	21°58'09" N	85°15'33" E	63	48.2
2	Near Mines Gate	08.03.2024	21°58'25" N	85°15'44" E	62.5	51.5
Standard Limit Industrial Area as per CPCB					75.0	70.0
3	Village Kenduhidi	12.03.2024	21°59'45" N	85°16'14" E	51.2	43.5
4	Village Badipada	17.03.2024	21°58'04" N	85°18'33" E	52.2	42.9
5	Village Jhirapani	21.03.2024	21°59'58" N	85°13'10" E	49.8	42.0
6	Village Kashira	23.03.2024	21°55'10" N	85°15'20" E	51.8	41.0
7	Upwind Direction	27.03.2024	21°58'14" N	85°15'22" E	54.6	42.2
8	Downwind Direction	30.03.2024	21°57'19" N	85°13'34" E	53.5	43.10
Standard Limit Residential Area as per CPCB					55.0	45.0

CPCB- Central Pollution Control Board

**** End of Report****



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Test-Report

Sample Number:	DMSPL/NIOM/S/01	Report No.:	DMSPL/S/BICO/2303/001
Name & Address of Party:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Format No.:	5.10 F-01
Sample Description:	SOIL	Party Reference No.:	NIL
Sampling Location:	Inside Mine Area	Reporting Date:	30/03/2023
Sample Collected by:	DMSPL Lab Representative	Receipt Date:	24/03/2023
Sampling & Analysis Protocol:	IS 2720 & USDA	Sampling Date:	20/03/2023
		Type of Sampling:	Composite
		Sampling Quantity:	2.0 Kg
		Depth of Sampling:	30 cm
		Packing Status:	Temp Sealed

S. No.	Parameter	Protocol	Result	Unit
1.	pH (at 25 °C)	IS : 2720 (P-26, 1987)	8.13	--
2.	Conductivity	IS:14767-2000 Reaffirmed 2006	0.35	mS/cm
3.	Soil Texture	USDA Method, 1968	Silty Loam	--
4.	Color	USDA Method, 1968	Yellowish	--
5.	Water holding capacity	USDA Method, 1968	22.20	%
6.	Bulk density	USDA Method, 1968	1.20	gm/cc
7.	Chloride as Cl	USDA Method, 1968	24.60	mg/100gm
8.	Calcium as Ca	USDA Method, 1968	31.30	mg/100gm
9.	Sodium as Na	USDA Method, 1968	30.20	mg/100gm
10.	Potassium as K	USDA Method, 1968	61.20	kg/hect.
11.	Organic Matter	IS:2720 (P-22, 1972)	0.38	%
12.	Magnesium as Mg	USDA Method, 1968	10.60	mg/100gm
13.	Available Nitrogen as N	IS:14684, 1999	187.20	kg/hect.
14.	Available Phosphorus	USDA, APHA-4500PC	33.50	kg/hect.
15.	Zinc as Zn	APHA-3030D, APHA-3111B	4.55	mg/100gm
16.	Manganese as Mn	APHA-3030D, APHA-3111B	2.46	mg/100gm
17.	Chromium as Cr	APHA-3030D, APHA-3111B	1.22	mg/100gm
18.	Lead as Pb	APHA-3030D, APHA-3111B	0.21	mg/100gm
19.	Cadmium as Cd	APHA-3030D, APHA-3111B	1.45	mg/100gm
20.	Copper as Cu	APHA-3030D, APHA-3111B	3.15	mg/100gm



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Test Report

Sample No:	DMSPL/AN/ST/01	Report No:	DMSPL/ST/2401/001
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Format No.:	7.8 F-83
		Part Reference No.:	NIL
		Reporting Date:	21.03.2024
Sample Collected By:	DMSPL Representative	Period of Analysis:	15.03.2024 to 20.03.2024
Sample Description:	Ambient Noise Monitoring	Receipt Date:	15.03.2024
Sample Type :	Noise Level Monitoring		

