

The Chairman
State Environment Impact Assessment Authority, Odisha
5RF-2/1, Acharya Vihar, Unit-IX, OPTCL Colony,
Anand Bazar, Bhoi Nagar,
Bhubaneswar, Odisha 751022

Email: seiaaodisha@gmail.com

MD/ENV/ 1292/ 109 /2024

Date: 27.11.2024

Ref: Environmental Clearance File No.55807/89-MINB1/06-2022, dated: 18.10.2022.

Sub: Half-yearly compliance status report of Environmental Clearance conditions for the period April 2024 – September 2024 in respect of Kalamang West (Northern Part) Iron

Ore Mines, M/s Tata Steel Limited.

Dear Sir,

Kindly find attached herewith the half-yearly compliance status report in respect of the stipulated Environmental Clearance conditions of Kalamang West (Northern Part) Iron Ore Mines, M/s Tata Steel Limited for the period from April 2024 – September 2024. The same has been mailed in soft copy to your good office on email: seiaaodisha@gmail.com for your ready reference.

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

Thanking you,

Yours faithfully, f: Tata-Steel Limited

Chief (Mine Planning & Projects), OMQ

Encl.: As above Copy to

- The Chairman, Central Pollution Control Board, Southern Conclave, Block 502, 5th & 6th Floors, 1582 Rajdanga Main Road, Kolkata - 700107 (W. B.)
- The Member Secretary, State Pollution Control Board, Paribesh Bhawan, A/118, Nilakantha Nagar, Unit – VIII, Bhubaneswar – 751012 (Odisha)
- The Regional Officer, SPCB, Near Panposh Hockey Chowk, Rourkela, Dist Sundargarh
- The Regional Officer, SPCB, College Road, Baniapata, Keonjhar 758001 (Odisha)
- The Regional Officer, MoEF & CC, (EZ), MoEF & CC, Govt. of India, A/3, Chandrasekharpur, Bhubaneswar – 751013 (Odisha).

TATA STEEL LIMITED

Your (Half Yearly Compliance Report) has been Submitted with following details		
Proposal No	SIA/OR/MIN/55807/2020	
Compliance ID	112690283	
Compliance Number(For Tracking)	EC/M/COMPLIANCE/112690283/2024	
Reporting Year	2024	
Reporting Period	01 Dec(01 Apr - 30 Sep)	
Submission Date	29-11-2024	
RO/SRO Name	ARTATRANA MISHRA	
RO/SRO Email	jhk109@ifs.nic.in	
State	ODISHA	
RO/SRO Office Address	Integrated Regional Offices, Bhubaneswar	
Note:- SMS and E-Mail has been sent to ARTATRANA MISHRA, ODISHA with Notification to Project Proponent.		

Environment Clearance compliance condition for Kalamang West (Northern Part)

Iron ore Block

Sr. No.	Condition	Compliance status
A.	Specific conditions:	
(i)	The proponent shall implement the Pollution Control Measures and safeguards as proposed in the Environment Management Plan (EMP) of EIA report.	Agreed. Necessary arrangements being carried out. It will be complied once the mine is operational.
(ii)	The public road passing through the mining lease shall be given access to the public after lease execution in consultation with the villagers.	The public road inside the mining lease will be given access to the general public after Mining Lease Deed execution. The public road passing inside the mine lease area will be diverted along southern mine lease boundary for mining purpose. NoC for the diversion of road has been obtained by Directorate of Mines & Geology, Steel & Mines Dept., Govt. of Odisha, Bhubaneshwar vide letter no.
		DMO-MCIII-MACON-0017-2023 10766/DoMG dated 21.08.2023. The copy of the letter is attached herewith. Till the time diversion of public road is completed, villages will be given access to use existing road.
(iii)	As submitted by project proponent vide letter no.GM/OMQ/70/11-G/FY"23 dated 17.10.2022, an amount of Rs.140 Lakhs shall be spent towards implementation for surface water run-off management, installation of STP & ETP in three years time period.	In progress of compliance.
В.	Standard Conditions:	Starting of mining operation.
Ī.	Statutory compliance:	
(i)	This Environmental Clearance (EC) is subject to orders/ judgment of Hon"ble Supreme Court of India, Hon"ble High Court, Hon"ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.	Agreed. We agreed to abide to all the orders/ judgment of Hon"ble Supreme Court of India, Hon"ble High Court, Hon"ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.
(ii)	The Project proponent complies with all the statutory requirements and judgment of Hon"ble Supreme Court dated 2nd August,2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors before commencing the mining operations.	Agreed. We agree to comply with obtaining all statutory requirements before commencing of mining operations.

(iii)	The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of Judgment of Hon"ble Supreme Court dated 2nd August, 2017 in Write Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors.	Not Applicable. It is a virgin iron ore block obtained through auction process. No prior compensation levied.
(iv)	This Environmental Clearance shall become operational only after receiving formal NBWL Clearance from MoEF&CC subsequent to the recommendations of the Standing Committee of National Board for Wildlife, if applicable to the Project,	The NBWL clearance from MoEFCC is not applicable for this project.
(v)	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.	Agreed. The project has been granted Stage-I approval under Sec 2(ii) of FC Act,1980 vide F.No. 8-13/2022-FC, dated 22.12.2023 for forest land over 42.608 Ha. Forest Stage-I is attached herewith
(vi)	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.	Agreed CTE for the project has been obtained by the State pollution control board of Odisha via letter No. 20953/IND-II-CTE-6743 dated 11.11.2022. The project has applied for CTO to State Pollution Control Board, Odisha vide application No. 5835587 dated 10.09.2024. the operation will start after obtaining CTO.
(vii)	The PP shall adhere to the provision of the Mines Act, 1952, Mines and Mineral (Development & Regulation), Act, 2015 and rules & regulations made there under. PP shall adhere to various circulars issued by Directorate General Mines Safety (DGMS) and Indian Bureau of Mines from time to time.	Agreed All the relevant provisions of the Mines Act, 1952, Mines and Mineral (Development & Regulation), Act, 2015 and rules & regulations made there under shall be adhered to. The various circulars issued by DGMS and IBM from time to time will be strictly adhered to as directed.
(viii)	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.	Agreed. Consents from all the concerned land owners, before start of mining operations will be obtained as per the provisions of MMDR Act, 1957 and rules made there under in respect of lands which are not owned
(ix)	The Project Proponent shall follow the mitigation measures provided in MoEF&CC"s Office Memorandum No. Z-I1013/57/2014-IA.II (M), dated 29th October, 2014, titled "Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and	Agreed. Provisions made in the Office Memorandum are taken into consideration and proper mitigative measures will be taken to address impact of mining on Habitations and villages.

	villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area".	
(x)	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 groundwater for the project.	Complied. CGWA renewal NOC has been granted vide letter no. CGWA/NOC/MIN/REN/1/2024/10145 dated 12.11.2024 valid from 01.09.2024 till 31.08.2026.
(xi)	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 A copy of EC letter has been marked to Guali Gram panchayat & Malda Gram panchayat.
(xii)	State Pollution Control Board shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collector's office/ Tahasildar's Office for 30 days.	Complied.
(xiii)	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 and web site of the Ministry of Environment, Forest and Climate Change (www.environmentclearance.nic.in). A copy of the advertisement may be forwarded to the concerned MoEF&CC Regional Office for compliance and record.	Complied. Advt. done in Sunday Pioneer dated 23.10.2022 and in Pragatibadi Odiya Newspaper on Sunday dated 23.10.2022. The copy of the advertisement is forwarded to the MoEFCC Regional Office at Bhubaneswar for compliance and record.
(xiv)	The Project Proponent shall inform the MoEF&CC/SEIAA, Odisha 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.	Agreed. In case there will be any change in the ownership of Mining lease, MoEF&CC/SEIAA will be informed in prior & the same will be carried as per the provisions of EIA Notification, 2006.
(1)	Air quality monitoring and preservation	
(i)	The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120° is made between the monitoring locations to monitor critical parameters, relevant for mining operations, of air pollution viz. PM10, PM2.5, NO2; CO 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	Installation of CAAQMS and digital display of the data shall be done in consultation with Regional office of OSPCB. Letter requesting approval for the location of CAAQMS has been submitted to RO,SPCB, Sundargarh has been submitted vide letter No. GM/OMQ/63/11-

transportation and use of heavy machinery in Manual monitoring of ambient air quality is being carried out in core & buffer zone. Air the impact zone. The ambient air quality shall also be monitored at prominent places like office Monitoring report attached herewith. 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. (ii) Effective safeguard measures for prevention of Effective safeguard measures for dust dust generation and subsequent suppression generation & subsequent suppression will (like regular water sprinkling, metalled road be taken during mining operation. construction etc.) shall be carried out in areas prone to air pollution wherein high levels of Fugitive emission from sources will be PM10 and PM2.5 are evident such as haul road, monitored by installation of pollution control loading and unloading point and transfer points. equipment and necessary dust The Fugitive dust emissions from ah sources suppression arrangements shall be made to ensure air pollution level conform to the shall be regularly controlled by installation of equipment/ machineries standards prescribed by the MoEF&CC/ required and Central Pollution Control Board. preventive maintenance. Use of suitable watersoluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEF&CC/ Central Pollution Control Board. (11) Water quality monitoring and preservation In case, immediate mining scheme envisages (i) Agreed During current mining scheme period there intersection of ground water table, then Environmental Clearance shall is no intersection of ground water (GW) become operational only after receiving formal clearance table. from CGWA. In case, mining operation involves In case there is an intersection of GW level permission/NOC shall be taken from intersection of ground water table at a later stage, then PP shall ensure that prior approval CGWA & MoEF&CC. from CGWA and MoEF&CC 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. Regular monitoring of the flow rate of the springs Being Complied. (ii) and perennial nallahs flowing in and around the Regular water quality monitoring of the springs & nallahs is being carried out by mine lease shall be carried out and records maintain. The natural water bodies and or NABL accredited lab. streams which are flowing in an around the Monitoring report for surface water quality village, should not be disturbed. The Water Table should be nurtured so as not to go down analysis attached herewith. the pre-mining below period. case of any water scarcity in the area, the Project Proponent has to provide water to the villagers for their use. A provision for regular monitoring of water table in open dug wall located in village should be incorporated to ascertain the impact of mining over ground

water table. The Report on changes in Ground

water level and quality shall be submitted on six-

	monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.	
(iii)	Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.	Being Complied. Ground water quality and ground water level is monitored in open well in surrounding villages. The network of open dug wells is being established for monitoring the GW level. Monitoring report for ground water quality analysis attached herewith.
(iv)	The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease and maintain its records. The project proponent shall undertake regular monitoring of water quality upstream and downstream of water bodies passing within and nearby/ adjacent to the mine lease and maintain its records. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. PP shall carryout regular monitoring w.r.t. pH and included the same in monitoring plan. The parameters to be monitored shall include their water quality vis-avis 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 MoEF&CC / SEIAA, Odisha. 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 be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, SEIAA, Odisha, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board. Clearly showing the trend analysis on six-monthly basis.	Being complied. Regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease is being carried out by a NABL accredited lab. Monitoring report containing surface water quality analysis attached herewith.
(v)	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	Agreed. It will be complied after the commencemen of the mining activities.

	(TDS), Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular No. J- 20012/1 /2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred in this regard.	
(vi)	The project proponent shall construct retaining wall and settling pond within the lease area. Further, check dams shall be constructed at strategic locations in which rainwater passes in rainy season. Finally, the excess supernanted after sedimentation shall be allowed to spill away through stone pitch structure to the nearby valley.	Agreed. Retaining wall and settling pond along with check dams will be constructed as per the approved mine plan after commencement of the mining activities.
(vii)	De-silting of agricultural lands in buffer zone and beyond including nearby Nalas/rivers perennially periodically and perpetually caused due to wash up of minerals/OB/dumps shall be done as per SOP submitted. A legal affidavit shall be submitted within 6 months from the date of issue of Environmental Clearance to this effect with periodicity of desilting.	De-silting of agricultural lands in buffer zone and beyond including nearby Nalas/rivers perennially periodically and perpetually caused due to wash up of minerals/OB/dumps shall be done as per SOP submitted. A legal affidavit with respect to this is attached herewith.
(viii)	Detail design of the existing retaining wall and the proposed for the expansion from a chartered Civil Engineer shall be submitted within 6 months from the date of issue of Environmental Clearance to ensure that no silt after wash up is escaped from the core/buffer zone of the mines.	Design of the retaining wall from a
(ix)	Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area in consultation with Central Ground Water Board/ State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office, MoEF & CC annually.	Agreed. Rainwater harvesting measures as per the hydrogeological study will be implemented at the mine site.
(x)	Industrial waste water (workshop and waste water from the mine) should be properly collected and treated in an ETP as proposed so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.	The control of the
(xi)	The water balance/water auditing shall be carried out and measure for reducing the consumption of water shall be taken up and	It will be complied after the commencement of the mining activities.

	reported to the Regional Office of the MoEF & CC and State Pollution Control Board.	Initiatives like rain water harvesting & reuse of water from ETP, STP will be done in order to reduce the consumption of water.
(111)	Noise and vibration monitoring and prevention	
(i)	The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.	It will be complied. The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer will be measured as per DGMS guidelines after the mine becomes operational.
(ii)	The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right 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.	All precautionary actions will be taken not
(iii)	The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The worker 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/ personals/ laborers are working without personal protective equipment.	It will be complied. All the workers will be provided with earmuffs & ear plugs & other PPE w.r.t to the location and type of work. Adequate training & awareness will be provided for health & safety. Monitoring Report for Noise level in core & buffer zones is attached herewith.
(iV) (i)	Mining Plan The Project Proponent shall adhere to the working parameters of mining plan which was submitted at the time of EC appraisal wherein year-wise plan was mentioned for total excavation i.e. quantum of mineral, waste, over burden, inter burden and top soil etc. No change in basic mining proposal like mining technology, total excavation, mineral & waste production, lease area and scope of working (viz. method of mining, overburden & dump management, O.B & dump mining, mineral transportation mode, ultimate depth of mining etc.) shall not be carried out without prior approval of the Ministry of Environment, Forest and Climate Change, which entail adverse environmental impacts, even if it is a part of approved mining plan modified after grant of EC or granted by State	Agreed. We will adhere to the working parameters of mining plan which was submitted at the time of EC appraisal.

	Govt. in the form to Short Term Permit (STP), Query license or any other name.	
(ii)	The Project Proponent shall get the Final Mine Closure Plan along with Financial Assurance approved from Indian Bureau of Mines/Department of Mining & Geology as required under the Provision of the MMDR Act, 1957 and Rules/ Guidelines made there under. A copy of approved final mine closure plan shall be submitted within 2 months of the approval of the same from the competent authority to the concerned Regional Office of the Ministry of Environment, Forest and Climate Change for record and verification.	Final Mine Closure Plan along with financial assurance shall be prepared before final closure of mine as per the relevant provisions of MMDR-1957. The approved final mine closure plan will be submitted to concerned regional office of MoEF&CC within 2 months of its approval.
(iii)	The land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life shall be governed as per the approved Mining Plan. The excavation vis-a-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self-sustaining. The compliance status shall be submitted half-yearly to the MoEF&CC and its concerned Regional Office / SEIAA, Odisha.	Agreed. Excavation vis-a-vis backfilling in the mine lease area and corresponding afforestation will be carried out as per the approved mine plan & the compliance status will be submitted half-yearly to the MoEF&CC and its concerned Regional Office / SEIAA, Odisha.
(V)	Land reclamation	
(i)	The Overburden (O.B.) generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by D.G.M.S w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of top soil/OB dumps. The topsoil shall be used for land reclamation and plantation.	Agreed. Mining operation is yet to start. The overburden generated shall be stacked & governed as per the approved mine plan.
(ii)	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 by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.	Agreed. It will be complied as per approved mining plan and DGMS guidelines.
(iii)	The reclamation of waste dump sites shall be done in scientific manner as per the Approved Mining Plan cum Progressive Mine Closure Plan.	Agreed. It will be done as per Approved Mining Plancum Progressive Mine Closure Plan.

(iv)	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 dozer/compactors thereby ensuring proper filling/leveling of dump mass. In critical areas, use of geo textiles/ geo-membranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.	Agreed. Adequate measures to prevent soil erosion like grass plantation/ coir matting on dump slopes will be practiced. Further plantation with native species will be done on all dump slopes. Dumps will be protected by retaining walls.
(v)	The Project Proponent shall carry out slope stability study in case the dump height is more than 30 meters. The slope stability report shall be submitted to concerned regional office of MoEF&CC, Govt. of India, Bhubaneswar as well as SEIAA, Odisha.	Agreed. The slope stability study has been carried out CIMFR-Dhanbad. The ultimate height of the dump is 43m. The final report of the same is attached as herewith.
(vi)	Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral 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.	It will be complied. A detailed surface management study is being carried out for the same & same shall be implemented with the start of mining operation.
(vii)	Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the comers of the garland drains.	It will be complied. Mining is yet to start. Check dams of appropriate size, gradient and length will be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies
(viii)	The top soil, 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 top soil 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 w.r.t. safety in mining operations shall be strictly	Agreed. Top soil will be stored at earmarked site and its physical parameters will be maintained as per DGMS guidelines. The topsoil will be used for land reclamation and plantation purpose only.

	adhered to maintain the stability of dumps. The topsoil shall be used for land reclamation and plantation purpose.	
(ix)	The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.	Agreed. Re-grassing of the mining area & planation will be carried out according to the mine closure plan.
(VI)	Transportation	
(i)	No Transportation of the minerals shall be allowed in case of roads passing through transportation of the minerals leaving an adequate gap (say at least 200 meters) 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 is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers.	Mining operation is yet to start. It will be complied. Proper traffic study of the mineral transportation has been carried out and the recommendations of the same will be implemented with start of mining operations. Pollution Under Control (PUC) certificate for all the vehicles from will be maintained and water sprinkling will also be done regularly to arrest the dust load.
(ii)	The Main haulage road within the mine lease should be provided with a permanent water arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipment like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.	It will be complied. The provision for permanent & mobile water sprinkling arrangement will be made in areas of dust generation. Pollution control equipment like dry fogging system etc. shall be installed at Crushers belt-conveyors and other areas prone to ai pollution. Closed belt conveyors will be installed in the crushing & Screening plant to arrest fugitive dust emission.
(iii)	Traffic management shall be done as per recommendation of Traffic Management Study Report.	It will be complied. Recommendations of the traffic study will be implemented.

(iv)	The Project Proponent shall provide parking plaza for the heavy vehicles within the lease area as recommendation of NEERI.	Agreed. Proper parking plaza will be made as per the recommendation of NEERI.
(VII)	Green Belt	
(i)	The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be developed within first 5 years starting from windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan.	Agreed. 7.5 m wide safety zone will be developed all along the mine lease boundary as per CPCB guidelines in order to arrest pollution emanating from mining operations within the lease.
(ii)	The Project Proponent shall carryout plantation/ afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department/ Agriculture Department/ Rural development department/ Tribal Welfare Department/ Gram Panchayat such that only those species be selected which are of use to the local people. The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary provision shall be made for protection and care of trees.	Agreed. The CPCB guidelines will be adhered to carryout plantation. Plantation will be carried out in mining lease, around water body, along the roadsides, in community areas etc.
(iii)	The Project Proponent 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 Government. In this regard, Project Proponent should essentially implement the directions of the Hon"ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.	It will be complied. Arrangements for livestock feed will be developed in the nearby areas.
(iv)	The Project Proponent shall undertake all precautionary measures for conservation and protection of endangered flora and fauna and Schedule-I species during mining operation. A Wildlife Conservation Plan shall be prepared for the same clearly delineating action to be taken for conservation of flora and fauna. The Plan shall be approved by Chief Wild Life Warden of	The site-specific wildlife conservation plan for Kalamang (West) Northern Part Iron Ore Block has been approved by the PCCF(Wildlife)& Chief Wildlife warden, Odisha vide letter no.11356/CWLW-FDWC-FD-0170-2021, dated-30.10.2023.

	the State Govt and implemented in consultation with the State Forest and Wildlife Department. A copy of Wildlife Conservation Plan and its implementation status (annual) shall be submitted to the Regional Office of the Ministry.	Implementation status (annual) will be submitted to the Regional Office of the Ministry.
(VIII)	Public hearing and human health issues The Project Proponent shall appoint an Occupational Health Specialist for Regular as well as Periodical medical examination of the workers engaged in the mining activities, as per the DGMS guidelines. The records shall be maintained properly. PP shall also carryout Occupational health check-ups in respect of workers which are having ailments like BP, diabetes, habitual smoking, etc. The check-ups shall be undertaken once in six months and necessary remedial/ preventive measures be taken. A status report on the same may be sent to MoEF&CC Regional Office and DGMS on	Agreed. Regular as well as Periodical medical examination of the workers engaged in the mining activities will be carried as per the DGMS guidelines. It shall be complied once the mine is operational. Status report on the same will be submitted to MoEF&CC Regional Office and DGMS on half-yearly basis.
(ii)	half-yearly basis. A commitment in form of an undertaking for periodical occupational health check-up of the employee and the local people shall be done through an occupational health expert as per the detailed action plan submitted with the proposal within 6 months from the date of issue of Environmental Clearance.	A commitment in form of an undertaking has been submitted for periodical occupational health check-up of the employee and the local people to be done through an occupational health expert as per the detailed action plan submitted and is attached herewith.
(iii)	The Project Proponent must demonstrate commitment to work towards "Zero Harm" from their mining activities and carry out Health Risk Assessment (HRA) for identification workplace hazards and assess their potential risks to health and determine appropriate control measures to protect the health and wellbeing of workers and nearby community. The proponent shall maintain accurate and systematic records of the HRA. The HRA for neighbourhood has to focus on Public Health Problems like Malaria, Tuberculosis, HIV, Anaemia, Diarrhoea in children under five, respiratory infections due to bio mass cooking. The proponent shall also create awareness and educate the nearby community and workers for Sanitation, Personal Hygiene, Hand washing, not to defecate in open, Women Health and Hygiene (Providing Sanitary Napkins), hazard of tobacco and alcohol use. The Proponent shall carryout base line HRA for all the category of workers and thereafter every five years.	We are committed to work towards "Zero Harm" from our mining activities and carry out Health Risk Assessment (HRA) for identification workplace hazards and assess their potential risks to health and determine appropriate control measures to protect the health and wellbeing of workers and nearby community once the mine is operational. Awareness programs are being conducted by TSF.
(iv)	The Proponent shall carry out Occupational health surveillance which be a part of HRA and include Biological Monitoring where practical and feasible, and the tests and investigations relevant to the exposure (e.g. for Dust a X-Ray	Agreed. It will be complied post commencement of mining operation.

For Noise Audiometric; for Lead chest: 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 inspection of hands and forearms by a responsible person. Except routine tests all tests would be carried out in a Lab accredited by NABH. Records of Health Surveillance must be kept for 30 years, including the results of and the records of Physical examination and tests. The record of exposure due to materials like Asbestos, Hard Rock Mining, Silica, Gold, Kaolin, Aluminium, Iron, Manganese, Chromium, Lead, Uranium need to 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 make arrangements for the safe and secure storage of the records including X-Ray. Only conventional X-Ray will be accepted for record purposes and not the digital one). X-Ray must meet ILO criteria (17 xl4 inches and of good quality).

It will be complied post commencement of mining operation.

Records for performance indicators workers will be maintained & the same shall be submitted to Regional Office, MoEF&CC annually.

The Proponent shall maintained a record of performance indicators for workers which includes (a) there should not be a significant decline in their Body Mass Index and it should stay between 18.5 -24.9, (b) the Final Chest X-Ray compared with the base line X-Ray should not show any capacities,(c) At the end of their leaving job there should be no Diminution in their Lung Functions Forced Expiratory Volume in one second (FEV1), Forced Vital Capacity (FVC), and the ratio) unless they are smokers which has to be adjusted, and the effect of age, (d) their hearing should not be affected. As a proof an Audiogram (first and last need to be presented), (e) they should not have developed any Persistent Back Pain, Neck Pain, and the movement of their Hip, Knee and other joints should have normal range of movement, (f) they should not have suffered loss of any body part. The record of the same should be submitted to the Regional Office, MoEF&CC annually along with details of the relief and compensation paid to workers having above indications.

(v)

(vi) The Project Proponent shall ensure that Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.

Agreed.

Training and information on safety and health aspects will be given to concerned person working.

(vii)	Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, 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 waste water should be treated with STP in order to avoid contamination of underground water.	infrastructure like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche for kids etc. will be provided. STP will be installed for the treatment of
(viii)	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.	of the Ministry along with District Administration. Details of budget expended for fulfilling Public Hearing issues being submitted
(ix)	Issues raised and recorded in proceedings of public hearing w.r.t. environment / pollution / CER shall be complied by the Mining Authority as per OM F. No. 22-65/2017-IA.III, dated 30.09.2020 of MoEF&CC, Govt. of India.	Issues raised will be dealt as per the prescribed plan and within stipulated time
(IX)	Corporate Environment Responsibility (CER)	
(i)	The activities and budget earmarked for Corporate Environmental Responsibility (CER) as per Ministry's O.M No 22-65/2017-IA. II (M) dated 01.05.2018 or as proposed by SEAC 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 & longitude of infrastructure developed & road constructed needs to be submitted to Regional Office MoEF&CC annually along with audited statement.	(Corporate Environment Responsibility) cost for the project is based on Public Hearing outcome and as per the commitments made by the project proponent during the Public hearing. The action plan to comply with the Public hearing commitments was finalized and submitted as part of EIA report.
(ii)	Project Proponent shall keep the funds earmarked for environmental protection measures in a separate account and refrain from diverting the same for other purposes. The Year wise expenditure of such funds should be reported to the MoEF&CC and its concerned Regional Office / SEIAA, Odisha.	It will be complied after start of mine operations and the data will be communicated to MoEF&CC and its concerned Regional Office / SEIAA, Odisha with six monthly compliance report.
(X)	Miscellaneous	
(i)	The Project Proponent shall prepare digital map (land use & land cover) of the entire lease area once in five years purpose of monitoring land	1(5)

	use pattern and submit a report to concerned Regional Office of the MoEF&CC.							
(ii)	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.	Agreed. The same will be communicated.						
(iii)	The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MoEF&CC & its concerned Regional Office, SEIAA, Odisha, Central Pollution Control Board and State Pollution Control Board.	Compliance report will be submitted in every 6 months to MoEF&CC & its concerned Regional Office, SEIAA & SPCB.						
(iv)	A separate "Environmental Management Cell" with suitable qualified manpower should be set- up under the control of a Senior Executive. The Senior Executive shall directly report to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEF&CC.	Complied. Separate "Environment Management has been established. The organizational structure attached herewith.						
(v)	The proponent shall comply all the specific conditions as recommended by CSIR-NEERI on carrying capacity study (as applicable) in time bound manner as proposed.	It will be complied within stipulated timeframe.						
(vi)	The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.	It will be complied.						
(vii)	The project proponent shall augment infrastructure on drinking water, health care and education in nearby villages as per time bound action plan submitted.	Agreed. Infrastructure on drinking water, health care and education in nearby villages will be completed within stipulated time frame.						
(viii)	The project proponent shall obtain permission from DGMS under 106(2b) to carry out blasting operation within the lease area.	Agreed. Proper permission from DGMS will be taken to carry out blasting operation.						
(ix)	Fe grade - 55 and +45 to be attempted to use by blending with higher grade.	Agreed. It will be done after the starting of mine operations.						
(x)	It shall be mandatory for the project management to submit six (06) monthly compliance reports on post environmental monitoring in respect of the stipulated terms and conditions in this Environmental Clearance to the State Environment Impact Assessment Authority (SEIAA), Odisha, SPCB & Regional Office of the Ministry of Environment & Forest, Odisha in hard and soft copies on 1st June and 1st December of each calendar year.	It will be complied. Compliance report will be submitted in every 6 months to MoEF&CC & its concerned Regional Office, SEIAA & SPCB						

	The proponent shall also upload the compliance report including results of monitored data, as applicable in the website of the Ministry for monitoring of EC Conditions.	
(xi)	The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the Odisha State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the respective to the MoEF&CC & its concerned Regional Office, Central Pollution Control Board and State Pollution Control Board.	Complied. The environmental statement for FY'24 has been submitted to Odisha State Pollution Control Board has been submitted vide letter No.MD/ENV/1228/120/2024 dated 26.09.2024. Environmental statement is attached herewith.
(xii)	The proponent shall submit/upload six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF&CC, Govt. of India, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM, SO2, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	Being complied. We are submitting the six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions, including results of monitored data on our website and shall update the same periodically.
(xiii)	The concerned Regional Office of the MoEF&CC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEF&CC officer(s) by furnishing the requisite data / information / monitoring reports.	Agreed. The same will be practiced.
(xiv)	The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act,1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/ High Court and any other Court of Law relating to the subject matter.	Agreed.
(xv)	This Environmental Clearance (EC) is subject to orders/judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.	Agreed. Will comply orders/judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Conditions as may be applicable

(xvi)	Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	
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STEEL AND MINES DEPARTMENT, GOVT. OF ODISHA, BHUBANESWAR

Heads of Department Building, Unit-V, Pin-751001 Tel No.: 0674-2391537, Fax No.: 0674-2391684 Email ID: dirmines odisha@rediffmail.com

DMO-MCIII-MACON-0017-2023-107-66/DoMG,

Dt. 21-08-2023

From,

Sri Salil Kumar Behera, Joint Director of Mines, Directorate of Mines & Geology, Odisha, Bhubaneswar

To

The General Manager, OMQ, M/s TATA Steel Ltd., Plot No. N3/24, IRC Village-Nayapalli, Bhubaneswar, Odisha-751015 E-mail: aswini.mohanty@tatasteel.com

Sub:- Regarding diversion of existing road passing through Kalamang West (Northern Part) Iron ore block for Public Safety, Eco- friendly and Sustainable mining.

In reference to your letter No. GM/OMQ/02/11-G/23 dt.16.06.2023 on the subject mentioned above, I am directed to forwarded herewith the copy of Govt. Letter No. 7286/SM dt. 17.07.2023 as a token of "No Objection Certificate" on the proposal of Diversion of existing road passing through Kalamong West iron ore block for public safety, eco-friendly and sustainable mining. Further course of action on the above issue shall be taken up by Rural Development Department which has been clarified (revised) in the Govt. Letter No. 8184/SM dt. 11.08.2022 (copy enclosed).

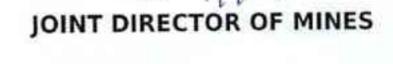
Encl:- As above.

JOINT DIRECTOR OF MINES

Memo No. 10767 /DoMG

Dt. 21-08-2023

Copy to Deputy Director of Mines, Koira for information.



Behr 2023



Government of Odisha Steel & Mines Department

No 7286

/SM, Bhubaneswar, Dated the

SM-MC1-MISC-0027-2021

From

Sri S.K.Mohanty,

Deputy Secretary to Government.

The Director of Mines & Geology,

Odisha, Bhubaneswar.



Sub: Regarding Diversion of existing road passing through Kalamang West (Northern Part) Iron Ore Block of M/s Tata Steel Ltd. for Public safety, Eco-Friendly and sustainable mining

Ref: Your letter no. 7007/DoMG dated 18.05.2023.

Sir,

In inviting a reference to the correspondence on the subject cited above, I am directed to communicate approval of the Government to issue 'no objection' certificate on the proposal of M/s Tata Steel Ltd.

Further, the lessee may be directed for taking up the matter with Works Department for further needful action.

Yours faithfully,

Deputy Secretary to Government



MA, BHUBANE

Government of Odisha Steel & Mines Department

No 8184

/SM, Bhubaneswar, Dated the 11.08.202

SM-MC1-MISC-0027-2021

From

Sri S. K. Mohanty,

Deputy Secretary to Government.

The Director of Mines & Geology, Odisha, Bhubaneswar.

W. K.

Sub: Regarding Diversion of existing road passing through Kalamang West (Northern Part) Iron Ore Block of M/s Tata Steel Ltd. for Public safety, Eco-Friendly and sustainable mining.

Ref: This Department letter No.7286/S&M dated 17.07.2023 and DoMG letter No-10036 DoMG dated 28.07.2023.

Sir,

In continuation to this Department letter no. 7286/S&M dated 17.07.2023 on the subject cited above. I am directed to say that further course of action on the above issue shall be taken up by Rural Development Department instead of Works Department.

Yours faithfully

Deputy Secretary to Government

S. M. C. C.J.

Government of India Ministry of Environment, Forest and Climate Change (Forest Conservation Division)

Indira Paryavaran Bhawan, Jor Bagh Road, Aliganj New Delhi – 110003

Dated: 22nd December, 2023

To

The Addl. Chief Secretary (Forests), Government of Odisha, Bhubaneswar.

Sub: Proposal for seeking prior approval of the Central Government under Section 2 (ii) of the Forest (Conservation) Act, 1980 for non-forestry use of 42.608 ha of forest land (16.658 ha in Keonjhar Forest Division and 25.950 ha in Bonai Forest Division) within Kalmang West (Northern Part) Block for Iron Ore Mines in Keonjhar and Sundargarh District of Odisha, allotted to M/s Tata Steel BSL Limited (Formerly known as Bhusan Steel Ltd) (Online proposal no. FP/OR/MIN/49169/2020)

Madam/Sir,

I am directed to refer to the State Government of Odisha's letter No. FE-DIV-FLD-0048-2022-10644 dated 17.06.2022, and additional information submitted vide No. 22410/ 9F (MG) –66/2021 dated 03.11.2022, vide letter No. 4255/9F (MG) –51/2021 dated 03.03.2023, vide letter No. 15271/ 9F (MG) –66/2021 dated 28.07.2023 and vide letter No. 9F (MG)- 12/2023 dated 21.11.2023 on the above subject seeking prior approval of the Central Government in accordance with Section-2 of the Forest (Conservation) Act, 1980. The proposal was considered by the Advisory Committee (AC) in its meeting held on 29.11.2023 and to say that the proposal has been examined by the Advisory Committee constituted by the Central Government under section 3 of the aforesaid Act.

- 2. After careful examination of the proposal of the State Government and on the basis of the recommendations of the Advisory Committee, and approval of the same by the competent authority of the MoEF&CC, New Delhi, the Central Government hereby accords 'in-principle' approval under Section 2 of the Forest (Conservation) Act, 1980 for non-forestry use of 42.608 ha of forest land (16.658 ha in Keonjhar Forest Division and 25.950 ha in Bonai Forest Division) within Kalmang West (Northern Part) Block for Iron Ore Mines in Keonjhar and Sundargarh District of Odisha, allotted to M/s Tata Steel BSL Limited (Formerly known as Bhusan Steel Ltd) subject to fulfilment of the following conditions:
 - Legal status of the diverted forest land shall remain unchanged;
 - 2. Compensatory Afforestation:
 - a. The User Agency shall transfer the cost of raising and maintaining the compensatory afforestation as per the approved CA Scheme at the current wage rate in consultation with State Forest Department in the account of CAMPA of the concerned State through online portal;
 - b. The land identified for raising Compensatory Afforestation shall be

- notified by the State Government as RF under Section-4 or PF under Section-29 of the Indian Forest Act. 1927 or under the relevant Section (s) of the local Forest Act, as the case may be, before the Stage-II approval;
- c. The cost of survey, demarcation and erection of permanent pillars, if required on the identified CA land, shall be deposited in advance with the Forest Department by the user agency. The CA will be maintained for 10 years. The scheme may include afforestation of indigenous species with appropriate provision for anticipated cost increase for works scheduled for subsequent years;
- d. The compensatory afforestation over non-forest land, equal in extent to the forest land being diverted i.e. 42.608 ha, shall be raised by the State Forest Department at the project cost within three years from the date of grant of Stage - II approval. The details of CA in NFL along with KML will be submitted at the time of submission of compliance of Stage-I.
- e. Afforestation on degraded forest land to be selected elsewhere, measuring one and a half times the area under safety zone, shall also be done at the project cost under the supervisions of the State Forest Department and afforestation will be done within three years from the date of Stage-II clearance and maintained thereafter in accordance with the approved Plan in consultation with the State Forest Department;
- f. User agency either himself or through the State Forest Department shall undertake gap planting and soil & moisture conservation activities to restock and rejuvenate the degraded open forests (having crown density less than 0.40), if any, located in the area within 100 meter from outer perimeter of the mining lease. The plan for plantation and SMC activities will be prepared and submitted to MoEF &CC before Stage-II Clearance;
- g. 25% of the CA cost additionally will be spent towards soil and moisture conservation activities in the proposed CA area as per site requirement and deposited in CAF;

3. NPV:

- a. The User Agency shall transfer the funds towards the cost of Net Present Value (NPV) of the forest land being diverted under this proposal from the User Agency as per the orders of the Hon'ble Supreme Court of India dated 28.03.2008, 24.04.2008 and 09.05.2008 in Writ Petition (Civil) No. 202/1995 and the guidelines issued by this Ministry vide its letter No. 5-3/2007-FC dated 06.01.2022 read with 22.03.2022 through online portal of CAMPA account of the State Concerned;
- b. At the time of payment of the Net Present Value (NPV) at the present rate, the user agency shall furnish an undertaking to pay the additional amount of NPV, if so determined, as per the final decision of the Hon'ble Supreme Court of India;
- Transportation of ore shall be as per the recommendation in the report submitted by CSIR-NEERI;
- 5. A holistic transportation plan shall be prepared by the State Govt. aiming to have minimum impact in the landscape. The same shall be implemented. Transportation of ore should be as far as possible through common conveyor

- belt, slurry pipeline, railways, etc. Transportation of ore through road should be minimized in a time bound manner;
- 6. An Oversight Committee shall be constituted under the Chairmanship of the DDGF (Central) RO Bhubaneswar for 10 years who will monitor and review the compliance of the conditions stipulated in the approval for these five mines [namely- 1. Netrabandha Pahar iron Ore Block (area 112.621 ha, 2. Netrabandha Pahar (West) area 66.242 ha), 3. Laserda Pacheri Manganese & Iron Ore Block (area 94.351 ha), 4. Kalmang West (Northern Part) Block for Iron Ore Mines Iron Ore Block (Area 42.608 ha) and 5. Guali Opencast Iron Ore Mines (area 194.683 ha)] twice a year and submit their yearly report to this Ministry in the month of December. This Oversight Committee shall consist following members and logistics of this Committee shall be borne by State Government at the cost of UAs:
 - a. DDGF (Central) Regional Office Bhubaneswar- Chairman.
 - b. One Representative from IIFM Bhopal.
 - c. One Representative from WII Dehradun.
 - d. One Representative from ICFRE.
 - e. One Representative from NEERI.
 - f. One expert in Geology.
 - g. Two other experts nominated by MoEF&CC. The recommendation made by the said committee shall be considered by the Ministry and if agreed the same shall be binding on the UAs;
- Integrated Regional Wildlife Conservation Plan shall be prepared for 10 years covering the forest Division of Sundargarh, Jharsuguda and Keonjhar Districts at the cost of UA. The works shall be executed as per APO and the regional plan shall have site/species specific wildlife sub plans/prescriptions;
- A Bio-diversity Conservation Plan for this entire landscape shall also be prepared by the State Govt at the cost of UA;
- Soil and moisture conservation measures shall be undertaken in and around 10 KM radius of the mining lease areas at project cost;
- The conditions stipulated in EC should be strictly implemented and monitored;
- 11. Compensatory levies to be realized from the User Agency under the project shall be transferred/ deposited, through e-challan, in to the account of CAMPA pertaining to the State concerned through e-portal (https://parivesh.nic.in/);
- 12. The KML files of diverted area, the CA areas, the proposed SMC treatment area and the WLMP area shall be uploaded on the e-Green watch portal with all requisite details prior to Stage-II approval;
- 13. Following activities, as per approved plan / schemes, shall be undertaken in the lease area by the User Agency under the supervision of the State Forest Department. Approved scheme/plan shall be submitted to the Ministry along with compliance of Stage-I approval:
 - a. Mitigative measures to minimize soil erosion and choking of stream shall be implemented within a period of three years with effect from the issue of Stage-II clearance in accordance with the approved Plan in consultation with the State Forest Department;

- Planting of adequate drought hardy plant species and sowing of seeds, in the appropriate area within the mining lease to arrest soil erosion in accordance with the approved scheme;
- Construction of check dams, retention /toe walls to arrest sliding down
 of the excavated material along the contour in accordance with the
 approved scheme;
- d. Stabilize the overburden dumps by appropriate grading/benching, in accordance with the approved scheme, so as to ensure that angles of repose at any given place is less than 28o; and
- 14. Safety Zone Management: Following activities, at project cost, shall be undertaken by the user agency for the management of safety zone as per relevant guidelines issued by the Ministry's guidelines:
 - a. User agency shall ensure demarcation of safety zone (7.5-meter strip all along the inner boundary of the mining lease area), and its fencing, protection and regeneration by erecting adequate number of 6 feet high RCC boundary pillars inscribed with DGPS coordinates with barbed wire fencing and deploying adequate number of watchers under the supervision of the. State Forest Department;
 - Boundary of the safety zone of the mining lease, adjacent to habitation/roads, should be properly fenced by the user agency;
 - c. Safety zone shall be maintained as green belt around mining lease and to ensure dense canopy in the area, regeneration shall be taken up in this area by the user agency at project cost under the supervision of the State Forest Department;
 - d. The State Government and the user agency shall ensure that safety zone is maintained as per the prescribed norms;
- 15. No damage shall be caused to the top-soil and the user agency will follow the top soil management plan;
- 16. The User Agency shall prepare a list of existing village tanks and other water bodies with GPS co-ordinates located within five km from the mine lease boundary. This list is to be duly verified by the concerned Divisional Forest Officer. The User Agency shall regularly undertake desilting of these village tanks and other water bodies so as to mitigate the impact of siltation of such tanks/water bodies. A detailed approved plan for desilting of identified ponds and water bodies to be prepared in consultation with forest department and shall be submitted to MoEF & CC before Stage-II approval;
- 17. The cost of felling of trees shall be deposited by the User Agency with the State Forest Department;
- Trees should be felled in phased manner as per the requirement in the approved Mining Plan with prior permission of concerned DFO;
- The User Agency shall undertake that afforestation of the non-mineralized virgin forest land within the mining area shall be taken up at project cost;
- 20. The user agency shall explore the possibility of translocation of maximum number of trees identified to be felled and shall ensure that any tree felling shall be done only when it is unavoidable and that too under strict supervision of the State Forest Department.
- 21. A site-specific Wildlife Management Plan shall be prepared by the State Government in consultation with the PCCF (Wildlife) for the protection and conservation of wildlife of the area. A copy of approved Plan shall be

- submitted to the Ministry along with the compliance of Stage-I approval. Entire cost of implementation of the provisions of the Wildlife Management Plan shall be deposited into the account of CAMPA of the State;
- 22. State Government shall complete settlement of rights, in term of the Scheduled Tribes and Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, if any, on the forest land to be diverted and submit the documentary evidence, along with compliance of Stage-I approval, as prescribed by this Ministry's letter No. 11-9/1998-FC (Pt.) dated 03.08.2009 read with 05.07.2013, in support thereof;
- 23. The User Agency shall undertake that user agency and the State Forest Department shall create and maintain from funds to be provided by the user agency alternate habitat/ home for the avifauna, whose nesting trees are to be cleared in this project as per the plan duly approved by the Principal Chief Conservator of Forests (Wildlife) and the Chief Wildlife Warden Odisha. Bird nests artificially made out of eco-friendly materials shall be used in the area, including forest area and human settlements, adjoining the forest area being diverted for the project;
- 24. The User Agency shall undertake that the project authority needs to take up works for construction and cleaning of garland drains, stabilizing retaining walls, proper terracing of OB dumps and checking gully formation resulting in soil erosion;
- 25. The User Agency shall undertake that plants which are having lowest translocation factor can be preferred under afforestation on the OB dumps and fruit trees to be avoided in planting during biological stabilization of OB dumps;
- The User Agency shall undertake that prevention of fall of wild animals into mining pit by fencing the open pit area;
- The User Agency shall undertake that the angle of repose in OB dumps to be maintained to ensure stability and safety;
- 28. The User Agency shall undertake that vetiver grass can be planted at the lower reaches of the dump to bind the soil and prevent soil erosion giving better stability to the dump;
- 29. The User Agency shall undertake mining in a phased manner after taking due care for reclamation of the mined over area. The concurrent reclamation plan as per the approved mining plan shall be executed by the User Agency from the very first year, and an annual report on implementation thereof shall be submitted to the Nodal Officer, Forest (Conservation) Act, 1980, in the concerned State Government and the concerned Regional Office of the Ministry. If it is found from the annual report that the activities indicated in the concurrent reclamation plan are not being executed by the User Agency, the Nodal Officer or the concern Addl. Principle Chief Conservator of Forests (Central) may direct that the mining activities shall remain suspended till such time, such reclamation activities area satisfactorily executed;
- 30. The User Agency shall comply with the Hon'ble Supreme Court order on regrassing, and re-grass the mining area and any other areas which may have been disturbed due to mining to restore them to a condition which is fit for growth of fodder, flora, fauna, etc. in a timely manner;
- 31. Period of diversion of the said forest land under this approval shall be for a period co-terminus with the period of the mining lease proposed to be

- granted under the Mines and Minerals (Development and Regulation) Act, 1957, as amended and the Rules framed there-under;
- The User Agency shall obtain the Environment Clearance as per the provisions of the Environmental (Protection) Act, 1986, if required;
- 33. No labour camp shall be established on the forest land and the User Agency shall provide fuels preferably alternate fuels to the labourers and the staff working at the site so as to avoid any damage and pressure on the nearby forest areas;
- 34. The boundary of the diverted forest land, mining lease and safety zone, as applicable, shall be demarcated on ground at the project cost, by erecting four feet high reinforced cement concrete pillars, each inscribed with its serial number, distance from pillar to pillar and GPS coordinates;
- 35. The layout plan of the mining plan/ proposal shall not be changed without the prior approval of the Central Government and the forest land shall not be used for any purpose other than that specified in the proposal;
- 36. The forest land proposed to be diverted shall under no circumstances be transferred to any other agency, department or person without prior approval of the Central Government;
- No damage to the flora and fauna of the adjoining area shall be caused;
- 38. Any other condition that the concerned Regional Office of this Ministry may stipulate with the approval of competent authority in the interest of conservation, protection and development of forests & wildlife; and
- 39. The user agency shall comply with all the provisions of the all Acts, Rules, Regulations, Guidelines, Hon'ble Court Order (s) and NGT Order (s) pertaining to this project, if any, for the time being in force, as applicable to the project.
- 40. Violation of any of these conditions will amount to violation of Forest (Conservation) Act, 1980 and action would be taken as prescribed in para 1.21 of Chapter 1 of the Handbook of comprehensive guidelines of Forest (Conservation) Act, 1980 as issued by this Ministry's letter No. 5-2/2017-FC dated 28.03.2019.
- 41. The User Agency shall submit the annual self -compliance report in respect of the above stated conditions to the State Government, concerned Regional Office and to this Ministry by the end of March every year regularly; and
- 42. The compliance report shall be uploaded on e-portal (https://parivesh.nic.in/).
- 3. After receipt of the compliance report on fulfilment of the conditions mentioned above, the proposal shall be considered for final approval under Section-2 of the Forest (Conservation) Act, 1980. Transfer of forest land shall not be affected till final approval is granted by the Central Government in this regard.

Yours Sincerely,

Signed by

Charan Jeet Singh

(Charan Jeet Singh) Scientist 'D'

Copy to:

Date: 22-12-2023 10:12:02

- PCCF (HoFF), State Forest Department, Government of Odisha, Bhubaneswar
- PCCF & Nodal Officer (FCA), O/o PCCF, State Forest Department, Government of Odisha, Bhubaneswar

1/60717/2023

- 3. DDGF (Central), Regional Office of MoEF&CC at Bhubaneswar.
- User Agency.
 Monitoring Cell, FC Division, MoEF&CC, New Delhi
 Guard File.



भारत सरकार जल शक्ति मंत्रालय जल संसाधन, नदी विकास और गंगा संरक्षण विभाग केन्द्रीय भूमि जल प्राधिकरण Government of India Ministry of Jal Shakti Department of Water Resources, River Development & Ganga Rejuvenation Central Ground Water Authority

(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र) NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION

Project Name:			Kalamang West (northern Part) Iron Ore Mines In Respect Of M/s Tata Steel Ltd														
Project Address:				Villag	Village-kalamang And Ghodabudani								7/2				
Village:				Kalma	Kalmanga				Bloc	ock: Koida		ida					
District:					Sunda	Sundargarh					e:	Od	isha				
Pin Code:											1000						
Communication Address:				Bombay House, 24 Homi Mody Steet Fort, Mumbai-400001, Mumbai, Mumbai, Maharashtra - 400001													
A	ddress of C	GWB R	egional	Office :									ion, Bhuj - 751030		an, Kha	indagiri	
1.	NOC No.: CGWA/NOC			/MIN/R							VI.			12/11/2024			
3.	Applicatio	n No.:	21-4/	21-4/3864/OR/MIN/2022					4	100000000000000000000000000000000000000	Category: GWRE 2023)			Safe			
5.	Project St	oject Status: Existing With Additional Groun						Water	6	. NO	NOC Type:			Renewal			
7.	Valid from	n:	01/09	9/2024		-) -	8	Val	id up to:			31/08/2026				
9.	Ground W	ater Abs	straction	Permi	tted:	A	T										
	Fresh	Water			Saline	Saline Water Dev					watering				Total		
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GHA!								STORY OF STREET									
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13.	Number of Piezometers(Observatio constructed/ monitored & Monitoring					and the state of the state of		No. of Piezome						toring Mechanism			
	service of the								Manual DWL				elemetr				
	**DWLR - Digital Water Level Recorder							1 0 1				0					

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011 Phone: (011) 23383561 Fax: 23382051, 23386743 Website: cgwa-noc.gov.in

(Compliance Conditions given overleaf)

This is an auto generated document & need not to be signed.





To,

The Sarpanch Guali Gram Panchayat Guali, Dist- Keonjhar

Ref: JCO/13/175/118 Dated: 19th Oct 2022

Sub: Environmental Clearance of M/s Tata Steel Limited for Kalamang West (Northern Part) Iron Mine of M/s Tata Steel Limited has been granted for mining of Iron Ore with Production Capacity of 2.95 MTPA (RoM) at Village- Kalamang & Ghodabudani, District- Sundergarh & Village - Gandhalpada, District - Keonjhar, Odisha (ML Area: 92.875 ha)

Ref: SEIAA, Odisha File No. 55807/89-MINB1/06-2022 (EC Identification No. - EC22B001OR117596, dated 18th October 2022)

Dear Sir,

Environmental Clearance of M/s Tata Steel Limited for Kalamang West (Northern Part) Iron Mine of M/s Tata Steel Limited has been granted for mining of Iron Ore with Production Capacity of 2.95 MTPA (RoM) at Village- Kalamang & Ghodabudani, District- Sundergarh & Village - Gandhalpada, District - Keonjhar, Odisha (ML Area: 92.875 ha). A copy of EC is enclosed for reference.

Thanking you,

Yours sincerely, f: Tata Steel Limited

Chief (Kalamang & Gandhalpada Project) Tata Steel Limited

Encl: As above

GUALI GRAM PANCHAYAT



To,

The Sarpanch Malda Gram Panchayat Malda, Dist- Sundergarh

Ref: JCO/13/174/118 Dated: 19th Oct' 2022

Sub: Environmental Clearance of M/s Tata Steel Limited for Kalamang West (Northern Part) Iron Mine of M/s Tata Steel Limited has been granted for mining of Iron Ore with Production Capacity of 2.95 MTPA (RoM) at Village- Kalamang & Ghodabudani, District-Sundergarh & Village - Gandhalpada, District - Keonjhar, Odisha (ML Area: 92.875 ha)

Ref: SEIAA, Odisha File No. 55807/89-MINB1/06-2022 (EC Identification No. - EC22B001OR117596, dated 18th October 2022)

Dear Madam,

Environmental Clearance of M/s Tata Steel Limited for Kalamang West (Northern Part) Iron Mine of M/s Tata Steel Limited has been granted for mining of Iron Ore with Production Capacity of 2.95 MTPA (RoM) at Village- Kalamang & Ghodabudani, District- Sundergarh & Village - Gandhalpada, District - Keonjhar, Odisha (ML Area: 92.875 ha). A copy of EC is enclosed for reference.

Thanking you,

Yours sincerely, f: Tata Steel Limited

Chief (Kalamang & Gandhalpada Project) Tata Steel Limited

Encl: As above

Surubali Patra Surubali Patra Sarpanch Malda G.P

News paper Advertisement in English Daily, Sunday Pioneer dated 23.10.2022



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we needed to do: Williamson

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The Match: Confident India hoping to turn tables on Pakistan

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View BELKA, Orbida Pile No. 15207/95-MINUSES.

Registered Office Storing House, 24. Humi ModyStreet, Fort, Municial 400 001, India Not. 925 00004020: Fair 833 00057724 (CIN) -1,21100001087FLC000008 William: www.latterted.com

AFFIDAVIT

peer Six de Sirendel Sentence Six Putgeds Postifis Garie. Dan and note the self-below the Noting Public Warter Stat original sales seed of my band under Milyda No 27(2)002 of Milesia Milyda recorded in been bission. The affidiscit M., Warlet Police Station as. is augusting decement of FIR. Amount with their the same is here to require to

Newspaper Advertisement in Odiya Daily, Pragativadi dated 23.10.2022





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To.

Deputy Director General of Forests (C) MoEF&CC, Integrated Regional Office, A/3, Chandrasekharpur, Bhubaneswar – 751023

Ref: GM/OMQ/ 75 /11-G/ FY'23 Dated: 24th Oct 2022

Sub: Environmental Clearance of M/s Tata Steel Limited for Kalamang West (Northern Part) Iron Mine has been granted for mining of Iron Ore with Production Capacity of 2.95 MTPA (RoM) at Village- Kalamang & Ghodabudani, District- Sundergarh & Village - Gandhalpada, District - Keonjhar, Odisha (ML Area: 92.875 ha)

Ref: SEIAA, Odisha File No. 55807/89-MINB1/06-2022 (EC Identification No. - EC22B001OR117596, dated 18th October 2022)

Dear Sir.

In reference to above letter on captioned subject, we would like to inform your good office that in compliance to the General condition no. xiii of the Environmental Clearance granted, we have widely advertised about the grant of this Environmental Clearance letter by printing the same at Odia newspaper" Pragatibadi" and English Newspaper "The Pioneer" on 23rd Oct 2022 mentioning that the instant project has been accorded Environmental Clearance and copy of the Environmental Clearance letter is available with the State Pollution Control Board and web site of the Ministry of Environment, Forest and Climate Change (www.amaronmentclearance.nic.in). Copy of both the advertisement is enclosed herewith for your kind reference.

Thanking you,

Yours sincerely, f: Tata Steel Limited

(Atul Kumar Bhatnagar) General Manager, OMQ

Encl As above

TATA STEEL LIMITED

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

GOVT. OF INDIA

MOEF & CC Integrated R.O.

Bhubaneswar-751023

RECEIVED RECEIVED





To,

The Regional Officer, State Pollution Control Board Near Panposh Hockey Chowk, Panposh, Rourkela, Dist: Sundargarh - 769 004

GM/OMQ/ 63 /11-G /FY'24 07th Sep'2023

Sub: Installation of CAAQM stations at Kalamang West (Northern Part) Iron Ore Mine of M/s Tata Steel Limited at Village - Kalamang & Ghodabudani, Dist- Sundargarh & Village-Gandhalpada, Dist- Keonjhar, Odisha (ML Area: 92.875 ha).

Ref: Letter no. NINL /KJR/2023/81, dated 10.08.2023.

Dear Sir,

With reference to the above captioned subject and discussion held with our officials at your office chamber, we would like to bring to your notice that we are proposing three locations for 3 CAAQM Station in respect with Kalamang West (Northern Part) Iron Ore Mine. The details of the proposed CAAQM location are mentioned below.

SI. No	Station Name	Location	Zone	Latitude	Longitude
1.	CAAQMS 1	Near Kalamang Mines site office of M/s TSL.	Core	21°56'54.82"N	85°17'32.03"E
2.	CAAQMS 2	Site Office, Mithirda Iron Ore Mine of M/s NINL.	Buffer	21°52'37.40"N	85°20'36.10"E
3.	CAAQMS 3	Tata Steel Foundation Office, Guali	Buffer	21°59′13.78″N	85°17'19.32"E

Therefore, we request you to provide accord necessary approval for the installation of CAAQM station at aforesaid locations. Installation of CAAQM will be done in due course of time.

Thanking You,

Yours Faithfully,

(Atul Kumar Bhatnagar) General Manager, OMQ

Encl: Map Showing Location of CAAQMS

Copy to: Member Secretary, State Pollution Control Board, Bhubaneswar

TATA STEEL LIMITED

Mines Division Noamundi 833 217 India Tel 91 9262699402

Registered Office 8ombay House 24 Homi Mody Street Fort Mumbai 400 001 India Tel 91 22 66658282 Fax 91 22 66657724

corporate Identity Number L27100MH1907PLC000260 Website www.tatasteel.com



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Ambient Air Quality Report-April-2024

Report Code: AN/AA/2024/1-1

Issue Date: 30/04/2024

Issued To

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Core Zone)

Inward No.

: ALPL/22042024/ENV-98-KIM/CZ-1

Sample Description

: Ambient Air

Sample Drawn On

: 15/04/2024 to 16/04/2024

Sample Drawn By

: Anacon Representative

Sample Received On

: 22/04/2024

Sampling Location

: Mines Lease Area (AAQ-1)

Sampling Plan & Procedure

: ANtd/7.2/Mon-01

Analysis Duration

: 23/04/2024

Sampling Time

: 24 Hrs.

Ambient Temperature

: 36°C

Average Flow Rate of SPM

: 1.1 (m³/min)

Average Flow Rate of Gases

: 0.4 (lpm)

Weather Conditions

: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	76.3	μg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	34.9	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO ₂)	IS:5182 (Part 2):2001	13.1	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	28.7	μg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	0.573	mg/m³	2.0 (8 hrs)

NOTES: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred t tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior writte approval of Anacon Labs. • BDL- Below detection limit • DL- Indicates detection limit of instrument/method and shall be considered a 'absent'.

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

For

Berkele

Snehal Raut

Deputy Technical Manager

Authorized Signatory

Dr. (Mrs.) S. D. Garway

Quality Manager



:

Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Ambient Air Quality Report-April-2024

Report Code: AN/AA/2024/1-2

Issue Date: 30/04/2024

Issued To

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Core Zone)

Inward No.

: ALPL/22042024/ENV-98-KIM/CZ-2

Sample Description

: Ambient Air

Sample Drawn On Sample Drawn By : 15/04/2024 to 16/04/2024 : Anacon Representative

Sample Received On

: 22/04/2024

Sampling Location

: Mines Lease Area (AAQ-2)

Sampling Plan & Procedure

: ANtd/7.2/Mon-01

Analysis Duration

: 23/04/2024

Sampling Time

: 24 Hrs.

Ambient Temperature

:36°C

Average Flow Rate of SPM

: 1.2 (m³/min)

Average Flow Rate of Gases

: 0.4 (lpm)

	Conditions	
CI	NT.	DADA

: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	68.3	μg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	31.6	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO2)	IS:5182 (Part 2):2001	12.4	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	27.1	μg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	0.519	mg/m³	2.0 (8 hrs)

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior writter approval of Anacon Labs. Below detection limit DL- Indicates detection limit of instrument/method and shall be considered as 'absent'.

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

tas

Snehal Raut

Deputy Technical Manager

Authorized Signatory

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



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Ambient Air Quality Report-April-2024

Report Code: AN/AA/2024/1-3

Issue Date: 30/04/2024

Issued To

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No. : ALPL/22042024/ENV-98-KIM/BZ-3

Sample Description : Ambient Air

Sample Drawn On : 16/04/2024 to 17/04/2024 Sample Drawn By : Anacon Representative

Sample Received On : 22/04/2024

Sampling Location : Guali Village (AAQ-3)

Sampling Plan & Procedure : ANtd/7.2/Mon-01

Analysis Duration : 23/04/2024 Sampling Time : 24 Hrs. Ambient Temperature : 34°C

Average Flow Rate of SPM : 1.2 (m³/min)

Average Flow Rate of Gases : 0.4 (lpm)

Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	56.3	μg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	27.9	µg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO ₂)	IS:5182 (Part 2):2001	9.1	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	21.6	μg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg/m³	2.0 (8 hrs)

NOTES: ● Please see watermark "Original Test Report" to confirm the authenticity of this report. ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● BDL- Below detection limit ● DL- Indicates detection limit of instrument/method and shall be considered a 'absent'.

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

For

Ted look

Snehal Raut

Deputy Technical Manager

Authorized Signatory

Dr. (Mrs.) S. D. Garway

Quality Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

PP-34, 35,Food Park, Five Star Industrial Estate,
 MIDC Butibori, Nagpur, Maharashtra, India - 441 122
 → 91 8045685558 Email : info@anacon.in
 https://www.anaconlaboratories.com

Test Report

Ambient Air Quality Report-April-2024

Report Code: AN/AA/2024/1-4 Issue Date: 30/04/2024

Issued To : M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No. : ALPL/22042024/ENV-98-KIM/BZ-4

Sample Description : Ambient Air

Sample Drawn On : 16/04/2024 to 17/04/2024 Sample Drawn By : Anacon Representative

Sample Received On : 22/04/2024

Sampling Location : Kalamang Village (AAQ-4)

Sampling Plan & Procedure : ANtd/7.2/Mon-01
Analysis Duration : 23/04/2024
Sampling Time : 24 Hrs.
Ambient Temperature : 34°C

Average Flow Rate of SPM : 1.1 (m³/min)

Average Flow Rate of Gases : 0.4 (lpm)

Weather Conditions : Clear

SI. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	62.7	μg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	31.6	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO2)	IS:5182 (Part 2):2001	11.3	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	24.9	μg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg/m³	2.0 (8 hrs)

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior written approval of Anacon Labs. BDL- Below detection limit DL- Indicates detection limit of instrument/method and shall be considered as 'absent'.

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

tou

TENKER

Snehal Raut

Deputy Technical Manager

----End of Report----

Authorized Signatory

Keen

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



Anacon Laboratories Pvt. Ltd. Nagpur Lab

PFP-34, 35, Food Park, Five Star Industrial Estate,
 MIDC Butibori, Nagpur, Maharashtra, India - 441 122
 Y + 91 8045685558 ■ Email: info@anacon.in
 https://www.anaconlaboratories.com

Test Report

Ambient Air Quality Report-April-2024

Report Code: AN/AA/2024/1-5

Issue Date: 30/04/2024

Issued To

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No. : ALPL/22042024/ENV-98-KIM/BZ-5

Sample Description : Ambient Air

Sample Drawn On : 17/04/2024 to 18/04/2024 Sample Drawn By : Anacon Representative

Sample Received On : 22/04/2024

Sampling Location : Sagasahi Village (AAQ-5)

Sampling Plan & Procedure : ANtd/7.2/Mon-01
Analysis Duration : 23/04/2024

Sampling Time : 24 Hrs.
Ambient Temperature : 34°C

Average Flow Rate of SPM : 1.2 (m³/min)

Average Flow Rate of Gases : 0.4 (lpm)

Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	56.1	µg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	27.6	µg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO2)	IS:5182 (Part 2):2001	9.7	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	21.4	µg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg/m³	2.0 (8 hrs)

NOTES: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior writter approval of Anacon Labs. • BDL- Below detection limit • DL- Indicates detection limit of instrument/method and shall be considered as 'absent'.

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

Balbale

Snehal Raut

Deputy Technical Manager

Authorized Signatory

Dr. (Mrs.) S. D. Garway

Quality Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Ambient Air Quality Report-April-2024

Report Code: AN/AA/2024/1-6

Issue Date: 30/04/2024

Issued To

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No.

: ALPL/22042024/ENV-98-KIM/BZ-6

Sample Description

: Ambient Air

Sample Drawn On Sample Drawn By : 17/04/2024 to 18/04/2024 : Anacon Representative

Sample Received On

: 22/04/2024

Sampling Location

: Gandalpada Village (AAQ-6)

Sampling Plan & Procedure

: ANtd/7.2/Mon-01

Analysis Duration

: 23/04/2024

Sampling Time

: 24 Hrs.

