

Letter No: ESL-IOO/HSE/MoEF/24-25/02  
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 and Manganese Ore Mines of M/s ESL Steel Limited for the period 1<sup>st</sup> October 2023 to 31<sup>st</sup> March 2024**

Ref: - 1. Vesting Order, no 8472 /SM, Bhubaneswar, 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-11015/249/2016-IA.II (M),Dated: 11.09.2019. for Nadidihi Iron and Manganese 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 and Manganese Ore Mines.**

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

**Reference letter from MoEF &CC, New Delhi- J-11015/249/2016-IA.II (M), Dated: 11.09.2019.  
Capacity- 7.451 MTPA of iron Ore Production.**

**Status- Operating Mine of 2.88 MTPA iron ore production.**

Sr. No.	A. <u>Specific Conditions</u>	Status
i)	This EC will be valid upto 31.03.2071	Noted
ii)	The enhance production shall be on pro-rata basis for the effective period of valid environment clearance granted 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-rata basis as per approved mining plan from IBM
iii)	PP mentioned that the application for the surrender of forest area over 5.433 ha is submitted to State Govt. and the same has been accepted by the State Govt. Therefore, the lease area will be reduced to 115.962 ha (121.405-5.443 ha = 115.962 ha) and the mining activities will be restricted to 115.962 ha only.	The mine is a auctioned mine according to the lease deed the mine lease area is 117.206 ha and there is no surrender of forest area
iv)	This EC for expansion proposal (2.88 MTPA to 6.0 MTPA (pro-rata basis) and reduction in dry processing (crushing and screening) of low-grade iron ore from old stack/dumps from 4.751 MTPA to 1.451 MTPA (Total handling 7.451 MTPA)) shall be operational after submission of an undertaking through affidavit to MoEFF&CC within 15 days of receipt of this letter, for compliance of all the conditions prescribed herein.	The production of FY 23-24 is 2.88 MTPA as we are not exceeded the early EC capacity and we are not going for expansion in terms of production
v)	PP should adhere with the Site-Specific Conservation Plan for Schedule I species as approved by the Competent Authority.	
vi)	PP shall spend R. 1.9 crore as a CER cost within the validity period of EC.	Complied by previous lease and it will be continued
B.	<b><u>Recommendation of CSIR-NEERI Report on “Carrying Capacity Study for Environmentally Sustainable Iron and Manganese Ore Mining Activity in Keonjhar, Sundargarh and Mayurbhanj districts of Odisha State:</u></b>	
1)	Project Proponent and Department of Steel and 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.	PP will provide full co-operation to Department of Steel and Mines for implementing of recommendation of NEERI

*Aban*

2)	Department of Steel and 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.	5 years Regional Plan for annual Iron Ore Requirement is prepared by the Department of Steel & Mines, Govt, of Odisha.
3)	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 m inside the mine. This should be done within one year for existing mines and new mine should have since beginning. The Department of Steel and Mines, Govt. of Odisha should ensure compliance and should not issue the Mining permits, if mine lease holder has not constructed proper cement concrete road as suggested. This EC for the expansion project shall be operated only after the compliance of the above mentioned specific condition.	Cement concrete road with 300 m inside the mine will be completed by FY 24-25
4)	The Committee observed that as per the recommendations of NEERI report, the PP needs to do regular vacuum cleaning of all mineral carrying roads aiming at “zero dust suppression” within 3 months. This EC for the expansion project shall be operated only after the compliance of the mentioned specific conditions.	Rain water is harvested in mine pit and is used for Dust suppression activities which is found to be effective. Water tanker are used to spray water on the haulage road as well as the concrete road joining the main road. Water tankers are also used to wash the concrete road.
5)	PP 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. OSPCB has to ensure the compliance of CTO/CTE. Regional office of MoEF&CC, Bhubaneswar shall monitor the compliance of the EC conditions. Regional office of 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 as per EC and consents through NABL approved laboratory.
6)	PP 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 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 adequate railway capacity for movement of ore by Rail

7)	<p>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&amp;CC.</p>	<p>Full cooperation will be provided from the PP side.</p>
8)	<p>PP 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. This EC for the Expansion project shall be operated only after the compliance of the above mentioned specific condition.</p>	<p>Parking plaza is developed inside the mines for trucks.</p>
9)	<p>Department of Steel and Mines shall ensure the construction of NH 215 as minimum 4 lane road with proper drainage system and plantation and subsequent regular maintenance of the road as per the IRC guidelines. Construction of other mineral carrying roads with proper width and drainage system along with road side plantation to be carried out. This shall be completed within 2 years.</p>	<p>Government of Odisha has constructed NH 215 as 4 lane road</p>
10)	<p>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. This EC for the Expansion project shall be operated only after the compliance of the above-mentioned specific condition.</p>	<p>Dust suppression is done by the water sprinkling through mobile tankers hence there is zero dust.</p>
11)	<p>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 and Mines. Department of Steel and Mines in consultation with Indian Bureau of Mines – 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.</p>	<p>Will comply with the instructions of the authorities.</p>

12)	<p>R&amp;D studies towards utilization of low-grade iron ore should be conducted through research/academic institutes like IMMT Bhubaneswar, NML Jamshedpur and concerned metallurgical departments in IITs, NITs, etc. targeting full utilization of low-grade iron ore (Fe content upto 45% by 2020 and upto 40% by 2025). In fact, life cycle assessment of whole process including environmental considerations should be done for techno-economic and environmental validity. R&amp;D studies on utilization of mine wastewater having high concentration of Fe content for different commercial applications in industrial such as cosmetics, pharmaceutical, paint industry should also be explored. Responsibility: IBM, Dept. of Steel and Mines, Individual Mine Lease Holders</p>	<p>R&amp;D studies was conducted by IMMT for utilization of low grade iron ore. (year)  The Fe content in mine pit water is in permissible range . the pit water is used for dust suppression.</p>
13)	<p>The mining activity in Joda Koira sector is expected to continue for another 100 years, therefore, it will be desirable to develop proper rail network in the region. Rail Transport shall not only be in pollution free mode but also will be a 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 around 95 km. Further, it is suggested to 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 Railways. Time period: Minimum 7 years (by 2025). The Dept. of Steel and 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>	<p>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>
14)	<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>
15.	<p><b>Mining operations/Process related:</b> Project proponent shall implement the following mitigation measures:</p>	

<p>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.</p>	<p>Mining is carried out as per IBM approved mining plan. Regular maintenance of mining machinery is carried out to obtain optimum fuel consumption. Drills are operated with wet drilling system</p>
<p>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.</p>	<p>Emission monitoring is carried out annually through NABL laboratory and reports submitted to authorities. It is observed that the results are within the limit. Efforts are made to improve the environmental performance year on year.</p>
<p>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.</p>	<p>Various machineries / equipment selected (viz. dumpers, excavators, crushers, screen plants etc.) are inspected and maintained regularly</p>
<p>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 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>	<p>Digital processing of the entire lease area using remote sensing technique / DGPS drone survey carried out every year by ORSAC empaneled agency M/S Geoid Resources</p>
<p>16. <b>Air Environment Related:</b> Project Proponent shall implement the following mitigation measures:</p>	
<p>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</p>	<p>Fugitive dust emission mitigated by water sprinkling through static arrangements system as well as water tankers within mine lease area. Mineral handling units having dry fog system at all discharging points to</p>

	<p>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.</p>	<p>control dust emission generated by crushing system. Regular air monitoring is carried out and it is ensured that the ambient air quality within limits</p>
	<p>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, NOx, 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.</p>	<p>Monitoring of ambient air quality is carried out as per recommendation of SPCB. 4 ambient air quality monitoring locations are established in core as well as buffer zone.</p>
	<p>Monitoring in buffer zone should be carried out by SPCB or through NABET accredited agency. Air quality parameters (SPM, PM10, PM2.5, SO2, NOx 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.</p>	<p>Environmental monitoring, Air quality parameters (SPM, PM10, PM2.5, SO2, NOx and CO) in buffer zone is being carried out by NABL accredited laboratory Reports attached in Annexure 1</p>
	<p>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.</p>	<p>Vehicles as well as heavy machineries are regularly maintained and monitored and their emission conforms prescribed limit. Only PUCC vehicles are allowed to ply within mine lease area.</p>
	<p>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)</p>	<p>Overloading of trucks is not allowed All the trucks carrying iron ore to outside the mining lease area are properly covered with tarpaulin. Monitoring is carried out near our exit gate</p>
17.	<p><b>Noise and Vibration related:</b> Project Proponent shall implement the following mitigation measures:</p>	
	<p>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.</p>	<p>Blasting operations conducted only in day time. Controlled blasting technique is adopted to mitigate ground vibrations and arrest fly rocks.</p>

	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.	Workers are provided with ear plugs in their PPE kit to control, noise that can affect human environment
	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)	Noise zone is monitored regular basis in Core and Buffer Zone.
	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	Ground vibrations also monitored regularly during blasting record is maintained.
18.	<b>Water/wastewater related:</b> Project Proponent shall implement the following mitigation measures:	
	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.	The mine operations have intersected ground water table a detailed hydrogeological study was conducted through CGWA recognized consultant and submitted to authority.
	Natural watercourse and /or water resources 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.	Natural water course exist outside the lease and water resources is not obstructed due to mining operations. Regular monitoring of upstream and downstream is done at karo river stream, it is not passing through the mine lease
	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.	Regular monitoring of ground water level is being carried out by piezometers – digital level recorder (piezometer ), monitoring is done

<p>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)</p>	<p>A suitable ground water conservation are followed like harvesting rain water in unused pits and part of its getting recharged</p>
<p>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.</p>	<p>All rainwater diverted in to unused mine pits, harvesting measures are taken .</p>
<p>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.</p>	<p>Mitigation measures like STP garland drain for collection of run off and water quality monitoring for surface water and ground water is done by NABL laaboratory and submitted to SPCB</p>
<p>Industrial wastewater (workshop and wastewater from the mine) should be properly collected, treated in ETP to conform to the discharge standards applicable.</p>	<p>There is no Industrial waste water generated within the mine lease (no workshop within mine).</p>
<p>Oil and grease trap should be installed before discharge of workshop effluents. STP should be installed for the employees/colony, wherever applicable.</p>	<p>There is no Industrial waste water generated within the mine lease (no workshop within mine). STP installation is completed and it is operational</p>
<p>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>	<p>The monsoon run off is channelized into mine pits and settling ponds. It is ensured that the no silt flows outside the mine. The settling ponds are desilted regularly and processed.</p>
<p>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>Inward slope is provided to each dump step to prevent erosion. Plantation of native species is carried out on dump slopes during monsoon.</p>
<p>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>Trenches/garland drains constructed at the foot of dumps to arrest silt from being carried to water bodies. And it is renovatd pre monsoon</p>

	The water so collected in the reservoir within the mine should be utilized for the sprinkling on haul roads, green belt development.	Mine accumulated water is used for water sprinkling purpose.
	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.	There is zero waste water discharge as the water discharged from mine pits is passed through series of settling ponds and then discharged
21.	<b>Land/soil/overburden related:</b> Project Proponent shall implement the following mitigation measures:	
	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.	Top soil not available in mine as all the area are already mined by previous lease
	Fodder plots should be developed in the non mineralised area in lieu of use of grazing land, if any.	There is no non mineralized area in the mine lease
	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. 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.	Dumping is carried out as per approved mining plan. Regular survey of dump is carried to keep a check on any movement of material. The dumps once finalized will be covered with geotextiles and taken up for plantation.
	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	Garland drains and settling ponds are constructed to arrest silt and sediment, Drains are constructed for mine pit, dumps etc and before monsoon. The water collected is used for

	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.	
	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.	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
	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	Hazardous waste such as. Used oil generated is disposed of as per provisions of Hazardous Waste Management Rules, 2016
22.	<b>Ecology / Biodiversity (Flora-Fauna) Related:</b> Project Proponent shall implement the following mitigation measures:	
	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 maintained by State Forest Department.	. Projects are taken as per Biodiversity Management plan. However, a site specific conservation plan was submitted by previous lessee
	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.	2. Plantation is done within the lease to promote biodiversity according to mining plan yearly plantation is carried out per-monsoon, local species like Jamun and medicinal values species like Neem etc are planted during pre- monsoon period
	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.	3. Green belt is monitored regularly based on survival rate
	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	4. Green belt is done inactive dumps and also planned further when the dumps gets finalized and also plantation is done at safety

	<p>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>zones that act as barrier for noise , light and reduce emission</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>5. As dumps are not finalized dumps are in working stage once finalized it will be complied</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 &amp; Wildlife Department.</p>	<p>Full co-operation is given to Forest division</p>
<p>23.</p>	<p><b>Socio-economic related:</b> Project Proponent shall implement the following mitigation measures:</p> <p>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>Land outtees and land losers/affected people, if any, should be compensated and rehabilitated as per the national/state policy on Resettlement and Rehabilitation.</p> <p>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</p>	<p>Being complied. For holistic community development, various community development initiatives such us health care support, children wellbeing &amp; education, Water &amp; Sanitation, Skilling &amp; Livelihood initiatives, community asset creation etc has been carried out,from since operation of the mines. Need based assessment survey has been completed and action plan is under implementation for community upliftment.</p> <p>Not applicable as there is no affected people of land losers so compensation was not required as it is an auctioned mine</p> <p>Complied as per the statutory guidelines</p>

	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	
24.	<b>Road Transport Related:</b> Project Proponent shall implement the following mitigation measures:	
	All the mine lease holders should follow the suggested ore transport mode (SOTM), based on its EC capacity within next 5 years.	As there is no rail network constructed for the full capacity once the rail network is in place it will be complied
	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.\	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
	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	Transportation of ore is done by truck covered by tarpaulin and Ambient Air monitoring is done ta exit gate
25.	<b>Occupational Health Related:</b> Project Proponent shall implement the following mitigation measures:	
	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.	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.
	Occupational health surveillance program for all the employees/workers (including casual workers) should be undertaken periodically (on annual basis) to observe any changes due to exposure to dust, and corrective measures should be taken immediately, if needed.	2. OHS programme of the workers are undertaken periodically by team of professional doctors engaged.
	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,	3. Periodical health monitoring is done by doctor through conducting health camps every month. Dispensary was set up with qualified doctor and paramedical staff

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)	
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Sr. No.	Standard Conditions	Status
<b>I.</b>	<b>Statutory Compliance</b>	
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 <sup>st</sup> 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 <sup>nd</sup> , 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 <sup>nd</sup> 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 Wildlife, if applicable to the Project.	Complied by the previous lessee
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 previous 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.	Consent to operate is obtained with a validity period till 31.03.22025

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 <sup>th</sup> 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 lesse
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 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 ( <a href="http://www.parivesh.nic.in">www.parivesh.nic.in</a> ). A copy of the advertisement may be forwarded to the concerned MoEFCC Regional	Complied by previous lessese

	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
<b>II.</b>	<b><u>Air quality monitoring and preservation</u></b>	
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 2 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 equipments/machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured 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
<b>III.</b>	<b><u>Water quality monitoring and preservation</u></b>	
1)	In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEFCC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydrogeological study of the area.	The mine operations have intersected ground water table a detailed hydrogeological study was conducted through CGWA recognized consultant and submitted to authority.
2)	Regular monitoring of the flow rate of the springs and	The natural water bodies or

	<p>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.</p>	<p>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</p>
3)	<p>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.</p>	<p>Complied as per CGWA conditions. The ground water level is recorded by Digital water level recorder (piezometers) system inside the mine premises</p>
4)	<p>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 (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</p>	<p>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</p>

	showing the trend analysis on 6-monthly basis.	
5)	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.
6)	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.
7)	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.	There is no Industrial waste water generated within the mine lease (no workshop within mine).
8)	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 like reuse of mien pit water for sprinkling purpose and also STP installation so water is reused
<b>IV.</b>	<b><u>Noise and vibration monitoring and prevention</u></b>	
9)	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.
10)	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 disturbed; by orienting the floodlights/masks away from the villagers and keeping the noise levels well within the prescribed limits for day/night hours.	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 side
11)	The PP shall take measures for control of noise levels	Necessary precautions is in

	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.	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
<b>V.</b>	<b><u>Mining Plan</u></b>	
12)	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, inter burden 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 basic mining proposal like mining technology, excavation, waste production
13)	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 as per Approved Mining Plan issued by the IBM, Bhubaneswar.
14)	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.
<b>VI.</b>	<b><u>Land Reclamation</u></b>	
15)	The O.B. generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it	The O.B. generated during the mining operations is

	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.	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.
16)	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
17)	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
18)	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
19)	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
20)	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 de-silted 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
21)	Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to	Check dams are in place and every pre-monsoon the

	<p>prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time thereby allowing proper settling of sediments/silt material. The sedimentation pits/sumps shall be constructed at the corners of the garland drains.</p>	<p>check dam, settling ponds are disilted and maintained regularly</p>
22)	<p>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.</p>	<p>As there is no top soil because it is a brownfield mine as the top soil is handled by previous lease</p>
<b>VII.</b>	<b><u>Transportation</u></b>	
23)	<p>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.</p>	<p>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.</p>
24)	<p>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</p>	<p>As there is no permanent haul road in the mine it is not feasible for fixed haul sprinklers, instead water is sprinkled via mobile tankers and areas like crushing plants are provided with sprinkling system</p>

	suction hoods, dry fogging system etc. shall be installed at crushers, belt conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.	
<b>VIII.</b>	<b><u>Green Belt</u></b>	
25)	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.
26)	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
27)	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
28)	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.
29)	And implemented in consultation with the State Forest and Wildlife Department. A copy of wildlife conservation plan and its implementation status	Submitted by the previous lessee.

	(annual) shall be submitted to the Regional Office of the Ministry.	
<b>IX.</b>	<b><u>Public Hearing and Human Health Issues</u></b>	
30)	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.	Appointed 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
31)	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 well being 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
32)	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	Occupational health surveillance is done by heath camps

	<p>be handed over to the Mining department of the State in case the life of the mine is less than 30 years. It would be obligatory for the State Mines Departments to 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).</p>	
33)	<p>The Proponent shall maintain a record of performance indicators for workers which includes (a) there should not be significant decline in their Mass Body Index and it should stay between 18.5-24.9, (b) the final chest X-Ray compared with the Baseline X-Ray should not show any capacities, (c) at the end of their leaving job, there should be no Diminution in their Lung Functions Forced Expiratory Volume in one second (FEV1), Forced Vital Capacity (FVC), and the ratio) unless they are smokers which has to be adjusted, and the effect of age, (d) their hearing should not be affected. As a proof, an audiogram (first and last need to be presented), (e) they should not have developed any Persistent Back Pain, Neck Pain and the movement of their Hip, Knee and other joints should have normal range of movement, (f) they should not have suffered loss of any body part. The record of the same should be submitted to the Regional office, MoEF&amp;CC annually along with details of the relief and compensation paid to workers having above indicators.</p>	<p>Complied records are maintained</p>
34)	<p>The PP shall ensure that Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.</p>	<p>Compiled by providing suitable PPE</p>
35)	<p>PP shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche for kids, etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic wastewater should be treated with STP to avoid contamination of underground water.</p>	<p>Workers colony is provided along with canteen facilities</p>
36)	<p>The activities proposed in action plan prepared for addressing the issues raised during the Public Hearing shall be completed as per the budgetary provisions mentioned in the Action Plan and within the stipulated time frame. The Status Report on implementation of Action Plan shall be submitted to the concerned Regional Office of the Ministry along with District Administration.</p>	<p>Action plan is complied by previous lessese</p>

<b>X.</b>	<b><u>Corporate Environment Responsibility (CER)</u></b>	
37)	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 previous lessees
38)	PP shall keep the funds earmarked for environmental protection measures in a separate account and refrain from diverting the same for other purposes. The yearwise 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
<b>XI.</b>	<b><u>Miscellaneous</u></b>	
39)	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.	Will be complied.
40)	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.	Noted
41)	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.	Noted
42)	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.	Annual Budget kept for environmental protection measures and also tracking system in place to track the amount spent
43)	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

**Annexures:**

1. Copy of Environmental Monitoring Report.





# 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 No:	DMSPL/AA/NIMM/01-08	Report No:	DMSPL/AA/2310/001-008
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Dist. Sundergarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Oct. 2023 to 31 <sup>st</sup> 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 & Mn Mines
Location:	Near Vedanta Office (A1)	Sample Condition:	Good/Clear
Latitude:	21° 58' 18" N	Longitude:	85° 15' 23" E

## RESULTS

Date	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
02.10.2023	67.2	38.9	16.9	31.8	0.52
03.10.2023	74.8	36.8	17.9	27.9	0.76
09.10.2023	72.9	45.9	18.8	34.9	0.68
10.10.2023	74.4	38.4	18.5	25.8	0.75
16.10.2023	65.8	37.9	17.9	29.8	0.67
17.10.2023	61.5	38.2	17.6	29.9	0.58
23.10.2023	78.9	38.7	18.0	21.2	0.71
24.10.2023	60.9	42.1	19.8	24.1	0.67
30.10.2023	63.3	48.2	18.5	28.6	0.73
31.10.2023	68.8	45.7	18.9	25.8	0.87

Limit as per NAAQS*	Parameter	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
	--	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\*\*

  
(Checked 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/NIMM/09-16	Report No:	DMSPL/AA/2310/009-016
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Freegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Oct. 2023 to 31 <sup>st</sup> 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 & Mn Mines
Location:	Near Mines Gate (A2)	Sample Condition:	Good/Clear
Latitude:	21° 57' 35" N	Longitude:	85° 15' 12" E

## RESULTS

Date	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )
02.10.2023	67.9	38.8	18.5	28.6	0.91
03.10.2023	65.9	38.7	18.8	28.9	0.75
09.10.2023	78.4	45.08	18.2	25.6	0.82
10.10.2023	84.8	46.5	18.6	27.3	0.72
16.10.2023	65.0	34.3	21.7	28.8	0.72
17.10.2023	80.7	47.4	22.7	27.5	0.96
23.10.2023	68.5	39.1	21.5	22.9	0.78
24.10.2023	72.9	32.5	19.7	28.1	0.69
30.10.2023	65.9	38.9	18.6	27.9	0.62
31.10.2023	61.9	39.3	17.9	29.2	0.56

Limit as per NAAQS*	Parameter	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )
	-		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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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/NIMM/17-24	Report No:	DMSPL/AA/2310/017-024
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Freemuda) At Nadidih, PO - Koirā Distt. Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Oct. 2023 to 31 <sup>st</sup> 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 & Mn Mines
Location:	Village - Rengalberha (A3)	Sample Condition:	Good/Clear
Latitude:	21° 57' 19" N	Longitude:	85° 15' 43" E

## RESULTS

Date	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
02.10.2023	50.9	28.9	7.5	16.8	0.65
03.10.2023	56.0	27.3	8.4	16.9	0.53
09.10.2023	67.4	23.9	8.5	16.8	0.52
10.10.2023	56.5	26.3	9.2	17.2	0.48
16.10.2023	53.9	22.9	6.3	16.2	0.47
17.10.2023	59.7	29.7	8.7	17.2	0.54
23.10.2023	68.1	27.1	7.4	18.3	0.51
24.10.2023	58.9	32.9	7.1	19.3	0.57
30.10.2023	64.7	37.3	17.9	27.2	0.74
31.10.2023	69.3	45.6	17.6	24.3	0.79

Limit as per NAAQS*	Parameter	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
	..	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/NIMM/25-32	Report No:	DMSPL/AA/2310/025-032
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Oct. 2023 to 31 <sup>st</sup> 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 & Mn Mines
Location:	Village Kalta (A4)	Sample Condition:	Good/Clear
Latitude:	21° 58' 02" N	Longitude:	85° 13' 20" E

## RESULTS:

Date	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
04.10.2023	58.7	26.5	4.8	11.9	0.53
05.10.2023	65.9	27.4	6.7	10.9	0.54
11.10.2023	57.3	26.8	5.4	10.5	0.46
12.10.2023	54.8	27.2	5.7	10.6	0.54
18.10.2023	54.2	23.8	4.8	10.9	0.58
19.10.2023	54.7	23.6	5.1	12.8	0.56
25.10.2023	65.9	28.2	4.4	10.7	0.44
26.10.2023	57.3	22.6	5.7	10.6	0.43

Limit as per NAAQS*	Parameter	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
	--		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/NIMM/33-40	Report No:	DMSPL/AA/2310/033-040
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade), At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Oct. 2023 to 31 <sup>st</sup> 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 & Mn Mines
Location:	Village Jhirapani (A5)	Sample Condition:	Good/Clear
Latitude:	21° 59' 52" N	Longitude:	85° 13' 09" E