Sample Description	Stack Emission Monitoring
General Information	
Sample Location	Minr Site
Sample Collected by	DMSPL Lab Representative
Date of Sampling	15.03.2024
Sampling Duration (Minutes)	42.0 Min
Stack Attached to	DG Set
Make of Stack	MS
Diameter of Stack (m)	0.30 Meter
Instruments calibration status	Calibrated
Meteorological Condition	Clear sky
Ambient Temperature-Ta (°C)	20.00
Temperature of Stack Gases-Ts (°C)	210.0
Velocity of Stack Gases (m/s)	8.40
Flow rate of PM (LPM)	22.00
Flow rate of Gas (LPM)	2.00
Sampling Condition	Isokinetic
Protocol used	IS 11255

RESULTS

Sr. No.	Test Parameters	Test Method	Results	Units	Limit as per CPCB
1	Particulate Matter (as PM)	IS 11255(P-1), Gravimetric Method	40.10	mg/Nm ³	75
2	Oxide of Nitrogen (as NOx)	IS 11255(P-7)	162.00	PPM	710
3	NMHC	DMSPL/ENVSTP/ST/FGA/01 Issue No. 01.01/1121	21.00	mg/Nm ³	100
4	Sulphur Oxide (as SO2)	IS 11255(P-2), Turbimetric Method	21.40	mg/Nm ³	-
5	Carbon Monoxide (CO)	DMSPL/ENVSTP/ST/FGA/01 Issue No. 01.01/1121	27.20	mg/Nm ³	150

Note- Laboratory Standard Testing Procedure

**** End of Report ****



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ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

Test-Report

Sample Number:	DMSPL/NIOM/SW/01	Report No.:	DMSPL/SW/BICO/2403/001
Name of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Format No.:	7.8 F-01
		Party Reference No.:	NIL
		Reporting Date:	18/03/2024
Sample Description:	Surface Water Sample	Period of Analysis:	12/03/2024 - 18/03/2024
Sampling Location:	River Sample (Near Mines Upstream)	Receipt Date:	12/03/2024
Sample Collected by:	DMSPL Lab Representative	Sampling Date:	10/03/2024
Preservation:	Ice Box	Sampling Quantity:	2.0 Ltr + 250ml.
Sampling and Analysis Protocol:	APHA & IS, 23 rd Edition 2017	Sampling Type:	Composite

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	APHA ,4500-H ⁺ B Electrometric Method	7.50	--
2.	Colour	APHA ,2120 B, Visual Comparison Method	22.2	Hazen
3.	Turbidity	APHA, 2130 B, Nephelometric Method	<1	NTU
4.	Odour	APHA, 2150 B, Threshold Test Method	Agreeable	--
5.	Total Hardness as CaCO ₃	APHA , 2340 C, EDTA Titrimetric Method	92.0	mg/l
6.	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	22.4	mg/l
7.	Alkalinity as CaCO ₃	APHA , 2320 B, Titrimetric Method	76.6	mg/l
8.	Chloride as Cl	APHA, 4500-Cl ⁻ B, Argentometric Method	44.3	mg/l
9.	Total Residual Chlorine	IS 3025 P-26, Ortho-toluidine Method	*BDL (**DL 0.15mg/l)	mg/l
10.	Cyanide as CN	APHA , 4500 CN ⁻ D, Barbituric Acid Method	*BDL (**DL 0.02 mg/l)	mg/l
11.	Magnesium as Mg	APHA , 3500 Mg B, Calculation Method	5.56	mg/l
12.	Total Dissolved Solids	APHA , 2540 C, Gravimetric Method	263.0	mg/l
13.	Total Suspended solids	APHA,2540 D Gravimetric Method	27.8	mg/l
14.	Dissolved Oxygen	APHA,4500 O B Iodometric Method	7.3	mg/l
15.	Sulphide	IS 3025 (P-29):2022	4.5	mg/l
16.	Fluoride as F	APHA , 4500-F ⁻ D, SPADNS Method	0.26	mg/l
17.	BOD (3 Days at 27°C)	APHA, 5210 C / IS 3025, P-44	16.20	mg/l
18.		APHA, 5220 B, Open Reflux Method	38.30	mg/l