Ambient Temperature

:34°C

Average Flow Rate of SPM

: 1.1 (m³/min)

Average Flow Rate of Gases

: 0.3 (lpm)

Weather Conditions

: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	63.9	μg /m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	28.1	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO ₂)	IS:5182 (Part 2):2001	11.7	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	23.4	μg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg/m³	2.0 (8 hrs)

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior written approval of Anacon Labs. BDL- Below detection limit DL- Indicates detection limit of instrument/method and shall be considered as 'absent'.

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

For

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Snehal Raut

Deputy Technical Manager

Authorized Signatory

Dr. (Mrs.) S. D. Garway

Quality Manager



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Test Report

Ambient Air Quality Report-April-2024

Report Code: AN/AA/2024/1-7

Issue Date: 30/04/2024

Issued To

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No.

: ALPL/22042024/ENV-98-KIM/BZ-7

Sample Description

: Ambient Air

Sample Drawn On

: 18/04/2024 to 19/04/2024

Sample Drawn By

: Anacon Representative

Sample Received On

: 22/04/2024

Sampling Location

: Sunindpur Village (AAQ-7)

Sampling Plan & Procedure

: ANtd/7.2/Mon-01 : 23/04/2024

Analysis Duration

2411

Sampling Time

: 24 Hrs.

Ambient Temperature

: 34°C

Average Flow Rate of SPM

: 1.2 (m³/min)

Average Flow Rate of Gases

: 0.3 (lpm)

Weather Conditions

: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	56.4	μg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	23.6	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO ₂)	IS:5182 (Part 2):2001	8.2	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	17.4	μg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg/m³	2.0 (8 hrs)

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Remark: - All Results are within Limit as per CPCB Standards.

Verified by

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Snehal Raut

Deputy Technical Manager

Authorized Signatory

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



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Test Report

Ambient Air Quality Report-May-2024

Report Code: AN/AA/2024/1-1

Issue Date: 22/05/2024

Issued To

M/s Kalamang Iron Mine (M/s TATA STEEL LIMITED)

Mines Area (Core Zone)

Inward No.

: ALPL/17052024/ENV-131-KIM/CZ-1

Sample Description

: Ambient Air

Sample Drawn On Sample Drawn By : 08/05/2024 to 09/05/2024 : Anacon Representative

Sample Received On

: 17/05/2024

Sampling Location

: Mines Lease Area (AAQ-1)

Sampling Plan & Procedure

: ANtd/7.2/Mon-01

Analysis Duration

: 18/05/2024

Sampling Time

: 24 Hrs.

Ambient Temperature

:34°C

Average Flow Rate of SPM Average Flow Rate of Gases

: 1.2 (m³/min) : 0.4 (lpm)

Weather Conditions

: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	72.9	μg /m ³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	31.6	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO ₂)	IS:5182 (Part 2):2001	12.4	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	27.1	μg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	0.593	mg/m³	2.0 (8 hrs)

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Remark: - All Results are within Limit as per CPCB Standards.

Verified by

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Quality Manager



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Test Report

Ambient Air Quality Report-May-2024

Report Code: AN/AA/2024/1-2

Issue Date: 22/05/2024

Issued To

M/s Kalamang Iron Mine (M/s TATA STEEL LIMITED)

Mines Area (Core Zone)

Inward No. : ALPL/17052024/ENV-131-KIM/CZ-2

Sample Description : Ambient Air

Sample Drawn On : 08/05/2024 to 09/05/2024 Sample Drawn By : Anacon Representative

Sample Received On : 17/05/2024

Sampling Location : Mines Lease Area (AAQ-2)

Sampling Plan & Procedure : ANtd/7.2/Mon-01
Analysis Duration : 18/05/2024
Sampling Time : 24 Hrs.
Ambient Temperature : 34°C

Average Flow Rate of SPM : 1.1 (m³/min)

Average Flow Rate of Gases : 0.4 (lpm)

Weather Conditions : Clear

S1. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	78.1	μg/m³	100 (24 hrs)
2	Particulate Matter (PM2.5)	USEPA-40 (Part 50):2011	34.9	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO ₂)	IS:5182 (Part 2):2001	13.6	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	29.7	μg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	0.571	mg/m³	2.0 (8 hrs)

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Remark: - All Results are within Limit as per CPCB Standards.

Verified by

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Deputy Technical Manager

Authorized Signatory

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Test Report

Ambient Air Quality Report-May-2024

Report Code: AN/AA/2024/1-3

Issue Date: 22/05/2024

Issued To

M/s Kalamang Iron Mine (M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No.

: ALPL/17052024/ENV-131-KIM/BZ-3

Sample Description

: Ambient Air

Sample Drawn On Sample Drawn By

: 09/05/2024 to 10/05/2024 : Anacon Representative

Sample Received On

: 17/05/2024

Sampling Location

: Guali Village (AAQ-3)

Sampling Plan & Procedure

: ANtd/7.2/Mon-01

Analysis Duration

: 18/05/2024

Sampling Time

: 24 Hrs.

Ambient Temperature

: 36°C

Average Flow Rate of SPM Average Flow Rate of Gases : 1.2 (m3/min) : 0.4 (lpm)

Weather Conditions

: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	63.7	μg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	28.4	µg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO ₂)	IS:5182 (Part 2):2001	11.9	µg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	21.6	µg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg/m³	2.0 (8 hrs)

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Remark: - All Results are within Limit as per CPCB Standards.

Verified by

Deputy Technical Manager

Authorized Signatory

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Quality Manager



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Test Report

Ambient Air Quality Report-May-2024

Report Code: AN/AA/2024/1-4

Issue Date: 22/05/2024

Issued To

M/s Kalamang Iron Mine (M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No. : ALPL/17052024/ENV-131-KIM/BZ-4

Sample Description : Ambient Air

Sample Drawn On : 09/05/2024 to 10/05/2024 Sample Drawn By : Anacon Representative

Sample Received On : 17/05/2024

Sampling Location : Kalamang Village (AAQ-4)

Sampling Plan & Procedure : ANtd/7.2/Mon-01
Analysis Duration : 18/05/2024
Sampling Time : 24 Hrs.

Ambient Temperature : 36°C

Average Flow Rate of SPM : 1.1 (m³/min)

Average Flow Rate of Gases : 0.3 (lpm)

Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	68.2	μg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	27.9	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO ₂)	IS:5182 (Part 2):2001	13.6	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	18.4	µg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg/m³	2.0 (8 hrs)

NOTES: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs. • BDL- Below detection limit • DL- Indicates detection limit of instrument/method and shall be considered as 'absent'.

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Verified by

Snehal Raut

Deputy Technical Manager

Authorized Signatory

Dr. (Mrs.) S. D. Garway

Quality Manager



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Test Report

Ambient Air Quality Report-May-2024

Report Code: AN/AA/2024/1-5

Issue Date: 22/05/2024

Issued To

M/s Kalamang Iron Mine (M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No.

: ALPL/17052024/ENV-131-KIM/BZ-5

Sample Description

: Ambient Air

Sample Drawn On

: 10/05/2024 to 11/05/2024

Sample Drawn By

: Anacon Representative

Sample Received On

: 17/05/2024

Sampling Location

: Sagasahi Village (AAQ-5)

Sampling Plan & Procedure

: ANtd/7.2/Mon-01

Analysis Duration

: 18/05/2024

Sampling Time

: 24 Hrs.

Ambient Temperature

:36°C

Average Flow Rate of SPM

: 1.2 (m³/min)

Average Flow Rate of Gases

: 0,4 (lpm)

Weat	ier	Cond	itions

: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	61.9	µg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	24.7	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO ₂)	IS:5182 (Part 2):2001	12.1	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	19.3	µg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg/m³	2.0 (8 hrs)

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Verified by

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Quality Manager



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Test Report

Ambient Air Quality Report-May-2024

Report Code: AN/AA/2024/1-6

Issue Date: 22/05/2024

Issued To

M/s Kalamang Iron Mine (M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No.

: ALPL/17052024/ENV-131-KIM/BZ-6

Sample Description

: Ambient Air

Sample Drawn On

: 10/05/2024 to 11/05/2024

Sample Drawn By

: Anacon Representative

Sample Received On

: 17/05/2024

Sampling Location

: Gandalpada Village (AAQ-6)

Sampling Plan & Procedure

: ANtd/7.2/Mon-01

Analysis Duration

: 18/05/2024

Sampling Time

: 24 Hrs.

Ambient Temperature

:36°C

Average Flow Rate of SPM

: 1.2 (m³/min)

Average Flow Rate of Gases

: 0.4 (lpm)

Weather Conditions

: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	68.1	µg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	26.3	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO ₂)	IS:5182 (Part 2):2001	11.9	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	21.7	μg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg/m³	2.0 (8 hrs)

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Remark: - All Results are within Limit as per CPCB Standards.

Verified by

Authorized Signatory

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

Deputy Technical Manager



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Test Report

Ambient Air Quality Report-May-2024

Report Code: AN/AA/2024/1-7

Issue Date: 22/05/2024

Issued To

M/s Kalamang Iron Mine (M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No. : ALPL/17052024/ENV-131-KIM/BZ-7

Sample Description : Ambient Air

Sample Drawn On : 10/05/2024 to 11/05/2024 Sample Drawn By : Anacon Representative

Sample Received On : 17/05/2024

Sampling Location : Sunindpur Village (AAQ-7)

Sampling Plan & Procedure : ANtd/7.2/Mon-01
Analysis Duration : 18/05/2024
Sampling Time : 24 Hrs.

Ambient Temperature : 36°C

Average Flow Rate of SPM : 1.3 (m³/min)

Average Flow Rate of Gases : 0.4 (lpm)

Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	57.2	µg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	23.4	µg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO2)	IS:5182 (Part 2):2001	9.1	µg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	18.6	µg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg/m³	2.0 (8 hrs)

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Verified by

Snehal Raut

Deputy Technical Manager

Authorized Signatory

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



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Test Report

Ambient Air Quality Report-June-2024

Report Code: AN/AA/2024/1-1

Issue Date: 25/06/2024

Issued To

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Core Zone)

Inward No.

: ALPL/21062024/ENV-151-KIM/CZ-1

Sample Description

: Ambient Air

Sample Drawn On Sample Drawn By

: 13/06/2024 to 14/06/2024 : Anacon Representative

Sample Received On

: 21/06/2024

Sampling Location

: Mines Lease Area (AAO-1)

Sampling Plan & Procedure

: ANtd/7.2/Mon-01

Analysis Duration

: 22/06/2024

Sampling Time

: 24 Hrs.

: 32°C

Ambient Temperature Average Flow Rate of SPM

: 1.2 (m3/min)

Average Flow Rate of Gases

: 0.3 (lpm)

Weather Conditions

: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	64.7	μg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	28.4	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO ₂)	IS:5182 (Part 2):2001	11.9	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	23.8	µg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	0.572	mg/m³	2.0 (8 hrs)

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior writter approval of Anacon Labs. . BDL- Below detection limit . DL- Indicates detection limit of instrument/method and shall be considered at absent'.

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

Technical Manager

Authorized Signatory

Dr. (Mrs.) S. D. Garway

Quality Manager



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Test Report

Ambient Air Quality Report-June-2024

Report Code: AN/AA/2024/1-2

Issue Date: 25/06/2024

Issued To

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Core Zone)

Inward No.

: ALPL/21062024/ENV-151-KIM/CZ-2

Sample Description

: Ambient Air

Sample Drawn On Sample Drawn By

: 13/06/2024 to 14/06/2024 : Anacon Representative

Sample Received On

: 21/06/2024

Sampling Location

: Mines Lease Area (AAQ-2)

Sampling Plan & Procedure

: ANtd/7.2/Mon-01

Analysis Duration

: 22/06/2024

Sampling Time

: 24 Hrs. : 34°C

Ambient Temperature

: 1.1 (m³/min)

Average Flow Rate of SPM Average Flow Rate of Gases

: 0.3 (lpm)

Weather Conditions

: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	68.1	µg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	32.8	µg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO ₂)	IS:5182 (Part 2):2001	14.6	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO1)	IS:5182 (Part 6):2006	27.9	μg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	0.561	mg/m³	2.0 (8 hrs)

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Remark: - All Results are within Limit as per CPCB Standards.

Verified by

Technical Manager

Authorized Signatory

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Quality Manager



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Test Report

Ambient Air Quality Report-June-2024

Report Code: AN/AA/2024/1-3

Issue Date: 25/06/2024

Issued To

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No.

: ALPL/21062024/ENV-151-KIM/BZ-3

Sample Description

: Ambient Air

Sample Drawn On

: 14/06/2024 to 15/06/2024

Sample Drawn By

: Anacon Representative

Sample Received On

: 21/06/2024

Sampling Location

: Guali Village (AAQ-3)

Sampling Plan & Procedure

: ANtd/7.2/Mon-01

Analysis Duration

: 22/06/2024

Sampling Time

: 24 Hrs.

Ambient Temperature

: 36°C

Average Flow Rate of SPM

: 1.2 (m3/min)

Average Flow Rate of Gases

: 0.4 (lpm)

Weather Conditions

: Clear

SI. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	57.2	μg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	21.8	µg/m³	60 (24 hrs)
3	Sulphur dioxide (as 5O ₂)	IS:5182 (Part 2):2001	12.6	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NOz)	IS:5182 (Part 6):2006	19.1	µg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg/m³	2.0 (8 hrs)

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Remark: - All Results are within Limit as per CPCB Standards.

Verified by

Technical Manager

Authorized Signatory

Dr. (Mrs.) S. D. Garway

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Quality Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

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Test Report

Ambient Air Quality Report-June-2024

Report Code: AN/AA/2024/1-4

Issue Date: 25/06/2024

Issued To

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No.

: ALPI /21062024/ENV-151-KIM/BZ-4

Sample Description

: Ambient Air

Sample Drawn On

: 14/06/2024 to 15/06/2024

Sample Drawn By

: Anacon Representative

Sample Received On

: 21/06/2024

Sampling Location

: Kalamang Village (AAO-4)

Sampling Plan & Procedure

: ANtd/7.2/Mon-01

Analysis Duration

: 22/06/2024

Sampling Time

: 24 Hrs.

Ambient Temperature

: 36°C

Average Flow Rate of SPM

: 1.1 (m³/min)

Average Flow Rate of Gases Weather Conditions

: 0.4 (lpm) : Clear

SI. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	63.9	µg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	21.6	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO ₂)	IS:5182 (Part 2):2001	12.8	µg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	19.1	μg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg/m³	2.0 (8 hrs)

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs. • BDL- Below detection limit • DL- Indicates detection limit of instrument/method and shall be considered as 'absent'

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

Technical Manager

Snehal Raut

Authorized Signatory

Dr. (Mrs.) S. D. Garway

Quality Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

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Test Report

Ambient Air Quality Report-June-2024

Report Code: AN/AA/2024/1-5

Issue Date: 25/06/2024

Issued To

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No.

: ALPL/21062024/ENV-151-KIM/BZ-5

Sample Description

: Ambient Air

Sample Drawn On

:17/06/2024 to 18/06/2024

Sample Drawn By

: Anacon Representative

Sample Received On

: 21/06/2024

Sampling Location

: Sagasahi Village (AAO-5)

Sampling Plan & Procedure Analysis Duration

: ANtd/7.2/Mon-01

: 22/06/2024

Sampling Time

: 24 Hrs.

Ambient Temperature

: 36°C

Average Flow Rate of SPM

: 1.2 (m3/min)

Average Flow Rate of Gases

: 0.4 (lpm)

Weather Conditions

: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	62.8	µg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	21.4	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO ₂)	IS:5182 (Part 2):2001	13.6	µg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	18.2	ug/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg/m³	2.0 (8 hrs)

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs.

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

Remark: - All Results are within Limit as per CPCB Standards.

Technical Manager

Authorized Signatory

Dr. (Mrs.) S. D. Garway

Quality Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

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Test Report

Ambient Air Quality Report-June-2024

Report Code: AN/AA/2024/1-6

Issue Date: 25/06/2024

Issued To

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No.

: ALPL/21062024/ENV-151-KIM/BZ-6

Sample Description

: Ambient Air

Sample Drawn On

: 17/06/2024 to 18/06/2024

Sample Drawn By

: Anacon Representative

Sample Received On

: 21/06/2024

Sampling Location

: Gandalpada Village (AAO-6)

Sampling Plan & Procedure

: ANtd/7.2/Mon-01

Analysis Duration

: 22/06/2024

Sampling Time

: 24 Hrs.

Ambient Temperature

:36°C

Average Flow Rate of SPM

: 1.2 (m³/min)

Average Flow Rate of Gases

: 0.3 (lpm)

Weather Conditions

: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	64.9	ug/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	23.8	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO:)	IS:5182 (Part 2):2001	12.1	ug/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	21.7	µg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg/m³	2.0 (8 hrs)

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs. . BDL- Below detection limit . DL- Indicates detection limit of instrument/method and shall be considered as 'absent'.

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

Technical Manager

Authorized Signatory

Dr. (Mrs.) S. D. Garway

Quality Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

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Test Report

Ambient Air Quality Report-June-2024

Report Code: AN/AA/2024/1-7

Issue Date: 25/06/2024

Issued To

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No.

: ALPL/21062024/ENV-151-KIM/BZ-7

Sample Description

: Ambient Air

Sample Drawn On

:18/06/2024 to 19/06/2024

Sample Drawn By

: Anacon Representative

Sample Received On

: 21/06/2024

Sampling Location

: Sunindpur Village (AAQ-7)

Sampling Plan & Procedure

: ANtd/7.2/Mon-01

Analysis Duration

: 22/06/2024

Sampling Time

: 24 Hrs.

Ambient Temperature

:36°C

Average Flow Rate of SPM

: 1.2 (m3/min)

Average Flow Rate of Gases

: 0.4 (lpm)

Weather Conditions

: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	15:5182 (Part 23):2006	56.2	µg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	17.6	ug/m³	60 (24 hrs)
3	Sulphur dioxide (as SO ₂)	IS:5182 (Part 2):2001	9.1	µg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	18.3	ug/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg/m³	2.0 (8 hrs)

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs. . BDL- Below detection limit . DL- Indicates detection limit of instrument/method and shall be considered as "absent".

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

Technical Manager

Authorized Signatory

Dr. (Mrs.) S. D. Garway

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Quality Manager



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Test Report

Ambient Air Quality Report-July-2024

Report Code: AN/AA/2024/1-1

Issue Date: 05/08/2024

Issued To

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Core Zone)

Inward No.

: ALPL/22072024/ENV-185-KIM/CZ-1

Sample Description

: Ambient Air

Sample Drawn On

:15/07/2024 to 16/07/2024

Sample Drawn By

: Mr. Biplab Giri (Sky Lab)

Sample Received On

: 22/07/2024

Sampling Location

: Mines Lease Area (AAQ-1)

Sampling Plan & Procedure

: ANtd/7.2/Mon-01

Analysis Duration

: 23/07/2024

Sampling Time

: 24 Hrs.

Ambient Temperature

: 28°C

Average Flow Rate of SPM

: 1.1 (m³/min)

Average Flow Rate of Gases

: 0.3 (lpm)

Weather Conditions

: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	58.3	μg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	23.1	$\mu g / m^3$	60 (24 hrs)
3	Sulphur dioxide (as SO2)	IS:5182 (Part 2):2001	12.4	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO:)	IS:5182 (Part 6):2006	20.9	μg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL(DL-0.5)	mg/m³	2.0 (8 hrs)

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior writte approval of Anacon Labs. Below detection limit DL- Indicates detection limit of instrument/method and shall be considered 'absent'.

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

Marit

Snehal Raut

Technical Manager

Authorized Signatory

Chinmay Garway

eputy Quality Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Ambient Air Quality Report-July-2024

Report Code: AN/AA/2024/1-2

Issue Date: 05/08/2024

Issued To

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Core Zone)

Inward No.

: ALPL/22072024/ENV-185-KIM/CZ-2

Sample Description

: Ambient Air

Sample Drawn On

: 15/07/2024 to 16/07/2024

Sample Drawn By

: Mr. Biplab Giri (Sky Lab)

Sample Received On

: 22/07/2024

Sampling Location

: Mines Lease Area (AAO-2)

Sampling Plan & Procedure

: ANtd/7.2/Mon-01

Analysis Duration

: 23/07/2024

Sampling Time

: 24 Hrs.

Ambient Temperature

: 28°C

Average Flow Rate of SPM

: 1.2 (m³/min)

Average Flow Rate of Gases

: 0.4 (lpm)

Weather Conditions

: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	63.7	μg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	26.4	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO ₂)	IS:5182 (Part 2):2001	9.7	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	21.2	μg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL(DL-0.5)	mg/m³	2.0 (8 hrs)

NOTES: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior writter approval of Anacon Labs. • BDL- Below detection limit • DL- Indicates detection limit of instrument/method and shall be considered as 'absent'.

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

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Snehal Raut

Technical Manager

Authorized Signatory

Chinmay Garway

Deputy Quality Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

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MIDC Butibori, Nagpur, Maharashtra, India - 441 122

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Test Report

Ambient Air Quality Report-July-2024

Report Code: AN/AA/2024/1-3

Issue Date: 05/08/2024

Issued To

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No.

: ALPL/22072024/ENV-185-KIM/BZ-3

Sample Description

: Ambient Air

Sample Drawn On

:16/07/2024 to 17/07/2024

Sample Drawn By

: Mr. Biplab Giri (Sky Lab)

Sample Received On

: 22/07/2024

Sampling Location

: Guali Village (AAQ-3)

Sampling Plan & Procedure

: ANtd/7.2/Mon-01 : 23/07/2024

Analysis Duration

: 24 Hrs.

Sampling Time

: 24 Firs. : 28°C

Ambient Temperature

: 1.2 (m³/min)

Average Flow Rate of SPM Average Flow Rate of Gases

: 0.4 (lpm)

Weather Conditions

: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	59.1	μg/m³	100 (24 hrs)
2	Particulate Matter (PM2.5)	USEPA-40 (Part 50):2011	28.3	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO ₂)	IS:5182 (Part 2):2001	11.6	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	22.7	μg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg/m³	2.0 (8 hrs)

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior written approval of Anacon Labs. Below detection limit DL- Indicates detection limit of instrument/method and shall be considered a 'absent'.

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

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Technical Manager

Authorized Signatory

Chinmay Garway

Deputy Quality Manager



Anacon Laboratories Pvt, Ltd. Nagpur Lab

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 MIDC Butibori, Nagpur, Maharashtra, India - 441 122
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Test Report

Ambient Air Quality Report-July-2024

Report Code: AN/AA/2024/1-4

Issue Date: 05/08/2024

Issued To

M/s Kalamang Iron Mine (M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No.

: ALPL/22072024/ENV-185-KIM/BZ-4

Sample Description

: Ambient Air

Sample Drawn On

:16/07/2024 to 17/07/2024

Sample Drawn By

: Mr. Biplab Giri (Sky Lab)

Sample Received On

: 22/07/2024

Sampling Location

: Kalamang Village (AAQ-4)

Sampling Plan & Procedure

: ANtd/7.2/Mon-01

Analysis Duration

: 23/07/2024

Sampling Time

: 24 Hrs.

. 1' . T

: 28°C

Ambient Temperature Average Flow Rate of SPM

: 1.1(m³/min)

Average Flow Rate of Gases

: 0.3 (lpm)

Weather Conditions

: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	1S:5182 (Part 23):2006	61.9	μg/m³	100 (24 hrs)
2	Particulate Matter (PM2.5)	USEPA-40 (Part 50):2011	26.1	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO:)	IS:5182 (Part 2):2001	11.6	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO ₂)	IS:5182 (Part 6):2006	23.8	µg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	0.541	mg/m³	2.0 (8 hrs)

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior writter approval of Anacon Labs. Below detection limit DL- Indicates detection limit of instrument/method and shall be considered as 'absent'.

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

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Snehal Raut

Technical Manager

Authorized Signatory

Chinmay Garway

Deputy Quality Manager



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 https://www.anaconlaboratories.com

Test Report

Ambient Air Quality Report-July-2024

Report Code: AN/AA/2024/1-5

Issue Date: 05/08/2024

Issued To

M/s Kalamang Iron Mine (M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No.

: ALPL/22072024/ENV-185-KIM/BZ-5

Sample Description

: Ambient Air

Sample Drawn On

: 17/07/2024 to 18/07/2024

Sample Drawn By

: Mr. Biplab Giri (Sky Lab)

Sample Received On

: 22/07/2024

Sampling Location

: Sagasahi Village (AAQ-5)

Sampling Plan & Procedure

: ANtd/7.2/Mon-01

Analysis Duration

: 23/07/2024

Sampling Time

: 24 Hrs.

Ambient Temperature

: 28°C

Average Flow Rate of SPM

: 1.2 (m3/min)

Average Flow Rate of Gases

: 0.4 (lpm)

Weather Conditions

: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	57.3	μg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	16.9	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO2)	IS:5182 (Part 2):2001	9.1	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	17.4	μg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg/m³	2.0 (8 hrs)

NOTES: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred t tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior writte approval of Anacon Labs. • BDL- Below detection limit • DL- Indicates detection limit of instrument/method and shall be considered absent.

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

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Snehal Raut

Technical Manager

Authorized Signatory

Chinmay Carway Deputy Quality Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

QFP-34, 35, Food Park, Five Star Industrial Estate, MIDC Butibori, Nagpur, Maharashtra, India - 441 122 ↓+ 91 8045685558 秦 Email: info@anacon.in. https://www.anaconlaboratories.com

Test Report

Ambient Air Quality Report-July-2024

Report Code: AN/AA/2024/1-6

Issue Date: 05/08/2024

Issued To

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No.

: ALPL/22072024/ENV-185-KIM/BZ-6

Sample Description

: Ambient Air

Sample Drawn On

: 17/07/2024 to 18/07/2024

Sample Drawn By

Sample Received On

: Mr. Biplab Giri (Sky Lab)

: 22/07/2024

Sampling Location

: Gandalpada Village (AAQ-6)

Sampling Plan & Procedure

: ANtd/7.2/Mon-01

Analysis Duration

: 23/07/2024

Sampling Time

: 24 Hrs.

Ambient Temperature

: 28°C

Average Flow Rate of SPM

: 1.2 (m3/min)

Average Flow Rate of Gases

: 0.4 (lpm)

Weather Conditions

: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	56.2	μg/m³	100 (24 hrs)
2	Particulate Matter (PMzs)	USEPA-40 (Part 50):2011	23.8	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO ₂)	IS:5182 (Part 2):2001	11.6	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO1)	IS:5182 (Part 6):2006	21.4	μg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	15:5182 (Part 10):1992	BDL (DL-0.5)	mg/m³	2.0 (8 hrs)

NOTES: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs. . BDL- Below detection limit . DL- Indicates detection limit of instrument/method and shall be considered as 'absent'.

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

Snehal Raut

Technical Manager

Authorized Signatory

Chinmay Garway Debuty Ogality Manager



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MIDC Butibori, Nagpur, Maharashtra, India - 441 122

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Test Report

Ambient Air Quality Report-July-2024

Report Code: AN/AA/2024/1-7

Issue Date: 05/08/2024

Issued To

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No.

: ALPL/22072024/ENV-185-KIM/BZ-7

Sample Description

: Ambient Air

Sample Drawn On

: 18/07/2024 to 19/07/2024

Sample Drawn By

: Mr. Biplab Giri (Sky Lab)

Sample Received On

: 22/07/2024

Sampling Location

: Sunindpur Village (AAQ-7)

Sampling Plan & Procedure

: ANtd/7.2/Mon-01

Analysis Duration

: 23/07/2024

Sampling Time

: 24 Hrs.

Ambient Temperature

: 28°C

Average Flow Rate of SPM

: 1.2 (m3/min)

Average Flow Rate of Gases

: 0.3 (lpm)

Weather Conditions

: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	54.7	μg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	16.3	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO2)	IS:5182 (Part 2):2001	11.1	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	18.6	μg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	0.521	mg/m³	2.0 (8 hrs)

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior written approval of Anacon Labs. Below detection limit DL- Indicates detection limit of instrument/method and shall be considered a 'absent'.

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

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Suchal Paul

Technical Manager

Authorized Signatory

Chinmay Garway



Anacon Laboratories Pvt. Ltd. Nagpur Lab

PFP-34, 35, Food Park, Five Star Industrial Estate, MIDC Butibori, Nagpur, Maharashtra, India - 441 122 https://www.anaconlaboratories.com

Test Report

Ambient Air Quality Report-August-2024

Report Code: ALPL/31082024/1-1

Issue Date: 31/08/2024

Issued To

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Core Zone)

Inward No.

: ALPL/19082024/MON-430-EAAQ-1/7-1

Sample Description

: Ambient Air

Sample Drawn On

: 13/08/2024 to 14/08/2024

Sample Drawn By

: Mr. Biplab Giri

Sample Received On

: 19/08/2024

Sampling Location

: Mines Lease Area (AAQ-1) : ANtd/7.2/Mon-01

Sampling Plan & Procedure

: 20/08/2024

Analysis Duration

: 24 Hrs.

Sampling Time

Ambient Temperature

: 26°C

Average Flow Rate of SPM

: 1.2 (m³/min)

Average Flow Rate of Gases

: 0.4 (lpm)

Weather Conditions

: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	NAAQMS Standards
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	56.1	μg /m ³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	23.7	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO2)	IS:5182 (Part 2):2001	11.9	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	24.3	μg /m ³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BLQ(LOQ-0.5)	mg/m³	2.0 (8 hrs)

NOTES: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs.

BLQ= below limit of quantification, LOQ= limit of quantification.

Remark: - All Results are within Limit as per NAAQMS Standards.

Verified by

Technical Manager

Authorized Signatory

Chinmay Jarway buty Quality Manager



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♥ FP-34, 35, Food Park, Five Star Industrial Estate,
 MIDC Butibori, Nagpur, Maharashtra, India - 441 122
 ► 91 8045685558 Email: info@anacon.in
 ♦ https://www.anaconlaboratories.com

Test Report

Ambient Air Quality Report-August-2024

Report Code: ALPL/31082024/1-2

Issue Date: 31/08/2024

Issued To

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Core Zone)

Inward No. : ALPL/19082024/MON-430- EAAQ-1/7-2

Sample Description : Ambient Air

Sample Drawn On : 13/08/2024 to 14/08/2024

Sample Drawn By : Mr. Biplab Giri Sample Received On : 19/08/2024

Sampling Location : Mines Lease Area (AAQ-2)

Sampling Plan & Procedure : ANtd/7.2/Mon-01

Analysis Duration : 20/08/2024
Sampling Time : 24 Hrs.
Ambient Temperature : 26°C

Average Flow Rate of SPM : 1.1 (m³/min)

Average Flow Rate of Gases : 0.4 (lpm)

Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	NAAQMS Standards
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	62.9	μg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	26.8	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO ₂)	IS:5182 (Part 2):2001	12.4	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	27.1	μg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BLQ(LOQ-0.5)	mg/m³	2.0 (8 hrs)

NOTES: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs.
• BLQ= below limit of quantification. LOQ= limit of quantification.

Remark: - All Results are within Limit as per NAAQMS Standards.

Verified by

Snehal Raut Technical Manager Authorized Signatory

Chinmay Garway eputy Quality Manager



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Test Report

Ambient Air Quality Report-August-2024

Report Code: ALPL/31082024/1-3

Issue Date: 31/08/2024

Issued To

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No.

: ALPL/19082024/MON-430- EAAQ-1/7-3

Sample Description

: Ambient Air

Sample Drawn On

: 13/08/2024 to 14/08/2024

Sample Drawn By

: Mr. Biplab Giri

Sample Received On

: 19/08/2024

Sampling Location

: Guali Village (AAQ-3)

Sampling Plan & Procedure

: ANtd/7.2/Mon-01

Analysis Duration

: 20/08/2024

Sampling Time

: 24 Hrs.

Ambient Temperature

: 26°C

Average Flow Rate of SPM

: 1.2 (m3/min)

Average Flow Rate of Gases

: 0.4 (lpm)

Weather Conditions

: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	NAAQMS Standards
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	47.2	μg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	16.9	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO2)	IS:5182 (Part 2):2001	9.1	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	18.7	μg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BLQ(LOQ-0.5)	mg/m³	2.0 (8 hrs)

NOTES: ● Please see watermark "Original Test Report" to confirm the authenticity of this report. ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs.

■ BLQ= bclow limit of quantification. LOQ= limit of quantification.

Remark: - All Results are within Limit as per NAAQMS Standards.

Verified by

vermed by

M

Snehal Raut

Technical Manager

Authorized Signatory

Chinmay Garway eputy Quality Manager



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Test Report

Ambient Air Quality Report-August-2024

Report Code: ALPL/31082024/1-4

Issue Date: 31/08/2024

Issued To

M/s Kalamang Iron Mine (M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No.

: ALPL/19082024/MON-430- EAAQ-1/7-4

Sample Description

: Ambient Air

Sample Drawn On

: 14/08/2024 to 15/08/2024

Sample Drawn By

: Mr. Biplab Giri

Sample Received On

: 19/08/2024

Sampling Location

: Kalamang Village (AAQ-4)

Sampling Plan & Procedure

: ANtd/7.2/Mon-01 : 20/08/2024

Analysis Duration

O. IT

Sampling Time

: 24 Hrs.

Ambient Temperature

: 26°C

Average Flow Rate of SPM

: 1.1 (m³/min) : 0.4 (lpm)

Average Flow Rate of Gases Weather Conditions

: Clear

SI. No.	PARAMETER	TEST METHOD	RESULT	UNIT	NAAQMS Standards
_1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	58.3	μg/m³	100 (24 hrs)
2	Particulate Matter (PM2.5)	USEPA-40 (Part 50):2011	24.7	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO ₂)	IS:5182 (Part 2):2001	12.1	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	23.9	μg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BLQ(LOQ-0.5)	mg/m³	2.0 (8 hrs)

NOTES: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs.
• BLQ= below limit of quantification, LOQ= limit of quantification.

Remark: - All Results are within Limit as per NAAQMS Standards.

Verified by

Snehal Raut Technical Manager

----End of Report----

Authorized Signatory

Chinmay Garway eputy Quality Manager



:

Anacon Laboratories Pvt. Ltd. Nagpur Lab

PFP-34, 35, Food Park, Five Star Industrial Estate. MIDC Butibori, Nagpur, Maharashtra, India - 441 122 https://www.anaconlaboratories.com

Test Report

Ambient Air Quality Report-August-2024

Report Code: ALPL/31082024/1-5

Issue Date: 31/08/2024

Issued To

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No.

: ALPL/19082024/MON-430- EAAQ-1/7-5

Sample Description

: Ambient Air

Sample Drawn On

: 14/08/2024 to 15/08/2024

Sample Drawn By

: Mr. Biplab Giri

Sample Received On

: 19/08/2024

Sampling Location

: Sagasahi Village (AAQ-5)

Sampling Plan & Procedure

: ANtd/7.2/Mon-01

Analysis Duration

: 20/08/2024

Sampling Time

: 24 Hrs.

Ambient Temperature

: 26°C : 1.2 (m3/min)

Average Flow Rate of SPM Average Flow Rate of Gases

: 0.4 (lpm)

Weather Conditions

: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	NAAQMS Standards
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	48.1	μg/m³	100 (24 hrs)
2	Particulate Matter (PM2.5)	USEPA-40 (Part 50):2011	16.2	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO ₂)	IS:5182 (Part 2):2001	7.6	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	21.7	μg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BLQ(LOQ-0.5)	mg/m³	2.0 (8 hrs)

NOTES: ● Please see watermark "Original Test Report" to confirm the authenticity of this report. ● Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs. • BLQ= below limit of quantification . LOQ= limit of quantification.

Remark: - All Results are within Limit as per NAAQMS Standards.

Verified by

Snehal Raut

Technical Manager

Authorized Signatory

chinmay Garway

puty Quality/Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

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Test Report

Ambient Air Quality Report-August-2024

Report Code: ALPL/31082024/1-6

Issue Date: 31/08/2024

Issued To

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No.

: ALPL/19082024/MON-430- EAAQ-1/7-6

Sample Description

: Ambient Air

Sample Drawn On

: 14/08/2024 to 15/08/2024

Sample Drawn By

: Mr. Biplab Giri

Sample Received On

: 19/08/2024

Sampling Location

: Gandalpada Village (AAQ-6)

Sampling Plan & Procedure Analysis Duration

: ANtd/7.2/Mon-01

Sampling Time

: 20/08/2024

Sampling Time

: 24 Hrs.

Ambient Temperature

: 26°C

Average Flow Rate of SPM Average Flow Rate of Gases

: 1.2 (m³/min) : 0.4 (lpm)

Weather Conditions

: Clear

SI. No.		TEST METHOD	RESULT	UNIT	NAAQMS Standards
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	52.7	μg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	18.6	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO2)	IS:5182 (Part 2):2001	8.4	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	23.1	μg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BLQ(LOQ-0.5)	mg/m³	2.0 (8 hrs)

NOTES: ● Please see watermark "Original Test Report" to confirm the authenticity of this report. ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs.

■ BLQ= below limit of quantification, LOQ= limit of quantification.

Remark: - All Results are within Limit as per NAAQMS Standards.

Verified by

Christ

Snehal Raut Technical Manager

----End of Report----

Authorized Signatory

chinmay Garway outy Quality Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Ambient Air Quality Report-August-2024

Report Code: ALPL/31082024/1-7

Issue Date: 31/08/2024

Issued To

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Mines Area (Buffer Zone)

Inward No.

: ALPL/19082024/MON-430- EAAQ-1/7-7

Sample Description : Ambient Air

Sample Drawn On : 16/08/2024 to 17/08/2024

:

Sample Drawn By : Mr. Biplab Giri Sample Received On : 19/08/2024

Sampling Location : Sunindpur Village (AAQ-7)

Sampling Plan & Procedure : ANtd/7.2/Mon-01
Analysis Duration : 20/08/2024

Sampling Time : 24 Hrs.

Ambient Temperature : 26°C

Average Flow Rate of SPM : 1.3 (m³/min)

Average Flow Rate of Gases : 0.4 (lpm)

Weather Conditions : Clear

Sl. No.		TEST METHOD	RESULT	UNIT	NAAQMS Standards
1	Particulate Matter (PM10)	IS:5182 (Part 23):2006	49.1	μg/m³	100 (24 hrs)
2	Particulate Matter (PM25)	USEPA-40 (Part 50):2011	17.3	μg/m³	60 (24 hrs)
3	Sulphur dioxide (as SO ₂)	IS:5182 (Part 2):2001	7.6	μg/m³	80 (24 hrs)
4	Oxides of Nitrogen (as NO2)	IS:5182 (Part 6):2006	21.8	μg/m³	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BLQ(LOQ-0.5)	mg/m³	2.0 (8 hrs)

NOTES: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs.
• BLQ= below limit of quantification, LOQ= limit of quantification.

Remark: - All Results are within Limit as per NAAQMS Standards.

Verified by

Snehal Raut Technical Manager

----End of Report----

Authorized Signatory

Chinmay Garway Deputy Quality Manager







TC-12998

Test Report

ULR No.- TC129982400001615F

Test Report No.: ALPL/30092024/6-1A

Dated: 30/09/2024

Page 1 of 1

Issued To:

M/s Kalamang Iron Mine (M/s TATA STEEL LIMITED)

Sample Inward No.: ALPL/23092024/MON-30-AAQ-1/7-1

Analysis End date: 25/09/2024

Analysis Start date: 23/09/2024

Report Issue date: 30/09/2024

Samplings details:

Wind direction: SSE

Wind speed:

Instrument ID: ALPL/TSL/CEIS-RDS/2024/01,

ALPL/TSL/CEIS-FPS/2024/01,

Calibration Status : 22/08/2024 to 21/08/2025. Make & Model :- CEIS/CEIS-121, 131

Serial No.:- RDS/376-2024,FPS/425-2024

2.8 m/sec

Name of Anacon Representative: Mr. Biplab Giri

Date of Sampling :17/09/2024 to 18/09/2024

Time of sampling and duration: 12:35 & 24 hrs.

Sampling location: Near Mines Lease Area-1

Reference to sampling procedure: ANtd/7.2/Mon-01

Reference to sampling plan: ANtd/7.3/Mon-02/Sept-2024/3

Other Technical Data

Weather Conditions : Satisfactory & Clear Temp^oC (Max): 27

Inward Date: 23/09/2024

Relative Humidity

Temp^OC (Min): 22

Min: 21% Max: 92%

Sr. No.	Test Parameters	Measurement Unit	Test Method	Test Results	NAAQMS Standards
L	Discipline: Chemical	Group: Atmosphe	eric Pollution Materi	al or Product tested : A	mbient Air
L	Particulate Matter (PM10)	μg/m³	IS:5182 (Part 23)	61.7	100 (24 hrs)
2.	Particulate Matter (PM25)	μg/m³	μg /m³ USEPA-40 (Part 50)		60 (24 hrs)
3,	Sulphur dioxide	μg/m³	IS:5182 (Part 2)	12.3	80 (24 hrs)
4	Oxides of Nitrogen	μg /m³	IS:5182 (Part 6)	21.8	80 (24 hrs)
5.	Carbon Monoxide (as CO)	mg/m³	IS:5182 (Part 10)	BLQ (LOQ-0.5)	2.0 (8 hrs)

NOTES: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs. • BLQ= below limit of quantification, LOQ= limit of quantification. . Environmental condition - Satisfactory. . Statement of conformity issued on the basis of decision rule as per quality procedure (QP/7.8/05).

Remark: - All Results are within Limit as per NAAQMS Standards.

Verified by

Technical Manager

Authorized Signatory

Chinmay Garway

Deputy Quality Manager

----End of Report----

Thank you for instilling your trust and faith in our services. We cherish our relationship with you, and we put in a lot of hard work in making sure that you get a seamless experience at every stage of your interaction with us. In our constant endeavour towards ensuring that your next experience will be significantly better than the current one, we welcome your feedback on feedback@anacon.in.







TC-12998

Test Report

ULR No.- TC129982400001616F

Test Report No.: ALPL/30092024/6-2A

Dated: 30/09/2024

Page 1 of 1

Issued To:

M/s Kalamang Iron Mine

(M/s TATA STEEL LIMITED)

Sample Inward No.: ALPL/23092024/MON-30-AAQ-1/7-2

Inward Date: 23/09/2024

Analysis Start date: 23/09/2024

Analysis End date: 25/09/2024

Report Issue date: 30/09/2024

Samplings details:

Instrument ID: ALPL/TSL/CEIS-RDS/2024/02,

ALPL/TSL/CEIS-FPS/2024/02.

Calibration Status :22/08/2024 to 21/08/2025.

Make & Model:- CEIS/CEIS-121, 131

Serial No.:- RDS/327-2024,FPS/419-2024

Name of Anacon Representative: Mr. Biplab Giri

Date of Sampling :17/09/2024 to 18/09/2024

Time of sampling and duration: 13:10 & 24 hrs.

Sampling location: Near Mines Lease Area-2

Reference to sampling procedure: ANtd/7.2/Mon-01

Reference to sampling plan: ANtd/7,3/Mon-02/Sept-2024/3

Other Technical Data

Weather Conditions : Satisfactory & Clear

Wind direction: SSE

Wind speed:

2.8 m/sec

Temp^oC (Max): 27 Temp^oC (Min): 22 Relative Humidity

Min: 21% Max: 92%

Test Results

Sr. No. Test Parameters		Measurement Unit	Test Method	Test Results	NAAQMS Standards
1.	Discipline: Chemical	Group: Atmosphe	eric Pollution Materia	il or Product tested : A	mbient Air
1.	Particulate Matter (PM10)	μg /m³	IS:5182 (Part 23)	64.3	100 (24 hrs)
2.	Particulate Matter (PM25)	µg/m³	USEPA-40 (Part 50)	26.1	60 (24 hrs)
3.	Sulphur dioxide	μg /m³	IS:5182 (Part 2)	14.7	80 (24 hrs)
4	Oxides of Nitrogen	μg /m³	IS:5182 (Part 6)	27.8	80 (24 hrs)
5.	Carbon Monoxide (as CO)	mg/m³	IS:5182 (Part 10)	BLO (LOO-0.5)	2.0 (8 hrs)

NOTES: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs. • BLQ= below limit of quantification, LOQ= limit of quantification. • Environmental condition – Satisfactory. • Statement of conformity issued on the basis of decision rule as per quality procedure (QP/7.8/05).

Remark: - All Results are within Limit as per NAAQMS Standards.

Verified by

Snehal Raut

Technical Manager

Authorized Signatory

Chinmay Garway

Deputy Quality Manager

---End of Report----

Thank you for instilling your trust and faith in our services. We cherish our relationship with you, and we put in a lot of hard work in making sure that you get a seamless experience at every stage of your interaction with us. In our constant endeavour towards ensuring that your next experience will be significantly better than the current one, we welcome your feedback on feedback @anacon.in.







TC-12998

Test Report

ULR No.- TC129982400001617F

Test Report No.: ALPL/30092024/6-3A

Dated: 30/09/2024

Page 1 of 1

Issued To:

M/s Kalamang Iron Mine

Sample Inward No.: ALPL/23092024/MON-30-AAQ-1/7-3

Analysis Start date: 23/09/2024

(M/s TATA STEEL LIMITED)

Inward Date: 23/09/2024

Analysis End date: 25/09/2024

Report Issue date: 30/09/2024

Samplings details:

Instrument ID: ALPL/TSL/CEIS-RDS/2024/01,

ALPL/TSL/CEIS-FPS/2024/01,

Calibration Status :22/08/2024 to 21/08/2025.

Make & Model :- CBIS/CEIS-121, 131

Serial No.:- RDS/376-2024,FPS/425-2024

Name of Anacon Representative: Mr. Biplab Giri

Date of Sampling :18/09/2024 to 19/09/2024

Time of sampling and duration: 13:20 & 24 hrs.

Sampling location : Near Guali Village

Reference to sampling procedure: ANtd/7.2/Mon-01

Reference to sampling plan: ANtd/7.3/Mon-02/Sept-2024/3

Other Technical Data

Weather Conditions: Satisfactory & Clear

Wind direction: SW Wind speed: 1.7 m/sec Temp^oC (Max): 28 Temp^oC (Min): 21

Relative Humidity

Min: 23% Max: 88%

Test Results

Sr. No.	Test Parameters	Measurement Unit	Test Method	Test Results	NAAQMS Standards
I.	Discipline: Chemical	Group: Atmosphe	ric Pollution Materia	d or Product tested : A	
1.	Particulate Matter (PMn)	μg/m³	IS:5182 (Part 23)	51.3	100 (24 hrs)
2.	Particulate Matter (PM25)	μg /m³	USEPA-40 (Part 50)	16.9	60 (24 hrs)
3.	Sulphur dioxide	µg/m³	IS:5182 (Part 2)	11.4	80 (24 hrs)
4.	Oxides of Nitrogen	µg/m³	IS:5182 (Part 6)	18.3	80 (24 hrs)
5.	Carbon Monoxide (as CO)	mg/m³	IS:5182 (Part 10)	BLO (LOO-0.5)	2.0 (8 hrs)

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior written approval of Anacon Labs. BLQ= below limit of quantification. Environmental condition – Satisfactory. Statement of conformity issued on the basis of decision rule a per quality procedure (QP/7.8/05).

Remark: - All Results are within Limit as per NAAQMS Standards.

Verified by

Snehal Raut Technical Manager Authorized Signatory

Chinmay Garway

Deputy Quality Manager

----End of Report----

Thank you for instilling your trust and faith in our services. We cherish our relationship with you, and we put in a lot of hard work in making sure that you get a seamless experience at every stage of your interaction with us. In our constant endeavour towards ensuring that your next experience will be significantly better than the current one, we welcome your feedback@anacon.in.







TC-12998

Test Report

ULR No.- TC129982400001618F

Test Report No.: ALPL/30092024/6-4A

Dated: 30/09/2024

Page 1 of 1

Issued To:

M/s Kalamang Iron Mine

Sample Inward No.: ALPL/23092024/MON-30-AAQ-1/7-4

Analysis Start date: 23/09/2024

(M/s TATA STEEL LIMITED)

Inward Date: 23/09/2024

Analysis End date: 25/09/2024

Report Issue date: 30/09/2024

Samplings details:

Instrument ID: ALPL/TSL/CEIS-RDS/2024/02,

ALPL/TSL/CEIS-FPS/2024/02,

Calibration Status :22/08/2024 to 21/08/2025.

Make & Model :- CEIS/CEIS-121, 131

Serial No.:- RDS/327-2024,FPS/419-2024

Name of Anacon Representative: Mr. Biplab Giri

Date of Sampling :18/09/2024 to 19/09/2024

Time of sampling and duration: 14:10 & 24 hrs.

Sampling location : Near Kalamang Village

Reference to sampling procedure: ANtd/7.2/Mon-01

Reference to sampling plan: ANtd/7.3/Mort-02/Sept-2024/3

Other Technical Data

Weather Conditions: Satisfactory & Clear

Wind direction: SW Wind speed: 1.7 m/sec Temp^oC (Max): 28

Temp⁰C (Min): 21 M

Relative Humidity

Min: 23% Max: 88%

Test Results

Sr. No.	Test Parameters	Measurement Unit	Test Method	Test Results	NAAQMS Standards
L	Discipline: Chemical	Group: Atmosphe	ric Pollution Materia	or Product tested : A	THE RESERVE OF THE PERSON NAMED IN
1.	Particulate Matter (PM10)	µg/m³	IS:5182 (Part 23)	58.3	100 (24 hrs)
2.	Particulate Matter (PM25)	µg/m³	USEPA-40 (Part 50)	27.1	60 (24 hrs)
3.	Sulphur dioxide	μg /m ³	IS:5182 (Part 2)	13.9	80 (24 hrs)
4	Oxides of Nitrogen	μg/m³	IS:5182 (Part 6)	24.6	80 (24 hrs)
5.	Carbon Monoxide (as CO)	mg/m³	IS:5182 (Part 10)	BLQ (LOQ-0.5)	2.0 (8 hrs)

NOTES: Piease see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior written approval of Anacon Labs. BLQ= below limit of quantification, LOQ= limit of quantification, Environmental condition – Satisfactory. Statement of conformity issued on the basis of decision rule as per quality procedure (QP/7.8/05).

Remark: - All Results are within Limit as per NAAQMS Standards.

Verified by

Snehal Raut Technical Manager Authorized Signatory

Chinmay Garway Deputy Quality Manager

----End of Report----

Thank you for instilling your trust and faith in our services. We cherish our relationship with you, and we put in a lot of hard work in making sure that you get a seamless experience at every stage of your interaction with us. In our constant endeavour towards ensuring that your next experience will be significantly better than the current one, we welcome your feedback on feedback@anacon.in.







TC-12998

Test Report

ULR No.- TC129982400001619F

Test Report No.: ALPL/30092024/6-5A

Dated: 30/09/2024

Page 1 of 1

Issued To:

M/s Kalamang Iron Mine (M/s TATA STEEL LIMITED)

Sample Inward No.: ALPL/23092024/MON-30-AAQ-1/7-5

Inward Date: 23/09/2024

Analysis Start date: 23/09/2024

Analysis End date: 25/09/2024

Report Issue date: 30/09/2024

Samplings details:

Instrument ID: ALPL/TSL/CEIS-RDS/2024/01,

ALPL/TSL/CEIS-FPS/2024/01,

Calibration Status :22/08/2024 to 21/08/2025.

Make & Model :- CEIS/CEIS-121, 131

Serial No.:- RDS/376-2024,FPS/425-2024

Name of Anacon Representative: Mr. Biplab Giri

Date of Sampling :19/09/2024 to 20/09/2024

Time of sampling and duration: 13:55 & 24 hrs.

Sampling location: Near Sagasahi Village

Reference to sampling procedure: ANtd/7.2/Mon-01

Reference to sampling plan: ANtd/7.3/Mon-02/Sept-2024/3

Other Technical Data

Weather Conditions : Satisfactory & Clear

Wind direction: WSW Wind speed: 1.6 m/sec Temp^OC (Max): 30 Temp^OC (Min): 22

Relative Humidity

Min: 21% Max: 80%

Test Results

Sr. No.	Test Parameters	Measurement Unit	Test Method	Test Results	NAAQMS Standards
I.	Discipline: Chemical	Group: Atmosphe	ric Pollution Materia	al or Product tested : A	
1.	Particulate Matter (PM10)	µg/m³	IS:5182 (Part 23)	48.7	100 (24 hrs)
2.	Particulate Matter (PM25)	μg/m³	USEPA-40 (Part 50)	19.3	60 (24 hrs)
3.	Sulphur dioxide	μg/m³	IS:5182 (Part 2)	9,1	80 (24 hrs)
4	Oxides of Nitrogen	μg /m³	IS:5182 (Part 6)	21.4	80 (24 hrs)
5.	Carbon Monoxide (as CO)	mg/m³	IS:5182 (Part 10)	BLQ (LOQ-0.5)	2.0 (8 hrs)

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Remark: - All Results are within Limit as per NAAQMS Standards.

Verified by

Snehal Raut Technical Manager Authorized Signatory

Chinmay Garway Deputy Quality Manager

----End of Report----

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TC-12998

Test Report

ULR No.- TC129982400001620F

Test Report No.: ALPL/30092024/6-6A

Dated: 30/09/2024

Page 1 of 1

Issued To:

M/s Kalamang Iron Mine (M/s TATA STEEL LIMITED)

Sample Inward No.: ALPL/23092024/MON-30-AAQ-1/7-6

Analysis Start date: 23/09/2024

) In

Inward Date: 23/09/2024

Analysis End date: 25/09/2024

Report Issue date: 30/09/2024

Samplings details:

Instrument ID: ALPL/TSL/CEIS-RDS/2024/02,

ALPL/TSL/CEIS-FPS/2024/02.

Calibration Status :22/08/2024 to 21/08/2025.
Make & Model :- CEIS/CEIS-121, 131
Serial No.:- RDS/327-2024,FPS/419-2024

Name of Anacon Representative: Mr. Biplab Giri

Date of Sampling :19/09/2024 to 20/09/2024

Time of sampling and duration: 14:35 & 24 hrs.

Sampling location: Near Gandalpada Village

Reference to sampling procedure: ANtd/7.2/Mon-01

Reference to sampling plan: ANtd/7.3/Mon-02/Sept-2024/3

Other Technical Data

Weather Conditions: Satisfactory & Clear

Wind direction: WSW Wind speed: 1.6 m/sec Temp^oC (Max): 30 Temp^oC (Min): 22

Relative Humidity

Min: 21% Max: 80%

Test Results

Sr. No.	Test Parameters	Measurement Unit	Test Method	Test Results	NAAQMS Standards
I.	Discipline: Chemical	Group: Atmosphe	ric Pollution Materia	l or Product tested : A	
4.	Particulate Matter (PM10)	µg/m³	IS:5182 (Part 23)	57.3	100 (24 hrs)
2.	Particulate Matter (PM25)	μg/m³	USEPA-40 (Part 50)	24.9	60 (24 hrs) 80 (24 hrs)
3.	Sulphur dioxide	μg/m³	IS:5182 (Part 2)	13.8	
4	Oxides of Nitrogen	n μg/m³ IS:5182 (Part 6)		24.1	80 (24 hrs)
Carbon Monoxide (as CO)		mg/m³	IS:5182 (Part 10)	BLQ (LOQ-0.5)	2.0 (8 hrs)

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior written approval of Anacon Labs. BLQ= below limit of quantification, LOQ= limit of quantification. Environmental condition – Satisfactory. Statement of conformity issued on the basis of decision rule as per quality procedure (QP/7.8/05).

Remark: - All Results are within Limit as per NAAQMS Standards.

Verified by

Snehal Raut

Technical Manager

Authorized Signatory

Chinmay Garway Deputy Quality Manager

----End of Report----

Thank you for instilling your trust and faith in our services. We cherish our relationship with you, and we put in a lot of hard work in making sure that you get a seamless experience at every stage of your interaction with us. In our constant endeavour towards ensuring that your next experience will be significantly better than the current one, we welcome your feedback on feedback @anacon.in.







TC-12998

Test Report

ULR No.- TC129982400001621F

Test Report No.: ALPL/30092024/6-7A

Dated: 30/09/2024

Page 1 of 1

Issued To:

M/s Kalamang Iron Mine

Sample Inward No.: ALPL/23092024/MON-30-AAQ-1/7-7

Analysis Start date: 23/09/2024

(M/s TATA STEEL LIMITED)

Inward Date: 23/09/2024

Analysis End date: 25/09/2024

Report Issue date: 30/09/2024

Samplings details:

Instrument ID: ALPL/TSL/CEIS-RDS/2024/01,

ALPL/TSL/CEIS-FPS/2024/01.

Calibration Status :22/08/2024 to 21/08/2025. Make & Model :- CEIS/CEIS-121, 131 Serial No.:- RDS/376-2024,FPS/425-2024 Name of Anacon Representative: Mr. Biplab Giri

Date of Sampling :20/09/2024 to 21/09/2024

Time of sampling and duration: 14:55 & 24 hrs.

Sampling location: Near Sunindpur Village

Reference to sampling procedure: ANtd/7.2/Mon-01

Reference to sampling plan: ANtd/7.3/Mon-02/Sept-2024/3

Other Technical Data

Weather Conditions: Satisfactory & Clear

Wind direction: WSW Wind speed: 1.7 m/sec

Temp^OC (Max): 31 Temp^OC (Min): 23

Relative Humidity

Min: 21% Max: 86%

Test Results

Sr. No.	Test Parameters	Measurement Unit	Test Method	Test Results	NAAQMS Standards
I.	Discipline: Chemical	Group: Atmosphe	ric Pollution Materi	al or Product tested : A	
1.	Particulate Matter (PM10)	µg/m³	IS:5182 (Part 23)	48.7	100 (24 hrs)
2.	Particulate Matter (PM25)	µg/m³	USEPA-40 (Part 50)	21.4	60 (24 hrs)
3.	Sulphur dioxide			9.2	80 (24 hrs)
4	Oxides of Nitrogen	μg/m³	IS:5182 (Part 6)	18.9	80 (24 hrs)
5.	Carbon Monoxide (as CO)	mg/m³	IS:5182 (Part 10)	BLQ (LOQ-0.5)	2.0 (8 hrs)

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior written approval of Anacon Labs. BLQ= below limit of quantification , LOQ= limit of quantification. . Environmental condition - Satisfactory. . Statement of conformity issued on the basis of decision rule as per quality procedure (QP/7.8/05).

Remark: - All Results are within Limit as per NAAQMS Standards.

Verified by

Snehal Raut

Technical Manager

Authorized Signatory

Chinmay Garway

Deputy Quality Manager

----End of Report----

Thank you for instilling your trust and faith in our services. We cherish our relationship with you, and we put in a lot of hard work in making sure that you get a seamless experience at every stage of your interaction with us. In our constant endeavour towards ensuring that your next experience will be significantly better than the current one, we welcome your feedback on feedback@anacon.in.



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Test Report

Test Report No. : AL	PL/300420	Page 1 of 1						
Issued To: M/s Kalamang Iron Mine (M/s TATA Steel Limited)		Sample Inw Inward Dat	SECTION 10 10 10 10 10 10 10 10 10 10 10 10 10		Barren marren er er anderen er	-1 & 2	Analysis Start 23/04/2024 Analysis End 30/04/2024 Report Issue Date 30/04/2024 Sample Category Water Ple Condition Quantity Receive 2.0 Ltr & 250 ml Sampling Location 1. Sona River Upstream (SW-1) 2. Sona River Downstream (SW-1)	
Sample Name Surface Water						47 37 37		
Sample Collected By Anacon Representative			1.50	ng Date Sampling Ti 4/2024 3.50 pm & 4.20				

TEST RESULTS

				Standards	Test	Result
S.N.	Test Parameter	Measurement Unit	Test Method	as per IS 2296:1992 Class C	SW-1	SW-2
1	Biological Testing 1.Water					9
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
п	Chemical Testing 1.Water		y y			V
2	pH value	240	IS 3025 (Part 11): 2022	6:0 to 9.0	6.51 at 25°C	6.72 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4): 2021	300	28	21
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38):1989	4.0	6.4	6.1
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17):2022	-	32	26
6	BOD (3 days at 27°C)	mg/l	IS-3025 (Part 44): 2023	3.0	2.73	2.64
7	Chemical oxygen demand	mg/l	IS-3025(Part-58): 2022	**	7.92	6.81
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 : (Part 16) : 2023	1500	1387	1286
9	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	1.5	0.06	0.03
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32):1988	600	131.52	118.59
11:	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 2022	400	241.68	216,37
12	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	50	21.57	18.76
13	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	1.5	0.53	0.48
14	Cyanide (as CN)	mg/I	IS 3025 (Part 27): 2021	0.05	BDL(DL-0.005)	BDL(DL-0.005)
15	Phenolic compounds (as C6H5OH)	mg/l	18 3025 (Part 43): 1992	0.005	BDL(DL-0.001)	BDL(DL-0.001)
16	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	1.0	BDL(DL-0.01)	BDL(DL-0.01)
	Chemical Testing 2. Residues I					
17	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	0.5	0.46	0.42
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 2): 2019	0.01	BDL(DL-0.002)	BDL(DL-0.002)
19	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.05	BDL(DL-0.01)	BDL(DL-0.01)
20	Arsenic (as As)	mg/1	IS 3025 (Part 37): 2022	0.2	BDL(DL-0.01)	BDL(DL-0.01)
21	Lead (as Pb)	mg/l	3025 (Part 2) ; 2019	0.1	BDL(DL-0.01)	BDL(DL-0.01)
22	Zinc (as Zn)	mg/l	1S 3025 (Part 2): 2019	15	BDL(DL-0.02)	BDL(DL-0.02)
23	Hexa Chromium (as Cr ⁻⁶)	mg/l	IS 3025 (Part 52) :2003	0.05	BDL(DL-0.01)	BDL(DL-0.01)
24	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994	144	BDL(DL-0.001)	BDL(DL-0.001)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2); 2019	164	BDL(DL-0.02)	BDL(DL-0.02)

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

Verified By

uty Technical Manager

Snehal Raut

Deputy Technical Manager

Authorized Signatories

Dr. (Mrs.) S.D. Garway

Quality Manager Technical Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

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Test Report

Test Report No. : ALI	PL/300420	024/1-15	date	ed 30/04/202	24		Page 1 of 1	
Issued To: M/s Kalamang Iron Mine (M/s TATA Steel Limited)		Sample Inv Inward Dat		d No. ALPL/22042024/ENV-98-SW-3 22/04/2024		-3 & 4	Analysis Start Analysis End Report Issue Date Sample Category	
Sample Name Sample Sou Surface Water 1. Upstream 2. Doo					ple Condition Quantity Receive & Ice Preserved 2.0 Ltr & 250 ml			
Sample Collected By Anacon Representative			ing Date Sampling To 4/2024 12.50 pm & 1.3			1. Karo River Upstream (S 2. Karo River Downstream		

TEST RESULTS

				Standards as	Test l	Result
S.N.	Test Parameter	Measurement Unit	Test Method	per IS 2296:1992 Class C	SW-3	SW-4
1	Biological Testing 1.Water					J
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
П	Chemical Testing 1.Water					
2	pH value	265	IS 3025 (Part 11): 2022	6.0 to 9.0	6,82 at 25°C	7.16 at 25°C
3	Colour	Hazen units	1S 3025 (Part 4): 2021	300	26	24
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38):1989	4:0	6.7	6.3
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17):2022	4	28	16
6	BOD (3 days at 27°C)	mg/l	IS-3025 (Part 44): 2023	3.0	2.53	2.41
7	Chemical oxygen demand	mg/l	IS-3025(Part-58): 2022	198	8.39	7.62
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 : (Part 16) : 2023	1500	1428	1357
9	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	1.5	0.07	0.04
10	Chloride (as Cl)			600	136	118
11	Sulphate (as SO ₄)			400	164	143
12	Nitrate (as NO ₃) mg/l		APHA method 23rd edition: 2017	50	17.6	12.9
13.	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	1.5	0.57	0.48
14	Cyanide (as CN)	mg/l	1S 3025 (Part 27): 2021	0.05	BDL(DL-0.005)	BDL(DL-0,005
15	Phenolic compounds (as C6H5OH)	mg/l	IS 3025 (Part 43): 1992	0.005	BDL(DL-0.001)	BDL(DL-0.001)
16	Anionic Detergents (as MBAS)	mg/l	IS 13428: (Annex K): 2005	0.1	BDL(DL-0.01)	BDL(DL-0.01)
	Chemical Testing 2. Residues I	n Water				
17.	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	0.5	0.42	0.37
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 2): 2019	0.01	BDL(DL-0.002)	BDL(DL-0.002)
19	Selenium (as Se)	mg/I	IS 3025 (Part 56): 2003	0.05	BDL(DL-0.01)	BDL(DL-0.01)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 2022	0.2	BDL(DL-0.01)	BDL(DL-0.01)
21	Lead (as Pb)	mg/l	3025 (Part 2): 2019	0.1	BDL(DL-0.01)	BDL(DL-0.01)
22	Zinc (as Zn)	mg/l	15 3025 (Part 2): 2019	15	BDL(DL-0.02)	BDL(DL-0.02)
23	Hexa Chromium (as Cr 6)	mg/l	IS 3025 (Part 52) :2003	0.05	BDL(DL-0.01)	BDL(DL-0.01)
24	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994		BDL(DL-0.001)	BDL(DL-0.001)
25	Manganese (as Mn)	mg/l	15 3025 (Part 2): 2019		BDL(DL-0.02)	BDL(DL-0.02)

NOTES: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior written approval of Anacon Labs.
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REMARKS: As requested by the client, sample was tested for above parameters only.