## RESULTS

Date	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )
04.10.2023	53.4	27.7	4.9	11.2	0.41
05.10.2023	56.7	25.5	4.7	10.7	0.33
11.10.2023	64.2	25.8	4.2	10.3	0.33
12.10.2023	55.3	26.8	5.9	11.8	0.35
18.10.2023	53.6	20.3	5.4	10.7	0.39
19.10.2023	65.6	27.8	4.7	10.4	0.35
25.10.2023	57.9	26.3	4.4	10.9	0.28
26.10.2023	56.4	30.5	5.9	10.4	0.39

Limits as per NAAQS*	Parameter	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )
	--	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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ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

## Test Report

Sample No:	DMSPL/AA/NIMM/41-48	Report No:	DMSPL/AA/2310/041-048
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Freegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Oct. 2023 to 31 <sup>st</sup> 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 & Mn Mines
Location:	Village Kashira (A6)	Sample Condition:	Good/Clear
Latitude:	21° 55'09" N	Longitude:	85° 15'18" E

## RESULTS

Date	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO (mg/m <sup>3</sup> )
04.10.2023	56.0	27.8	4.3	10.2	0.32
05.10.2023	56.7	28.1	5.0	10.5	0.36
11.10.2023	63.3	27.3	6.1	11.8	0.47
12.10.2023	55.3	28.7	4.9	11.6	0.38
18.10.2023	54.9	25.9	4.5	10.3	0.36
19.10.2023	61.1	31.5	5.7	11.2	0.33
25.10.2023	50.5	27.3	4.9	10.7	0.35
26.10.2023	51.9	27.2	5.4	11.5	0.44

Limit as per: NAAQS*	Parameter	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO (mg/m <sup>3</sup> )
	--		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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ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

## Test Report

Sample No: DMSPL/AA/NIMM/49-56  
Name & Address of the Project: M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited. (Freegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.  
Report No: DMSPL/AA/2310/049-056  
Reporting Date: 06/11/2023  
Ref. No: NIL  
Monitoring Period: 1<sup>st</sup> Oct. 2023 to 31<sup>st</sup> Oct. 2023  
Equipment Used: RDS & FPS with all accessories  
Protocol Used: IS-5182 & CPCB Guidelines  
Sample Collected By: DMSPL Representative  
Sample Description: Ambient Air Quality Monitoring  
Location: Upwind Direction (A7)  
Latitude: 21° 58'43" N  
Parameter Required: As per EC Letter  
Customer Name: Nadidih Iron & Mn Mines  
Sample Condition: Good/Clear  
Longitude: 85° 15'44" E

## RESULTS

Date	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
06.10.2023	66.9	46.9	18.2	27.2	0.23
07.10.2023	64.9	39.4	18.6	25.4	0.42
13.10.2023	77.9	47.4	17.1	35.4	0.53
14.10.2023	64.9	47.8	17.6	22.7	0.65
20.10.2023	81.1	44.3	19.8	35.5	0.72
21.10.2023	75.9	45.8	19.2	24.4	0.84
27.10.2023	64.9	48.8	18.5	28.2	0.72
28.10.2023	75.2	38.7	19.5	29.3	0.49

Limit as per NAAQS*	Parameter	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
	--	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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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/AA/NIMM/57-64	Report No:	DMSPL/AA/2310/057-064
Name & Address of the Project:	M/s Naidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Naidih, PO - Kaira Distt. Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Oct. 2023 to 31 <sup>st</sup> 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:	Naidih Iron & Mn Mines
Location:	Downwind Direction (AS)	Sample Condition:	Good/Clear
Latitude:	21° 57'10" N	Longitude:	85° 13'20" E

## RESULTS

Date	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )
06.10.2023	65.3	44.7	19.7	22.5	0.61
07.10.2023	75.3	43.8	18.4	26.8	0.76
13.10.2023	66.5	43.0	15.2	23.2	0.74
14.10.2023	68.4	44.2	16.6	25.1	0.76
20.10.2023	61.8	40.9	19.8	27.0	0.74
21.10.2023	77.9	53.4	21.3	29.6	0.78
27.10.2023	65.6	48.3	23.9	25.8	0.86
28.10.2023	63.4	45.7	22.8	32.9	0.79

Limit as per NAAQS*	Parameter	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )
	--	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\*\*



- Note:** -
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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/AA/NIMM/01	Report No:	DMSPL/AAM/2310/001
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESI, Steel Limited, (Feegrade) 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 & Mn Mines
Location:	Near Vedanta Office (A1)	Sample Condition:	Good/Clear
Latitude:	21° 58'18" N	Longitude:	85° 15'23" 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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
03.10.2023	21.20	32.40	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone ( $\mu\text{g}/\text{m}^3$ )	Ammonia ( $\text{ng}/\text{m}^3$ )	Lead ( $\mu\text{g}/\text{m}^3$ )	Nickel ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
	--	--	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)

\*National Ambient Air Quality Standards.

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

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## Test Report

Sample No:	DMSPL/AA/NIMM/02	Report No:	DMSPL/AA/2310/002
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESI, Steel Limited, (Fee grade) 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 & Mn Mines
Location:	Near Mines Gate (A2)	Sample Condition:	Good/Clear
Latitude:	21° 57'35" N	Longitude:	85° 15'12" 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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
07.10.2023	18.2	29.6	<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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
		--	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)

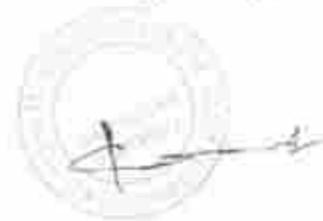
National Ambient Air Quality Standards.

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## Test-Report

Sample No:	DMSPL/AA/NIMM/3	Report No:	DMSPL/AA/2310/003
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Fe grade), At Nadidih, PO - Koira, Distt. Sundergarh, 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 & Mn Mines
Location:	Village - Rengalhera (A3)	Sample Condition:	Good/Clear
Latitude:	21° 57'19" N	Longitude:	85° 15'43" 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 ( $\text{ng}/\text{m}^3$ )
10.10.2023	19.0	29.5	<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 ( $\mu\text{g}/\text{m}^3$ )	Arsenic ( $\mu\text{g}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
	--		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/NIMM/4	Report No:	DMSPL/AAM/2318/004
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) 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 & Mn Mines
Location:	Village Kalta (A4)	Sample Condition:	Good/Clear
Latitude:	21° 58'02" N	Longitude:	85° 13'20" 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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
13.10.2023	17.8	32.5	<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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
	--		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/NIMM/5	Report No:	DMSPL/AAM/2310/005
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESI, Steel Limited, (Feegrade), 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 & Mn Mines
Location:	Village Jhirapani (A5)	Sample Condition:	Good/Clear
Latitude:	21° 59'52" N	Longitude:	85° 13'09" 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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
17.10.2023	16.3	33.5	<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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
	--		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/NIMM/6	Report No:	DMSPL/AAM/2310/006
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) 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 & Mn Mines
Location:	Village Kashira (A6)	Sample Condition:	Good/Clear
Latitude:	21° 55'09" N	Longitude:	85° 15'18" 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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
21.10.2023	19.6	30.6	<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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\mu\text{g}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
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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\*\*End of Test Report\*\*



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## Test Report

Sample No:	DMSPL/AA/NIMM/7	Report No:	DMSPL/AAM/2310/007
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade), At Nadidih, PO - Kotra 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 & Mn Mines
Location:	Upwind Direction (A7)	Sample Condition:	Good/Clear
Latitude:	21° 58'43" 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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
25.10.2023	17.9	30.0	<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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
	--		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/NIMM/8	Report No:	DMSPL/AAM/2310/008
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited. (Feegrade) 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 & Mn Mines
Location:	Downwind Direction (A8)	Sample Condition:	Good/Clear
Latitude:	21° 57'10" N	Longitude:	85° 13'20" E

## RESULTS

Date of Sample	Ozone (ug/m <sup>3</sup> )	Ammonia (ug/m <sup>3</sup> )	Lead (ug/m <sup>3</sup> )	Nickel (ng/m <sup>3</sup> )	Arsenic (ng/m <sup>3</sup> )	Benzene (ug/m <sup>3</sup> )	Benzo(a)pyrene (ng/m <sup>3</sup> )
30.10.2023	17.0	31.5	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone (ug/m <sup>3</sup> )	Ammonia (ug/m <sup>3</sup> )	Lead (ug/m <sup>3</sup> )	Nickel (ug/m <sup>3</sup> )	Arsenic (ug/m <sup>3</sup> )	Benzene (ug/m <sup>3</sup> )	Benzo(a)pyrene (ng/m <sup>3</sup> )
	--		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/NIMM/01-08	Report No:	DMSPL/AN/2310/001-008
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade), At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	Nil
		Monitoring Period:	1 <sup>st</sup> Oct, 2023 to 31 <sup>st</sup> Oct, 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 & Mn 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 Vedanta Office	07.10.2023	21° 58'18" N	85° 15'23" E	63.4	47.2
2	Near Mines Gate	10.10.2023	21° 57'35" N	85° 15'12" E	62.3	50.5
<b>Standard Limit Industrial Area as per CPCB</b>					<b>75.0</b>	<b>70.0</b>
3	Village Rengalberha	13.10.2023	21° 57'19" N	85° 15'43" E	50.2	41.3
4	Village Kalta	17.10.2023	21° 58'02" N	85° 13'20" E	51.2	40.2
5	Village Jhirapani	20.10.2023	21° 59'52" N	85° 13'09" E	50.4	40.5
6	Village Kashira	24.10.2023	21° 55'09" N	85° 15'18" E	49.1	42.4
7	Upwind Direction	28.10.2023	21° 58'43" N	85° 15'44" E	52.3	41.4
8	Downwind Direction	31.10.2023	21° 57'10" N	85° 13'20" E	50.6	43.2
<b>Standard Limit Residential Area as per CPCB</b>					<b>55.0</b>	<b>45.0</b>

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/NIMM/ST/01	Report No.:	DMSPL/ST/2310/001
Name & address of the Project:	M/s Naididih Iron & Mn Mines, Under ISI, Steel Limited, (Feegrade) At Naididih, PO - Koira Distt. Sundargarh, Odisha India.	Format No.:	7.8 F-03
		Party Reference No.:	NIL
		Reporting Date:	20/10/2023
		Period of Analysis:	15/10/2023 to 20/10/2023
		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	: 12/10/2023
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 - Ta (°C)	: 30.0
Temperature of stack Gases - Ts (°C)	: 210.0
Velocity of stack Gases (m/sec.)	: 9.12
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	42.30	mg/Nm <sup>3</sup>	75
2.	Oxide of Nitrogen (as NOx)	IS 11255 (P-7)	210.0	ppm	710
3.	NMHC	DMSPL/ENV/STP/ST/FGA/01, Issue No.: 01/01/11/21	50.20	mg/Nm <sup>3</sup>	100
4.	Sulphur Dioxide (as SO <sub>2</sub> )	IS 11255 (P-2), Titrimetric Method	25.10	mg/Nm <sup>3</sup>	--
5.	Carbon Monoxide (as CO)	DMSPL/ENV/STP/ST/FGA/01, Issue No.: 01/01/11/21	48.20	mg/Nm <sup>3</sup>	150

Note: \* STP Laboratory Standard Testing Procedure

\*\*\*End of 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/NIMM/01-08      Report No: DMSPL/AAFS/2310/001-08  
Name & Address of the Project: M/s. Naddih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Naddih, PO - Koira Distt. Sundargarh, Odisha India.      Reporting Date: 06/11/2023  
Ref. No: Nil  
Monitoring Period: 1<sup>st</sup> Oct. 2023 to 31<sup>st</sup> Oct. 2023  
Equipment Used: RDS with all accessories  
Protocol Used: IS-5182  
Parameter Required: As per TOR Letter

Sample Collected By: DMSPL Representative  
Sample Description: Ambient Air Quality Monitoring  
Sample Type: Free Silica Composition

## RESULTS

### Chemical Composition of PM<sub>10</sub> with Free Silica

Location	Date	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	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 Vedanta Office	03.10.2023	69.5	2.5	1.10	0.32	<0.5	0.08
Near Mines Gate	10.10.2023	71.4	2.4	1.13	0.30	<0.5	0.09
Village - Rengulberha	24.10.2023	58.3	2.3	1.18	0.34	<0.5	0.08
Village Kalta	12.10.2023	60.8	2.8	1.20	0.32	<0.5	0.08
Village Jhirapani	19.10.2023	62.9	2.5	1.20	0.30	<0.5	0.06
Village Kashtra	26.10.2023	56.7	2.9	1.16	0.34	<0.5	0.07
Upwind Direction	14.10.2023	65.7	2.2	1.15	0.40	<0.5	0.08
Downwind Direction	28.10.2023	68.6	2.6	1.20	0.28	<0.5	0.08

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## Test-Report

Sample No:	DMSPL/FD/NIMM/01-08	Report No:	DMSPL/FD/2310/001-008
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESI, Steel Limited, (Fergrade) At Nadidih, PO - Koira Distt, Sundargarh, Odisha India.	Reporting Date:	06/11/2023
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Oct. 2023 to 31 <sup>st</sup> 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 & 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	08.10.2023	21° 57'40" N	85° 15'10" E	878.40
2	Haul Road	11.10.2023	21° 57'48" N	85° 15'16" E	920.40
3	Crushing Plant	16.10.2023	21° 57'35" N	85° 15'13" E	977.20
4	Screening Plant	20.10.2023	21° 57'12" N	85° 15'21" E	890.50
5	Ore Loading Area	26.10.2023	21° 57'26" N	85° 15'23" E	920.50
6	Waste Dump Area	30.10.2023	21° 57'33" N	85° 15'07" E	760.50

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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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/NIMM01 Report No.: DMSPL/GW/2310/001  
 Name & Address of the Project: M/s Nadidih Iron & Mn Mines, Under ESI Steel Limited, (Forgrade) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India. Format No.: 7.8 F-01  
 Party Reference No.: Nil Reporting Date: 25/10/2023  
 Ground Water Level: 3.8 Mtr. Ground Water Level:

Sample Description: Ground Water Sample Period of Analysis: 14/10/2023-25/10/2023  
 Sample Location: Near Mine Site 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 @ 25 °C	APHA, 4505-B, B. Electrode Method	8.19	—	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 B, Threshold Odour Method	Agreeable	—	Agreeable	Agreeable
5	Taste	APHA, 2160 B, Threshold Test Method	Disagreeable	—	Agreeable	Agreeable
6	Total Hardness as CaCO <sub>3</sub>	APHA, 2340 C, EDTA Titrimetric Method	152.87	mg/l	200	600
7	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	44.87	mg/l	75	200
8	Alkalinity as CaCO <sub>3</sub>	APHA, 2320 B, Titrimetric Method	125.09	mg/l	200	600
9	Chloride as Cl <sup>-</sup>	APHA, 4500-Cl B, Argentometric Method	87.44	mg/l	250	1000
10	Cyanide as CN <sup>-</sup>	APHA, 4500-CN (F)	*BLQ (**LOQ 0.02 mg/l)	mg/l	0.05	No Relaxation
11	Magnesium as Mg	APHA, 3500 Mg B, Calculation Method	8.13	mg/l	30	100
12	Total Dissolved Solids	APHA, 2540 C, Gravimetric Method	345.0	mg/l	500	2000
13	Sulphate as SO <sub>4</sub>	APHA, 4500 E, Turbidimetric Method	105.08	mg/l	200	400
14	Fluoride as F <sup>-</sup>	APHA, 4500-F D, SPADNS Method	0.47	mg/l	1.0	1.5
15	Nitrate as NO <sub>3</sub>	IS 3025 (P-34), Chromotropic Method	21.97	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	0.05	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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ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

## Test-Report

Sample No.: DMSPL/GW/NIMM/01			Report No.: DMSPL/GW/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
21	Phenolic Compounds	APHA, 5510 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)	*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	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	0.39	mg/l	5	15
24	Copper as Cu	IS 3025 (P-65):2014(RA:2019)	0.02	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)	*HLQ(**LOQ) 0.002 mg/l	mg/l	0.005	No Relaxation
27	Lead as Pb	IS 3025 (P-65):2014(RA:2019)	*HLQ(**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)	*HLQ(**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, IS-2019	<2	MPN/100ml	Shall not be detectable in any 100 ml sample	
32	F <sub>2</sub> Coli	IS 1622,1981, IS-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

**Sample Number:** DMSPL/GW/NIMM/02 **Test-Report** **Report No.:** DMSPL/GW/2310/002  
**Name & Address of the Project:** M/s Nadidih Iron & Mn Mines, **Format No.:** 7X F-01  
 Under ISL Steel Limited, (Fee grade)  
 At Nadidih, PO - Koira **Party Reference No.:** Nil  
 Dist. Sundargarh, Odisha India. **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 Rengalberha **Receipt Date:** 14/10/2023  
**Sample Collected by:** DMSPL Representative **Sampling Date:** 10/10/2023  
**Sampling and Analysis Protocol:** IS 3025 & APHA 23<sup>rd</sup> Edition 2017 **Sampling Quantity:** 5.0 Lit + 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 <sup>+</sup> B Electrode Method	8.22	-	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 2120 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 <sub>3</sub>	APHA 2340 C, EDTA Titrimetric Method	266.08	mg/l	200	600
7	Calcium as Ca	APHA 3500 Ca-B, EDTA Titrimetric Method	51.4	mg/l	75	200
8	Alkalinity as CaCO <sub>3</sub>	APHA 2320 B, Titrimetric Method	131.00	mg/l	200	600
9	Chloride as Cl <sup>-</sup>	APHA 4500-Cl <sup>-</sup> B, Argentometric Method	81.73	mg/l	250	1000
10	Cyanide as CN <sup>-</sup>	APHA 4500 CN <sup>-</sup> D	*BLQ (**LOQ 0.02 mg/l)	mg/l	0.05	No Relaxation
11	Magnesium as Mg	APHA 3500 Mg-B, Calculation Method	7.63	mg/l	30	100
12	Total Dissolved Solids	APHA 2540 C, Gravimetric Method	354.87	mg/l	500	2000
12	Sulphate as SO <sub>4</sub>	APHA 4500 E, Turbidimetric Method	111.44	mg/l	200	400
14	Fluoride as F <sup>-</sup>	APHA 4500-F <sup>-</sup> D, SPADNS Method	0.64	mg/l	1.0	1.5
15	Nitrate as NO <sub>3</sub>	IS 3025 (P-34) Chromatographic Method	26.15	mg/l	45	No Relaxation
16	Iron as Fe	IS 3025 (P-65) 2014 (RA:2019)	0.20	mg/l	1.0	No relaxation
17	Aluminium as Al	IS 3025 (P-65) 2014 (RA:2019)	*BLQ (**LOQ 0.025 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/NMM/02			Report No.: DMSPL/GW/2310/002			
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, SS30 C Chloroform Extraction Method	*BLQ (**LOQ 0.0005 mg/l)	mg/l	0.001	0.002
21	Mineral Oil	Class 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 (IS-60)	*BLQ (**LOQ 0.05 mg/l)	mg/l	0.2	1.0
23	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	1.19	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	Shall not be detectable in any 100 ml sample	
32	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, \*\*LOQ=Limit of Quantification



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

## Test-Report

Sample Number: DMSPL/GW/NIMM/03      Report No.: DMSPL/GW/2310/003  
 Name & Address of the Project: M/s Nadidih Iron & Mn Mines,  
 Under ESL Steel Limited, (Fecgrade),  
 At Nadidih, PO - Koira      Format No.: 7.8 F-01  
 Dist. Sundargarh, Odisha India.      Party Reference No.: NIL  
 Reporting Date: 25/10/2023  
 Ground Water Level: 4.0 Mtr

Sample Description: Ground Water Sample      Period of Analysis: 14/10/2023-25/10/2023  
 Sample Location: Village Kalta      Receipt Date: 14/10/2023  
 Sample Collected by: DMSPL Representative      Sampling Date: 10/10/2023  
 Sampling and Analysis Protocol: IS 3025 & APHA 23<sup>rd</sup> 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 1 (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA 4500-H <sup>+</sup> B Electronic Method	7.67	--	6.5 to 8.5	No Relaxation
2.	Colour	APHA 2120 B, Visual Comparison Method	*BLQ (**LOQ 1.0 Hazen)	Hazen	5	15
2.	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
8.	Total Hardness as CaCO <sub>3</sub>	APHA 2340 C, EDTA Titrimetric Method	141.66	mg/l	200	600
7.	Calcium as Ca	APHA 3500 Ca B, EDTA Titrimetric Method	46.76	mg/l	75	250
5.	Alkalinity as CaCO <sub>3</sub>	APHA 2320 B, Titrimetric Method	114.76	mg/l	200	600
9.	Chloride as Cl	APHA 4500-Cl <sup>-</sup> B, Argentometric Method	84.38	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 2500 Mg B, Calculation Method	3.56	mg/l	30	100
12.	Total Dissolved Solids	APHA 2540 C, Gravimetric Method	151.8	mg/l	500	2000
13.	Sulphate as SO <sub>4</sub>	APHA 4500 F, Turbidimetric Method	97.46	mg/l	200	400
14.	Fluoride as F	APHA 4500 F, Li SrADNS Method	0.52	mg/l	1.0	1.5
15.	Nitrite as NO <sub>2</sub>	IS 3025 (P-14), Chromotropic Method	25.48	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-85):2014(RA:2019)	0.46	mg/l	1.0	No relaxation
17.	Aluminium as Al	IS 3025 (P-85):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	0.01	2.4
19.	Chromium Cr	IS 3025 (P-85):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/NIMM/05			Report No: DMSPL/GW/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.	Platinum Compounds	APHA, 5530 C Chloroform Extraction, Method	*BLQ (**LQ) 0.0005 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.	Aromatic Detergents or MHLAS	Annex E of IS 13428, IS 3025 (P-68)	*BLQ (**LQ) 0.05 mg/l	mg/l	0.2	1.0
23.	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	0.72	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 (**LQ) 0.01 mg/l	mg/l	0.1	0.7
26.	Cadmium as Cd	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LQ) 0.002 mg/l	mg/l	0.003	No Relaxation
27.	Lead as Pb	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LQ) 0.002 mg/l	mg/l	0.01	No Relaxation
28.	Nickel as Ni	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LQ) 0.001 mg/l	mg/l	0.01	No Relaxation
29.	Arsenic as As	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LQ) 0.005 mg/l	mg/l	0.01	No Relaxation
30.	Mercury as Hg	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LQ) 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, \*\*LQ - 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/NIMM04	Report No.:	DMSPL/GW/2310004
Name & Address of the Project:	M/s Naddih Iron & Mn Mines, Under ESL Steel Limited, (Freegrade) At Naddih, PO - Koira Distt. Sunargarh, Odisha India.	Format No.:	7.8 F-01
		Party Reference No.:	NIL
		Reporting Date:	25/10/2023
		Ground Water Level:	3.6 Mr.
Sample Description:	Ground Water Sample	Period of Analysis:	14/10/2023-25/10/2023
Sample Location:	Village Jhirapani	Receipt Date:	14/10/2023
Sample Collected by:	DMSPL Representative	Sampling Date:	10/10/2023
Sampling and Analysis Protocol:	IS 3025 & APHA 23 <sup>rd</sup> Edition 2017	Sampling Quantity:	5.0 Lit + 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-1-D Electrode Method	7.29	-	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 <sub>3</sub>	APHA, 2340 C, EDTA Titrimetric Method	150.87	mg/l	200	600
7.	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	37.43	mg/l	75	200
8.	Alkalinity as CaCO <sub>3</sub>	APHA, 2320 B, Titrimetric Method	171.98	mg/l	200	600
9.	Chloride as Cl	APHA, 4500-Cl <sup>-</sup> B, Argentometric Method	94.87	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	20	100
12.	Total Dissolved Solids	APHA, 2540 C, Gravimetric Method	361.9	mg/l	500	2000
13.	Sulphate as SO <sub>4</sub>	APHA, 4500 E, Turbidimetric Method	131.76	mg/l	200	400
14.	Fluoride as F	APHA, 4500-F, DE SPADNS Method	1.09	mg/l	1.0	1.5
15.	Nitrite as NO <sub>2</sub>	IS 3025 (P-34), Chromotropic Method	24.31	mg/l	55	No Relaxation
16.	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	0.27	mg/l	1.0	No relaxation
17.	Ammonium as NH <sub>4</sub>	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/NIMM/04			Report No.: DMSPL/GW/2310/004			
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.	Mineral Oil	Clause 6 of IS:3025(Part 39)	*BLQ/**LOQ 0.1 mg/l	mg/l	1.0	No Relaxation
22.	Arsenic Disregarding as MBAS	Annex X of IS 13438, IS 3025 (P-65)	*BLQ/**LOQ 0.05 mg/l	mg/l	0.2	1.0
23.	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	1.22	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	0.2
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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ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