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Test-Report

Sample No.: DMSPL/NIOM/SW/01			Report No.: DMSPL/SW/BICO/2403/0	
S. No.	Parameter	Test-Method	Result	Unit
19.	Conductivity (at 25 °C)	APHA, 2510 B, Conductivity Meter Method	0.45	mS/cm
20.	Nitrate as NO ₃	IS 3025 (P-34) ,Chromotropic Method	6.12	mg/l
21.	Sodium as Na	APHA,3500 Na B, Flame Photometric Method	17.55	mg/l
22.	Potassium as K	APHA 3500 K B, Flame Photometric Method	6.26	mg/l
23.	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	0.45	mg/l
24.	Aluminium as Al	IS 3025 (P-65):2014(RA:2019)	*BDL(**DL 0.002 mg/l)	mg/l
25.	Boron	IS 3025 (P-65):2014(RA:2019)	*BDL(**DL 0.002 mg/l)	mg/l
26.	Hexavalent Chromium as Cr	IS 3025 (P-65):2014(RA:2019)	*BDL(**DL 0.002 mg/l)	mg/l
27.	Phenolic Compounds	APHA, 5530 C Chloroform Extraction Method	*BDL(**DL 0.0004mg/l)	mg/l
28.	#Mineral Oil	Clause 6 of IS:3025(Part 39)	*BDL(**DL 0.1 mg/l)	mg/l
29.	#Anionic Detergents as MBAS	APHA, 5540 C MBAS Method	*BDL(**DL 0.05 mg/l)	mg/l
30.	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	*BDL(**DL 0.05 mg/l)	mg/l
31.	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	*BDL(**DL 0.1 mg/l)	mg/l
32.	Manganese as Mn	IS 3025 (P-65):2014(RA:2019)	*BDL(**DL 0.01 mg/l)	mg/l
33.	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*BDL(**DL 0.002 mg/l)	mg/l
34.	Temperature	IS 3025 (P-9):2023	22.50	mg/l
35.	Oil & Grease	IS 3025 (P-39):2021	*BDL(**DL 2.0 mg/l)	mg/l
36.	Free Ammonia	IS 3025 (P-34):1988	*BDL(**DL 0.20 mg/l)	mg/l
37.	Total kjeldhal Nitrogen	IS 3025 (P-34):1988	*BDL(**DL 0.20 mg/l)	mg/l
38.	Nickel	Standard Operating Procedure	*BDL(**DL 0.02 mg/l)	mg/l
39.	Vanadium	Standard Operating Procedure	*BDL(**DL 0.02 mg/l)	mg/l
40.	Ammonical Nitrogen	IS 3025 (P-34):1988	*BDL(**DL 0.20 mg/l)	mg/l
41.	Total Coliform	IS 1622,1981, RA-2019	279	MPN/100ml
42.	Focal Coliform	IS 1622,1981, RA-2019	162	MPN/100ml

*BDL-Below Detection Limit, **DL- Detection Limit.



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Test-Report

Sample Number:	DMSPL/NIOM/SW/02	Report No.:	DMSPL/SW/BICIO/2403/002
Name of the Project:	M/s Nadidih Iron Ore Mines, Under ESL Steel Limited, (BICO) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.	Format No.:	7.8 F-01
		Party Reference No.:	NIL
		Reporting Date:	18/03/2024
Sample Description:	Surface Water Sample	Period of Analysis:	12/03/2024- 18/03/2024
Sampling Location:	River Sample (Near Mines Downstream)	Receipt Date:	12/03/2024
Sample Collected by:	DMSPL Lab Representative	Sampling Date:	10/03/2024
Preservation:	Ice Box	Sampling Quantity:	2.0 Ltr + 250ml.
Sampling and Analysis Protocol:	APHA & IS, 23 rd Edition 2017	Sampling Type:	Composite