Verified By

Deputy Technical Manager

Authorized Signatories

Dr. (Mrs.) S.D. Garway

Quality Manager

Technical Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

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Test Report

Test Report No. : ALI	PL/220520			ed 22/05/202			Total Contract of the Contract	age 1 of 1
(M/s TATA Steel Limited) Sample Name Sample So		Sample Inv Inward Da			ALPL/17052024/ENV-131-SW-1 & 2 17/05/2024		Analysis Start 17/05/2024 Analysis End 22/05/2024 Report Issue Date 22/05/2024 Sample Category Water	
		Sample Source ream 2. Downstream				ple Condition Quantity Received 2.0 Ltr & 250 m		
						Sampling Location 1. Sona River Upstream (SW-1) 2. Sona River Downstream (SW-2)		

		N. S. St. St. St. St. St. St. St. St. St.		Standards	Test	Result
S.N.	Test Parameter	Measurement Unit	Test Method	as per IS 2296:1992 Class C	SW-1	SW-2
1	Biological Testing L.Water				ALC: N	
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
11	Chemical Testing L.Water				1	The same areas and
2	pH value	- 14	IS 3025 (Part 11) : 2022	6.0 to 9.0	6.48 at 25°C	6.67 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4): 2021	300	26	18
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38):1989	4.0	6.2	5.8
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17):2022		26	21
6	BOD (3 days at 27°C)	mg/l	IS-3025 (Part 44): 2023	3.0	2.52	2.49
7	Chemical oxygen demand	mg/l	IS-3025(Part-58): 2022	V	6.38	5.94
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 : (Part 16) 2023	1500	1437	1358
9	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	1.5	0.07	0.04
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	600	116.52	109.38
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24): 2022	400	247.36	221.54
12	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	50	16.92	14.73
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.57	0,42
14	Cyanide (as CN)	mg/I	IS 3025 (Part 27): 2021	0.05	BDL(DL-0.005)	- BDL(DL-0.005
15	Phenolic compounds (as C6H5OH)	mg/l	IS 3025 (Part 43): 1992	0.005	BDL(DL-0.001)	BDL(DL-0.001)
16	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	1.0	BDL(DL-0.01)	BDL(DL-0.01)
	Chemical Testing 2. Residues I	n Water			10	DDD(DL-0.01)
17	Iron (as Fc)	mg/l	IS 3025 (Part 2): 2019	0.5	0.37	0.34
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 2): 2019	0.01	BDL(DL-0.002)	BDL(DL-0.002)
19	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.05	BDL(DL-0.01)	BDL(DL-0.01)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.2	BDL(DL-0.01)	BDL(DL-0.01)
21	Lead (as Pb)	mg/l	3025 (Part 2): 2019	0.1	BDL(DL-0.01)	BDL(DL-0.01)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	15	BDL(DL-0.02)	BDL(DL-0.01)
23	Hexa Chromium (as Cr ⁷⁶)	mg/l	IS 3025 (Part 52) 2003	0.05	BDL(DL-0.01)	
24	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994	0.05	BDL(DL-0.001)	BDL(DL-0.01) BDL(DL-0.001)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019		BDL(DL-0.001)	BDL(DL-0.02)

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

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

Verified By

Dubey Sol

Deputy Technical Manager

Snehal Raut

Deputy Technical Manager

Authorized Signatories

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



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Test Report

Test Report No. : ALF	L/220520			ed 22/05/202			F	age 1 of 1
Issued To: M/s Kalamang Iron Mine (M/s TATA Steel Limited) Sample Name Surface Water 1. Upst		Sample Inv Inward Dat			7052024/ENV-131-SW-3 & 4 2024		Analysis Start Analysis End Report Issue Da Sample Categor	
		Sample Source tream 2 Downstream					Sampling Location 1. Karo River Upstream (SW-2. Karo River Downstream (SW	
Sample Collected By Anacon Representative			06000					
				TEST RES	ULTS			

	320 322			Standards as	Test	Result
S.N.	Test Parameter	Measurement Unit	Test Method	per 1S 2296:1992 Class C	SW-3	SW-4
1	Biological Testing 1.Water				1000	
1	Coliform	MPN/100ml	IS 1622: 1981	5000	BDL(DL-2)	BDL(DL-2)
11	Chemical Testing 1.Water				II.	1
2	pH value		IS 3025 (Part 11): 2022	6.0 to 9.0	6.94 at 25°C	6.58 at 25°C
3	Colour	Hazen units IS 3025 (Part 4): 2021 300		300	28	23
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38):1989	4.0	6.4	6.1
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) :2022		32	26
6	BOD (3 days at 27°C)	mg/l	IS-3025 (Part 44): 2023	3.0	2.41	2 39
7	Chemical oxygen demand	mg/l	IS-3025(Part-58): 2022		7.64	6.28
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 : (Part 16) : 2023	1500	1387	1291
9	Copper (as Cu)	mg/I	IS 3025 (Part 2) : 2019	1.5	0.06	0.03
10	Chloride (as Cl)	mg/I	IS 3025 (Part 32) 1988	600	141	138
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24): 2022	400	152	127
12	Nitrate (as NO ₃)	APHA method 23rd edition:		50	16,4	13.8
13	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	1.5	0.47	0.36
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 2021	0.05	BDL(DL-0.005)	BDL(DL-0.005
15	Phenolic compounds (as C6H5OH)	mg/l	IS 3025 (Part 43): 1992	0.005	BDL(DL-0.001)	BDL(DL-0.001)
16	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	1.0	BDL(DL-0.01)	BDL(DL-0.01)
	Chemical Testing 2, Residues I			1,0	Design Control	1 11/1/12-0.01)
17	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	0.5	0.37	0.28
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 2): 2019	0.01	BDL(DL-0.002)	BDL(DL-0.002)
19	Selenium (as Se)	mg/I	IS 3025 (Part 56): 2003	0.05	BDL(DL-0.01)	BDL(DL-0.01)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 2022	0.2	BDL(DL-0.01)	BDL(DL-0.01)
21	Lead (as Pb)	mg/l	3025 (Part 2): 2019	0.1	BDL(DL-0.01)	BDL(DL-0.01)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	15	BDL(DL-0.02)	BDL(DL-0.02)
23	Hexa Chromium (as Cr ⁴⁶)	mg/l	IS 3025 (Part 52) :2003	0.05	BDL(DL-0.01)	BDL(DL-0.01)
24	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994	2	BDL(DL-0.001)	BDL(DL-0.001)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019		BDL(D1,-0.02)	BDL(DL-0.02)

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Please see watermark "Original Test Report" to confirm the authenticity of this report. Test report shall not be reproduced except in full without prior written approval of Anacon Labs.

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

Verified By

Deputy Technical Manager

Deputy Technical Manager

Authorized Signatories

Technical Manager

Dr. (Mrs.) S.D. Garway

Quality Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

2. Sona River Downstream (SW-2)

Test Report

Test Report No.: ALPL/25062024/1-14 dated 25/06/2024 Page 1 of 1

Issued To: M/s Kalamang Iron Mine (M/s TATA Steel Limited)		Sample Inwa Inward Date		ALPL/2106/ 21/06/2024	PL/21062024/ENV-151-SW-1 & 2 06/2024		Analysis Start Analysis End Report Issue Da Sample Categor	
Sample Name Surface Water L. Ups		Sample Source ream 2. Downstream					nple Condition Quantity Recei d & lcc Preserved 2.0 Ltr & 250	
Sample Collected By Anacon Representative		Sept. A. S. 17. 18. 17.	pling Date Sampling /06/2024 2.45 pm &			1. Sona R	oling Location iver Upstream (SW-1)	

TEST RESULTS

		170		Standards	Test	Result
S.N.	Test Parameter	Measurement	Test Method	us per 18 2296:1992 Class C	SW-1	SW-2
1	Biological Testing 1.Water				ATD Y	
1	Coliform	MPN/100ml	IS 1622 ; 1981	5000	BDL(DL-2)	BDL(DL-2)
11	Chemical Testing LWater					
2	pH value		(S 3025 (Part 11) 2022	6.0 to 9.0	6.73 at 25°C	6.51 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4): 2021	300	24	16
34	Dissolved Oxygen	mg/l	1S 3025 (Part 38) :1989	4.0	6.4	6.1
3	Total Suspended Solid (as TSS)	mg/I	IS 3025 (Part 17):2022		28	16
6	BOD (3 days at 27°C)	mg/l	IS-3025 (Part 44): 2023	3.0	2.71	2.64
7	Chemical oxygen demand	mg/l	IS-3025(Part-58): 2022	-	6.59	4.82
8	Total Dissolved Solids (TDS)	mg/I	IS 3025 : (Part 16) ; 2023	1500	1381	1164
9	Copper (as Cu)	mg/l	IS 3025 (Part 2) 2019	1.5	0.06	0.03
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) 1988	600	121.57	118.93
11	Sulphate (as SO ₄)	mg/I	IS 3025 (Part 24) 2022	400	252.19	172.81
12	Nitrate (as NO ₂)	mg/l	APHA method 23rd edition: 2017	50	18.34	16.93
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.54	0.46
14	Cyanide (as CN)	mg/l	1S 3025 (Part 27): 2021	0.05	BDL(DL-0.005)	BDL(DL-0.005)
15	Phenolic compounds (as C6H5OH)	mg/I	1S 3025 (Part 43): 1992	0.005	BDL(DL-0.001)	BDL(DL-0.001)
16:	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	1.0	BDL(DL-0.01)	BDL(DL-0.01)
	Chemical Testing 2. Residues I	n Water				
17	Iron (as Fe)	mg/I	IS 3025 (Part 2) : 2019	0.5	0.43	0.38
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 2): 2019	0.01	BDL(DL-0.002)	BDL(DL-0.002)
19	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.05	BDL(DL-0.01)	BDL(DL-0.01)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 2022	0.2	BDL(DL-0.01)	BDL(DL-0.01)
21	Lead (as Pb)	mg/l	3025 (Part 2) : 2019	0.1	BDL(DL-0,01)	BDL(DL-0.01)
22	Zinc (its Zn)	mg/l	IS 3025 (Part 2) : 2019	15	BDL(DL-0.02)	BDL(DL-0.02)
23	Hexa Chromium (as Cr**)	mg/l	IS 3025 (Part 52) :2003	0.05	BDL(DL-0.01)	BDL(DL-0.01)
24	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994		BDL(DL-0.001)	BDL(DL-0.001)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019		BDL(DL-0.02)	BDL(DL-0.02)

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

Verified By

Nidhi Dubey

Deputy Technical Manager

Snehal Raut

Technical Manager

Authorized Signatories

Pooja Kathuje

Technical Manager

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



Anacon Laboratories Pvt. Ltd. Nagpur Lab

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Test Report

rest Report No. : ALBL/25002	024/1-15 43	ed 25/06/2024	- Page	1 of 1
Issued To: M/s Kalamang Iron Mine (M/s TATA Steel Limited)	Sample Inward No. Inward Date	ALPL/21062024/ENV-151-SW-3 & 4 21/06/2024	Analysis Start Analysis End Report Issue Date Sample Category	22/06/2024 25/06/2024 25/06/2024 Water

Sample Name Sample Source Sample Particulars Sample Condition Quantity Received Surface Water L. Upstream 2. Downstream Sample Code-SW-3 & 4 2.0 Ltr & 250 ml Sealed & Ice Preserved Sample Collected By

Sampling Date Sampling Time Sampling Location Karo River Upstream (SW-3) Anacon Representative 15/06/2024 4.20 pm & 4.45 pm Karo River Downstream (SW-4)

TEST DESILITS

	Test Parameter	***		Standards as	Test	Result
S.N.		Measurement	Test Method	per IS 2296:1992 Class C	SW-3	SW-4
1	Biological Testing LWater					
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
11	Chemical Testing LWater				William Source Sales	
2	pH value	· ·	IS 3025 (Part 11); 2022	6.0 to 9.0	6.71 at 25°C	6.53 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4): 2021	300	24	16
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38):1989	160	6.3	5.8
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17):2022	COL	24	16
6	BOD (3 days at 27°C)	mg/l	IS-3025 (Part 44) : 2023	3.0	2.53	2.41
7	Chemical oxygen demand	mg/l	IS-3025(Part-58): 2022		6.91	6.17
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 : (Part 16) : 2023	1500	1436	1352
9	Copper (as Cu)	mg/l	1S 3025 (Part 2): 2019	1.5	0.07	0.04
10	Chloride (as CI)	mg/l	IS 3025 (Part 32) 1988	600	138	116
11	Sulphate (as SO ₁)	mg/l	15 3025 (Part 24) ; 2022	400	142	139
12	Nitrate (as NO ₁)	as NO ₁) mg/l APHA method 23rd edition:		50	17.2	16.4
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.52	0.43
14	Cyanide (as CN)	mg/I	IS 3025 (Part 27): 2021	0.05	BDL(DL-0.005)	BDL(DL-0.005
15	Phenotic compounds (as C6H5OH)	mg/l	IS 3025 (Part 43): 1992	0.005	BDL(DL-0.001)	BDL(D10.001)
16	Anionic Detergents (as MBAS)	mg/l	IS 13428 (Armex K): 2005	1.0	BDL(DL-0.01)	BDL(DL-0.01)
	Chemical Testing 2. Residues 1	n Water		Table 1		I SPECIAL STREET
1.7	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	0.5	0.41	0.37
18	Cadmium (as Cd)	mg/l	1S 3025 (Part 2) : 2019	0.01	BDL(DL-0.002)	BDL(D1-0.002)
19	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.05	BDL(DL-0.01)	BDL(DL-0.01)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37); 2022	0.2	BDL(DL-0.01)	BDL(DL-0.01)
21	Lead (as Pb)	mg/l	3025 (Part 2): 2019	0.1	BDL(DL-0.01)	BDL(DL-0.01)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	15	BDL(DL-0.02)	BDL(DL-0.02)
23	Hexa Chromium (as Cr*)	mg/l	IS 3025 (Part 52) :2003	0.05	BDL(DL-0.01)	BDL(DL-0.01)
24	Mercury (as Fig)	mg/l	IS: 3025 (Part 48): 1994		BDL(DL-0.001)	BDL(DL-0.001)
25	Manganese (as Mn)	mg/I	IS 3025 (Part 2) : 2019		BDL(DL-0.02)	BDL(DL-0.02)

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

Verified By

Deputy Technical Manager

Technical Manager

Technical Manager

Dr. (Mrs.) S.D. Garway

Authorized Signatories

Quality Manager



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Test Report

Test Report No. : AL	PL/050820)24/1-14	dated	05/08/2024	1		Page 1 of 1		
M/s Kalamang Iron Mine (M/s TATA Steel Limited) Sample Name Sample		Sample Inv Inward Dat		ALPL/2207 22/07/2024	2024/ENV-185-SV 4	V-1 & 2	Analysis Start 23/07/2024 Analysis End 30/07/2024 Report Issue Date 05/08/2024 Sample Category Water		
		Sample Sou tream 2, Doy	rce vnstream				ple Condition Quantity Rec 1 & Ice Preserved 2.0 Ltr & 250		
Sample Collected By Mr. Biplab Giri (Sky Lab)				ng Date Sampling 7/2024 3.05 pm & 3			1. Sona R	oling Location iver Upstream (SW-1) iver Downstream (SW-2)	

			1	Standards	Test	Result
S.N.	Test Parameter	Measurement Unit	Test Method	as per IS 2296:1992 Class C	SW-I	SW-2
1	Biological Testing LWater				9.0	
1	Coliforn	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
п	Chemical Testing 1.Water					
2	pH value		IS 3025 (Part 11): 2022	6.0 to 9.0	7.58 at 25°C	6.89 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4): 2021	300	28	25
4	Dissolved Oxygen	100		4.0	6,1	5.8
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) ;2022	-	23	20
6	BOD (3 days at 27°C)	mg/l	IS-3025 (Part 44): 2023	3.0	1.63	2.12
7	Chemical oxygen demand	mg/l	IS-3025(Part-58): 2022		4.87	3.65
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 : (Part 16) : 2023	1500	1265	1354
9	Copper (as Co)	mg/l	IS 3025 (Part 2): 2019	1.5	0.05	0.06
10	Chloride (ns CI)	mg/l	IS 3025 (Part 32):1988	600	196.89	189.24
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24): 2022	400	223.87	122.69
12	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	50	12,56	12.63
13	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	1.5	0.98	0.69
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 2021	0.05	BDL(DL-0.005)	BDL(DL-0.005)
15	Phenolic compounds (as C6H5OH)	mg/l	IS 3025 (Part 43): 1992	0.005	BDL(DL-0.001)	BDL(DL-0.001)
16	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	1.0	BDL(DL-0.01)	BDL(DL-0.01)
	Chemical Testing 2, Residues I	n Water			Total Andrews	1
17	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	0.5	0.42	0.39
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 2): 2019	0.01	BDL(DL-0.002)	BDL(DL-0.002)
19	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.05	BDL(DL-0.01)	BDL(DL-0.01)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 2022	0.2	BDL(DL-0.01)	BDL(DL-0.01)
21	Lead (as Pb)	mg/l	3025 (Part 2): 2019	0.1	BDL(DL-0.01)	BDL(DL-0.01)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	15	BDL(DL-0.02)	BDL(DL-0.02)
23	Hexa Chromium (as Cr ²⁶)	mg/l	IS 3025 (Part 52) :2003	0.05	BDL(DL-0.01)	BDL(DL-0.01)
24	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994		BDL(DL-0.001)	BDL(DL-0.001)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019		BDL(DL-0.02)	BDL(DL-0.02)

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Verified By

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

Nidhi Dubey

Deputy Technical Manager

Technical Manager

Pooja Kathane Technical Manager

-End of Report----

Authorized Signatories

Thinmay Gar Deputy Quality Manager



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Test Report

Test Report No. : ALI	PL/050820)24/1-15	date	ed 05/08/202	Address of the latest of the l		Pa	age 1 of 1
Issued To: M/s Kalamang Iron Mine (M/s TATA Steel Limited) Sample Name Surface Water 1. Ups		The second secon	Sample Inward No. Inward Date		2024/ENV-185-5V	V-3 & 4	Analysis Start 23/07/2024 Analysis End 30/07/2024 Report Issue Date 05/08/2024 Sample Category Water	
		Sample Source tream 2. Downstream				Sampling Location 1. Karo River Upstream (SW-3) 2. Karo River Downstream (SW-3)		
Sample Collected By Mr. Biplab Giri (Sky Lab)			850000					
				THET DES	28.19.78341			

		- A		Standards as	Test l	Result
S.N.	Test Parameter	Measurement Unit	Test Method	per IS 2296:1992 Class C	SW-3	SW-4
1	Biological Testing 1.Water					
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
11	Chemical Testing 1.Water					
2	pH value		IS 3025 (Part 11): 2022	6.0 to 9.0	6.98 at 25°C	7.12 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4): 2021	300	24	18
4	Dissolved Oxygen	mg/l	1S 3025 (Part 38) :1989	4.0	6.1	5.8
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17):2022		30	18
6	BOD (3 days at 27°C)	mg/l	IS-3025 (Part 44) : 2023	3.0	1.54	1.48
7	Chemical oxygen demand	mg/l	IS-3025(Part-58) 2022		7.63	5.96
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 : (Part 16) : 2023	1500	1152	1234
9	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	1.5	0.02	0.06
10	Chloride (as CI)	mg/l	1S 3025 (Part 32) 1988	600	201	163
11	Sulphate (as SO ₄)	mg/l	1S 3025 (Part 24) : 2022	450	187	212
12	Nitrate (as NO ₁)	mg/l	APHA method 23rd edition: 2017	50	22.4	18.6
13	Fluoride (as F)	mg/l	1S 3025 (Part 60): 2008	1.5	0.36	0.27
14	Cyanide (as CN)	mg/l	1S 3025 (Part 27): 2021	0.05	BDL(DL+0,005)	BDL(DL-0.005
15	Phenolic compounds (as C6H5OH)	mg/l	IS 3025 (Part 43): 1992	0.005	BDL(DL-0,001)	BDL(DL-0.001)
16	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	1.0	BDL(DL-0.01)	BDL(DL-0.01)
	Chemical Testing 2. Residues I	n Water				
17	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	0.5	0.43	0.38
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 2): 2019	10.0	BDL(DL-0.002)	BDL(DL-0.002)
19	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.05	BDL(DL-0.01)	BDL(DL-0.01)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 2022	0.2	BDL(DL-0.01)	BDL(DL-0.01)
21	Lead (as Pb)	mg/l	3025 (Part 2): 2019	0.1	BDL(DL-0.01)	BDL(DL-0.01)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	15	BDL(DL-0.02)	BDL(DL-0.02)
23	Hexa Chromium (as Cr ⁻⁶)	mg/l	IS 3025 (Part 52) :2003	0.05	BDL(DL-0.01)	BDL(DL-0.01)
24	Mercury (as Hg)	mg/l	IS : 3025 (Part 48) : 1994	**	BDL(DL-0.001)	BDL(DL-0.001)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019	144.1	BDL(DL-0.02)	BDL(DL-0.02)

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

Verified By

Deputy Technical Manager

Technical Manager

Authorized Signatories

Chinmay G

Deputy Quarry Manager

Technical Manager

End of Report----



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Test Report

Test Report No. : AL	PL/310820	024/1-14	date	ed 31/08/2024	4		1	Page I of I
M/s Kalamang Iron Mine (M/s TATA Steel Limited)		Sample Inw Inward Dat	1/9-		082024/MON-43 4	30-EW-	Analysis Start Analysis End Report Issue Da Sample Categor	20/08/2024 26/08/2024 ate 31/08/2024
Sample Name Surface Water							le Condition & Ice Preserved	Quantity Received 2.0 Ltr & 250 ml
Sample Collected By Mr. Biplab Giri		100000 N	O8/2024 Sampling 3.05 pm & 3		Time San 1. Sona l		pling Location iver Upstream (SW-1) iver Downstream (SW-2)	

TECT DECILITE

_			TEST RESULTS			
		M. d. Control to M. Control M. Co.		Standards as	Tes	BLQ (LOQ-2) 6.91 at 25°C 45 4.7 16 2.41 7.19 1247 0.04 176.38 193.57 12.49 0.36 BLQ (LOQ-0.005) BLQ (LOQ-0.001) metal elements 0.37 BLQ (LOQ-0.002) BLQ (LOQ-0.001)
S.N.	Test Parameter	Measurement Unit	Test Method	per IS 2296:1992 Class C	SW-I	SW-2
1		: Biological	Group : Water	Subgroup	: Surface water	
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BLQ (LOQ-2)	BLO/LOO25
Н		: Chemical	Group : Water	Subgroup	: Surface water	1 may (may 2)
2	pH value		IS 3025 (Part 11) : 2022	6.0 to 9.0	6.42 at 25°C	6.01 at 25°C
3	Colour	Hazen units	1S 3025 (Part 4) Clause 4 : 2021	300	32	
4	Dissolved Oxygen	mg/l	1S 3025 (Part 38) :1989	4.0	4.3	
5	Total Suspended Solid (as TSS)	mg/I	IS 3025 (Part 17)	**	27	
6	BOD (3 days at 27°C)	mg/l	15-3025 (Part 44) ; 2023	3.0	2.16	
7	Chemical oxygen demand	mg/l	1S-3025(Part-58)		6.53	
8	Total Dissolved Solids (TDS)	mg/l	18 3025 (Part 16): 2023	1500	1354	
9	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	1.5	0.06	
10	Chloride (as Cl)	mg/I	15 3025 (Part 32) Clause 2:1988	600	192.64	
11	Sulphate (as SO ₄)	mg/l	15 3025 (Part 24/ Sec1) Clause 5 : 2022	400	208.51	10.00
12	Nitrate (as NO ₃)	mg/l	APHA 23 rd edition: Method 4500- NO3:2017	50	16.24	12.49
13	Fluoride (as F)	mg/l	1\$ 3025 (Part 60) Clause 6 : 2008	1.5	0.47	0.36
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27/Sec 1) Clause 5: 2021	0.05	BLQ (LOQ- 0.005)	The second second
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec 1) Clause 6: 1992	0.005	BLQ (LOQ- 0.001)	BLQ (LOQ-0.001)
16	Anionic Detergents (as MBAS)	mg/l	IS 13428 (Annes K): 2005	1.0	BLQ (LOQ-0.01)	REO/LOGANIX
Ш	Discipline : Chemical	Group:	Residues and contaminants in			
17	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	0.5	0.43	
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 2): 2019	0.01	BLQ (LOQ-0.002)	
19	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.05		The second secon
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.03	BLQ (LOQ-0.01)	The state of the s
21	Lead (as Pb)	mg/l	3025 (Part 2): 2019	0.1	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	15	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)
23	Hexa Chromium (as Cr*h)	mg/l	IS 3025 (Part 52) :2003	0.05	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)
24	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994		BLQ (LOQ-0.01)	BLQ (LOQ-0.01)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019		BLQ (LOQ-0.001) BLQ (LOQ-0.02)	BLQ (LOQ-0.001) BLQ (LOQ-0.02)

NOTES:
Please see watermark "Original Test Report" to confirm the authenticity of this report.
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 ■ Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. • 'mg/l' is equivalent to 'ppm'. • BLQ= below limit of quantification, LOQ= limit of quantification.

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

Verified By

Depetty Technical Manager

Technical Manager

Authorized Signatories

Chinmay Gar

Deputy Quality Manager

Technical Manager

-End of Report----

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Test Report

Test Report No. : AL	PL/310820	24/1-15	date	ed 31/08/2024				Page I of 1
Issued To : M/s Kalamang Iron (M/s TATA Steel Lin		Sample Inv		ALPL/190 1/9-8 & 9 -19/08/2024		30-EW-	Analysis Start Analysis End Report Issue Da Sample Categor	
Sample Name Surface Water	1. Upst	Sample Sou tream 2. Dov		100	Particulars ode-SW-3 & 4		le Condition & Ice Preserved	Quantity Received 2.0 Ltr & 250 ml
Sample Co Mr. Bipi			- 25	ling Date 8/2024	Sampling 4.20 pm & 4		I. Kuro R	pling Location iver Upstream (SW-3) iver Downstream (SW-4

			TEST RESULTS			
		Lambardon Control Control		Standards as	Test	Result
S.N.	Test Parameter	Measurement Unit	Test Method	per IS 2296:1992 Class C	SW-3	SW-4
	Discipline :	Biological	Group : Water	Subgrou	p : Surface water	
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BLQ (LOQ-2)	BLQ (LOQ-2)
II	Discipline	: Chemical	Group : Water	Subgrou	p : Surface water	1 100 (100 (1)
2	pH value		IS 3025 (Part 11): 2022	6.0 to 9.0	6.21 at 25°C	6.73 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4) Clause 4 : 2021	300	24	16
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	4.0	4.8	5.2
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17)		32	27
6	BOD (3 days at 27°C)	mg/l	IS-3025 (Part 44) : 2023	3.0	2.47	2.61
7	Chemical oxygen demand	mg/l	IS-3025(Part-58)		9.31	7.53
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16): 2023	1500	1357	1241
9	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	1.5	0.07	0.04
10	Chloride (as CI)	mg/l	IS 3025 (Part 32) Clause 2:1988	600	237	216
П	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24/ Sec1) Clause 5 : 2022	400	164	153
12	Nitrate (as NO ₃)	mg/l	APHA 23 st edition: Method 4500-NO3:2017	50	16.9	14.7
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) Clause 6 : 2008	1.5	0.36	0.27
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27/Sec 1) Clause 5: 2021	0.05	BLQ (LOQ-0.005)	BLQ (LOQ-0.005)
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec 1) Clause 6: 1992	0.005	BLQ (LOQ-0.001)	BLQ (LOQ-0.001)
16	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	1.0	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)
Ш	Discipline : Chemical	Group:	Residues and contaminants i		Subgroup : Trace	
17	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	0.5	0.42	
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 2): 2019	0.01		0.37
19	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.05	BLQ (LOQ-0.002)	BLQ (LOQ-0.002)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.03	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)
21	Lead (as Pb)	mg/l	3025 (Part 2) : 2019	0.1	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	15	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)
23	Hexa Chromium (as Cr ⁺⁶)	mg/l	IS 3025 (Part 52) :2003	0.05	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)
24	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994		BLQ (LOQ-0.01)	BLQ (LOQ-0.01)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019		BLQ (LOQ-0.001) BLQ (LOQ-0.02)	BLQ (LOQ-0.001) BLQ (LOQ-0.02)

NOTES: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only.
• Test report shall not be reproduced except in full without prior written approval of Anacon Labs. • Liability of Anacon Labs is limited to invoiced amount only. • Non-perishable and below limit of quantification. • LOQ= limit of quantification.

End of Report

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

Verified By

eputy Technical Manager

Snehal Raut Technical Manager **Authorized Signatories**

Pooja Kathane Technical Manager Chinmay Garyayo Deputy Quality Manage

Control One

Thank you for instilling your trust and faith in our services. We cherish our relationship with you, and we put in a lot of hard work in making sure that you get a seamless experience at every stage of your interaction with us. In our constant endeavor towards ensuring that your next experience will be significantly better than the current one, we welcome your feedback@anacon.in.







TC-12998

Test Report

ULR No.- TC129982400001632F

Test Report No. : ALPL/3009202	4/1-17A	dated 30/09/2024		Page	I of 2
Issued To: M/s Kalamang Iron Mine (M/s TATA Steel Limited)	Sample Inward No. Inward Date Reference Reference Date	ALPL/23092024/ 23/09/2024 W.O 47001265 30.05,2024	MON-30-W-1/5-4 96/962	Analysis Start Analysis End Report Issue Date	24/09/2024 30/09/2024 30/09/2024
Sample Name Ground Water	Sample Source Dugwell	Sample Condition Sealed & Ice Preserved	Purpose of Analysis Drinking	Quantity Re 5.0 Ltr & 2	
Sampling done by Anacon Representative Mr. Biplab Giri	Sampling Date 18/09/2024	Samplin 12.40 pm to		Sampling Le Gandalpada	ocation

TEST RESULTS

s.n.	Test Parameter	Test Parameter Measurement Unit	Test Method	IS 105 (Drinking Wat	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		
				Acceptable Limit	Permissible Limit#	1 est Result	
1	Discipline : Chemical		Group: Water	Material or Product tested: Drinking water			
1	Total Alkalinity (as Calcium Carbonate)	mg/l	1S 3025 (Part 23)	200	600	50000	
2	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K)	0.2	1.0	BLO G OO AAN	
3	Colour	Hazen units	IS 3025 (Part 4) Clause 4	5	15	DIAZ (LIAZ-9/1/1)	
4	Cyanide (as CN)	mg/l	IS 3025 (Part 27/Sec 1) Clause 5	0.05	No relaxation	DLO/LOO S SSS	
5	Chloride (as Cl)	mg/l	IS 3025 (Part 32) Clause 2	250	1000	The second secon	
6	Calcium (as Ca)	mg/l	IS 3025 (Part 40) Clause 5	75	200		
7	Free Residual Chlorine	mg/i	IS 3025 (Part 26) Clause 7	0.2	200		
8	Fluoride (as F)	mg/I	IS 3025 (Part 60) Clause 6	1.0	1.5		
9	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) Clause 6	30			
10	Nitrate (as NO ₁)	mg/l	APHA 23rd edition: Method 4500-NO3	45	100		
11	Odour		IS 3025 (Part.5)		No relaxation		
12	pH			Agreeable	Agrecable		
13	Phenolic compounds	myl	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	THE RESERVE OF THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAME	
14	Sulphate (as SO ₄)	mg/l	15 3025 (Part 43/Sec 1) Clause 6	0.001	0.002	BLQ (LOQ-0.001)	
15	Taste		IS 3025 (Part 24/ Sec1) Clause 5	200	400	11.64	
16	Total dissolved solids	- Num	IS 3025 (Part 8)	Agreeable	Agreeable	Agreeable	
17	Turbidity	my/l	IS 3025 (Part 16)	500	2/000	452	
18	Total hardness (as CaCO ₁)	NTU	IS 3025 : (Part 10)	1	5	0.1	
-	ease refer last Page for Notes	mg/l	IS 3025 (Part 21) Clause 5	200	600	190	

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut Technical Manager Authorized Signatory

Deputy Quality Manager

Thank you for instilling your trust and faith in our services. We cherish our relationship with you, and we put in a lot of hard work in making sure that you get a seamless experience at every stage of your interaction with us. In our constant endeavour towards ensuring that your next experience will be significantly better than the current one, we welcome your feedback on feedback@anacon.in.



o,p'-DDE

P.P.-DDD

o.p'-DDD

op-DIH

p.p - DDY

Atrazino

Malathion

Malaoxon

Calopyrifos

Phorate-sulfone

Phorate-sulfoxide

Phorate

Ethion-

Monocrotophos

Parathion methyl

Paraoxon methyl-

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TC-12998

Test Report

ULR No.- TC129982400001632F

Test Report No.: ALPL/3009202- Issued To:		dated 30/09/2024		Page	2 of 2
M/s Kalamang Iron Mine (M/s TATA Steel Limited)	Sample Inward No. Inward Date Reference Reference Date	ALPL/23092024/ 23/09/2024 W.O 47001265 30.05.2024	MON-30-W-1/5-4 96/962	Analysis Start Analysis End Report Issue Date	24/09/2024 30/09/2024 30/09/2024
Sample Name Ground Water	Sample Source Dugwell	Sample Condition Scaled & Ice Preserved	Purpose of Analysis Drinking	Quantity Re 5.0 Ltr & 2	
Sampling done by Anacon Representative Mr. Biplab Giri	Sampling Date 18/09/2024	Samplin 12.40 pm to	g Time	Sampling Lo Gandalpada	eation

TEST RESULTS Requirement as per IS 10500: 2012 Measurement S.N. Test Parameter Test Method (Drinking Water Specifications) Test Result Unit Including Amendment No. 4 Acceptable Limit Permissible Limit # П Discipline: Chemical Group: Residues contaminants in water Material or Product tested: Drinking water Pesticide Residues Organochlorine 19 Alpha-HCH pgri ANti/7.2/RES/01 0.01 No relaxation BLQ (LOQ-0.01) Beta HCH ii pgil ANtr/7.2/RES/01 0.04 No relaxation BLQ (LOQ-0.03) Gamma - HCH (Lindane) 111 1435/1 ANto/2 2/RE5/01 No relaxation BLQ (LOQ-0.03) Delta-HCH TV. pg/l ANtr/7.2/RES/01 0.04 No relaxation BLQ (LOQ-0.03) Alachilor v ug/l ANb/7 2/RES/01 20 No relaxation BLO (LOQ-0.03) Aldrin 41 up/i ANte/7.2/RES/01 0.03 No relaxation BLC (LOQ-0.03) Dieldrin VII ng/l ANtr/7_1/RES/01 0.03 No relaxation BLQ (LOQ-0.03) Butnehlor XIII pg/t ANto/7.2/RES/01 125 No relaxation BLQ (LOQ-0.03) it. p.p. -DDE

ANtr/7_2/RES/01

ANt/7.2/RES/01

ANID7.2/RES/01

AND 7.2/RES/01

ANtr/7.2/RES/01

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ANtr/7.2/RES/01

AND/7.2/RES/01

ANtr/7.2/RES/61

ANti/7.2/RES/01

ANtr/7.2/RES/01

ANn/7,2/RES/01

ANtr/7.2/RES/01

ANti/7.2/RES/01

ANh/7,2/RES/01

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 ■ ANtr/7.2/RES-03, ANtr/7.2/RES/06: Inhouse validated method.
 ■ Sampling Method-ANtd/7.2/MON-01 . Environmental condition - Satisfactory, . Statement of conformity issued on the basis of decision rule as per quality procedure (QP/7.8/05).

REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per IS: 10500:2012, for tests conducted only.

Verified By

Authorized Signatory

No relaxation

0.3

190

30

BLQ (LOQ-0,03)

BLQ (LOQ-0.03)

BLQ (LOQ-0.03)

BLO (LOQ-0'03)

BLQ (LOQ-0.03)

BLO (LOC-0.03)

HLQ (LOQ-0.03)

BLQ (LOQ-0.03)

BLQ (LOQ-0.03)

BLQ (LOQ-0.03)

BLQ (LDQ-0,63)

BLQ (LOQ-0.03)

BLQ (LOQ-0.63)

BLO (LOO-0 03)

BLQ (LOQ-0.03)

Chinmay Qarway Thank you for Insuling your trust and faith in our services. We cherish our relationship with my Carding Managers lot of hard work in making sure that you get a seamless experience at every stage of your interaction with/ust in our constant endeavour towards ensuring that your next and of the significantly better than the current one. we welcome your feedback on feedback@anacon.in.

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Output

Description

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Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Test Report No. : A	LPL/30042024/1-9A	dated 30/0	04/2024		Page 1 of 3	
Issued To:			Sample Inward No. ALPL/22042024/ENV-98-GW-1 Ana		23/04/2024	
M/s Kalamang Iron Mine		Inward Date 22/04/2024		Analysis End	30/04/2024	
(M/s TATA Steel L	imited)			Report Issue Date Sample Category	30/04/2024 Water	
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-1		Quantity R 5.0 Ltr &		
Sample Collected By Anacon Representative		Sampling Date Sampling Time Samplin		Sampling 1 Guali V		

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per 1S 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit#	
1	Biological Testing 1. Water			200		
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
11	Chemical Testing 1. Water			EAST.		7
2	Total Alkalinity (as CaCO ₃)	mg/I	IS 3025 (Part 23): 1986	200	600	161.47
3	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	1S 3025 (Part 4): 2021	5	15	1
5	Cyanide (as CN)	mg/l	1S 3025 (Part 27/Sec 1): 2021	0.05	No relaxation	BDL (DL-0.005
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32):1988	250	1000	28.94
7	Calcium (as Ca)	mg/I	IS 3025 (Part 40): 1991	75	200	42.81
8	Free Residual Chlorine	mg/l	IS 3025 (Part 26): 2021	Min. 0.2	1	BDL (DL - 0.1)
9	Fluoride (as F)	mg/I	IS 3025 (Part 60): 2008	1,0	1.5	0.18
10	Magnesium (as Mg)	mg/l	JS 3025 (Part 46): 1994	30	100	11,94
11	Nitrate (as NO ₁)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	BDL(DL-2)
12	Odour		IS 3025 (Part 5): 2018	Agrecable	Agrecable	Agrecable
13	pH		IS 3025 (Part 11): 2022	6.5 to 8.5	No relaxation	6.97 at 25°C
14	Phenolic compounds (as C ₀ H ₅ OH)	mg/l	IS 3025 (Part 43/Sec 1): 1992	0.001	0.002	BDL (DL - 0.001
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24): 2022	200	400	12.57
16	Taste	FAY	1S 3025 (Part 8): 1984	Agreeable	Agrecable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16): 2023	500	2000	481
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	5	BDL (DL - 0.1)
19	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21): 2009	200	600	156.06

Please refer last Page for Note and Remarks.

Verified By

For

Snehal Raut

Deputy Technical Manager

Authorized Signatories

Technical Manager



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Test Report

Test Report No. : A	LPL/30042024/1-9A	dated 30%	04/2024		Page 2 of 3	
Issued To:		Sample Inward No.	ALPL/22042024/ENV-98-GW-1	Analysis Start	23/04/2024	
A/s Kalamang Iron Mine		Inward Date 22/04/2024		Analysis End	30/04/2024	
(M/s TATA Steel L	imited)			Report Issue Date Sample Category	30/04/2024 Water	
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-1		Quantity R 5.0 Ltr &		
Sample Collected By Anacon Representative		Sampling Date 18/04/2024	Sampling Time 12.30 pm to 4.45 pm	Sampling Location Guali Village		

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Required IS 105 (Drinking Water Including Ar	Test Result	
				Acceptable Limit	Permissible Limit #	
II	Chemical Testing 2. Residue	es In Water		1000		
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 2022	0.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (as Al)	mg/I	IS 3025 (Part 2): 2019	0.03	0.2	BDL (DL - 0.02)
22	Boron (as B)	mg/l	IS 3025 (Part 2): 2019	0.5	2.4	BDL (DL - 0.02)
23	Copper (as Cu)	mg/l	1S 3025 (Part 2): 2019	0.05	1.5	BDL (DL - 0.02)
24	Cadmium (as Cd)	mg/I	IS 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL - 0.002)
25	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	1.0	No relaxation	0.31
26	Lead (as Pb)	mg/I	IS 3025 (Part 2): 2019	0.01	No relaxation	BDL (DL - 0.01)
27	Manganese (as Mn)	mg/l	1S 3025 (Part 2) : 2019	0.1	0.3	BDL (DL - 0.02)
28	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL - 0.001)
29	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL-0.01)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL - 0.02)
31	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	5	15	BDL (DL - 0.02)
32	Polynuclear aromatic hydrocarbon (PAH)	μg/1	ANtr/7.2/RES/01: 2018	0.1	No relaxation	BDL(DL-0.03)
33	Mineral Oil	mg/l	ANtt/7.2/RES/06	1	No relaxation	BDL (DL - 0.001)

Please refer last Page for Note and Remarks.

Verified By

Nidhi Dubey Deputy Technical Manager Swati Gondhalekar Deputy Technical Manager Authorized Signatory



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Test Report No. : A	LPL/30042024/1-9A	dated 30/	04/2024		Page 3 of 3
Issued To : M/s Kalamang Iron Mine (M/s TATA Steel Limited)		Sample Inward No.	ALPL/22042024/ENV-98-GW-1	Analysis Start	23/04/2024
		Inward Date	22/04/2024	Analysis End	30/04/2024
			Report Issue Date Sample Category		30/04/2024 Water
Sample Name Sample Source Ground Water Dugwell		Sample Particular Sample Code-GW-	2. 2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.	Quantity R 5.0 Ltr & 2	Section of the second
Sample Collected By Anacon Representative		Sampling Date 18/04/2024	Sampling Time 12,30 pm to 4.45 pm	Sampling L Guali Vi	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	IS 10: (Drinking Wa	ment as per 500 : 2012 ter Specifications) mendment No. 4	Test Result
				Acceptable Limit	Permissible Limit#	1
34	Pesticide Residues Organochloria	ne				
i	Alpha-HCH	pg/l	ANtr/7.2/RES/01: 20	18 0.01	No relaxation	BDL (DL - 0.01
ii	Beta HCH	μg/1	ANtr/7.2/RES/01: 20	18 0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/1	ANtr/7.2/RES/01: 20	18 2	No relaxation	BDL (DL+0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 20	18 0.04	No relaxation	BDL (DL - 0.03)
V	Alachior	pig/i	ANtr/7.2/RES/01: 20	18 20	No relaxation	BDL (DL+0.03)
Vi	Aldrin	µg/l	ANtr/7.2/RES/01: 20	18 0.03	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 20	18 0.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor	ид/1	ANtr/7.2/RES/01: 20	18 125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	jig/l	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
X	o.p'-DDE	µg/l	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
xi.	p,p -DDD	jig/l	ANtr/7.2/RES/01/20	18 1	No relaxation	BDL (DL - 0.03)
XII	o,p*-DDD	µg/l	ANtr/7 2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.63)
xiii	a.p - DDT	µg/l	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
XIV	p.p - DDT	µg/l	ANte/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
XV	Monocrotophos	pg/l	ANte/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 20	18 2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	μg/1	ANtr/7,2/RES/01:20	18 0.3	No relaxation	BDL (DL = 0.03)
xviii	Paraoxon methyl	ир/1	ANtr/7.2/RES/01: 20	18 -	-	BDL (DL = 0.03)
XIX	Maluthion	pg/l	ANtr/7.2/RES/01: 20	18 190	No relaxation	BDL (DL - 0.03)
XX	Malaoxon	μр/і	ANtr/7.2/RES/01: 20	18	*	BDL (DL - 0.03)
XXI	Ethion	Тац	ANtr/7.2/RES/01: 20	18 3	No relaxation	BDL (DL - 0.03)
XXII	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 20	18 30	No relaxation	BDL (DL - 0.03)

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

Test report shall not be reproduced except in full without prior written approval of Anacon Labs. Liability of Anacon Labs is limited to invoiced amount only. Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. Figures sable limit in absence of an alternate source for drinking water. Impl' is equivalent to 'ppm'. Impl' is equivalent to 'ppm'. BDL- Below detection limit. DL- DL Indicates detection limit of instrument /method and shall be considered as 'absent'. Result for test no. It is not relevant. Ante/7.2/RES-01,06;: Inhouse validated method. NT indicates not Tusted as sample failed to establish safety concerns.

REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per IS: 10500:2012, for tests conducted only.

Verified By

Swati Gondhalekar Deputy Technical Manager Authorized Signatory

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



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Test Report

Test Report No.: A	LPL/30042024/1-10/	dated 30/	04/2024		Page 1 of 3	
Issued To : M/s Kalamang Iron Mine		Sample Inward No. ALPL/22042024/ENV-98-GW-2 Inward Date 22/04/2024		Analysis Start	23/04/2024	
				Analysis End	30/04/2024	
(M/s TATA Steel L	imited)			Report Issue Date Sample Category	30/04/2024 Water	
Sample Name Ground Water	Sample Source Dugwell	Sample Particular Sample Code-GW-		Quantity F 5.0 Ltr &		
	offected By presentative	Sampling Date 18/04/2024	Sampling Time 12.30 pm to 4.45 pm	Sampling I Kalamong		

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	IS 1050 (Drinking Water	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4	
				Acceptable Limit	Permissible Limit#	
1	Biological Testing 1. Water			10 A		
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
11	Chemical Testing I. Water					
2	Total Alkalinity (as CaCO ₁)	mg/l	IS 3025 (Part 23) : 1986	200	600	164.37
3	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	IS 3025 (Part 4): 2021	5	1.5	1
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27/Sec 1): 2021	0.05	No relaxation	BDL (DL - 0.005)
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32):1988	250	1000	27.54
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40): 1991	75	200	51.62
8	Free Residual Chlorine	mg/l	IS 3025 (Part 26); 2021	Min. 0.2	1	BDL (DL - 0.1)
9	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	1.0	1.5	0.26
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46): 1994	30	100	11.32
11	Nitrate (as NO ₂)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	BDL(DL-2)
12	Odour		IS 3025 (Part 5): 2018	Agreeable	Agrecable	Agreeable
13	pH	20	IS 3025 (Part 11): 2022	6.5 to 8.5	No relaxation	6.97 at 25°C
14	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43/Sec 1): 1992	0.001	0.002	BDL (DL-0.001)
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24): 2022	200	400	16.43
16	Taste		IS 3025 (Part 8): 1984	Agreeable	Agrecable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16): 2023	500	2000	452
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	5	BDL (DL - 0.1)
19	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21): 2009	200	600	175.54
19	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21): 2009	200	600	175.5

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut

Deputy Technical Manager

Authorized Signatories

Technical Manager

Dr. (Mrs.) S.D. Garway



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Test Report No. : A	LPL/30042024/1-10/	dated 30/0	04/2024		Page 2 of 3	
Issued To : M/s Kalamang Iron Mine		Sample Inward No. ALPL/22042024/ENV-98-GW-2 Inward Date 22/04/2024		Analysis Start	23/04/2024	
				Analysis End	30/04/2024	
(M/s TATA Steel L	imited)			Report Issue Date Sample Category	30/04/2024 Water	
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-2		Quantity R 5.0 Ltr & 1		
Sample Co Anacon Rep		Sampling Date 18/04/2024	Sampling Time 12.30 pm to 4.45 pm	Sampling I Kalamong		

TEST RESULTS

s.n.	Test Parameter	Measurement Unit	Lest Method		Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		
				Acceptable Limit	Permissible Limit #		
11	Chemical Testing 2. Residue	es In Water		13			
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 2022	0.01	No relaxation	BDL (DL = 0.01)	
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2): 2019	0.03	0.2	BDL (DL - 0.02)	
22	Boron (as B)	mg/l	IS 3025 (Part 2): 2019	0.5	2.4	BDL (DL - 0.02)	
23	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	0.05	1.5	BDL (DL - 0.02)	
24	Cadmium (as Cd)	mg/l	IS 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL - 0.002	
25	Iron (as Fe)	mg/I	IS 3025 (Part 2): 2019	1.0	No relaxation	0.24	
26	Lead (as Pb)	mg/l	IS 3025 (Part 2): 2019	0.01	No relaxation	BDL (DL - 0.01)	
27	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019	0.1	0.3	BDL (DL-0.02)	
28	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL - 0.001)	
29	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL-0.01)	
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL - 0.02)	
31	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	5	15	BDL (DL - 0.02)	
32	Polynuclear aromatic hydrocarbon (PAH)	μg/l	ANtr/7.2/RES/01: 2018	0.1	No relaxation	BDL(DL-0.03)	
33	Mineral Oil	mg/l	ANtr/7.2/RES/06	1.	No relaxation	BDL (DL - 0.001)	

Please refer last Page for Note and Remarks.

Verified By

Nidhi Dubey Deputy Technical Manager Swati Gondhalekar Deputy Technical Manager Authorized Signatory



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Test Report

Test Report No. : A	LPL/30042024/1-10/	dated 30/0	04/2024		Page 3 of 3
Issued To:		Sample Inward No. ALPL/22042024/ENV-98-GW-2		Analysis Start	23/04/2024
M/s Kalamang Iron Mine		Inward Date 22/04/2024		Analysis End	30/04/2024
(M/s TATA Steel L	imited)			Report Issue Date Sample Category	30/04/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-2		Quantity R 5.0 Ltr & 2	
Sample Co Anacon Rep	offected By presentative	Sampling Date 18/04/2024	Sampling Time 12.30 pm to 4.45 pm	Sampling L Kalamong	
		TEST	RESULTS	1	

S.N.	Test Parameter	Measurement Unit	Test Method	(Drinking V	rement as per 10500 : 2012 Vater Specifications) Amendment No. 4	Test Result
				Acceptable Limit	Permissible Limit #	1
34	Pesticide Residues Organochloria	se				
1	Alpha-HCH	pig/l	ANtr/7.2/RES/01:20	18 0.01	No relocation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANte/7.2/RES/01: 20	18 0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/ī	ANtr/7.2/RES/01: 20	18 2	No relaxation	BDL (DL - 0.03)
iv.	Delta- HCH	µg/l	ANtr/7.2/RES/01: 20	18 0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	pg/l	ANte7.2/RES/01: 20	18 20	No relaxation	BDL (DL - 0.03)
vi.	Aldrin	µg/l	ANtr/7.2/RES/01: 20	18 0.03	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	идЛ	ANtr/7.2/RES/01: 20	8 0.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01.20	18 125	No relaxation	BDL (DL - 0.03)
ix	p.p°-DDE	ид/1	ANtr/7.2/RES/01, 20	18 1	No relaxation	BDL (DL - 0.03)
X	o.p -DDE	µg/i	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
xi	p.p*-DDD	µg/1	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL = 0.03)
Xii	o,p'-DDD	µg/I	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
xiii	o.p - DDT	µg/l	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL = 0.03)
xiv	p.p' - DOT	µg/I	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
XV	Monocrotophos	μg/1	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL = 0.03)
XVI	Atrazine	иу/Г	ANtr/7.2/RES/01: 20	18 2	No relaxation	BDL (DL - 0.03)
XVII	Parathion methyl	μμ/Ι	ANtr/7.2/RES/01: 20	18 0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	Pau	ANtr/7.2/RES/01: 20	18 +	-	BDL (DL = 0.03)
XIX	Malathion	µg/l	ANtr/7.2/RES/01: 20	18 190	No relaxation	BDL (DL = 0.03)
XX	Malaoxon	Pau	ANtr/7.2/RES/01:20	18 -		BDL (DL - 0.03)
XXI	Ethion	l/gq	ANtr/7.2/RES/01: 20	18 3	No relaxation	BDL (DL + 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01:20	18 30	No relaxation	BDL (DL - 0.03)

NOTE: • Please see watermark "Original Test Report" to confirm the authenticity of this report • Results shall be referred to tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior written approval of Anacon Labs.
 Liability of Anacon Labs is limited to invoiced amount only.
 Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. • #Permissible limit in absence of an abernate source for drinking water. . 'mg/l' is equivalent to 'ppm'. . 'pgl' is equivalent to 'ppb'. BDL- Below detection limit. DL- DL Indicates detection limit of instrument /method and shall be considered as 'absent'. • Result for test no. 8 is not relevant. • ANte/7.2/RES -01,06,: Inhouse validated method. • NT' indicates not Tested as sample failed to

REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per IS: 10500:2012, for tests conducted only.

Verified By

Swati Gondhalekar Deputy Technical Manager Authorized Signatory

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



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

ssued To:		Sample Inward No.	ALPL/22042024/ENV-98-GW-3	Analysis Start	Page 1 of 3 23/04/2024
M/s Kalamang Iron Mine		Inward Date	Inward Date 22/04/2024		30/04/2024
(M/s TATA Steel L	imited)			Report Issue Date Sample Category	30/04/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particular Sample Code-GW-		Quantity R 5.0 Ltr &	
	ollected By presentative	Sampling Date 18/04/2024	Sampling Time 12.30 pm to 4.45 pm	Sampling I. Sagasahi	

TEST RESULTS

s.n.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
1	Biological Testing 1. Water			V		
.1.	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	Chemical Testing I. Water					
2	Total Alkalinity (as CaCO ₁)	mg/l	IS 3025 (Part 23): 1986	200	600	168.39
3	Anionic Detergents (as MBAS)	mg/I	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	IS 3025 (Part 4): 2021	5	1.5	1
5	Cyanide (as CN)	mg/l	1S 3025 (Part 27/Sec 1): 2021	0.05	No relaxation	BDL (DL - 0.005
6	Chloride (as CI)	mg/l	IS 3025 (Part 32):1988	250	1000	24.81
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40): 1991	75	200	52.73
8	Free Residual Chlorine	mg/I	IS 3025 (Part 26): 2021	Min. 0.2	1	BDL (DL - 0.1)
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.31
10	Magnesium (as Mg)	mg/1	1S 3025 (Part 46): 1994	30	100	13.68
11	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	BDL(DL-2)
12	Odour	()	IS 3025 (Part 5): 2018	Agreeable	Agrecable	Agreeable
13	pH	AT 2 10	IS 3025 (Part 11): 2022	6.5 to 8.5	No relaxation	6.91 at 25°C
14	Phenolic compounds (as C ₀ H ₅ OH)	mg/l	IS 3025 (Part 43/Sec 1): 1992	0.001	0.002	BDL (DL - 0.001
15	Sulphate (as SO ₄)	mg/i	1S 3025 (Part 24): 2022	200	400	21.46
16	Taste		IS 3025 (Part 8): 1984	Agrecable	Agrecable	Agreeable
17	Total dissolved solids	mg/l	1S 3025 (Part 16): 2023	500	2000	472
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	5	BDL (DL-0.1)
19	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21): 2009	200	600	188.01

Please refer last Page for Note and Remarks.

Verified By

100

TEXTONE

Snehal Raut

Deputy Technical Manager

Authorized Signatories

Pooja Katherie Technical Manager



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Test Report

Test Report No. : A	LPL/30042024/1-11/	dated 30/0	04/2024		Page 2 of 3
Issued To:		Sample Inward No. ALPL/22042024/ENV-98-GW-3 Analysis Start		Analysis Start	23/04/2024
M/s Kalamang Iron Mine		Inward Date 22/04/2024		Analysis End	30/04/2024
(M/s TATA Steel L	imited)			Report Issue Date Sample Category	30/04/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-3		Quantity R 5.0 Ltr &	
Sample Co Anacon Rep	ollected By presentative	Sampling Date 18/04/2024	Sampling Time 12.30 pm to 4.45 pm	Sampling I Sagasahi	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wat	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4	
				Acceptable Limit	Permissible Limit #	
H	Chemical Testing 2. Residu	es In Water				
20	Arsenic (as As)	mg/I	IS 3025 (Part 37): 2022	0.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2): 2019	0.03	0.2	BDL (DL - 0.02)
22	Boron (as B)	mg/l	IS 3025 (Part 2): 2019	0.5	2.4	BDL (DL - 0.02)
23	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	0.05	1.5	BDL (DL - 0.02)
24	Cadmium (as Cd)	mg/l	IS 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL - 0.002)
25	Iron (as Fe)	mg/I	IS 3025 (Part 2): 2019	1.0	No relaxation	0.18
26	Lead (as Pb)	mg/l	IS 3025 (Part 2): 2019	0.01	No relaxation	BDL (DL - 0.01)
27	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019	0.1	0.3	BDL (DL - 0.02)
28	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL - 0.001)
29	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL-0.01)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL - 0.02)
31	Zinc (as Zn)	rng/l	18 3025 (Part 2): 2019	5	15	BDL (DL - 0.02)
32	Polynuclear aromatic hydrocarbon (PAH)	µg/I	ANtr/7.2/RES/01: 2018	0.1	No relaxation	BDL(DL-0.03)
33	Mineral Oil	mg/l	ANtr/7.2/RES/06	1	No relaxation	BDL (DL - 0.001)

Please refer last Page for Note and Remarks.

Verified By

Deputy Technical Manager

Swati Gondhalekar Deputy Technical Manager Authorized Signatory



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Test Report

Test Report No. : Al	LPL/30042024/1-11A	dated 30/	04/2024		Page 3 of 3
Issued To:		Sample Inward No. ALPL/22042024/ENV-98-GW-3		Analysis Start	23/04/2024
M/s Kalamang Iron Mine		Inward Date 22/04/2024		Analysis End	30/04/2024
(M/s TATA Steel Li	mited)			Report Issue Date Sample Category	30/04/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-3		Quantity B 5.0 Ltr &	
Sample Co Anacon Rep		Sampling Date 18/04/2024	Sampling Time 12.30 pm to 4.45 pm	Sampling I Sagasahi	
		18/04/2024	1 1 2 2 7 7 7 7 1 1 1 2 1 2 1 2 1 2 1 2	2332222222223	

S.N.	Test Parameter	Measurement Unit	Test Method	Requireme IS 10500 (Drinking Water Including Ame		00 : 2012 er Specifications)	Test Result
		,	1	Acceptable I	imit	Permissible Limit #	
34	Pesticide Residues Organochloric						
	Alpha-HCH	нд/1	ANtr/7.2/RES/01: 20		.01	No relaxation	BDL (DL - 0.01)
11	Beta HCH	µg/l	ANtr/7.2/RES/01: 20		04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	μg/1	ANtr/7,2/RES/01: 20		2	No relaxation	BDL (DL + 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 20	18 0	.04	No relaxation	BDL (DL + 0.03)
y.	Alachlor	pig/l	ANtr/7.2/RES/01: 20	18	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/l	ANtr/7,2/RES/01: 20	18 0	.03	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	µg/l	ANtr/7,2/RES/01: 20	18 0	.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01: 20	18	25	No relaxation	BDL (DL - 0.03)
ix	p.p -DDE	μg/l	ANtr/7,2/RES/01: 20	18	1	No relaxation	BDL (DL 0.03)
X	o.p -DDE	µg/l	ANtr/7,2/RES/01: 20	18	1	No relaxation	BDL (DL + 0.03)
Xi	p.p'-DDD	μg/Ι	ANtr/7.2/RES/01: 20	18	1	No relaxation	BDL (DL - 0.03)
XII	o.p -DDD	μg/1	ANtr/7.2/RES/01: 20	18	1	No relaxation	BDL (DL = 0.03)
xiii	o.p - DDT	рр/Т	ANtr/7.2/RES/01: 20	18	1	No relaxation	BDL (DL - 0.03)
xiv	p.p - DDT	μg/Ι	ANtr/7.2/RES/01: 20	18	1.	No relaxation	BDL (DL - 0.03)
XV	Monocrotophos	гди	ANtr/7.2/RES/01:20	18	1	No relaxation	BDL (DL = 0.03)
xvi	Atrazine	µg1	ANtr/7.2/RES/01: 20	18	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	Рдц	ANtt/7.2/RES/01: 20	18 (1.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg1	ANte/7:2/RES/01:20	18	4		BDL (DL - 0.03)
xix	Malathion	pig/1	ANte/7,2/RES/01:20	18 1	90	No relaxation	BDL (DL - 0.03)
XX	Malaoxon	pg/l	ANtr/7.2/RES/01: 20	18			BDL (DL = 0.03)
xxi	Ethion	μg/l	ANtr/7.2/RES/01: 20	18	3	No relaxation	BDL (DL + 0.03)
xxii	Chlorpyrifos	μg/l	ANtr/7.2/RES/01: 20	18	30	No relaxation	BDL (DL - 0.03)

NOTE: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. Fest report shall not be reproduced except in full without prior written approval of Anacon Labs is limited to invoiced amount only.
 Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. • #Permissible limit in absence of an alternate source for drinking water. . 'mg't' is equivalent to 'ppm'. . 'mg't' is equivalent to 'ppm'. . BDL- Below detection limit. DL- DL Indicates detection limit of instrument /method and shall be considered as "absent". Result for test on: It is not relevant. ANtr/7.2/RES -01.06,: Inhouse validated method. ANtr/7.2/RES -01.06,: Inhouse validated method.

REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per IS: 10500:2012, for tests conducted only.