## Test-Report

Sample Number:	DMSPL/NIMM/S01	Report No.:	DMSPL/S2310/001
Name & Address of Party:	M/s. Nadidib Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidib, PO - Koira Distt. 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:	25/10/2023
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 (P-26:1987)	8.10	--
2.	Conductivity	IS:14767-2000 Reaffirmed 2006	0.37	mS/cm
3.	Soil Texture	USDA Method, 1968	Silly	--
4.	Color	USDA Method, 1968	Yellowish	--
5.	Water holding capacity	USDA Method, 1968	21.20	%
6.	Bulk density	USDA Method, 1968	1.30	gm/cc
7.	Chloride as Cl	USDA Method, 1968	23.20	mg/100gm
8.	Calcium as Ca	USDA Method, 1968	32.50	mg/100gm
9.	Sodium as Na	USDA Method, 1968	28.50	mg/100gm
10.	Potassium as K	USDA Method, 1968	56.20	kg/bcc.
11.	Organic Matter	IS:2720 (P-22, 1972)	0.62	%
12.	Magnesium as Mg	USDA Method, 1968	10.20	mg/100gm
13.	Available Nitrogen as N	IS:14684, 1999	180.20	kg/bcc.
14.	Available Phosphorus	USDA, APHA-4500P	36.50	kg/bcc.
15.	Zinc as Zn	APHA-3030D, APHA-3111B	4.30	mg/100gm
16.	Manganese as Mn	APHA-3030D, APHA-3111B	2.92	mg/100gm
17.	Chromium as Cr	APHA-3030D, APHA-3111B	1.10	mg/100gm
18.	Lead as Pb	APHA-3030D, APHA-3111B	0.80	mg/100gm
19.	Cadmium as Cd	APHA-3030D, APHA-3111B	1.85	mg/100gm
20.	Copper as Cu	APHA-3030D, APHA-3111B	3.20	mg/100gm



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

Sample Number:	DMSPL/NIMM/SW/01	<b>Test-Report</b>	Report No.:	DMSPL/SW/2310/001
Name of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koirra 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 Upstream )		Receipt Date:	18/10/2023
Sample Collected by:	DMSPL Lab Representative		Sampling Date:	12/10/2023
Preservation:	Ice Box		Sampling Quantity:	2.0 Ltr + 250ml.
Sampling and Analysis Protocol:	APHA & IS, 23 <sup>rd</sup> Edition 2017		Sampling Type:	Composite

S. No.	Parameter	Test Method	Result	Unit
1.	pH (at 25 °C)	APHA, 4500-H <sup>+</sup> B Electronic Method	7.20	--
2.	Colour	APHA, 2120 B, Visual Comparison Method	10.0	Platen
3.	Turbidity	APHA, 2150 B, Nephelometric Method	<1	NTU
4.	Odour	APHA, 2150 B, Threshold Test Method	Agreeable	--
5.	Total Hardness as CaCO <sub>3</sub>	APHA, 2340 C, EDTA Titrimetric Method	82.50	mg/l
6.	Calcium as Ca	APHA, 3500 Ca-B, EDTA Titrimetric Method	26.50	mg/l
7.	Alkalinity as CaCO <sub>3</sub>	APHA, 2320 B, Titrimetric Method	30.50	mg/l
8.	Chloride as Cl	APHA, 4500-Cl <sup>-</sup> B, Argentometric Method	40.50	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	*NDL (**DL 0.02 mg/l)	mg/l
11.	Magnesium as Mg	APHA, 3500 Mg-B, Calculation Method	3.98	mg/l
12.	Total Dissolved Solids	APHA, 2540 C, Gravimetric Method	255.5	mg/l
13.	Total Suspended Solids	APHA, 2540 D, Gravimetric Method	28.00	mg/l
14.	Dissolved Oxygen	APHA, 4500 O <sub>2</sub> -B, Iodometric Method	6.0	mg/l
15.	Sulphate as SO <sub>4</sub>	APHA, 4500 E, Turbidimetric Method	22.20	mg/l
16.	Fluoride as F	APHA, 4500-F-E, SPADNS Method	0.20	mg/l
17.	BOD (3 Days at 27°C)	APHA, 5210 C / IS-3025 P-44	12.00	mg/l
18.	COD	APHA, 5220 B, Open Reflux Method	40.00	mg/l

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### Test-Report

Sample No: DMSPL/NIMM/SW/01			Report No: DMSPL/SW/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 <sub>3</sub>	IS 3025 (P-34) Chromatopic Method	420	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	5.20	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, 3530 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, R-6-2019	100	MPN/100ml
35.	Fecal Coliform	IS 1622:1981, RA-2019	180	MPN/100ml

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



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

## Test Report

Sample Number: DMSPL/NMMSW/02  
Name of the Project: M/s. Nadidih Iron & Mn Mines,  
Under ESL Steel Limited, (Feegrade)  
At Nadidih, PO - Koira,  
Distt. Sundargarh, Odisha India.

Report No.: DMSPL/SW/2310/002  
Format No.: 7.8 F-01  
Party Reference No.: NIL  
Reporting Date: 25/10/2023

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, 23<sup>rd</sup> Edition 2017

Period of Analysis: 18/10/2023- 25/10/2023  
Receipt Date: 18/10/2023  
Sampling Date: 12/10/2023  
Sampling Quantity: 2.0 Ltr + 250ml.  
Sampling Type: Composite

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	APHA, 4500-H <sup>+</sup> B. Electrode Method	7.20	--
2.	Colour	APHA, 2120 B. Visual Comparison Method	10	Hzn/cm
3.	Turbidity	APHA, 2130 B. Nephelometric Method	<1	NTU
4.	Flour	APHA, 2150 B. Threshold Test Method	Agreeable	--
5.	Total Hardness as CaCO <sub>3</sub>	APHA, 2340 C. EDTA Titrimetric Method	80.20	mg/l
6.	Calcium as Ca	APHA, 3500 Ca B. EDTA Titrimetric Method	22.40	mg/l
7.	Magnesium as CaCO <sub>3</sub>	APHA, 2120 B. Titrimetric Method	50.20	mg/l
8.	Chloride as Cl	APHA, 4500-Cl B. Argentometric Method	30.20	mg/l
9.	Residual free Chlorine	IS 3025 P-26. Ortho-tolidine Method	*BDL**DL 0.15(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	5.90	mg/l
12.	Total Dissolved Solids	APHA, 2540 C. Gravimetric Method	235.0	mg/l
13.	Total Suspended Solids	APHA, 2540 D. Gravimetric Method	24.00	mg/l
14.	Dissolved Oxygen	APHA, 4500-D B. Iodometric Method	6.0	mg/l
15.	Sulphate as SO <sub>4</sub> <sup>2-</sup>	APHA, 4500-E. Turbidimetric Method	32.20	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	11.20	mg/l
18.	COD	APHA, 5220 B. Open Reflux Method	34.20	mg/l

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## Test Report

Sample No: DMSPL/NIMM/SW/02			Report No: DMSPL/SW/2310/002	
S. No.	Parameter	Test Method	Result	Unit
19.	Conductivity (in 25 °C)	APHA, 2510 B, Conductivity Meter Method	0.41	mS/cm
20.	Nitrate as NO <sub>3</sub>	IS 3025 (P-34) Chromotropic Method	4.20	mg/l
21.	Sodium as Na	APHA, 3500 Na B, Flame Photometric Method	24.0	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.	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)	0.40	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	320	MPN/100ml
35.	Fecal Coliform	IS 1622:1981, RA-2019	180	MPN/100ml

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

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

## Test-Report

Sample Number:	DMSPL/SW/NMM01	Report No.:	DMSPL/SW/2310/001
Name & Address of Party:	M/s. Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Format 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-3025 (P-11)	8.20	-
2	Total Dissolved Solids	IS-3025 (P-10)	165	Mg/L
3	Total Suspended Solids	IS-3025 (P-17)	160	Mg/L
4	Chemical Oxygen Demand	IS-3025 (P-59)	545	Mg/L
5	Biochemical Oxygen Demand	IS-3025 (P-44)	180	Mg/L
6	Oil & Grease	IS-3025 (P-39)	18	Mg/L
7	Total Coliform	APHA 23rd Edition, 9221E (BA 2019)	190	NPN/100 ml

\*ND (N) Below / zero VC Quantification. \*\*LOQ- Limit of Quantification.

\*\*\*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/SW/NIMM/02	Report No.:	DMSPL/AW/2310/002
Name & Address of Party:	M/s Nadidih Iron & Mn Mines, Under ESI, Steel Limited, (Feegrade) At Nadidih, PO - Koura 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 Sowers	Land for Irrigation
1.	pH (at 25°C)	IS-3025 (P-11)	7.40	--	5.5-9.0	5.5-9.0	5.5-9.0
2.	Total Dissolved Solids	IS-3027 (P-110)	620	Mg/L	--	--	2100
3.	Total Suspended Solids	IS-3028 (P-17)	40.20	Mg/L	100	600	200
4.	Chemical Oxygen Demand	IS-3025 (P-58)	43.20	Mg/L	250.0	--	--
5.	Biochemical Oxygen Demand	IS-3025 (P-44)	14.40	Mg/L	30.0	350.0	100.0
6.	Oil & Grease	IS-3025 (P-39)	5.20	Mg/L	10.0	20.0	10.0
7.	Total Coliform	APHA 2012 Edition 9223 (RA-2019)	150	MPN/100 ml	--	--	--

Note: - This Report Complies as per IS-3025  
\*HLQ- Lower Limit of Quantification, \*\*LOQ- Limit of Quantification

\*\*\*End of Report\*\*\*

  
(Checked By)

  
(Approved By)

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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/AA/NIMM/01	Report No:	DMSPL/AAM/2311/001
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESI, Steel Limited, (Feegrade) 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 & Mn Mines
Location:	Near Vedanta Office (A1)	Sample Condition:	Good/Clear
Latitude:	21° 58'18" N	Longitude:	85° 15'23" E

## RESULTS

Date of Sample	Ozone (µg/m <sup>3</sup> )	Ammonia (µg/m <sup>3</sup> )	Lead (µg/m <sup>3</sup> )	Nickel (ng/m <sup>3</sup> )	Arsenic (ng/m <sup>3</sup> )	Benzene (ng/m <sup>3</sup> )	Benzo(a)pyrene (ng/m <sup>3</sup> )
05.11.2023	26.20	36.40	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone (µg/m <sup>3</sup> )	Ammonia (µg/m <sup>3</sup> )	Lead (µg/m <sup>3</sup> )	Nickel (ng/m <sup>3</sup> )	Arsenic (ng/m <sup>3</sup> )	Benzene (ng/m <sup>3</sup> )	Benzo(a)pyrene (ng/m <sup>3</sup> )
		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/02	Report No:	DMSPL/AAM/2311/002
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) 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 & Mn Mines
Location:	Near Mines Gate (A2)	Sample Condition:	Good/Clear
Latitude:	21° 57'35" N	Longitude:	85° 15'12" E

## RESULTS

Date of Sample	Ozone (µg/m <sup>3</sup> )	Ammonia (µg/m <sup>3</sup> )	Lead (µg/m <sup>3</sup> )	Nickel (ng/m <sup>3</sup> )	Arsenic (ng/m <sup>3</sup> )	Benzene (µg/m <sup>3</sup> )	Benzo(a)pyrene (ng/m <sup>3</sup> )
11.11.2023	26.2	35.6	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone (µg/m <sup>3</sup> )	Ammonia (µg/m <sup>3</sup> )	Lead (µg/m <sup>3</sup> )	Nickel (ng/m <sup>3</sup> )	Arsenic (ng/m <sup>3</sup> )	Benzene (µg/m <sup>3</sup> )	Benzo(a)pyrene (ng/m <sup>3</sup> )
	-	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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ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

## Test-Report

Sample No:	DMSPL/AA/NIMM/3	Report No:	DMSPL/AAM/2311/003
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) 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 & Mn Mines
Location:	Village - Reugatberha (A3)	Sample Condition:	Good/Clear
Latitude:	21° 57' 19" N	Longitude:	85° 15' 43" 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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
14.11.2023	24.0	34.5	<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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
	-	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/4	Report No:	DMSPL/AAM/2311/004
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Fee grade) 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 & Mn Mines
Location:	Village Kalta (A4)	Sample Condition:	Good/Clear
Latitude:	21° 58' 02" N	Longitude:	85° 13' 20" E

## RESULTS

Date of Sample	Ozone (µg/m <sup>3</sup> )	Ammonia (µg/m <sup>3</sup> )	Lead (µg/m <sup>3</sup> )	Nickel (ng/m <sup>3</sup> )	Arsenic (ng/m <sup>3</sup> )	Benzene (µg/m <sup>3</sup> )	Benzo(a)pyrene (ng/m <sup>3</sup> )
20.11.2023	26.0	39.5	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone (µg/m <sup>3</sup> )	Ammonia (µg/m <sup>3</sup> )	Lead (µg/m <sup>3</sup> )	Nickel (ng/m <sup>3</sup> )	Arsenic (ng/m <sup>3</sup> )	Benzene (µg/m <sup>3</sup> )	Benzo(a)pyrene (ng/m <sup>3</sup> )
			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/AA/NIMM/5	Report No:	DMSPL/AAM/2311/005
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) 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 & Mn Mines
Location:	Village Jhtrapani (A5)	Sample Condition:	Good/Clear
Latitude:	21° 59' 52" N	Longitude:	85° 13' 09" 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 ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
23.11.2023	25.3	40.5	<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 ( $\mu\text{g}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
	--	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/NIMM/6	Report No:	DMSPL/AAM/2311/006
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) 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 & Mn Mines
Location:	Village Kashira (A6)	Sample Condition:	Good/Clear
Latitude:	21° 55'09" N	Longitude:	85° 15'18" 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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
29.11.2023	27.0	38.6	<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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
			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/NIMM/01-09	Report No:	DMSPL/AA/2311/001-009
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/12/2023
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Nov. 2023 to 30 <sup>th</sup> 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 & Mn Mines
Location:	Near Vedanta Office (A1)	Sample Condition:	Good/Clear
Latitude:	21° 58'18" N	Longitude:	85° 15'23" E

## RESULTS

Date	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO (mg/m <sup>3</sup> )
01.11.2023	63.3	27.3	6.1	11.8	0.47
04.11.2023	55.3	28.7	4.9	11.6	0.38
05.11.2023	54.9	25.9	4.5	10.3	0.36
11.11.2023	61.1	31.5	5.7	11.2	0.33
12.11.2023	58.5	27.3	4.9	10.7	0.35
18.11.2023	78.4	45.08	18.2	25.6	0.82
19.11.2023	84.8	46.5	18.6	27.3	0.77
25.11.2023	65.0	34.3	21.7	28.8	0.72
26.11.2023	80.7	47.4	22.7	27.5	0.96

Limit as per NAAQS <sup>o</sup>	Parameter	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO (mg/m <sup>3</sup> )
	--		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/NIMM/10-18	Report No:	DMSPL/AA/2311/010-018
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Fregrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/12/2023
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Nov. 2023 to 30 <sup>th</sup> 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 & Mn Mines
Location:	Near Mines Gate (A2)	Sample Condition:	Good/Clear
Latitude:	21° 57'35" N	Longitude:	85° 15'12" E

## RESULTS

Date	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )
01.11.2023	54.9	25.9	4.5	10.3	0.36
04.11.2023	61.1	31.5	5.7	11.2	0.33
05.11.2023	58.5	27.3	4.9	10.7	0.35
11.11.2023	51.9	27.2	5.4	11.5	0.44
12.11.2023	65.0	34.3	21.7	28.8	0.72
18.11.2023	67.4	23.9	8.5	16.8	0.52
19.11.2023	56.5	26.3	9.2	17.2	0.48
25.11.2023	53.9	22.9	6.3	16.2	0.47
26.11.2023	59.7	29.7	8.7	17.2	0.54

Limit as per NAAQS*	Parameter	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )
	--	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/NIMM19-27	Report No:	DMSPL/AA/2311/019-027
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Distt. Sunilargarh, Odisha India.	Reporting Date:	06/12/2023
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Nov. 2023 to 30 <sup>th</sup> 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 & Mn Mines
Location:	Village - Rengalberha (A3)	Sample Condition:	Good/Clear
Latitude:	21° 57' 19" N	Longitude:	85° 15' 43" E

## RESULTS

Date	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )
02.11.2023	61.1	31.5	5.7	11.2	0.33
06.11.2023	58.5	27.3	4.9	10.7	0.35
07.11.2023	51.9	27.2	5.4	11.5	0.44
13.11.2023	65.0	34.3	21.7	28.8	0.72
14.11.2023	54.2	23.8	4.0	10.9	0.58
20.11.2023	54.7	23.6	5.1	12.8	0.56
21.11.2023	65.9	28.2	4.4	10.7	0.44
27.11.2023	57.3	22.6	5.7	10.6	0.43
28.11.2023	64.7	37.3	17.9	27.2	0.74

Limit as per NAAQS*	Parameter	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )
	--	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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# Digcare Mining Solutions Pvt. Ltd.

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

## Test Report

Sample No:	DMSPL/AA/NIMM/28-36	Report No:	DMSPL/AA/2311/028-036
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/12/2023
		Ref. No:	Nil.
		Monitoring Period:	1 <sup>st</sup> Nov. 2023 to 30 <sup>th</sup> 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 & Mn Mines
Location:	Village Kalla (A4)	Sample Condition:	Good/Clear
Latitude:	21° 58'02" N	Longitude:	85° 13'20" E

## RESULTS

Date	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )
02.11.2023	64.2	25.8	4.2	10.3	0.33
06.11.2023	55.3	26.8	5.9	11.8	0.35
07.11.2023	53.6	28.3	5.4	10.7	0.39
13.11.2023	65.6	27.8	4.7	10.4	0.35
14.11.2023	54.2	23.8	4.8	10.9	0.58
20.11.2023	54.7	23.6	5.1	12.8	0.56
21.11.2023	55.3	26.8	5.9	11.8	0.35
27.11.2023	65.6	27.8	4.7	10.4	0.35
28.11.2023	57.9	20.3	4.4	10.9	0.28

Limit as per NAAQS*	Parameter	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )
	--		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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## 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/NIMM/37-45	Report No:	DMSPL/AA/2311/037-045
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.	Reporting Date:	06/12/2023
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Nov. 2023 to 30 <sup>th</sup> 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 & Mn Mines
Location:	Village Jhirapani (A5)	Sample Condition:	Good/Clear
Latitude:	21° 59'52" N	Longitude:	85° 13'09" E

### RESULTS

Date	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )
03.11.2023	53.6	28.3	5.4	10.7	0.39
08.11.2023	65.6	27.8	4.7	10.6	0.35
09.11.2023	57.9	26.3	4.4	10.9	0.28
15.11.2023	63.3	27.3	6.1	11.8	0.47
16.11.2023	55.3	28.7	4.9	11.6	0.38
22.11.2023	54.9	25.9	4.5	10.3	0.36
23.11.2023	61.1	31.5	5.7	11.2	0.33
29.11.2023	58.5	27.3	4.9	10.7	0.35
30.11.2023	51.9	27.2	5.4	11.5	0.44

Limit as per NAAQS*	Parameter	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )
			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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# 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/NIMM/46-54	Report No:	DMSPL/AA/2311/046-054
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.	Reporting Date:	06/12/2023
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Nov. 2023 to 30 <sup>th</sup> 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 & Mn Mines
Location:	Village Kashira (A6)	Sample Condition:	Good/Clear
Latitude:	21° 55'09" N	Longitude:	85° 15'18" E

## RESULTS

Date	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO (mg/m <sup>3</sup> )
03.11.2023	65.6	27.8	4.7	10.4	0.35
08.11.2023	54.2	23.8	4.8	10.9	0.58
09.11.2023	54.7	23.6	5.1	12.8	0.56
15.11.2023	55.3	26.0	5.9	11.8	0.35
16.11.2023	56.9	25.9	4.5	10.3	0.36
22.11.2023	54.9	25.9	4.5	10.3	0.36
23.11.2023	61.1	31.5	5.7	11.2	0.33
29.11.2023	58.5	27.3	4.9	10.7	0.35
30.11.2023	51.9	27.2	5.4	11.5	0.44

Limit as per NAAQS*	Parameter	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO (mg/m <sup>3</sup> )
	--	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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ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

## Test Report

Sample No:	DMSPL/AN/NIMM/01-08	Report No:	DMSPL/AN/2312/001-008
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Dist: Sundargarh, Odisha India.	Reporting Date:	06/12/2023
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Nov, 2023 to 30 <sup>th</sup> Nov, 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 & Mn 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 Vedanta Office	05.11.2023	21° 58'18" N	85° 15'23" E	64.4	49.2
2	Near Mines Gate	08.11.2023	21° 57'35" N	85° 15'12" E	65.3	52.5
Standard Limit Industrial Area as per CPCB					<b>75.0</b>	<b>70.0</b>
3	Village Rengalberha	10.11.2023	21° 57'19" N	85° 15'43" E	53.2	42.3
4	Village Kalta	13.11.2023	21° 58'02" N	85° 13'20" E	52.2	41.2
5	Village Jhirapani	15.11.2023	21° 59'52" N	85° 13'09" E	53.4	42.5
6	Village Kashira	19.11.2023	21° 55'09" N	85° 15'18" E	51.1	43.4
7	Upwind Direction	22.11.2023	21° 58'43" N	85° 15'44" E	53.3	44.4
8	Downwind Direction	24.11.2023	21° 57'10" N	85° 13'20" E	52.6	42.2
Standard Limit Residential Area as per CPCB					<b>55.0</b>	<b>45.0</b>

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 No:	DMSPL/AAFS/NIMM/01-08	Report No:	DMSPL/AAFS/2311/001-08
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under: ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	06/12/2023
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Nov. 2023 to 30 <sup>th</sup> Nov. 2023
		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 PM<sub>10</sub> with Free Silica

Location	Date	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	Free Silica %	Ca ( $\mu\text{g}/\text{m}^3$ )	Mg ( $\mu\text{g}/\text{m}^3$ )	Ni ( $\text{ng}/\text{m}^3$ )	Pb ( $\mu\text{g}/\text{m}^3$ )
Near Vedanta Office	04.11.2023	55.3	2.0	1.02	0.30	<0.5	0.09
Near Mines Gate	11.11.2023	51.9	2.1	1.05	0.26	<0.5	0.07
Village - Bengallorhu	14.11.2023	54.2	2.1	1.05	0.30	<0.5	0.08
Village Kalta	20.11.2023	54.7	2.0	1.10	0.31	<0.5	0.09
Village Jhirapani	23.11.2023	61.1	2.1	1.12	0.26	<0.5	0.07
Village Kachira	29.11.2023	58.5	2.0	1.08	0.50	<0.5	0.08

\*\* 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 No:	DMSPL/FD/NIMM/01-08	Report No:	DMSPL/FD/2311/001-008
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under: ESL Steel Limited, (Feegrade), At Nadidih, PO - Koira Distt. Sunargarh, Odisha India.	Reporting Date:	06/12/2023
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Nov. 2023 to 30 <sup>th</sup> Nov. 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 & 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	08.11.2023	21° 57' 40" N	85° 15' 10" E	890.40
2	Haul Road	11.11.2023	21° 57' 48" N	85° 15' 16" E	930.40
3	Crushing Plant	16.11.2023	21° 57' 35" N	85° 15' 13" E	920.20
4	Screening Plant	20.11.2023	21° 57' 12" N	85° 15' 21" E	910.50
5	Ore Loading Area	26.11.2023	21° 57' 26" N	85° 15' 23" E	905.50
6	Waste Dump Area	30.11.2023	21° 57' 33" N	85° 15' 07" E	785.50

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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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/NMM/01  
Name & Address of the Project: M/s. Nalidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade), At Nalidih, PO - Kofra, Distt. Sundargarh, Odisha India.

Report No.: DMSPL/GW/2311/001  
Format No.: 7.8 F-01  
Party Reference No.: NIL  
Reporting Date: 25/11/2023  
Ground Water Level: 4.2 Mtr.