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	APHA ,4500-41' B Electrometric Method	7.60	--
2.	Colour	APHA ,2120 B, Visual Comparison Method	24.2	Hazen
3.	Turbidity	APHA, 2130 B, Nephelometric Method	<1	NTU
4.	Odour	APHA, 2150 B, Threshold Test Method	Agreeable	--
5.	Total Hardness as CaCO ₃	APHA , 2340 C, EDTA Titrimetric Method	97.30	mg/l
6.	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	26.5	mg/l
7.	Alkalinity as CaCO ₃	APHA , 2320 B, Titrimetric Method	71.20	mg/l
8.	Chloride as Cl	APHA, 4500-Cl' B, Argentometric Method	43.10	mg/l
9.	Total Residual Chlorine	IS 3025 P-26, Ortho-toluidine Method	*BDL (**DL: 0.15mg/l)	mg/l
10.	Cyanide as CN	APHA , 4500 CN' D, Barbituric Acid Method	*BDL (**DL: 0.02 mg/l)	mg/l
11.	Magnesium as Mg	APHA , 3500 Mg B, Calculation Method	5.45	mg/l
12.	Total Dissolved Solids	APHA , 2540 C, Gravimetric Method	252.20	mg/l
13.	Total Suspended solids	APHA,2540 D, Gravimetric Method	17.5	mg/l
14.	Dissolved Oxygen	APHA,4500 O B, Iodometric Method	6.8	mg/l
15.	Sulphide	IS 3025 (P-29):2022	30.30	mg/l
16.	Fluoride as F	APHA , 4500-F' D, SPADNS Method	0.45	mg/l
17.	BOD (3 Days at 27°C)	APHA, 5210 C / IS 3025,P-44	12.30	mg/l
18.	COD	APHA, 5220 B, Open Reflux Method	34.50	mg/l



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Test Report

Sample No.: DMSPL/NIOM/SW/02			Report No.: DMSPL/SW/BICO/2403/24	
S. No.	Parameter	Test-Method	Result	Unit
19.	Conductivity (at 25 °C)	APHA, 2510 B, Conductivity Meter Method	0.42	mS/cm
20.	Nitrate as NO ₃	IS 3025 (P-34), Chromotropic Method	4.45	mg/l
21.	Sodium as Na	APHA, 3500 Na B, Flame Photometric Method	22.20	mg/l
22.	Potassium as K	APHA 3500 K B, Flame Photometric Method	5.60	mg/l
23.	Iron as Fe	IS 3025 (P-65);2014(RA:2019)	*BDL(**DL 0.002 mg/l)	mg/l
24.	Aluminium as Al	IS 3025 (P-65);2014(RA:2019)	*BDL(**DL 0.002 mg/l)	mg/l
25.	Boron	IS 3025 (P-65);2014(RA:2019)	0.45	mg/l
26.	Hexavalent Chromium as Cr	IS 3025 (P-65);2014(RA:2019)	*BDL(**DL 0.002 mg/l)	mg/l
27.	Phenolic Compounds	APHA, 5530 C Chloroform Extraction Method	*BDL(**DL 0.0004mg/l)	mg/l
28.	#Mineral Oil	Clause 6 of IS:3025(Part 39)	*BDL(**DL 0.1 mg/l)	mg/l
29.	#Anionic Detergents as MBAS	APHA, 5540 C MBAS Method	*BDL(**DL 0.05 mg/l)	mg/l
30.	Zinc as Zn	IS 3025 (P-65);2014(RA:2019)	*BDL(**DL 0.05 mg/l)	mg/l
31.	Copper as Cu	IS 3025 (P-65);2014(RA:2019)	*BDL(**DL 0.1 mg/l)	mg/l
32.	Manganese as Mn	IS 3025 (P-65);2014(RA:2019)	*BDL(**DL 0.01 mg/l)	mg/l
33.	Cadmium as Cd	IS 3025 (P-65);2014(RA:2019)	*BDL(**DL 0.002 mg/l)	mg/l
34.	Temperature	IS 3025 (P-9);2023	22.10	mg/l
35.	Oil & Grease	IS 3025 (P-39);2021	*BDL(**DL 2.0 mg/l)	mg/l
36.	Free Ammonia	IS 3025 (P-34);1988	*BDL(**DL 0.20 mg/l)	mg/l
37.	Total kjeldhal Nitrogen	IS 3025 (P-34);1988	*BDL(**DL 0.20 mg/l)	mg/l
38.	Nickel	Standard Operating Procedure	*BDL(**DL 0.02 mg/l)	mg/l
39.	Vanadium	Standard Operating Procedure	*BDL(**DL 0.02 mg/l)	mg/l
40.	Ammonical Nitrogen	IS 3025 (P-34);1988	*BDL(**DL 0.20 mg/l)	mg/l
41.	Total Coliform	IS 1622,1981, RA-2019	250	MPN/100ml
42.	Fecal Coliform	IS 1622,1981, RA-2019	165	MPN/100ml

*BDL-Below Detection Limit, **DL- Detection Limit



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