Verified By

Swati Gondhalekar Deputy Technical Manager Authorized Signatory

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

-End of Report-



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Test Report

Test Report No. : A	CETS 20045054/1-12/	The state of the s			Page 1 of 3
Issued To: M/s Kalamang Iron Mine		Sample Inward No.	ALPL/22042024/ENV-98-GW-4	Analysis Start	23/04/2024
		Inward Date	22/04/2024	Analysis End	30/04/2024
(M/s TATA Steel L	imited)			Report Issue Date 30/04	
		Sample Particulars Sample Code-GW-4		Quantity R 5.0 Ltr &	250 ml
Sample Co Anacon Rep	ellected By presentative	Sampling Date 18/04/2024	Sampling Time 12.30 pm to 4.45 pm	Sampling I Gandalpada	

TEST RESULTS

s.n.	Test Parameter	Measurement Unit	Test Method	(Drinking Wate	ent as per 0 : 2012 r Specifications) endment No. 4	Test Result	
				Acceptable Limit	Permissible Limit#		
1	Biological Testing 1. Water		-				
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent	
11	Chemical Testing 1. Water						
2	Total Alkalinity (as CaCO ₂)	mg/l	IS 3025 (Part 23): 1986	200	600	173,94	
3	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K); 2005	0.2	1.0	BDL (DL - 0.01)	
4	Colour	Hazen units	1S 3025 (Part 4): 2021	5	15	1	
5	Cyanide (as CN)	mg/I	IS 3025 (Part 27/Sec 1): 2021	0.05	No relaxation	BDL (DL - 0.005	
6	Chloride (as CI)	mg/l	IS 3025 (Part 32) :1988	250	1000	26.81	
7	Calcium (as Ca)	mg/l	1S 3025 (Part 40): 1991	75	200	47.39	
8	Free Residual Chlorine	mg/l	IS 3025 (Part 26): 2021	Min. 0.2	1	BDL (DL - 0.1)	
9	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	1.0	1.5	0.36	
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46): 1994	30	100	14.58	
11	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	BDL(DL-2)	
12	Odour		IS 3025 (Part 5): 2018	Agreeable	Agreeable	Agreeable	
13	pH	100	IS 3025 (Part 11): 2022	6.5 to 8.5	No relaxation	7.64 at 25°C	
14	Phenolic compounds (as C _s H _s OH)	mg/i	IS 3025 (Part 43/Sec 1): 1992	0.001	0.002	BDL (DL - 0.001	
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24): 2022	200	400	24.81	
16	Taste		IS 3025 (Part 8): 1984	Agreeable	Agrecable	Agreeable	
17	Total dissolved solids	mg/l	IS 3025 (Part 16): 2023	500	2000	468	
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	5	BDL (DL - 0.1)	
19	Total hardness (as CaCO ₁)	mg/l	IS 3025 (Part 21): 2009	200	600	178.35	

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut Deputy Technical Manager Authorized Signatories

Technical Manager



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Test Report

Test Report No. : A	LPL/30042024/1-12/	dated 30/	04/2024		Page 2 of 3
Issued To: M/s Kalamang Iron Mine		Sample Inward No.	ALPL/22042024/ENV-98-GW-4	Analysis Start	23/04/2024
		Inward Date 22/04/2024		Analysis End	30/04/2024
(M/s TATA Steel L	imited)			Report Issue Date Sample Category	30/04/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particular Sample Code-GW-		Quantity R 5.0 Lir & 2	
	offected By presentative	Sampling Date 18/04/2024	Sampling Time 12.30 pm to 4.45 pm	Sampling I Gandalpada	2010 C.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
П	Chemical Testing 2. Residu	es In Water		100		
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 2022	0.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2): 2019	0.03	0.2	BDL (DL - 0.02)
22	Boron (as B)	mg/l	IS 3025 (Part 2): 2019	0.5	2,4	BDL (DL - 0.02)
23	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	0.05	1.5	BDL (DL - 0.02)
24	Cadmium (as Cd)	mg/I	IS 3025 (Part 2) > 2019	0.003	No relaxation	BDL (DL - 0.002)
25	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	1.0	No relaxation	0.26
26	Lead (as Pb)	mg/l	IS 3025 (Part 2): 2019	0.01	No relaxation	BDL (DL - 0.01)
27	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019	0.1	0.3	BDL (DL - 0.02)
28	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL - 0.001)
29	Selenium (as Se)	mg/I	IS 3025 (Part 56): 2003	0,01	No relaxation	BDL (DL-0.01)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL = 0.02)
31	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	5	15	BDL (DL - 0.02)
32	Polynuclear aromatic hydrocarbon (PAH)	μg/1	ANtr/7.2/RES/01: 2018	0.1	No relaxation	BDL(DL-0.03)
33	Mineral Oil	mg/l	ANtr/7.2/RES/06	1	No relaxation	BDL (DL - 0.001)

Please refer last Page for Note and Remarks.

Verified By

Nidhi Dubey Dennty Technical Manager Swati Gondhalekar Deputy Technical Manager Authorized Signatory



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Test Report

Test Report No. : A	LPL/30042024/1-12/	dated 30/	04/2024		Page 3 of 3
Issued To:		Sample Inward No.	ALPL/22042024/ENV-98-GW-4	Analysis Start	23/04/2024
M/s Kalamang Iron Mine		Inward Date	22/04/2024	Analysis End	30/04/2024
(M/s TATA Steel L	imited)			Report Issue Date Sample Category	
Sample Name Sample Source Ground Water Dugwell		Sample Particular Sample Code-GW-		Quantity R 5.0 Ltr & 2	
Sample Co Anncon Rep	offected By presentative	Sampling Date 18/04/2024	Sampling Time 12.30 pm to 4.45 pm	Sampling I Gandalpada	
		TEST	RESULTS		

5.N.	Test Parameter	Measurement Unit	asurement Test Method (Drinking Wa		nirement as per 10500 : 2012 Water Specifications) g Amendment No. 4	Test Result
				Acceptable Limi	t Permissible Limit #	
34	Pesticide Residues Organochlori	ne			777	
1	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 20	18 0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 20	18 0.04	No relaxation	BDL (DL - 0.03)
iii.	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 20	18 2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	μg/l	ANtr/7.2/RES/01: 20	18 0.04	No relaxation	BDL (DL - 0.03)
٧	Alachior	µg/l	ANtr/7.2/RES/01: 20	18 20	No relaxation	BDL (DL + 0.03)
VI.	Aldrin	µg/l	ANtr/7.2/RES/01: 20	18 0.03	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 20	18 0.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor	ид/1	ANtr/7.2/RES/01: 20	18 125	No relaxation	BDL (DL - 0.03)
ix	p.p'-DDE	ид/1	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)
X	o.p -DDE	ид/1	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)
Ni	p.p -DDD	μg/1	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
XII	a.p -DDD	μg/l	ANI//7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
xiii	o.p'- DDT	дд/1	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
xiv	p.p'- DDT	µg/l	ANtr/7_2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
XV	Monocrotophos	μg/t	ANu/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	μγ/Ι	ANtr/7,2/RES/01:20	18 2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/L	ANte/7.2/RES/01: 20	18 0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	ду/1	ANtr/7.2/RES/01: 20	18 -	(4)	BDL (DL = 0.03)
xix	Malathion	ME/I	ANtr/7;2/RES/01: 20	18 190	No relaxation	BDL (DL - 0.03)
XX	Malacson	Pau	ANtr/7.2/RES/01: 20	18 -	*	BDL (DL - 0.03)
XXI	Ethion	Paul	ANtr/7.2/RES/01: 20	18 3	No relaxation	BDL (DL - 0.03)
XXII.	Chlorpyrifos	l/gif	ANtr/7.2/RES/01: 20	18 30	No relaxation	BDL (DL - 0.03)

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

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REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per IS: 10500:2012, for tests conducted only.

Verified By

Swati Gondhalekar Deputy Technical Manager Authorized Signatory

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



Anacon Laboratories Pvt. Ltd. Nagpur Lab

6.

Test Report

Test Report No. : A Issued To :	THE PERSON NAMED IN COLUMN TWO	Sample Inward No.	ALPL/22042024/ENV-98-GW-5	Analysis Start	Page 1 of 3 23/04/2024
M/s Kalamang Iron Mine		Inward Date 22/04/2024		Analysis End	30/04/2024
(M/s TATA Steel L	imited)			Report Issue Date 30/04 Sample Category Water	
Sample Name Sample Source Ground Water Dugwell		Sample Particular Sample Code-GW-5		Quantity R 5.0 Ltr &	
	ollected By presentative	Sampling Date 18/04/2024	Sampling Time 12.30 pm to 4.45 pm	Sampling I Sunindpur	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	IS 1050 (Drinking Wate	ent as per 0 : 2012 r Specifications) endment No. 4	Test Result	
				Acceptable Limit	Permissible Limit #		
1	Biological Testing 1. Water		3	43			
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent	
11	Chemical Testing 1. Water		-				
2	Total Alkalinity (as CaCO ₃)	mg/l	1S 3025 (Part 23): 1986	200	600	143,94	
3	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)	
4	Colour	Hazen units	IS 3025 (Part 4): 2021	5	15	1	
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27/Sec 1): 2021	0.05	No relaxation	BDL (DL - 0.005	
6	Chloride (as CI)	mg/l	IS 3025 (Part 32) :1988	250	1000	26.57	
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40): 1991	75	200	53.64	
8	Free Residual Chlorine	mg/l	IS 3025 (Part 26): 2021	Min. 0.2	1	BDL (DL - 0.1)	
9	Fluoride (as F)	mg/I	IS 3025 (Part 60): 2008	1.0	1.5	BDL (DL - 0.1)	
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46): 1994	30	100	13.52	
11	Nitrate (ns NO ₂)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	BDL(DL-2)	
12	Odour	-	IS 3025 (Part 5): 2018	Agreeable	Agreeable	Agreeable	
13	pH	13/19/	1S 3025 (Part 11): 2022	6.5 to 8.5	No relaxation	7.16 at 25°C	
14	Phenolic compounds (as C ₆ H ₅ OH)	mg/I	IS 3025 (Part 43/Sec 1): 1992	0.001	0.002	BDL (DL - 0.001	
15	Sulphate (as SO ₄)	mg/I	IS 3025 (Part 24): 2022	200	400	17.32	
16	Taste	-	IS 3025 (Part 8): 1984	Agreeable	Agreeable	Agrecable	
17	Total dissolved solids	mg/l	IS 3025 (Part 16): 2023	500	2000	482	
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	5	BDL (DL - 0.1)	
19	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21): 2009	200	600	189.62	

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut

Deputy Technical Manager

Authorized Signatories

Technical Manager

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

G



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Test Report

Test Report No. : A	LPL/30042024/1-13/	dated 30/	04/2024		Page 2 of 3
Issued To:		Sample Inward No.	ALPL/22042024/ENV-98-GW-5	Analysis Start	23/04/2024
M/s Kalamang Iron Mine		Inward Date 22/04/2024		Analysis End	30/04/2024
(M/s TATA Steel L	imited)			Report Issue Date Sample Category	30/04/2024 Water
Sample Name Sample Source Sample Particular Ground Water Dugwell Sample Code-GW			Quantity R 5.0 Ltr &		
	ollected By presentative	Sampling Date 18/04/2024	Sampling Time 12.30 pm to 4.45 pm	Sampling I Sunindpur	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wat	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4	
				Acceptable Limit	Permissible Limit #	
11	Chemical Testing 2, Residu	es In Water		100	_	
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 2022	0.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2): 2019	0.03	0.2	BDL (DL - 0.02)
22	Boron (as B)	mg/l	IS 3025 (Part 2): 2019	0.5	2.4	BDL (DL - 0.02)
23	Copper (as Cu)	mg/I	IS 3025 (Part 2): 2019	0.05	1.5	BDL (DL + 0.02)
24	Cadmium (as Cd)	rng/I	IS 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL + 0.002)
25	Iron (as Fe)	mg/l	1S 3025 (Part 2): 2019	1.0	No relaxation	0.21
26	Lead (as Pb)	mg/l	IS 3025 (Part 2): 2019	0.01	No relaxation	BDL (DL + 0.01)
27	Manganese (as Mn)	mg/t	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL-0.02)
28	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL - 0.001)
29	Selenium (as Se)	mg/I	IS 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL- 0.01)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL - 0.02)
31	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	5	15	BDL (DL - 0.02)
32	Polynuclear aromatic hydrocarbon (PAH)	Гуди,	ANtr/7.2/RES/01: 2018	0.1	No relaxation	BDL(DL-0.03)
33	Mineral Oil	mg/I	ANtr/7.2/RES/06	1	No relaxation	BDL (DL - 0.001)

Please refer last Page for Note and Remarks.

Verified By

Deputy Technical Manager

Swati Gondhalekar Deputy Technical Manager Authorized Signatory



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Test Report

dated 30/	04/2024		Page 3 of 3
Sample Inward No.	ALPL/22042024/ENV-98-GW-5	Analysis Start	23/04/2024
Inward Date	22/04/2024	Analysis End	30/04/2024
		Report Issue Date 30 Sample Category Wa	
		200000000000000000000000000000000000000	
Sampling Date 18/04/2024	Sampling Time 12.30 pm to 4.45 pm	Sampling I Sunindpur	
	Sample Inward No. Inward Date Sample Particular Sample Code-GW-S	Sample Inward No. ALPL/22042024/ENV-98-GW-5 Inward Date 22/04/2024 Sample Particulars Sample Condition Sample Code-GW-5 Sealed & Ice Preserved Sampling Date Sampling Time	Sample Inward No. ALPL/22042024/ENV-98-GW-5 Analysis Start Inward Date 22/04/2024 Analysis End Report Issue Date Sample Category Sample Particulars Sample Condition Quantity R Sample Code-GW-5 Sealed & Ice Preserved 5.0 Ltr & 3 Sampling Date Sampling Time Sampling I.

s.N.	Test Parameter	Measurement Unit	Test Method	Requirer IS 105 (Drinking Wat Including An	Test Result	
				Acceptable Limit	Permissible Limit #	1
34	Pesticide Residues Organochloria	oe .				
11:	Alpha-HCH	µg/l	ANto/7.2/RES/01: 201	8 0.01	No relaxation	BDL (DL - 0.01)
ii	Betn HCH	µg/l	ANtr/7.2/RES/01: 201	8 0.04	No relaxation	BDL (DL - 0.03)
111	Gamma - HCH (Lindane)	µg/l	ANto/7.2/RES/01: 201	8 2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/1	ANto/7,2/RES/01:201	8 0,04	No relaxation	BDL (DL - 0.03)
V.	Alachlor	µg/l	ANtr/7.2/RES/01: 201	8 20	No relaxation	BDL (DL = 0.03)
Vİ	Aldrin	µg/l	ANtr/7.2/RES/01: 201	8 0.03	No relaxation	BDL (DL - 0.03)
VII	Dieldrin	µg/l	ANtr/7,2/RES/01: 201	8 0.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor	μg/l	ANtr/7.2/RES/01:201	8 125	No relaxation	BDL (DL - 0.03)
ix	p.p'-DDE	µg/l	ANtr/7.2/RES/01: 201	8 1	No relaxation	BDL (DL - 0.03)
X	o.p'-DDE	μg/I	ANtr/7.2/RES/01: 201	8 1	No relaxation	BDL (DL - 0.03)
xi	p.p -DDD	µg/l	ANtr/7_2/RES/01: 201	8 1	No relaxation	BDL (DL - 0.03)
xii	o.p'-DDD	µg/l	ANtt/7.2/RES/01: 201	8 1	No relaxation	BDL (DL - 0.03)
XIII	o.p' - DDT	µg/l	ANtr/7.2/RES/01: 201	8 1	No relaxation	BDL (DL - 0.03)
xiv	p.p - DDT	μg/Ι	ANtr/7.2/RES/01: 201	8 1	No relaxation	BDL (DL - 0.03)
XV	Monocrotophos	µg/l	ANtr/7.2/RES/01: 201	8 1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 201	8 2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 201	8 0.3	No relaxation	BDL (DL - 0.03)
XVIII	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 201	8 -		BDL (DL - 0.03)
xix	Malathion	μg/)	ANtr/7.2/RES/01: 201		No relaxation	BDL (DL - 0.03)
XX	Malaccon	µg/l	ANtr/7.2/RES/01: 201		-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 201		No relaxation	BDL (DL - 0.03)
XXII	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 201		No relacation	BDL (DL - 0.03)

NOTE: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. ■ Test report shall not be reproduced except in full without prior written approval of Anacon Labs is limited to invoiced amount only.
■ Non-perishable and rishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. • #Permissible limit in absence of an alternate source for drinking water. . 'mg/l' is equivalent to 'ppm'. . 'mg/l' is equivalent to 'ppb'. BDL. Below detection limit. DL. Indicates detection limit of instrument /method and shall be considered as 'absent', . Result for test no. 8 is not relevant. . ANte/7.2/RES -01.06,: Inhouse validated method. . NT' indicates not Tested as sample failed to establish safety concerns.

REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per IS: 10500:2012, for tests conducted only.

Verified By

Swati Gondhalekar Deputy Technical Manager Authorized Signatory

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



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Test Report No. : A	LPL/22052024/1-9A	dated 22/0	5/2024	Page 1 of	3
Issued To: M/s Kalamang Iron Mine (M/s TATA Steel Limited)		Sample Inward No.	ALPL/17052024/ENV-131-GW-1	Analysis Start	17/05/2024
		Inward Date 17/05/2024		Analysis End	22/05/2024
				Report Issue Date Sample Category	22/05/2024 Water
Sample Name Sample Source Ground Water Dugwell		Sample Particulars Sample Code-GW-1	Sample Condition Sealed & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml	
Sample Collected By Anacon Representative		Sampling Date 11/05/2024	Sampling Time 12.30 pm to 4.45 pm	Sampling Location Guali Village	

	connecta temprenentative	- 1	1/05/2024 12.30 pm	1 to 4.45 pm	Guan v	mage
			TEST RESULTS			
s.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I.	Biological Testing 1. Water			12		
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
11	Chemical Testing 1. Water			200		
2	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23): 1986	200	600	157.47
3	Anionic Detergents (as MBAS)	mg/I	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL = 0.01)
4	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27/Sec 1): 2021	0.05	No relaxation	BDL (DL - 0.005
6	Chloride (as CI)	mg/l	1S 3025 (Part 32) :1988	250	1000	28.46
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40): 1991	75	200	54.63
8	Free Residual Chlorine	mg/l	IS 3025 (Part 26): 2021	Min. 0.2	1	BDL (DL - 0.1)
9	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	1.0	1.5	0.21
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46): 1994	30	100	12.97
11	Nitrate (as NO ₁)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	8.36
12	Odour	-	IS 3025 (Part 5): 2018	Agreeable	Agreeable	Agreeable
13	pH		IS 3025 (Part 11): 2022	6.5 to 8.5	No relaxation	6.91 at 25°C
14	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43/Sec 1): 1992	0.001	0.002	BDL (DL - 0.00
15	Sulphate (as SO _a)	mg/l	IS 3025 (Part 24): 2022	200	400	12.68
16	Taste		IS 3025 (Part 8): 1984	Agrecable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16): 2023	500	2000	462
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	5	0.3
19	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21): 2009	200	600	189.84

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut Deputy Technical Manager **Authorized Signatories**

Technical Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Test Report No. : A	LPL/22052024/1-9A	The second secon		1	Page 2 of 3
Issued To:		Sample Inward No.	ALPL/17052924/ENV-131-GW-1	Analysis Start	17/05/2024
M/s Kalamang Iron Mine (M/s TATA Steel Limited)		Inward Date 17/05/2024		Analysis End	22/05/2024
				Report Issue Date Sample Category	22/05/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particular Sample Code-GW-		Quantity Received 5.0 Ltr & 250 ml	
Sample Collected By Anacon Representative		Sampling Date Sampling Time 11/05/2024 12.30 pm to 4.45 pm		Sampling Location Guali Village	

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S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit#	
11	Chemical Testing 2. Residu	es In Water		43		
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 2022	0.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (as Al)	mg/I	IS 3025 (Part 2): 2019	0.03	0.2	BDL (DL - 0.02)
22	Boron (as H)	mg/l	IS 3025 (Part 2): 2019	0.5	2.4	BDL (DL - 0.02)
23	Copper (as Cu)	mg/l	1S 3025 (Part 2): 2019.	0.05	1.5	BDL (DL - 0.02)
24	Cadmium (as Cd)	mg/l	IS 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL - 0.002)
25	Iron (as Fe)	mg/I	IS 3025 (Part 2): 2019	1.0	No relaxation	0.24
26	Lead (as Pb)	mg/l	IS 3025 (Part 2): 2019	0.01	No relaxation	BDL (DL - 0.01)
27	Manganese (as Mn)	mg/l	1S 3025 (Part 2): 2019	0.1	0.3	BDL (DL - 0.02)
28	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL - 0.001)
29	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL- 0.01)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL - 0.02)
31	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	5	15	BDL (DL - 0.02)
32	Polynuclear aromatic hydrocarbon (PAH)	µg/1 €	ANtr/7.2/RES/01: 2018	0.1	No relaxation	BDL(DL-0.03)
33	Mineral Oil	mg/l	ANtr/7.2/RES/06	1	No relaxation	BDL (DL - 0.001)

☐ Please refer last Page for Note and Remarks.

Verified By

Nidhi Dubey Deputy Technical Manager Swati Gondhalekar Deputy Technical Manager Authorized Signatory



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Test Report

Test Report No. : A	LPL/22052024/1-9A	dated 22/0	05/2024		Page 3 of 3
Issued To:		Sample Inward No. ALPL/17052024/ENV-131-GW-1		Analysis Start	17/05/2024
M/s Kalamang Iron Mine		Inward Date 17/05/2024		Analysis End	22/05/2024
(M/s TATA Steel L	imited)			Report Issue Date Sample Category	22/05/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-I		Quantity R 5.0 Ltr & 2	
Sample Co Annon Rep	ollected By presentative	Sampling Date 11/05/2024	Sampling Time 12.30 pm to 4.45 pm	Sampling L Gunli Vi	
		TEST	RESULTS		

			TEST RESULTS			
S.N.	Test Parameter	Test Parameter Measurement Unit		Requirer 1S 105 (Drinking Wat Including An	Test Result	
				Acceptable Limit	Permissible Limit #	
34	Pesticide Residues Organochlori	ne				
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 261	8 0.01	No relaxation	BDL (DL - 0.01
ii .	Beta HCH	µg/l	ANtr/7.2/RES/01: 201	8 0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANto7 2/RES/01: 201	8 2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	l'gu	ANtr/7.2/RES/01:201	8 0.04	No relaxation	BDL (DL = 0.03)
Y	Alachlor	pg/l	ANtr/7.2/RES/01: 201	8 20	No relaxation	BDL (DL + 0.03)
vi	Aldrin	Jug/I	ANtr/7.2/RES/01: 201	8 0.03	No relaxation	BDL (DL = 0.03
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 201	8 0.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor	l/gg	ANtr/7.2/RES/01: 201	8 125	No relaxation	BDL (DL + 0.03
ix	p,p'-DDE	μg/l	ANtr/7.2/RES/U1:201	8 1	No relaxation	BDL (DL - 0.03
X	o,p'-DDE	дд/1	ANtr/7.2/RES/01: 201	8 1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	l lg/l	ANtn/7,2/RES/01: 201	8 1	No relaxation	BDL (DL - 0.03
XII	o.pDDD	рул	ANtr/7.2/RES/01/201	8 1	No relaxation	BDL (DL - 0.03)
xiii	o.p'-DDT	<u>µу/1</u>	ANts/7.2/RES/01: 201	8 1	No relaxation	BDL (DL - 0.03
xiv	p.p'- DDT	μg/l	ANtr/7.2/RES/01: 201	8 1	No relaxation	BDL (DL - 0.03
XV	Monocrotophos	ндЛ	ANto 7.2/RES/01: 201	8 1	No relaxation	BDL (DL - 0.03)
xvi	Atrazing	µg/l	ANu/7.2/RES/01: 201	8 2	No relaxation	BDL (DL - 0.03
xyii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 201	8 0.3	No relaxation	BDL (DL - 0.03)
xviii .	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 201	R ~	-	BDL (DL - 0.03)
xix	Malathion	Fegu	ANtr/7.2/RES/01: 201	R 190	No relaxation	BDL (DL - 0.03)
XX	Malaoxon	µg/l	ANte/7.2/RES/01: 201	8 -		BDL (DL - 0.03
xxi	Ethion	right	ANtr/7.2/RES/01: 201	8 3	No relaxation	BDL (DL - 0.03
XXII	Chlorpyrifos	ue/I	ANtr/7.2/RES/01: 201	8 30	No relaxation	BDL (DL + 0.03)

NOTE: • Please see waterwark "Original Test Report" to confirm the authenticity of this report • Results shall be referred to tested sample(s) and applicable to tested parameters only.
• Test report shall not be reproduced except in full without prior written approval of Anacos Labs. • Liability of Anacos Labs is limited to invoiced amount only. • Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. • #Pennissible limit in absence of an alternate source for drinking water. • 'ang't' is equivalent to 'ppm'. • 'upft' is equivalent to 'ppm'. • HDL- Helow detection limit. • DL- DL Indicates detection limit of instrument /method and shall be considered as 'absent'. • Result for test no. 8 is not relevant. • ANtr/7.2/RES -01,06;: Inhouse validated method. • NT indicates not Tosted as associated to establish safety concerns.

REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per IS: 10500:2012, for tests conducted only.

Verified By

Swati Gondhalekar Deputy Technical Manager

----End of Report----

Authorized Signatory



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Test Report

Test Report No. : A	LPL/22052024/1-10/	dated 22/0	05/2024	Page 1 of	3
Issued To : M/s Kalamang I (M/s TATA Steel L	ron Mine	Sample Inward No. Inward Date	ALPL/17052024/ENV-131-GW-2 17/05/2024	Analysis Start Analysis End Report Issue Date Sample Category	17/05/2024 22/05/2024 22/05/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-2		Quantity Re 5.0 Ltr & 2	
	ollected By presentative	Sampling Date 11/05/2024	Sampling Time 12.30 pm to 4.45 pm	Sampling Lo Kalamong V	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	1S 1050 (Drinking Wate	ent as per 0 : 2012 r Specifications) endment No. 4	Test Result	
				Acceptable Limit	Permissible Limit#		
1	Biological Testing I. Water			W.A.			
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent	
11	Chemical Testing 1. Water						
2	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23): 1986	200	600	182.63	
3	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1:0	BDL (DL = 0.01)	
4	Colour	Hazen units	IS 3025 (Part 4): 2021	5	15	1	
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27/Sec 1): 2021	0.05	No relaxation	BDL (DL - 0.005)	
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32):1988	250	1000	21,46	
7	Calcium (as Ca)	mg/I	IS 3025 (Part 40): 1991	75	200	47.39	
8	Free Residual Chlorine	mg/l	IS 3025 (Part 26): 2021	Min. 0.2	1	BDL (DL - 0.1)	
9	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	1.0	1.5	0.26	
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46): 1994	30	100	13.81	
11	Nitrate (as NO ₂)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	9.52	
12	Odour		IS 3025 (Part 5): 2018	Agreeable	Agreeable	Agreeable	
13	pH	4.4	IS 3025 (Part 11): 2022	6.5 to 8.5	No relaxation	6.94 at 25°C	
14	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	1S 3025 (Part 43/Sec 1): 1992	0.001	0.002	BDL (DL - 0.001)	
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24): 2022	200	400	7.38	
16	Taste		IS 3025 (Part 8): 1984	Agreeable	Agreeable	Agreeable	
17	Total dissolved solids	mg/l	IS 3025 (Part 16): 2023	500	2000	473	
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	5	0.4	
19	Total hardness (as CaCO _j)	mg/l	IS 3025 (Part 21): 2009	200	600	175.19	

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut Deputy Technical Manager Authorized Signatories

Technical Manager



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Test Report

Test Report No. : A	LPL/22052024/1-10/	dated 22/	05/2024	Page 2 of	3
Issued To: M/s Kalamang I (M/s TATA Steel L		Sample Inward No. Inward Date	ALPL/17052024/ENV-131-GW-2 17/05/2024	Analysis Start Analysis End Report Issue Date Sample Category	17/05/2024 22/05/2024 22/05/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particular Sample Code-GW-1		Quantity Re 5.0 Ltr & 2:	
Sample Co Anacon Rep		Sampling Date 11/05/2024	Sampling Time 12.30 pm to 4.45 pm	Sampling Lo Kalamong \	

TEST RESULTS

Requirement as per IS 10500: 2012 (Drinking Water Specifications) Measurement S.N. Test Parameter Test Method Test Result Unit Including Amendment No. 4 Acceptable Permissible Limit Limit# Chemical Testing 2. Residues In Water Ш 20 Arsenic (as As) mg/I IS 3025 (Part 37): 2022 0.01 No relaxation BDL (DL - 0.01) Aluminium (as Al) 21 mg/l IS 3025 (Part 2): 2019 0.03 0.2 BDL (DL - 0.02) 22 Boron (as B) mg/l IS 3025 (Part 2): 2019 0.5 2.4 BDL (DL + 0.02) 23 Copper (as Cu) mg/lIS 3025 (Part 2): 2019 0.05 15 BDL (DL - 0.02) 24 Cadmium (as Cd) IS 3025 (Part 2): 2019 mg/l 0.003 No reluxation BDL (DL - 0.002) 25 Iron (as Fe) IS 3025 (Part 2) = 2019 mg/I 1.0 No relaxation 0.1726 Lead (as Pb) mg/l IS 3025 (Part 2) + 2019 0.01No relaxation BDL (DL - 0.01) 27 Manganese (as Mn) IS 3025 (Part 2): 2019 mg/l0.1 0.3 BDL (DL - 0.02) 28 Mercury (as Hg) mg/l IS 3025 (Part 48): 1994 100.0 No relaxation BDL (DL - 0.001) 29 Selenium (as Se) IS 3025 (Part 56): 2003 $m\alpha/I$ 0.01 No relaxation BDL (DL-0.01) 30 Total Chromium (as Cr) IS 3025 (Part 2): 2019 0.05 mg/lNo relaxation BDL (DL - 0.02)

IS 3025 (Part 2): 2019

ANtr/7.2/RES/01: 2018

ANtr/7.2/RES/06

5

0.1

1

15

No relaxation

No relaxation

Please refer last Page for Note and Remarks.

31

32

33

Zinc (as Zn)

Mineral Oil

Polynuclear aromatic

hydrocarbon (PAH)

Verified By

mg/I

 $\mu g/l$

mg/l

Nidhi Dubey Deputy Technical Manager Swati Gondhalekar Deputy Technical Manager

Durati

Authorized Signatory

BDL (DL - 0.02)

BDL(DL-0.03)

BDL (DL - 0.001)



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Test Report

Test Report No.: ALPL/22052024/1-10 Issued To:		Sample Inward No.	ALPL/17052024/ENV-131-GW-2	Analysis Start	Page 3 of 3 17/05/2024
M/s Kalamang Iron Mine		Inward Date 17/05/2024		Analysis End	22/05/2024
(M/s TATA Steel L	imited)			Report Issue Date Sample Category	22/05/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-2		Quantity R 5.0 Ltr & 2	
	ollected By presentative	Sampling Date 11/05/2024	Sampling Time 12.30 pm to 4.45 pm	Sampling L Kalamong	

s.n.	N. Test Parameter Measures Unit		nent Test Method (IS 105 (Drinking Wat	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4	
				Ac	ceptable Limit	Permissible Limit #	
34	Pesticide Residues Organochlori				_		
1	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 20		0.01	No relaxation	BDL (DL - 0.01)
13	Beta HCH	µg/l	ANtr/7.2/RES/01: 20		0.04	No relaxation	BDL (DL - 0.03)
111	Gumma - HCH (Lindane)	μg/l	ANtr/7.2/RES/01: 20	****	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 20		0.04	No relaxation	BDL (DL ~ 0.03)
Y	Alachier	µg/l	ANtr/7.2/RES/01; 20	118	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/l	ANtr/7_2/RES/01: 20	11.8	0.03	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 20	118	0.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor	дд/1	ANtr/7.2/RES/01:20	118	125	No relaxation	BDL (DL - 0.03)
ix	p.p'-DDE	ng/l	ANu/7.2/RES/01; 20	18	1	No relaxation	BDL (DL - 0.03)
х	o.p'-DDE	ид/1	ANtr/7.2/RES/01: 20	118		No relaxation	BDL (DL - 0.03)
30	p.p'-DDD	µg/l	ANtr/7.2/RES/01: 20	118		No relaxation	BDL (DL - 0.03)
Xii	o.p'-DDD	µg/l	ANtr/7.2/RES/01: 20	118	1	No relaxation	BDL (DL - 0.03)
xiii	o.p'- DDT	µg/l	ANtr/7.2/RES/01: 20		1	No relaxation	BDL (DL - 0.03)
xiv	p.p'- DDT	µg/l	ANtr/7.2/RES/01: 20	118	1	No relaxation	BDL (DL - 0.03)
XV	Monocrotophos	pg/l	ANtr/7.2/RES/01: 20	444	1	No relaxation	BDL (DL - 0.03)
xvi.	Atrazine	pg/l	ANtr/7.2/RES/01: 20	118	2	No relaxation	BDL (DL - 0.03)
xvii	Parathios methyl	µg/T	ANtr/7.2/RES/01: 20	118	0.3	No relaxation	BDL (DL - 0.03)
XVIII	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 20	-			BDL (DL + 0.03)
xix	Malathion	Pug/	ANtr/7.2/RES/01: 20		190	No relaxation	BDL (DL + 0.03)
XX	Malaoxon	pg/l	ANtr/7.2/RES/01: 20				BDL (DL - 0.03)
XXI	Ethion	Hg/I	ANtr/7.2/RES/01: 20	Heren .	3	No relexation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 20	40-	30	No relaxation	BDL (DL - 0.03)

NOTE: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only Test report shall not be reproduced except in full writiout prior written approval of Anaeon Labs.
 ◆ Liability of Anaeon Labs is limited to invenced amount only.
 ◆ Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. • #Permissible limit in absence of an alternate source for drinking water. . "mgT is equivalent to 'ppm' . 'upT' is equivalent to 'ppb'. . BDL. Below detection limit. DL. DL Indicates detection limit of instrument. /method and shall be considered as 'absent'. . Result for test no. 8 is not relevant. . ANto/7,2/RES -01,66;: Inhouse validated seethed. . NT indicates not Tested as sample failed to establish safety concerns.

REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per IS: 10500:2012, for tests conducted only.

Verified By

Swati Gondhalekar Deputy Technical Manager Authorized Signatory

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

-End of Report---



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Test Report No. : A	LPL/22052024/1-11/	dated 22/	At the problem of the second s		Page 1 of 3
Issued To:		Sample Inward No.	ALPL/17052024/ENV-131-GW-3	Analysis Start	17/05/2024
M/s Kalamang Iron Mine		Inward Date	17/05/2024	Analysis End	22/05/2024
(M/s TATA Steel L	imited)			Report Issue Date Sample Category	22/05/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particular Sample Code-GW-		Quantity F 5.0 Ltr &	
	ollected By presentative	Sampling Date 11/05/2024	Sampling Time 12.30 pm to 4.45 pm	Sampling I Sagasahi	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	IS 1050 (Drinking Wate	ent as per 0: 2012 r Specifications) endment No. 4	Test Result	
				Acceptable Limit	Permissible Limit #		
1	Biological Testing 1. Water			-			
1	Escherichia coli	Per 100 ml	IS 15185 ; 2016	Absent	Absent	Absent	
11	Chemical Testing 1. Water		45.	Y			
2	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23): 1986	200	600	196.28	
3	Anionic Detergents (as MBAS)	mg/I	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)	
4	Colour	Huzen units	IS 3025 (Part 4) : 2021	5	15	1	
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27/Sec 1): 2021	0.05	No relaxation	BDL (DL-0.005)	
6	Chloride (as CI)	mg/l	IS 3025 (Part 32):1988	250	1000	24.81	
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40); 1991	75	200	47.52	
8	Free Residual Chlorine	mg/l	18 3025 (Part 26): 2021	Min. 0.2	1	BDL (DL - 0.1)	
9	Fluoride (as F)	mg/l	18 3025 (Part 60): 2008	1.0	1.5	0.17	
10	Magnesium (as Mg)	mg/l	IS 3025 (Purt 46): 1994	30	100	13.94	
11	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	8,16	
12	Odour	PAP.	IS 3025 (Part 5): 2018	Agreeable	Agreeable	Agreeable	
13	pH	in be	IS 3025 (Part 11): 2022	6.5 to 8.5	No relaxation	7.18 at 25°C	
14	Phenolic compounds (as C ₆ H ₃ OH)	mg/I	IS 3025 (Part 43/Sec 1): 1992	0.001	0.002	BDL (DL-0.001)	
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 2022	200	400	9,17	
16	Tasto		IS 3025 (Part 8): 1984	Agreeable	Agreeable	Agreeable	
17	Total dissolved solids	mg/l	IS 3025 (Part 16): 2023	500	2000	481	
18	Turbidity	NTU	1S 3025 : (Part 10): 2023	1	5	0.4	
19	Total hardness (as CaCO ₁)	mg/I	IS 3025 (Part 21): 2009	200	600	176.05	

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut Deputy Technical Manager Authorized Signatories

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



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Test Report

	LPL/22052024/1-11/				Page 2 of 3
Issued To:		Sample Inward No. ALPL/17052024/ENV-131-GW-		Analysis Start	17/05/2024
M/s Kalamang Iron Mine		Inward Date	17/05/2024	Analysis End	22/05/2024
(M/s TATA Steel L	imited)			Report Issue Date Sample Category	22/05/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particular Sample Code-GW-		Quantity R 5.0 Ltr & 2	
	ollected By presentative	Sampling Date 11/05/2024	Sampling Time 12.30 pm to 4.45 pm	Sampling I. Sagasahi	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wat	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4	
				Acceptable Limit	Permissible Limit #	
11	Chemical Testing 2. Residu	es In Water				
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 2022	0.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2): 2019	0.03	0.2	BDL (DL - 0.02)
22	Boron (as B)	mg/l	IS 3025 (Part 2): 2019	0.5	2.4	BDL (DL + 0.02)
23	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019.	0.05	1.5	BDL (DL - 0.02)
24	Cadmium (as Cd)	mg/l	1S 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL - 0.002)
25	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	1.0	No relaxation	0.27
26	Lead (as Pb)	mg/l	IS 3025 (Part 2): 2019	0.01	No relaxation	BDL (DL + 0.01)
27	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019	0.1	0.3	BDL (DL - 0.02)
28	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL - 0.001)
29	Selenium (as Se)	mg/l	1S 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL- 0.01)
30	Total Chromium (as Cr)	mg/t	IS 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL - 0.02)
31	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	5	15	BDL (DL - 0.02)
32	Polynuclear aromatic hydrocarbon (PAH)	ид/1	ANtr/7.2/RES/01: 2018	0.1	No relaxation	BDL(DL-0.03)
33	Mineral Oil	mg/l	ANtr/7.2/RES/06	1	No relaxation	BDL (DL - 0.001)

☐ Please refer last Page for Note and Remarks.

Verified By

Deputy Technical Manager

Swati Gondhalekar Deputy Technical Manager Authorized Signatory



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Test Report

Issued To: M/s Kalamang Iron Mine		Sample Inward No. ALPI/17052024/ENV-131-GW-3 Inward Date 17/05/2024		Analysis Start Analysis End	17/05/2024 22/05/2024
(M/s TATA Steel L.			a at the state of	Report Issue Date Sample Category	22/05/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-3		Quantity R 5.0 Ltr & 2	
Sample Co Anacon Rep		Sampling Date 11/05/2024	Sampling Time 12.30 pm to 4.45 pm	Sampling L Sagasahi	

TEST RESULTS

S.N.	Test Parameter	Test Parameter Measurement Unit Test M			Requirer IS 105 (Drinking Wat Including An	Test Result	
				Acce	ptable Limit	Permissible Limit#	
34	Pesticide Residues Organochloria				-		
1	Alpha-HCH	jig/l	ANti/7.2/RES/01: 20		0.01	No relaxation	BDL (DL + 0.01)
11	Beta HCH	Pagg.	ANti/7.2/RES/01: 20	810	0.04	No relaxation	BDL (DL = 0.03)
111	Gamma - HCH (Lindanc)	ид/1	ANtr/7.2/RES/01: 20	218	2	No relaxation	BDL (DL = 0.03)
iv	Delta-HCH	pg/l	ANtr/7.2/RES/01: 20	816	0.04	No relaxation	BDL (DL - 0.03)
Ÿ	Alachior	ру/1	ANto/7.2/RES/01: 20	18	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/1	ANto/7.2/RES/01: 20	18	0.03	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	рд/1	ANtr/7.2/RES/01: 20	118	0.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor	ид/!	ANto/7.2/RES/01/20	718	125	No relaxation	BDL (DL - 0.03)
ix	p.pDDE	µg/l	ANI/7.2/RES/01: 20	18	1	No relaxation	BDL (DL - 0.03)
X	o.pDDE	pg/l	ANtr/7.2/RES/01:20	18	1	No relaxation	BDL (DL = 0.03)
xi	p.p'-DDD	ид/1	AND/7.2/RES/01: 20	816	1	No relaxation	BDL (DL - 0.03)
xti	o.p -DDD	µg/l	ANtr/7.2/RES/01: 20	18	1	No relaxation	BDL (DL - 0.03)
xiii	n.p - DDT	pg/l	ANtr/7.2/RES/01: 20	18	1	No relaxation	BDL (DL + 0.03)
XIV	p.p'- DDT	Лдц	ANtr/7/2/RES/01: 20	816	1	No relaxation	BDL (DL + 0.03)
XV	Monocrotophos	1/2/1	ANtr/7.2/RES/01: 20	18	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	pg/1	ANtr/7.2/RES/01: 20	18	2	No relaxation	BDL (DL + 0.03)
XVII	Parathion methyl	ир/Т	ANtr/7.2/RES/01: 20	18	0.3	No relaxation	BDL (DL = 0.03)
XVIII	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 20		-		BDL (DL - 0.03)
XIX	Malathion	rgyl ·	ANn/7.2/RES/01: 20	18	190	No relaxation	BDL (DL - 0.03)
XX	Malaoxon	ligit .	ANte/7,2/RES/01: 20				BDL (DL - 0.03)
XXI	Ethion	1127	ANtr/7.2/RES/01: 20		3	No relaxation	BDL (DL - 0.03)
XXII	Chlorpyrifos	ug/l	ANtr/7.2/RES/01: 20		30	No relaxation	BDL (DL + 0.03)

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

Test report shall not be reproduced except in full without prior written approval of Anacon Labs. Liability of Anacon Labs is limited to invoiced amount only. Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. Permissible limit in absence of an alternate source for drinking water. "mg/l" is equivalent to 'ppm'. "pg/l" is equivalent to 'ppb'. BDL- Below detection limit. DL- DL Indicates detection limit of instrument /method and shall be considered as 'absent'. Result for test no. 8 is not relevant. ANti/7.2/RES -01,06; Inhouse validated method. NT indicates not Tested as sample failed to establish safety concerns.

REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per IS: 10500:2012, for tests conducted only.

Verified By

Swati Gondhalekar Deputy Technical Manager Authorized Signatory

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

----End of Report----



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Test Report

Issued To:		Sample Inward No. ALPL/17052024/ENV-131-GW-4		Analysis Start	Page I of 3 17/05/2024	
	M/s Kalamang Iron Mine		Inward Date 17/05/2024		22/05/2024	
(M/s TATA Steel L	imited)			Report Issue Date Sample Category	22/05/2024 Water	
Sample Name Ground Water	Sample Source Dugwell	Sample Particular Sample Code-GW-	Samuel Control of the	Quantity Re 5.0 Ltr & 2		
Sample Collected By Anacon Representative		Sampling Date 11/05/2024	Sampling Time 12.30 pm to 4.45 pm	Sampling Location Gandalpada Village		

			TEST RESULTS	The state of the s	Gandarpac	ALL DESCRIPTION OF THE PARTY OF
S.N.	Test Parameter	Measurement Unit	Test Method	Requirem 1S 1050 (Drinking Wate Including Am	Test Result	
				Acceptable Limit	Permissible Limit #	
1	Biological Testing 1. Water		2	31 4		
1	Escherichia coli	Per 100 mi	IS 15185 : 2016	Absent	Absent	Absent
H	Chemical Testing 1. Water			1		
2	Total Alkalinity (as Calcium Carbonate)	mg/I	IS 3025 (Part 23): 1986	200	600	168.71
3	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	IS 3025 (Part 4): 2021	5	15	1
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27/Sec 1): 2021	0.05	No relaxation	BDL (DL - 0.005
6	Chloride (as CI)	mg/l	IS 3025 (Part 32):1988	250	1000	23.52
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40): 1991	75	200	46.19
8	Free Residual Chlorine	mg/l	18 3025 (Part 26): 2021	Min. 0.2	1	BDL (DL - 0.1)
9	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	1.0	1.5	0.18
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46): 1994	30	100	13.64
11	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition; 2017	45	No relaxation	9.17
12	Odour	- FA	IS 3025 (Part 5): 2018	Agreeable	Agrecable	Agrecable
13	pH	480	IS 3025 (Part 11): 2022	6.5 to 8.5	No relaxation	6.81 at 25°C
14	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43/Sec 1): 1992	0.001	0.002	BDL (DL - 0.001
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Purt 24): 2022	200	400	7.93
16	Taste	9 -	IS 3025 (Part 8): 1984	Agreeable	Agreeable	Agrecable
17	Total dissolved solids	mg/l	IS 3025 (Part 16): 2023	500	2000	451
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	5	0.3
19	Total hardness (as CaCO ₁)	mg/l	1S 3025 (Part 21): 2009	200	600	171.49

Please refer last Page for Note and Remarks.

Verified By

Deputy Technical Manager

Authorized Signatories

Technical Milnager

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



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Test Report No. : A	LPL/22052024/1-12/	dated 22/0	5/2024		Page 2 of 3
Issued To : M/s Kalamang I (M/s TATA Steel L		Sample Inward No. Inward Date	ALPL/17052024/ENV-131-GW-4 17/05/2024	Analysis Start Analysis End Report Issue Date Sample Category	17/05/2024 22/05/2024 22/05/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-4		Quantity R 5.0 Ltr & 2	
Sample Collected By Anacon Representative		Sampling Date 11/05/2024	Sampling Time 12.30 pm to 4.45 pm	Sampling Location Gandalpada Village	

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T	EST	* R1	E83	П	TS

S.N.	Test Parameter	Measurement Unit	Test Method	Require IS 105 (Drinking Wat Including At	Test Result	
				Acceptable Limit	Permissible Limit #	
II	Chemical Testing 2. Residu	es In Water		47.11		
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 2022	0.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (as AI)	mg/l	IS 3025 (Part 2): 2019	0.03	0.2	BDL (DL - 0.02)
22	Boron (as B)	mg/I	IS 3025 (Part 2): 2019	0.5	2.4	BDL (DL - 0.02)
23	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	0.05	1.5	BDL (DL - 0.02)
24	Cadmium (as Cd)	mg/l	IS 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL - 0.002)
25	Iron (as Fe)	mg/l	IS 3025 (Part 2) 22019	1.0	No relaxation	0.16
26	Lead (as Pb)	mg/l	IS 3025 (Part 2): 2019	0.01	No relaxation	BDL (DL - 0.01)
27	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019	0.1	0.3	BDL (DL - 0.02)
28	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL - 0.001)
29	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL-0.01)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL - 0.02)
31	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	5	15	BDL (DL - 0.02)
32	Polynuclear aromatic hydrocarbon (PAH)	µg/1 ♠	ANto/7.2/RES/01; 2018	0.1	No relaxation	BDL(DL-0.03)
33	Mineral Oil	mg/l	ANtr/7.2/RES/06	1	No relaxation	BDL (DL - 0.001)

Please refer last Page for Note and Remarks.

Verified By

Nidhi Dubey

Deputy Technical Manager

Swati Gondhaleko

Swati Gondhalekar Deputy Technical Manager Authorized Signatory



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Test Report No. : A	LPL/22052024/1-12/	dated 22/0	5/2024	W.1.	Page 3 of 3	
Issued To: M/s Kalamang Iron Mine		Sample Inward No.	ALPL/17052024/ENV-131-GW-4	Analysis Start	17/05/2024	
		Inward Date 17/05/2024		Analysis End	22/05/2024	
(M/s TATA Steel L.	imited)			Report Issue Date Sample Category	22/05/2024 Water	
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-4		Quantity R 5.0 Ltr & 2	12 carlo	
Sample Collected By Annoon Representative		Sampling Date Sampling Time 11/05/2024 12.30 pm to 4.45 pm			Sampling Location Gandalpada Village	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method		IS 105 (Drinking Wat	nent as per 00 : 2012 er Specifications) nendment No. 4	Test Result
				Acc	ceptable Limit	Permissible Limit#	
34	Pesticide Residues Organochlori						
1	Alpha-HCH	pg/l	ANtr/7.2/RES/01: 20	018	0.01	No relacation	BDL (DL - 0.01)
ii.	Beta HCH	pg/I	ANtr/7.2/RES/01: 20	318	0.04	No relucation	BDL (DL - 0.03)
111	Gamma - HCH (Lindane)	l/gu	ANtr/7.2/RES/01: 20	318	2	No relexation	BDL (DL - 0.03)
iv	Delta- HCH	pig/I	ANtr/7.2/RES/01; 20	318	0.04	No relaxation	BDL (DL - 0.03)
V	Alachior	ug/l	ANtr/7.2/RES/01: 20	318	.20	No relaxation	BDL (DL - 0.03)
VI	Aldrin	ug/l	ANtr/7.2/RES/01; 20	018	0.03	No relaxation	BDL (DL - 0.03)
VII	Dieldrin	ug/I	ANtr/7.2/RES/01; 20	018	0.03	No relaxation	BDL (DL - 0.03)
viii	Batachier	ne/l	ANtt/7.2/RES/01: 20	118	125	No relaxation	BDL (DL - 0.03)
İΧ	p.p'-DDE	pg/I	ANtt/7.2/RES/01:20	118	1	No relaxation	BDL (DL - 0.03)
X	o.p -DDE	µg/I	ANte/7.2/RES/01: 20	118	1	No relaxation	BDL (DL - 0.03)
xi	p.p'-DDD	Pau	ANtt/7.2/RES/01: 20	118	1	No relaxation	BDL (DL - 0.03)
XII	o.p'-DDD	pg/I	ANtr/7.2/RES/01/20	810	1	No relaxation	BDL (DL - 0.03)
xiii	o.p - DDT	pa/l	ANtr/7.2/RES/01: 20	018	1	No relaxation	BDL (DL - 0.03)
xiv	p.p - DDT	µg/I	ANtt/7.2/RES/01: 20	810	1	No relaxation	BDL (DL - 0.03)
XV.	Monocrotophos	иеЛ	ANtr/7_2/RES/01: 20	18	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtt/7.2/RES/01: 20		2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANti/7.2/RES/01: 20	-	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 20		-	*	BDL (DL - 0.03)
xix	Malathion	μg/1	ANtr/7.2/RES/01: 20	-	190	No relaxation	BDL (DL - 0.03)
XX	Malaoxon	µg/l	ANtr/7.2/RES/01: 20			179 (60)00000000000000000000000000000000000	BDL (DL - 0.03)
xxi	Ethion	Tun	ANtr/7.2/RES/01: 20		3	No relaxation	BDL (DL - 0.03)
XXII	Chlorpyrifos	pg/l	ANtr/7.2/RES/01: 20		30	No relaxation	BDL (DL - 0.03)

NOTE: • Please see watermark "Original Test Report" to confirm the authenticity of this report • Results shall be referred to tested sample(s) and applicable to tested parameters only.
• Test report shall not be reproduced except in full without prior written approval of Anacon Labs. • Liability of Anacon Labs is limited to invoiced amount only. • Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of same of Test Report, unless specified otherwise. • (Permissible limit in absence of an alternate source for drinking water. • 'mg/l' is equivalent to 'ppm'. • 'ug/l' is equivalent to 'ppb'. • BDL. Below detection limit. • DL- DL Indicates detection limit of instrument /method and shall be considered as 'absent'. • Result for test no. 5 is not relevant. • ANtr/7.2/RES -01,06;: Inhouse validated method. • NT indicates not Tested as sample failed to establish safety concerns.

REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per IS: 10500:2012, for tests conducted only.

Verified By

Swati Gondhalekar Deputy Technical Manager **Authorized Signatory**

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

----End of Report-



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Test Report

Issued To: M/s Kalamang Iron Mine (M/s TATA Steel Limited)		Sample Inward No. ALPL/17052024/ENV-131-GW Inward Date 17/05/2024		Analysis Start	Page 1 of 3 17/05/2024
				Analysis End Report Issue Date Sample Category	22/05/202- 22/05/202- Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particular Sample Code-GW-:		Quantity R 5.0 Ltr & 2	
Sample Collected By Anacon Representative		Sampling Date Sampling Tir 11/05/2024 12:30 pm to 4.4		Sampling Location Sunindpur Village	

			17002024 12:30 pii	110 4343 pm	Suninapu	rvillage
			TEST RESULTS		A	
S.N.	Test Parameter	Measurement Unit	Test Method	IS 1050 (Drinking Wate	ent as per 0 : 2012 r Specifications) endment No. 4	Test Result
				Acceptable Limit	Permissible Limit #	
1	Biological Testing I. Water			Ser at	-	
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	Chemical Testing I. Water					
2	Total Alkalinity (as Calcium Carbonate)	mg/I	IS 3025 (Part 23): 1986	200	600	187.63
3	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	IS 3025 (Part 4): 2021	5	15	1
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27/Sec 1): 2021	0.05	No relaxation	BDL (DL - 0.005
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32):1988	250	1000	21.46
7.	Calcium (as Ca)	mg/I	IS:3025 (Part 40): 1991	75	200	47.39
8	Free Residual Chlorine	mg/l	IS 3025 (Part 26): 2021	Min. 0.2	1	BDL (DL - 0.1)
9	Fluoride (as F)	mg/l	1S 3025 (Part 60): 2008	1.0	1.5	0.16
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46): 1994	30	100	12.54
11	Nitrate (as NO ₁)	mg/l	APHA method 23rd edition: 2017.	45	No relaxation	8.17
12	Odour	- 1	IS 3025 (Part 5): 2018	Agreeable	Agreeable	Agreeable
13	pH	FA 7	IS 3025 (Part 11): 2022	6.5 to 8.5	No relaxation	6.92 at 25°C
14	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43/Sec 1): 1992	100.0	0.002	BDL (DL - 0.001
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24): 2022	200	400	7.63
16	Taste		IS 3025 (Part 8): 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16): 2023	500	2000	463
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	5	0.7
19	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21): 2009	200	600	169.97

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut Deputy Technical Manager **Authorized Signatories**

Technical Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Test Report No. : A	LPL/22052024/1-13/	dated 22/	05/2024		Page 2 of 3
Issued To : M/s Kalamang I (M/s TATA Steel L		Sample Inward No. Inward Date	ALPL/17052024/ENV-131-GW-5 17/05/2024	Analysis Start Analysis End Report Issue Date Sample Category	17/05/2024 22/05/2024 22/05/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-5		Quantity R 5.0 Ltr & 2	
Sample Collected By Anacon Representative		Sampling Date 11/05/2024	Sampling Time 12.30 pm to 4.45 pm	Sampling Location Sunindpur Village	

			TEST RESULTS				
S.N.	Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wat	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		
				Acceptable Limit	Permissible Limit #		
11	Chemical Testing 2. Residu	es In Water		4.0			
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 2022	0.01	No relaxation	BDL (DL - 0.01)	
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2): 2019	0.03	0.2	BDL (DL - 0.02)	
22	Boron (as B)	mg/l	IS 3025 (Part 2): 2019	0.5	2.4	BDL (DL - 0.02)	
23	Copper (as Cu)	mg/I	IS 3025 (Part 2): 2019	0.05	1.5	BDL (DL + 0.02)	
24	Cadmium (as Cd)	mg/l	IS 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL - 0.002)	
25	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	1.0	No relaxation	0.18	
26	Lead (as Pb)	mg/l	IS 3025 (Part 2): 2019	0.01	No relaxation	BDL (DL - 0.01)	
27	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019	0.1	0.3	BDL (DL - 0.02)	
28	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL - 0.001)	
29	Selenium (as Se)	mg/l	1S 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL- 0.01)	
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL - 0.02)	
31	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	5	15	BDL (DL - 0.02)	
32	Polynuclear aromatic hydrocarbon (PAH)	µд/1 —	ANtn/7.2/RES/01: 2018	0.1	No relaxation	BDL(DL-0.03)	
33	Mineral Oil	mg/l	ANtr/7.2/RES/06	1	No relaxation	BDL (DL = 0.001)	

Please refer last Page for Note and Remarks.

Verified By

Nidhi Dubey Deputy Technical Manager

Swati Gondhalekar Deputy Technical Manager Authorized Signatory



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Test Report

Test Report No. : A	LPL/22052024/1-13/	dated 22/	05/2024		Page 3of 3	
Issued To : M/s Kalamang I (M/s TATA Steel L		Sample Inward No. Inward Date			17/05/2024 22/05/2024 22/05/2024 Water	
Sample Name Sample Source Ground Water Dugwell Sample Collected By Anacon Representative		Water Dugwell Sample Code-GW-5 Scaled & Ice Preserved 5. Sample Collected By Sampling Date Sampling Time Sampling Time		Quantity R 5.0 Ltr & 3		
				Sampling L Sunindpur	g Location	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	(Drinking V	irement as per 10500 : 2012 Vater Specifications) Amendment No. 4	Test Result
				Acceptable Limit	Permissible Limit #	
34	Pesticide Residues Organochlori				E 9	
1	Alpha-HCH	µg/l	ANtr/7:2/RES/01: 20		No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 20	18 0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtt/7.2/RES/01: 20	18 2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	μg/1	ANte/7.2/RES/01: 20	18 0.04	No relacation	BDL (DL - 0.03)
V.	Alachlor	µg/1	ANte/7,2/RES/01: 20	18 20	No relaxation	BDL (DL - 0.03)
31	Aldrin	ug/I	ANtr/7,2/RES/01: 20	18 0.03	No relacation	BDL (DL - 0.03)
VII	Dieldrin	Iψμ	ANtr/7.2/RES/01: 20	18 0.03	No relacation	BDL (DL = 0.03)
VIII	Butachlor	Jug/I	ANtr/7.2/RES/01: 20	18 125	No relacation	BDL (DL - 0.03)
ix	p.p -DDE	µg/l	ANtt/7.2/RES/01:20	18 1	No relaxation	BDL (DL - 0.03)
x	o.p -DDE	Para	ANtr/7.2/RES/01:20	18 1	No refacation	BDL (DL - 0.03)
Xİ	p,p'-DDD	Pau	ANtt/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
201	o,p'-DDD	μβЛ	ANtr/7.2/RES/01/20	18 1	No relaxation	BDL (DL - 0.03)
XIII	o,p'- DDT	pg/l	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
XIV	p.p'+ DDT	μg/I	ANtr/7.2/RES/01: 20	******	No relaxation	BDL (DL - 0.03)
XV	Monocrotophos	μg/I	ANti/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
XVI	Atrazine	µg/I	ANte/7.2/RES/01: 20	18 2	No relaxation	BDL (DL - 0.03)
XVII	Parathion methyl	μg/1	ANtr/7.2/RES/01: 20	A Service of the Contract of t	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	μg/1	ANtr/7.2/RES/01:20	Address of the same of the sam	170738000000	BDL (DL - 0.03)
xix	Mulathion	µg/l	ANir/7.2/RES/01: 20	Marie and American State of the Control of the Cont	No relaxation	BDL (DL - 0.03)
XX	Malaoxon	pgfl	ANtr/7.2/RES/01: 20			BDL (DL + 0.03)
xxi	Ethion	ред	ANir/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	pe/l	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)

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

Test report shall not be reproduced except to full without prior written approval of Anaeon Labs. Liability of Anaeon Labs is limited to invoiced amount only. Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. Permissible limit is absence of an alternate source for dividing water. Imply is equivalent to 'ppn'. BDL- Below detection limit. DL- DL Indicates detection limit of instrument /method and shall be considered as 'alment'. Result for test no. 8 is not relevant. Anti/7.2/RES-01,06; Inhouse validated method. NT indicates out Tested in example failed to establish safety concerns.

REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per IS: 10500:2012, for tests conducted only.

Verified By

Swati Gondhalekar Deputy Technical Manager Authorized Signatory

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

---End of Report----



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Test Report

Test Report No. : A	LPL/25062024/1-974	dated 25/0	The state of the s	Page I of	13
Issued To:		Sample Inward No. ALPL/21062624/ENV-131-GW-1		Analysis Start	22/06/2024
M/s Kalamang Iron Mine		Inward Date 21/06/2024		Analysis End	25/06/2024
(M/s TATA Steel L	imited)			Report Issue Date 25/06/ Sample Category Water	
Sample Name Ground Water	Ground Water Dogwell Sample Code-GW-1 Senied & Ice Preserved Sample Collected By Sampling Date Sampling Time		Quantity Re 5.0 Ltr & 25		
1.50000 640.50000			Sampling Time 11.50 am to 3.20 pm	Sampling Location Guali Village	

TEST RESULTS Requirement as per IS 10500: 2012 (Drinking Water Specifications) Measurement 5.N. Test Parameter Test Method Test Result Unit Including Amendment No. 4 Acceptable Permissible Limit Limit # ı Biological Testing 1. Water 1 Escherichia coli Per 100 ml IS 15185 : 2016 Absent Absent Absent п Chemical Testing 1. Water Total Alkalinity 2 rng/L IS 3025 (Part 23): 1986 200 600 163.94 (as Calcium Carbonate) Anionic Detergents (as MBAS) 3 mg/I IS 13428 : (Annex K): 2005 0.2 1.0 BDL (DL - 0.01) 4 Colour Hazen units IS 3025 (Part 4): 2021 5 15 5 Cyanide (as CN) mag/1 IS 3025 (Part 27/Sec 1): 2021 0.05 No relaxation BDL (DL - 0.005) Chioride (as CI) 6 mg/I IS 3025 (Part 32):1988 250 1000 23.81 7 Calcium (as Ca) mg/T IS 3025 (Part 40): 1991 75 200 52.47 8 Free Residual Chlorine IS 3025 (Part 26): 2021 mg/I Min. 0.2 HDL (DL - 0.1) 9 Fluoride (as F) rig/l IS 3025 (Part 60): 2008 1.0 1.5 0.16 Magnesium (as Mg) 10 mg/l IS 3025 (Part 46): 1994 30 100: 13.9411 Nitrate (as NO₁). APELA method 23rd edition: 2017 mg/ 45 No relaxation 7.36 12 Odoor: IS 3025 (Part 5): 2018 Agreeable Agreeable Agrecable 13 IS 3025 (Part 11): 2022 6.5 to 8.5 No relaxation 6.87 at 25°C 14 Phenolic compounds (as C.H.OH) 1S 3025 (Part 43/Sec 1): 1992 mg/l 0.001 0.002 BDL (DL-0.001) 15 Sulphate (as SO₄) trip/ IS 3025 (Part 24): 2022 200 400 13,87 16 Taste IS 3025 (Part 8): 1984 Agrecable Agreeable Agrecable 17 Total dissolved solids mg IS 3025 (Part 16): 2023 500 2000 472

IS 3025 : (Part 10): 2023

IS 3025 (Part 21) : 2009

Please refer last Page for Note and Remarks.

NIU

mg/L

Verified By

Total hardness (as CaCO₁)

Turbidity

18

19

Snehal Raut Technical Manager Authorized Signatories

200

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

600

0.2

188.42



Anacon Laboratories Pvt. Ltd. Nagpur Lab

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Test Report

The second secon	LPL/25062024/1-97C	dated 257	06/2024		Page 2 of 3
Issued To: M/s Kalamang Iron Mine (M/s TATA Steel Limited) Sample Name Sample Source Ground Water Dugwell		Sample Inward No. Inward Date	ALPL/21062024/ENV-131-C/W-1 21/06/2024	Analysis Start 22/06/20 Analysis End 25/06/20 Report Issue Date 25/06/20 Sample Category Water Quantity Received	
		Sample Country		Quantity Re 5.0 Lir & 2:	ceived 50 ml
	Sample Collected By Anacon Representative		Sampling Time 11,50 am to 3.20 pm	Sampling Location Guali Village	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Acceptable Permissible	
II.	Chemical Testing 2. Residu	es In Water				
20	Arsenic (as As)	mg/l	1S 3025 (Part 37): 2022	0.01	No relaxation	BDL (DL = 0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2): 2019	0.03	0.2	BDL (DL - 0.02)
22	Boron (as B)	mg/L	15 3025 (Part 2): 2019	0.5	2.4	BDL (DL - 0.02)
23	Copper (as Cu)	mg/I	18 3025 (Part 2): 2019	0.05	1.5	BDL (DL - 0.02)
24	Cadmium (as Cd)	mg/l	15 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL+0.002)
25	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	1.0	No relaxation	0.17
26	Lead (as Pb)	mg/I	15.3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL = 0.01)
27	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019	0.1	0.3	BDL (DL-0.02)
28	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL - 0.001)
29	Selenium (as Se)	mg/l	1S 3025 (Part 5A): 2003	0.01	No relaxation	BDL (DL-0.01)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL = 0.02)
31	Zinc (as Zn)	mgri	IS 3025 (Part 2): 2019	5	.15	BDL (DL - 0.02)
32	Polymuclear aromatic hydrocarbon (PAH)	Тдц	ANto 7.2/RES/01: 2018	1.0	No relaxation	BDL(DL-0.03)
33	Mineral Oil	mg/l	ANtr/7.2/RES/06	1	No relaxation	BDL (DL - 0.001)

Please refer last Page for Note and Remarks.