Sample Description: Ground Water Sample  
Sample Location: Near Mine Site  
Sample Collected by: DMSPL Representative  
Sampling and Analysis Protocol: IS 3025 & APHA 23<sup>rd</sup> 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. 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 <sub>3</sub>	APHA -2340 C. EDTA Titrimetric Method	148.20	mg/l	200	600
7.	Calcium as Ca	APHA -3500 Ca B. EDTA Titrimetric Method	42.40	mg/l	75	200
8.	Magnesium as CaCO <sub>3</sub>	APHA -2320 B. Titrimetric Method	124.10	mg/l	200	600
9.	Chloride as Cl	APHA -4500-Cl B. Argentometric Method	44.20	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	8.15	mg/l	30	100
12.	Total Dissolved Solids	APHA -2540 C. Gravimetric Method	355.0	mg/l	500	2000
13.	Sulphate as SO <sub>4</sub>	APHA -4500 E. Turbidimetric Method	80.20	mg/l	200	400
14.	Fluoride as F	APHA -4500-F D. SPADNS Method	0.25	mg/l	1.0	1.5
15.	Nitrate as NO <sub>3</sub>	IS 3025 (P-54):2014(RA:2019)	20.40	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	0.18	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.	Arsenic	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/01			Report No.: DMSPL/GW/BICO/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 5520 C Chloroform Extraction Method	*BLQ (**LOQ 0.0003 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	Ammonia 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	19.50	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)	0.38	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, Khandra Road, Om Nagar, Gurugram-122001 (HR)  
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

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

Report No.: **DMISPL/GW/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 Rengalberha**  
Sample Collected by: **DMISPL 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 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 (at 25 °C)	APHA 4500-H <sup>+</sup> I-Electrometric Method	7.05	--	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 <sub>3</sub>	APHA 2340 C, EDTA Titrimetric Method	280.20	mg/l	200	600
7.	Calcium as Ca	APHA 3500 Ca B, EDTA Titrimetric Method	50.20	mg/l	75	200
8.	Magnesium as CaCO <sub>3</sub>	APHA 2320 B, Titrimetric Method	128.40	mg/l	200	600
9.	Chloride as Cl <sup>-</sup>	APHA 4500-Cl B, Argentometric Method	40.20	mg/l	250	1000
10.	Cyanide as CN <sup>-</sup>	APHA 4500-CN D	*BLQ (**LOQ 0.02 mg/l)	mg/l	0.05	No Relaxation
11.	Magnesium as Mg	APHA 3500 Mg B, Calcium Method	7.80	mg/l	30	100
12.	Total Dissolved Solids	APHA 2540 C, Gravimetric Method	360.20	mg/l	500	2000
13.	Sulphate as SO <sub>4</sub> <sup>-2</sup>	APHA 4500-S, Turbidimetric Method	110.10	mg/l	200	400
14.	Fluoride as F <sup>-</sup>	APHA 4500-F D, SPADNS Method	0.40	mg/l	1.0	1.5
15.	Nitrite as NO <sub>2</sub> <sup>-</sup>	IS 3025 (P-30) ,Diazotrophic Method	24.20	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	0.35	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 <sup>6+</sup>	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/NIDM/02			Report No.: DMSPL/GW/BIC/072511/002			
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 Compounds	APHA, 5530 C Chloroform Extraction Method	*BLQ (**LQ) 0.0005 mg/l	mg/l	0.001	0.002
21.	Nitrate (NO <sub>3</sub> )	Clause 6 of IS: 3025 (Part-35)	*BLQ (**LQ) 0.1 mg/l	mg/l	1.0	No Relaxation
22.	Antibiotic Residues as N/AAR	Annex K of IS 1342X, 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	*NDL (**DL) 0.15mg/l	mg/l	--	--
24.	Sodium as Na	APHA, 3500 Na B, Flame Photometric Method	18.50	mg/l	--	--
25.	Potassium as K	APHA, 3500 K B, Flame Photometric Method	4.20	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 (**LQ) 0.01 mg/l	mg/l	0.1	0.5
29.	Calcium as Ca	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.	Selenium as Se	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) 0.0005 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; \*\*LQ: Limit of Quantification



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## Test Report

Sample Number:	DMSPL/GW/NIMM/03	Report No.:	DMSPL/GW/2311/003
Name & Address of the Project:	M/s Naididih Iron & Mn Mines, Under ESL Steel Limited, (Freegrade) At Naididih, PO - Koira Dist. Sundargarh, Odisha India.	Format No.:	7.8 F-01
		Party Reference No.:	NIL
		Reporting Date:	25/11/2023
		Ground Water Level:	4.3 Mtr.
Sample Description:	Ground Water Sample	Period of Analysis:	14/11/2023-25/11/2023
Sample Location:	Village Kalta	Receipt Date:	14/11/2023
Sample Collected by:	DMSPL Representative	Sampling Date:	10/11/2023
Sampling and Analysis Protocol:	IS 3025 & APHA 23 <sup>rd</sup> 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 ,4550-H* B Electrode 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, 2120 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, 2100 B, Threshold Test Method	Agreeable	--	Agreeable	Agreeable
6	Total Hardness as CaCO <sub>3</sub>	APHA, 2340 C, EDTA Titrimetric Method	138.25	mg/l	200	600
7	Calcium as Ca <sup>++</sup>	APHA, 3500 Ca B, EDTA Titrimetric Method	40.50	mg/l	75	200
8	Alkalinity as CaCO <sub>3</sub>	APHA, 2320 B, Titrimetric Method	120.50	mg/l	200	600
9	Chloride as Cl <sup>-</sup>	APHA, 4500c1-3, Argentometric Method	85.80	mg/l	250	1000
10	Cyanide as CN <sup>-</sup>	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	4.50	mg/l	30	100
12	Total Dissolved Solids	APHA, 2540 C, Gravimetric Method	348.20	mg/l	500	2000
13	Sulphate as SO <sub>4</sub>	APHA, 4500 E, Turbidimetric Method	80.23	mg/l	200	400
14	Fluoride as F <sup>-</sup>	APHA, 4500-F- D, SPADNS Method	0.30	mg/l	1.0	1.5
15	Nitrate as NO <sub>3</sub>	IS 3025 (P-34), Chromotropic Method	22.40	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	0.05	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/NO101/03		Report No.: DMSPL/GW/BICO/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, 5510 C Chloroform Extraction Method	*BLQ (**LOQ 0.0005 mg/l)	mg/l	0.01	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-20), Ortho-Chloride Method	*BLQ (**DL 0.15 mg/l)	mg/l	-	-
24.	Sodium as Na	APHA, 3500 Na B. Flame Photometric Method	14.30	mg/l	-	-
25.	Potassium as K	APHA 3500 K B. Flame Photometric Method	1.40	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)	0.20	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	Should not be detectable in any 100 ml sample	
35.	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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## Test Report

Sample Number:	DMSPL/GW/NISIM/04	Report No.:	DMSPL/GW/2511/004
Name & Address of the Project:	M/s Nalidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nalidih, PO - Kaira Distt. Sundargarh, Odisha India.	Format No.:	7.8 F-01
		Party Reference No.:	NIL
		Reporting Date:	25/11/2023
		Ground Water Level:	3.9 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 23 <sup>rd</sup> 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 <sup>+</sup> 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 <sub>3</sub>	APHA - 2140 C, EDTA Titrimetric Method	190.20	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 <sub>3</sub>	APHA - 2320 B, Titrimetric Method	145.20	mg/l	200	600
9.	Chloride as Cl	APHA - 4500-Cl B, Argentometric Method	90.20	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	12.50	mg/l	30	100
12.	Total Dissolved Solids	APHA - 2540 C, Gravimetric Method	370.30	mg/l	500	2000
13.	Sulphate as SO <sub>4</sub>	APHA - 4500 E, Turbidimetric Method	142.30	mg/l	300	400
14.	Fluoride as F	APHA - 4500-F D, SPADNS Method	1.20	mg/l	1.0	1.5
15.	Nitrate as NO <sub>3</sub>	IS 3025 (P-34), Chromotropic Method	21.50	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-65) 2014 (RA-2019)	0.28	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	0.3
18.	Iron	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/NIDMB4			Report No.: DMSPL/GW/HC/O/2511/004			
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	Mineral Oil	Clause 5 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-66)	*BLQ (**LOQ 0.05 mg/l)	mg/l	0.2	1.0
23	Residual free Chlorine	IS 3025 (P-76), Ortho-toluidine Method	*BLQ (**LOQ 0.15 mg/l)	mg/l	--	--
24	Nickel as Ni	APHA 3500 Ni B, Flame Photometric Method	16.60	mg/l	--	--
25	Hexavalent Cr	APHA 3500 Cr B, Flame Photometric Method	4.30	mg/l	--	--
26	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	1.20	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	Calcium as Ca	IS 3025 (P-63):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	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, \*\*LOQ- Limit of Quantification



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## Test Report

Sample Number:	DMSPL/NIMM/SO1	Report No.:	DMSPL/S/2311/001
Name & Address of Party:	M/s. Nadidih Iron & Mn Mines, Under ESL Steel Limited. (Feegrade) 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:	25/11/2023
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)	8.25	--
2.	Conductivity	IS:14767-2000 Reaffirmed 2006	0.39	mS/cm
3.	Soil Texture	USDA Method, 1968	Silty	--
4.	Color	USDA Method, 1968	Yellowish	--
5.	Water holding capacity	USDA Method, 1968	21.60	%
6.	Bulk density	USDA Method, 1968	1.55	gm/cc
7.	Chloride as Cl	USDA Method, 1968	27.90	mg/100gm
8.	Calcium as Ca	USDA Method, 1968	36.80	mg/100gm
9.	Sodium as Na	USDA Method, 1968	31.50	mg/100gm
10.	Potassium as K	USDA Method, 1968	59.20	kg/hect.
11.	Organic Matter	IS-2720 (P-22, 1972)	0.72	%
12.	Magnesium as Mg	USDA Method, 1968	10.89	mg/100gm
13.	Available Nitrogen as N	IS:14684, 1999	185.20	kg/hect.
14.	Available Phosphorus	USDA, APHA-4500PC	35.50	kg/hect.
15.	Zinc as Zn	APHA-3030D, APHA-3111B	4.80	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	0.90	mg/100gm
19.	Cadmium as Cd	APHA-3030D, APHA-3111B	1.75	mg/100gm
20.	Copper as Cu	APHA-3030D, APHA-3111B	1.40	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/NIMMST/01	Report No.:	DMSPL/ST/2311/001
Name & address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Fee grade) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.	Format No.:	7.8 F-03
		Party Reference No.:	NIL
		Reporting Date:	20/11/2023
		Period of Analysis:	15/11/2023 to 20/11/2023
		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)	: 40.0 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)	: 24.0
Temperature of stack Gases - Ts (°C)	: 202.0
Velocity of stack Gases (m/sec.)	: 9.14
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	39.30	mg/Nm <sup>3</sup>	75
2.	Oxide of Nitrogen (as NOx)	IS:11255 (P-7)	220.0	ppm	710
3.	NMHC	DMSPL/ENV/STP/ST/PGA/01, Issue No.- 01.01/11/21	24.20	mg/Nm <sup>3</sup>	100
4.	Sulphur Dioxide (as SO <sub>2</sub> )	IS:11255 (P-2), Titrimetric Method	21.10	mg/Nm <sup>3</sup>	--
5.	Carbon Monoxide (as CO)	DMSPL/ENV/STP/ST/PGA/01, Issue No.- 01.01/11/21	40.20	mg/Nm <sup>3</sup>	150

Note: \* STP Laboratory Standard Testing Procedure.

\*\*\*End of 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

Sample Number:	DMSPL/NIMM/SW/01	<b>Test Report</b>	Report No.:	DMSPL/SW/2311/001
Name of the Project:	M/s Nalidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nalidih, 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:	12/11/2023
Preservation:	Ice Box		Sampling Quantity:	2.0 Ltr + 250ml
Sampling and Analysis Protocol:	APHA & IS, 23 <sup>rd</sup> Edition 2017		Sampling Type:	Composite

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25°C)	APHA, 4500-01 B, Electrometric Method	7.45	--
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 <sub>3</sub>	APHA, 2340 C, EDTA Titrimetric Method	92.50	mg/l
6.	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	27.50	mg/l
7.	Magnesium as CaCO <sub>3</sub>	APHA, 3320 B, Titrimetric Method	85.50	mg/l
8.	Chloride as Cl <sup>-</sup>	APHA, 4500-Cl B, Argentometric Method	45.50	mg/l
9.	Total Residual Chlorine	IS-3025 P-26, Ortho-chloridine 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	3.98	mg/l
12.	Total Dissolved Solids	APHA, 2540 C, Gravimetric Method	260.60	mg/l
13.	Total Suspended Solids	APHA-2540 D, Gravimetric Method	30.00	mg/l
14.	Dissolved Oxygen	APHA-4500 O.D, Iodometric Method	5.8	mg/l
15.	Sulphide	IS 3025 (P-29):2022	20.20	mg/l
16.	Fluoride as F	APHA, 4500-F D, SPADNS Method	0.28	mg/l
17.	BOD (5 Days at 27°C)	APHA, 5210 C - IS 3025 B-44	10.00	mg/l
18.	COD	APHA, 5220 B, Open Reflux Method	36.00	mg/l



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## Test Report

Sample No: DMSPL/NIMM/SW/01			Report No: DMSPL/SW/2311/001	
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 <sub>3</sub>	IS 3025 (P-34), Chromatropic Method	4.50	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	6.20	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	Hexavalent Chromium as Cr	IS 3025 (P-65):2014(RA:2019)	*BDL(**DL 0.002 mg/l)	mg/l
27	Phenolic Compounds	APHA, 5530 I, 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	24.3	mg/l
35	Oil & Grease	IS 3025 (P-39):2021	*BDL(**DL 2.0 mg/l)	mg/l
36	Total 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	150	MPN/100ml

\*BDL - (Below Detection 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

Sample Number: DMSPL/NIMM/SW/02 **Test-Report**  
Name of the Project: M/s Nadidih Iron & Mn Mines,  
Under ESL Steel Limited, (Feegrade)  
At Nadidih, PO - Koira  
Distt. Sundargarh, Odisha India.

Report No.: DMSPL/SW/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, 23<sup>rd</sup> Edition 2017

Period of Analysis: 18/11/2023 - 25/11/2023  
Receipt Date: 18/11/2023  
Sampling Date: 12/11/2023  
Sampling Quantity: 2.0 Ltr + 250ml  
Sampling Type: Composite

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	APHA, 4500-H <sub>+</sub> B Electrometric Method	7.40	--
2.	Colour	APHA, 2120 B, Visual Comparison Method	10	Hazen
3.	Turbidity	APHA, 2130 B, Nephelometric Method	< 1	NTU
4.	Odour	APHA, 2150 B, Threshold Test Method	Agreeable	--
5.	Total Hardness as CaCO <sub>3</sub>	APHA, 2140 C, EDTA Titrimetric Method	92.20	mg/l
6.	Calcium as Ca	APHA, 3500 Ca-B, EDTA Titrimetric Method	24.40	mg/l
7.	Alkalinity as CaCO <sub>3</sub>	APHA, 2320 B, Titrimetric Method	76.20	mg/l
8.	Chloride as Cl	APHA, 4500-Cl <sup>-</sup> B, Argentometric Method	36.20	mg/l
9.	Total Residual Chlorine	IS 3025 P-26, Ortho-toluidine Method	*BDL (**BDL: 0.15mg/l)	mg/l
10.	Cyanide as CN	APHA, 4500 CN-D, Bariumic Acid Method	*BDL (**BDL: 0.02 mg/l)	mg/l
11.	Magnesium as Mg	APHA, 3500 Mg-B, Calculation Method	6.90	mg/l
12.	Total Dissolved Solids	APHA, 2540 C, Gravimetric Method	244.0	mg/l
13.	Total Suspended Solids	APHA, 2540 D, Gravimetric Method	26.00	mg/l
14.	Dissolved Oxygen	APHA, 4500 O-B, Iodometric Method	5.9	mg/l
15.	Sulphate	IS 3025 (P-29):2022	30.40	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	11.60	mg/l
18.	COD	APHA, 5220 B, Open Reflux Method	38.20	mg/l



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## Test-Report

Sample No.: DMSPL/NIMM/SW/02			Report No.: DMSPL/SW/2311/002	
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 <sub>3</sub>	IS 3025 (P-34), Chromotropic Method	4.50	mg/l
21	Sodium as Na	APHA, 3500 Na B, Flame Photometric Method	23.0	mg/l
22	Potassium as K	APHA 3500 K B, Flame-Photometric Method	5.70	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	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, 5590 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	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	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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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: Name & Address of the Project:	DMSPL/AA/NIMM/01 M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Kolra Dist. Sundargarh, Odisha India.	Report No: Reporting Date: Ref. No: Monitoring Period: Equipment Used: Protocol Used:	DMSPL/AA/2401/001 05/02/2024 NIL January 2024 RDS & FPS with all accessories IS-5182 & CPCB Guidelines
Sample Collected By: Sample Description: Location: Latitude:	DMSPL, Representative Ambient Air Quality Monitoring Near Vedanta Office (A1) 21° 58'18" N	Parameter Required: Customer Name: Sample Condition: Longitude:	As per EC Letter Nadidih Iron & Mn Mines Good/Clear 85° 15'23" 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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
06.01.2024	29.20	32.40	<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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
	--	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/02	Report No:	DMSPL/AAM/2401/002
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira 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 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° 57' 35" N	Longitude:	85° 15' 12" 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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
10.01.2024	33.20	36.50	<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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
		--	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/NIMM/3	Report No:	DMSPL/AA/2401/003
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Kalra 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 & Mn Mines
Location:	Village - Bengalberha (A3)	Sample Condition:	Good/Clear
Latitude:	21° 57' 19" N	Longitude:	85° 15' 43" 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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
14.01.2024	26.50	34.20	<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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
	--	--	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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\*\*End of Test Report\*\*



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

## Test-Report

Sample No:	DMSPL/AA/NIMM/4	Report No:	DMSPL/AAM/2401/004
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade), At Nadidih, PO - Koira, 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 EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron & Mn Mines
Location:	Village Katta (A4)	Sample Condition:	Good/Clear
Latitude:	21° 58'02" N	Longitude:	85° 13'20" E

## RESULTS

Date of Sample	Ozone (µg/m <sup>3</sup> )	Ammonia (µg/m <sup>3</sup> )	Lead (µg/m <sup>3</sup> )	Nickel (ng/m <sup>3</sup> )	Arsenic (ng/m <sup>3</sup> )	Benzene (µg/m <sup>3</sup> )	Benzo(a)pyrene (ng/m <sup>3</sup> )
19.01.2024	26.50	37.40	<0.05	<0.05	<0.50	<5.0	<1.0

	Parameter	Ozone (µg/m <sup>3</sup> )	Ammonia (µg/m <sup>3</sup> )	Lead (µg/m <sup>3</sup> )	Nickel (ng/m <sup>3</sup> )	Arsenic (ng/m <sup>3</sup> )	Benzene (µg/m <sup>3</sup> )	Benzo(a)pyrene (ng/m <sup>3</sup> )
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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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/NIMM/5	Report No:	DMSPL/AAM/2401/005
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira 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 EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron & Mn Mines
Location:	Village Jhirapani (A5)	Sample Condition:	Good/Clear
Latitude:	21° 59' 52" N	Longitude:	85° 13' 09" E

## RESULTS

Date of Sample	Ozone (ug/m <sup>3</sup> )	Ammonia (ug/m <sup>3</sup> )	Lead (ug/m <sup>3</sup> )	Nickel (ug/m <sup>3</sup> )	Arsenic (ng/m <sup>3</sup> )	Benzene (ug/m <sup>3</sup> )	Benzo(a)pyrene (ng/m <sup>3</sup> )
24.01.2024	27.40	34.20	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone (ug/m <sup>3</sup> )	Ammonia (ug/m <sup>3</sup> )	Lead (ug/m <sup>3</sup> )	Nickel (ug/m <sup>3</sup> )	Arsenic (ng/m <sup>3</sup> )	Benzene (ug/m <sup>3</sup> )	Benzo(a)pyrene (ng/m <sup>3</sup> )
	-	-	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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# 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/NIMM/6	Report No:	DMSPL/AA/2401/006
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira 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 EC Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron & Mn Mines
Location:	Village Kashira (A6)	Sample Condition:	Good/Clear
Latitude:	21° 55'09" N	Longitude:	85° 15'18" 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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
30.01.2024	27.50	38.50	<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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
	--	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/NIMM/01-09	Report No:	DMSPL/AA/2401/001-009
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Fee grade) At Nadidih, PO - Kolra Distt: Sundargarh, Odisha India.	Reporting Date:	05/02/2024
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Jan, 2024 to 31 <sup>st</sup> 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 & Mn Mines
Location:	Near Vedanta Office (A1)	Sample Condition:	Good/Clear
Latitude:	21° 58' 18" N	Longitude:	85° 15' 23" E

## RESULTS

Date	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO (mg/m <sup>3</sup> )
01.01.2024	62.3	24.3	6.1	10.6	0.42
02.01.2024	55.3	26.7	5.7	9.4	0.38
08.01.2024	57.9	25.9	5.5	9.3	0.36
09.01.2024	61.1	29.5	4.5	10.2	0.37
15.01.2024	58.5	26.3	6.9	11.5	0.38
16.01.2024	74.4	41.08	14.2	21.6	0.78
22.01.2024	80.8	40.5	15.6	23.3	0.73
23.01.2024	62.0	34.3	17.7	24.8	0.60
29.01.2024	76.7	40.4	20.7	23.5	0.92

Limit as per NAAQS*	Parameter	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO (mg/m <sup>3</sup> )
	--	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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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/NIMM/10-18	Report No:	DMSPL/AA/2401/010-018
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/02/2024
		Ref. No:	Nil.
		Monitoring Period:	1 <sup>st</sup> Jan. 2024 to 31 <sup>st</sup> 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 & Mn Mines
Location:	Near Mines Gate (A2)	Sample Condition:	Good/Clear
Latitude:	21° 57' 35" N	Longitude:	85° 15' 12" E

### RESULTS

Date	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )
01.01.2024	58.9	27.9	5.3	10.3	0.37
02.01.2024	61.1	29.5	4.5	11.2	0.38
08.01.2024	58.5	28.3	5.7	10.7	0.36
09.01.2024	56.9	27.2	4.6	11.5	0.40
15.01.2024	60.0	30.3	17.7	24.8	0.68
16.01.2024	63.4	26.9	9.3	16.8	0.52
22.01.2024	57.5	25.3	7.2	17.2	0.44
23.01.2024	55.9	26.9	5.3	15.2	0.43
29.01.2024	56.7	25.7	6.7	18.2	0.50

Limit as per NAAQS*	Parameter:	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )
	--	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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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/NIMM/19-27	Report No:	DMSPL/AA/2401/019-027
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.	Reporting Date:	05/02/2024
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Jan. 2024 to 31 <sup>st</sup> 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 & Mn Mines
Location:	Village - Rengalberha (A3)	Sample Condition:	Good/Clear
Latitude:	21° 57' 19" N	Longitude:	85° 15' 43" E

## RESULTS

Date	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )
03.01.2024	62.1	28.5	4.5	9.4	0.30
04.01.2024	58.5	26.3	5.7	10.7	0.31
10.01.2024	56.9	22.2	6.2	11.5	0.40
11.01.2024	60.0	30.3	17.7	24.8	0.68
17.01.2024	58.2	23.8	4.4	10.9	0.58
18.01.2024	57.7	26.6	5.1	11.8	0.56
24.01.2024	61.9	25.2	4.2	10.7	0.40
25.01.2024	58.3	24.6	6.5	10.8	0.43
31.01.2024	60.7	32.3	14.9	23.2	0.70

Limit as per NAAQS*	Parameter	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )
	..	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/NIMM/28-36	Report No:	DMSPL/AA/2401/028-036
Name & Address of the Project:	M/S Nadidih Iron & Mn Mines, Under-ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Distt. Sunargarh, Odisha India.	Reporting Date:	05/02/2024
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Jan. 2024 to 31 <sup>st</sup> 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 & Mn Mines
Location:	Village Kalta (A4)	Sample Condition:	Good/Clear
Latitude:	21° 58'02" N	Longitude:	85° 13'20" E

## RESULTS

Date	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
03.01.2024	61.2	26.8	4.5	11.3	0.37
04.01.2024	58.3	23.8	5.5	10.6	0.35
10.01.2024	56.6	25.3	5.7	11.5	0.38
11.01.2024	62.6	24.8	4.9	10.2	0.34
17.01.2024	57.2	27.0	4.7	11.5	0.55
18.01.2024	56.7	26.6	5.5	10.6	0.56
24.01.2024	58.3	25.8	5.6	11.2	0.36
25.01.2024	60.6	24.0	4.8	10.4	0.38
31.01.2024	57.9	25.1	4.5	10.5	0.27

Limit as per NAAQS*	Parameter	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
	--	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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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/NIMM/37-45	Report No:	DMSPL/AA/2401/037-045
Name & Address of the Project:	M/s. Naidih Iron & Mn Mines, Under ESL Steel Limited, (Freegrade) At Naidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/02/2024
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Jan. 2024 to 31 <sup>st</sup> 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 & Mn Mines
Location:	Village Jhirapani (A5)	Sample Condition:	Good/Clear
Latitude:	21° 59'52" N	Longitude:	85° 13'09" E

## RESULTS

Date	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
05.01.2024	56.6	25.3	5.4	10.7	0.34
06.01.2024	60.6	27.8	4.7	11.6	0.35
12.01.2024	57.9	26.3	4.6	10.9	0.27
13.01.2024	60.3	27.3	5.3	11.8	0.44
19.01.2024	56.3	28.7	4.5	10.4	0.34
20.01.2024	58.9	25.9	4.1	11.5	0.36
26.01.2024	62.1	28.5	5.3	10.0	0.37
27.01.2024	59.5	30.3	4.5	11.5	0.35
30.01.2024	56.9	26.2	5.7	10.7	0.40

Limit as per NAAQS*	Parameter	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
	--		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 - 19)

\*National Ambient Air Quality Standards.