Verified By

Nidhi Dubey Deputy Technical Manager: Swati Gondhalekar

Authorized Signatory

Dr. (Mrs.) S.D. Garway



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Issued To : M/s Kalamang Iron Mine		Sample Inward No. ALPL/21062024/ENV-131-GW-1		Analysis Start	Page 3 of 3 22/06/2024	
		Inward Date	21/06/2024	Analysis End	25/06/2024	
(M/s TATA Steel L	imited)			Report Issue Date 25/ Sample Category Wa		
Sample Name Sample Source Ground Water Dugwell Sample Collected By Anscon Representative		The second secon		Quantity Re 5.0 Ltr & 2		
		Sampling Date 14/06/2024	Date Sampling Time Sampling		ention	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method		18 105 (Drinking Wat	nent as per 00 : 2012 or Specifications) nendment No. 4	Test Result
7.4	B			Ac	ceptable Limit	Permissible Limit #	
34	Pesticide Residues Organochloris						
-1	Alpha-HCH	Pare	ANo/7.2/RES/01: 20	to the same of the	0.01	No relaxation	BDL (DL = 0.01)
11	Beta-HCH	Res	ANI07.2/RES/01: 20		9.04	No referation	BDL (DL - 0.03)
iii.	Gumma - HCH (Lindanc)	lac	ANti/7.2/RES/01: 20	018	2	No relaxition	BDL (DL - 0.03)
ix	Delta-HCH	Resi	ANti/7 2/RES/01: 2	810	0.04	No relaxation	BDL (DL - 0.03)
y	Alachior	Papir	ANii/7.2/RES/01: 2/	310	20	No relaxation	BDL (DL - 0.03)
Vi	Aldrin	Pari	ANn/7.2/RES/01: 20	310	0.03	No relaxation	BDL (DL+0.03)
VII	Dieldrin	Papi	ANte/7-2/RES/01: 20	310	0.03	No relaxation	BDL (DL + 0.03)
viii	Butachlor	jigs/I	ANtr/7.2/RES/01: 20	018	125	No relaution	BDL (DL + 0.03)
ix	p.pDDE	Jug-T	ANte/7.2/RES/01: 2/	018	1	No relaxation	BDL (DL - 0.03)
X	a.pDDE	Figit	ANn/7.2/RES/01: 20	018	I	No relacation	BDL (DL - 0.03)
Xi	p.p -DDD	119/1	ANtr/7.2/RES/01-26	918		No relaxation	BDL (DL -0.03)
XII	o,p'-DDD	Тен	ANtr/7.2/RES/01-20	018	T	No relaxation	BDL (DL = 0.03)
XIII	o.p - DDT	ug/i	ANtr/7_2/RESMI 20	018	T	No relaxation	BDL (DL = 0:03)
SIE	p.p'- DOT	Figh	ANtr/7,2/RES/01:20		1	No relaxation	BDL (DL - 0.03)
XY	Monocrotophes	1107	ANti/7.2/RES/01. 20		1	No relaxation	HDL (DL = 0.03)
XVI	Ainteine	1107	ANI/7,2/RES/01, 20		2	No relacation:	BDL (DL - 0.03)
XXII	Parathion methy!	Hg/I	ANtr/7:2/RES/01: 20		0.3	No relaxation:	BDL (DL - 0.03)
xviii	Parasson methyl	µg/1	ANtr/7.2/RES/01-20		100	4	BDL (DL - 0.03)
xix	Malathina	pagri	ANtr/7.2/RES/01: 20		190	No relaxation	BDL (DL - 0.03)
XX	Malacron	HW/T-	ANI/7/2/RES/01-20	Address of the Control of the Contro	*	1.151 ENTHERMISOR	BDL (DL - 0.03)
330	Ethion	_ pg/l	ANt/7/2/RES/01/20	-	- 3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	Teti-	ANt/7.2/RES/01-26	-	30	No relaxation	BDL (DL - 0.03)

NOTE: • Piesse see watermark: "Original Test Report to confirm the authenticity of this report.• Results shall be referred to tested sample(s) and applicable to tested parameters only.
• Test report shall now be reproduced except in full without prior written approval of Amount Labs. • Liability of Amount Labs is limited to invoiced amount only. • Non-periolable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. • input in observe of an alternate source for displaying water. • input is equivalent to 'poin'. • 'poil' is equivalent to 'poin'. • 'poil' is equivalent to 'poin'. • BOL- Below detection limit. • DL- DL Indicates detection limit of instrument functional and shall be considered as 'absent'. • Result for test no. 8 is not relevant. • ANte/7,2/RES-01,06; Johnson validated method. • NT indicates not Tested as analysis taked to establish safely executed.

REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per 1S: 10500:2012, for tests conducted only.

Verified By

Swati Gondhalekur Deputy Technical Manager

---End of Report----

Authorized Signatory



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Test Report

Issued To:		A dated 25/0 Sample Inward No.	ALPL/21062024/ENV-131-GW-2	Page 1 of 3		
	LOCAL WATER			Analysis Start	22/06/2024	
M/s Kalamang Iron Mine		Inward Date 21/06/2024		Analysis End	25/06/2024	
(M/s TATA Steel L	imited)			Report Issue Date 25/06/ Sample Category Water		
Sample Name Ground Water	Sample Source Dogwell	Sample Particulars Sample Code-GW-2	Selection of the Complete Comp	Quantity Received 5.0 Ltr & 250 ml Sampling Location Kalamong Village		
Sample Co Anacon Rep		Sampling Date 14/06/2024	Sampling Time 11.50 um to 3.20 pm			

	War Thornes String 1992		4/06/2024 11.50 un	1 to 3,20 pm	Kalamon	Village
			TEST RESULTS		d)	
S.N.	Test Parameter	Measurement Unit	Test Method	IS 1050 (Drinking Wate	rent as per 0 : 2012 or Specifications) endment No. 4	Test Result
				Acceptable Limit	Permissible Limit#	
i.	Biological Testing I. Water			4 3		-
1	Escherichia culi	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
H	Chemical Testing 1. Water					
2	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23): 1986	200	600	194.27
3	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27/Sec 1): 2021	0.05	No relaxation	BDL (DL - 0.005
6	Chloride (as C1)	mg/l	IS 3025 (Part 32):1988	250	1000	23.87
7	Calcium (us Ca)	mg/l	IS 3025 (Part 40): 1991	75	200	51.39
8	Free Residual Chlorine	mg/l	IS 3025 (Part 26): 2021	Min. 0.2	1	BDL (DL - 0.1)
9	Fluoride (as F)	mg/I	IS 3025 (Part 60) ± 2008	1.0	1.5	0.21
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46): 1994	30	100	14.83
11	Nitrate (as NO ₁)	Pam	APITA method 23rd edition: 2017	45	No relaxation	7.62
12	Odour		IS 3025 (Part 5): 2018	Agreeable	Agreeable	Agrecable
13	pH	-	IS 3025 (Part 11): 2022	6.5 to 8.5	No relaxation	6.81 at 25°C
14	Phenolic compounds (as CaHaOH)	rng/I	IS 3025 (Part 43/Sec 1): 1992	0.001	0.002	BDL (DL - 0.001
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24): 2022	200	400	7.16
16	Taste	-	IS 3025 (Part 8): 1984	Agrecable	Agrecable	Agreeable
17	Total dissolved solids	mg/l	1S 3025 (Part 16): 2023	500	2000	482
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	5	0.3
19	Total hardness (as CoCO ₁)	raggi	IS 3025 (Part 21): 2009	200	600	189 38

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut Technical Manager Authorized Signatories

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Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Test Report No. : / Issued To :		The second secon	AND DESCRIPTION OF THE PROPERTY OF THE PROPERT	Page 2 of 3		
2001 California	Sample Inward No.	ALPI/21062024/ENV-131-GW-2	Analysis Start	22/06/2024		
M/s Kalamang Iron Mine		Inward Date 21/06/2024		Analysis End	25/06/2024	
(M/s TATA Steel Li	mited)			Report Issue Date 25/06 Sample Category Water		
Sample Name Ground Water					y Received & 250 ml	
Sample Co Anacon Rep		Sampling Date 14/06/2024	Sampling Time 11,50 am to 3,20 pm	Sampling Location Kalamong Village		

TEST RESULTS Requirement as per IS 10500: 2012 (Drinking Water Specifications) Measurement SN Test Parameter Test Method Test Result Unit Including Amendment No. 4 Acceptable Permissible. Limit Limit # H Chemical Testing 2. Residues In Water 26 Arsenic (as As) IS 3025 (Part 37): 2022 mg/l 10.0 No relaxation BDL (DL - 0.01) 21 Aluminium (as Al) Tgm IS 3025 (Part 2): 2019 0.03 0.2 BDL (DL = 0.02) 22 Boron (as B) mg/l IS 3025 (Part 2): 2019 0.5 2.4 BDL (DL + 0.02) 23 Copper (as Cu) IS 3025 (Part 2): 2019 mg/10.05 1.5 BDL (DL + 0.02) Cadmium (as Cd) IS 3025 (Part 2): 2019 24 mg/I 0.003 No relaxation BDL (DL + 0.002) 25 Iron (as Fe) IS 3025 (Part 2): 2019 1.0 mg/l No relaxation 0.2426 Lead (as Pb) IS 3025 (Part 2): 2019 0.01 Pans No relaxation BDL (DL - 0.01) 27 Manganese (as Mn) IS 3025 (Part 2): 2019 0.1 BDL (DL - 0.02) mg/l 0.3

IS 3025 (Part 48): 1994

IS 3025 (Part 56): 2003

IS 3025 (Part 2): 2019

IS 3025 (Part 2): 2019

ANt:/7.2/RES/01: 2018

ANtr/7.2/RES/06

0.001

0.01

0.05

5

0.1

No reluxation

No relaxation

No relacuation

15

No relaxation

No relaxation

Please refer last Page for Note and Remarks.

Verified By

Nidhi Dubey

28

29

30

31

32

33

Mercury (as Hg)

Selenium (as Se)

Zinc (as Zn)

Mineral Oil

Total Chromium (as Cr)

Polynuclear aromatic

hydrocarbon (PAH)

Swati Gondbalekar Deputy Technical Mossoci

mg/l

mg/

merl

mg/1

Hg/I

TOUR!

Authorized Signatory

BDL (DL + 0.001)

BDL (DL-0.01)

BDL (DL + 0.02)

BDL (DL = 0.02)

BDL(DL-0.03)

BDL (DL - 0.001)

Dr. (Mrs.) S.D. Garway



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Issued To : M/s Kalamang I (M/s TATA Steel L		Sample Inward No. Inward Date	ALPL/21062024/ENV-131-GW-2 21/06/2024 Analysis Start Analysis End Report Issue Dat Sample Category		22/06/2024 25/06/2024 25/06/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particular Sample Code-GW-		Quantity R 5.0 Lir & 2	
Sample Collected By Anacon Representative		Sampling Date Sampling Time 14/06/2024 11.50 am to 3.20 pm		Sampling Location Kalamong Village	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method		18 105 (Drinking Wat	nent as per 00 : 2012 er Specifications) ocudment No. 4	Test Result
7.1	B 274 B 11 G 11 1			Acc	eptable Limit	Permissible Limit #	
34	Pesticide Residues Organochlori						
+	Alpha-HCH	rg/l	ANIE/7 2/RES/01 20		0.01	No relaxation	BDL (DL = 0.01)
11	Beta HCH	Tgu	ANu/7.2/RES/01-20	310	0.04	No relacation	BDL (DL = 0.03)
311	Gumma - HCH (Lindane)	Rgu	ANII/7-2/RES/01: 20	310	2	No retroation	BDL (DL - 0.03)
iv	Delta- HCH	изЛ	ANW/7.2/RES/01: 20	118	0.04	No reluxation	BDL (DL - 0.03)
Y	Alachlor	Jig/I	ANtr/7.2/RES/01: 20	118	20	No relaxation	BDL (DL + 0.03)
Vi.	Aldrin	31,35/\$	ANtr/7.2/RES/01: 20	810	0.03	No relaxation	BDL (DL - 0.03)
VII	Dicldrin	Pgq.	ANtr/7.2/RES/01-20	HE	0.03	No relaxation	BDL (DL - 0.03)
viii	Butachior	да/1	ANtr/7,2/RES/01.20	18	125	No relacution	BDL (DL + 0.03)
1X:	psp=DDE	pg/1	ANti:/7.2/RES/01: 20	318		No relasation	BDL (DL = 0.03)
X	0,p"+DiOH	1/8/4	ANti/7.2/RES/01:20		1	No relaxation	BDL (DL - 0.03)
Si	p.p -DOD	pg/l	ANI/7.2/RES/01:20		1	No relixation	BDL (DL = 0.03)
xii	o.p -DDD	1/9/1	ANI/7 2/RES/01: 20		1	No refusation	BDL (DL - 0.03)
xiii	o.p'-DDT	310/1	ANIt/7.2/RES/01-20		1	No relacation	BDL (DL - 0.03)
xiv	p.p'- DOT	нрп	ANtr/7.2/RES/01: 20	-	1	No religation	BOL (DL - 0.03)
XV	Monocrosophos	µg/l	ANU/7.2/RES/01: 20		1	No relaxation	BDL (DL + 0.03)
XXI	Atrazine	10/1	ANti/7.2/RES/01: 20		2	No relaxation	BDL (DL - 0.03)
KVII	Parathion methyl	H6/3	ANtr/7.2/RES/01.20	-	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraexon methyl	ug/i	ANtr/7.2/RES/01-20			A STATISTICAL PROPERTY.	BDL (DL - 0.03)
nin	Malathica	pg/l	ANtr/7.2/RES/01-20		190	No relaxation	BDL (DL+0.03)
XX	Malacison	PRU	ANto7.2/RES/01:20	11.77	. 1.737	130 SARKARAN	BDL (DL - 0.03)
xxi	Ethion	Pgu	ANtr/7.2/RES/01:20		3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos.	Pgu -	ANtr/7.2/RES/01: 20		30	No relaxation	BDL (DL - 0.03)

NOTE: Plane see waterouth "Original Test Report" to confirm the authenticity of this report. Results shall be seferred to tested sample(s) and applicable to tested parameters only.

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REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per 1S: 10500:2012, for tests conducted only.

Verified By

Swati Gondhalekar Deputy Technical Manager Authorized Signatory

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

---End of Report----



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Test Report

Issued To:		Sample Inward No.	ALPL/21062024/ENV-131+GW-3	Analysis Start	Page 1 of 3 22/06/2024
M/s Kalamang I		Inward Date 21/06/2024		Analysis End	25/06/2024
(M/s TATA Steel L	imited)			Report Issue Date Sample Category	25/06/2024 Water
Sample Name Ground Water	Sample Source Dogweil	Sample Particular Sample Code-GW		Quantity R 5.0 Ltr & 2	
Sample Co Anacon Rep	ollected By presentative	Sampling Date 14/06/2024	Sampling Time 11.50 am to 3.20 pm	Sampling L Sagasahi V	

TEST RESULTS Requirement as per-IS 10500: 2012 Measurement (Drinking Water Specifications) S.N. Test Parameter Test Method Test Result Including Amendment No. 4 Unit Acceptable Permissible Limit Limit # Biological Testing 1, Water Escherichia eali Per 100 mt IS 15185: 2016 Absent Absent Absent П Chemical Testing 1. Water Total Alkalinity 2 mg/T IS 3025 (Part 23): 1986 200 600 176.29 (as Calcium Carbonate) 3: Anionic Detergents (as MBAS) mg/T IS 13428 : (Annex K): 2005 0.2 1.0 BDL (DL - 0.01) 4 Colour Hazen units IS 3025 (Part 4) : 2021 13 5 Cyanide (as CN) IS 3025 (Part 27/Sec 1); 2021 171(2/) 0.05 No relaxation BDL (DL - 0,005) Chloride (as CI) 6 mg/l IS 3025 (Part 32):1988 250 1000 23.87 7 Calcium (as Ca) mg/l IS 3025 (Part 40): 1991 75 200 47.36 8 Free Residual Chiorine IS 3025 (Part 26): 2021 mg/l Min. 0.2 BDL (DL = 0.1) 9 Fluoride (as F) mg/l IS 3025 (Part 60): 2008 1.0 1.5 0.16 10 Magnesium (as Mg) mg/l 15 3025 (Part 46): 1994 30 100 11.67 11 Nitrate (as NO₃) APHA method 23rd edition: 2017 45 mg/lNo relaxation 6.92 12 Odour IS 3025 (Part.5): 2018 40 Agreeable Agreeable Agreeable 13 pH IS 3025 (Part 11): 2022 6.5 to 8.5 No relexation . 7.26 at 25°C 14 Phenolic compounds (as C_cH_cOH) IS 3025 (Part 43/Sec. 1): 1992 0.001 mg/I 0.002 BDL (DL-0.001) 15 Sulphate (as SO.) mg/l

IS 3025 (Part 24): 2022

IS 3025 (Part 8): 1984

IS 3025 (Part 16): 2023

IS 3025 : (Part 10): 2023

IS 3025 (Part 21) : 2009

Please refer last Page for Note and Remarks.

.

mg/l

NIU

me/I

Verified By

Total dissolved solids

Total hurdness (as CaCO₁)

16

17

18

19

Tuste

Turbioity

Technical Manager

Authorized Signatories

200

Agrecable

500

200

Technical Manager

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

400

Agreeable.

2000

5

600

7.39

Agrecable

487

0,3

166.33



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Test Report

Test Report No. : /	A	Sample Inward No.	dated 25/06/2024 ofe Inward No. ALPL/21062024/ENV-131-GW-3		Page 2 of 3 22/06/2024
M/s Kalamang I (M/s TATA Steel L		Inward Date	21/06/2024	Analysis Start Analysis End Report Issue Date Sample Category	25/06/2024 25/06/2024 Water
Sample Name Ground Water	Sample Source Dogwell	Sample Particular Sample Code-GW-	The Contract of the Contract o	Quantity Ro	
Sample Co Anacon Rep		Sampling Date 14/05/2024	Sampling Time 11.50 am to 3.20 pm	Sampling L Sagasahi \	ocation

			TEST RESULTS			
S.N.	Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wat	ment as per 00 : 2012 er Specifications) nendment No. 4	Test Result
				Acceptable Limit	Permissible Limit#	
11	Chemical Testing 2. Residu	es In Water				
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 2022	0.01	No relaxation	BDL (DL + 0.01)
21	Aluminium (as Al)	mg/l	15 3025 (Part 2): 2019	0.03	0.2	BDL (DL = 0.02)
22	Boron (as B)	figm	15 3025 (Part 2): 2019	0.5	2.4	BDL (DL + 0.02)
23	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	0.05	1.5	BDL (DL - 0.02)
24	Cadmium (as Cd)	mg/l	IS 3025 (Part 2): 2019	0.003	No reluxation	BDL (DL + 0.002)
25	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.21
26	Lead (as Pb)	mg/l	IS 3025 (Part 2) 12019	0.01	No relaxation	BDL (DL - 0.01)
27	Manganese (as Mn)	mgrl	IS 3025 (Part 2): 2019	0.1	0.3	BDL (DL - 0.02)
28	Mercury (as Fig)	10130/	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL - 0.001)
29	Selenium (as Se)	Parm	18 3025 (Part 56): 2003	0.01	No relevation	BDL (DL-0.01)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL - 0.02)
31	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	5	15	BDL (DL = 0.02)
32	Polynuclear aromatic hydrocarbon (PAH)	μμ/ί	ANto-7.2/RES/01: 2018	1.0	No relaxation	BDL(DL-0.03)
33	Mineral Oil	mg/l	ANtr/7.2/RES/06	1	No relaxation	BDL (DL - 0.001)

Please refer last Page for Note and Remarks.

Verified By

Nidhi Dubey Deputy Technical Manager Swati Gondhalekar Deputy Technical Manager Authorized Signatory



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Test Report

Issued To:	ALPL/25062024/1-11	The second secon	Sample Inward No. ALPL/21062024/ENV-131-GW-3		Page 3 of 3		
TO 1000 TO 100	ann Affina			Analysis Start	22/06/2024		
M/s Kalamang I		Inward Date	21/06/2024	Analysis End 25/06/2			
(M/s TATA Steel L	imited)			Report Issue Date Sample Category	25/06/2024 Water		
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-3		Quantity Re 5.0 Ltr & 2:			
Sample Collected By Anacon Representative		Sampling Date 14/06/2024	Sampling Time 11.50 am to 3.20 pm	Sampling Location Sagasahi Village			

TEST RESULTS

S.N.	Test Parameter	L'mir Iric		IS 105 (Drinking Wat	nent as per 00 : 2012 er Specifications) sendment No. 4	Test Result		
2.7				Acer	eptable Limit	Permissible Limit #	W.	
34	Pesticide Residues Organochloris							
1	Alphu-HCH	Pgq	ANtr/7.2/RES/01 20		0.01	No relaxation	BDL (DL - 0.01)	
#	Beta HCH	pgr	ANtr/7.2/RES/01-20	318	0.04	No relacation	BDL (DL - 0.03)	
iii	Gamma - HCH (Lindane)	pig/l	ANtr/7.2/RES/01.20	118	2	No relacation	BDL (DL - 0.03)	
IV:	Delta-HCH	pig/1	ANtr/7.2/RES/01: 20	181	0.04	No relucation	BDL (DL+6/93)	
Y	Alachier	Figur	ANte7.2/RES/01:20	ntx	20	No reluxation	BDL (DL = 0.03)	
10	Aldrin	YIB/T	ANIL/7,2/RES/01:20	118	0.03	No relixation	BDL (DL - 0.03)	
311	Dieldrin	140/	ANti/7.2/RES/01:20	810	0.03	No relucation	BDL (DL - 6.03)	
YHI	Batachlor:	1/0/1	ANti/7,2/RES/01; 20	18	125	No relaxation	BDL (DL = 0.03)	
1X	p.pDDE	ug/l	ANu/7.2/RES/01: 20	IRI	1	No religiation	BDL (DL + 0.03)	
X	o.pDDE	319/1	ANItr/7.2/RES/01: 20	810	1	No relaxation	BDL (DL - 0.03)	
xi	p.p'-DDD	1127	ANti/7.2/RES/01:20	810	1	No relaxation	BDL (DL - 0.03)	
xii	a,p'-DDD	pg/l	AND/7/2/RES/01: 20	018	1	No relucation	BDL (DL - 0.03)	
XIII	0,0'- DDT	Page	ANU/7.2/RES/01: 20	18	1	No relaxation	BDL (DL - 0.03)	
MY.	p.p - DDT	µg/l	ANti/7.2/RES/01; 20	18	1	No religiation	BDL (DL + 0.03)	
AV	Monocrotophos.	Page	ANNOT 2/RESON: 20		1	No refuxation	BDL (DL = 0.03)	
337	Atrazine	µg/l	ANtr/7.2/RES/01: 20	310	2.	No religation	BDL (DL+0.03)	
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 20	18.	0.3	No relaxation	BDL (DL - 0.03)	
xxiii	Paraoxon metbyl	ug/l	ANtr/7.2/RES/01: 28		+		BDL (DL - 0.03)	
XIX	Malathion	Hg/7	ANti/7.2/RES/01: 20	-	190	No relaxation	BDL (DL = 0.03)	
3.5	Maluaxon	107	ANto/7.2/RES/01; 20	310			BDL (DL + 0.03)	
333	Ethicus	Figs.	ANtr/7.2/RES/01: 20	SIS	3	No relaxation	BDL (DL -0.03)	
sxii	Chlorpyrifos	92/1	ANtr/7-2/RES/01: 20	318	30	No relaxation	BDL (DL = 0.03)	

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

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REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per IS: 10500;2012, for tests conducted only.

Verified By

Swati Gondhalekar Deputy Technical Manager Authorized Signatory

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

---End of Report----



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Test Report

Issued To:		Sample Inward No.	Sample Inward No. ALPL/21062024/ENV-131-GW-4		Page 1 of 3 Analysis Start 22/06/2024		
M/s Kalamang I (M/s TATA Steel L		Inward Date	21/06/2024	Analysis End 25/06 Report Issue Date 25/06 Sample Category Wate			
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-4	- Conference and Conf	Quantity Re	rived		
Sample Co Assoon Rep		Sampling Date 14/06/2024	Sampling Time 11.50 am to 3.20 pm	Sampling Location Gandalpada Village			

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Text Method	IS 1050 (Drinking Wate	ent as per 0 : 2012 r Specifications) endment No. 4	Test Result
					Permissible Limit#	
1	Biological Testing I. Water			1. P. T.		
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent.	Absent
11	Chemical Testing L Water		100			
2	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23): 1986	200	600	176.39
3	Anionic Detergents (as MBAS)	mg/I	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Huzen units	IS 3025 (Part 4) : 2021	5	15	1
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27/Sec 1): 2021	0.05	No relaxation	BDL (DL - 0.005)
6	Chloride (as CI)	mg/l	IS 3025 (Part 32):1988	250	1000	21.46
7	Calcinm (as Ca)	mg/I	IS 3025 (Part 40): 1991	75	200	51.87
8	Free Residual Chlorine	mg/I	IS 3025 (Part 26): 2021	Min. 0.2	1	BDL (DL - 0.1)
9	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	1.0	1.5	0.17
10	Magnesium (as Mg)	mg/L	IS 3025 (Part 46): 1994	30	100	12.94
11	Nitrate (as NO _s)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	8.52
12	Odour		IS 3025 (Part 5) : 2018	Agrecable	Agrecable	Agreeable
13	pH		IS 3025 (Part 11): 2022	6.5 to 8.5	No retaxation	6.87 nt 25°C
14	Phenolic compounds (as C ₄ H ₅ OH)	mg	IS 3025 (Part 43/Sec 1): 1992	0.001	0.002	BDL (DL - 0.001)
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24): 2022	200	400	6.52
16	Taste	+	IS 3025 (Part 8): 1984	Agreeable	Agreeable	Agreeable
1.7	Total dissolved solids	tng/I	IS 3025 (Part 16): 2023	500	2000	463
18	Turbidity	NTU	1S 3025 : (Part 10): 2023	1	5	0.2
19	Total hardness (as CaCO ₃).	mg/l	IS 3025 (Part 21): 2009	200	600	182.82

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut Technical Manager Authorized Signatories

Technical Mänager



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Test Report

Test Report No. :	ALPL/25062024/1-12				Page 2 of 3
Issued To:		Sample Inward No. ALPL/21062024/ENV-131-GW-4		Analysis Start	22/06/2024
M/s Kalamang Iron Mine		Inward Date 21/06/2024		Analysis End	25/06/2024
(M/s TATA Steel L	imited)			Report Issue Date Sample Category	25/06/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-	The second secon	Quantity R 5.0 Ltr & 2	
Sample Co Anaoon Rep	To dell'unite and the second	Sampling Date 14/06/2024	Sampling Time 11.50 am to 3.20 pm	Sampling L Gandalpada	ocation

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wat	ment as per 00 : 2012 or Specifications) nendment No. 4	Test Result
				Acceptable Limit	Permissible Limit#	
11	Chemical Testing 2. Residu	es In Water				
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 2022	0.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (es Al)	ngil	1S 3025 (Part 2): 2019	0.03	0.2	BDL (DL - 0.02)
22	Boron (as B)	mg/l	IS 3025 (Part 2): 2019	0.3	2.4	BDL (DL - 0.02)
23	Copper (us Cu)	mg/l	IS 3025 (Part 2): 2019	0.05	1.5	BDL (DL - 0.02)
24	Cadmium (as Cd)	mg/l	15 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL = 0.002)
25	Iron (as Fe)	Fam	IS 3025 (Part 2): 2619	1.0	No relaxation	0.14
26	Lead (ns Pb)	mg/l	IS 3025 (Part 2): 2019	0.01	No relaxation	BDL (DL - 0.01)
27	Manganese (as Mn)	Lam	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL - 0.02)
28	Mercury (as Hg)	mg/l	1S 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL - 0.001)
29	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL+0.01)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL - 0.02)
31	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	5	15	BDL (DL + 0.02)
32	Polynuclear aromatic hydrocarbon (PAH)	Pau	ANti/7/2/RES/01: 2018	0.1	No relocation	BDL(DL-0.03)
33	Mineral Oil	mg/l	ANte/7.2/RES/06	1	No reluxation	BDL (DL - 0.001)

Please refer last Page for Note and Remarks.

Verified By

Nidhi Dubey Deputy Technical Manager Stati Gondhalekar

Swati Gondhalekar Deputy Technical Manager Authorized Signatory



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Test Report No.: A	ALPL/25062024/1-T:	A dated 25/0	6/2024	Page 3 of 3		
Issued To:		Sample Inward No. ALPL/21062624/ENV-131-GW-4		Analysis Start	22/06/2024	
M/s Kalamang I		Inward Date	21/06/2024	Analysis End	25/06/2024	
(M/s TATA Steel Li	mited)			Report Issue Date Sample Category	25/06/2024 Water	
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-4		Quantity Re 5.0 Ltr & 25		
Sample Co Anacon Rep	Printer and the second	Sampling Date 14/06/2024	Sampling Time 11.50 am to 3.20 pm	Sampling Location Gandalpada Village		

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	9	15 105 (Drinking Wat	nent as per 00 : 2012 or Specifications) sendment No. 4	Text Result	
34	B-441 B-41 C			Accep	stable Limit	Permissible Limit#		
34	Pesticide Residues Organochloria							
(F	Alphu-HCH	Pgq	ANtr/7,2/RES/01-20		0.01	No rehozation	BDL (DL + 0.01)	
H	Beta HCH	149/1	ANti/7.2/RES/01: 20		0.04	No relaxation	BDL (DL - 0.03)	
iii	Gamma - HCH (Lindans)	10/0	ANto/7.2/RES/01-20		2	No relacation	BDL (DL - 0.03)	
iv	Delta- HCH	112/	ANt/7.2/RES/01.20	318	0.04	No relevation	BDL (DL - 0.03)	
W.	Alachior	1187	ANtr/7.2/RES/01:20	118	20	No relievation	BDL (DL = 0.03)	
vi	Aldrin	1007	ANto7.2/RES/01/20	718	0.03	No relavation	BDL (DL = 0.03)	
Vii.	Dieldrin	ив/1	ANtr/7,2/RES/01:20	310	0.03	No relaxation	BDL (DL - 0.03)	
VIII	Butachlor	Papie	ANti/7.2/RES/01: 20	310	125	No relaxation	BDL (DL - 0.03)	
ix	p.pDDE	Papa	ANI/7.2/RES/01: 20	18	1	No relaxation	BOL (DL - 0.03)	
X	o.pDDE	µg/l	ANto7.2/RES/01:20	018	1	No relaxation	BDL (DL - 0.03)	
3.1	p.pDDD	14g/l	ANto/7.2/RES/01: 20	310	1	No relaxation	BDL (DL - 0.03)	
3.0	o.pDDD	ug/l	ANti/7.2/RES/01:20	18	1	No relaxation	BDL (DL - 0.03)	
XIII	o.p DDT	ле/і.	ANU/T/2/RES/01: 20	118	- 1	No relaxation	BDL (DL - 0.03)	
xiv.	p.p - DDT	Page	ANto/7/2/RES/01: 20	310	1	No retrostion	BDL (DL -0.03)	
AV.	Monocrotophos.	Jug/T	ANto/7.2/RES/01: 20	its .	1.	No relaxation	BDL (DL -0.03)	
xxi	Atrazine	pg/l	ANtt/7.2/RES/01: 20		2	No relaxation.	BDL (DL+0.03)	
xvii	Parathion methyl	fign.	ANtr/7.2/RES/01: 20		0.3	No relaxation	BDL (DL + 0.03)	
xviii	Paracison methyl	Fgs	ANtr/7.2/RES/01: 26		+		8DL (DL + 0.03)	
XXX	Malathion	Fgq	ANto/7/2/RES/01: 20		190	No relaxation	BDL (DL +0.03)	
XX	Mataoson	Fast	ANte/7.2/RES/01: 20			*	BDL (DL - 0.03)	
KKI	Ethion	fgg.	ANtr/7.2/RES/01; 26	And the second second	3	No relaxation	BDL (DL - 0.03)	
MA	Chlorpyrifes	pg/l	ANtr/7.2/RES/01: 20	8.19	30	No relaxation	BDL (DL - 0.03)	

REMARKS: As requested by the client, sample was rested for above parameters only. The submitted sample complies with requirement as per 18: 10500:2012, for tests conducted only.

Verified By

Chindan 6

Swati Gondhalekar Deputy Technical Manager Authorized Signatory

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

----End of Report----



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Test Report

Issued To:		Sample Inward No.	ALPL/21062624/ENV-131-GW-5	Analysis Start	Page 1 of 3 22/06/2024
M/s Kalamang I		Inward Date	21/06/2024	Analysis End	25/06/2020
(M/s TATA Steel Li	mited)			Report Issue Date Sample Category	25/06/2024 Water
Sample Name Ground Water	Sample Source Dagwell	Sample Particular Sample Code-GW-		Quantity Re 5.0 Ltr & 2	
Sample Co Anacon Rep		Sampling Date 14/06/2024	Sampling Time 11.50 am to 3.20 pm	Sampling Le Sunindpur	ecation

TEST RESULTS Requirement as per 15 10500 : 2012 Measurement (Drinking Water Specifications) S.N. Test Parameter Test Method Test Result Unit Including Amendment No. 4 Acceptable Permissible Limit Limit # 1 Biological Testing 1. Water Escherichia coli 1 Per 100 ml IS 15185: 2016 Absent Absent. Absent Chemical Testing L. Water 11 Total Alkalinity 2 IS 3025 (Part 23): 1986 mg/l 200 600 168.27 (as Calcium Carbonate) 3 Anionic Detergents (as MBAS) mg/l IS 13428 : (Annex K): 2005 0.21.0 BDL (DL - 0.01) 4 Colour Hazen units IS 3025 (Part 4): 2021 5 15 5 Cyanide (ns CN) IS 3025 (Part 27/Sec 1): 2021 mg/I 0.05 No relaxation BDL (DL - 0,005) Chloride (as CI) 6 IS 3025 (Part 32):1988 mg/l 250 1000 23.87 7 Calcium (as Ca) mg/l IS 3025 (Part 40): 1991 200 47.31 8 Free Residual Chlorine mg/I IS 3025 (Part 26): 2021 Min. 0.2 BDL (DL - 0.1) 9 Fluoride (as F) IS 3025 (Part 60): 2008 mg/l 1.0 1.5 0.17 Magnesium (as Mg) 10 30 mg/I IS 3025 (Part 46): 1994 100 13,68 П Nitrate (us NO₃) mg/l APHA method 23rd edition: 2017 45 9.36 No relaxation 12 Odour IS 3025 (Part 5): 2018 Agrecuble Agrecable Agrecable 13 pH IS 3025 (Part 11): 2022 6.5 to 8.5 No relaxation 6.84 at 25°C 14 Phenolic compounds (as C_sH_tOH) 18 3025 (Part 43/Sec 1): 1992 mgrl 0.001 0.002 BDL (DL - 0.001) 15 Sulplante (as SO₄) mg/l IS 3025 (Part 24): 2022 200 400 7.92 16 Taste IS 3025 (Part 8): 1984 Agreeable Agrecable Agreeable 17 Total dissolved solids IS 3025 (Part 16): 2023 mg/I 500 2000 471 18 Turbidity NTU IS 3025 : (Part 10): 2023 0.6 -5 Total hardness (as CaCO₁)

IS 3025 (Part 21): 2009

Please refer last Page for Note and Remarks.

Verified By

Technical Manager

Authorized Signatories

200

Technical Manager

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

174.46

600



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MIDC Butibori, Nagpur, Maharashtra, India - 441 122

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Test Report

Test Report No.:/	COLUMN CONTRACTOR (FILE			Page 2 of	.1
ssued To: M/s Kalamang Iron Mine		Sample Inward No. ALPL/21062024/ENV-131-GW-5		Analysis Start	22/06/2024
		Inward Date	21/06/2024	Analysis End	25/06/2024
(M/s TATA Steel L	mited)			Report Issue Date 25/06/2 Sample Category Water	
Sample Name Ground Water			Sample Condition Scaled & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml	
Sample Co Anacon Rep	Control of the Art of	Sampling Date 14/06/2024	Sampling Date Sampling Time		cation Village

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wat	ment as per 00 : 2012 er Specifications) nendment No. 4	Test Result
		500000		Acceptable Limit	Permissible Limit#	
11	Chemical Testing 2, Residu	es In Water			A Comment	
20	Arsenie (as As)	mg/l	IS 3025 (Part 37): 2022	0.01	No relaxation	BDL (DL = 0.01)
21	Aluminium (as Al)	mg/i	IS 3025 (Part 2): 2019	£0.0	0.2	BDL (DL - 0.02)
22	Boron (as B)	mg/I	IS 3025 (Part 2): 2019	0,5	2.4	BDL (DL + 0.02)
23	Copper (us Cu)	mg/l	IS 3025 (Part 2): 2019	0.05	1.5	BDL (DL - 0.02)
24	Cadmium (as Cd)	mg/I	IS 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL - 0.002)
25	fron (as I/c)	mg/l	1S 3025 (Part 2): 2019	1.0	No relaxation	0.24
26	Lead (as Pb)	mg/l.	IS 3025 (Part 2): 2019	10.0	No relocation	BDL (DL - 0.01)
27	Manganese (as Mn)	rig/I	IS 3025 (Part 2): 2019	0.1	0.3	BDL (DL -0.02)
28	Mercory (as Hg)	Tugm .	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL - 0.001)
29	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL=0.01)
30	Total Chromium (as Cr)	mg/l	18 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL - 0.02)
31	Zinc (os Zn)	mg/I	15 3025 (Part 2) : 2019	5	15	BDL (DL + 0.02)
32	Polynuclear aromatic hydrocarbon (PAH)	µg/l	ANtr/7.2/RES/01: 2018	0.1	No relaxation	BDL(DL-0.03)
33	Mineral Oil	Tgm	ANte/7.2/RES/06	- 1	No relaxation	BDL (DL - 0.001)

Please refer last Page for Note and Remarks.

Verified By

Nidhi Dubey Deputy Technical Manager

Swari Gondhalekar Deputy Technical Manager Authorized Signatory



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Test Report

Test Report No. :	ALPL/25062024/1-T3	A dated 25	06/2024		Page 3of 3
Issued To : M/s Kalamang I (M/s TATA Steel L		Sample Inward No. Inward Date	ALPL/21062024/ENV-131-GW-5 21/06/2024		22/06/2024 25/06/2024 25/06/2024 Water
Sample Name Ground Water			s Sample Condition 5 Sealed & Ice Preserved	Quantity Re 5.0 Ltr & 2	
Sample Collected By Anacon Representative		Sampling Date 14/06/2024	Sampling Time 11,50 nm to 3,20 pm	Sampling La Sunindpur	

TEST DESILITS

S.N.	Test Parameter	Unit. Including Amendment No. 4		500 : 2012 ster Specifications)	Test Result	
-				Acceptable Limit	Permissible Limit #	
34	Pesticide Residues Organochlori	tree -			ALC: NO	
1	Alpho-HCH	i/g/l	ANti/7.2/RES/01, 20	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	ug/I	ANtr/7.2/RES/01: 2/	118 0.04	No relaxation	BDi. (DL - 0.03)
iii	Gamma - HCH (Linduse)	pg/l	ANto/7.2/RES/01-20	18 2	No relication	BDL (DL - 0.03)
łv.	Delta-HCH	pg/l	ANtr/7.2/RES/01:20	0.04	No reliccation	BDL (DL - 0.03)
Y	Alachlor	ug/l	ANtr/7.2/RES/01: 20	18 20	No relaxation	BDE (DL - 0.03)
93	Aldrin	Pau	ANtr/7 2/RES/01: 20	18 0.03	No relaxation	BDL (DL - 0.03)
Vii.	Dieldrin	Page 1	ANtr/7.2/RES/01: 20	18. 0.03	No relaxation	BDL (DL - 0.03)
Mili	Botachlor	идЛ	ANtr/7.2/RES/01: 20	125	No relaxation	BDL (DL - 0.03)
ix:	P.PDDE	Taxi	ANIE/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
30	p.pDDE	Тац	ANu/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)
30	p.gr-DDD	JagyT.	ANti/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
XII	o.p*-DDD	Jug/T	ANte/7.2/RES/01/20	18	No relaxation	BDL (DL - 0.03)
XIII	o,p'- DDT	Pagit	ANtr/7.2/RES/01-20	18 1	No religation	BDL (DL - 0.03)
Xiv.	p.p - DET	Paul	ANte/7-2/RES/01/20	18	No relexation	BDL (DL - 0.03)
KV :	Manacentophos	l/guj	ANtr/7.2/RES/01: 20	18 1	No relecation	BDL (DL - 0.03)
XVI	Atrazine	Pari	ANu/7/2/RES/01: 20		No relaxation	BDL (DL - 0.03)
XVII	Parathion methyl	11g/l	ANtt/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
SVIII	Paraoson methyl	105/1	ANtr/7.2/RES/01-20		- 4	BDL (DL - 0.03)
XIX	Malathion	Paul	ANtr/7.2/RES/01-20		No relaxation	BDL (DL - 0.03)
NX.	Malacrion	1997	ANtr/7.2/RE5/01-20			BDL (DL ~ 0.03)
xxi	Ethion	1(0/1)	ANtr/7,2/RES/01: 20		No relaxation	BDL (DL - 0.03)
xxii	Chlorpyr/fos.	jigri	AND/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)

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REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample compiles with requirement as per 18: 10500:2012, for tests conducted only.

Verified By

Swati Gondhalekar

Deputy Technical Manager

Authorized Signatory

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

-End of Report---



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Test Report

Test Report No. : Al	LPL/05082024/1-9A	dated 05/	08/2024	Page 1 of 3	
Issued To : M/s Kalamang I (M/s TATA Steel L	ron Mine	Sample Inward No. ALPL/22072024/ENV-185-GW- Inward Date 22/07/2024		Analysis Start Analysis End Report Issue Date Sample Category	23/07/2024 30/07/2024 05/08/2024 Water
Sample Name Ground Water			s Sample Condition Sealed & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml	
Sample Co	ollected By Siri (Sky Lab)	Sampling Date Sampling T 18/07/2024 11.50 am to 3.		Sampling Lo Guali Vil	

	Mr. Biplab Giri (Sky Lab)	1	8/07/2024 11,30 min	10.2.20 pm	South 4	Timese
			TEST RESULTS			
S.N.	Test Parameter	Test Parameter Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
		50410		Acceptable Limit	Permissible Limit #	
1	Biological Testing 1. Water					
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent.	Absent
П	Chemical Testing 1. Water			1100		
2	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23): 1986	200	600	112.5
3	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	IS 3025 (Part 4): 2021	5	15	1
5	Cyanide (as CN)	mg/l	1S 3025 (Part 27/Sec 1); 2021	0.05	No relaxation	BDL (DL - 0.005
6	Chloride (as CI)	mg/l	IS 3025 (Part 32):1988	250	1000	54.63
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40): 1991	75	200	23.41
8	Free Residual Chlorine	mg/l	IS 3025 (Part 26): 2021	Min. 0.2	1	BDL (DL - 0.1)
9	Fluoride (us F)	mg/l	IS 3025 (Part 60): 2008	1.0	1.5	0.35
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46): 1994	30	100	12.68
11	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	9.4
12	Odour	- O.	IS 3025 (Part 5): 2018	Agreeable	Agreeable	Agreeable
13	pH	- 1000	IS 3025 (Part 11): 2022	6.5 to 8.5	No relaxation	7.24 at 25°C
14	Phenolic compounds (as C _s H _s OH)	mg/l	IS 3025 (Part 43/Sec 1): 1992	100.0	0.002	BDL (DL = 0.00)
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24): 2022	200	400	52.14
16	Taste		IS 3025 (Part 8): 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	1S 3025 (Part 16): 2023	500	2000	375
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	5	0.6
19	Total hardness (as CaCO ₂)	mg/l	IS 3025 (Part 21): 2009	200	600	110.60

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut Technical Manager **Authorized Signatories**

Pooja Kathade Technical Manager Chinmay Garway Deputy Quality Manager



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Test Report

Test Report No. : A	LPL/05082024/1-9A	dated 05/			Page 2 of 3
Issued To : M/s Kalamang I (M/s TATA Steel L	ron Mine	Sample Inward No. ALPL/22072024/ENV-185-GW Inward Date 22/07/2024		Analysis Start Analysis End Report Issue Date Sample Category	23/07/2024 30/07/2024 05/08/2024 Water
Sample Name Ground Water			Sample Condition Scaled & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml	
Sample Collected By Mr. Biplab Giri (Sky Lab)		Sampling Date 18/07/2024	Sampling Time 11.50 am to 3.20 pm	Sampling Location Guali Village	

	mar supane cana quay areay		TEST RESULTS			
s.N.	Test Parameter	Measurement Unit	Test Method	Test Method Requirer IS 105 (Drinking Wat Including An		Test Result
			77	Acceptable Limit	Permissible Limit #	
11	Chemical Testing 2. Residu	es In Water				
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 2022	0.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2): 2019	0.03	0.2	BDL (DL - 0.02)
22	Boron (as B)	mg/l	1S 3025 (Part 2): 2019	0.5	2.4	BDL (DL - 0.02)
23	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	0.05	1.5	BDL (DL - 0.02)
24	Cadmium (as Cd)	mg/ī	IS 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL - 0.002)
25	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	1.0	No relaxation	0.16
26	Lead (as Pb)	mg/I	15 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.01)
27	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019	0.1	0.3	BDL (DL - 0.02)
28	Mercury (as Hg)	mg/l	1S 3025 (Part 48): 1994	0.001	No relexation	BDL (DL - 0.001)
29	Selenium (as Sc)	mg/I	IS 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL- 0.01)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relocation	BDL (DL - 0.02)
31	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	. 5	15	BDL (DL - 0.02)
32	Polynuclear aromatic hydrocarbon (PAH)	h@il	ANtr/7.2/RES/01: 2018	0.1	No relaxation	BDL(DL-0.03)
33	Mineral Oil	meA	ANtr/7.2/RES/06	1.	No relaxation	BDL (DL-0.001)

Please refer last Page for Note and Remarks.

Verified By

Deputy Technical Manager

Pradnya Pillewan Deputy Technical Manager Authorized Signatory

Chinmay Garkuy Deputy Quality/Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Fest Report No. : ALPL/05082024/1-9A Issued To : M/s Kalamang Iron Mine		Sample Inward No. ALPL/22072024/ENV-185-GW-1 Inward Date 22/07/2024		Analysis Start Analysis End	Page 3 of 3 23/07/2024 30/07/2024
M/s TATA Steel Li				Report Issue Date Sample Category	05/08/2024 Water
Sample Name Sample Source Ground Water Dugwell Sample Collected By Mr. Biplab Giri (Sky Lab)		Sample Particular Sample Code-GW-		Quantity Received 5.0 Ltr & 250 ml	
		Sampling Date Sampling Time 18/07/2024 11.50 am to 3.20 pm		Sampling Location Guali Village	
2007-1-7-1-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2-		TEST	RESULTS		

S.N.	Test Parameter	Measurement Unit	Test Method (Drinking Water Specifications) Including Amoudment No. 4		Test Result		
				Acceptable Lim	The second secon		
34	Pesticide Residues Organochlori	90				I one and some	
T	Alpha-HCH	µg/l	ANu/7.2/RES/01: 20			BDL (DL - 0.01)	
H	Beta HCH	μg/	ANtr/7.2/RES/01: 25			BDL (DL + 0.03)	
Hi	Gammu - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 20		No relexation	BDL (DL + 0.03)	
iv	Delta-HCH	µg/l	ANtr/7.2/RES/01: 20			BDL (DL+0.03)	
v	Alachior	μ3/1	ANtr/7.2/RES/01: 20	118 20	No reluxation	BDL (DL - 9.03)	
vi	Aldrin	µg/l	ANtr/7.2/RES/01: 20	18 0.03	No relaxation	BDL (DL - 0.03)	
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 20	0.03	No relaxation	BDL (DL - 0.03)	
viii	Butachlor	pg/l	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)	
ix	p.p'-DDE	Pan	ANtt/7.2/RES/01:20		No relaxation	BDL (DL + 0.03)	
_	a.pDDE	ug/l	ANtr/7.2/RES/01: 2		No relaxation	BDL (DL + 0.03)	
X		pg/l	ANtr/7.2/RES/01: 2		No relaxation	BDL (DL + 0.03)	
XI	p.p'-DDD	pig/l	ANIt/7.2/RES/01: 2		No relaxation	BDL (DL - 0.03)	
XII	o.p"-DDD	pg/l	ANIt/7 2/RES/01: 2		No relaxation	BDL (DL = 0.03)	
XIII	a.p'+ DDT	pg/l	ANtr/7.2/RES/01: 2		No relaxation	BDL (DL = 0.03)	
xiv	p.p - DDT	pg/l	ANit/7 2/RES/01: 2		No relaxation	BDL (DL + 0.03)	
XV	Monocrotophos		ANtr/7 2/RES/01: 2		No relaxation	BDL (DL + 0.03)	
xvi	Atrazine	pg/l	ANtr/7.2/RES/01: 2		No relaxation	BDL (DL - 0.03)	
XVII	Parashion methyl	Ing/l	ANtr/7.2/RES/01: 2			BDL (DL - 0.03)	
xviii	Paracocon methyl	144	ANti/7.2/RES/01: 2		No reluxation	BDL (DL - 0.03)	
XIX	Malathion.	1,07	ANII/7.2/RES/01: 2			BDL (DL - 0.03)	
XX	Malaoxon	rig/l	The second secon		No relacation	BDL (DL - 0.03)	
XXI	Ethion	Туц	ANti/7.2/RES/01; 2	MITTER TO THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN		BDL (DL - 0.03)	
3001	Chlorpyrifos	ug/l	ANtr/7.2/RES/01: 2	30	THE TEMPORIUM	Distriction - district	

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REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per IS: 16500:2012, for tests conducted only.

Verified By

Pradnya Pillewan Deputy Technical Manager

----End of Report----

Authorized Signatory

Chinmay Marway Deputy Quality Manage



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Test Report No. : A	LPL/05082024/1-10/	dated 05/	08/2024	Page 1 of	
Issued To : M/s Kalamang I (M/s TATA Steel L	ron Mine	Sample Inward No. Inward Date	ALPL/22072024/ENV-185-GW-2 22/07/2024	Analysis Start Analysis End Report Issue Date Sample Category	23/07/2024 30/07/2024 05/08/2024 Water
Sample Name Ground Water			Sample Condition Sealed & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml	
Sample Co	illected By Siri (Sky Lab)	Sampling Date 18/07/2024	Sampling Time 11.50 am to 3.20 pm	Sampling Le Kalamong	

	Mr. Biplab Giri (Sky Lab)	1	8/07/2024 11:50 am	to 3:20 pm	Kalamong	vinage
			TEST RESULTS			
S.N.	Test Parameter	Measurement Unit	Test Method	IS 1050 (Drinking Water	ent as per 0 : 2012 r Specifications) endment No. 4	Test Result
			No.	Acceptable Limit	Permissible Limit#	
1	Biological Testing 1. Water			100		
1	Escherichia call	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
11	Chemical Testing 1, Water		(L)			
2	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23): 1986	200	600	154.25
3	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	IS 3025 (Part 4): 2021	5	15	1
5	Cyanide (as CN)	mg/l	1S 3025 (Part 27/Sec 1): 2021	0.05	No relaxation	BDL (DL - 0.005
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32):1988	250	1000	37.64
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40): 1991	75	200	46.27
8	Free Residual Chlorine	mg/I	IS 3025 (Part 26): 2021	Min. 0.2	1	BDL (DL - 0.1)
9	Fluoride (as F)	mg/l	1S 3025 (Part 60) : 2008	1.0	1,5	0.11
10	Magnesium (as Mg)	mg/l	IS 3025 (Purt 46): 1994	30	100	9.56
11	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	10.4
12	Odour	-	IS 3025 (Part 5): 2018	Agreeable	Agrecable	Agreeable
13	pH	4	IS 3025 (Part 11): 2022	6.5 to 8.5	No relaxation	7.96 at 25°C
14	Phenolic compounds (as CoHoOH)	mg/l	IS 3025 (Part 43/Sec 1): 1992	0.001	0.002	BDL (DL - 0.00)
15	Sulphate (as SO ₂)	mg/l	1S 3025 (Part 24): 2022	200	400	69.45
16	Taste		IS 3025 (Part 8): 1984	Agrecable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16): 2023	500	2000	412
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	5	0.8
		-				

IS 3025 (Part 21): 2009

Please refer last Page for Note and Remarks.

Verified By

Total hardness (as CaCO₃)

Snehal Raut Technical Manager Authorized Signatories

200

Poole Kathane Technical Manager Deputy Quality Manager

600

133,36



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Test Report No.: ALPL/05082024/1-10A Issued To: M/s Kalamang Iron Mine (M/s TATA Steel Limited)		Sample Inward No. ALPL/22072624/ENV-185-GW-2 Inward Date 22/07/2024		Page 2 of Analysis Start Analysis End Report Issue Date Sample Category	23/07/2024 30/07/2024 05/08/2024 Water
Sample Name Sample Source		Sample Particular		Quantity Received	
Ground Water Dugwell		Sample Code-GW-2		5.0 Lar & 250 ml	
Sample Collected By Mr. Biplab Giri (Sky Lab)		Sampling Date	Sampling Time	Sampling Location	
		18/07/2024	11.50 am to 3.20 pm	Kalamong Village	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit#	
Ш	Chemical Testing 2. Residu	es In Water		20,70	7	
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 2022	0.01	No relaxation	BDL (DL = 0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2): 2019	0.03	0.2	BDL (DL - 0.02)
22	Boron (as B)	mg/l	IS 3025 (Part 2): 2019	0.5	2.4	BDL (DL - 0.02)
23	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	0.05	1.5	BDL (DL - 0.02)
24	Cadmium (as Cd)	mg/l	IS 3025 (Part 2): 2019	0,003	No relaxation	BDL (DL - 0.002)
25	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	1.0	No relaxation	0.12
26	Leud (as Pb)	mg/I	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.01)
27	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0:1	0.3	BDL (DL - 0.02)
28	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL - 0.001)
29	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL-0.01)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL - 0.02)
31	Zinc (as Zn)	mg/I	IS 3025 (Part 2): 2019	. 5	15	BDL (DL - 0.02)
32	Polynuclear aromatic hydrocarbon (PAH)	иш/1	ANtr/7.2/RES/01: 2018	0.1	No relaxation	BDL(DL-0.03)
33	Mineral Oil	mg/l	ANtr/7.2/RES/06	l l	No relaxation	BDL (DL -0.001)

Please refer last Page for Note and Remarks.

Verified By

Deputy Technical Manager

Pradnya Pillewan Deputy Technical Manager Authorized Signatory

Chinmay Gafway Deputy Quality Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

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 MIDC Butibon, Nagpur, Maharashtra, India - 441 122
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Test Report

Test Report No.: ALPL/05082024/1-10A Issued To: M/s Kalamang Iron Mine (M/s TATA Steel Limited)		Sample Inward No. ALPL/22072024/ENV-185-GW-2 Inward Date 22/07/2024		Page 3 of Analysis Start Analysis End	23/07/2024 30/07/2024
				Report Issue Date Sample Category	05/08/2024 Water
Sample Name Sample Source		Sample Particular		Quantity Received	
Ground Water Dugwell		Sample Code-GW-		5.0 Ltr & 250 ml	
Sample Collected By		Sampling Date	Sampling Time	Sampling Location	
Mr. Biplab Giri (Sky Lab)		18/07/2024	11.50 am to 3.20 pm	Kalamong Village	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wat	Requirement as per 1S 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4	
				Acceptable Limit	Permissible Limit#	
34	Pesticide Residues Organochlori	ne.				
1	Alpha-HCH	pg/l	ANtr/7.2/RES/01: 2018		No relaxation	BDL (DL - 0.01)
Ťi.	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	Figu	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL = 0.03)
lv	Delta- HCH	l'gq	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BOL (DL - 0.03)
v	Alachior	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
Vi	Aldrin	pg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor	pg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03
ix	p.p -DDE	1127	ANtr/7.2/RES/01: 2018		No relaxation	BDL (DL - 0.03
×	o.p -DDE	идЛ	ANti/7.2/RES/01: 2018		No relaxation	BDL (DL - 0.03
xi	p.p -DDD	µg/I	ANti/7.2/RES/01: 2018		No relaxation	BDL (DL - 0.03
xii	o.p'-DDD	1/411	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03
XIII	u.p - DDT	rg/l	ANI/7.2/RES/01: 2018		No relaxation	BDL (DL - 0.03
xiv	p.p'- DDT	Par	ANtr/7.2/RES/01: 2018		No relaxation	RDI (DI - 0.03
XV	Monocrotophos	ugil	ANtr/7.2/RES/01: 2018		No reluxation	BDL (DL = 0.03
XVI	Atrazine	ug/l	ANtr/7.2/RE5/01: 2018	2	No relaxation	BDL (DL - 0.03
avii	Parathion methyl	ugil	ANtr/7.2/RES/01: 2018		No relaxation	BDL (DL - 0.03
xviii	Paraoxon methyl	pgfl	ANtr/7.2/RES/01: 2018			BDL (DL+0.03
xix	Malathion	pgf	ANtr/7.2/RES/01: 2018		No relaxation	BDL (DL - 0.03
XX	Malaoxon	Hg/l	ANtr/7.2/RES/01: 2018			BDL (DL - 0.03
xxi	Ethion	Hg/l	ANtr/7.2/RES/01: 2018		No relaxation	BOL (DL - 0.03
xxii	Chlorpyrifos	pgrl	ANtr/7.2/RES/01: 2011		No relaxation	BDL (DL - 0.03

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

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REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per 1S: 10500:2012, for tests conducted only.

Verified By

Deputy Technical Manager

Authorized Signatory

Chimnay Garway Deputy Quality Manager

----End of Report-



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Test Report

Test Report No.: ALPL/05082024/1-11A Issued To: M/s Kalamang Iron Mine (M/s TATA Steel Limited)		dated 05/08/2024 Sample Inward No. ALPL/22072024/ENV-185-GW-3 Inward Date 22/07/2024		Page 1 of Analysis Start Analysis End Report Issue Date Sample Category	23/07/2024 30/07/2024 05/08/2024 Water
Sample Name Sample Source Ground Water Dugwell		Sample Particular Sample Code-GW-		Quantity Re 5.0 Ltr & 2	
Sample Collected By Mr. Biplab Giri (Sky Lab)		Sampling Date Sampling Time 18/07/2024 I1.50 am to 3.20 pm		Sampling Location Sagasahi Village	

TEST RESULTS Requirement as per IS 10500: 2012 (Drinking Water Specifications) Measurement Test Result Test Method Including Amendment No. 4 Test Parameter S.N. Unit Permissible Acceptable Limit # Limit Biological Testing 1. Water 1 Absent Absent Absent IS 15185: 2016 Per 100 ml Escherichia coli 1 Chemical Testing 1. Water П Total Alkalinity 196.47 600 200 IS 3025 (Part 23): 1986 2 mg/l (us Calcium Carbonate) BDL (DL - 0.01) 1.0 0.2 IS 13428 : (Annex K): 2005 Anionic Detergents (as MBAS) mg/I3 5 15 IS 3025 (Part 4): 2021 Hazen units 4 Colour BDL (DL - 0.005) 0.05 No relaxation IS 3025 (Part 27/Sec 1): 2021 mg/l Cyunide (as CN) 5 1000 36.42 250 1S 3025 (Part 32):1988 Chloride (as CI) mg/t 6 51.29 200 75 IS 3025 (Part 40): 1991 mg/l Calcium (as Ca) 7 BDL (DL - 0.1) Min. 0.2 1 IS 3025 (Part 26): 2021 mg/l Free Residual Chlorine 8 0.75 1.5 1.0 IS 3025 (Part 60): 2008 mg/l 9 Fluoride (as F) 17.32

IS 3025 (Part 46): 1994

APHA method 23rd edition: 2017

IS 3025 (Part 5): 2018

IS 3025 (Part 11): 2022

IS 3025 (Part 43/Sec 1): 1992

IS 3025 (Part 24): 2022

IS 3025 (Part 8): 1984

IS 3025 (Part 16): 2023

1S 3025 : (Part 10): 2023

15 3025 (Part 21): 2009

mg/l

mg/I

mg/l

mg/l

mg/l

NTU

mg/l

- 1

Please refer last Page for Note and Remarks.

Phenolic compounds (as C₆H₆OH)

Verified By

Magnesium (as Mg)

Nitrate (as NO₁)

Sulphate (as SO₄)

Total dissolved solids

Total hardness (as CaCO₁)

Odour

Taste

Turbidity

10

11

12

13

14

15

16

18

19

Technical Manager

Authorized Signatories

30

45

Agrecable

6.5 to 8.5

0.001

200

Agrecable

500

200

100

No relaxation

Agreeable

No relaxation.

0.002

400

Agreeable

2000

5

600

7.16

Agrecable

6.89 at 25°C

BDL (DL ~ 0.001)

10.54

Agrecable

436

0.7

199.35

Technical Manager

Chiamay G Deputy Quality Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

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Test Report

Test Report No.: ALPL/05082024/1-11A Issued To: M/s Kalamang Iron Mine (M/s TATA Steel Limited)		dated 05/08/2024 Sample Inward No. ALPL/22072024/ENV-185-GW-3 Inward Date 22/07/2024		Analysis Start Analysis End Report Issue Date Sample Category	3 23/07/2024 30/07/2024 05/08/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particular Sample Code-GW-		Quantity Re 5.0 Ltr & 2	
Sample Collected By Mr. Biplab Giri (Sky Lab)		Sampling Date Sampling Time Sam		Sampling Lo Sagasahi V	

TEST DESITES

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
		Can		Acceptable Limit	Permissible Limit #	
11	Chemical Testing 2. Residu	es In Water				
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 2022	0.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2): 2019	0.03	0.2	BDL (DL - 0.02)
22	Boron (as B)	mg/l	15 3025 (Part 2): 2019	0.5	2.4	BDL (DL - 0.02)
23	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	0.05	1.5	BDL (DL - 0.02)
24	Cadmium (as Cd)	mg/l	IS 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL - 0.002)
25	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.12
	A STATE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS	me/I	IS 3025 (Part 2): 2019	0.01	No relaxation	BDL (DL - 0.01)
26	Lead (as Pb)	mg/l	IS 3025 (Part 2) :: 2019	0.1	0.3	BDL (DL-0.02)
27	Manganese (as Mn)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL - 0.001)
28	Mercury (as Hg)		IS 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL-0.01)
29	Selenium (us Se)	mg/l	1S 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL - 0.02)
30	Total Chromium (as Cr)	mg/l		5	15	BDL (DL - 0.02)
31	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019		1000	
32	Polynuclear aromatic hydrocarbon (PAH)	µg/l	ANtr/7.2/RES/01: 2018	0.1	No relaxation	BDL(DL-0.03)
33	Mineral Oil	mg/l	ANtr/7.2/RES/06	1	No relaxation	BDL (DL-0.001)

Please refer last Page for Note and Remarks.

Verified By

Nidhi Dubey Deputy Technical Manager Padrija Pillewith Deputy Technical Manager Authorized Signatory

Chinmay Garway Teputy Quality Manager



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Test Report

Test Report No. : Al Issued To : M/s Kalamang I (M/s TATA Steel L	ron Mine	Sample Inward No. Inward Date	08/2024 ALPL/22072024/ENV-185-GW-3 22/07/2024	Page 3 of Analysis Start Analysis End Report Issue Date Sample Category	23/07/2024 36/07/2024 05/08/2024 Water
Sample Name Ground Water			Sample Condition Scaled & Ice Preserved	Quantity Re 5.0 Ltr & 2	
Sample Co	Sample Collected By Mr. Biplab Giri (Sky Lab)		Sampling Time 11.50 am to 3.20 pm	Sampling Location Sagasahi Village	

TEST RESULTS

s.N.	Test Parameter	Measurement Unit	Test Method	1S 105 (Drinking Wat	nent as per 00 : 2012 er Specifications) neudment No. 4	Test Result
				Acceptable Limit	Permissible Limit#	
34	Pesticide Residues Organochloric	ne			The second secon	T services a new
	Alpha-HCH	Figu	ANu/7.2/RES/01: 201		No relocation	BDL (DL - 0.01)
ii	Beta HCH	Fgu	ANU/7.2/RES/01: 2011		No relaxation	BDL (DL = 0.03)
iii	Gamma - HCH (Lindage)	μеЛ	ANtr/7.2/RES/01: 2013	8 2	No relaxation	BDL (DL = 0.03)
iv	Delta-HCH	T/gu	ANtr/7.2/RES/01: 201		No relaxation	BDL (DL - 0.03)
V	Alachior	rug/l	ANti/7.2/RES/01: 201	N 20	No relaxation	BDL (DL + 0.03)
vi	Aldria	μg/1	ANti/7.2/RES/01: 201	8 0.03	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 201	8 0.03	No relaxation	BDL (DL - 0.03)
viii	Bauschior	μg/l	ANtr/7.2/RES/01: 201	8 125	No relaxation	BDL (DL - 0.03
ix	p,p'-DDE	μg/I	ANn/7.2/RES/01:201	8 1	No relaxation	BDL (DL - 0.03
X	o.p'-DDE	μg/l	ANtr/7.2/RES/01:201	8 1	No reluxation	BDL (DL - 0.03
xi	PbDDD	µg/1	ANn/7.2/RES/01: 201		No relaxation	BDL (DL = 0.03
Xii	e.p -DDD	jug/l	ANtr/7.2/RES/01: 201		No relaxation	BDL (DL = 0.03
xiii	ap - DDT	јад/1	ANtr/7.2/RES/01: 201	8 1	No relaxation	BDL (DL+0.03
xiv.	po'- DDT	figg.	ANtr/7.2/RES/01; 201		No relaxation	BDL (DL = 0.03
XV	Monocrotophos	Тац	ANt/7.2/RES/01: 201		No relaxation	BDL (DL = 0.03
XVI	Atrazine	Fau	ANI/7.2/RES/01: 201		No relaxation	BDL (DL - 0.03
xvii	Parathion methyl	Lgu L	ANI/7/2/RES/01: 201		No relaxation	BDL (DL - 0.03
xviii	Paraoxon methyl	rgu	ANtr/7.2/RES/01: 201		-	BDL (DL - 0.03
xix	Malathion	pel	ANtr/7.2/RES/01: 201		No relocation	BDL (DL - 0.03
	Malaoson	Nauj	ANtr/7.2/RES/01: 201		-	BDL (DL + 0.03
XX	Ethion	1/2/1	ANii/7.2/RES/01: 201		No relaxation	BDL (DL - 0.03
XXI	Chlorpynfos	ngd	ANtr/7.2/RES/01: 201		No relaxation	BDL (DL + 0.03

NOTE: Please see watermark "Original Test Report" to confirm the nutbeoticity of this report. Results shall be referred to tusted sample(s) and applicable to instead parameters only.

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REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per IS: 10500:2012, for tests conducted only.

Verified By

Praditya Pillewan Deputy Technical Manager

----End of Report---

Authorized Signatory

Chinmay Gulway Deputy Quality Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Test Report No. : Al Issued To : M/s Kalamang I (M/s TATA Steel L	ron Mine	Sample Inward No. Inward Date	08/2024 ALPL/22072024/ENV-185-GW-4 22/07/2024	Page 1 of Analysis Start Analysis End Report Issue Date Sample Category	23/07/2024 30/07/2024 05/08/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particular Sample Code-GW-		Quantity Re 5.0 Ltr & 2	
Sample Co	ollected By Giri (Sky Lab)	Sampling Date 18/07/2024	Sampling Time 11.50 am to 3.20 pm	Sampling Lo Gandalpada	

	Mr. Biplab Giri (Sky Lab)	1	18/07/2024 11.50 am to 3.20 pm Gandaipada VI		a vinage	
_			TEST RESULTS			
S.N.	Test Parameter	Measurement Unit	Test Method	1S 1050 (Drinking Water	ent as per 0 : 2012 r Specifications) endment No. 4	Test Result
201-200		Can.		Acceptable Limit	Permissible Limit #	
1	Biological Testing 1. Water			75.0		
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
П	Chemical Testing 1. Water					
2	Total Alkalinity (us Calcium Carbonate)	mg/l	IS 3025 (Part 23): 1986	200	600	187.26
3	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	IS 3025 (Part 4): 2021	5	15	1
5	Cyanide (as CN)	mg/l	1S 3025 (Part 27/Sec 1): 2021	0.05	No relaxation	BDL (DL - 0.005)
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32):1988	250	1000	28.49
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40): 1991	75	200	46.31
8	Free Residual Chlorine	mg/l	IS 3025 (Part 26): 2021	Min. 0.2	I	BDL (DL - 0.1)
9	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	1.0	1.5	0.35
10	Magnesium (as Mg)	mg/I	IS 3025 (Part 46): 1994	30	100	12.57
11	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	8.16
12	Odour	5.4	IS 3025 (Part 5): 2018	Agreeable	Agrecable	Agrecuble
13	pH	The P	IS 3025 (Part 11): 2022	6.5 to 8.5	No relocation	7.14 at 25°C
14	Phenolic compounds (as C ₅ H ₅ OH)	mg/l	IS 3025 (Part 43/Sec 1): 1992	0.001	0.002	BDL (DL - 0.001
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24): 2022	200	400	9.41
16	Taste	- 1	1S 3025 (Part 8): 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16): 2023	500	2000	403.52
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	5	0.4
19	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21): 2009	200	600	167.40

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut Technical Manager Authorized Signatories

Pooja Kathane Technical Manager Chinmay garyay Deputy Quality Manager



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Test Report

Test Report No. : A	LPL/05082024/1-12/	dated 05/	08/2024	Page 2 of	
Issued To : M/s Kalamang I (M/s TATA Steel L	ron Mine	Sample Inward No. Inward Date	ALPL/22972924/ENV-185-GW-4 22/07/2024	Analysis Start Analysis End Report Issue Date Sample Category	23/07/2024 30/07/2024 05/08/2024 Water
Sample Name Ground Water			Sample Condition Scaled & Ice Preserved	Quantity Re 5.0 Ltr & 2	
Sample Collected By Mr. Biplab Giri (Sky Lab)		Sampling Date 18/07/2024	Sampling Time 11,50 am to 3.20 pm	Sampling Location Gandalpada Village	

TEST RESULTS

s.N.	Test Parameter	Measurement	Test Method	Requiren IS 1050 (Drinking Wate Including Am	Test Result	
				Acceptable Limit	Permissible Limit#	
11	Chemical Testing 2. Residu	es In Water		-		
20	Arsenic (as As)	mg/l	1S 3025 (Part 37): 2022	0.01	No relaxation	BDL (DL = 0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2): 2019	0.03	0.2	BDL (DL - 0.02)
22	Boron (as B)	mg/l	IS 3025 (Part 2): 2019	0.5	2.4	BDL (DL - 0.02)
23	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	0.05	1.5	BDL (DL - 0.02)
24	Cadmium (us Cd)	mg/l	IS 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL - 0.002)
25	Iron (as Fe)	mg/l	IS 3025 (Part 2); 2019	1.0	No relaxation	0.18
26	Lead (as Pb)	mg/l	1S 3025 (Part 2): 2019	0.01	No relaxation	BDL (DL - 0.01)
27	Manganese (as Mn)	mg/I	IS 3025 (Part 2): 2019	0.1	0.3	BDL (DL - 0.02)
28	Mercury (as Hg)	mg/I	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL + 0.001)
29	Selenium (as Se)	ms/l	IS 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL-0.01)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL - 0.02)
31	Zinc (as Zn)	mg/l	1S 3025 (Part 2): 2019	5.	15	BDL (DL - 0.02)
32	Polynuclear aromatic hydrocarbon (PAH)	ивл	ANtr/7,2/RES/01: 2018	0.1	No relaxation	BDL(DL-0.03)
33	Mineral Oil	mg/l	ANtr/7.2/RES/06	1	No relaxation	BDL (DL - 0.001)

Please refer last Page for Note and Remarks.

Verified By

Nidhi Dubey Deputy Technical Manager Pradnyk Pillewith Deputy Technical Manager Authorized Signatory

Deputy Quality Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Test Report No. : Al	LPL/05082024/1-12A	dated 05/0		Page 3 of	
Issued To : M/s Kalamang I (M/s TATA Steel L	ron Mine	Sample Inward No. Inward Date	ALPL/22072624/ENV-185-GW-4 22/07/2024	Analysis Start Analysis End Report Issue Date Sample Category	23/07/2024 30/07/2024 05/08/202- Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particulars Sample Code-GW-		Quantity Re 5.0 Ltr & 2	
Sample Co	offected By Siri (Sky Lab)	Sampling Date 18/07/2024	Sampling Time 11.50 am to 3.20 pm	Sampling Lo Gandalpada	
		TEST	RESULTS		

			TEST RESULT	FS			
s.n.	Test Parameter	Test Parameter Measurement Unit Test Method (Drinking Water Specifications) Including Amendment No. 4		Test Result			
				A	ceeptable Limit	Permissible Limit#	
34	Pesticide Residues Organochloria	ne				_	T succes cancer to the
1	Alpha-HCH	//gil	ANti/7.2/RESTH: 2		0.01	No relaxation	BDL (DL - 0.01)
ii.	Beta HCH	Pgu	ANt/7.2/RES/01: 2/		0.04	No relaxation	BDL (DL = 0.03)
iii	Gamma - HCH (Lindane)	Reii	ANti/7.2/RES/01: 2	018	1	No relaxation	BDL (DL - 0.03)
iv	Delta-HCH	Pari	ANtt/7.2/RES/01: 2		0.04	No relaxation	BDL (DL - 0.03)
Y	Alachlor	μg/I	ANI/7.2/RES/01: 2	018	20	No relaxation	BDL (DL + 0.03)
ví	Aldrin	ред	ANtr/7.2/RES/01: 2	018	0.03	No relaxation	BDL (DL - 0.03
vii	Dieldrin	1/2/1	ANu/7.2/RES/01: 2	918	0.03	No relaxation	BDL (DL - 0.03
viii	Butachier	иш/1	ANtr/7/2/RES/01:2	810	125	No relaxation	BDL (DL - 0.03
ix	p.p'-DDE	Tig/I	ANtr/7.2/RES/01/2	018	1	No relaxation	BDL (DL - 0.03
X	o.p'-DDE	µg/l	ANtr/7.2/RES/01: 2	018		No relaxation	BDL (DL - 0.03
XI	p.p -DDD	Геди	ANtr/7.2/RES/01:2	018	1	No relaxation	BDL (DL - 0.03
XII	n'h,-DDD	Гец	ANtr/7/2/RES/01: 2	018		No relaxation	BDL (DL + 0.03
XIII	o.p'-DDT	Resp	ANtr/7.2/RES/01:2	018	1	No relaxation	BDL (DL - 0.03
xiv	p.p'- DDT	Leu	ANtr/7.2/RES/01:2		1	No relaxation	BDL (DL - 0.03
XV	Monocrotophos	Faru	ANtt/7.2/RES/01:2		1	No relaxation	BDL (DL - 9.03
XVI	Atruzine	Lea	ANtr/7.2/RES/01: 2		2	No relaxation	BDL (DL - 0.03
xvii	Parathion methyl	Pau	ANIt:/7.2/RES/01: 2		0.3	No relaxation	BDL (DL - 0.03
all formation of the last	Paraoson methyl	Pau	ANtr/7.2/RES/01: 2	OCCUPATION.			BDL (DL - 0.03
XYIII	Malathion	Ngs.	ANtr/7.2/RES/01: 2	-	190	- No relaxation	BDL (DL - 0.03
XIX	1.11	pig/l	ANtr/7.2/RES/01; 2	_	-	4	BDL (DL - 0.03
XX	Malaoson	pg/I	ANtr/7.2/RES/01: 2		3	No relaxation	BDL (DL + 0.03
XXI	Ethion	ug/l	ANtr/7.2/RES/01: 2		30	No relaxation	BDL (DL - 0.03

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

Test seport shall not be reproduced except in full without prior written appeared of Anacon Labs. Liability of Associa Labs is limited to invoiced amount only. Non-perishable and parishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of some of Test Report, unless specified otherwise. Silvernisable limit in absence of an alternate source for drinking water. Toggl' is equivalent to 'ppus'. Toggl' is expectation to 'ppus'. BDL- Below detection limit. DL- DL Indicates detection limit of instrument based and shall be considered as 'absent'. Result for test no. 8 it not relevant. ANtr/7.2/RES-01.06,: Inhume validated method. NT indicates not Touled as sample false to estation safety concerns.

REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per IS: 10500:2012, for tests conducted only.

Verified By

Pradnyll Pillewill Deputy Technical Manager

--- End of Report----

Authorized Signatory

r. [Mrs.] S.D. Garway Quality Manager



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Test Report

Test Report No. : A Issued To : M/s Kalamang I	ron Mine	Sample Inward No. Inward Date	The same of the sa		23/07/2024 30/07/2024 05/08/2024
(M/s TATA Steel L	imited)			Report Issue Date Sample Category	Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particular Sample Code-GW-		Quantity Re 5.01 tr & 2	
Sample Co	ollected By Siri (Sky Lab)	Sampling Date 18/07/2024	Sampling Time 11.50 am to 3.20 pm	Sampling Lo Sunindpur	

			TEST RESULTS		at the same of the	
S.N.	Test Parameter	Measurement Unit	Test Method	Requirem IS 1050 (Drinking Water Including Ame	: 2012 Specifications)	Test Result
÷				Acceptable Limit	Permissible Limit#	
1	Biological Testing 1. Water		*	1.3		
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	Chemical Testing I. Water		4.0			
2	Total Alkalinity (as Calcium Carbonate)	mg/l	1S 3025 (Part 23): 1986	200	600	181.46
3	Anionic Detergents (as MBAS)	mg/l	1S 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	IS 3025 (Part 4): 2021	5	15	1
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27/Sec 1): 2021	0.05	No relaxation	BDL (DL - 0.005)
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32):1988	250	1000	18.56
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40): 1991	75	200	48.67
8	Free Residual Chlorine	mg/l	IS 3025 (Part 26): 2021	Min. 0.2	I I	BDL (DL = 0.1)
9	Fluoride (as F)	mg/t	IS 3025 (Part 60): 2008	1.0	1.5	0.32
10	Magnesium (as Mg)	mg/l 🔈	IS 3025 (Part 46): 1994	30	100	13.81
11	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	7.38
12	Odour	- 9	IS 3025 (Part 5): 2018	Agreeuble	Agrecable	Agreeable
13	pH	200	IS 3025 (Part 11): 2022	6.5 to 8.5	No relaxation	6.99 at 25°C
14	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43/Sec 1): 1992	0.001	0.002	BDL (DL - 0.001)
15	Sulphate (us SO ₄)	mg/l	IS 3025 (Part 24): 2022	200	400	9.34
16	Tuste		1S 3025 (Part 8): 1984	Agreeable	Agrecable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16): 2023	500	2000	388
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	5	0.2
19	Total hardness (as CaCO ₂)	mg/l	IS 3025 (Part 21): 2009	200	600	178.39

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut Technical Manager Authorized Signatories

Pooja Kuthane Technical Manager Chinmay Marway Deputy Outling Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Test Report No. : A	LPL/05082024/1-13A	dated 05/0	8/2024	Page 2 of	
Issued To : M/s Kalamang I (M/s TATA Steel L	ron Mine	Sample Inward No. Inward Date	ALPL/22072024/ENV-185-GW-5 22/07/2024	Analysis Start Analysis End Report Issue Date Sample Category	23/07/2024 30/07/2024 05/08/2024 Water
Sample Name Ground Water	575 7 10 17 14 15 15 16 16 16 16 16 16 16 16 16 16 16 16 16		Sample Condition Scaled & Ice Preserved	Quantity Re 5.0 Ltr & 2	
Sample Co	ollected By Siri (Sky Lab)	Sampling Date 18/07/2024	Sampling Time 11.50 am to 3.20 pm	Sampling Lo Sunindpur	

TEST RESULTS

s.N.	Test Parameter	t Parameter Measurement Unit	Test Method	Requirer IS 105 (Drinking Wat Including An	Test Result	
				Acceptable Limit	Permissible Limit#	
п	Chemical Testing 2. Residu	es In Water				
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 2022	0.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (us Al)	mg/l	IS 3025 (Part 2): 2019	0.03	0.2	BDL (DL + 0.02)
22	Boron (us B)	mg/l	IS 3025 (Part 2): 2019	0.5	2.4	BDL (DL - 0.02)
23	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	0.05	1.5	BDL (DL - 0.02)
24	Cadmium (as Cd)	mg/l	1S 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL - 0.002)
25	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	1.0	No relaxation	0.13
26	Lead (as Pb)	me/l	IS 3025 (Part 2): 2019	0.01	No relaxation	BDL (DL - 0.01)
27	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL-0.02)
28	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BDL (DL = 0.001)
29	Selenium (as Se)	mg/l	1S 3025 (Part 56): 2003	0.01	No relaxation	BDL (DL+0,01)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL - 0.02)
31	Zinc (as Zn)	mg/I	IS 3025 (Part 2): 2019	5	15	BDL (DL - 0.02)
32	Polynoclear aromatic hydrocarbon (PAH)	ha\1	ANtr/7.2/RES/01: 2018	0.1	No relaxation	BDL(DL-0.03)
33	Mineral Oil	mg/l	ANtt/7.2/RES/06		No relaxation	BDL (DL - 0.001)

Please refer last Page for Note and Remarks.

Verified By

Nidhi Dubey Deputy Technical Manager Pradnyk Pillewun Deputy Technical Manager Authorized Signatory

Chinmay Garyla Deputy Quality Hamager



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Test Report

Test Report No. : Al	LPL/05082024/1-13A	dated 05/3	08/2024	Page 3 of	3
Issued To : M/s Kalamang I (M/s TATA Steel L	ron Mine	Sample Inward No. Inward Date	ALPL/22072924/ENV-185-GW-5 22/07/2024	Analysis Start Analysis End Report Issue Date Sample Category	23/07/2024 30/07/2024 05/08/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particular Sample Code-GW-5		Quantity Re 5.0 Ltr & 2	
Sample Co	ollected By Siri (Sky Lab)	Sampling Date 18/07/2024	Sampling Time 11,50 am to 3,20 pm	Sampling Lo Sunindpur	
		TEST	RESULTS		

			TEST RESULT	S		
s.n.	Test Parameter	Measurement. Unit	Test Method	1S 105 (Drinking Wat	nent as per 00 : 2012 er Specifications) nendment No. 4 Permissible Limit #	Test Result
34	Pesticide Residues Organochlori	ne				
1	Alpha-HCH	ид/1	AND/7.2/RES/01: 20	8 0.01	No relaxation	BDL (DL = 0.01)
ii	Beta HCH	µg/1	ANI/7,2/RES/01: 20	8 0.04	No relaxation	BDL (DL = 0.03)
iii	Garrana - HCH (Lindane)	Fgq	ANIu7.2/RES/01: 20	8 2	No relaxation	BDL (DL - 0.03)
iv	Delta-HCH	пед	ANti/7.2/RE5/01:20	8 0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	Pau	ANtr/7.2/RES/01:20	8 20	No relaxation	BIM. (DL - 0.03)
vi	Aldrin	Pag	ANti/7.2/RES/01: 20	8 0.03	No relaxation	BDL (DL = 0.03)
vii	Dieldrin	1/gg	ANte/7.2/RES/01: 20	0.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor	μgfl	ANte/7.2/RES/01: 20	125	No relaxation	BDL (DL - 0.03)
ix	p.pDDE	pg/l	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL = 0.03)
X	e.pDDE	pg/l	ANte/7.2/RES/01: 20	18 1	No relaxation	BOL (DL - 0.03)
xi	p.p.+DDD	µg/l	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
xii	o.pDDD	Figu	ANtr/7.2/RES/01/20	18 1	No relaxation	BDL (DL - 0.03)
xiii	o.p'- DDT	pg/i	ANte/7.2/RES/01:20	18	No relaxation	BDL (D), - 0.03
xiv	p.p'-DDT	pgri	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)
XV	Monocrotophos	рд//	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANI/7.2/RES/01: 26	18 2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	Tqu	ANI/7.2/RES/01: 20	18 0.3	No relaxation	BDL (DL = 0.02)
xviii	Paraoxon methyl	Lau	ANt/7.2/RES/01: 20	18 -		BDL (DL - 0.03)
XIX	Malathion	pg/l	ANU/7,2/RES/01: 20		No relaxation	BDL (DL - 0.03)
XX	Malaoson	pgl	ANI/7.2/RES/01: 20	18 -		BDL (DL - 0.03)
xxi	Ethion	Fau	ANt:/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	Pau	ANti/7.2/RES/01: 20	18 30	No relaxation	BDL (DL - 0.03)

NOTE: • Please see watermark "Original Test Report" to confirm the authenticity of this report, • Resolts shall be referred to tested sample(s) and applicable to tested parameters only.
• Test report shall not be repreduced except in full without prior written approval of Anacon Labs. • Liability of Anacon Labs is limited to invoceed amount only. • Non-perishable and perishable sample(s) shall be disposed off other 30 slays and 15 days respectively from the date of issue of Test Report, unless specified inherwise. • #Permissible limit in absence of an absence source for drucking water. • 'angl' is equivalent to 'ppm'. • 'agl' is equivalent to 'ppb'. • BDL- Below detection limit. • DL- DL Indicates detection limit of instrument fracthed and shall be considered as 'absent'. • Result for test no. 8 is not relevant. • ANte/7.2/RES -61,86;: Inhouse validated method, • NT indicates not Tosted an assente tailed to establish safely concerns.

REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per IS: 10500:2012, for tests conducted only.

Verified By

Pradnya Pillewan Deputy Technical Manager

----End of Report----

Authorized Signatory

Deputy Quarity Manager



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Test Report

Test Report No. : A	LPL/31082024/1-9A	dated 31/	08/2024		Page 1 of 3
Issued To: M/s Kalamang I (M/s TATA Steel L		Sample Inward No. Inward Date	ALPL/19082024/MON- 430-EW-1/9-1 19/08/2024	Analysis Start Analysis End Report Issue Date Sample Category	20/08/2024 26/08/2024 31/08/2024 Water
Sample Name Ground Water	Sample Source Dugweil	Sample Particular Sample Code-GW-	- Committee of the Comm	Quantity R	
	ollected By lab Giri	Sampling Date 16/08/2024	Sampling Time 11.50 am to 3.20 pm	Sampling L Guali Vi	

			TEST RESULTS				
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result	
				Acceptable Limit	Permissible Limit#		
1		roup: Water	Subgroup : Drinking water				
1	Escherichia coli	Per 100 ml	IS: 15185	Absent	Absent	Absent	
11		oup : Water	Subgroup : Drinking water			7100011	
2	Total Alkalinity (as Calcium Carbonate)	mg/I	1S 3025 (Part 23) : 1986	200	600	197.26	
3	Anionic Detergents (as MBAS)	mg/I	IS 13428 : (Annex K): 2005	0.2	1.0	BLQ (LOQ-0.1)	
4	Colour	Hazen units	IS 3025 (Part 4) Clause 4 : 2021	5	15	1	
- 5	Cyanide (as CN)	mg/l	1S 3025 (Part 27/Sec 1) Clause 5: 2021	0.05	No relacation	BLQ (LOQ-0.005)	
6	Chloride (as CI)	mg/l	IS 3025 (Part 32) Clause 2:1988	250	1000	34.91	
7	Calcium (as Ca)	mg/l	1S 3025 (Part 40) Clause 5 : 1991	75	200	52.87	
8	Free Residual Chlorine	mg/l	IS 3025 (Part 26) Clause 7:2021	0.2	1	BLQ (LOQ-0.1)	
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) Clause 6 : 2008	1.0	1.5	0.18	
10	Magnesium (as Mg)	mg/l	1S 3025 (Part 46) Clause 6: 1994	30	100	13.94	
11	Nitrate (as NO ₅)	mg/l	APHA 23rd edition: Method 4500-NO3:2017	45	No relaxation	5.16	
12	Odour		IS 3025 (Part 5): 2018	Agreeable	Agreeable	Agrecable	
13	pH		IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	8.13 at 25°C	
14	Phenolic compounds (as C _a H ₃ OH)	mg/l	IS 3025 (Part 43/Sec 1) Clause 6: 1992	0.001	0.002	BLQ (LOQ-0.001)	
15	Sulphute (as SO ₄)	mg/I	1S 3025 (Part 24/ Sec1) Clause 5 : 2022	200	400	12.68	
16	Taste		IS 3025 (Part 8): 1984	Agrecable	Agreeable	Agrecable	
17	Total dissolved solids	mg/l	IS 3025 (Part 16) ; 2023	500	2000	471	
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	5	0.3	
19	Total hardness (as CaCO ₂)	mg/l	IS 3025 (Part 21) Clause 5 : 2009	200	600	189.42	

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut Technical Manager **Authorized Signatories**

Pooja Kathane Technical Manager

Chinmay Garway Deputy Quality Manager



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Test Report

Test Report No. : A	LPL/31082024/1-9A	dated 31/	08/2024		Page 2 of 3
Issued To: M/s Kalamang Iron Mine		Sample Inward No. ALPL/19082024/MON- 430-EW-1/9-1		Analysis Start	20/08/2024
(M/s TATA Steel L		Inward Date	19/08/2024	Analysis End	26/08/2024
				Report Issue Date Sample Category	31/08/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particular Sample Code-GW-	Service Control of th	Quantity R 5.0 Ltr & 2	
	llected By lab Giri	Sampling Date 16/08/2024	Sampling Time 11.50 am to 3.20 pm	Sampling L Guali Vi	ocation

			TEST RESULTS			
S.N.	Test Parameter	Measurement Unit	Test Method	IS 10: (Drinking Wa	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4	
				Acceptable Limit	Permissible Limit #	
Ш	Discipline : Chemical	Group : Res	idues and contaminants i	n water	Subgroup : Trace m	etal elements
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 2022	10.0	No relacation	BLQ (LOQ-0.01)
21	Aluminium (as Al)	mg/I	IS 3025 (Part 2): 2019	0.03	0.2	BLQ (LOQ-0.02)
22	Barium (as Ba)	/lgm	IS 3025 (Part 2): 2019	0.7	No relaxation	BLQ (LOQ-0.02)
23	Boron (as B)	mg/l	IS 3025 (Part 2): 2019	0.5	2.4	BLQ (LOQ-0.02)
24	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	0.05	1.5	BLQ (LOQ-0.02)
25	Cadmium (as Cd)	mg/l	IS 3025 (Part 2): 2019	0.003	No relaxation	BLQ (LOQ-0.002)
26	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	1.0	No relaxation	0.17
27	Lead (as Pb)	mg/l	IS 3025 (Part 2): 2019	0.01	No relaxation	BLQ (LOQ-0.01)
28	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019	0.1	0.3	BLQ (LOQ-0.02)
29	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BLQ (LOQ-0.001)
30	Selenium (as Se)	mg/i	IS 3025 (Part 56): 2003	0.01	No relaxation	BLQ (LOQ-0.01)
31	Total Chromium (as Cr)	mg/i	IS 3025 (Part 2): 2019	0.05	No relaxation	BLQ (LOQ-0.02)
32	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	5	15	BLQ (LOQ-0.02)
33	Polynuclear aromatic hydrocarbon (PAH)	μg/l	ANtr/7.2/RES/03: 2018	0.1	No relaxation	BLQ (LOQ-0.03)
IV	Discipline : Chemical	Group :	Residues and contamina	nts in water	Subgrou	p : Other
34	Mineral Oil	mg/l	ANtr/7.2/RES/06	1	No relaxation	BLO (LOO-0.001)

Please refer last Page for Note and Remarks,

Verified By

Nidhi Dubey Deputy Technical Manager

Pradny Pillewin Deputy Technical Manager Authorized Signatory

Deputy Quality Manager



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Test Report

LPL/31082024/1-9A	dated 31/	08/2024		Page 3 of 3
Issued To: M/s Kalamang Iron Mine (M/s TATA Steel Limited)		430-EW-1/9-1		20/08/2024 26/08/2024
			Report Issue Date Sample Category	31/08/2024 Water
Sample Source Dugwell			Quantity Re 5.0 Ltr & 2	
llected By ab Giri	Sampling Date 16/08/2024	Sampling Time 11.50 am to 3.20 pm	Sampling Lo Guali Vil	eation
֡֡֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜	Sample Source Dugwell	Sample Inward No. Inward Date Sample Source Dugwell Sample Code-GW- Sampling Date	Sample Inward No. ALPL/19082024/MON- 430-EW-1/9-1 Inward Date 19/08/2024 Sample Source Dugwell Sample Code-GW-1 Sealed & Ice Preserved Blected By Sampling Date Sampling Time	Sample Inward No. ALPL/19082024/MON- 430-EW-1/9-1 Inward Date 19/08/2024 Analysis Start Sample Source Sample Particulars Sample Condition Scaled & Ice Preserved Sampling Date Sampling Time Sampling Leading

TEST RESULTS Requirement as per IS 10500 : 2012 Measurement S.N. Test Parameter Test Method (Drinking Water Specifications) Test Result Unit Including Amendment No. 4 Acceptable Limit Permissible Limit # V Discipline : Chemical Group: Residues contaminants in water Subgroup : Pesticide 35 Pesticide Residues Organochlorine Alpha-HCH pg/i ANtr/7.2/RES/01: 2018 0.01 No relaxation BLQ (LOQ-0.01) ü Beta HCH pp/I ANtr/7.2/RES/01: 2018 0.64 No relaxation BLQ (LOQ-0.03) Gamma - HCH (Lindane) ANtr/7.2/RES/01: 2018 $\mu g/l$ 2 No relaxation BLQ (LOQ-0.03) Delta- HCH iv ANtr/7.2/RES/01: 2018 $\mu g/1$ 0.04 No relaxation BLQ (LOQ-0.03) Alachlor v $\mu g/1$ ANtt/7.2/RES/01: 2018 20 No relaxation BLQ (LOQ-0.03) Aldrin Y µg/ ANtr/7,2/RES/01: 2018 0.03 No relaxation BLQ (LOQ-0.03) vii Dieldrin $\mu g/l$ ANII/7.2/RES/01: 2018 0.03 No relaxation BLQ (LOQ-0:03) viii Butachlor µg/f ANto/7.2/RES/01: 2018 125 No relaxation BLQ (LOQ-0.03) ix. p.p -DDE $\mu g/I$ ANtt/7.2/RES/01: 2018 1 No relaxation BLQ (LOQ-0.03) o.p -DDE ж µg/l ANt/7.2/RES/01: 2018 No relaxation BLQ (LOQ-0.03) XI. p.p -DDD $\mu g/l$ ANtr/7.2/RES/01: 2018 No relaxation BLQ (LOQ-0.03) o.p -DDD XII $\mu g/l$ ANti/7.2/RES/01: 2018 No relaxation BLQ (LOQ-0.03) o.p - DDT XIII Hg/I ANtr/7.2/RES/01: 2018 No relaxation BLQ (LOQ-0.03) XÍV p.p - DDT Mg/I ANtr/7.2/RES/01: 2018 No relaxation BLQ (LOQ-0.03) Monocrotophos XV µg/l ANtr/7.2/RES/01: 2018 No relaxation BLQ (LOQ-0.03) Atrazine XVI pg/l ANtr/7.2/RES/01: 2018 2 No relexation BLQ (LOQ-0.03) XVII Parathion methyl ANtr/7.2/RES/01: 2018 HB/F 0.3No relaxation BLQ (LOQ-0.03) XVIII Paraoxon methyl ANte/7.2/RES/01: 2018 Rg/I BLQ (LOQ-0.03) Malathion XIX ANtr/7.2/RES/01: 2018 pg/l 190 No relaxation BLQ (LOQ-0.03) Malaoxon XX ANtr/7.2/RES/01: 2018 BLQ (LOQ-0.03) XXI Ethion µg/l ANtr/7.2/RES/01: 2018 No relaxation BLQ (LOQ-0.03) Chlorpyrifos XXII ANtr/7:2/RES/01: 2018 µg/I No relaccation BLQ (LOQ-0.03)

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

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Result for test no. R is not relevant. Ante/7.2/RES-01, Ante/7.2/RES-06; Inhouse validated method. NT indicates not Tested an sample failed to establish safety concerns.

REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per IS: 10500:2012, for tests conducted only.

Verified By

Pradny Pillewan Deputy Technical Manager

----End of Report----

Authorized Signatory

Chinmay Garyay

Deputy Quality/Manager

5



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Test Report

Test Report No. : /	ALPL/31082024/1-1	0A dated 31	/08/2024		Page 1 of 3
Issued To: M/s Kalamang I (M/s TATA Steel L		Sample Inward No. Inward Date	ALPL/19082024/MON- 430-EW-1/9-2 19/08/2024	Analysis Start Analysis End Report Issue Date Sample Category	20/08/2024 26/08/2024 31/08/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particular Sample Code-GW-		Quantity R 5.0 Ltr & 2	
TO SATISFACE STATE OF THE SATISFACE STATE OF	lab Giri	Sampling Date 16/08/2024	Sampling Time 11.50 am to 3.20 pm	Sampling L Kalamong	ocation

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
1		roup : Water	Subgroup : Drinking water			
1	Escherichia coli	Per 100 ml	15: 15185	Absent	Absent	Absent
H	Discipline : Chemical Gr	oup : Water	Subgroup : Drinking water		110000	COOPER.
2	Total Alkalinity (as Calcium Carbonate)	mg/t	IS 3025 (Part 23): 1986	200	600	171
3	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BLQ (LOQ-6.1)
4	Colour	Hazen units	IS 3025 (Part 4) Clause 4 : 2021	5	15	intro (Extrapolities)
5	Cyanide (as CN)	mg/t	IS 3025 (Part 27/Sec 1) Clause 5: 2021	0.05	No relaxation	BLQ (LOQ-0.005
6	Chloride (as Cl)	mg/f	1S 3025 (Part 32) Clause 2:1988	250	1000	27.63
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) Clause 5: 1991	75	200	48.19
8	Free Residual Chlorine	mg/l	IS 3025 (Part 26) Clause 7:2021	0.2	1	BLQ (LOQ-0.1)
9	Fluoride (as F)	mg/i	IS 3025 (Part 60) Clause 6 : 2008	1.0	1.5	0.24
10	Magnesium (as Mg)	mg/i	15 3025 (Part 46) Clause 6 : 1994	30	100	11.93
11	Nitrate (as NO ₃)	mg/l	APHA 23rd edition: Method 4500-NO3-2017	45	No relaxation	3.87
12	Odour		1S 3025 (Part 5) : 2018	Agrecable	Agreeable	Agreeable
13	pH		IS 3025 (Part 11): 2022	6.5 to 8.5	No relaxation	7.87 at 25°C
14	Phenolic compounds (as C _c H ₃ OH)	mg/l	IS 3025 (Part 43/Sec 1) Clause 6: 1992	0.001	0.002	BLQ (LOQ-0.001)
15	Sulphate (as SO ₄)	mg/l	1S 3025 (Part 24/ Sec1) Clause 5 : 2022	200	400	8.91
16	Taste		IS 3025 (Part 8): 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/T	IS 3025 (Part 16): 2023	500	2000	453
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	5	0.3
19	Total hardness (as CaCO ₁)	mg/l	IS 3025 (Part 21) Clause 5 : 2009	200	600	169.47

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut Technical Manager **Authorized Signatories**

Pooja Kathage Technical Manager Chinmay Garway Deputy Quality Manager



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Test Report

Issued To : M/s Kalamang I (M/s TATA Steel L		Sample Inward No. Inward Date	ALPL/19082024/MON- 430-EW-1/9-2 19/08/2024	Analysis Start Analysis End Report Issue Date Sample Category	Page 2 of 3 20/08/2024 26/08/2024 31/08/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particular Sample Code-GW-2	S. S. S. Ling Co. S. S. S. S. S. S. S. S. S. S. S. S. S.	Quantity Re 5.0 Ltr & 2	
	ollected By lab Giri	Sampling Date 16/08/2024	Sampling Time 11.50 am to 3.20 pm	Sampling Lo Kalamong	

			TEST RESULTS			ng vinage
S.N.	Test Parameter	Measurement Unit	Test Method	IS 10 (Drinking Wa	Requirement as per IS 10500: 2012 (Drinking Water Specifications) Including Amendment No. 4	
				Acceptable Limit	Permissible Limit #	
III	Discipline : Chemical	Group : Re	sidues and contaminants is	n water	Subgroup : Trace m	etal elements
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 2022	0.01	No relaxation	BLQ (LOQ-0.01)
21	Aluminium (as Al)	mg/l	1S 3025 (Part 2): 2019	0.03	0.2	BLQ (LOQ-0.02)
22	Barium (as Ba)	mg/l	IS 3025 (Part 2): 2019	0.7	No relaxation	BLQ (LOQ-0.02)
23	Boron (as B)	mg/I	1S 3025 (Part 2): 2019	0.5	2.4	BLQ (LOQ-0.02)
24	Copper (as Cu)	mg/l	1S 3025 (Part 2): 2019	0.05	1.5	BLQ (LOQ-0.02)
25	Cadmium (as Cd)	mg/I	IS 3025 (Part 2): 2019	0.003	No relaxation	BLQ (LOQ-0.002)
26	Iron (as Fe)	mg/I	18 3025 (Part 2): 2019	1.0	No relaxation	0.18
27	Lead (as Pb)	mg/l	IS 3025 (Part 2): 2019	0.01	No relaxation	BLQ (LOQ-0.01)
28	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019:	0.1	0.3	BLQ (LOQ-0.02)
29	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BLQ (LOQ-0.001)
30	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.01	No relaxation	BLQ (LOQ-0.01)
31	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	BLQ (LOQ-0.02)
32	Zinc (as Zn)	mg/l	15 3025 (Part 2) : 2019	5	15	BLQ (LOQ-0.02)
33	Polynuclear aromatic hydrocarbon (PAH)	pg/l	ANtt/7.2/RES/03: 2018	0.1	No relaxation	BLQ (LOQ-0.03)
IV	Discipline : Chemical	Group	Residues and contamina	nts in water	Subgrou	ip : Other
34	Mineral Oil	mg/l	ANtr/7.2/RES/06	1	No relaxation	BLQ (LOQ-0.001)

Please refer last Page for Note and Remarks.

Verified By

Deputy Technical Manager

Pradnya Pillewan Deputy Technical Manager Authorized Signatory

Chinmay Gaway

Deputy Quality Manager

CI LI



p.p - DDT

Atrazine

Malathion

Malaoxon

Chlorpyrifos

Ethion

Monocrotophos

Parathion methyl

Paraoxon methyl

XIV.

XV

XVI

XVIII

XX

XXI

XXII

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Test Report

	ALPL/31082024/1-1		/08/2024 ALPL/19082024/MON-		Page 3 of 3
Issued To: M/s Kalamang Iron Mine		Sample Inward No. 430-EW-1/9-2		Analysis Start	20/08/2024
(M/s TATA Steel L		Inward Date	19/08/2024	Analysis End	26/08/2024
				Report Issue Date Sample Category	31/08/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particular Sample Code-GW-		Quantity Re 5.0 Ltr & 2	
Sample Co Mr. Bip	llected By lab Giri	Sampling Date 16/08/2024	Sampling Time 11.50 am to 3.20 pm	Sampling Lo Kalamong	cation

TEST RESULTS Requirement as per 15 10500 : 2012 Measurement S.N. Test Parameter Test Method (Drinking Water Specifications) Test Result Unit Including Amendment No. 4 Acceptable Limit Permissible Limit # v Discipline : Chemical Group: Residues contaminants in water Subgroup : Pesticide 35 Pesticide Residues Organochlorine Alpha-HCH $\mu g/I$ ANtr/7.2/RES/01: 2018 0.01No relaxation BLQ (LOQ-0.01) Beta HCH 11 $\mu g/I$ ANtr/7.2/RES/01: 2018 0.04No relaxation BLQ (LOQ-0.03) Gamma - HCH (Lindane) iii ng/l ANtr/7.2/RES/01: 2018 2 No relaxation BLQ (LOQ-0.03) iv. Delta-HCH μgЛ ANtr/7.2/RES/01: 2018 0.04 No relaxation BLQ (LOQ-0.03) Alachlor v $\mu g/I$ ANtr/7.2/RES/01: 2018 20 No relaxation BLQ (LOQ-0.03) Aldrin vi 1422/1 ANtr/7.2/RES/01: 2018 0.03 BLQ (LOQ-0.03) No relaxation vii Dieldrin $\mu \mu / 1$ ANtr/7.2/RES/01: 2018 0.03 No relaxation BLQ (LOQ-0.03) Butachlor VIII μg/l ANtr/7.2/RES/01: 2018 125 No relaxation BLQ (LOQ-0.03) ix p.p'-DDE $\mu g/l$ ANtr/7.2/RES/01: 2018 No relaxation BLQ (LOQ-0.03) × o.p -DDE ANtr/7.2/RES/01-2018 ug/t No relaxation BLQ (LOQ-0.03) p.p -DDD XI. ANtt/7.2/RES/01: 2018 pg/I No relaxation BLQ (LOQ-0.03) o.p'-DDD XII ANtr/7.2/RES/01: 2018 $\mu_{\rm B}/1$ No relaxation BLQ (LOQ-0.03) o.p - DDT XIII µg/l ANtr/7.2/RES/01: 2018 t No relaxation BLQ (LOQ-0.03)

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

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ANtr/7.2/RES/01: 2018

ANtr/7.2/RES/01: 2018

ANtr/7.2/RES/01:2018

ANtr/7.2/RES/01: 2018

ANtr/7.2/RES/01: 2018

ANtr/7_2/RES/01: 2018

ANtr/7.2/RES/01: 2018

ANtr/7.2/RES/01: 2018

ANtr/7.2/RES/01:2018

REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per IS: 10500:2012. for tests conducted only.

Verified By

 $\mu g/l$

 $\mu g/I$

 $\mu g/I$

 $\mu g/l$

 $\mu g/I$

142/1

 $\mu g/I$

µg/I

Pradnya Pillewan Deputy Technical Manager

----End of Report----

Authorized Signatory

No relaxation

No relaxation

No relaxation

No relaxation

No relaxation

No relaxation

No relaxation

2

0.3

190

3

BLQ (LOQ-0.03)

BLQ (LOQ-0.03)

BLQ (LOQ-0.03)

BLQ (LOO-0.03)

BLQ (LOQ-0.03)

BLQ (LOQ-0.03)

BLQ (LOQ-0.03)

BLQ (LOQ-0.03)

BLQ (LOQ-0.03)

Chinmay Garway Deputy Quality Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

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Test Report

Test Report No. : /	ALPL/31082024/1-1	IA dated 31	/08/2024		Page 1 of 3
Issued To: M/s Kalamang Iron Mine		Sample Inward No.	ALPL/19082024/MON- 430-EW-1/9-3	Analysis Start	20/08/2024
(M/s TATA Steel L		Inward Date	19/08/2024	Analysis End 26/08/2	
				Report Issue Date Sample Category	31/08/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particular Sample Code-GW-		Quantity R 5.0 Ltr & 2	
	ollected By lab Giri	Sampling Date 16/08/2024	Sampling Time 11.50 am to 3.20 pm	Sampling L Sagasahi V	ocation

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result	
_				Acceptable Limit	Permissible Limit#		
1		ronp : Water	Subgroup : Drinking water				
1	Escherichia coli	Per 100 ml	IS: 15185	Absent.	Absent	Absent	
H	Discipline : Chemical Gr	roup : Water	Subgroup : Drinking water		1 1111-2111	7 MARKET	
2	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23) ; 1986	200	600	176.82	
3	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BLQ (LOQ-0.1)	
4	Colour	Hazen units	IS 3025 (Part 4) Clause 4 : 2021	5	15	1 1	
5	Cyanide (as CN)	mg/l	1S 3025 (Part 27/Sec 1) Clause 5: 2021	0.05	No relaxation	BLQ (LOQ-0.005)	
6	Chloride (as CI)	mg/l	IS 3025 (Part 32) Clause 2:1988	250	1000	24.91	
7	Calcium (as Ca)	mg/l	1S 3025 (Part 40) Clause 5: 1991	75	200	48 36	
8	Free Residual Chlorine	mg/l	1S 3025 (Part 26) Clause 7:2021	0.2	1	BLQ (LOQ-0.1)	
9	Fluoride (as F)	mg/l	18 3025 (Part 60) Clause 6 : 2008	1.0	1.5	0.18	
10	Magnesium (as Mg)	mg/l	1S 3025 (Part 46) Clause 6 : 1994	30	100	13.91	
11	Nitrate (as NO ₃)	mg/l	APHA 23rd edition: Method 4500-NO3:2017	45	No relaxation	5.36	
12	Odour		IS 3025 (Part 5): 2018	Agrecable	Agrecable	Agreeable	
13	pH		1S 3025 (Part 11): 2022	6.5 to 8.5	No relaxation	8.21 at 25°C	
14	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part 43/Sec 1) Clause 6: 1992	0.001	0.002		
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24/ Sec1) Clause 5 : 2022	200	400	BLQ (LOQ-0.001)	
16	Taste		IS 3025 (Part 8): 1984	Agreeable	100	8.57	
17	Total dissolved solids	mg/l	IS 3025 (Part 16): 2023	500	Agreeable 2000	Agreeable	
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	2000	453	
19	Total hardness (as CaCO ₁)	mg/l	IS 3025 (Part 21) Clause 5 : 2009	200	600	0.2 178.03	

Please refer last Page for Note and Remarks.

Verified By

Technical Manager

Authorized Signatories

Technical Manager

hinmay outy Quality Manager



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Test Report

Test Report No. : /	ALPL/31082024/1-1	IA dated 31	/08/2024		Page 2 of 3
Issued To : M/s Kalamang Iron Mine		Sample Inward No. ALPL/19082024/MON- 430-EW-1/9-3		Analysis Start	20/08/2024
(M/s TATA Steel L		Inward Date	19/08/2024	Analysis End	26/08/2024
		9		Report Issue Date Sample Category	31/08/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particular Sample Code-GW-	The second second	Quantity R 5.0 Ltr & 2	
	llected By lab Giri	Sampling Date 16/08/2024	Sampling Time 11.50 am to 3.20 pm	Sampling L Sagasahi	ocation

			TEST RESULTS			n v mage	
S.N.	Test Parameter	Measurement Unit	Test Method	IS 10: (Drinking Wa	Requirement as per 1S 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		
				Acceptable Limit	Permissible Limit #		
Ш	Discipline : Chemical	Group : Re	sidues and contaminants i	n water	Subgroup : Trace m	etal elements	
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 2022	0.01	No relaxation	BLQ (LOQ-0.01)	
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2): 2019	0.03	0.2	BLQ (LOQ-0.02)	
22	Barium (as Ba)	mg/l	15 3025 (Part 2): 2019	0.7	No relaxation	BLQ (LOQ-0.02)	
23	Boron (as B)	mg/l	IS 3025 (Part 2): 2019	0.5	2.4	BLQ (LOQ-0.02)	
24	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	0.05	1.5	BLQ (LOQ-0.02)	
25	Cadmium (as Cd)	mg/l	IS 3025 (Part 2): 2019	0.003	No relaxation	BLQ (LOQ-0.002)	
26	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	1.0	No relaxation	0.18	
27	Lead (as Pb)	mg/l	IS 3025 (Part 2): 2019	0.01	No relaxation	BLQ (LOQ-0.01)	
28	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019	0.1	0.3	BLQ (LOQ-0.02)	
29	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BLQ (LOQ-0.001)	
30	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.01	No relaxation	BLQ (LOQ-0.01)	
31	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	BLQ (LOQ-0.02)	
32	Zinc (as Zn)	Tgm.	IS 3025 (Part 2): 2019	5	15	BLQ (LOQ-0.02)	
33	Polynuclear aromatic hydrocarbon (PAH)	µg/l	ANtr/7.2/RES/03: 2018	0.1	No relaxation	BLQ (LOQ-0.02)	
IV	Discipline : Chemical	Group	Residues and contamina	nts in water	Suberm	p : Other	
34	Mineral Oil	mg/l	ANtr/7.2/RES/06	1		BLO (LOO-0 001)	

Please refer last Page for Note and Remarks.

Verified By

Nidhi Dubey Deputy Technical Manager Pradnya Pillewan Deputy Technical Manager Authorized Signatory

chinmay Gapyay eputy Quality Hanager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Issued To : M/s Kalamang I (M/s TATA Steel L		Sample Inward No. Inward Date	ALPL/19082024/MON 430-EW-1/9-3 19/08/2024	Analysis Start Analysis End Report Issue Date Sample Category	Page 3 of 3 20/08/2024 26/08/2024 31/08/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particular Sample Code-GW-:		Quantity F	Received
Sample Co Mr. Bip		Sampling Date 16/08/2024	Sampling Time 11.50 am to 3.20 p	Sampling I	Location

			TEST RESUL	TS			
S.N.	Test Parameter	Measurement Unit	Test Method	(D	Requirement as per IS 10500 : 2012 Drinking Water Specifications) Including Amendment No. 4		Test Result
**	BY THE CLASSIC				ble Limit	Permissible Limit #	
v	Discipline : Chemical	Group : Resi	dues contaminants	in water	Subgrou	p : Pesticide	
35	Pesticide Residues Organochlori	ne					
1	Alpha-HCH	µg/I	ANto/7.2/RES/01: 20	810	0.01	No relaxation	BLQ (LOQ-0.01)
- 11	Beta HCH	μg/l	ANtr/7.2/RES/01: 2/	018	0.04	No relaxation	BLQ (LOQ-0.03)
111	Gamma - HCH (Lindane)	ид/1	ANtr/7.2/RES/01: 20	018	2	No relaxation	BLQ (LOQ-0.03)
īv	Delta- HCH	µg/l	ANto/7.2/RES/01: 20	018	0.04	No relaxation	BLQ (LOQ-0.03)
V.	Alachior	µg/I	ANtr/7.2/RES/01: 26	018	20	No relaxation	BLQ (LOQ-0.03)
vi	Aldrin	µg/l	ANtr/7.2/RES/01: 20		0.03	No relaxation	BLQ (LOQ-0.03)
VII	Dieldrin	pg/l	ANtr/7.2/RES/01: 20	Mark Comments	0.03	No relaxation	BLQ (LOQ-0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01: 20	018	125	No relaxation	BLQ (LOQ-0.03)
ix	p,p'+DDE	µg/I	ANtr/7.2/RES/01: 20	and the same of th	1	No relaxation	BLQ (LOQ-0.03)
X	o.p -DDE	µg/l	ANtr/7.2/RES/01: 20	termina and the same of the sa		No relaxation	BLQ (LOQ-0.03)
Xi ·	p.p'-DDD	µg/1	ANtr/7.2/RES/01: 20			No relaxation	The second division is not a second
XII	o,p'-DDD	1/2/1	ANtr/7.2/RES/01-20	-		No relaxation	BLQ (LOQ-0.03)
XIII	o.p'+ DDT	µg/l	ANtr/7.2/RES/01: 20	10.70		No relaxation	BLQ (LOQ-0.03)
xiv	p.p'- DDT	µg/I	ANtr/7.2/RES/01: 20	to the same of the	-	No relaxation	BLQ (LOQ-0.03)
XV	Monocrotophos.	µg/l	ANtr/7.2/RES/01-20	minds and a second	-i	No relaxation	BLQ (LOQ-0.03)
XVI	Atrazine	не/1	ANtr/7.2/RES/01: 20		2		BLQ (LOQ-0.03)
xvii	Parathion methyl	μg/1	ANtr/7.2/RES/01: 20		0.3	No relaxation	BLQ (LOQ-0.03)
xviii	Paraoxon methyl	µg/1	ANtr/7.2/RES/01: 20		Uid.	No relaxistion	BLQ (LOQ-0.03)
xix	Malathion	μg/l	ANtr/7 2/RFS/01 20	A CONTRACTOR OF THE CONTRACTOR	190	No of	BLQ (LOQ-0.03)
XX	Malaoxon	μg/1	ANtr/7 2/RES/01 20	All of the second secon		No relaxation	BLQ (LOQ-0.03)
XXI	Ethion	μg/l	ANtr/7.2/RES/01: 20	4943	-		BLQ (LOQ-0.03)
XXII	Chlorpyrifos		THE RESERVE OF THE PARTY OF THE	4444	3	No relaxation	BLQ (LOQ-0.03)
		µg/l	ANtr/7.2/RES/01: 20	118	30	No relaxation	BLQ (LOQ-0.03)

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

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Result for test no. R is not relevant. Antr/7.2/RES-01, Antr/7.2/RES-06: Inhouse validated method. NT indicates not Tested as sample faind to establish safety concerns. REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per IS: 10500:2012, for tests conducted only.

Verified By

Pradnya Pillewan Deputy Technical Manager

----End of Report----

Authorized Signatory

Chinmay Garway Deputy Quality Manager



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Test Report

Issued To:	ALPL/31082024/1-1	2A dated 31 Sample Inward No.	/08/2024 ALPL/19082024/MON- 430-EW-1/9-4	Analysis Start	Page 1 of 3 20/08/2024
M/s Kalamang I (M/s TATA Steel L		Inward Date	19/08/2024	Analysis End Report Issue Date Sample Category	26/08/2024 31/08/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particular Sample Code-GW-	The state of the s	Quantity Re 5.0 Ltr & 2	
Sample Co Mr. Bip	llected By lab Giri	Sampling Date 16/08/2024	Sampling Time 11.50 am to 3.20 pm	Sampling Lo Gandalpada	ocation

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per 1S 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result	
				Acceptable Limit	Permissible Limit#		
1		roup : Water	Subgroup : Drinking water				
1	Escherichia culi	Per 100 ml	IS: 15185	Absent	Absent	Absent	
H		oup : Water	Subgroup : Drinking water			1,410,604	
2	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23) : 1986	200	600	176.52	
3	Anionic Detergents (as MBAS)	mg/l	1S 13428 : (Annex K): 2005	0.2	1.0	BLQ (LOQ-0.1)	
4	Colour	Hazen units	IS 3025 (Part 4) Clause 4 : 2021	5	15	1	
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27/Sec 1) Clause 5: 2021	0.05	No relaxation	BLQ (LOQ-0.005)	
6	Chloride (as CI)	mg/l	18 3025 (Part 32) Clause 2:1988	250	1000	31.94	
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) Clause 5 : 1991	75	200	47.29	
8	Free Residual Chlorine	mg/l	IS 3025 (Part 26) Clause 7:2021	0.2	1	BLQ (LOQ-0.1)	
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) Clause 6 : 2008	1.0	1.5	0.24	
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) Clause 6: 1994	30	100	11.92	
11	Nitrate (as NO ₃)	mg/l	APHA 23 rd edition: Method 4500-NO3:2017	45	No relaxation	3.53	
12	Odour		IS 3025 (Part 5): 2018	Agreeable	Agreeable	Agrocable.	
13	pH		15 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.91 at 25°C	
14	Phenolic compounds (as C _a H ₂ OH)	mg/t	IS 3025 (Part 43/Sec 1) Clause 6: 1992	0.001	0.002	BLQ (LOQ-0.001)	
15	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24/ Sec1) Clause 5 : 2022	200	400	8.53	
16	Taste		IS 3025 (Part 8): 1984	Agreeable	Agrecable	The state of the s	
17	Total dissolved solids	mg/I	IS 3025 (Part 16): 2023	500	2000	Agrecable 476	
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	5	0.3	
19	Total hardness (as CaCO ₁)	mg/l	1S 3025 (Part 21) Clause 5 : 2009	200	600	167.12	

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut Technical Manager **Authorized Signatories**

Pooja Kathghe Technical Manager

himmay Go Seputy Quality Manager



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Test Report

Test Report No. : /	ALPL/31082024/1-1	2A dated 31	/08/2024		Page 2 of 3
Issued To: M/s Kalamang I (M/s TATA Steel L		Sample Inward No. Inward Date	ALPL/19082024/MON- 430-EW-1/9-4 19/08/2024	Analysis Start Analysis End Report Issue Date Sample Category	20/08/2024 26/08/2024 31/08/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particular Sample Code-GW-		Quantity Re 5.0 Ltr & 2	
7	llected By lab Giri	Sampling Date 16/08/2024	Sampling Time 11.50 am to 3.20 pm	Sampling Le Gandalpada	

			TEST RESULTS			
S.N.	Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wat	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4	
			× ·	Acceptable Limit	Permissible Limit #	
Ш	Discipline : Chemical	Group : Res	idues and contaminants i	n water S	Subgroup : Trace m	etal elements
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BLQ (LOQ-0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2): 2019	0.03	0.2	BLQ (LOQ-0.02)
22	Barium (as Ba)	mg/l	15 3025 (Part 2): 2019	0.7	No relaxation	BLQ (LOQ-0.02)
23	Boron (as B)	Figm	IS 3025 (Part 2): 2019	0.5	2.4	BLQ (LOQ-0.02)
24	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	0.05	1.5	BLQ (LOQ-0.02)
25	Cadmium (as Cd)	Tgm .	IS 3025 (Part 2): 2019	0.003	No relaxation	BLQ (LOQ-0.002)
26	Iron (as Fe)	mg/l	1S 3025 (Part 2): 2019	1.0	No relaxation	0.27
27	Lead (as Pb)	mg/l	IS 3025 (Part 2): 2019	0.01	No relaxation	BLQ (LOQ-0.01)
28	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019	0.1	0.3	BLQ (LOQ-0.02)
29	Mercury (as Hg)	mg/l	IS 3025 (Part 48) : 1994	0.001	No relaxation	BLQ (LOQ-0.001)
30	Selenium (as Se)	mg/l	IS 3025 (Part 56): 2003	0.01	No relaxation	BLQ (LOQ-0.01)
31	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2): 2019	0.05	No relaxation	BLQ (LOQ-0.02)
32	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	5	15	BLQ (LOQ-0.02)
33	Polynuclear aromatic hydrocarbon (PAH)	µg/I	ANtr/7.2/RES/03; 2018	0.1	No relaxation	BLQ (LOQ-0.03)
IV	Discipline : Chemical	Group:	Residues and contamina	nts in water	Subaro	p : Other
34	Mineral Oil	mg/I	ANtr/7.2/RES/06	1	No relaxation	BLQ (LOQ-0.001)

Please refer last Page for Note and Remarks.

Verified By

Deputy Technical Manager

Pradnyk Pillewan Deputy Technical Manager Authorized Signatory

Chinmay Gaway Deputy Quality Manager



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Test Report

LPL/31082024/1-1	2A dated 31	/08/2024		Page 3 of 3
ron Mine mited)	Sample Inward No. Inward Date	ALPL/19082024/MON- 430-EW-1/9-4 19/08/2024	Analysis Start Analysis End Report Issue Date Sample Category	20/08/2024 26/08/2024 31/08/2024 Water
Sample Source Dugwell	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	TOTAL PARTY OF THE	Quantity Re	
llected By ab Giri	Sampling Date 16/08/2024	Sampling Time 11.50 am to 3.20 pm	Sampling L	ocation
֡֡֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜	Sample Source Dugwell	Sample Inward No. Inward Date Sample Source Dugwell Sample Code-GW- Sampling Date	Sample Inward No. ALPL/19082024/MON- 430-EW-1/9-4 Inward Date 19/08/2024 Sample Source Dugwell Sample Code-GW-4 Scaled & Ice Preserved Blected By Sampling Date Sampling Time	Sample Inward No. ALPL/19082024/MON- 430-EW-1/9-4 Inward Date 19/08/2024 Analysis End Report Issue Date Sample Category Sample Source Dugwell Sample Code-GW-4 Scaled & Ice Preserved 5.0 Ltr & 2 Blected By Sampling Date Sampling Time Sampling Leading Leading Code Sampling Leading Leading Leading Code Sampling Date Sampling Time Sampling Leading Code Sampling Leading Code Sampling Code Sa

TEST RESULTS Requirement as per IS 10500: 2012 Measurement S.N. Test Parameter Test Method (Drinking Water Specifications) Test Result Unit Including Amendment No. 4 Acceptable Limit Permissible Limit # v Discipline: Chemical Group: Residues contaminants in water Subgroup : Pesticide 35 Pesticide Residues Organochlorine Alpha-HCH $\mu g/l$ ANtr/7.2/RES/01: 2018 0.01 No relaxation BLQ (LOQ-0.01) II Beta HCH Hg/I ANtr/7.2/RES/01: 2018 0.04 No relaxation BLQ (LOQ-0.03) Gamma - HCH (Lindane) iii $\mu g/I$ ANtr/7_2/RES/01: 2018 No relaxation 2 BLQ (LOQ-0.03) iv Delta-HCH иц/Т ANtr/7.2/RES/01: 2018 0.04No relaxation BLQ (LOQ-0.03) Alachlor v $\mu g/I$ ANtr/7:2/RES/01:2018 20 No relaxation BLQ (LOQ-0.03) Aldrin VI ng/I ANtr/7.2/RES/01: 2018 0.03No relaxation BLQ (LOQ-0.03) Dieldrin VII ANtr/7.2/RES/01: 2018 μцЛ 0.03 No relaxation BLQ (LOQ-0.03) Botachlor VIII $\mu\mu/1$ ANtr/7.2/RES/01: 2018 125 No relaxation BLQ (LOQ-0.03) p.p -DDE DC: $\mu g/I$ ANtr/7.2/RES/01: 2018 No relaxation BLQ (LOQ-0.03) o.p -DDE X $\mu g/1$ ANtr/7.2/RES/01: 2018 No relaxation BLQ (LOQ-0.03) XÌ p.p -DDD ANtr/7.2/RES/01: 2018 µg/l No relaxation BLQ (LOQ-0.03) XII o.p -DDD $\mu y/1$ ANtr/7.2/RES/01: 2018 No relaxation BLQ (LOQ-0.03) o.p - DDT xiii $\mu y/7$ ANtr/7.2/RES/01: 2018 No relaxation BLQ (LOQ-0.03) XIV p.p - DDT µg/l ANtr/7.2/RES/01: 2018 BLQ (LOQ-0.03) No relaxation XV Monocrotophos. $\mu g/1$ ANtr/7.2/RES/01: 2018 No relaxation BLQ (LOQ-0.03) XVI Atrazine $\mu g/1$ ANtr/7.2/RES/01: 2018 No relaxation BLQ (LOQ-0.03) XVII Parathion methyl $\mu g/1$ ANte/7.2/RES/01: 2018 0.3 No relaxation BLQ (LOQ-0.03) KVIII Paraoxon methyl pg/f ANtr/7.2/RES/01: 2018 BLQ (LOQ-0.03) XXX Malathion ANtr/7.2/RES/01: 2018 **HB/**3 190 No relaxation BLQ (LOQ-0.03) Malaccon XX ANtr/7.2/RES/01: 2018 1121/1 BLQ (LOQ-0.03) XXI Ethion pg/I ANtr/7.2/RES/01: 2018 No relaxation BLQ (LOQ-0.03) XXII Chlorpyrifos $\mu g/l$ ANti/7.2/RES/01: 2018

NOTE:

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30

Verified By

Pradnya Pillewan Deputy Technical Manager

----End of Report----

Authorized Signatory

No relaxation

BLO (LOQ-0.03)

hinmay Gary leputy Quality/Manager



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Test Report

Test Report No. : / Issued To : M/s Kalamang I (M/s TATA Steel L		Sample Inward No. Inward Date	/08/2024 ALPL/19082024/MON- 430-EW-1/9-5 19/08/2024	Analysis Start Analysis End	Page 1 of 3 20/08/2024 26/08/2024
	imicay			Report Issue Date Sample Category	31/08/2024 Water
Sample Name Ground Water	Sample Source Dugwell	Sample Particular Sample Code-GW-	7,100 W 10,000 00 00 00 00 00 00	Quantity Received 5.0 Ltr & 250 ml	
	ollected By lab Giri	Sampling Date 16/08/2024	Sampling Time 11.50 am to 3.20 pm	Sampling L Sunindpur	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per 18 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
1	The state of the s	roup : Water	Subgroup : Drinking water			
1	Escherichia coli	Per 100 ml	IS: 15185	Absent	Absent	Absent
H	Discipline : Chemical G	roup : Water	Subgroup : Drinking water			- 11:5000
2	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23): 1986	200	600	176.21
3	Anionic Detergents (as MBAS)	Pgm .	IS 13428 : (Annex K): 2005	0.2	1.0	BLQ (LOQ-0.1)
4	Colour	Hazen units	IS 3025 (Part 4) Clause 4 : 2021	5	15	10002120020011
5	Cyanide (as-CN)	mg/l	IS 3025 (Part 27/Sec 1) Clause 5: 2021	0.05	No relaxation	BLQ (LOQ-0.005)
6	Chloride (as CI)	mg/l	IS 3025 (Part 32) Clause 2:1988	250	1000	27.46
7	Calcium (as Ca)	mg/I	IS 3025 (Part 40) Clause 5 : 1991	75	200	48.97
8	Free Residual Chlorine	mg/I	1S 3025 (Part 26) Clause 7:2021	0.2	1	BLQ (LOQ-0.1)
9	Fluoride (as F)	mg/I	IS 3025 (Part 60) Clause 6 : 2008	1.0	1.5	0.21
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) Clause 6 : 1994	30	100	13.52
11	Nitrate (as NO ₁)	mg/I	APHA 23 rd edition: Method 4500-NO3:2017	45	No relaxation	7.29
12	Odour	_	IS 3025 (Part 5): 2018	Agrecable	Agreeable	Agrecable
13	pH	-	IS 3025 (Part 11): 2022	6.5 to 8.5	No relaxation	6.91 at 25°C
14	Phenolic compounds (as C _o H ₃ OH)	mg/I	IS 3025 (Part 43/Sec 1) Clause 6: 1992	0.001	0.002	BLQ (LOQ-0.001)
15	Sulphate (as SO ₄)	mg/I	IS 3025 (Part 24/ Sec1) Clause 5 : 2022	200	400	8.53
16	Taste		IS 3025 (Part 8): 1984	Agreeable	Agrecable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16): 2023	500	2000	457
18.	Turbidity	NTU	IS 3025 : (Part 10): 2023		5	0.3
19	Total hardness (as CaCO ₁)	mg/I	IS 3025 (Part 21) Clause 5 : 2009	200	600	177.95

Please refer last Page for Note and Remarks.