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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

(Approved By)

## Test-Report

Sample No:	DMSPL/AA/NIMM/46-54	Report No:	DMSPL/AA/2401/046-054
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under: ESIL Steel Limited, (Feegrade) At Nadidih, PO - Kaira Distt. Sundargarh, Odisha India.	Reporting Date:	05/02/2024
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Jan. 2024 to 31 <sup>st</sup> 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 & Mn Mines
Location:	Village Kashira (A6)	Sample Condition:	Good/Clear
Latitude:	21° 55'09" N	Longitude:	85° 15'18" E

## RESULTS

Date	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
05.01.2024	62.6	27.8	4.7	11.2	0.38
06.01.2024	50.2	25.8	4.5	10.5	0.54
12.01.2024	54.7	24.6	5.1	11.6	0.52
13.01.2024	56.3	26.8	5.5	10.8	0.36
19.01.2024	58.9	25.9	4.1	11.1	0.35
20.01.2024	54.9	24.9	4.4	10.3	0.34
26.01.2024	58.1	24.5	5.7	10.2	0.33
27.01.2024	54.5	26.3	4.5	11.5	0.35
30.01.2024	56.9	27.2	5.4	10.7	0.40

Limit as per NAAQS*	Parameter	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
	--	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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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:  
Name & Address of the  
Project:

DMSPL/AN/NIMM/01-08  
M/s Nadidih Iron & Mn Mines,  
Under ESL Steel Limited, (Feegrade)  
At Nadidih, PO - Koira  
Distt. Sundargarh, Odisha India.

Report No:  
Reporting Date:  
Ref. No:  
Monitoring Period:  
Equipment Used:  
Protocol Used:

DMSPL/AN/2401/001-008  
05/02/2024  
NIL  
1<sup>st</sup> Jan. 2024 to 31<sup>st</sup> Jan. 2024  
Sound Level Meter  
IS-9989

Sample Collected By:  
Sample Description:  
Sample Name:

DMSPL Representative  
Ambient Noise Monitoring  
Noise Level Monitoring

Parameter Required:  
Customer Name:  
Sample Condition

As per Govt. Standard  
Nadidih Iron & Mn Mines  
Good/Clear

## RESULTS

Sr. No.	Location	Date	Latitude:	Longitude:	Day Time {dB(A)}	Night Time {dB(A)}
1	Near Vedanta Office	03.01.2024	21° 58'18" N	85° 15'23" E	61.4	49.6
2	Near Mines Gate	08.01.2024	21° 57'35" N	85° 15'12" E	60.	50.4
Standard Limit Industrial Area as per CPCB					75.0	70.0
3	Village Rengalberha	12.01.2024	21° 57'19" N	85° 15'43" E	50.7	42.4
4	Village Kalta	17.01.2024	21° 58'02" N	85° 13'20" E	50.8	41.6
5	Village Jhirapuni	21.01.2024	21° 59'52" N	85° 13'09" E	51.9	44.5
6	Village Kashira	23.01.2024	21° 55'09" N	85° 15'18" E	51.5	43.6
7	Upwind Direction	26.01.2024	21° 58'43" N	85° 15'44" E	53.6	42.7
8	Downwind Direction	29.01.2024	21° 57'10" N	85° 13'20" E	54.7	44.8
Standard Limit Residential Area as per CPCB					55.0	45.0

CPCB :- Central Pollution Control Board

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



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# 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/NIMM/01-08	Report No:	DMSPL/AAFS/2401/001-08
Name & Address of the Project:	M/s Naldih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Naldih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/02/2024
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Jan. 2024 to 31 <sup>st</sup> Jan. 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 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 ( $\text{ng}/\text{m}^3$ )	Pb ( $\mu\text{g}/\text{m}^3$ )
Near Vedanta Office	03.01.2024	66.20	2.20	1.15	0.30	<0.5	0.08
Near Mines Gate	06.01.2024	59.50	2.15	1.20	0.25	<0.5	0.07
Village - Rengalherha	09.01.2024	60.40	2.30	1.30	0.35	<0.5	0.06
Village Kalka	14.01.2024	58.40	2.60	1.40	0.24	<0.5	0.09
Village Jhirapani	19.01.2024	66.40	1.90	1.25	0.20	<0.5	0.07
Village Kachira	24.01.2024	60.20	2.40	1.30	0.34	<0.5	0.08

\*\* End of Report \*\*



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## Test Report

Sample No:	DMSPL/FD/NIMM/01-08	Report No:	DMSPL/FD/2401/001-008
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESE Steel Limited, (Feegrade) At Nadidih, PO - Kaira Distt. Sundargarh, Odisha India.	Reporting Date:	05/02/2024
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Jan. 2024 to 31 <sup>st</sup> 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:	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	05.01.2024	21° 57' 40" N	85° 15' 10" E	895.40
2	Haul Road	10.01.2024	21° 57' 48" N	85° 15' 16" E	920.40
3	Crushing Plant	14.01.2024	21° 57' 35" N	85° 15' 13" E	924.20
4	Screening Plant	18.01.2024	21° 57' 12" N	85° 15' 21" E	940.50
5	Ore Loading Area	24.01.2024	21° 57' 26" N	85° 15' 23" E	920.50
6	Waste Dump Area	28.01.2024	21° 57' 33" N	85° 15' 07" E	880.50

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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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/SIMM/01  
 Name & Address of the Project: M/s. Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koirā Distt. Sundargarh, Odisha India.

Report No.: DMSPL/GW/2401/001  
 Format No.: 7.8 F-01  
 Party Reference No.: NIL  
 Reporting Date: 20/01/2024  
 Ground Water Level: 4.1 Mtr.

Sample Description: Ground Water Sample  
 Sample Location: Near Mine Site  
 Sample Collected by: DMSPL Representative  
 Sampling and Analysis Protocol: IS 3025 & APHA 22<sup>nd</sup> 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 <sup>+</sup> H Electronic 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, 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 <sub>3</sub>	APHA, 2540 C, EDTA Titrimetric Method	146.20	mg/l	200	600
7.	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	44.40	mg/l	75	200
8.	Magnesium as CaCO <sub>3</sub>	APHA, 3520 B, Titrimetric Method	122.10	mg/l	200	600
9.	Chloride as Cl	APHA, 4500-Cl <sup>-</sup> 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	9.15	mg/l	30	100
12.	Total Dissolved Solids	APHA, 2540 C, Gravimetric Method	350.0	mg/l	500	2000
13.	Sulphate as SO <sub>4</sub>	APHA, 4500 E, Turbidimetric Method	78.20	mg/l	200	400
14.	Fluoride as F	APHA, 4500 F <sup>-</sup> D, SPADNS Method	0.20	mg/l	1.0	1.5
15.	Nitrate as NO <sub>3</sub>	IS 3025 (P-34), Chromotropic Method	18.40	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-65):2014(IRA:2019)	0.18	mg/l	1.0	No relaxation
17.	Aluminium as Al	IS 3025 (P-65):2014(IRA:2019)	*BLQ (**LOQ 0.005 mg/l)	mg/l	0.03	0.2
18.	Boron	IS 3025 (P-65):2014(IRA:2019)	*BLQ (**LOQ 0.01 mg/l)	mg/l	0.5	2.4
19.	Chromium as Cr	IS 3025 (P-65):2014(IRA: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)  
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## Test Report

Sample No.: DMSPL/GW/NAEML01			Report No.: DMSPL/GW/2401001			
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 0.0005 mg/l	mg/l	0.001	0.002
21.	Miscell Oil	Clause 6 of IS:3025(Part-39)	*BLQ**LOQ 0.1 mg/l	mg/l	1.0	No Relaxation
22.	Aromatic Hydrocarbons in MBAS	Annex K of IS-13428, IS-3025 (P-66)	*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	17.50	mg/l	--	--
25.	Potassium as K <sub>2</sub>	APHA 3500 K-B, Flame Photometric Method	8.20	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)	0.20	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	0.001	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.	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, \*\*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/NEIM/02 **Test-Report** **Report No.:** DMSPL/GW/2401/002  
**Name & Address of the Project:** M/s Nadidih Iron & Mn Mines, **Format No.:** 7.8 F-01  
 Under ESI, Steel Limited, (Feegrade) **Party Reference No.:** Nil.  
 At Nadidih, PO - Koira **Reporting Date:** 20/01/2024  
 Distt. Sundargarh, Odisha India. **Ground Water Level:** 4.1 Mtr.

**Sample Description:** Ground Water Sample **Period of Analysis:** 14/01/2024-20/01/2024  
**Sample Location:** Village Rengalberha **Receipt Date:** 14/01/2024  
**Sample Collected by:** DMSPL Representative **Sampling Date:** 12/01/2024  
**Sampling and Analysis Protocol:** IS 3025 & APHA 23<sup>rd</sup> 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	7.91	-	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 <sub>3</sub>	APHA, 2340 C, EDTA Titrimetric Method	275.20	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 <sub>3</sub>	APHA, 2320 B, Titrimetric Method	126.40	mg/l	200	600
9	Chloride as Cl	APHA, 4500-Cl B, Argentometric Method	79.20	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	8.80	mg/l	30	100
12	Total Dissolved Solids	APHA, 2540 C, Gravimetric Method	358.20	mg/l	500	2000
13	Sulfate as SO <sub>4</sub>	APHA, 4500 E, Turbidimetric Method	112.10	mg/l	200	400
14	Fluoride as F	APHA, 4500-F D, SPADNS Method	0.40	mg/l	1.0	1.5
15	Nitrate as NO <sub>3</sub>	IS 3025 (P-34), Chromotropic Method	22.20	mg/l	45	No Relaxation
16	Iron as Fe	IS 3025 (P-65)(2014)(RA:2019)	0.33	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	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/NIMM/02			Report No.: DMSPL/GW/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, 5530 C Chloroform Extraction Method	*BLQ>**LOQ 0.0005 mg/l	mg/l	0.001	0.002
21	Miscral 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	*BLQ**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	7.20	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)	0.10	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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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/NMM/03	Report No.:	DMSPL/GW/2401/003
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Distt. Sundergarh, Odisha India.	Format No.:	7.8 F-01
		Party Reference No.:	NIL
		Reporting Date:	20/01/2024
		Ground Water Level:	4.1 Mtr.

Sample Description:	Ground Water Sample	Period of Analysis:	14/01/2024-20/01/2024
Sample Location:	Village: Katta	Receipt Date:	14/01/2024
Sample Collected by:	DMSPL Representative	Sampling Date:	12/01/2024
Sampling and Analysis Protocol:	IS 3025 & APHA 23 <sup>rd</sup> Edition 2017	Sampling Quantity:	5.0 Lit + 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 @ 25°C	APHA, 4500-H <sup>+</sup> B Electrode 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 Test Method	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO <sub>3</sub>	APHA, 2340 C, EDTA Titrimetric Method	135.20	mg/l	200	600
7.	Calcium as Ca <sup>2+</sup>	APHA, 3500 Ca B, EDTA Titrimetric Method	42.50	mg/l	75	200
8.	Alkalinity as CaCO <sub>3</sub>	APHA, 2320 D, Titrimetric Method	118.50	mg/l	200	600
9.	Chloride as Cl <sup>-</sup>	APHA, 4500-Cl B, Argentometric Method	86.40	mg/l	250	1000
10.	Cyanide as CN <sup>-</sup>	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	5.50	mg/l	30	100
12.	Total Dissolved Solids	APHA, 2540 C, Gravimetric Method	346.20	mg/l	500	2000
13.	Sulphate as SO <sub>4</sub> <sup>2-</sup>	APHA, 4500-E, Turbidimetric Method	78.20	mg/l	200	400
14.	Fluoride as F <sup>-</sup>	APHA, 4500-F D, SPADNS Method	0.40	mg/l	1.0	1.5
15.	Nitrate as NO <sub>3</sub> <sup>-</sup>	IS 3025 (P-34) Chromotropic Method	20.40	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	0.70	mg/l	1.0	No relaxation
17.	Aluminium as Al	IS 3025 (P-65):2014(RA:2019)	*BLQ (**LOQ 0.065 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/NIMM03			Report No: DMSPL/GW/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	Therotic Compounds	APHA, 5530 C Chloroform Extraction Method	*BLQ>**LOQ 0.0005 mg/l	mg/l	0.001	0.002
21	Mitical Oil	Clause 6 of IS:3025(Part-39)	*BLQ**LOQ 0.1 mg/l	mg/l	1.0	No Relaxation
22	Anionic Detergent as Sulfas	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-76, Ortho-toluidine Method	*HDL**DL 0.15mg/l	mg/l	--	--
24	Sodium as Na	APHA 3500 Na B, Flame Photometric Method	20.50	mg/l	--	--
24	Potassium as K	APHA 3500 K B, Flame Photometric Method	8.80	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)	0.12	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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# 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/NIMM/01	Report No.:	DMSPL/GW/2401/004
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.	Format No.:	7.8 F-01
		Party Reference No.:	NIL
		Reporting Date:	20/01/2024
		Ground Water Level:	4.1 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 <sup>rd</sup> 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 <sup>+</sup> B Electrode Method	7.84	--	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	*DLQ (**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 <sub>3</sub>	APHA, 2340 C, EDTA Titrimetric Method	182.20	mg/l	200	600
7.	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	42.20	mg/l	75	200
8.	Alkalinity as CaCO <sub>3</sub>	APHA, 2320 B, Titrimetric Method	143.20	mg/l	200	600
9.	Chloride as Cl	APHA, 4500-Cl B, Argentometric Method	92.20	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	11.50	mg/l	30	100
12.	Total Dissolved Solids	APHA, 2540 C, Gravimetric Method	371.20	mg/l	500	2000
13.	Sulphate as SO <sub>4</sub>	APHA, 4500 F, Turbidimetric Method	141.20	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 <sub>3</sub>	IS 3025 (P-34) Chromotropic Method	20.50	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-65) 2014 (RA 2019)	0.28	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/NEM04			Report No.: DMSPL/GW/2401/004			
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-G 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-65)	*BLQ (**LOQ) 0.05 mg/l	mg/l	0.2	1.0
23.	Residual free Chlorine	IS 3025 P-2h, Ortho-tolidine Method	*BLQ (**LOQ) 0.15mg/l	mg/l	--	--
24.	Sodium as Na	APHA, 3500 Na-B, Flame Photometric Method	16.20	mg/l	--	--
25.	Potassium as K	APHA 3500 K-B, Flame Photometric Method	7.30	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.	Fecal 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/NIMM/S01	Report No.:	DMSPL/S/2401/001
Name & Address of Party:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Format No.:	5.10 F-01
		Party Reference No.:	NIL
Sample Description:	SOIL	Reporting Date:	30/01/2024
Sampling Location:	Inside Mine Area	Receipt Date:	22/01/2024
Sample Collected by:	DMSPL Lab Representative	Sampling Date:	30/01/2024
		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)	7.88	--
2	Conductivity	IS:14767-2000 Reaffirmed 2006	0.38	mS/cm
3	Soil Texture	USDA Method, 1968	Silty	--
4	Color	USDA Method, 1968	Yellowish	--
5	Water holding capacity	USDA Method, 1968	24.20	%
6	Bulk density	USDA Method, 1968	1.35	gm/cc
7	Chloride as Cl	USDA Method, 1968	22.40	mg/100gm
8	Calcium as Ca	USDA Method, 1968	33.50	mg/100gm
9	Sodium as Na	USDA Method, 1968	31.50	mg/100gm
10	Potassium as K	USDA Method, 1968	64.20	kg/bcc
11	Organic Matter	IS:2720 (P-22, 1972)	0.72	%
12	Aluminium as Mg	USDA Method, 1968	10.40	mg/100gm
13	Available Nitrogen as N	IS:14684, 1999	194.20	kg/bcc
14	Available Phosphorus	USDA, APHA-4300PC	29.50	kg/bcc
15	Zinc as Zn	APHA-3030D, APHA-3111B	5.40	mg/100gm
16	Manganese as Mn	APHA-3030D, APHA-3111B	2.80	mg/100gm
17	Chromium as Cr	APHA-3030D, APHA-3111B	1.30	mg/100gm
18	Lead as Pb	APHA-3030D, APHA-3111B	0.92	mg/100gm
19	Cadmium as Cd	APHA-3030D, APHA-3111B	1.50	mg/100gm
20	Copper as Cu	APHA-3030D, APHA-3111B	3.25	mg/100gm



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

## Test Report

Sample Number:	DMSPL/NIMM/ST/01	Report No.:	DMSPL/ST/2401/001
Name & address 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-03
		Party Reference No.:	NIL
		Reporting Date:	20/01/2024
		Period of Analysis:	15/01/2024 to 20/01/2024
		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	:	15/01/2024
Sampling Duration (Minutes)	:	40.0 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)	:	24.0
Temperature of stack Gases - Ts (°C)	:	198.20
Velocity of stack Gases (m/sec.)	:	9.40
Flow rate of PM (LPM)	:	24.00
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 <sub>10</sub> )	IS 11255 (P-1), Gravimetric Method	34.20	mg/Nm <sup>3</sup>	75
2.	Oxide of Nitrogen (as NO <sub>x</sub> )	IS 11255 (P-7)	218.20	ppm	710
3.	NMHC	DMSPL/ENV/STP/ST/FGA/01, Issue No.- 01/01/11/21	26.50	mg/Nm <sup>3</sup>	100
4.	Sulphur Dioxide (as SO <sub>2</sub> )	IS-11255 (P-2), Titrimetric Method	20.10	mg/Nm <sup>3</sup>	--
5.	Carbon Monoxide (as CO)	DMSPL/ENV/STP/ST/FGA/01, Issue No.- 01/01/11/21	36.30	mg/Nm <sup>3</sup>	150

Note: \* NTP Laboratory, Standard Testing Procedure

\*\*\*End of Report\*\*\*



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## Test Report

Sample Number: DMSPL/NIMM/SW/01  
Name of the Project: M/s. Nadidih Iron & Mn Mines,  
Under ESL Steel Limited, (Feegrade)  
At Nadidih, PO - Koira  
Distt. Sundargarh, Odisha India.

Report No.: DMSPL/SW/2401/001  
Format No.: 7.8 F-01  
Party Reference No.: NIL  
Reporting Date: 20/01/2024

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

Period of Analysis: 12/01/2024 - 20/01/2024  
Receipt Date: 12/01/2024  
Sampling Date: 10/01/2024  
Sampling Quantity: 2.0 Ltr + 250ml  
Sampling Type: Composite

S. No.	Parameter	Test-Method	Result	Unit
1	pH (at 25°C)	APHA, 4500-H <sup>+</sup> B Electrode Method	7.60	--
2	Colour	APHA, 2120 B, Visual Comparison Method	20.0	Platin
3	Turbidity	APHA, 2130 B, Nephelometric Method	<1	NTU
4	Odour	APHA, 2150 B, Threshold Test Method	Agreeable	--
5	Total Hardness as CaCO <sub>3</sub>	APHA, 2340 C, EDTA Titrimetric Method	162.20	mg/l
6	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	24.20	mg/l
7	Alkalinity as CaCO <sub>3</sub>	APHA, 2320 B, Titrimetric Method	80.20	mg/l
8	Chloride as Cl	APHA, 4500-Cl <sup>-</sup> B, Argentometric Method	48.20	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	10.16	mg/l
12	Total Dissolved Solids	APHA, 2540 C, Gravimetric Method	280.00	mg/l
13	Total Suspended Solids	APHA, 2540 D, Gravimetric Method	38.00	mg/l
14	Dissolved Oxygen	APHA, 4500 O H, Iodometric Method	6.4	mg/l
15	Sulphide	IS 3025 (P-29):2022	20.20	mg/l
16	Fluoride as F	APHA, 4500-F D, SPADNS Method	0.30	mg/l
17	BOD (5 Days at 27°C)	APHA, 5210 C / IS 3025 P-44	10.40	mg/l
18	COD	APHA, 5220 B, Open Reflux Method	36.20	mg/l



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## Test-Report

Sample No.: DMSPL/NIMM/SW/01			Report No.: DMSPL/SW/2401/001	
S. No.	Parameter	Test-Method	Result	Unit
19.	Conductivity (at 25 °C)	APHA, 2510 B, Conductivity Meter Method	0.466	mS/cm
20.	Nitrate as NO <sub>3</sub>	IS:3025 (P-34), Chromotropic Method	3.70	mg/l
21.	Sodium as Na	APHA,3500 Na B, Flame Photometric Method	22.40	mg/l
22.	Potassium as K	APHA, 3500 K B, Flame Photometric Method	5.20	mg/l
23.	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	0.28	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, 5510.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	25.6	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	100	MPN/100ml
42.	Fecal Coliform	IS:1622:1981, RA-2019	100	MPN/100ml

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



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Sample Number:	DMSPL/NIMM/SW/02	<b>Test-Report</b>	Report No.:	DMSPL/SW/2401/002
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:	20/01/2024
Sample Description:	Surface Water Sample		Period of Analysis:	12/01/2024– 20/01/2024
Sampling Location:	River Sample (Near Mines Downstream)		Receipt Date:	12/01/2024
Sample Collected by:	DMSPL Lab Representative		Sampling Date:	10/01/2024
Packaging:	Ice Box		Sampling Quantity:	2.0 Ltr. + 250ml.
Sampling and Analysis Protocol:	APHA & IS, 23 <sup>rd</sup> Edition 2017		Sampling Type:	Composite

S. No.	Parameter	Test-Method	Result	Unit
1	pH (at 25°C)	APHA, 4500-H <sup>+</sup> B Electrometric Method	7.40	--
2	Colour	APHA, 2120 B, Visual Comparison Method	25.0	Hazen
3	Turbidity	APHA, 2130 B, Nephelometric Method	<1	NTU
4	Odour	APHA, 2150 B, Threshold Test Method	Agreeable	--
5	Total Hardness as CaCO <sub>3</sub>	APHA, 2340 C, EDTA Titrimetric Method	96.20	mg/l
6	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	29.50	mg/l
7	Alkalinity as CaCO <sub>3</sub>	APHA, 2320 B, Titrimetric Method	80.25	mg/l
8	Chloride as Cl	APHA, 4500-Cl <sup>-</sup> B, Argentometric Method	19.50	mg/l
9	Total Residual Chlorine	IS 3025 (P-30), Ortho-tolidine Method	*BDL (**DL: 0.15mg/l)	mg/l
10	Cyanide as CN	APHA, 4500 CN <sup>-</sup> 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	260.0	mg/l
13	Total Suspended Solids	APHA, 2540 D, Gravimetric Method	22.0	mg/l
14	Dissolved Oxygen	APHA, 4500 O <sub>2</sub> B, Iodometric Method	5.8	mg/l
15	Sulphate	IS 3025 (P-29), 2022	28.20	mg/l
16	Fluoride as F	APHA, 4500-F D, SPADNS Method	0.48	mg/l
17	BOD (5-Day) at 27°C	APHA, 5210 C / IS 3025(P-41)	12.40	mg/l
18	COD	APHA, 5220 B, Open Reflux Method	34.50	mg/l



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

## Test Report

Sample No.: DMSPL/NMM/SW/02			Report No.: DMSPL/SW/2401/002	
S. No.	Parameter	Test-Method	Result	Unit
19	Conductivity (at 25 °C)	APHA, 2510 B, Conductivity Meter Method	0.36	mS/cm
20	Nitrate as NO <sub>3</sub>	IS 3025 (P-34), Chromotropic Method	4.40	mg/l
21	Sodium as Na	APHA, 3500 Na B, Flame Photometric Method	28.50	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	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)	0.22	mg/l
26	Hexavalent Chromium as Cr	IS 3025 (P-65):2014(RA:2019)	*BDL (**DL 0.062 mg/l)	mg/l
27	Phenolic Compounds	APHA, 5510 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	28.00	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	250	MPN/100ml
42	Fecal Coliform	IS 1622:1981, RA-2019	150	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

## Test Report

Sample No:	DMSPL/AA/NIMM/01	Report No:	DMSPL/AAM/2402/001
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, 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:	Nadidih Iron & Mn Mines
Location:	Near Vedanta Office (A1)	Sample Condition:	Good/Clear
Latitude:	21° 58' 18" N	Longitude:	85° 15' 23" 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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
02.02.2024	11.50	36.80	<0.05	<0.05	<0.50	<5.0	<1.0

	Parameter	Ozone ( $\mu\text{g}/\text{m}^3$ )	Ammonia ( $\text{ng}/\text{m}^3$ )	Lead ( $\mu\text{g}/\text{m}^3$ )	Nickel ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
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/NMM/02	Report No:	DMSPL/AAM/2402/002
Name & Address of the Project:	M/s. Nalidih Iron & Mn Mines, Under ESI, Steel Limited, (Feegrade) At Nalidih, PO - Koira Dist: Sundergarh, 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 & Mn Mines
Location:	Near Mines Gate (A2)	Sample Condition:	Good/Clear
Latitude:	21° 57' 35" N	Longitude:	85° 15' 12" 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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
08.02.2024	28.50	14.20	<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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
		-	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)

\*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/2402/003
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koiru, 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 & Mn Mines
Location:	Village - Rengalberha (A3)	Sample Condition:	Good/Clear
Latitude:	21° 57'19" N.	Longitude:	85° 15'43" E

## RESULTS

Date of Sample	Ozone (µg/m <sup>3</sup> )	Ammonia (µg/m <sup>3</sup> )	Lead (µg/m <sup>3</sup> )	Nickel (ng/m <sup>3</sup> )	Arsenic (ng/m <sup>3</sup> )	Benzene (µg/m <sup>3</sup> )	Benzo(a)pyrene (ng/m <sup>3</sup> )
15.02.2024	29.50	19.20	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone (µg/m <sup>3</sup> )	Ammonia (µg/m <sup>3</sup> )	Lead (µg/m <sup>3</sup> )	Nickel (ng/m <sup>3</sup> )	Arsenic (ng/m <sup>3</sup> )	Benzene (µg/m <sup>3</sup> )	Benzo(a)pyrene (ng/m <sup>3</sup> )
		-	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/NIMM/4	Report No:	DMSPL/AAM/2402/004
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESI, Steel Limited, (Feegrade) 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:	February 2024
Location:	Village Kalu (A4)	Equipment Used:	RDS & FPS with all accessories
Latitude:	21° 58'02" N	Protocol Used:	IS-5182 & CPCB Guidelines
		Parameter Required:	As per EC Letter
		Customer Name:	Nadidih Iron & Mn Mines
		Sample Condition:	Good/Clear
		Longitude:	85° 13'20" E

## RESULTS

Date of Sample	Ozone (ug/m <sup>3</sup> )	Ammonia (ug/m <sup>3</sup> )	Lead (ug/m <sup>3</sup> )	Nickel (ng/m <sup>3</sup> )	Arsenic (ng/m <sup>3</sup> )	Benzene (ug/m <sup>3</sup> )	Benzo(a)pyrene (ng/m <sup>3</sup> )
18.02.2024	27.50	10.50	<0.05	<0.05	<0.50	<5.0	<1.0

Limit as per NAAQS*	Parameter	Ozone (ug/m <sup>3</sup> )	Ammonia (ug/m <sup>3</sup> )	Lead (ug/m <sup>3</sup> )	Nickel (ng/m <sup>3</sup> )	Arsenic (ng/m <sup>3</sup> )	Benzene (ug/m <sup>3</sup> )	Benzo(a)pyrene (ng/m <sup>3</sup> )
	-		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.

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## Test Report

Sample No:	DMSPL/AA/NIMM/5	Report No:	DMSPL/AAM/2402/005
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESI, Steel Limited, (Freegrade) At Nadidih, PO - Kuira 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 & Mn Mines
Location:	Village Jhirapani (AS)	Sample Condition:	Good/Clear
Latitude:	21° 59' 52" N	Longitude:	85° 13' 09" E

## RESULTS

Date of Sample	Ozone (ug/m <sup>3</sup> )	Ammonia (ug/m <sup>3</sup> )	Lead (ug/m <sup>3</sup> )	Nickel (ng/m <sup>3</sup> )	Arsenic (ng/m <sup>3</sup> )	Benzene (ug/m <sup>3</sup> )	Benzo(a)pyrene (ng/m <sup>3</sup> )
23.02.2024	26.60	36.50	<0.05	<0.05	<0.50	<5.0	<1.0

Parameter	Ozone (ug/m <sup>3</sup> )	Ammonia (ug/m <sup>3</sup> )	Lead (ug/m <sup>3</sup> )	Nickel (ng/m <sup>3</sup> )	Arsenic (ng/m <sup>3</sup> )	Benzene (ug/m <sup>3</sup> )	Benzo(a)pyrene (ng/m <sup>3</sup> )
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/NIMM/6	Report No:	DMSPL/AAM/2402/006
Name & Address of the Project:	M/s. Naldih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Naldih, PO - Kutra 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:	February 2024
Location:	Village Kashtra (A6)	Equipment Used:	RDS & FPS with all accessories
Latitude:	21° 55'09" N	Protocol Used:	IS-5182 & CPCB Guidelines
		Parameter Required:	As per EC Letter
		Customer Name:	Naldih Iron & Mn Mines
		Sample Condition:	Good/Clear
		Longitude:	85° 15'18" 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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
29.02.2024	20.20	37.50	<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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
	-	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/01-09	Report No:	DMSPL/AA/2402/001-009
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Fee grade) At Nadidih, PO - Koira, Distt. Sundergarh, Odisha India.	Reporting Date:	05/03/2024
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Feb, 2024 to 29 <sup>th</sup> Feb, 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EG Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron & Mn Mines
Location:	Near Vedanta Office (A1)	Sample Condition:	Good/Clear
Latitude:	21° 58'18" N	Longitude:	85° 15'23" E

## RESULTS

Date	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
01.02.2024	63.3	26.3	6.1	11.8	0.43
04.02.2024	56.3	27.7	5.7	10.6	0.38
08.02.2024	58.9	25.9	4.5	9.3	0.36
11.02.2024	61.1	31.5	5.5	11.2	0.33
15.02.2024	57.5	26.3	6.9	10.7	0.38
18.02.2024	74.1	41.08	14.2	21.6	0.78
21.02.2024	80.8	40.5	16.8	23.3	0.73
25.02.2024	62.0	34.3	12.7	24.8	0.64
29.02.2024	76.7	43.4	20.7	23.5	0.92

Limit as per NAAQS*	Parameter	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
	--		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/NIMM/10-18	Report No:	DMSPL/AA/2402/010-018
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESI, Steel Limited, (Feegrade) At Nadidih, PO - Koirā Dist. Sundargarh, Odisha India.	Reporting Date:	05/03/2024
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Feb. 2024 to 29 <sup>th</sup> 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 & Mn Mines
Location:	Near Mines Gate (A2)	Sample Condition:	Good/Clear
Latitude:	21° 57'35" N	Longitude:	85° 15'12" E

## RESULTS

Date	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
01.02.2024	58.9	26.9	6.5	10.3	0.37
04.02.2024	61.3	32.5	5.7	11.2	0.38
08.02.2024	57.5	28.3	4.9	10.7	0.36
11.02.2024	56.9	27.2	5.4	11.5	0.40
15.02.2024	60.0	30.3	17.7	24.8	0.72
18.02.2024	63.4	26.9	9.3	12.8	0.52
21.02.2024	56.5	25.3	8.2	13.2	0.44
25.02.2024	54.9	27.9	6.3	15.2	0.43
29.02.2024	56.7	26.7	7.5	17.4	0.54

Limit as per NAAQS*	Parameter	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
	-	-	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/NIMM/19-27	Report No.:	DMSPL/AA/2402/019-027
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/03/2024
		Ref. No:	Nil.
		Monitoring Period:	1 <sup>st</sup> Feb. 2024 to 29 <sup>th</sup> 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 & Mn Mines
Location:	Village - Rengalberha (A3)	Sample Condition:	Good/Clear
Latitude:	21° 57' 19" N	Longitude:	85° 15' 43" E

## RESULTS

Date	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
02.02.2024	62.1	32.5	6.7	9.6	0.33
05.02.2024	58.5	26.3	4.9	11.5	0.34
09.02.2024	56.9	22.2	5.4	10.7	0.40
12.02.2024	60.0	30.3	17.7	24.0	0.72
16.02.2024	58.2	23.0	6.6	10.9	0.58
19.02.2024	57.7	27.6	4.3	11.8	0.56
22.02.2024	61.9	25.2	5.4	11.5	0.44
24.02.2024	58.3	24.6	8.7	10.6	0.43
28.02.2024	60.7	33.3	14.9	23.2	0.70

Limit as per NAAQS*	Parameter	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
			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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# 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/NIMM/28-36	Report No:	DMSPL/AA/2402/028-036
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.	Reporting Date:	05/03/2024
		Ref. No:	Nil
		Monitoring Period:	1 <sup>st</sup> Feb, 2024 to 29 <sup>th</sup> Feb, 2024
		Equipment Used:	RDS & FPS with all accessories
		Protocol Used:	IS-5182 & CPCB Guidelines
Sample Collected By:	DMSPL Representative	Parameter Required:	As per EX Letter
Sample Description:	Ambient Air Quality Monitoring	Customer Name:	Nadidih Iron & Mn Mines
Location:	Village Kalta (A4)	Sample Condition:	Good/Clear
Latitude:	21° 58'02" N	Longitude:	85° 13'20" E

## RESULTS

Date	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )
02.02.2024	60.2	26.8	6.3	11.3	0.38
05.02.2024	58.3	24.8	4.7	10.6	0.34
09.02.2024	56.6	25.3	5.6	11.5	0.35
12.02.2024	62.6	24.8	4.9	12.2	0.37
16.02.2024	58.2	26.8	4.8	10.7	0.57
19.02.2024	56.7	25.6	5.6	11.6	0.55
22.02.2024	57.3	24.4	6.8	11.8	0.39
24.02.2024	60.6	25.2	5.6	10.4	0.38
28.02.2024	56.9	23.3	4.9	10.5	0.27

Limit as per NAAQS*	Parameter	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )
		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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# 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/NIMM/37-45	Report No:	DMSPL/AA/2402/037-045
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Fergrade) At Nadidih, PO - Kaira Distt. Sundergarh, Odisha India.	Reporting Date:	05/03/2024
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Feb. 2024 to 29 <sup>th</sup> 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 & Mn Mines
Location:	Village Jhirapani (A5)	Sample Condition:	Good/Clear
Latitude:	21° 59' 52" N	Longitude:	85° 13' 09" E

## RESULTS

Date	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
03.02.2024	58.6	29.3	6.6	10.7	0.38
06.02.2024	60.6	27.8	5.9	11.6	0.35
10.02.2024	56.9	26.3	6.6	10.9	0.27
13.02.2024	60.3	28.3	4.1	11.8	0.44
17.02.2024	56.3	29.7	4.5	10.4	0.38
20.02.2024	57.9	25.9	4.6	11.5	0.36
23.02.2024	62.1	32.5	5.7	10.0	0.33
25.02.2024	59.5	27.3	4.5	11.5	0.35
27.02.2024	56.9	26.2	5.4	11.5	0.40

Limit as per NAAQS*	Parameter:	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
	--		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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# 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/NIMM/46-54	Report No:	DMSPL/AA/2402/046-054
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESI, Steel Limited, (Feegrade) At Nadidih, PO - Koiria Distt. Sundargarh, Odisha India.	Reporting Date:	05/03/2024
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Feb, 2024 to 29 <sup>th</sup> 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 & Mn Mines
Location:	Village Kashira (A6)	Sample Condition:	Good/Clear
Latitude:	21° 55'09" N	Longitude:	85° 15'18" E

## RESULTS

Date	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
03.02.2024	62.6	26.8	5.5	10.4	0.39
06.02.2024	34.2	25.8	6.7	10.5	0.54
10.02.2024	50.7	24.6	4.3	10.2	0.56
13.02.2024	56.3	26.0	5.6	12.4	0.36
17.02.2024	58.9	28.9	6.3	11.5	0.35
20.02.2024	54.9	25.9	4.4	10.3	0.36
23.02.2024	62.1	26.5	5.7	10.4	0.38
25.02.2024	58.5	28.5	4.5	11.5	0.35
27.02.2024	56.9	28.4	5.4	10.7	0.40

Limit as per NAAQS*	Parameter	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
	--		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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## Digcare Mining Solutions Pvt. Ltd.

Plot No. 672/1B, First Floor, Khandsa Road, Om Nagar, Gurugram-122001 (HR)  
ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

### Test Report

Sample No:	DMSP/AN/NISM/01-08	Report No:	DMSP/AN/2402/001-008
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Freegrade) At Nadidih, PO - Koira, Distt. Sundargarh, Odisha India.	Reporting Date:	05/03/2024
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Feb. 2024 to 29 <sup>th</sup> Feb. 2024
		Equipment Used:	Sound Level Meter
		Protocol Used:	IS-9989
Sample Collected By:	DMSP/ Representative	Parameter Required:	As per Govt. Standard
Sample Description:	Ambient Noise Monitoring	Customer Name:	Nadidih Iron & Mn 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 Vedanta Office	01.02.2024	21° 58' 18" N	85° 15' 23" E	60.2	40.5
2	Near Mines Gate	05.02.2024	21° 57' 35" N	85° 15' 12" E	61.3	49.3
Standard Limit Industrial Area as per CPCB					75.0	70.0
3	Village Renguberha	09.02.2024	21° 57' 19" N	85° 15' 43" E	51.6	43.2
4	Village Kalta	14.02.2024	21° 58' 02" N	85° 13' 20" E	51.7	42.5
5	Village Jhirapani	18.02.2024	21° 59' 52" N	85° 13' 09" E	52.5	43.4
6	Village Kashira	21.02.2024	21° 55' 09" N	85° 15' 18" E	52.4	42.5
7	Upwind Direction	24.02.2024	21° 58' 43" N	85° 15' 44" E	54.4	43.6
8	Downwind Direction	29.02.2024	21° 57' 10" N	85° 13' 20" E	53.0	42.6
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/NIMM/01-08	Report No:	DMSPL/AAFS/2402/001-08
Name & Address of the Project:	31/2 Naddih Iron & Mn Mines, Under ESL Steel Limited. (Freegrade) At Naddih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/03/2024
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Feb. 2024 to 29 <sup>th</sup> Feb. 2024
		Equipment Used:	RDS vjth 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 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 ( $\text{ng}/\text{m}^3$ )	Pb ( $\mu\text{g}/\text{m}^3$ )
Near Vedanta Office	02.02.2024	64.20	2.10	1.05	0.38	<0.5	0.09
Near Mines Gate	05.02.2024	61.20	2.20	1.10	0.28	<0.5	0.08
Village - Rengalhera	10.02.2024	58.30	2.25	1.10	0.30	<0.5	0.07
Village Nalta	14.02.2024	57.20	2.30	1.20	0.25	<0.5	0.06
Village Jhurapani	19.02.2024	64.50	2.20	1.15	0.25	<0.5	0.08
Village Koshira	23.02.2024	62.40	1.90	1.20	0.30	<0.5	0.07

\*\* 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 No:	DMSPL/FD/SIMM/01-08	Report No:	DMSPL/FD/2402/001-008
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under EST: Steel Limited, (Feegrade) At Nadidih, PO - Koira Dist. Sundergarh, Odisha India.	Reporting Date:	05/03/2024
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Feb. 2024 to 29 <sup>th</sup> Feb. 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

Sl. No.	Location	Date	Latitude	Longitude	SPM (µg/m <sup>3</sup> )
1	Mine Beaches Area	03.02.2024	21° 57'40" N	85° 15'10" E	905.40
2	Haul Road	06.02.2024	21° 57'48" N	85° 15'16" E	940.40
3	Crushing Plant	10.02.2024	21° 57'35" N	85° 15'13" E	960.20
4	Screening Plant	15.02.2024	21° 57'12" N	85° 15'21" E	920.50
5	Ore Loading Area	19.02.2024	21° 57'26" N	85° 15'23" E	960.50
6	Waste Dump Area	23.02.2024	21° 57'33" N	85° 15'07" E	890.50

Limit as per Consent*	Parameter	Suspended Particulate Matter (SPM 1200 µg/m <sup>3</sup> )
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State Pollution Control Board, Odisha

\*\*\*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/GW/2402/001  
Name & Address of the Project: M/s. Naididih Iron & Mn Mines,  
Under ESL Steel Limited, (Freegrade)  
At Naididih, PO - Koira  
Distt. Sundergarh, Odisha India.

Report No.: DMSPL/GW/2402/001  
Format No.: ZS F-01  
Party Reference No.: NIL  
Reporting Date: 18/02/2024  
Ground Water Level: 4.1 Mtr.

Sample Description: Ground Water Sample  
Sample Location: Near Mines in Freegrade Gate  
Sample Collected by: DMSPL Representative  
Sampling and Analysis Protocol: IS 3025 & APHA 23<sup>rd</sup> 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 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 at 25°C	APHA, 4500-H <sup>+</sup> B, Electrode Method	7.48	-	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 B, Threshold Odour Method	Agreeable	-	Agreeable	Agreeable
5.	Taste	APHA, 2160 B, Threshold Test Method	Disagreeable	-	Agreeable	Agreeable
6.	Total Hardness as CaCO <sub>3</sub>	APHA, 2540 C, EDTA Titrimetric Method	144.20	mg/l	200	600
7.	Calcium as Ca	APHA, 3500 C <sub>1</sub> B, EDTA Titrimetric Method	42.70	mg/l	75	200
8.	Magnesium as Mg	APHA, 3750 B, Titrimetric Method	120.40	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 Atg B, Calculation Method	7.15	mg/l	30	100
12.	Total Dissolved Solids	APHA, 2540 C, Gravimetric Method	348.0	mg/l	500	2000
13.	Sulphate as SO <sub>4</sub>	APHA, 4500 E, Turbimetric Method	76.20	mg/l	200	400
14.	Fluoride as F	APHA, 4500-F D, SPADNS Method	0.22	mg/l	1.0	1.5
15.	Nitrate as NO <sub>3</sub>	IS 3025 (P-34), Chromate Method	20.40	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-65), 201 (RA-2019)	0.22	mg/l	1.0	No relaxation
17.	Aluminium as Al	IS 3025 (P-65), 201 (RA-2019)	*BLQ (**LOQ 0.005 mg/l)	mg/l	0.03	0.2
18.	Boron	IS 3025 (P-65), 201 (RA-2019)	*BLQ (**LOQ 0.01 mg/l)	mg/l	0.5	2.4
19.	Chromium as Cr	IS 3025 (P-65), 201 (RA-2019)	*BLQ (**LOQ 0.002 mg/l)	mg/l	0.05	No Relaxation



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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/GW/NMM/01			Report No.: DMSPL/GW/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	Pesticide Contaminants	APHA, 5530 C Chloroform Extraction Method	*BLQ (**LOQ) 0.0015 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 Oxidation to MBAS	Appendix B of IS: 15428, IS 3025 (P-60)	*BLQ (**LOQ) 0.05 mg/l	mg/l	0.2	1.0
23	Total Dissolved Chlorine	IS:3025 (P-26), Ortho-toluidine Method	*DDI (**DI) 0.15mg/l	mg/l	--	--
24	Sodium as Na	APHA, 3500 Na B, Flame Photometric Method	18.50	mg/l	--	--
25	Potassium as K	APHA, 3500 K B, Flame Photometric Method	9.20	mg/l	--	--
26	Zinc as Zn	IS: 3025 (P-65) 2014 (RA:2019)	0.47	mg/l	5	15
27	Copper as Cu	IS: 3025 (P-65) 2014 (RA:2019)	0.24	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) 0.003 mg/l	mg/l	0.01	No Relaxation
31	Nickel as Ni	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) 0.0002 mg/l	mg/l	0.001	No Relaxation
34	Total Coliform	IS:1622,1981, IS:2019	<2	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; \*\*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

Sample Number: DMSPL/GW/NDMS102  
Name & Address of the Project: M/s. Nadidih Iron & Mn Mines,  
Under ESL Steel Limited, (Fee grade)  
At Nadidih, PO - Koirā  
Dist. Sundargarh, Odisha India:

## Test Report

Report No.: DMSPL/GW/2402/002  
Format No.: 7.8 F-01  
Party Reference No.: Nil.  
Reporting Date: 18/02/2024  
Ground Water Level: 4.4 Mtr.

Sample Description: Ground Water Sample  
Sample Location: Village Rengalberhā  
Sample Collected by: DMSPL Representative  
Sampling and Analysis Protocol: IS 3025 & APHA 23<sup>rd</sup> 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 H: H Electrode Method	6.90	-	6.5 to 8.5	No Relaxation
2	Colour	APHA - 1120 H: Visual Comparison Method	*BLO (**LOQ) 0 Hazen	Hazen	5	15
3	Turbidity	APHA - 2130 B: Nephelometric Method	*BLO (**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 <sub>3</sub>	APHA - 2140 C: EDTA Titrimetric Method	273.20	mg/l	200	600
7	Calcium as Ca	APHA - 3500 Ca B: EDTA Titrimetric Method	46.20	mg/l	75	200
8	Alkalinity as CaCO <sub>3</sub>	APHA - 2320 B: Titrimetric Method	124.40	mg/l	200	600
9	Chloride as Cl	APHA - 4500-Cl B: Argentometric Method	78.20	mg/l	250	1000
10	Cyanide as CN <sup>-</sup>	APHA - 4300 CN <sup>-</sup> D	*BLO (**LOQ) 0.02 mg/l	mg/l	0.05	No Relaxation
11	Manganese as Mn	APHA - 3500 Mn B: Colorimetric Method	10.80	mg/l	30	100
12	Total Dissolved Solids	APHA - 2540 F: Gravimetric Method	356.20	mg/l	500	2000
13	Sulphate as SO <sub>4</sub>	APHA - 4500 S: Turbidimetric Method	116.10	mg/l	200	400
14	Fluoride as F	APHA - 4500-F: D-SPADNS Method	0.44	mg/l	1.0	1.5
15	Nitrate as NO <sub>3</sub>	IS 3025 (P-34): Chromotropic Method	20.20	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)	*BLO (**LOQ) 0.005 mg/l	mg/l	0.03	0.2
18	Boron	IS 3025 (P-65):2014(RA-2019)	*BLO (**LOQ) 0.01 mg/l	mg/l	0.5	2.4
19	Chromium as Cr	IS 3025 (P-65):2014(RA-2019)	*BLO (**LOQ) 0.002 mg/l	mg/l	0.05	No Relaxation



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## Test-Report

Sample No.: DMSPL/GW/NMM/02			Report No.: DMSPL/GW/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	Hexavalent Chromium	APHA, 8130 C, Chloroform-Extraction Method	*BLQ (**LOQ 0.0005 mg/l)	mg/l	0.001	0.002
21	Ammonia (N)	Clause 6 of IS:3025(Part 3)	*BLQ (**LOQ 0.1 mg/l)	mg/l	1.0	No Relaxation
22	Aromatic Hydrogens as MWAS	Annex K of IS 13428, IS 3025 (P-40)	*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 0.10 mg/l)	mg/l	--	--
24	Sulfate as S <sub>o</sub>	APHA 3500 S <sub>o</sub> B, Flame Photometric Method	20.50	mg/l	--	--
25	Potassium as K	APHA 2500 K B, Flame Photometric Method	7.22	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)	0.12	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	Calcium as Ca	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	Iron as Fe	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	

\*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/NMM/03  
Name & Address of the Project: M/s. Nadidih Iron & Mn Mines,  
Under JSI, Steel Limited, (Freegrade)  
At Nadidih, PO - Koira  
Distt. Sundargarh, Odisha India.