Snehal Raut

Verified By

Technical Manager

Authorized Signatories

Pooja Kathane Technical Manager

Chinmay Garway Deputy Quality Manager

5505



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Test Report

Test Report No.: ALPL/31082024/1-1 Issued To: M/s Kalamang Iron Mine (M/s TATA Steel Limited)		Sample Inward No. Inward Date	/08/2024 ALPL/19082024/MON- 430-EW-1/9-5 19/08/2024	Analysis Start Analysis End	Page 2 of 3 20/08/2024 26/08/2024
				Report Issue Date Sample Category	31/08/2024 Water
Sample Name	Sample Source	Sample Particular		Quantity Received	
Ground Water	Dugwell	Sample Code-GW-		5.0 Ltr & 250 ml	
Sample Collected By		Sampling Date Sampling Time		Sampling Location	
Mr. Biplab Giri		16/08/2024 11.50 am to 3.20 pm		Sunindpur Village	

			TEST RESULTS		A	an runge
S.N.	Test Parameter	Measurement Unit	Test Method	1S 105 (Drinking Wa	ment as per 500 : 2012 ter Specifications) mendment No. 4	Test Result
				Acceptable Limit	Permissible Limit #	
Ш	Discipline : Chemical	Group : Res	idues and contaminants i	n water 5	Subgroup : Trace m	etal elements
20	Arsenic (as As)	mg/l	IS 3025 (Part 37): 2022	0.01	No relaxation	BLQ (LOQ-0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2): 2019	0.03	0.2	BLQ (LOQ-0.02)
22	Barium (as Ba)	mg/l	IS 3025 (Part 2): 2019	0.7	No relaxation	BLQ (LOQ-0.02)
23	Boron (as B)	mg/l	IS 3025 (Part 2): 2019	0.5	2.4	BLQ (LOQ-0.02)
24	Copper (as Cu)	mg/I	IS 3025 (Part 2): 2019	0.05	1.5	BLQ (LOQ-0.02)
25	Cadmium (as Cd)	my/l	IS 3025 (Part 2): 2019	0.003	No relaxation	BLQ (LOQ-0.002)
26	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	1.0	No relaxation	0.24
27	Lead (as Pb)	mg/l	15 3025 (Part 2): 2019	0.01	No relaxation	BLQ (LOQ-0.01)
28	Manganese (as Mn)	mg/I	IS 3025 (Part 2): 2019	0.1	0.3	BLQ (LOQ-0.02)
29	Mercury (as Hg)	mg/l	IS 3025 (Part 48): 1994	0.001	No relaxation	BLQ (LOQ-0.001)
30	Selenium (as Se)	mg/l	TS 3025 (Part 56): 2003	0.01	No relaxation	BLQ (LOQ-0.01)
31	Total Chromium (as Cr)	mg/t	IS 3025 (Part 2): 2019	0.05	No relaxation	BLQ (LOQ-0.02)
32	Zine (as Zn)	mg/I	IS 3025 (Part 2): 2019	5	15	BLQ (LOQ-0.02)
33	Polynuclear aromatic hydrocarbon (PAH)	μg/1	ANts/7.2/RES/03: 2018	0.1	No relaxation	BLQ (LOQ-0.03)
IV	Discipline : Chemical	Group:	Residues and contamina	nts in water	Subero	ip : Other
34	Mineral Oil	mg/l	ANtr/7.2/RES/06	1	No relaxation	BLQ (LOQ-0.001)

Please refer last Page for Note and Remarks.

Verified By

Nidhi Dubey Depury Technical Manager Pradnya Pillewan Deputy Technical Manager

) ... Lya

Chinmay Garyay puty Quality Manager

Authorized Signatory



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Test Report

Test Report No.: ALPL/31082024/1-13A dated 31/08/2024 Page 3 of 3 ALPL/19082024/MON-Issued To: Sample Inward No. Analysis Start 20/08/2024 430-EW-1/9-5 M/s Kalamang Iron Mine Inward Date 19/08/2024 Analysis End (M/s TATA Steel Limited) 26/08/2024 Report Issue Date 31/08/2024 Sample Category Water Sample Name Sample Source Sample Particulars Sample Condition Quantity Received Ground Water Dugwell Sample Code-GW-4 Scaled & Ice Preserved 5.0 Ltr & 250 ml Sample Collected By Sampling Date Sampling Time Sampling Location Mr. Biplab Giri 16/08/2024 11.50 am to 3.20 pm Sunindpur Village

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	In	IS 1050 nking Wat cluding An	nent as per 00 : 2012 er Specifications) sendment No. 4	Test Result
47	0. 10. 0. 11			Acceptabl		Permissible Limit #	
V	Discipline : Chemical	Group : Resid	lues contaminants	in water	Subgrou	p : Pesticide	
35	Pesticide Residues Organochloria	ne					
1	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 20	18	0.01	No relaxation	BLQ (LOQ-0.01)
ii	Beta HCH	µg/I	ANtr/7.2/RES/01: 20	18	0.04	No relaxation	BLQ (LOQ-0.03)
iii	Ganima - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 20	18	2	No relaxation	BLQ (LOQ-0.03)
IV	Delta- HCH	µg/I	ANtr/7.2/RES/01: 20	18	0.04	No relaxation	BLQ (LOQ-0.03)
v	Alachior	μg/1	ANtr/7.2/RES/01: 20	18	20	No relaxation	BLQ (LOQ-0.03)
VÍ	Aldrin	µg/I	ANtr/7-2/RES/01: 20	18	0.03	No relaxation	BLQ (LOQ-0.03)
VII	Dieldrin	µg/l	ANtr/7.2/RES/01: 20	18	0.03	No relaxation	BLQ (LOQ-0.03)
viii	Butachlor	μg/1	ANtr/7.2/RES/01: 20	18	125	No relaxation	BLQ (LOQ-0.03)
IX	p.p*-DDE	µg/l	ANtr/7.2/RES/01: 20	18	1	No relaxation	BLQ (LOQ-0.03)
X	o.p -DDE	µg/1	ANtr/7.2/RES/01: 20	18	1	No relaxation	BLQ (LOQ-0.03)
XI	p.p -DOD	µg/l	ANtr/7.2/RES/01: 20	18	1	No relaxation	BLQ (LOQ-0.03)
XII	o.p'-DDD	pg/l	ANtr/7.2/RES/01: 20	18	1	No relaxation	BLQ (LOQ-0.03)
XIII	o.p - DDT	µg/l	ANtr/7.2/RES/01: 20	18	1	No relaxation	BLQ (LOQ-0.03)
XIV	p.p - DDT	ид/1	ANtr/7.2/RES/01: 20	18	1	No relaxation	BLQ (LOQ-0.03)
XV	Monocrotophos	µg/l	ANIt/7.2/RES/01: 20	18	1	No relaxation	BLQ (LOQ-0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 20		2	No relaxation	BLQ (LOQ-0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 20	18	0.3	No relaxation	BLQ (LOQ-0.03)
xviii	Paraoxon methyl	μμ/1	ANtr/7.2/RES/01: 20			*	BLQ (LOQ-0.03)
XIX	Malathion	μg/l	ANtr/7.2/RES/01: 20	1100	190	No reluxation	BLQ (LOQ-0.03)
XX	Malaoxon	pg/l	ANtr/7.2/RES/01: 20	and the same of th	*	A TO PERSONNELLE	BLQ (LOQ-0.03)
XXI	Ethion	µg/l	ANtr/7.2/RES/01: 20		3	No relaxation	BLQ (LOQ-0.03)
xxii	Chlorpyrifos	μg/1	ANtr/7,2/RES/01:20		30	No relaxation	BLQ (LOQ-0.03)

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Test report shall not be reproduced except to full without prior written approval of Anacon Labs. Liability of Anacon Labs is fonited to invoiced amount only. Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. Permissible limit in absence of an alternate source for drinking water. Imply is equivalent to 'ppm' graph' is equivalent to 'ppb' graph' and perishable method.

Result for test no. 8 is not relevant. Ante/7.2/RES-01, Ante/7.2/RES-06: Inhouse validated method. NT indicates not Tested as sample failed to establish safety concerns.

REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per 1S: 10500:2012,

for tests conducted only.

Verified By

Pradnya Pillewan Deputy Technical Manager

----End of Report----

Authorized Signatory

Chinmay Garyay Deputy Quanty Manager

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TC-12998

Test Report

ULR No.- TC129982400001623F

Fest Report No.: ALPL/30092024/1-9 Dr	ated: 30/09/2024	Page 1 of 1			
Issued To: M/s Kalamang Iron Mine (M/s TATA Steel Limited)	Sample Inward No.: ALPL/23092024/MON- 30-NQ-1/7-2 Inward Date: 23/09/2024 W.O.No.: 4700126596/962/962-30.05.2024	Report Issue Date:30/09/2024			
Sample Subgroup: Ambient Noise	Sample Particulars:				
Samplings details: Instrument ID : ALPL-TSL/CEIS-SLM/2024/02 Calibration Status :23/08/2024-22/08/2025 Make & Model : HTC-SL-1352 Serial No: 202405735	Name of Anacon Representative: Mr. Bipla Date of Sampling: 17/09/2024 to 18/09/2024 Date & time of sampling: 11:40 & 24 hrs Sampling location: Near Mines Lease				
	Reference to sampling procedure: ANtd/7.2/Mon-01				
	Reference to sampling plan: ANtd/7.3/Mon-02/Sept-2024/3				
	Weather Conditions : Satisfactory & Clear				
	Any other observation: (If applicable): -				

Discip	oline: Chemical			Co			
Grou	p: Atmospheric Pol	lution		1500			
	1			Test Results			
			Amb	ient Noise Le	evel		
Sr.	Location Test Metho		Test Result dB (A)		CPCB standards for Noise Levels		
No.		Test Method	Leq dB (A) (Day Time)	Leq dB (A) (Night Time)	Category of Areas:	Leq dB (A) (Day Time)	Leq dB (A) (Night Time)
La	Discipline: Che	mical Gr	oup: Atmosph	eric Pollution	Material or		: Ambient Noise
	According to the second	20	100	62.8	Industrial Area	75	70
1	Near Mines	IS 9989 71.2	71.0		Commercial Area	65	55
A	Lease Area-2		7.1.2		Residential Area	55	45
				Silence Zone	50	40	

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior written approval of Anacon Labs. Statement of conformity issued on the basis of decision rule as per quality procedure (QP/7.8/05).

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

Snehal Raut

Technical Manager

Authorized Signatory

Chinmay Garway Deputy Quality Manager

---End of Report----

Thank you for instilling your trust and faith in our services. We cherish our relationship with you, and we put in a lot of hard work in making sure that you get a seamless experience at every stage of your interaction with us. In our constant endeavour towards ensuring that your next experience will be significantly better than the current one, we welcome your feedback on feedback manager.







TC-12998

Test Report

ULR No.- TC129982400001624F

Test Report No.: ALPL/30092024/1-9 Dated: 30/09/2024 Page I of I Issued To: Sample Inward No.: ALPL/23092024/MON-30-M/s Kalamang Iron Mine Report Issue Date:30/09/2024 NO-1/7-3 (M/s TATA Steel Limited) Inward Date: 23/09/2024 W.O.No.: 4700126596/962/962-30.05.2024 Sample Subgroup: Ambient Noise Sample Particulars: Samplings details: Name of Anacon Representative: Mr. Biplab Giri Instrument ID : ALPL-TSL/CEIS-Date of Sampling: 18/09/2024 to 19/09/2024 SLM/2024/01 Date & time of sampling: 12:20 & 24 hrs. Calibration Status :23/08/2024-22/08/2025 Make & Model: HTC-SL-1352 Sampling location : Near Guali Village Serial No: 202405728 Reference to sampling procedure: ANtd/7.2/Mon-01 Reference to sampling plan: ANtd/7.3/Mon-02/Sept-2024/3 Weather Conditions: Satisfactory & Clear Any other observation: (If applicable) : -

Discip	oline: Chemical			250			
Grou	p: Atmospheric Pol	lution		W. W.			
				Test Results			
			Amb	ient Noise L	evel		
Se	Location Test Method		Test Result dB (A)		CPCB standards for Noise Levels		
Sr. No.		Test Method	Leq dB (A) (Day Time)	Leq dB (A) (Night Time)	Category of Areas:	Leq dB (A) (Day Time)	Leq dB (A) (Night Time)
L	Discipline: Che	mical Gre	oup: Atmosph	eric Pollution	Material or	Product tested	Ambient Nois
	20 5 5				Industrial Area	75	70
3.	Near Guali	15,0080	51.9	42.7	Commercial Area	65	55
Ser.	Village		5115	964.1	Residential Area	55	45
	200		24	Silunce Zone	50	40	

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior written approval of Anacon Labs. Statement of conformity issued on the basis of decision rule as per quality procedure (QP/7.8/05).

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

Snehal Raut

Technical Manager

Authorized Signatory

Chimnay Garway Deputy Quality Manager

--- End of Report---

Thank you for instilling your trust and faith in our services. We cherish our relationship with you, and we put in a lot of hard work in making sure that you get a seamless experience at every stage of your interaction with us. In our constant endeavour towards ensuring that your next experience will be significantly better than the current one, we welcome your feedback on feedback@anacon.in.

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TC-12998

Test Report

ULR No.- TC129982400001625F

Test Report No.: ALPL/30092024/1-10	Dated: 30/09/2024	Page 1 of 1		
Issued To: M/s Kalamang Iron Mine (M/s TATA Steel Limited)	Sample Inward No.: ALPL/23092024/MON- 30-NQ-1/7-4 Inward Date: 23/09/2024 W.O.No.: 4700126596/962/962-30.05.2024	Report Issue Date:30/09/2024		
Sample Subgroup: Ambient Noise	Sample Particulars:			
Samplings details: Instrument ID: ALPL-TSL/CEIS-SLM/2024/02 Calibration Status :23/08/2024-22/08/2025 Make & Model: HTC-SL-1352 Serial No:.202405735	Name of Anacon Representative: Mr. Biplat Date of Sampling: 18/09/2024 to 19/09/2024 Date & time of sampling: 12:55 & 24 hrs Sampling location: Near Kalamong Vil			
	Reference to sampling procedure: ANtd/7.2/Mon-01 Reference to sampling plan: ANtd/7.3/Mon-02/Sept-2024/3			
	Weather Conditions : Satisfactory & Clear Any other observation: (If applicable) : -			

Discip	oline: Chemical			En			
Grou	p: Atmospheric Pol	lution		1005			
			- 7	Test Results			
			Amb	ient Noise Le	evel		
Sr.	Lucation Test Method			ult dB (A)	CPCB standards for Noise Levels		
Sr. No.		Leq dB (A) (Day Time)	Leq dB (A) (Night Time)	Category of Areas:	Leq dB (A) (Day Time)	Leq dB (A) (Night Time)	
Ι,	Discipline: Che	mical Gr	oup: Atmosph	eric Pollution	Material or	Product tested	: Ambient Noise
	Near		1		Industrial Area	75	70
4.	Kalamong IS 9989	54.2	43.9	Commercial Area	65	35	
766		KA 2303	34.4	54.2 45.7	Residential Area	55	45
	village	Village			Silence Zone	50	40

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior written approval of Anacon Labs. Statement of conformity issued on the basis of decision rule as per quality procedure (QP/7.8/05).

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

Schal Raut Technical Manager

--- End of Report----

Authorized Signatory

Chinmay Garway Deputy Quality Manager

Thank you for instilling your trust and faith in our services. We cherish our relationship with you, and we put in a lot of hard work in making sure that you get a seamless experience at every stage of your interaction with us. In our constant endeavour towards ensuring that your next experience will be significantly better than the current one, we welcome your feedback on feedback@anacon.in.







TC-12998

Test Report

ULR No.- TC129982400001626F

Cest Report No.: ALPL/30092024/1-11	Dated: 30/09/2024	Page 1 of 1
Issued To: M/s Kalamang Iron Mine (M/s TATA Steel Limited)	Sample Inward No.: ALPL/23092024/MON-30- NQ-1/7-5 Inward Date: 23/09/2024 W.O.No.: 4700126596/962/962-30.05.2024	Report Issue Date:30/09/2024
Sample Subgroup : Ambient Noise	Sample Particulars:	
Samplings details: Instrument ID : ALPL-TSL/CEIS- SLM/2024/01 Calibration Status :23/08/2024-22/08/2025 Make & Model : HTC-SL-1352 Serial No:.202405728	Name of Anacon Representative: Mr. Biplab C Date of Sampling: 19/09/2024 to 20/09/2024 Date & time of sampling: 13:20 & 24 hrs Sampling location: Near Sagasahi Village Reference to sampling procedure: ANtd/7.2/M Reference to sampling plan: ANtd/7.3/Mon-02 Weather Conditions: Satisfactory & Clear Any other observation: (If applicable):-	on-01

Grou	p: Atmospheric Pol	lution					
				Test Results			
			Amb	ient Noise L	evel		
Sr.			Test Result dB (A)		CPCB standards for Noise Levels		
Sr. No.	Location Test Method		Leq dB (A) (Day Time)	Leq dB (A) (Night Time)	Category of Areas:	Leq dB (A) (Day Time)	Leq dB (A) (Night Time)
L	Discipline: Che	mical Gr	oup: Atmosph	eric Pollution	Material or	Product tested	the same of the sa
	Near	1			Industrial Area	75	70
5.	Sagasahi	Sagasahi 15 9989	48.3	39.7	Commercial Area	65	55
	The state of the s		40.0	40.3	Residential Area	.55	45
	Village				Silence Zone	50	40

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior written approval of Anacon Labs. Statement of conformity issued on the basis of decision rule as per quality procedure (QP/7.8/05).

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

Snehal Raut

Technical Manager

---End of Report---

Authorized Signatory

Lininmay Garway Deputy Quality Manager

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TC-12998

Test Report

ULR No.-TC129982400001627F

Test Report No.: ALPL/30092024/1-12	Dated: 30/09/2024	Page 1 of 1
Issued To: M/s Kalamang Iron Mine (M/s TATA Steel Limited)	Sample Inward No.: ALPL/23092024/MON- 30-NQ-1/7-6 Inward Date: 23/09/2024 W.O.No.: 4700126596/962/962-30.05.2024	Report Issue Date:30/09/2024
Sample Subgroup: Ambient Noise	Sample Particulars:	
Samplings details: Instrument ID: ALPL-TSL/CEIS-SLM/2024/02 Calibration Status:23/08/2024-22/08/2025 Make & Model: HTC-SL-1352 Serial No:.202405735	Name of Anacon Representative: Mr. Biplat Date of Sampling: 19/09/2024 to 20/09/2024 Date & time of sampling: 13:55 & 24 hrs Sampling location: Near Gandalpada V Reference to sampling procedure: ANtd/7.2/ Reference to sampling plan: ANtd/7.3/Mon-t Weather Conditions: Satisfactory & Clear	illage Mon-01

Discip	pline: Chemical			1			
Grou	p: Atmospheric Poll	ution					
			9.5	Test Results			
			Amb	ient Noise L	evel		
Sr.	Location Test Method		Test Result dB (A)		CPCB standards for Noise Levels		
No.		Leq dB (A) (Day Time)	Leq dB (A) (Night Time)	Category of Areas:	Leq dB (A) (Day Time)	Leq dB (A) (Night Time)	
L	Discipline: Cher	nical Gre	up: Atmosph	eric Pollution	Material or	territoria Principale Principale anno anno anno anno anno anno anno ann	: Ambient Noise
	Near				Industrial Area	75	70
6.	Gandalpada	a IS 9989	53.9	42.8	Commercial Area	65	55
1000	The state of the s	200,000	500497	76.0	Residential Area	.55	45
	Village				Silence Zone	50	40

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior written approval of Anacon Labs. Statement of conformity issued on the basis of decision rule as per quality procedure (QP/7.8/05).

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

Spehal Raut

Technical Manager

Authorized Signatory

Chinmay Carway Deputy Quality Manager

--- End of Report----

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Test Report

ULR No.- TC129982400001628F

Test Report No.: ALPL/30092024/1-13 Dated: 30/09/2024 Page I of I Issued To: Sample Inward No.: ALPL/23092024/MON-M/s Kalamang Iron Mine Report Issue Date:30/09/2024 30-NQ-1/7-7 (M/s TATA Steel Limited) Inward Date: 23/09/2024 W.O.No.: 4700126596/962/962-30.05.2024 Sample Subgroup: Ambient Noise Sample Particulars: Samplings details: Name of Anacon Representative: Mr. Biplab Giri Instrument ID: ALPL-TSL/CEIS-SLM/2024/01 Date of Sampling: 20/09/2024 to 21/09/2024 Calibration Status :23/08/2024-22/08/2025 Date & time of sampling: 14:25 & 24 hrs Make & Model: HTC-SL-1352 Serial No: 202405728 Sampling location: Near Sunindpur Village Reference to sampling procedure: ANtd/7.2/Mon-01 Reference to sampling plan: ANtd/7.3/Mon-02/Sept-2024/3 Weather Conditions : Satisfactory & Clear Any other observation: (If applicable) : -

Grou	p: Atmospheric Pol	lution					
				Test Results			
			Amb	ient Noise Le	evel	MILE OF THE	
Sr.	Location Test Method	The second	Test Result dB (A)		CPCB standards for Noise Levels		
No.		Leq dB (A) (Day Time)	Leq dB (A) (Night Time)	Category of Areas:	Leq dB (A) (Day Time)	Leq dB (A) (Night Time)	
L.	Discipline: Che	mical Gre	up: Atmosph	eric Pollution	Material or	Product tested	Ambient Noise
	Near	0.00			Industrial Area	75	.70
7.	Sunindpur	15 9989	46.3	20.1	Commercial Area	65	55
5.5	Control of the last of the las	13 3939	40.3	38.1	Residential Area	55	45
	Village			Silence Zone	50	40	

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior written approval of Anacon Labs. Statement of conformity issued on the basis of decision rule as per quality procedure (QP/7.8/05).

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

Snehal Raut

Technical Manager

---- End of Report----

Authorized Signatory

Phinmay Chrway Deputy Quality Manager

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TC-12998

Test Report

ULR No.- TC129982400001629F

Test Report No.: ALPL/3009202	4/1-14A	dated 30/09/2024		Page	1 of 2
Issued To: M/s Kalamang Iron Mine (M/s TATA Steel Limited)	Sample Inward No. Inward Date Reference Reference Date	ALPL/23092024/ 23/09/2024 W.O 47001265 30.05.2024	MON-30-W-1/5-1 96/962	Analysis Start Analysis End Report Issue Date	24/09/2024 30/09/2024 30/09/2024
Sample Name Ground Water	Sample Source Dugweil	Sample Condition Sealed & Ice Preserved	Purpose of Analysis Drinking	Quantity Re 5.0 Ltr & 2	
Sampling done by Anacon Representative Mr. Biplab Giri	Sampling Date 18/09/2024	Samplin 12.40 pm to		Sampling L Guali Vi	ocation

manufacture areas	mail: San.	A 24 A 24	production and the
THE	тъ	E-CF	HE PERC
10.00	B - PS	Pr. 75 B	LTS
		ALC: U.S. Taylor	

S.N.	N. Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wat Including An	nent as per 90 : 2012 er Specifications) sendment No. 4	Test Result
				Acceptable Limit	Permissible Limit#	
1	Discipline: Chemical		Group: Water	Material	or Product teste	d: Drinking water
1	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23)	200	600	176.31
2	Anionic Detergents (as MBAS)	mg/I	IS 13428 : (Annex K)	0.2	1.0	BLQ (LOX)-0.01)
3	Colour	Hazen units	IS 3025 (Part 4) Clause 4	5	15	1
4	Cyunide (as CN)	tig/i	IS 3025 (Part 27/Sec 1) Clause 5	0.05	No relaxation	BLQ (LOQ-0,005)
5	Chloride (as Cl)	Pagm:	IS 3025 (Part 32) Clause 2	260	1600	31.94
6	Calcium (as Ca)	mg/l	IS 3025 (Part 40) Chairse 5	75	200	46.28
7	Free Residual Chlorine	Taper	IS 3025 (Part 26) Clause 7	0.2	1	BLQ (LOQ-0.1)
8	Fluoride (as F)	Rett	IS 3025 (Part 50) Clause 5	1.0	14	0.21
9	Magnesium (as Mg)	Tam	IS 3025 (Part 46) Clause 6	30	100	13.58
10	Nitrate (as NO ₃)	mg3	APHA-23 st edition: Method 4500-NO3	45	No relaxation	5.76
11	Odour	100	IS 3025 (Part 5)	Agreeable	Agrocable	Agreeable
12	pH		IS 3025 (Part 11)	6.5 to 8.5	No relexation	6.93 at 25°C
13	Phenotic compounds	Tour	IS 3025 (Part 43/Sec 1) Clause 6	0.001	0.002	AND DESCRIPTION OF THE PARTY OF
14	Sulphate (as SO ₄)	Rgm	15 3025 (Part 24/ Sec1) Clause 5	200	400	BLQ (LOQ-0.001)
15	Taste	-	IS 3025 (Part 8)	Agreeable	The second secon	8.53
16.	Total dissolved solids	meil	IS 3025 (Part 16)	500	Agrecubic	Agreeable
17	Turbidity	NTU	JS 3025 : (Part 10)	1	2000	451
18	Total hardness (as CuCO ₃)	mol	IS 3025 (Part 21) Clause 5	200	600	172

Please refer last Page for Note and Remarks.

Verified By

Smithal Raut Technical Manager Authorized Signatory

Chimmay Garway Deputy Quality Manager

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TC-12998

Test Report

ULR No.- TC129982400001629F

Test Report No. : ALPL/3009202-		dated 30/09/2024		Page	2 of 2
M/s Kalamang Iron Mine (M/s TATA Steel Limited)	Sample Inward No. Inward Date Reference Reference Date	. ALPL/23092024/ 23/09/2024 W.O 47001265 30.05.2024	MON-30-W-1/5-1 96/962	Analysis Start Analysis End Report Issue Date	24/09/2024 30/09/2024 30/09/2024
Sample Name Ground Water	Sample Source Degwell	Sample Condition Scaled & Ice Preserved	Purpose of Analysis Drinking	Quantity Re 5.0 Ltr & 2	
Sampling done by Anacon Representative Mr. Biplab Giri	Sampling Date 18/09/2024	Samplin 12.40 pm to	g Time	Sampling Lo Guali Vi	ecation

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per 1S 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
**	The state of the s			Acceptable Lin	nit Permissible Limit #	
II	Discipline : Chemical	Group : Resid	ues contaminants i	n water Ma	terial or Product tested: Dri	nking water
19	Pesticide Residues Organochlurius					The same of the sa
1	Alpha-HCH	Pagi	ANU/7/J/RES/01	0.01	No relaxation	BLO (LOQ-0.01)
H	Bets HCII	Fgq	ANn/7.2/RES/01	0.04		RLQ (LOO-0.03)
III	Gamma - HCH (Lindarie)	ug/t	ANII/T.J/RES/01	2	No reference	BLQ (LOQ-0.03)
įv.	Delta- HCH	Papi	ANin/7,2/RES/01	0.04		BLQ (LOQ-0.63)
8	Afactalor	191	ANto/7.2/RES/01	20	No relexation	BLQ (LOQ-043)
11	Aldria	1001	ANto7,2/RES/01	0.03		BLQ (LOQ-0.03)
981	Dieldrin	Hg/l	ANu/7.2/RES/IH	0,03	21010000000000	H1.Q (LOQ-0.03)
570	Botachlor	re1	ANU7.2/RES/01	125	No releasition	BLQ (LOQ-6:03)
it	pp-006	NDT:	ANto7.2/RES/01	1	No relacation	BLQ (LOQ-0 B)
X	o.p -DOS	10g	ANn:7/2/RES/01	-1	No relaxation	BLO (LOC 4 03)
30	p.pDEID	pred .	ANn/7 2/KES/01	1	No relaxation	BLQ (LOQ-6.85)
300	etc-DDD	491	ANIO 2RESOI	1	No relaxation	BLQ-(LOQ-6.03)
XIII.	op-DDT	up1	AN6/7.2/RES/01		No referation	And in contrast of the last of
RIV.	pp'-DDT	µg/l	ANtr/7.2/RES/01	1	No reliazation	BLO (LOC-£ 05)
XV	Monocrotophos	ppi -	ANtr/7/2/RES/01	1 1	No relaxation	BLQ (LOQ-6-93)
KVI	Altuxine	ppl .	ANtr/7.2/RES/01	1 1	No relaxation	BLQ (EOQ-0.09)
EVE	Parathion methyl:	Hg/f	ANtr/7.2/RES/01	63		BLQ (LOQ-0.03)
Will .	Paracryon methyl	Figur	ANW7.2/RES/01	0.5	No relaxation	BLQ (LOQ-E01)
NIE.	Melathiese	pgt	ANI/7/2/RES/01	190	Management	BLQ (LOQ-0.03)
XX	Malioson	12A	ANis/7,2/815/01		No relocation	BL0 (L00-0.03)
KXI.	Ethion	Pau	AN#7.2455/01	- :	No. of	BLQ (LOC-0.03)
rtii	Chiopyrifes	Fgq	ANI/7.2/RES/01	36	No relaxation	BLO (LOQ-0.01)
	Phorate		HHILL ERECTVI	- 30	No religation	BLQ (LOQ-0.03)
xiii	A Designation of the Contract		100			
05331	Phorate-sulfone	Hg/l	ANn/7.2/EES/01	2	No relaxation	BLQ(LOQ-EB)
	Phorate-sulfoxide					

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REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per 18: 10500:2012, for tests conducted only.

Verified By

Authorized Signatory

Pradnya Pillewar

Chinmay Garway Thank you for the thirty your free and faith in our services. We cherish our relationship with Deputy Dealing Invaded of hard work in making sure that you get a seamless experience at every stage of your interaction with us. It our constant endeavour towards ensuring that your next Experience be significantly better than the current one,

we welcome your feedback on feedback@enacon.in.

Anacon Laboratories Pvt. Ltd. Nagpur Lab



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https://www.anaconlaboratories.com

Test Report

M/s Kalamang Iron Mine (M/s TATA Steel Limited) Reference Reference Date Sample Name Sample Source Sample Source	NLPL/23092024/ 3/09/2024 V.O 47001265 0.05.2024	MON-30-W-1/5-1 596/962	Analysis Start Analysis End Report Issue Date	1 of 1 24/09/2024 30/09/2024 30/09/2024
a this				
Diagneti Scaled c	le Condition E Ice Preserved	Purpose of Analysis Drinking	Quantity Re 5.0 Ltr & 2	
Sampling done by Sampling Date Anacon Representative Mr. Biplab Giri 18/09/2024	Samplin 12.40 pm t	g Time	Sampling Lo	ecation
	RESULTS	o 4.30 pm	Guali Vil	llage

S.N.	Test Parameter	Measurement Unit	TEST RESULTS Test Method	(Drinking W	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4	
	Patricular del a viva			Acceptable Limit	Permissible Limit#	
+	Discipline : Hiological	Group : Water		Mi	sterial or Product tested	Drinking water
-	Escherichia coli	Per 100 ml	IS: 15185	Absent	Absent	Absent
11	Discipline: Chemical	Group : Resid	ues and contaminants	in water	Material or Product to	100000000000000000000000000000000000000
2	Arsenic (as As)	rag/l	15 3025 (Part 37)	0.01	No relaxation	BLQ (LOQ-0.01)
3	Aluminium (as AI)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ (LOQ-0.02)
4	Barium (as Ba)	mg/l	15 3025 (Part 2)	0.7	No relaxation	BLQ (LOQ-0.02)
5	Boron (as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ (LOQ-0.02)
6	Copper (as Cu)	mgrl	15 3025 (Part 2)	0.05	1.5	BLQ (LOQ-0.02)
7	Cadmium (us Cd)	ing/i	15 3025 (Part 2)	0.003	No relacution	BLQ (LOQ-0.602)
8	Iron (as Fe)	mg/l	15.3025 (Part 2)	1.0	No relaxation	0.17
9	Lead (as Pb)	mig/T	15 3025 (Part 2)	0.01	No relaxation	the same of the sa
10	Manganese (as Mn)	mg/I	1S 3025 (Part 2)	0.1	0.3	BLQ (LOQ-0.01)
11	Mercury (as Hg)	mp/l	JS 3025 (Part 48)	0.001	No relaxation	BLQ (LOQ-0.02)
12	Selenium (as Se)	mg/l	IS 3025 (Part 56)	0.01	No relaxation	BLQ (LOQ-0.001)
13	Total Chromium (as Cr)	mg/t	IS 3025 (Part 2)	0.05		BLQ (LOQ-0.01)
14	Zine (as Zn)	mg/l	IS 3025 (Part 2)	5	No relaxation	BLQ (LOQ-0.02)
15	Polynuclear aromatic hydrocarbon (PAH)	µg/l	ANti/7.2/RES/03	0.1	No relaxation	BLQ (LOQ-0.02) BLQ (LOQ-0.03)
111	Discipline : Chemical	Group : Residues an	d contaminants in wa	iter	Manufaloration	C. 11 C. 11
16	Mineral Oil	mg/l	ANtr/7.2/RES/06	1	Material or Product to No relaxation	BLQ (LOQ-0.001)

NOTE: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior written approval of Anacon Labs. Liability of Anacon Labs is limited to involved amount only. Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. Permissible limit in absence of an alternate source for drinking water. Institute to "ppb" and applicable in a permissible limit in absence of an alternate source for drinking water. Institute of "mg/l" is equivalent to "ppb". BLQ= below limit of quantification. LOQ= limit of quantification. ANtr/7.2/RES-03, ANtr/7.2/RES/06: Inhouse validated method. Sampling Method-ANtd/7.2/MON-01 Eastronmental condition—Satisfactory. Statement of conformity issued on the basis of decision rule as per quality procedure (QP/7.6/05).

REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per IS: 10500:2012, for tests conducted only.

Verified By

Pradnya Pillewan Deputy Technical Manager Authorized Signatories

Pooja Kathane Technical Manager

chinmay Garway eputy Quality Manager

-End of Report-







TC-12998

Test Report

ULR No.- TC129982400001630F

Test Report No.: ALPL/3009202 Issued To:	I Section 1997	dated 30/09/2024		Page	Lof 2
M/s Kalamang Iron Mine (M/s TATA Steel Limited)	Sample Inward No. Inward Date Reference Reference Date	XLPL/23092024/1 23/09/2024 W.O 47001265 30.05.2024	MON-30-W-1/5-2 96/962	Analysis Start Analysis End Report Issue Date	24/09/2024 30/09/2024 30/09/2024
Sample Name Ground Water	Sample Source Dugwell	Sample Condition Scaled & Ice Preserved	Purpose of Analysis Drinking	Quantity Re 5.0 Ltr & 2	
Sampling done by Anacon Representative Mr. Biplab Giri	Sampling Date 18/09/2024	Sampling 12.40 pm to		Sampling La Kalamong	ocation

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- PERSONAL PROPERTY AND ADDRESS OF THE PERSONAL	Congre Will	The same of	THE PROPERTY.
	K-112	20.76.2	10 / 10 / 10
		ADM DEL	LTS

S.N.	Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wat Including An	ment as per 80 : 2012 ter Specifications) nendment No. 4	Test Result
				Acceptable Limit	Permissible Limit#	
-	Discipline : Chemical		Group : Water	Mate	rial or Product tes	ted: Drinking water
1	Total Alkalinity (as Calcium Carbonate)	Lym	15 3025 (Part 23)	200	600	194.57
2	Anionic Detergents (as MBAS)	mg/l	IS 13428 ; (Annex K)	0.2	1.0	BLOGGOODAG
3	Colour	Hazen units	IS 3025 (Part 4) Clause 4	5	15	BLQ (LOQ-0.01)
4	Cyanide (as CN)	Topm:	IS 3025 (Part 27/Sec 1) Clause 5	0.05	No relaxation	70 (2 (1 (2)) 2 (2)
5	Chloride (as CI)	mg/l	IS 3025 (Part 32) Clause 2	250		BLQ (LOQ-0.005)
6	Calcium (as Ca)	mg/l	IS 3025 (Part 40) Clause 5	75	1000	26,47
7	Free Residual Chlorine	mg/l	IS 3025 (Part 26) Clause ?	0.2	200	53.91
8	Fluoride (as F)	maf	15 3025 (Part 60) Clause 6	1.0	1.0	BLQ (LOQ-6.1)
9	Magnesium (as Mg)	Pam	1S 3025 (Part 46) Clause 6		1.5	0.21
10	Nitrate (as NO ₃)	mg/l	APITA 23 rd edition: Method 4500-NO3	30 45	100	13,54
11	Odour		15 3025 (Part 5)		No relaxation	7.26
12	pH		IS 3025 (Part 11)	Agreeable	Agrecable	Agrecable
13	Phenolic compounds	Fam	18/3025 (Part 11)	65 to 8.5	No relaxation	7.18 at 25°C
14	Sulphote (as SO ₄)	mg/l	18/3025 (Part 43/Sec 1) Clause 6	0.001	0.002	BLQ (LOQ-0.001)
15	Teste	THE STATE OF THE S	1S 3025 (Part 24/ Sect.) Clause 5	200	400	11.32
16	Total dissolved solids	mell	IS 3025 (Part 8)	Agreeable	Agrecable	Agreeable
17	Turbidity	NTU	IS 3025 (Part 16)	500	2000	-452
18	Total hardness (as CaCO ₃)	Pant	IS 3025 : (Part 10)		.5	
meta-	ease refer last Page for Note a		IS 3025 (Part 21) Clause 5	200	600	190

Please reter tast Page for Note and Remarks.

Verified By

Snehal Raut Technical Manager Authorized Signatory

Chinnuy Carway Deputy Quality Manager

Thank you for instilling your trust and faith in our services. We cherish our relationship with you, and we put in a lot of hard work in making sure that you get a seamless experience at every stage of your interaction with us. In our constant endeavour towards ensuring that your next experience will be significantly better than the current one, we welcome your feedback on feedback@anacon.in.







TC-12998

Test Report

ULR No.- TC129982400001630F

Test Report No.: ALPL/30092024/1-15A dated 30/09/2024 Page 2 of 2 Issued To: Sample Inward No. ALPL/23092024/MON-30-W-1/5-2 Analysis Start 24/09/2024 M/s Kalamang Iron Mine Inward Date 23/09/2024 Analysis End 30/09/2024 (M/s TATA Steel Limited) Reference W.O.-4700126596/962 Report Issue Date 30/09/2024 Reference Date 30.05.2024 Sample Name Sample Source Sample Condition Purpose of Analysis Quantity Received Ground Water Dugwell Scaled & Ice Preserved Drinking 5.0 Ltr & 250 ml Sampling done by Sampling Date Sampling Time Sampling Location Anacon Representative Mr. Biplah Giri 18/09/2024 12:40 nm to 4:30 nm Kalamone Willer

		100,000,000,000	16.71	chm m.475	no pun	10.0	among Village
_			TEST RESULT	S			- Interest
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per 1S 10500 : 2012 (Drinking Water Specifical Including Amendment N		00 : 2012 or Specifications)	Test Result
Tr.	407 T 40 MM			Acceptal	ble Limit	Permissible Limit #	
П	Discipline : Chemical	Group: Resid	uex contaminants i	n water	Material o	r Product tested: Drink	ne water
19	Pesticide Residues Organichlariae						77.00.55
1	Alpha-HCH	92/1	ANIOT DEED OF		0.01	No relaxation	HLQ (LOQ-6.5)
H.	Beta HCH	Tops .	ANic7.2/RES/01		0.04	No relocation	HLQ (LOQ-6-03
HI.	Gamma - HCH (Landanz)	Tags.	ANS/7.3/RES/01		2	No referention	BLQ (L0Q-0.05)
lv.	Delta-HCH	rg/l	- ANt/7.2/RES/01		0.04	No relaxation	BLO (LOO-0.03)
V.	Almistor	191	ANto/7,2/RES/01		20	No relevation	BLQ (LOQ-0.03)
74	Aldrin	1gg/	ANN/7.2/RES/01		0.03	No relevation	BLQ (LOQ-0.0)
vii	Dicidrin	Vg/l	ANto7.2%ES/01		0.03	No relaxation	BLQ (LOQ-0.0)
dit.	Butachlor	ParT .	AN67.2%E901		125	No refusation	BLQ (LOQ-0.03)
DC.	p.pDDE	ppT	ANt/7.2/RES/01	111	1	No relaxation	
5	equilibrie	127	ANtr/7-2/RES-01		1	No referation	HLQ (LOG-6:83)
81)	p.p/-DDD	927	ANtr/7.2/R [5/0]		- 1	Nevelaution	BLQ (LOQ-63)
101	e.pDDD	Pape	AND TERRENT		-		BLQ (LOQ-0.01
iii.	up - DDT	700	ANIs/T3/RES/0)			No relaxation	BEQ (LOQ-6.03)
dv_	p.pDDT	Fgs	ANIE/7.2/RES/01		-	No relaxation	REQ (EOQ-0.03)
CV.	Monocratiphos	- Fqc	ANn/7.2/RES/01	_	-	No relaxation	BLO (LOO-6:0)
VI.	Abarine	Ig1	ANin7.2/RES/01	_	-	No relaxation	BLQ (L0Q-0.03)
111	Parathion methyl	rg/T	ANti/7.2/EES/01	_	4	No religation	BLQ (LOG-6/18)
Vid.	Paracion medyl	pai	ANti/7/2/RES/01	_	0.3	No releonion	BLQ (L0Q-0.01)
žE.	Malathion	ppil		_	100		HLO (LOQ-3:03)
CX	Milanton	107	AND 7.2 RES/01		190	No reluxation	BLQ (L0Q-0.03)
3	Ethion	light	ANI/7.2/RES01		-	- 30	BLQ (L00-0.03)
xii	Oliopytifin		ANE/7 2/RES-01		-	No referation	BLQ (LOQ-0.03)
	Phorate	нот	ANn/7.2/RES/03		30	No relesation	BLQ (L0Q-6.9))
ciii	1 (1) philametria philametria philametria proprieta de la companya della companya						
un	Phornte-sulfone	др/1	ANW7.2/RES/01		2	No relaxation	BLQ (LOQ-0.03)
	Phorate-sulfoxide					- CATALON AND AND AND AND AND AND AND AND AND AN	- was the change

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REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per IS: 10500:2012, for tests conducted only.

Verified By

Authorized Signatory

Pradnya Pillewan

Thank you for institing your frust and faith in our services. We cherish our relationship wileyay Quidity Mehige a lot of hard work in making sure that you get a seamless experience at every stage of your interaction with us. In our constant endeavour towards ensuring that your next Englangement be significantly before than the current one, we welcome your feedback on feedback@anacon.in.

Anacon Laboratories Pvt. Ltd. Nagpur Lab



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Issued To: M/s Kalamang Iron Mine (M/s TATA Steel Limited)	Sample Inward No. Inward Date Reference Reference Date	ALPL/23092024/ 23/09/2024 W.O 47001265 30,05,2024	MON-30-W-1/5-2 96/962	Analysis Start Analysis End Report Issue Date	1 of 1 24/09/2024 30/09/2024 30/09/2024
Sample Name Ground Water	Sample Source Dugwell	Sample Condition Scaled & Ice Preserved	Purpose of Analysis Drinking	Quantity Re 5.0 Lir & 2	50 ml eation
Sampling done by Anacon Representative Mr. Biplab Giri	Sampling Date 18/09/2024	Samplin 12.40 pm to	g Time	Sampling Le Kalamong V	

S.N.		Test Parameter Measurement Unit	Test Method	(Drinking W	ement as per 0500 : 2012 ater Specifications) amendment No. 4	Test Result
				Acceptable Limit	Permissible Limit#	
+	Discipline : Biological	Group : Water	2		Material or Product to	sted: Drinking water
	Escherichia cali	Per 100 ml	IS: 15185	Absent	Absent	Absent
II	Discipline : Chemical	Group: Resid	ues and contaminants	in water	Material or Product te	
2	Arsenic (as As)	mg/l	IS 3025 (Part 37)	0.01	No relaxation	BLQ (LOQ-0.01)
3	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ (LOQ-6.62)
4	Barium (as Ba)	mg/l	IS 3025 (Part 2)	0.7	No relaxation	BLQ (LOQ-0.02)
5	Boron (as B)	tag/I	IS 3025 (Part 2)	0.5	2.4	BLQ (LOQ-0.02)
6	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ (LOQ-0.02)
7	Cadmium (as Cd)	mg/l	75 3025 (Part 2)	0.003	No relaxation	THE RESIDENCE OF THE PROPERTY OF THE PARTY O
8	Iron (as Fe)	mg/t	IS 3025 (Part 2)	1.0	No relaxation	BLQ (LOQ-0.002)
9	Lead (as Pb)	mg/l	JS 3025 (Part 2)	0.01	The second secon	0.24
10	Manganese (as Mn)	mg/l	18 3025 (Part 2)	0.1	No relaxation	BLQ (LOQ-0.01)
11	Mercury (as Hg)	mg/l	IS 3025 (Part 48)	0.001	0.3	BLQ (LOQ-0.02)
12	Sclenium (as Se)	mg/l	IS 3025 (Part 56)		No relaxation	BLQ (LOQ-0.001)
13	Total Chromium (as Cr)	ngA	IS 3025 (Part 2)	10.0	No relaxation	BLQ (I:OQ-0.01)
14	Zinc (as Zn)	mg/l	The state of the s	0.05	No relaxation.	BLQ (LOQ-0.02)
15	Polyauclear aromatic hydrocarbon (PAH)	149/1	IS 3025 (Part 2) ANtt/7.2/RES/03	0.1	No relaxation	BLQ (LOQ-0.02)
Ш	Discipline : Chemical		d contaminants in wa	100,000,00	100000000000000000000000000000000000000	BLQ (LOQ-6:03)
16	Mineral Oil	mg/l	ANtr/7,2/RES/06	T	Material or Product to No relaxation	BLO (LOO-0 001)

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REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per fS: 10500:2012, for tests conducted only.

Verified By

Deputy Technical Manager

Authorized Signatories

Pooja Kathahe Technical Manager

-End of Report-

Chinnay Garway equty Quality Manager







TC-12998

Test Report

ULR No.- TC129982400001631F

Test Report No.: ALPL/3009202 Issued To:	The state of the s	dated 30/09/2024		Page 1 of 2		
M/s Kalamang Iron Mine (M/s TATA Steel Limited)	Sample Inward No. Inward Date Reference Reference Date	XLPL/23092024/ 23/09/2024 W.O 47001265 30.05.2024	MON-30-W-1/5-3 96/962	Analysis Start Analysis End Report Issue Date	24/09/2024 30/09/2024 30/09/2024	
Sample Name Ground Water	Sample Source Dugwell	Sample Condition Scaled & Ice Preserved	Purpose of Analysis Drinking	Quantity Re 5.0 Ltr & 2		
Sampling done by Anacoa Representative Mr. Biplab Giri	Sampling Date 18/09/2024	Sampling 12.40 pm to	g Time	Sampling Le Sagasahi V	ocation	

TEST RESULTS

S.N.		Test Parameter Measurement Unit	Test Method	Require IS 105 (Drinking Wat Including Ar	Test Result	
-				Acceptable Limit	Permissible Limit #	
4.	Discipline : Chemical		Group: Water	Mat	erial or Product te	sted: Drinking water
1	Total Alkalinity (as Calcium Carbonate)	mg/I	1S 3025 (Part 23)	200	600	164.37
2	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K)	0.2	1.0	
3	Colour	Hazzo units	1S 3025 (Part 4) Clause 4	1 E	15	BLQ (LOQ-0.01)
4	Cyanide (as CN)	mg/i	IS 3025 (Part 27/Sec 1) Clause 5	0.05	No relucation	THE OF STREET
5	Chioride (as CI)	mg/l	IS 3025 (Part 32) Clause 2	250	The second secon	BLQ (LOQ-0.005)
6.	Calcium (as Ca)	mg/l	15 3025 (Part 40) Clause 5	75	1000	27.96
7	Free Residual Chlorine	me/l	15 3025 (Part 26) Clause 7	0.2	200	52.81
8	Flooride (as F)	Ing/I	1S 3025 (Part 60) Clause 6		1	BLQ (LOQ-0.1)
9	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) Clause 6	1.0	1.5	0.24
10	Nitrate (as NO ₃)	ligin	APHA 23 rd edition: Method 4500-NO3	30	100	12.57
11	Odour	1197		45	No relecation	5.91
12	pH		IS 3025 (Part 5)	Agrecable	Agrouble	Agrecable
13	Phenolic compounds	mg/l	18 3025 (Part 11)	6.5 to 8.5	No relection	8.16 at 25°C
14	Sulphate (as SO ₄)		18/3025 (Part 43/Sec 1) Clause 6	0.001	0.002	BLQ (LOQ-0.001)
15	Taste	nigd	IS 3025 (Part 24/ Sec1) Clause 5	200	400	8.53
16	Total dissolved solids	-	IS 3025 (Part 8)	Agreeable	Agreenble	Agrecable
17	Turbidity	right	3S 3025 (Part 16)	500	2000	437
18	Total hardness (as CaCO _c)	NEU	IS 3025 : (Part 10)	1	5	1
	ease refer last Page for Note a	Tam	IS 3025 (Part 21) Clause 5	200	600	184

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut Technical Manager Authorized Signatory

Chimmy Garway Deputy Quality Manager

Thank you for instilling your trust and faith in our services. We cherish our relationship with you, and we put in a lot of hard work in making sure that you get a seamless experience at every stage of your interaction with us. In our constant endeavour towards ensuring that your next experience will be significantly better than the current one, we welcome your feedback on feedback@anacon.in.







TC-12998

Test Report

Test Report No.: ALPL/3009202	The state of the s	dated 30/09/2024		Page	2 of -2
Issued To: M/s Kalamang Iron Mine (M/s TATA Steel Limited)	Sample Inward No Inward Date Reference Reference Date	- ALPL/23092024/ 23/09/2024 W.O 47001265 30.05.2024	MON-30-W-1/5-3 96/962	Analysis Start Analysis End Report Issue Date	24/09/2024 30/09/2024 30/09/2024
Sample Name Ground Water	Sample Source Dugwell	Sample Condition Sealed & Ice Preserved	Purpose of Analysis Drinking	Quantity Re 5.0 Ltr & 2	
Sampling done by Anacon Representative Mr. Hiplab Giri	Sampling Date 18/09/2024	Samplia 12.40 pm to		Sampling Lo Sagasahi V	ocation

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per 1S 10500 ; 2012 (Drinking Water Specifications) Including Amendment No. 4		00 ; 2012 er Specifications)	Test Result	
11	Disabilina - Characteri	Take Committee C			de Limit	Permissible Limit #		
19.	Discipline : Chemical	Group : Resid	ues contaminants i	n water	- Material c	or Product tested: Drinkin	g water	
431	Pesticide Residues Organichluring				7.75			
-	Alpha-HCH Beta HCH	1991	ANte? 27tES/01		0.01	No reluxation	BLQ (LDQ-0.01)	
111	**************************************	HIST	ANte/7.2/RES/01		0.04	No retaxation	BLQ (LOQ-0.03)	
	Gamma - HCH (Lindanz)	1107	ANIETZ/RES/01		2	No relexation	BLQ (LQQ-0,03)	
16.	Delta-HCH	sg/l	ANn/7.2/RES/01		0.04	No relaxation	HLD/LDQ-3631	
V	Alsohlor	Par	ANIs7.2/RES01	100	20	No relexation	BLQ/L00-0.039	
Ti.	Aldria	Total .	ANio7.2/RES/01		0.03	No relevation	BLQ (LOQ-0.03)	
VII.	Dieldrin	- Pgs	ANto7.2/RES/01		0.03	No relevation	BLQ (LOQ-en)	
viii	Butachlor	10/1	ANto7.2/RESIDE		125	No relevation	BLQ (LOQ-8.03)	
190	pp-DDE	1991	ANto7.2/(ES0)		1	No relaxation	8LQ (LOQ-8 83)	
X	n.pDDE	yg!	AND CARESDL		-1	No relaxation	BLQ (LOQ-6.03)	
Ri .	E8-000	1491	AND/7.2/RES/01		1	No relaxation	HLQ (LOQ-0.01)	
Mili	e.pDDD	125	ANtr/7:2/RES/01		1	No reference	BLQ (LOQ-6:03)	
wiii .	6.p-DDT	807	ANtr/7.2/RES/01			No relasition	BLQ (LOQ-6.03)	
NIV.	p.p'-DDT	121	AND/7.2/0185/01		1	No relauntion	BLQ (LOO-0.03)	
XV	Motocoppies	pg/l	ANIx/7.2/XPS/61			No relaxation	HLQ (LOQ-0.03)	
XVI	Afrazise	Figu	AND/7.2/RES/01		7	No relaxation	BLQ (LOQ-0.03)	
wii	Parethics mothy	rgT .	ANtt/7.2/RES/01		0.3	No relaxation	BLO (LOQ-003)	
DOME	Parseccos methyl	Fax	ANto7.2/RES/01		-	275,000,000	BLO GLOG-0.03	
XX	Malathion	yg/k	ANti/7.2/RES/01		190	No relaxation	BLQ (LDQ-0.03)	
NE.	Malacson	Tays	ANn/7.2/RES/01			TO TURKSHING		
xxi	Ethios	rat.	AND/7,2/RES/01		- 3	No relaxation	BLQ (LDQ-0.03)	
trui.	Chlopyrifes	101	ANto7,2/RES/01		30	No relaxation	HLQ (L0Q-0.03)	
71.65	Phorate		The state of the s			NO TEMPORE	BLQ (LOQ-0.03)	
xlii	Phonac-sulfine	µg/l	ANtr/7.2/RES01		2	NEW YORK WATER	THE WOOD SAFE OF STREET	
	Phomie-sulfoxide	140	VPAREA TO ARREST A		2	No relaxation	BLQ (LOQ-0(63)	

NOTE: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior written approval of Anacon Labs. Liability of Anacon Labs is limited to invoiced amount only. . Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise, . #Permissible limit in absence of an alternate source for drinking water. . 'mg/l' is equivalent to 'ppm'. 'pp/l' is equivalent to 'ppm'. ■ BLQ= below limit of quantification , LOQ= limit of quantification.
 ■ ANtr/7.2/RES-63, ANtr/7.2/RES-65: Inhouse validated method.
 ■ Sampling Method-ANtil/7.2/MON-01 · Environmental condition - Satisfactory. · Statement of conformity issued on the basis of decision rule as per quality procedure (QP/7.8/05).

REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per IS: 10500:2012, for tests conducted only.

Verified By

Authorized Signatory

Chinmay Shrway Thank you for instilling your rust are faith in our services. We cherish our relationship with my Quality Municipes lot of hard work in making sure that you get a seamless experience at every stage of your interaction with us. In our constant endeavour towards ensuring that your next to select the significantly better than the current one,

we welcome your feedback on feedback@anacon.in.

Anacon Laboratories Pvt. Ltd. Nagpur Lab

QFP-34, 35, Food Park, Five Star Industrial Estate, MIDC Butibori, Nagpur, Maharashtra, India - 441 122 ← + 91 8045685558衛Email : Info@anacon.in

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Test Report

	The second secon			
4/1-168	dated 30/09/2024		Dharas	1.00
Sample Inward No Inward Date Reference Reference Date	ALPL/23092024/ 23/09/2024		Analysis Start Analysis End Report Issue Date	24/09/202 30/09/202 30/09/202
Sample Source Dugwell	Sample Condition Sealed & Ice Preserved	Purpose of Analysis Drinking	Quantity Re	
Sampling Date 18/09/2024	Samplin	g Time	Sampling Lo	eation
	Inward Date Reference Reference Date Sample Source Dugwell Sampling Date	Sample Inward No. ALPL/23092024 Inward Date 23/09/2024 Reference W.O 47001263 Reference Date 30.05.2024 Sample Source Sample Condition Dugwell Sealed & Ice Preserved Sampling Date Samplin	Sample Inward No. ALPL/23092024/MON-30-W-1/5-3 Inward Date 23/09/2024 Reference W.O 4700126596/962 Reference Date 30.05.2024 Sample Source Sample Condition Purpose of Analysis Dugwell Sealed & Ice Preserved Drinking Sampling Date Sampling Time	Sample Inward No. ALPL/23092024/MON-30-W-1/5-3 Analysis Start Inward Date 23/09/2024 Analysis End Reference W.O 4700126596/962 Report Issue Date Reference Date 30.05.2024 Sample Source Sample Condition Purpose of Analysis Quantity Re Dugwell Sealed & Ice Preserved Drinking 5.0 Ltr & 2 Sampling Date Sampling Time Sampling Le

TEST RESULTS

			TEST RESULTS			
S.N.	.N. Test Parameter	Measurement Unit	Test Method	(Drinking W	rement as per 0500 : 2012 ater Specifications) Amendment No. 4	Test Result
	Windows - W. S. Jane			Acceptable Limit	Permissible Limit#	
-	Discipline : Biological	Group : Water	r .		Material or Product to	sted: Deinking water
1	Excherichia coli	Per 100 ml	IS: 15185	Absent	Absent	Absent
11	Discipline : Chemical	Group : Resid	lues and contaminants		Material or Product to	
2	Arsenie (as As)	figm	IS 3025 (Part 37)	0.01	No relaxation	
3	Aluminium (as Al)	mg/i	IS 3025 (Part 2)	0.03	0.2	BLQ (LOQ-0.01)
4	Barium (as Ba)	mg/l	IS 3025 (Part 2)	0.7	No relaxation	BLQ (LOQ-0.02)
5	Boron (as B)	mg/l	1S 3025 (Part 2)	0.5		BLQ (LOQ-0.02
Ó.	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	2.4	BLQ (LOQ-0.02
7	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)		1.5	BLQ (LOQ-0.02
8	Iron (as Fe)	mg/l	. IS 3025 (Part 2)	0.003	No relocation	BLQ (LOQ-0.002
9	Lead (as Pb)	mg/l	THE PERSON NAMED IN COLUMN 2 I	1.0	No relaxation	0.17
10	Manganese (as Mn)		IS 3025 (Part 2)	10.0	No relacution	BLQ (LOQ-0.01)
H	Mercury (as Hg)	mg/l	1S 3025 (Part 2)	0.1	0.3	BLQ (LOQ-0.02
12	Selenium (as Se)	mg/l	IS 3025 (Part 48)	0.001	No relaxation	BLQ (LOQ-0.001)
13	Total Chromium (as Cr)	mg/l	IS 3025 (Part 56)	0.01	No relocation	BLQ (LOQ-0.01)
14	Zinc (as Zn)	mg/l	JS 3025 (Part 2)	0.05	No relaxation	BLQ (LOQ+0.02)
		ing/l	35 3025 (Part 2)	5	15	BLQ (LOQ-0.02)
15	Polystucicar aromatic hydrocarbon (PAH)	μg/I	ANti/7.2/RES/03	0.1	No relaxation	BLQ (LOQ-0.03)
111	Discipline : Chemical	Group : Residues no	d contaminants in wa	tue		195000000000000000000000000000000000000
16	Mineral Oil	mg/l	ANti/7/2/RES/06	ici.	Material or Product to	
OTE	: • Please see watermark "Original	Total Discourse	- 14 HH / 22 H G S 1/0		No relaxation	BLQ (LOQ-0.001)

NOTE: Please see watermark "Original Test Report" to confirm the mathenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior written approval of Anacon Labs. Liability of Anacon Labs is limited to invoiced amount only. Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. Permissible limit in absence of an alternate source for drinking water. Timpft is equivalent to 'ppm'. Timpft is equivalent to 'ppm'. Timpft is equivalent to 'ppm'. Limit of quantification. Antr/7.2/RES-03, Antr/7.2/RES-06: Inhouse validated procedure (QP/7.8/08).

REMARKS: As requested by the client, sample was tested for above parameters only. The submitted sample complies with requirement as per IS:

Verified By

Pradnya Pillewan Deputy Technical Manager Authorized Signatories

Pooja Kathane Technical Manager

a common man

Chinmay Garway Deputy Quality Manager



Before the Notary Public Barbil, Dist-Keonjhar, Pdisha.

AFFIDAVIT

I, Atul Kumar Bhatnagar, son of S.S Bhatnagar, aged53 years, resident of Bungalow no- 28, Top Camp, PO: Noamundi- 833217, Dist: Singbum (West), Jharkhandpresently holding the post of General Manager (OM&Q), Tata Steel Limited is authorized signatory on behalf of M/s Tata Steel Limited, KalamangWest (Northern part) Iron Ore Block for filing application/ affidavit in connection with Environment Clearance, Consent to Establish, Consent to Operate, Hazardous Waste Authorization, Bio Medical Waste Authorization, do hereby solemnly affirm and undertake the following:

- 1. That, Environment Clearance is obtained for Kalamang West (Northern Part) Iron Ore Block from State Environment Impact AssessmentAuthority(SEIAA), Orissavide SEIAA File No. 55807/89-MINB1/06-2022 dated 18.10.2022.
- That, production is not started and as per EC dated 18.10.2022we will ensure Desilting of agricultural lands in buffer zone and beyond including nearby Nalas/rivers perennially periodically and perpetually caused due to wash up of minerals/OB/dumps shall be done as per SOP submitted.

That I, Atul Kumar Bhatnagar(Deponent) hereby read the above facts and submission and have understood the same and signing the undertaking on 31 day of March2023.

Ore Mines & Quarries
TATA STEEL

VERIFICATION

I,Atul Kumar Bhatnagarthe deponent do verify that the contents of this Affidavit are true to the best of my knowledge and belief

Verified on this 31stday of March 2023 at Barbil.

Anoja Manjari Mishra ADVOCATE & NOTARY Regd. No. ON/37 2012 VARBIL Day Monijing (ODISHA DEPONENT
General Manager
Ore Mines & Quarries
TATA STEEL

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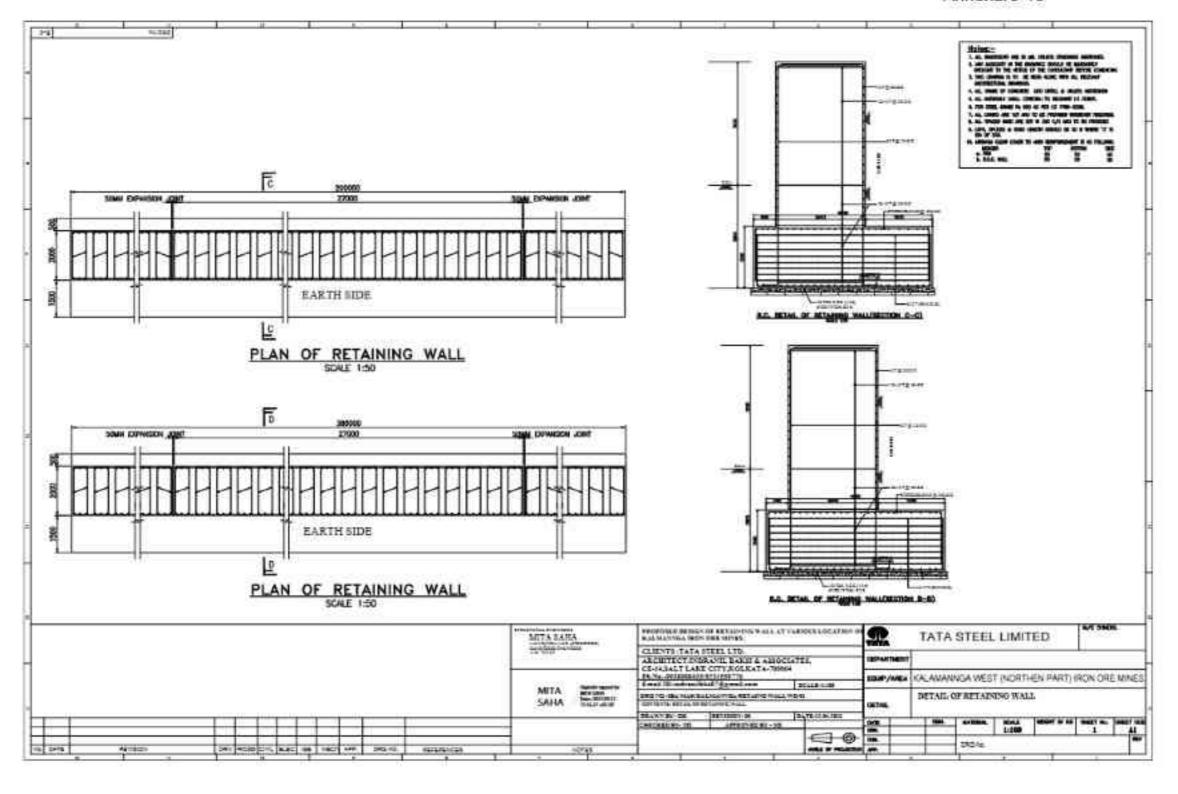
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Nammyrolis (H)

Grand!