Report No.: DMSPL/GW/2402/003  
Format No.: 7.8 F-01  
Party Reference No.: NH.  
Reporting Date: 18/02/2024  
Ground Water Level: 4.9 Mtr.

Sample Description: Ground Water Sample  
Sample Location: Village- Kalta  
Sample Collected by: DMSPL Representative  
Sampling and Analysis Protocol: IS 3025 & APHA 23<sup>rd</sup> 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: 50 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 (at 25 °C)	APHA - 4500-HP B Electrode Method	6.89	--	6.5 to 8.5	No Relaxation
2	Color	APHA - 2120 B, Visual Comparison Method	*BLQ (**LOQ) LO Hales)	Hzc °	5	15
3	Turbidity	APHA - 2130 B, Nephelometric Method	*BLQ (**LOQ) LO 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 Dissolved Solids as CaCO <sub>3</sub>	APHA - 2340 C, EDTA Titrimetric Method	123.20	mg/l	200	600
7	Calcium as Ca	APHA - 3500 Ca B, EDTA Titrimetric Method	42.50	mg/l	75	200
8	Magnesium as CaCO <sub>3</sub>	APHA - 2220 D, Titrimetric Method	122.50	mg/l	200	600
9	Chloride as Cl	APHA - 4500-C1 B, Argentometric Method	36.40	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 - 2500 Mg B, Calculation Method	6.56	mg/l	30	100
12	Total Dissolved Solids	APHA - 2540 C, Gravimetric Method	142.20	mg/l	500	2000
13	Ammonia as NH <sub>3</sub>	APHA - 4500 E, Turbidimetric Method	74.20	mg/l	200	400
14	Fluoride as F	APHA - 4500-F D, SPADNS Method	0.44	mg/l	1.0	1.5
15	Nitrate as NO <sub>3</sub>	IS 3025 (P-34), Chromotropic Method	22.42	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	Manganese as Mn	IS 3025 (P-65), 2014 (RA-2019)	*BLQ (**LOQ) 0.005 mg/l)	mg/l	0.01	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) 0.005 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/01			Report No.: DMSPL/GW/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	Pesticide Components	APHA, 8530 E Chloroform Extraction Method	*BLQ (**LOQ) 0.005 mg/l	mg/l	0.001	0.001
21	Manganese (Mn)	Clause 6 of IS:3025 (Part 3)	*BLQ (**LOQ) 0.1 mg/l	mg/l	1.0	No Relaxation
22	Arsenic (Arsenic) as MnO <sub>5</sub>	Ames K of IS:1342R, IS 3025 (P-65)	*BLQ (**LOQ) 0.05 mg/l	mg/l	0.2	1.0
23	Residual free Chlorine	IS 3025 (P-36), Inducto-Subline Method	*BLQ (**BL) 0.1 mg/l	mg/l	-	-
24	Sodium as Na	APHA, 3500 Na II, Flame Photometric Method	22.56	mg/l	-	-
25	Potassium as K	APHA, 3500 K II, Flame Photometric Method	10.82	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)	0.16	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	0.005	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	Bromine as Br	IS 3025 (P-65), 2014 (RA-2019)	*BLQ (**LOQ) 0.005 mg/l	mg/l	0.01	No Relaxation
33	Mercury as Hg	IS 3035 (P-69), 2014 (RA-2019)	*BLQ (**LOQ) 0.0005 mg/l	mg/l	0.001	No Relaxation
34	Total Coliforms	IS 1621, 1981, RA-2019	<2	MPN/100ml	Should not be detectable in any 100 ml sample	
35	F Total	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)  
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## Test Report

Sample Number:	DMSPL/GW/NIMM04	Report No.:	DMSPL/GW/2402/004
Name & Address of the Project:	M/s. Naddih Iron & Mn Mines, Under ESL Steel Limited, (Fe grade) At Naddih, PO - Kaira Distt. Sundargarh, Odisha India.	Format No.:	7.8 F-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 22 <sup>nd</sup> 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, 4590-D. H Electrode Method	7.82	--	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	Dis-Agreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO <sub>3</sub>	APHA, 2340-C. EDTA Titrimetric Method	160.20	mg/l	200	600
7.	Calcium as Ca	APHA, 3500-Ca B. EDTA Titrimetric Method	44.20	mg/l	75	200
8.	Magnesium as CaCO <sub>3</sub>	APHA, 3250-B. Titrimetric Method	146.20	mg/l	200	600
9.	Chloride as Cl <sup>-</sup>	APHA, 4500-Cl B. Argentometric Method	64.20	mg/l	250	1000
10.	Cyanide as CN <sup>-</sup>	APHA, 4590-CN D.	*BLQ (LOQ 0.02 mg/l)	mg/l	0.05	No Relaxation
11.	Manganese as Mn	APHA, 3530-Mn B. Calculation Method	32.50	mg/l	30	100
12.	Total Dissolved Solids	APHA, 2540-C. Gravimetric Method	370.20	mg/l	500	2000
13.	Sulphate as SO <sub>4</sub> <sup>-2</sup>	APHA, 4500-S. Turbidimetric Method	142.70	mg/l	200	400
14.	Fluoride as F <sup>-</sup>	APHA, 4500-F. G. SPADNS Method	1.22	mg/l	1.0	1.5
15.	Nitrate as NO <sub>3</sub> <sup>-</sup>	IS 3025 (P-65) 2014 (RA:2019) Chlorometric Method	22.50	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-65) 2014 (RA:2019)	0.20	mg/l	1.0	No relaxation
17.	Aluminium as Al	IS 3025 (P-65) 2014 (RA:2019)	*BLQ (**LOQ 0.008 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.	Zinc as Zn	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.: DMSP/LGW/2402/004

Sample No.: DMSP/LGW/2402/004						
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 Content (ppm)	APHA 5530 C (Orthochloroform Extraction Method)	*BLQ (**LQ) 0.0005 mg/l	mg/l	0.001	0.002
21	Mineral Oil	Clause 6 of IS:3025 (Part 3)	*BLQ (**LQ) 0.1 mg/l	mg/l	1.0	No Relaxation
22	Aromatic Hydrocarbon (AHH)	Annex K of IS 13428, IS 3025 (P-6)	*BLQ (**LQ) 0.05 mg/l	mg/l	0.2	1.0
23	Residual Free Chlorine	IS 3025 (P-28) Ortho-chlorine Method	*BLQ (**LQ) 0.1 mg/l	mg/l	-	-
24	Sodium as Na	APHA 3500 Na B Flame Photometric Method	18.20	mg/l	-	-
25	Potassium as K	APHA 3000 K B Flame Photometric Method	6.30	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)	0.14	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	Selenium as Se	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) 0.0005 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, \*\*LQ- Limit of Quantification



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

## Test Report

Sample Number:	DMISPL/NIMMS/01	Report No.:	DMISPL/S/2402/001
Name & Address of Party:	M/s Naidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Naidih, PO - Kaira Dist. Sundargarh, Odisha India.	Format No.:	5.10 F-01
		Party Reference No.:	NIL
Sample Description:	SOIL	Reporting Date:	25/02/2024
Sampling Location:	Inside Mine Area	Receipt Date:	18/02/2024
Sample Collected by:	DMISPL Lab Representative	Sampling Date:	15/02/2024
		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)	7.75	--
2.	Calcium	IS:14767-2000 Reaffirmed 2006	0.40	mg/cm
3.	Soil Texture	UNDA Method, 1968	Silt	--
4.	Color	USDA Method, 1968	Yellowish Brown	--
5.	Water holding capacity	USDA Method, 1968	21.20	%
6.	Bulk density	USDA Method, 1968	1.40	g/cc
7.	Calcium as Ca	USDA Method, 1968	20.30	mg/100gm
8.	Calcium as Ca	USDA Method, 1968	35.40	mg/100gm
9.	Sodium as Na	USDA Method, 1968	30.20	mg/100gm
10.	Potassium as K	USDA Method, 1968	68.30	kg/hec.
11.	Organic Matter	IS:2720 (P-22, 1972)	0.78	%
12.	Magnesium as Mg	USDA Method, 1968	8.20	mg/100gm
13.	Available Nitrogen as N*	IS:14684/1999	210.40	kg/hec.
14.	Available Phosphorus	USDA, APHA-4300PC	32.20	kg/hec.
15.	Zinc as Zn	APHA-3030D, APHA-3111B	5.60	mg/100gm
16.	Manganese as Mn	APHA-3030D, APHA-3111B	3.10	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	1.80	mg/100gm
20.	Copper as Cu	APHA-3030D, APHA-3111B	3.20	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/NIMM/ST/01	Report No.:	DMSPL/ST/2402/001
Name & address of the Project:	M/s. SAIL Iron & Mn Mines, Under ESL, Steel Limited, (Feegrade), At SAIL, PO - Koira, Dist. Sunargarh, Odisha India.	Format No.:	7.8 F-03
		Party Reference No.:	NIL
		Reporting Date:	20/02/2024
		Period of Analysis:	12/02/2024 to 20/02/2024
		Receipt Date:	10/02/2024

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)	:	35.0 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)	:	28.0
Temperature of stack Gases - Ts (°C)	:	190.00
Velocity of stack Gases (m/sec.)	:	9.40
Flow rate of PM (LPM)	:	24.00
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 <sub>10</sub> )	IS 11255 (P-3), Gravimetric Method	30.20	mg/Nm <sup>3</sup>	75
2.	Oxide of Nitrogen (as NO <sub>x</sub> )	IS 11255 (P-7)	210.20	ppm	710
3.	NMHC	DMSPL/ENV/STP/S1 (FGA/01, Issue No:- 01/01/1/21)	26.10	mg/Nm <sup>3</sup>	100
4.	Sulphur Dioxide (as SO <sub>2</sub> )	IS 11255 (P-2), Titrimetric Method	20.40	mg/Nm <sup>3</sup>	--
5.	Carbon Monoxide (as CO)	DMSPL/ENV/STP/S1 (FGA/01, Issue No:- 01/01/1/21)	32.40	mg/Nm <sup>3</sup>	150

Name: \*SAIL (Signature) Sampling Testing Operator

\*\*\*End of Report\*\*\*



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

Sample Number:	DMSPL/NIMM/SW/01	<b>Test-Report</b>	Report No.:	DMSPL/SW/2402/001
Name of the Project:	M/s. Naddih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Naddih, PO - Koira, Distt. Sundargarh, Odisha India.		Format No.:	7.8 F-01
			Party Reference No.:	NIL
			Reporting Date:	20/02/2024
Sample Description:	Surface Water Sample		Period of Analysis:	12/02/2024 - 20/02/2024
Sampling Location:	River Sample (Near Mines Upstream)		Receipt Date:	12/02/2024
Sample Collected by:	DMSPL Lab Representative		Sampling Date:	16/02/2024
Preservation:	Ice Box		Sampling Quantity:	2.0 Ltr + 250ml.
Sampling and Analysis Protocol:	APHA & IS, 23 <sup>rd</sup> Edition 2017		Sampling Type:	Composite

S. No.	Parameter	Test-Method	Result	Unit
1	pH @ 25°C	APHA, 1500-H <sup>+</sup> H Electrode Method	7.40	--
2	Colour	APHA, 2120 B, Visual Comparison Method	18.0	Hazen
3	Turbidity	APHA, 2130 B, Nephelometric Method	<1	NTU
4	Odour	APHA, 2150 B, Threshold Test Method	Agreeable	--
5	Total Hardness as CaCO <sub>3</sub>	APHA, 2340 C, EDTA Titrimetric Method	104.20	mg/l
6	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	22.30	mg/l
7	Alkalinity as CaCO <sub>3</sub>	APHA, 2320 B, Titrimetric Method	82.30	mg/l
8	Chloride as Cl <sup>-</sup>	APHA, 4500-Cl <sup>-</sup> H, Argentometric Method	46.20	mg/l
9	Total Residual Chlorine	IS 3025 P-26, Ortho-chloridine Method	*HDL1**DL 0.15mg/l	mg/l
10	Cyanide as CN <sup>-</sup>	APHA, 4500 CN <sup>-</sup> D, Barbituric Acid Method	*HDL1**DL 0.02 mg/l	mg/l
11	Magnesium as Mg	APHA, 3500 Mg D, Calculation Method	12.10	mg/l
12	Total Dissolved Solids	APHA, 2540 C, Gravimetric Method	282.00	mg/l
13	Total Suspended Solids	APHA, 2540 D, Gravimetric Method	36.00	mg/l
14	Dissolved Oxygen	APHA, 4500 O <sub>2</sub> B, Iodometric Method	8.4	mg/l
15	Nitrate	IS 3025 P-29, 2012	22.20	mg/l
16	Fluoride as F <sup>-</sup>	APHA, 4500-F <sup>-</sup> Cl, SPADNS Method	0.32	mg/l
17	Biological Oxygen Demand (BOD) (5 days at 27°C)	APHA, 5210 C / IS 3025 P-44	12.40	mg/l
18	COD	APHA, 5220 B, Open Reflux Method	38.20	mg/l



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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/NMM/SW/01			Report No.: DMSPL/SW/2402/001	
S. No.	Parameter	Test-Method	Result	Unit
19.	Conductivity @ 25 °C)	APHA, 2510 B, Conductivity Meter Method	0.462	mS/cm
20.	Nitrate as NO <sub>3</sub>	IS 3025 (P-34) Chromotropic Method	3.66	mg/l
21.	Sodium as Na	APHA, 3500 Na B, Flame Photometric Method	20.40	mg/l
22.	Potassium as K	APHA 3500 K B, Flame Photometric Method	5.24	mg/l
23.	Iron as Fe	IS 3025 (P-65):2014(RA-2019)	0.26	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)	*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.	Oil & Grease	Clause 6 of IS:3025 (Part 39)	*BDL (**DL 0.1 mg/l)	mg/l
29.	Anticlude 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.	Calcium as Ca	IS 3025 (P-65):2014(RA-2019)	*BDL (**DL) 0.002 mg/l	mg/l
34.	Temperature	IS 3025 (P-9):2023	25.6	mg/l
35.	Oil & Grease	IS:3025 (P-39):2023	*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 Ammonial 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	298	MPN/100ml
42.	Fecal Coliform	IS 1622, 1981, RA-2019	186	MPN/100ml

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



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## Test-Report

Sample Number: DMSPL/NUMM/SW/02  
Name of the Project: M/s Nadiullah Iron & Mn Mines,  
Under ESL Steel Limited, (Feegrade)  
At Nadiullah, PO - Koira  
Distt. Sundargarh, Odisha India.

Report No.: DMSPL/SW/2402/002  
Format No.: 7.8 F-01  
Party Reference No.: Nil  
Reporting Date: 20/02/2024

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, 23<sup>rd</sup> Edition 2017

Period of Analysis: 12/02/2024 - 20/02/2024  
Receipt Date: 12/02/2024  
Sampling Date: 10/02/2024  
Sampling Quantity: 2.0 Lit + 250ml  
Sampling Type: Composite

	Parameter	Test-Method	Result	Unit
1	pH (at 25 °C)	APHA, 4500-H <sup>+</sup> Electrode Method	7.44	--
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 <sub>3</sub>	APHA, 2340 C, EDTA Titrimetric Method	98.20	mg/l
6	Calcium as Ca	APHA, 3300 Ca B, EDTA Titrimetric Method	28.50	mg/l
7	Alkalinity as CaCO <sub>3</sub>	APHA, 2320 B, Titrimetric Method	82.25	mg/l
8	Chloride as Cl	APHA, 4500-Cl <sup>-</sup> B, Argentometric Method	40.50	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, 3200 Mg B, Calculation Method	6.89	mg/l
12	Total Dissolved Solids	APHA, 2540 C, Gravimetric Method	258.0	mg/l
13	Total Suspended Solids	APHA, 2540 D, Gravimetric Method	34.0	mg/l
14	Dissolved Oxygen	APHA, 4500 O.B, Indirect Method	5.6	mg/l
15	Sulphide	IS 3025 (P-29) 2022	26.20	mg/l
16	Fluoride as F	APHA, 4500 F-12, SPADNS Method	0.46	mg/l
17	Hardness (3 Days at 27°C)	APHA, 5210 C / IS 3025 P-44	10.40	mg/l
18	CaCO <sub>3</sub>	APHA, 5220 B, Open Reflux Method	36.50	mg/l



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## Test-Report

Sample No.: DMSPL/NMM/SW/02			Report No.: DMSPL/SW/2402/002	
S. No.	Parameter	Test-Method	Result	Unit
19.	Conductivity (at 25 °C)	APHA, 2510 B, Conductivity Meter Method	0.38	mS/cm
20.	Nitrate as NO <sub>3</sub>	IS 3025 (P-34), Chromatographic Method	5.40	mg/l
21.	Sodium as Na	APHA, 3500 Na B, Flame Photometric Method	26.50	mg/l
22.	Potassium as K	APHA 3500 K B, Flame Photometric Method	5.44	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)	0.24	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, 5510 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), 2011	26.00	mg/l
35.	Oil & Grease	IS 3025 (P-39), 2011	*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.	Ammoniacal Nitrogen	IS 3025 (P-34), 1988	*BDL (**DL 0.20 mg/l)	mg/l
41.	Total Coliform	IS 1622, 1981, RA-2019	252	MPN/100ml
42.	Fecal Coliform	IS 1622, 1981, RA-2019	140	MPN/100ml

\*BDL = Below Detection Limit, \*\*DL = Detection Limit



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## Test-Report

Sample No:	DMSPL/AA/NIMM/01-10	Report No:	DMSPL/AA/2402/001-010
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Foegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/04/2024
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Mar. 2024 to 31 <sup>st</sup> 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 & Mn Mines
Location:	Near Vedanta Office (A1)	Sample Condition:	Good/Clear
Latitude:	21° 58'18" N	Longitude:	85° 15'23" E

## RESULTS

Date	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
01.03.2024	61.2	25.4	5.9	10.4	0.41
04.03.2024	55.2	26.6	5.3	9.5	0.37
08.03.2024	58.9	25.9	4.5	9.3	0.36
11.03.2024	61.1	31.5	5.5	11.2	0.33
15.03.2024	57.5	26.3	6.9	10.7	0.38
18.03.2024	74.4	41.08	14.2	21.6	0.78
21.03.2024	54.2	25.8	6.7	10.5	0.54
26.03.2024	58.7	24.6	4.3	10.2	0.56
29.03.2024	56.3	26.8	5.6	12.4	0.36

Limit as per NAAQS*	Parameter	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
	--	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/NIMM/10-11	Report No:	DMSPL/AA/2402/010-011
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.	Reporting Date:	05/04/2024
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Mar. 2024 to 31 <sup>st</sup> 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 & Mn Mines
Location:	Near Mines Gate (A2)	Sample Condition:	Good/Clear
Latitude:	21° 57'35" N	Longitude:	85° 15'12" E

## RESULTS

Date	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
01.03.2024	58.2	23.8	6.6	10.9	0.58
04.03.2024	57.7	27.6	4.3	11.8	0.56
08.03.2024	61.7	25.2	5.4	11.5	0.44
11.03.2024	56.5	24.3	8.2	13.2	0.44
15.03.2024	54.9	27.9	6.3	15.2	0.43
18.03.2024	57.7	27.6	4.3	11.8	0.55
21.03.2024	56.5	25.3	8.2	13.2	0.44
26.03.2024	56.9	26.3	6.6	10.9	0.27
30.03.2024	60.3	28.3	4.1	11.8	0.43

Limit as per NAAQS*	Parameter	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
	--		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/NIMM/19-12	Report No:	DMSPL/AA/2402/019-012
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/04/2024
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Mar, 2024 to 31 <sup>st</sup> 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 & Mn Mines
Location:	Village - Rengalbercha (A3)	Sample Condition:	Good/Clear
Latitude:	21° 57' 19" N	Longitude:	85° 15' 43" E

## RESULTS

Date	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
02.03.2024	56.5	24.3	8.2	13.2	0.44
05.03.2024	54.9	27.9	6.3	15.2	0.43
09.03.2024	62.6	24.8	4.9	12.2	0.37
12.03.2024	58.2	26.8	4.8	10.7	0.57
14.03.2024	56.7	25.6	5.6	11.6	0.55
19.03.2024	61.1	31.5	5.5	11.2	0.33
22.03.2024	57.5	26.3	6.9	10.7	0.38
24.03.2024	54.2	25.8	6.7	10.5	0.54
28.03.2024	58.7	24.6	4.3	10.2	0.56

Limit as per NAAQS*	Parameter	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
	--	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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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/NIMM/28-13	Report No:	DMSPL/AA/2402/028-013
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Fuegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/04/2024
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Mar. 2024 to 31 <sup>st</sup> 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 & Mn Mines
Location:	Village Kalta (A4)	Sample Condition:	Good/Clear
Latitude:	21° 58'02" N	Longitude:	85° 13'20" E

## RESULTS

Date	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
02.03.2024	60.2	26.8	6.3	11.3	0.38
05.03.2024	60.6	25.2	5.6	10.4	0.38
09.03.2024	60.3	28.3	4.1	11.8	0.44
12.03.2024	62.6	24.8	4.9	12.2	0.37
16.03.2024	56.5	24.3	8.2	13.2	0.44
19.03.2024	54.9	27.9	6.3	15.2	0.43
22.03.2024	57.3	24.4	6.8	11.8	0.39
24.03.2024	60.0	25.0	5.6	11.4	0.37
30.03.2024	55.4	22.3	5.9	11.0	0.36

Limit as per NAAQS*	Parameter	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )
	--		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/NIMM/37-14	Report No:	DMSPL/AA/2402/037-014
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/04/2024
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Mar. 2024 to 31 <sup>st</sup> 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 & Mn Mines
Location:	Village Jhirapani (A5)	Sample Condition:	Good/Clear
Latitude:	21° 59'52" N	Longitude:	85° 13'09" E

## RESULTS

Date	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )
03.03.2024	59.6	30.2	6.9	10.2	0.38
06.03.2024	60.0	28.2	5.6	10.2	0.39
10.03.2024	56.3	26.3	6.6	10.9	0.27
13.03.2024	61.7	25.2	5.4	11.5	0.44
17.03.2024	56.5	24.3	8.2	13.2	0.44
20.03.2024	57.9	25.9	4.6	11.5	0.36
23.03.2024	58.9	28.9	6.3	11.5	0.35
25.03.2024	54.9	25.9	4.4	10.3	0.36
29.03.2024	62.1	26.5	5.7	10.4	0.38

Limit as per NAAQS*	Parameter	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )
	--	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/NIMM/46-15	Report No:	DMSPL/AA/2402/046-015
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Freegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/04/2024
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Mar. 2024 to 31 <sup>st</sup> 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 & Mn Mines
Location:	Village Kashira (A6)	Sample Condition:	Good/Clear
Latitude:	21° 55'09" N	Longitude:	85° 15'18" E

## RESULTS

Date	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO (mg/m <sup>3</sup> )
03.03.2024	58.2	26.8	4.8	10.7	0.57
06.03.2024	56.7	25.6	5.6	11.6	0.55
10.03.2024	61.1	31.5	5.5	11.2	0.33
13.03.2024	57.5	26.3	6.9	10.7	0.38
17.03.2024	74.4	41.08	14.2	21.6	0.78
20.03.2024	56.9	28.4	5.4	10.7	0.49
23.03.2024	56.5	25.3	8.2	13.2	0.44
26.03.2024	56.9	26.3	6.6	10.9	0.27
29.03.2024	60.3	28.3	4.1	11.8	0.43

Limit as per NAAQS*	Parameter	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO (mg/m <sup>3</sup> )
	--	--	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/NIMM/01 Report No: DMSPL/AAM/2403/001  
Name & Address of the Project: M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) 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 Parameter Required: As per EC Letter Customer Name: Nadidih Iron & Mn Mines Sample Condition: Good/Clear Longitude: 85° 15'23" E

Sample Collected By: DMSPL Representative  
Sample Description: Ambient Air Quality Monitoring  
Location: Near Vedanta Office (A1)  
Latitude: 21° 58'18" N

### 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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
06.03.2024	28.30	31.10	<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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
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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\*\*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 Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, 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:	Nadidih Iron & Mn Mines
Location:	Near Mines Gate (A2)	Sample Condition:	Good/Clear
Latitude:	21° 57'35" N	Longitude:	85° 15'12" 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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
10.03.2024	32.50	35.60	<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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
	--	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/3	Report No:	DMSPL/AAM/2403/003
Name & Address of the Project:	M/s. Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Dist. 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 - Rengalberha (A3)	Sample Condition:	Good/Clear
Latitude:	21° 57'19" N	Longitude:	85° 15'43" 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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
14.03.2024	25.10	35.30	<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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
	--	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/NIMM/4	Report No:	DMSPL/AAM/2403/004
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) 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 Kalta (A4)	Sample Condition:	Good/Clear
Latitude:	21° 58'02" N	Longitude:	85° 13'20" 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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
19.03.2024	27.20	38.20	<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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
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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\*\*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 ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Dist. 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 Jhirapani (A5)	Sample Condition:	Good/Clear
Latitude:	21° 59'52" N	Longitude:	85° 13'09" 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 ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
27.03.2024	28.10	35.10	<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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
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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\*\*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, (Feegrade) At Nadidih, PO - Koira Dist. 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° 55'09" N	Longitude:	85° 15'18" 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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
30.03.2024	26.40	37.50	<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 ( $\text{ng}/\text{m}^3$ )	Arsenic ( $\text{ng}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Benzo(a)pyrene ( $\text{ng}/\text{m}^3$ )
	--		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/FD/NIMM/01-01	Report No:	DMSPL/FD/2312/001-001
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Reporting Date:	05/04/2024
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Mar. 2024 to 31 <sup>st</sup> 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	08.03.2024	21° 57'40" N	85° 15'10" E	925.30
2	Haul Road	11.03.2024	21° 57'48" N	85° 15'16" E	949.20
3	Crushing Plant	16.03.2024	21° 57'35" N	85° 15'13" E	965.36
4	Screening Plant	20.03.2024	21° 57'12" N	85° 15'21" E	984.00
5	Ore Loading Area	27.03.2024	21° 57'26" N	85° 15'23" E	968.20
6	Waste Dump Area	30.12.2024	21° 57'33" N	85° 15'07" E	875.30

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/NIMM/01  
Name & Address of the Project: M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.

Report No.: DMSPL/WL/2403/01  
Format No.: 7.8 F-03  
Reporting Date: 27/03/2024  
Sampling Date: 24/03/2024

Sample Description : Ground Water Level Monitoring

### TEST RESULTS

S. No.	Location	Test Method	Depth (in Meter) Below Ground Level
1.	Near Mine Site	By Water Level Indicator (Model-Thermo Env. Inst.)	14.5

\*\*\*End of Report\*\*\*



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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/GW/NIMM/02  
**Name & Address of the Party:** M/s Nadidih Iron & Ma Mines,  
Under ESL Steel Limited, (Feegrade)  
At Nadidih, PO - Koira  
Distt. Sundargarh, Odisha India.

**Report No.:** DMSPL/WL/2403/02  
**Format No.:** 7.8 F-03

**Reporting Date:** 30/03/2024  
**Sampling Date:** 27/03/2024

**Sample Description :** Ground Water Level Monitoring

### TEST RESULTS

S. No.	Location	Test Method	Depth (in Meter) Below Ground Level
1.	Village Rengalberha	By Water Level Indicator (Model-Thermo Env.Inst.)	22.0

\*\*\*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/GW/NIMM/03  
Name & Address of the Party: M/s Nadidih Iron & Mn Mines,  
Under ESL Steel Limited, (Feegrade)  
At Nadidih, PO - Koira  
Distt. Sundargarh, Odisha India.

Report No.: DMSPL/WL/2403/03  
Format No.: 7.8 F-03

Reporting Date: 30/03/2024  
Sampling Date: 27/03/2024

Sample Description : Ground Water Level Monitoring

### TEST RESULTS

S. No.	Location	Test Method	Depth (in Meter) Below Ground Level
1.	Village Kalta	By Water Level Indicator (Model-Thermo Env.Inst.)	19.0

\*\*\*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 / TS

Sample Number: DMSPL/GW/NIMM/04 Report No.: DMSPL/WL/2403/04  
Name & Address of the Party: M/s. Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India. Format No.: 7.8 F-03  
Reporting Date: 28/03/2024  
Sampling Date: 26/03/2024

Sample Description : Ground Water Level Monitoring

S. No.	Location	Test Method	Depth (in Meter) Below Ground Level
1.	Village Jhirapani	By Water Level Indicator (Model-Thermo Env.Inst.)	21

\*\*\*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/GW/NIMM/02	Report No.:	DMSPL/GW/2402/002
Name & Address 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:	18/03/2024
		Ground Water Level :	4.1 Mtr.
Sample Description:	Ground Water Sample	Period of Analysis:	12/03/2024-18/02/2024
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 <sup>rd</sup> 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 <sup>+</sup> 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	Disagreeable	—	Agreeable	Agreeable
6.	Total Hardness as CaCO <sub>3</sub>	APHA , 2540 C, EDTA Titrimetric Method	145.30	mg/l	200	600
7.	Calcium as Ca	APHA , 3500 Ca B, EDTA Titrimetric Method	41.30	mg/l	75	200
8.	Alkalinity as CaCO <sub>3</sub>	APHA , 2520 B, Titrimetric Method	122.10	mg/l	200	600
9.	Chloride as Cl	APHA , 4500-Cl <sup>-</sup> B, Argentometric Method	79.50	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	7.10	mg/l	30	100
12.	Total Dissolved Solids	APHA , 2540 C, Gravimetric Method	347.5	mg/l	500	2000
13.	Sulphate as SO <sub>4</sub>	APHA , 4500 E, Turbidimetric Method	77.10	mg/l	200	400
14.	Fluoride as F	APHA , 4500-F <sup>-</sup> D, SPADNS Method	0.20	mg/l	1.0	1.5
15.	Nitrate as NO <sub>3</sub>	IS 3025 (P-34) ,Chromotropic Method	21.00	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	0.20	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/NIMM02			Report No.: DMSPL/GW/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, 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(**DI: 0.15mg/l)	mg/l	--	--
24.	Sodium as Na	APHA,3500 Na B, Flame Photometric Method	17.80	mg/l	--	--
25.	Potassium as K	APHA 3500 K B, Flame Photometric Method	0.35	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)	0.25	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

Sample Number:

DMSPL/GW/NIMM/03

Report No.:

DMSPL/GW/2402/003

Name & Address of the Project:

M/S. Nandan Iron & Steel Works  
Under ESL Steel Limited, (Feeder)  
At Nadidih, PO - Kolra  
Distt. Sundargarh, Odisha India.

Format No.:

ZSF-01

Party Reference No.:

NIL

Reporting Date:

18/03/2024

Ground Water Level:

4.1 Mtr.

Sample Description:

Ground Water Sample

Period of Analysis:

12/03/2024-18/03/2024

Sample Location:

Village Rengalberha

Receipt Date:

12/03/2024

Sample Collected by:

DMSPL Representative

Sampling Date:

10/03/2024

Sampling and Analysis Protocol:

IS 3025 & APHA 23<sup>rd</sup> 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 <sup>+</sup> B Electrometric Method	7.20	-	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 <sub>3</sub>	APHA , 2340 C, EDTA Titrimetric Method	272.3	mg/l	200	600
7.	Calcium as Ca	APHA , 3500 Ca B, EDTA Titrimetric Method	47.0	mg/l	75	200
8.	Alkalinity as CaCO <sub>3</sub>	APHA , 2320 B, Titrimetric Method	125.30	mg/l	200	600
9.	Chloride as Cl	APHA , 4500-Cl <sup>-</sup> B, Argentometric Method	77.60	mg/l	250	1000
10.	Cyanide as CN	APHA , 4500-CN <sup>-</sup> D	*BLQ (**LOQ 0.02 mg/l)	mg/l	0.05	No Relaxation
11.	Magnesium as Mg	APHA , 3500 Mg B, Calculation Method	10.90	mg/l	30	100
12.	Total Dissolved Solids	APHA , 2540 C, Gravimetric Method	357.20	mg/l	500	2000
13.	Sulphate as SO <sub>4</sub>	APHA , 4500 E, Turbidimetric Method	111.40	mg/l	200	400
14.	Fluoride as F	APHA , 4500-F D, SPADNS Method	0.43	mg/l	1.0	1.5
15.	Nitrate as NO <sub>3</sub>	IS 3025 (P-34) , Chromotropic Method	20.00	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	0.35	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	0.3
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/NIMM/03			Test Report		Report No.: DMSPL/GW/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.	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	20.50	mg/l	--	--
25.	Potassium as K	APHA 3500 K B, Flame Photometric Method	7.22	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)	0.12	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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ISO-9001/ISO-14001/ISO-45001/NABL Accredited Lab

<b>Sample Number:</b>	DMSPL/GW/NIMM/04	<b>Test-Report</b>	<b>Report No.:</b>	DMSPL/GW/2402/004
<b>Name &amp; Address of the Project:</b>	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.		<b>Format No.:</b>	7.8 F-01
			<b>Party Reference No.:</b>	NIL
			<b>Reporting Date:</b>	18/03/2024
			<b>Ground Water Level :</b>	4.1 Mtr.

<b>Sample Description:</b>	Ground Water Sample	<b>Period of Analysis:</b>	12/03/2024-18/03/2024
<b>Sample Location:</b>	Village Kalta	<b>Receipt Date:</b>	12/03/2024
<b>Sample Collected by:</b>	DMSPL Representative	<b>Sampling Date:</b>	10/03/2024
<b>Sampling and Analysis Protocol:</b>	IS 3025 & APHA 23 <sup>rd</sup> Edition 2017	<b>Sampling Quantity:</b>	5.0 Ltr + 250ml
<b>Preservation:</b>	Ice Box	<b>Sampling Type:</b>	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	8.90	--	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	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO <sub>3</sub>	APHA , 2140 C, EDTA Titrimetric Method	130.20	mg/l	200	600
7.	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	41.50	mg/l	75	200
8.	Alkalinity as CaCO <sub>3</sub>	APHA , 2320 B, Titrimetric Method	121.50	mg/l	200	600
9.	Chloride as Cl	APHA, 4500-C' B, Argentometric Method	85.60	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	6.50	mg/l	30	100
12.	Total Dissolved Solids	APHA , 2540 C, Gravimetric Method	350.2	mg/l	500	2000
13.	Sulphate as SO <sub>4</sub>	APHA, 4500 E, Turbidimetric Method	74.20	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 <sub>3</sub>	IS 3025 (P-34) ,Chromotropic Method	23.42	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.	Aluminum 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

Sample No: DMSPL/GW/NIMM/04

Report No: DMSPL/GW/2402/004

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.	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	*BLQ(**DL 0.15mg/l)	mg/l	-	-
24.	Sodium as Na	APHA,3500 Na B, Flame Photometric Method	22.56	mg/l	-	-
25.	Potassium as K	APHA 3500 K.B, Flame Photometric Method	10.82	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)	0.15	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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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/2402005	Report No.:	DMSPL/GW/2402005
Name & Address 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:	18/03/2024
		Ground Water Level :	4.1 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 <sup>rd</sup> 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 <sup>+</sup> 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 <sub>3</sub>	APHA , 2540 C, EDTA Titrimetric Method	159.30	mg/l	200	600
7.	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	43.50	mg/l	75	200
8.	Alkalinity as CaCO <sub>3</sub>	APHA , 2320 B, Titrimetric Method	147.30	mg/l	200	600
9.	Chloride as Cl	APHA, 4500-Cl <sup>-</sup> H, Argentometric Method	95.10	mg/l	250	1000
10.	Cyanide as CN	APHA , 4500 CN <sup>-</sup> D	*BLQ(LOQ 0.02 mg/l)	mg/l	0.05	No Relaxation
11.	Magnesium as Mg	APHA , 3500 Mg B, Calculation Method	12.10	mg/l	30	100
12.	Total Dissolved Solids	APHA , 2540 C, Gravimetric Method	371.40	mg/l	500	2000
13.	Sulphate as SO <sub>4</sub>	APHA , 4500 E, Turbidimetric Method	141.90	mg/l	200	400
14.	Fluoride as F	APHA , 4500-F <sup>-</sup> D, SPADNS Method	1.20	mg/l	1.0	1.5
15.	Nitrate as NO <sub>3</sub>	IS 3025 (P-34) ,Chromotropic Method	22.80	mg/l	45	No Relaxation
16.	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	0.25	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/NIMM/05			Report No.: DMSPL/GW/2402/005			
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 G, 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	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,9500 Na B, Flame Photometric Method	18.90	mg/l	--	--
25.	Potassium as K	APHA 3500 K B, Flame Photometric Method	6.10	mg/l	--	--
26.	Zinc as Zn	IS 3025 (P-65):2014(RA:2019)	1.25	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 No: Name & Address of the Project:	DMSPL/AN/NIMM/01-01 M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Report No: Reporting Date: Ref. No: Monitoring Period: Equipment Used: Protocol Used:	DMSPL/AN/2403/001-01 05/04/2024 NIL 1 <sup>st</sup> Mar. 2024 to 31 <sup>st</sup> Mar. 2024 Sound Level Meter IS-9989
Sample Collected By: Sample Description: Sample Type :	DMSPL Representative Ambient Noise Monitoring Noise Level Monitoring	Parameter Required: Customer Name: Sample Condition:	As per Govt. Standard Nadidih Iron & Mn Mines Good Clear

## RESULTS

Sr. No.	Location	Date	Latitude	Longitude	Day Time [dB(A)]	Night Time [dB(A)]
1	Near Mine office	05.03.2024	21°58'18" N	85°15'23" E	62.0	48.6
2	Near Mines Gate	08.03.2024	21°57'35" N	85°15'12" E	61.2	51.4
Standard Limit Industrial Area as per CPCB					75.0	70.0
3	Village Rengalberha	12.03.2024	21°57'19" N	85°15'43" E	50.9	42.5
4	Village Kaha	17.03.2024	21°58'02" N	85°13'20" E	51.2	43.2
5	Village Jhirapani	21.03.2024	21°59'52" N	85°13'09" E	50.6	41.7
6	Village Kashira	23.03.2024	21°55'09" N	85°15'18" E	52.0	40.9
7	Upwind Direction	27.03.2024	21°58'43" N	85°15'44" E	53.6	42.0
8	Downwind Direction	30.03.2024	21°57'10" N	85°13'20" E	52.8	42.5
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/2412/001
Name & Address of Party:	M/s Nadidih Iron & Mn Ore Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.	Format No.:	5.10 F-01
		Party Reference No.:	NIL
Sample Description:	SOIL	Reporting Date:	30/03/2024
Sampling Location:	Inside Mine Area	Receipt Date:	24/03/2024
Sample Collected by:	DMSPL Lab Representative	Sampling Date:	20/03/2024
		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)	8.14	--
2.	Conductivity	IS:14767-2000 Reaffirmed 2006	0.29	mS/cm
3.	Soil Texture	USDA Method, 1968	Silty Loam	--
4.	Color	USDA Method, 1968	Yellowish	--
5.	Water holding capacity	USDA Method, 1968	21.80	%
6.	Bulk density	USDA Method, 1968	1.20	gm/cc
7.	Chloride as Cl	USDA Method, 1968	24.70	mg/100gm
8.	Calcium as Ca	USDA Method, 1968	31.50	mg/100gm
9.	Sodium as Na	USDA Method, 1968	28.90	mg/100gm
10.	Potassium as K	USDA Method, 1968	61.30	kg/hect.
11.	Organic Matter	IS:2720 (P-22, 1972)	0.40	%
12.	Magnesium as Mg	USDA Method, 1968	11.10	mg/100gm
13.	Available Nitrogen as N	IS:14684, 1999	187.60	kg/hect.
14.	Available Phosphorus	USDA, APHA-4500PC	34.60	kg/hect.
15.	Zinc as Zn	APHA-3030D, APHA-3111B	4.60	mg/100gm
16.	Manganese as Mn	APHA-3030D, APHA-3111B	2.40	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	1.45	mg/100gm
20.	Copper as Cu	APHA-3030D, APHA-3111B	3.20	mg/100gm



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## Test Report

Sample No:	DMSPL/AAFS/NIMM/01-09	Report No:	DMSPL/AAFS/2312/001-09
Name & Address of the Project:	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Dist. Sundargarh, Odisha India.	Reporting Date:	05/03/2024
		Ref. No:	NIL
		Monitoring Period:	1 <sup>st</sup> Mar. 2024 to 31 <sup>st</sup> 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 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 ( $\text{ng}/\text{m}^3$ )	Pb ( $\mu\text{g}/\text{m}^3$ )
Near Vedanta Office	04.03.2024	55.2	1.9	1.03	0.29	<0.5	0.07
Near Mines Gate	11.03.2024	56.5	2.0	1.04	0.25	<0.5	0.06
Village - Rengalberha	14.03.2024	56.7	2.0	1.05	0.28	<0.5	0.07
Village Kalta	19.03.2024	54.9	1.9	1.03	0.30	<0.5	0.08
Village Jhirapani	23.03.2024	58.9	2.0	1.07	0.29	<0.5	0.07
Village Kashira	29.03.2024	60.3	2.1	1.12	0.31	<0.5	0.09

\*\* End of Report \*\*



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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, (Feegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India. Format No.: 7.S F-03 Part Reference No.: NIL  
 Reporting Date: 20.03.2024  
 Period of Analysis: 15.03.2024 to 20.03.2024  
 Receipt Date: 15.03.2024

Sample Collected By: DMSPL Representative  
 Sample Description: Ambient Noise Monitoring  
 Sample Type: Noise Level Monitoring

Sample Description	Stack Emission Monitoring
General Information	.....
Sample Location	..... Mine Site
Sample Collected by	..... DMSPL Lab Representative
Date of Sampling	..... 15.03.2024
Sampling Duration (Minutes)	..... 40.0 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)	..... 28.00
Temperature of Stack Gases-Ta (°C)	..... 198.30
Velocity of Stack Gases (m/s)	..... 9.40
Flow rate of PM (LPM)	..... 24.00
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)	IS11255(P-1), Gravimetric Method	35.10	mg/Nm <sup>3</sup>	75
2	Oxide of Nitrogen (as NOx)	IS 11255(P-7)	220.5	PPM	710
3	NMHC	DMSPL/ENVSTP/ST/FGA/01 Issue No. 01.01/1121	24.9	mg/Nm <sup>3</sup>	100
4	Sulphur Oxide (as SO2)	IS11255(P-2), Titrimetric Method	20.80	mg/Nm <sup>3</sup>	--
5	Carbon Monoxide (CO)	DMSPL/ENVSTP/ST/FGA/01 Issue No. 01.01/1121	37.20	mg/Nm <sup>3</sup>	150

Note- Laboratory Standard Testing Procedure

**\*\* End of Report \*\***



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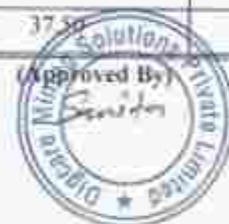


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<b>Sample Number:</b>	DMSPL/NIMM/SW/01	<b>Test-Report</b>	<b>Report No.:</b>	DMSPL/SW/2402/001
<b>Name of the Project:</b>	M/s Nadidih Iron & Mn Mines, Under ESL Steel Limited, (Feegrade) At Nadidih, PO - Koira Distt. Sundargarh, Odisha India.		<b>Format No.:</b>	7.8 F-01
			<b>Party Reference No.:</b>	NIL
			<b>Reporting Date:</b>	20/03/2024
<b>Sample Description:</b>	Surface Water Sample		<b>Period of Analysis:</b>	12/03/2024– 20/03/2024
<b>Sampling Location:</b>	River Sample (Near Mines Upstream )		<b>Receipt Date:</b>	12/03/2024
<b>Sample Collected by:</b>	DMSPL Lab Representative		<b>Sampling Date:</b>	10/03/2024
<b>Preservation:</b>	Ice Box		<b>Sampling Quantity:</b>	2.0 Ltr + 250ml.
<b>Sampling and Analysis Protocol:</b>	APHA & IS, 23 <sup>rd</sup> Edition 2017		<b>Sampling Type:</b>	Composite

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	APHA ,4500-H <sup>+</sup> B. Electrometric Method	7.50	--
2.	Colour	APHA ,2120 B. Visual Comparison Method	18.3	Hazen
3.	Turbidity	APHA, 2130 B. Nephelometric Method	<1	NTU
4.	Odour	APHA, 2150 B. Threshold Test Method	Agreeable	--
5.	Total Hardness as CaCO <sub>3</sub>	APHA , 2340 C. EDTA Titrimetric Method	105.20	mg/l
6.	Calcium as Ca	APHA, 3500 Ca B. EDTA Titrimetric Method	21.30	mg/l
7.	Alkalinity as CaCO <sub>3</sub>	APHA , 2320 B. Titrimetric Method	81.30	mg/l
8.	Chloride as Cl	APHA, 4500-Cl <sup>-</sup> B. Argentometric Method	45.60	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 <sup>-</sup> D. Barbituric Acid Method	*BDL (**DL 0.02 mg/l)	mg/l
11.	Magnesium as Mg	APHA , 3500 Mg B. Calculation Method	12.02	mg/l
12.	Total Dissolved Solids	APHA , 2540 C. Gravimetric Method	281.30	mg/l
13.	Total Suspended solids	APHA,2540 D Gravimetric Method	35.90	mg/l
14.	Dissolved Oxygen	APHA,4500 O B. Iodometric Method	8.5	mg/l
15.	Sulphide	IS 3025 (P-29):2022	21.8	mg/l
16.	Fluoride as F	APHA , 4500-F-D. SPADNS Method	0.31	mg/l
17.	BOD (3 Days at 27°C)	APHA, 5210 C / IS 3025, P-44	12.40	mg/l
18.	COD	APHA, 5220 B, Open Reflux Method	37.50	mg/l



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Sample No.: DMSPL/NMM/SW/01		Report No.: DMSPL/SW/2402/01		
<b>Test-Report</b>				
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 <sub>3</sub>	IS 3025 (P-34), Chromotropic Method	3.60	mg/l
21.	Sodium as Na	APHA, 3500 Na B, Flame Photometric Method	20.00	mg/l
22.	Potassium as K	APHA 3500 K B, Flame Photometric Method	5.20	mg/l
23.	Iron as Fe	IS 3025 (P-65):2014(RA:2019)	0.25	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	24.6	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	297	MPN/100ml
42.	Fecal Coliform	IS 1622,1981, RA-2019	185	MPN/100ml

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



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## Test-Report

Sample Number:	DMSPL/NIMM/SW/02	Report No.:	DMSPL/SW/2402/002
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:	20/03/2024
Sample Description:	Surface Water Sample	Period of Analysis:	12/03/2024– 20/03/2024
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 <sup>rd</sup> Edition 2017	Sampling Type:	Composite

	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	APHA ,4500-H <sup>+</sup> B Electrometric Method	7.55	--
2.	Colour	APHA ,2120 B, Visual Comparison Method	23.6	Hazen
3.	Turbidity	APHA, 2130 B, Nephelometric Method	<1	NTU
4.	Odour	APHA, 2150 B , Threshold Test Method	Agreeable	--
5.	Total Hardness as CaCO <sub>3</sub>	APHA , 2340 C, EDTA Titrimetric Method	99.10	mg/l
6.	Calcium as Ca	APHA, 3500 Ca B, EDTA Titrimetric Method	27.90	mg/l
7.	Alkalinity as CaCO <sub>3</sub>	APHA , 2320 B, Titrimetric Method	82.20	mg/l
8.	Chloride as Cl	APHA, 4500-Cl B, Argentometric Method	39.80	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 <sup>-</sup> D, Barbituric Acid Method	*BDL(**DL 0.02 mg/l)	mg/l
11.	Magnesium as Mg	APHA , 3500 Mg B, Calculation Method	6.48	mg/l
12.	Total Dissolved Solids	APHA , 2540 C, Gravimetric Method	257.0	mg/l
13.	Total Suspended solids	APHA,2540 D Gravimetric Method	34.8	mg/l
14.	Dissolved Oxygen	APHA,4500 O B Iodometric Method	5.7	mg/l
15.	Sulphide	IS 3025 (P-29):2022	25.90	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	10.60	mg/l
18.	COD	APHA, 5220 B, Open Reflux Method	36.90	mg/l



- Note: -
1. This report is not to be reproduced entirely or in part and cannot be used as evidence in the court of law
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  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/NIMM/SW/02			Report No.: DMSPL/SW/240	
S. No.	Parameter	Test-Method	Result	Unit
19.	Conductivity (at 25 °C)	APHA, 2510 B, Conductivity Meter Method	0.37	mS/cm
20.	Nitrate as NO <sub>3</sub>	IS 3025 (P-34), Chromotropic Method	5.32	mg/l
21.	Sodium as Na	APHA, 3500 Na B, Flame Photometric Method	25.90	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)	0.25	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	26.50	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	254	MPN/100ml
42.	Fecal Coliform	IS 1622,1981, RA-2019	149	MPN/100ml

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



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