Ore Mines & Quarries
TATA STEEL





Anacon Laboratories Pvt. Ltd. Nagpur Lab

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 MIDC Butibori, Nagpur, Maharashtra, India - 441 122
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Test Report

Ambient Noise Report-April-2024

Report No.: AN/NE/TS-I	KIM/2024/1-8		Date:30/04/2024
Name and Address of Industry:-	M/s Kalamang Iron Mine (M/s TATA Steel Limited)		
Sample Description/Type	Ambient Noise	Sample Ref. No.:-	ALPL/22042024/ENV-98/KIM/NE-1 to 7
Sample Drawn By:-	Anacon Representative	Data Inward date:-	22/04/2024
Sampling Procedure	ANtd/7.2/Mon-01	Sampling Method	IS 9989:1981(R2001)

Sampling Date: 15/04/2024 to 18/04/2024.

		Results dB(A)		
Sl. No.	Location Name	Day Time (6:00 am to 10:00pm)	Night Time (10:00 pm to 06:00am)	
Core Zone		4		
NE-1	Mines Lease Area	68.3	57.2	
NE-2	Mines Lease Area	71.2	64.9	
Buffer Zone				
NE-3	Guali Village	51.6	42.9	
NE-4	Kalamong Village	53.8	43.7	
NE-5	Sagasahi Village	48.2	37.6	
NE-6	Gandalpada Village	52.4	42.1	
NE-7	Sunindpur Village	47.9	38.7	
	Industrial Area	75.0	70.0	
Norms:	Commercial Area	65.0	55.0	
	Residential Area	55.0	45.0	

NOTES: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs.

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

For

- Bakdre

Snehal Raut

Deputy Technical Manager

Authorized Signatory

Dr. (Mrs.) S. D. Garway

Quality Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

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 ► + 91 8045685558 Email: info@anacon.in
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Test Report

Ambient Noise Report-May-2024

Report No.: AN/NE/TS-I	KIM/2024/1-8		Date:22/05/2024
Name and Address of Industry:-	M/s Kalamang Iron Mine (M/s TATA Steel Limited)		
Sample Description/Type	Ambient Noise	Sample Ref. No.:-	ALPL/17052024/ENV-131/KIM/NE-1 to 7
Sample Drawn By:-	Anacon Representative	Data Inward date:-	17/05/2024
Sampling Procedure	ANtd/7.2/Mon-01	Sampling Method	IS 9989:1981(R2001)

Sampling Date: 08/05/2024 to 11/05/2024.

	The same of the sa	Results dB(A)		
Sl. No.	Location Name	Day Time (6:00 am to 10:00pm)	Night Time (10:00 pm to 06:00am)	
Core Zone				
NE-1	Mines Lease Area	64.9	53.8	
NE-2	Mines Lease Area	72.1	67.3	
Buffer Zone				
NE-3	Guali Village	53.6	41.7	
NE-4	Kalamong Village	54.3	42.9	
NE-5	Sagasahi Village	47.1	38.6	
NE-6	Gandalpada Village	51.2	41.3	
NE-7	Sunindpur Village	52.6	42.7	
	Industrial Area	75.0	70.0	
Norms:	Commercial Area	65.0	55.0	
	Residential Area	55.0	45.0	

NOTES: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs.

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

Snehal Raut

Deputy Technical Manager

Authorized Signatory

Dr. (Mrs.) S. D. Garway

Quality Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Ambient Noise Report-June-2024

Report No.: AN/NE/TS-K	CIM/2024/1-8		Date:25/06/2024
Name and Address of Industry:-	M/s Kalamang Iron Mine (M/s TATA Steel Limited)		
Sample Description/Type	Ambient Noise	Sample Ref. No.:-	ALPL/21062024/ENV-151/KIM/NE-1 to 7
Sample Drawn By:-	Anacon Representative	Data Inward date:-	21/06/2024
Sampling Procedure	ANtd/7.2/Mon-01	Sampling Method	IS 9989:1981(R2001)

Sampling Date: 13/06/2024 to 17/06/2024.

(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)		Results dB(A)		
Sl. No.	Location Name	Day Time (6:00 am to 10:00pm)	Night Time (10:00 pm to 06:00am)	
Core Zone				
NE-1	Mines Lease Area	67.3	54.9	
NE-2	Mines Lease Area	71.6	62.7	
Buffer Zone				
NE-3	Guali Village	51.7	43.6	
NE-4	Kalamong Village	53.4	41.7	
NE-5	Sagasahi Village	48.3	37.9	
NE-6	Gandalpada Village	52.8	43.6	
NE-7	Sunindpur Village	51.2	42.7	
	Industrial Area	75.0	70.0	
Norms:	Commercial Area	65.0	55.0	
	Residential Area	55.0	45.0	

NOTES: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs.

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

Snehal Raut

Technical Manager

Authorized Signatory

Dr. (Mrs.) S. D. Garway

Quality Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Ambient Noise Report-July-2024

Report No.: AN/NE/TS-k	CIM/2024/1-8		Date:05/08/2024
Name and Address of Industry:-	10 A 10 A 10 A 10 A 10 A 10 A 10 A 10 A		
Sample Description/Type	Ambient Noise	Sample Ref. No.:-	ALPL/22072024/ENV-185/KIM/NE-1 to 7
Sample Drawn By:-	Mr. Biplab Giri (Sky Lab)	Data Inward date:-	22/07/2024
Sampling Procedure	ANtd/7.2/Mon-01	Sampling Method	IS 9989:1981

Sampling Date: 15/07/2024 to 19/07/2024

		Results dB(A)		
SI. No.	Location Name	Day Time (6:00 am to 10:00pm)	Night Time (10:00 pm to 06:00am)	
Core Zone		6		
NE-1	Mines Lease Area	71.3	62.8	
NE-2	Mines Lease Area	67.1	59.2	
Buffer Zone		A Comment		
NE-3	Guali Village	54.2	41.6	
NE-4	Kalamong Village	52.9	43.7	
NE-5	Sagasahi Village	48.3	37.2	
NE-6	Gandalpada Village	46.7	38.1	
NE-7	Sunindpur Village	51.2	42.9	
	Industrial Area	75.0	70.0	
Norms:	Commercial Area	65.0	55.0	
	Residential Area	55.0	45.0	

NOTES: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs.

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

Snehal Raut

Technical Manager

Authorized Signatory

(Mrs.) S. D. Garway



Anacon Laboratories Pvt. Ltd. Nagpur Lab

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Test Report

Ambient Noise Report-August-2024

Report No.: ALPL/310820	24/1-8		Date:31/08/2024
Name and Address of Industry:-	M/s Kalamang Iron Mine (M/s TATA Steel Limited)		
Sample Description/Type	Ambient Noise Sample Ref. No.:- ALPL/19082024/N		ALPL/19082024/MON-430-ENQ- 1/7-1 TO 7
Sample Drawn By:-	Mr. Biplab Giri	Data Inward date:-	19/08/2024
Sampling Procedure	ANtd/7.2/Mon-01	Sampling Method	IS 9989:1981

Sampling Date: 13/08/2024 to 17/08/2024

	West State of State o	Results dB(A)		
SI. No.	Location Name	Day Time (6:00 am to 10:00pm)	Night Time (10:00 pm to 06:00am)	
Core Zone				
NE-1	Mines Lease Area	64.7	53.9	
NE-2	Mines Lease Area	71.2	61.8	
Buffer Zone				
NE-3	Guali Village	47.1	38.2	
NE-4	Kalamong Village	54.2	42.6	
NE-5	Sagasahi Village	49.7	38.1	
NE-6	Gandalpada Village	51,3	41.8	
NE-7	Sunindpur Village	47.6	37.4	
	Industrial Area	75.0	70.0	
Norms:	Commercial Area	65.0	55.0	
	Residential Area	55.0	45.0	

NOTES: ● Please see watermark "Original Test Report" to confirm the authenticity of this report. ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs.

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

Snehål Raut Technical Manager

----End of Report----

Authorized Signatory

Chinmay Garway Deputy Quanty Manager







Test Report

ULR No.- TC129982400001622F

Test Report No.: ALPL/30092024/1-8 Dated: 30/09/2024 Page 1 of 1

Issued To: Sample Inward No.: ALPL/23092024/MON-M/s Kalamang Iron Mine Report Issue Date:30/09/2024 30-NQ-1/7-1 (M/s TATA Steel Limited) Inward Date: 23/09/2024 W.O.No.: 4700126596/962/962-30.05.2024 Sample Subgroup: Ambient Noise Sample Particulars: Samplings details: Name of Anacon Representative: Mr. Biplab Giri Instrument ID: ALPL-TSL/CEIS-SLM/2024/01 Date of Sampling: 17/09/2024 to 18/09/2024 Calibration Status :23/08/2024-22/08/2025 Date & time of sampling: 10:55 & 24 hrs Make & Model: HTC-SL-1352 Serial No: 202405728 Sampling location: Near Mines Lease Area-1 Reference to sampling procedure: ANtd/7.2/Mon-01 Reference to sampling plan: ANtd/7.3/Mon-02/Sept-2024/3

Weather Conditions: Satisfactory & Clear

Any other observation: (If applicable):
Discipline: Chemical

Group: Atmospheric Pollution

				Test Results			
			Amb	ient Noise Le	evel		
Sr. No.	Location	Test Method	Test Result dB (A)		CPCB standards for Noise Levels		
			Leq dB (A) (Day Time)	Leq dB (A) (Night Time)	Category of Areas:	Leq dB (A) (Day Time)	Leq dB (A) (Night Time)
I.	DV 1 II OU 1 I						
	Near Mines Lease Area-1	IS 9989	68.2	54.9	Industrial Area	75	70
1.					Commercial Area	65	55
					Residential Area	55	45
					Silence Zone	50	40

NOTES: Please see watermark "Original Test Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior written approval of Anacon Labs. Statement of conformity issued on the basis of decision rule as per quality procedure (QP/7.8/05).

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

Snehal Raut

Technical Manager

----End of Report----

Authorized Signatory

Chinmay Chrway Deputy Quality Manager

Thank you for instilling your trust and faith in our services. We cherish our relationship with you, and we put in a lot of hard work in making sure that you get a seamless experience at every stage of your interaction with us. In our constant endeavour towards ensuring that your next experience will be significantly better than the current one, we welcome your feedback on feedback@anacon.in.

Anacon Laboratories Pvt. Ltd. Nagpur Lab



सीएसआईआर–केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान CSIR-Central Institute of Mining and Fuel Research

(वैज्ञानिक तथा और्योगिक अनुसंधान परिषद / Council of Scientific & Industrial Research) (विज्ञान एवं प्रौद्योगिकी मंत्रालय, भारत सरकार / Ministry of Science & Technology, Govt. of India)

बरवा रोड, धनबाद - 826001, झारखण्ड, भारत / Barwa Road, Dhanbad - 826001, Jharkhand, India

(आईएसओ 9001 प्रमाणित संस्थान / ISO 9001 Certified Institute)

By Email / Speed Post ईमेल / स्पीड पोस्ट द्वारा

पत्र संख्या : CIMFR/SSLM/SKR/2024/ 433

सेवा मे.

श्री एस.एस.मिश्रा

प्रमुख, कलामंग पश्चिम

कलामंग और गंधालपाड़ा परियोजना कार्यालय

जोडा वेस्ट, जोडा क्यांझर, ओडिशा

पिन- 758034

To.

Sri S. S. Mishra

Head, Kalamang West

Kalamang and Gandhalpada Project Office

दिनांक: 27.06.2024

Joda West, Joda Keonjhar, Odisha

Pin- 758034

Mobile - 7752004329

विषय:

"मैसर्स टाटा स्टील लिमिटेड की कलामांग पश्चिम (उत्तरी भाग) लौह अयस्क के खदान और डंप के लिए ढलान

स्थिरता" पर अंतिम रिपोर्ट।

Subject:

Final Report on "Slope Stability for Pit and Dumps of Kalamang West (Northern Part) Iron Ore

Mine of M/s TATA STEEL LTD."

महोदय / Sir

कार्यादेश क्रमांक 4700115685/962, आदेश जारी होने की तारीख 04.09.2023, के संदर्भ में कृपया आपके अवलोकनार्थ उपर्युक्त विषय पर रिपोर्ट की दो प्रतियां संलग्न है। कृपया इसकी प्राप्ति स्वीकार करें। इसके अलावा, इससे संबंधित ग्राहक संतुष्टि फीडबैक फॉर्म संलग्न है जिसे टिक-चिह्नित करना, भरना, हस्ताक्षरित करना, मुहर लगाना और फिर हमें वापस लौटाना होगा। इस परियोजना को पूरा करने में सीएसआईआर-सीआईएमएफआर टीम द्वारा किए गए प्रयासों को ध्यान में रखते हुए, हमें ग्राहक संतुष्टि फीडबैक फॉर्म के साथ आपकी ओर से एक प्रशंसा पत्र प्राप्त करने में खुशी होगी।

With reference to work order no. 4700115685/962, order release date 04.09.2023, kindly find attached two copies of the report on the above-mentioned subject for your kind perusal. Kindly acknowledge the receipt of the same.

Moreover, kindly find the customer satisfaction feedback on the subject which needs to be tickmarked, filled, signed, stamped and then returned back to us. Considering the effore placed by CSIR-CIMFR team in completing this project, we would be happy to get an appreciation letter from your side along with customer satisfaction feedback form.

धन्यवाद / Thanking You!

भवदीय / Yours Faithfully

STA BAIR 2121-06-2024

(डॉ संजय कुमार राय / Dr. SANJAY KUMAR ROY)

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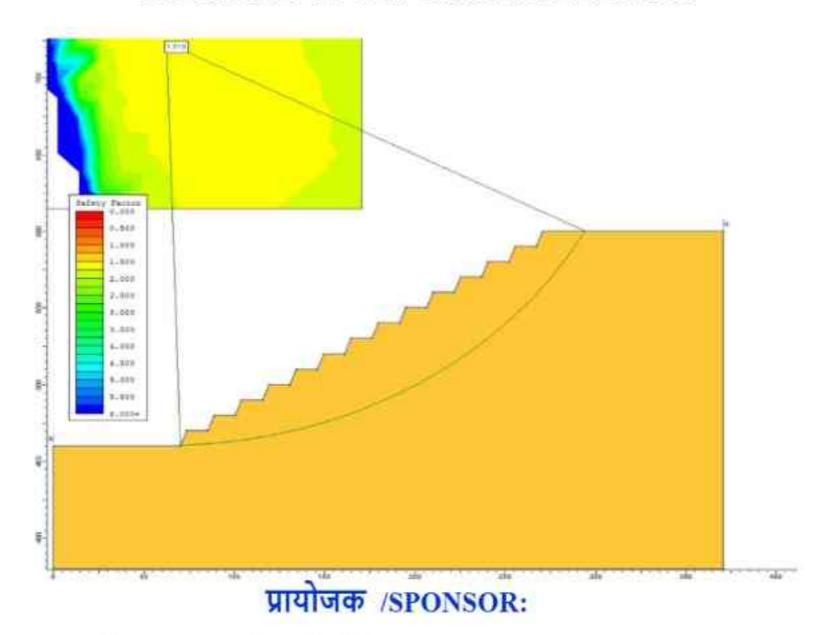
(Council of Scientific and Industrial Research)





परियोजना का शीर्षक / PROJECT TITLE:

मेसर्स टाटा स्टील लिमिटेड की कलमांग पश्चिम (उत्तरी भाग) लौह अयस्क के खदान और डंपों के लिए ढलान स्थिरता पर वैज्ञानिक अध्ययन और सलाह। SCIENTIFIC STUDY AND ADVICE ON SLOPE STABILITY FOR PIT AND DUMPS OF KALAMANG WEST (NORTHERN PART) IRON ORE MINE OF M/s TATA STEEL LTD.



मैसर्स टाटा स्टील लिमिटेड (M/s TATA STEEL LTD)

जून, 2024 / June, 2024

परियोजना क्रमांक (PROJECT NO.): CNP/5246/2023-24

CSIR-Central Institute of Mining and Fuel Research, Dhanbad

(Council of Scientific and Industrial Research)

Project Title : Scientific Study and Advice on Slope Stability for Pit

and Dumps of Kalamang West (Northern Part) Iron

Ore Mine of M/S Tata Steel Ltd.

CIMFR Project No. CNP/5246/2023-24

Sponsor M/s Tata Steel Limited

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June, 2024

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Conclusions and recommendations mentioned in the report are based on the geo-mining conditions specified in the report. Moreover, CSIR-CIMFR has no control in implementation of the recommendations stipulated in the report, research team will not be held responsible for any untoward incidences caused by change in geo-mining conditions as well as due to non-compliance to recommendations of the report.

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Chief Scientist & Head of Section Slope Stabilisation & Landslide Management

CSIR-CIMFR Authorised Signatories

(Niraj Kumar) Senior Principal Scientist & HOS

Project Planning and Monitoring

(J. K. Pandey) Chief Scientist & HORG

Project Planning & Industry Interface

SCIENTIFIC STUDY AND ADVICE ON SLOPE STABILITY FOR PIT AND DUMPS OF KALAMANG WEST (NORTHERN PART) IRON ORE MINE OF M/s TATA STEEL LTD.

INTRODUCTION

Opencast mining involves removal of overburden to expose different seams for mineral production. Overburden removed from the mine can be disposed at external dumps created at a site away from the ore bearing area or at internal dumps created by in-pit dumping concurrent to the creation of voids by extraction of ore. Advantages of in-pit dumping include less requirement of additional land and low cost of transport and is a preferred choice of the mine management, wherever it is possible.

The benefit of an open pit operation largely depends on the use of the steepest slopes possible, which should not fail during the life of the mine. Steepening the slopes of a mine, thereby reducing the amount of material to be excavated, can save a vast sum of money. At the same time excessive steepening may result into slope failure leading to loss of production, extra stripping costs to remove failed material, reforming of benches, rerouting of haul roads and production delays. The design of dumps is dictated by safety considerations of the dump so as to avoid dump failure, and the limitations of space available for external dump within mining lease area to accommodate high volume of overburden dump material. Design of internal and external dumps are done considering safety and economy.

The slope stability department of CSIR-CIMFR is rendering its services for optimum and safe slope designs of mines and dumps for different mines all over India from last about 30 years. During last ten years CIMFR has completed more than 50 projects in coal and non-coal sectors on slope stability.

M/s TATA STEEL Limited, requested CSIR-CIMFR for slope stability studies of pit and dumps of Kalamang West (Northern Part) Iron Ore Mine, Kalamang, Koida, Sundargarh, Odisha, vide work order no. 4700115685/962 dated 04/09/2023. Accordingly, CSIR-CIMFR team visited for physical observation of the virgin mine, collection of relevant plans, sections and samples. Since the mine is virgin, therefore, samples were collected from outcrop regions, exposed portions, neighboring mines for estimating the shear strength properties of the materials present in the mine region.

The scope of work includes pit and dump slope stability of proposed pits and dumps in Kalamang West (Northern Part) Iron Ore Mine belonging to M/s Tata Steel Limited in light of the existing Metalliferous Mines Regulations, 1961 and DGMS (Tech) Circular 03 of 2020.

CSIR-CIMFR took up the work of scientific study and carried out field investigation, geo-mechanical testing of pit and dump materials. Available geo-mechanical strength data were also considered in the process of scientific study and design. The outcome of scientific study for pit and dump slope design along with appropriate recommendations for ensuring safety and stability of proposed Pit and OB dump have been presented in this report.

LOCATION & LITHOLOGY

Kalamang West (Northern Part) Iron Ore Mine is situated at Kalamang & Ghodabudhani village in Koida Tehsil of Sundargarh District and Gandhalpada village of Barbil Tehsil in Keonjhar District, Odisha. The mine is present under Geological Survey of India toposheet no. 73G/5. The mine is bounded by the latitudes from 21°56'47.757" to 21°57'32.347" N and longitudes from 85°17'06.658" to 85°17'57.531" E. The nearest town to Kalamang Iron Ore Mine is Koira which is at a distance of about 5.5 km from the mine lease area. National highway, NH-215 is in the NW direction of the mine lease area at a distance of about 1.80 km. Two small rivers namely, Suna Nadi and Karo Nadi are at a distance of about 1.9 km in E and 3.1 km in NW respectively from the mine lease. The nearest railway station is Barbil, which is about 18 km from the mine village in NE direction. The major drainage of the area is contributed by Suna Nadi and Karo Nadi. There is no seasonal nala flowing in the mine lease area.

The various litho types observed are discussed below:

- (a) Banded Iron Formation: The Banded Iron Formation is represented by BHJ (Banded Hematite Jasper)/ BHQ (Banded Hematite Quartzite)/ BHC (Banded Hematite Chert), inter-bedded black or green shale and banded ferruginous chert, BHJ occurs in isolated pockets and is highly brecciated.
- (b) Ferruginous Shale: The lower shale is brownish in colour and very often contains intercalated bands of chert. The upper shale contains several unmappable units such as carbonaceous shale, banded shale, sandy claystone, shales and mudstones etc. The brownish red coloured banded shale units also include inter-bands of BIF.
 - (c) Iron Ore: The thinly laminated, Hematite ore bodies exposed in the valley area

are very often laterised near the surface. At places, the iron ore, mostly Hard laminated Ore (HLO) is partly and heavily laterised develops the laterised iron ore/ laterised HLO. Extensive area is covered by fragmentary ore.

- (d) Laterites: The laterite has developed mostly over the shale unit of the area and depending upon the composition of shale, different types of laterites have developed.
- (e) Alluvial Soil: The low-lying areas, valley, nala etc. are filled up with alluvial soil. It is reddish brown in colour in most of the covered area.

PHYSIOGRAPHY, DRAINAGE & RAINFALL

The area is a highly rugged terrain with elongated hills trending in ENE-WSW direction, low mounds and narrow valleys. The highest elevation is 687m above MSL forms the ridge and the lowest elevation is 584 m above MSL, which forms the valley floor in this block.

A dendritic type of drainage pattern is generally displayed by the area. Because of the hilly topography, there is only one seasonal drainage channel found in the western part of the area. Suna nadi is a perennial river flowing from South to North outside the area at a distance of 2 km towards South-East and it becomes West-East from Malda and debouch into river Baitarani. The drainage channel originating in the western part of the area traverses through the area towards South.

The Sundergarh district have sub-tropical climate characterized by hot and dry summer, cold winter and rainfall in monsoon. The winter season extends from November till the end of February, which is followed by summer season from March to the middle of June, and rainy season from middle of June to middle of October. During summer months the maximum temperature raises up to 43° C and May is the hottest month. December is the coldest month of the year when the average daily temperature drops down to 8° C. Relative humidity is around 60-70% throughout the year. The highest and lowest monthly mean relative humidity is recorded as 97% in December and 26% in April. Average annual rainfall is 1535 mm. About 80% of the total rainfall is received during the period from June to September. On an average there are 79 rainy days in a year.

GEOLOGY AND STRUCTURE

Regional Geology

As per the revised mining plan provided by the mine management, Kalamang Iron

Ore Mine is a part of the Bonai-Kendujhar belt of Sundargarh and Kendujhar districts. The feebly metamorphosed Precambrian volcano-sedimentary rocks exposed in this belt between the Singhbhum granite on the east and Bonai granite on the west are classified as "Iron Ore Group" or "Koira Group". These rocks are disposed in the form of a low northernly plunging "Horse-shoe" shaped synclinorium. The basal formation comprises of gritty sandstone. This is followed by mafic volcanics. The lava grades into purple colour tuffaceous shale conformably towards the upper part and is described as 'Lower Shale Formation'. The lower shale passes into the "Banded Iron Formation". The "Banded Iron Formation" is represented by BHJ/BHQ/BMQ, inter-bedded black or green shale and banded ferruginous chart. The "Banded Iron Formation" is overlain by the "Upper Shale Formation" comprising of thick sequence of tuffaceous purple, white and buff coloured shale, black shale, banded ferruginous shale with inter-bedded chart and BHJ/BHQ/BMQ bands and spreading over the entire core of the synclinorium. A younger sequence of conglomerate and sandstone described as Kolhan Group exposed on the northern and north-eastern part of the belt unconformably overlie the Koira Group of rocks. The iron ore bodies associated with the "Upper Shale Formation", occur at much lower topgraphic elevation (450-650m) within the core of the synclinorium compared to the major iron ore deposits belonging to the "Banded Iron Formation" and occurring at the ridge tops (750-950m). The regional stratigraphic sequence of South Singhbhum & Bonai area is shown in Table 1.

Table 1: Stratigraphic Succession of South Singhbhum and Bonai Area

Lithology

Group/Formation

Kolhan Group Sandstone, Conglomerate, Breccia
------Unconformity------

Mixed Facies Formation Basic Lava, tuffs and tuffites of Volcanic facies Iron,

Manganese, lenses of Iron formation, chert, small dolomite

patches of chemical facies, Minor lenses of sandy and silty shale

of clastic facies

Banded Shale Formation Banded shale member

Black shale member

Black shale-chert member

Koira Group

Banded Iron Formation Finely banded Jaspilite member

Coarsely banded Jaspilite member

Volcanic Formation

Tuffaceous shale

Basic lava

Basal sandstone, Gritty sandstone, Iron Conglomeratic at places

with inter-bedded lava at top

-----Unconformity-----

Singhbhum Granite with enclaves of older meta-basic and meta-sedimentary rocks.

Local Geology

The local stratigraphic succession is shown in Table 2.

Table 2: Stratigraphic Succession of Kalamang West Iron Ore Mine

Group/ Formation Lithology

Recent Soil/ Alluvium cover

Cenozoic Laterites (Fe-Laterite)

Ferruginous Shale Unit: Shale of different coloration like pink, cream

and yellow, variegated with inter beds of Iron ore

Upper Shale Iron Ore Unit: powdery ore, soft laminated Ore (SLO) and Hard

Fromation laminated Ore/ Lateritised Hard Laminated Ore with shal intercalation

Shale (mainly yellowish limonitized variegated/ cherty/ tuffaceous

Shale)

BIF Formation BIF (BHJ/BHQ/BHC and chert), coarsely banded Jaspellite followed

up by finely banded Jaspellite.

The various litho types observed in the course of large scale and detailed mapping in the area are BHJ, ferruginous shale, banded shale, Iron ore, lateralized hard laminated ore, laterite/ Fe-laterite, float ore and soil.

Banded Iron Formation

The 'Banded Iron Formation' is represented by BHJ (Banded Hematite Jasper)/BHQ (Banded Hematite Quartzite)/ BHC (Banded Hematite Chert), inter- bedded black or green shale and banded ferruginous chert. The BHJ/BHQ mostly exposed south of the present area serve as an important marker horizon. Major Iron ore bodies are closely associated with these litho-units. Megascopically BHJ/BHQ comprises alternate bands (laminations less than 5mm thick) of hematite and dark brown to red jasper/ white or grey quartzite. near Kalamanga village, BHJ in isolated pockets and is highly brecciated, ferrugenised with presence of

numerous thin quartz veins. BHJ bands within the synclinal valley are exposed around Gandalpada village. They are discontinuously exposed along strike for a maximum length of 100m in a single outcrop. The BHQ bands in the valley area are affected by shearing showing unevenness of the jasper bands. Megascopically, the individual jasper bands /laminations are seen to be much thicker as compared to that of the Iron oxide rich bands / laminations within the BHJ. The jasper contains small discrete aggregates of quartz, opaque grains and ferruginous materials. The quartz occurs as anhedral to subhedral grains. Hematite forms anhedral grains and masses.

Ferruginous Shale (Fe- shale)

It is represented by a finely laminated rock having varied shades of color ranging from white, maroon, dark gray, brownish and purple to green etc. The coloration of the shale is largely dependent on the mineral composition. It is mostly composed of clayey micaceous minerals mainly sericite and occasional presence of biotite along the fracture or slip plane, with lenses of chert. The lower shale is brownish in color and rich in Iron and very often contains intercalated bands of chert. The upper shale contains several unmappable units such as carbonaceous shale, banded shale, sandy claystone, shales and mudstones etc. The brownish red coloured ferruginous and banded shale units also include inter-bands of BIF. Most of the area containing this unit is lateritised extensively. In Kalamang area, laterite is mostly rich in Iron.

Iron Ore

The thinly laminated, hematitic ore bodies exposed in the area are very often lateralized near surface. However, in-situ boulder outcrops of hard and soft laminated, massive ores are found at the identified blocks. 'Canga' zones occur near to the Iron ore bodies within the hard lateritised duricrust and contain mostly Iron ore floats. At places, the Iron, mostly Hard laminated Ore (HLO) is partly or heavily lateritised developing the lateritised Iron ore/ Latertised HLO. Though at places the discontinuous in-situ ore body is observed, extensive part of the area is covered by fragmentary ore.

Laterite

South-western, South-eastern and north-western part of the area is covered by laterite of various types. The laterite has developed mostly over the shale unit of the area and depending upon the composition of the shale, different types of laterite have developed. Lateralization has also taken place over the Iron ore body also. Ferruginous laterite occupies

mostly observed in the area and is wide-spread.

Alluvial Soil

The low-lying areas are filled up with alluvial soil. It is ferruginous in nature and reddish brown in color in most of the covered area; but grey to light brown colored soil is also observed over the cultivable land. In most of the area, the soil is moderately coarse in nature whereas it is loamy in the cultivation land. Since the area is devoid of any perennial nala or river, the soil has been deposited in the valley area mostly from the low order nala or from the slope wash of the nearby hillock occupied by the Iron Ore Group of rocks. Thus, it has been derived mainly from is upper reach source rocks like BIF, Iron ferruginous shale ore laterite, which controls the characteristics of the soil.

The geological surface plan of Kalamang West (Northern Part) Iron Ore Mine has been shown in Figure 1.

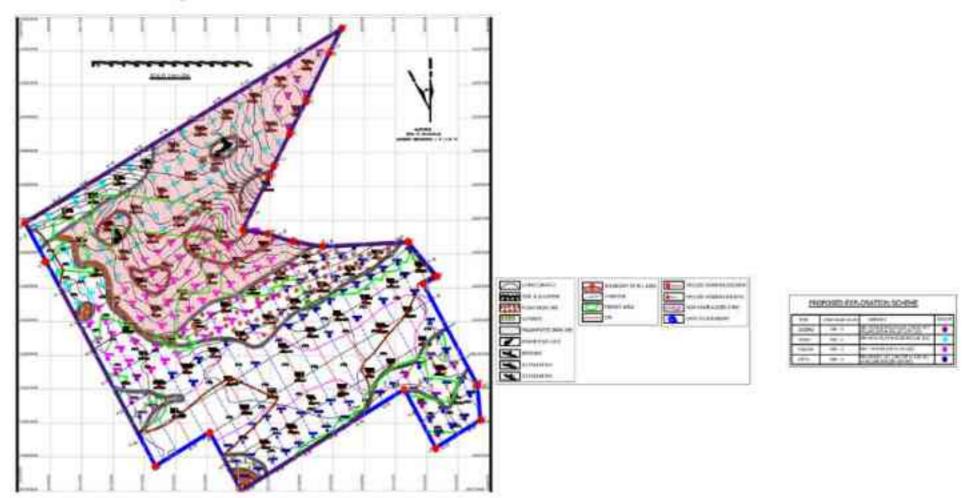


Fig. 1: Geological surface plan of Kalamang West (Northern Part) Iron Ore Mine

METHOD OF MINING

As per the approved mining plan provided by the mine management and field investigation, it has been found that the area has remained completely virgin so far and no mining operations was carried out in the past. In consideration of the targeted production level, fully mechanized opencast mining has been proposed in the approved mining plan with HEMM and deep-hole drilling. The mine plan has been proposed keeping in mind the objective of exploiting the highly laminated ore and fragment ore taking into consideration

the ease in approachability of the ore body and disposal of ore and waste.

In the plan period from 2023-24 to 2026-2027, about 9150000 tons of saleable iron ore shall be produced. As the mining activity in the lease area has to be initiated for the first-time, e.g., scrapping of soil and alluvium, cutting of trees/bushes, making of access roads, infrastructure development etc. will be given preference. After the development of access road to the targeted area a box cut will be opened and thereafter, it will be expanded both laterally and depth ward to fulfill the required production target.

Mining machineries like Dumper, Tipper, Excavator, Front End Loader, Dozer, DTH (Rotary-Percussion), top Hammer will be employed in the mine. Fully mechanized method of mining will be adopted on three shifts per day with an effective shift timing of 6 hrs. For processing of the mineral produced, a stationary crusher with screening facility of adequate capacity will be installed.

As per the approved mining plan provided by the mine management, the individual bench faces will be kept nearly at 80° whereas the overall quarry slope angle will be maintained at less than 45° from the horizontal. Iron ore will be loosened through deep hole drilling & blasting. Slurry explosive (large diameter) will be used for blasting purpose in the mines. The ROM will be fed to a crushing/screening plant. The haul road used for movement of machineries and for transportation will be maintained at suitable gradient of preferably less than 1 in 16. Inter-bench ramps have been planned to facilitate movement of equipment. The approach roads and ramps along with main access road will be regularly graded and compacted using dozers to avoid formation of pot holes. As provided by the mine management, the development plan for Kalamang West (Northern Part) Iron Ore Mine up to the year 2026-27 is shown in Figure 2. Different sections along the proposed ultimate pit has been provided by the mine management. These sections have been shown in Figures 3 to 12. Mine management also provided the section of temporary dump to study the impact of temporary dump on the overall stability of the pit as per 5 year working plan (up to development year 2026-27), and has been shown in Figure 13.

Excavator of capacity up to 4 m³ and dumpers of up to 50-ton capacity will be engaged for excavation and transportation of mineral. Waste generated from the quarry will be stacked on the proposed dump. All the mining activities like deep hole drilling, blasting, excavation, loading and transportation will be carried out by using heavy earth-moving machineries. Keeping in view the above aspects, the proposed method of mining justifies coming under category A-FM (Fully mechanized).

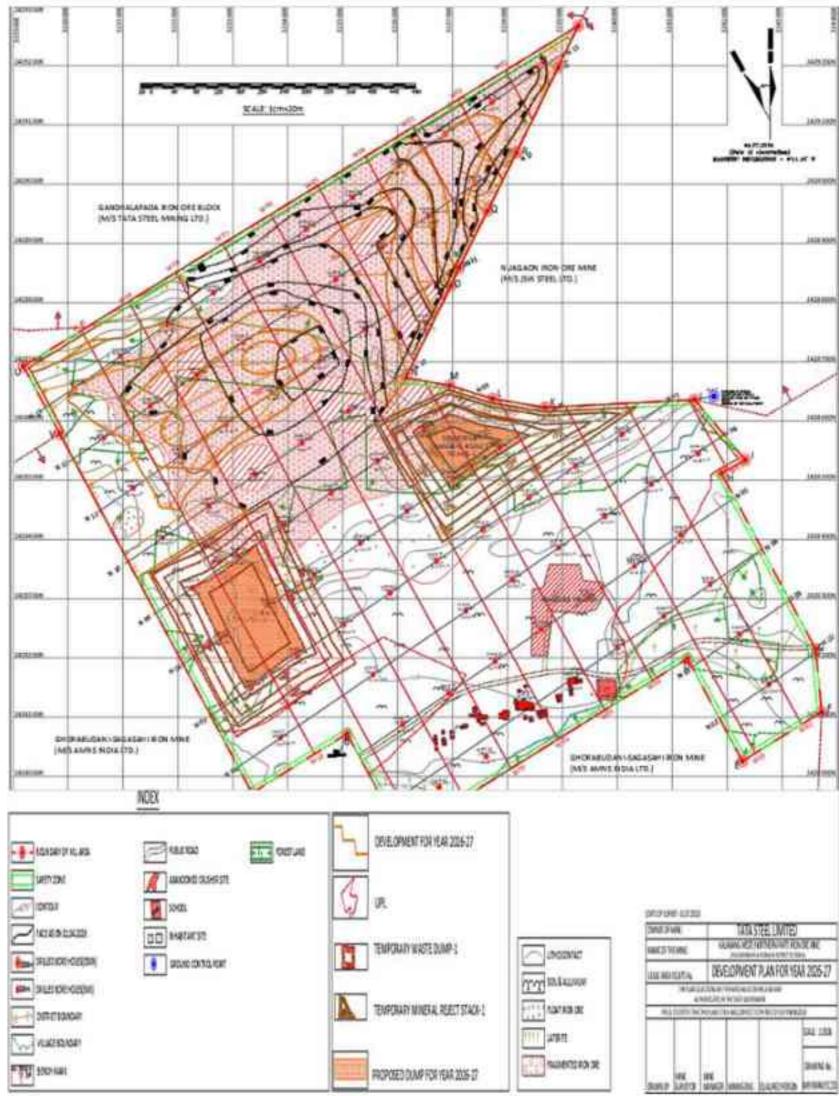


Fig. 2: Development plan up to year 2026-27 of Kalamang West (Northern Part) Iron Ore Mine



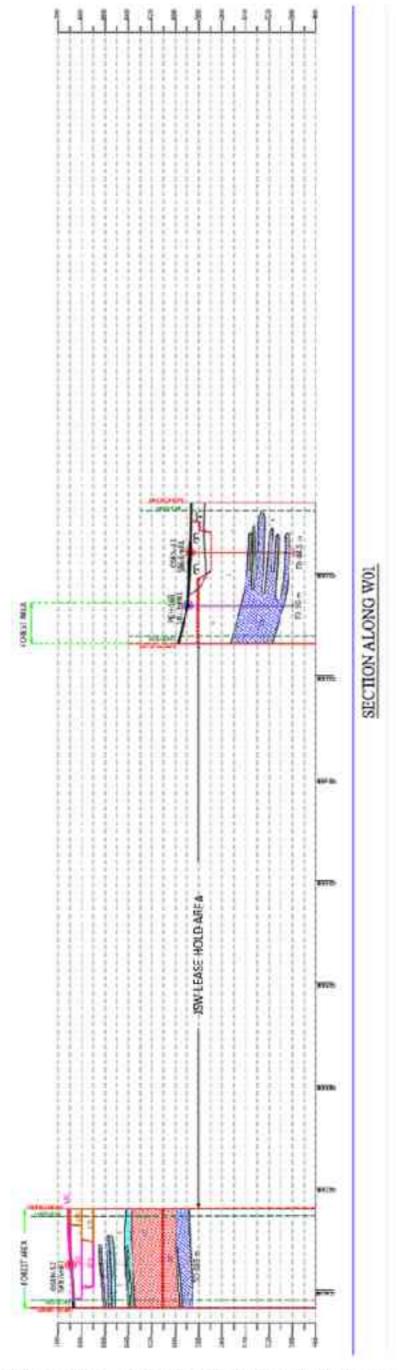


Fig. 3: Section Along W01 of Kalamang West (Northern Part) Iron Ore Mine



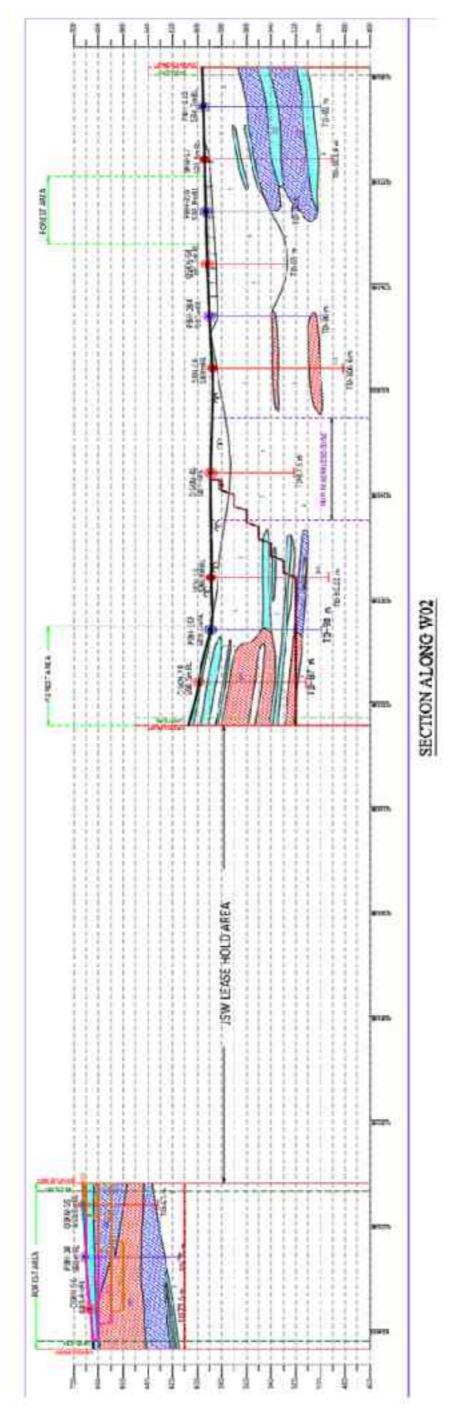


Fig. 4: Section Along W02 of Kalamang West (Northern Part) Iron Ore Mine



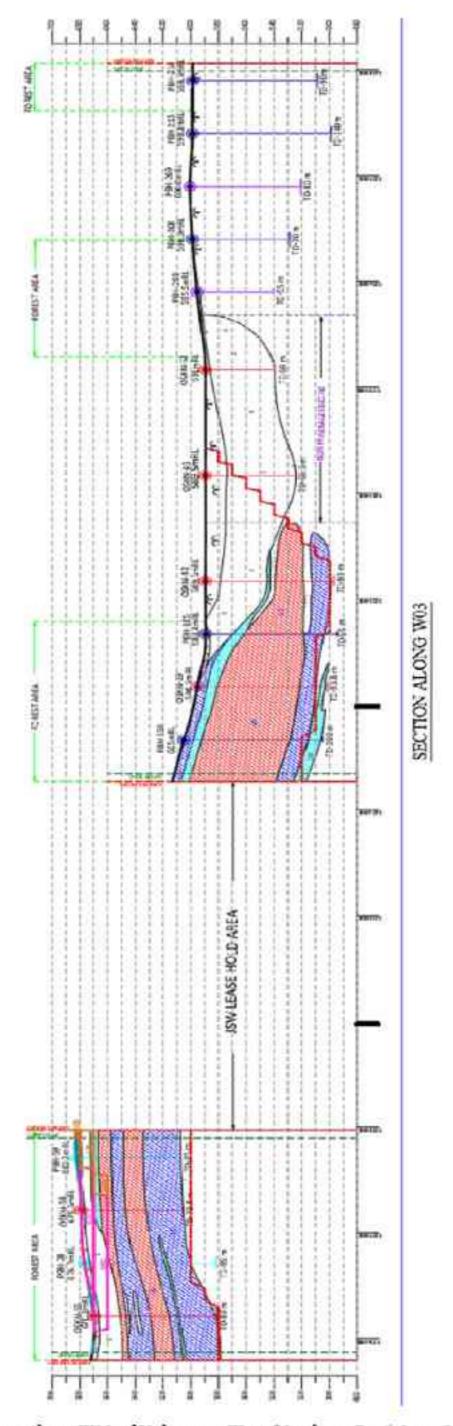


Fig. 5: Section Along W03 of Kalamang West (Northern Part) Iron Ore Mine



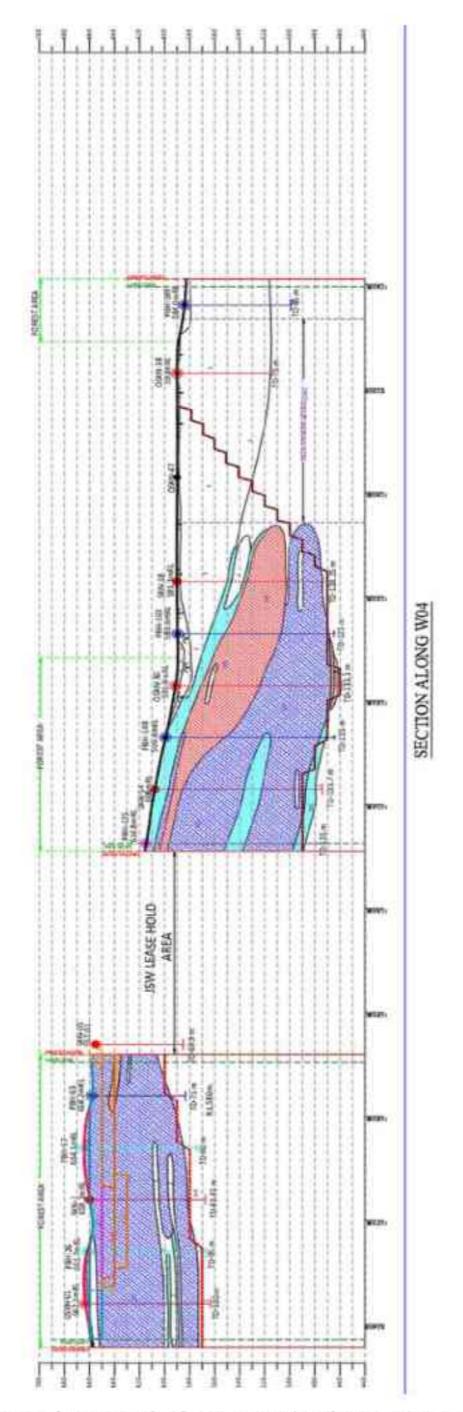


Fig. 6: Section Along W04 of Kalamang West (Northern Part) Iron Ore Mine





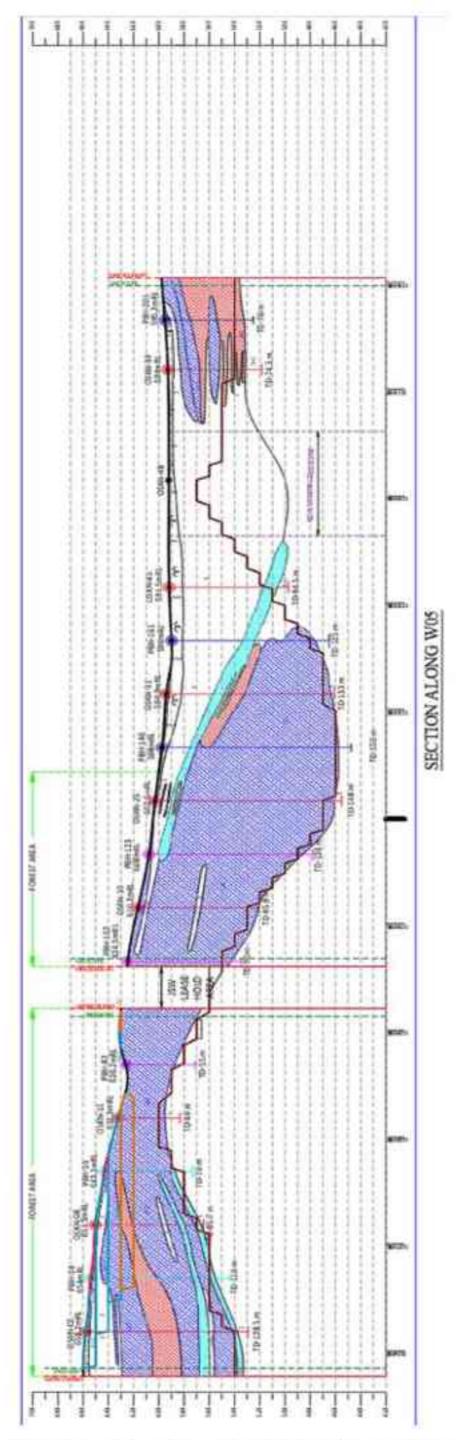


Fig. 7: Section Along W05 of Kalamang West (Northern Part) Iron Ore Mine



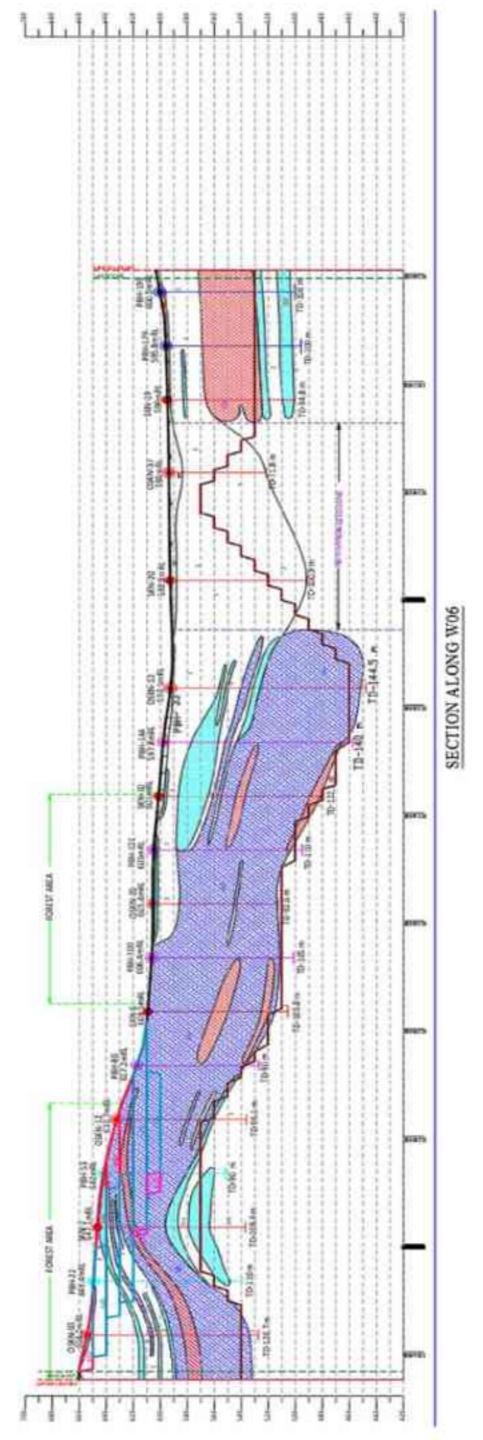


Fig. 8: Section Along W06 of Kalamang West (Northern Part) Iron Ore Mine



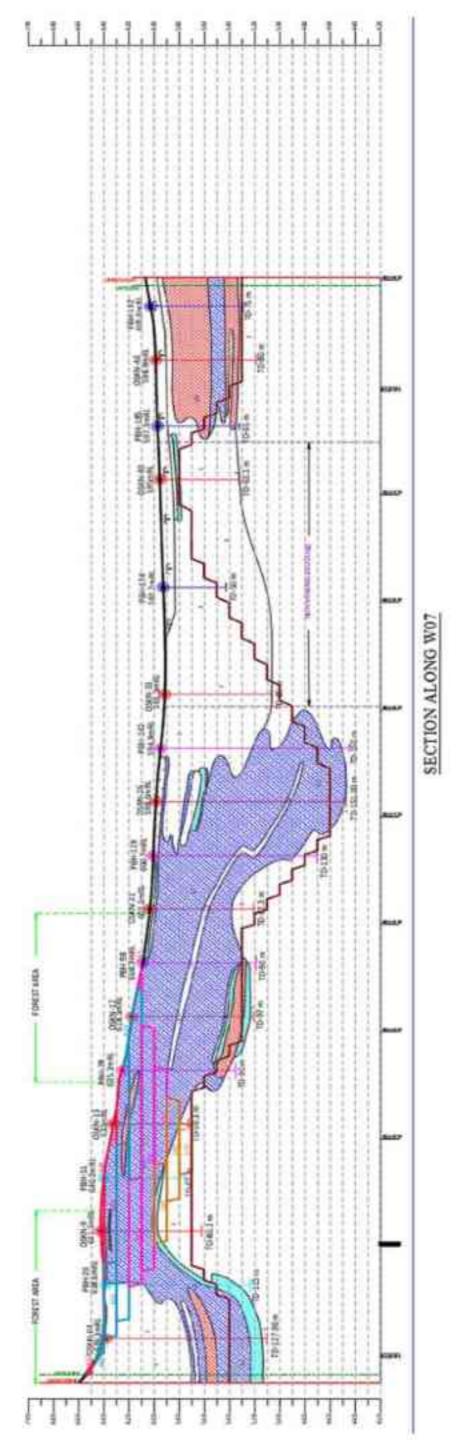


Fig. 9: Section Along W07 of Kalamang West (Northern Part) Iron Ore Mine



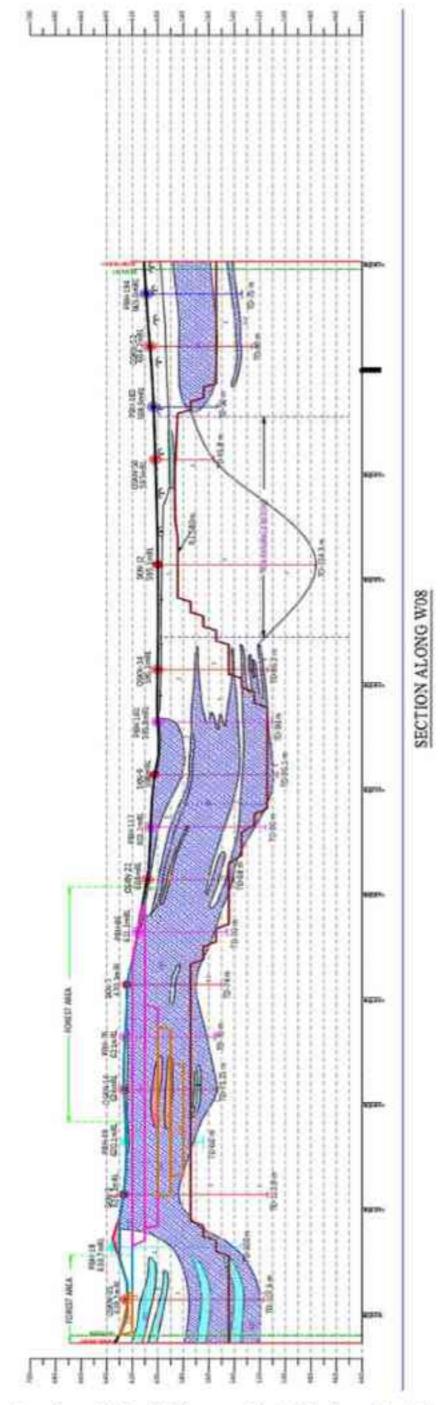


Fig. 10: Section Along W08 of Kalamang West (Northern Part) Iron Ore Mine

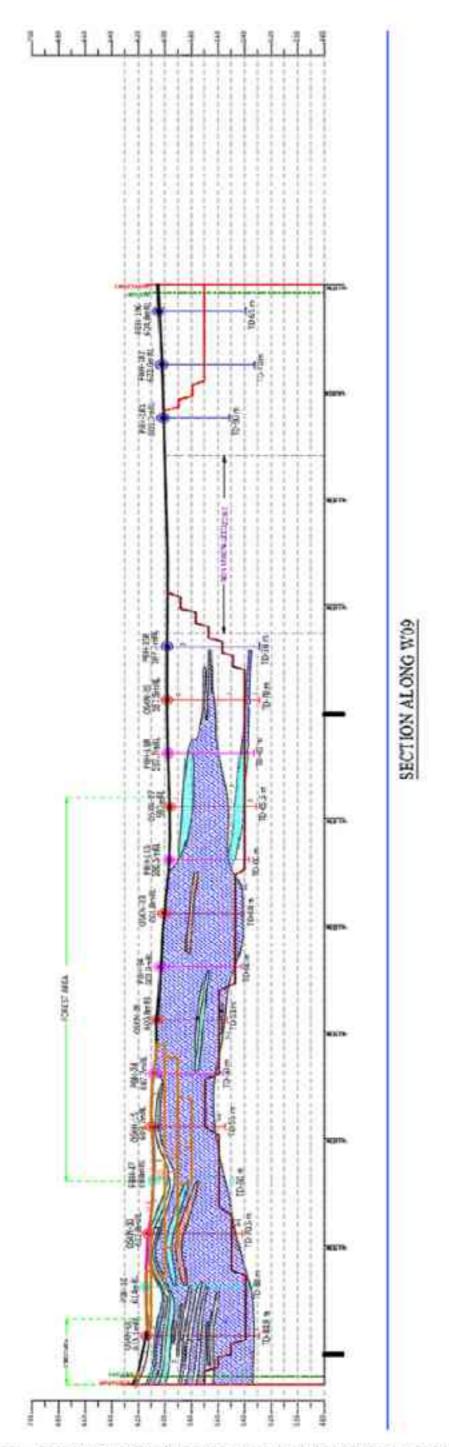


Fig. 11: Section Along W09 of Kalamang West (Northern Part) Iron Ore Mine



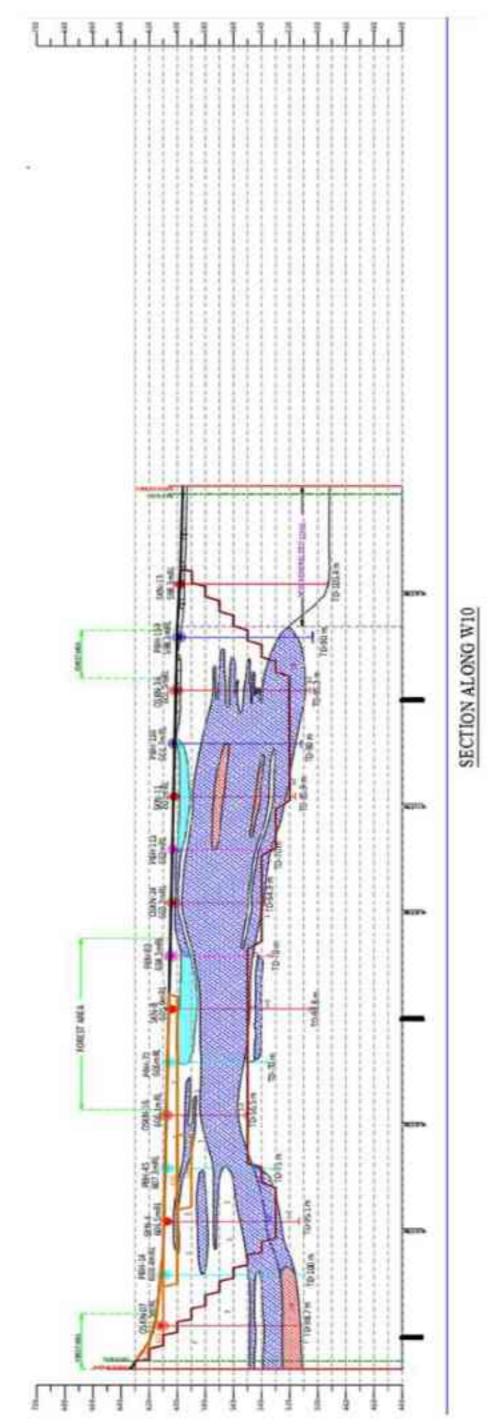


Fig. 12: Section Along W10 of Kalamang West (Northern Part) Iron Ore Mine

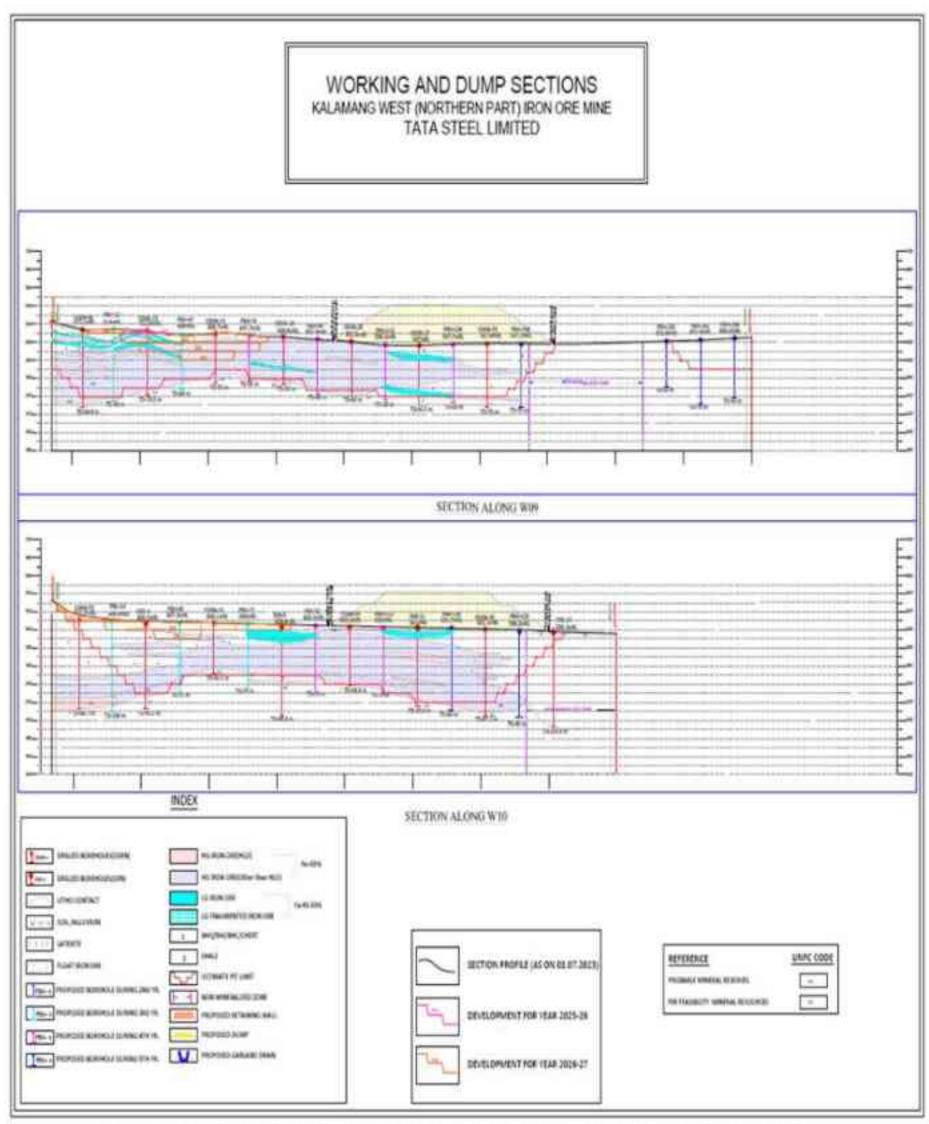


Fig. 13: Section for temporary dumps of Kalamang West (Northern Part) Iron Ore Mine

From the surface plan in Figure 2 and sections in Figures 3 to 12, the lowest and highest mRL of the ultimate pit profile along different sections of Kalamang West (Northern Part) Iron Ore Mine have been listed in Table 3.

Table 3: Top and Bottom RL of ultimate pit profile of Kalamang West (Northern Part) Iron Ore Mine

Section	Elemen No.	Proposed Pit				
No.	Figure No.	Top RL	Bottom RL	Difference		
W 01	3	610	570	40		
W 02	4	610	520	90		
W 03	5	600	500	100		
W 04	6	600	460	140		
W 05	7	600	460	140		
W 06	8	570	460	110		
W 07	9	580	460	120		
W 08	10	586	514	72		
W 09	11	600	540	60		
W 10	12	630	520	110		

From Table 3 and Figures 3 to 12, it is evident that the top RL of the ultimate pit will be 610 mRL and bottom RL will be 460 mRL. Top RL of 610 mRL and Bottom most RL of 460 mRL is not aligned in the same section, therefore, maximum depth of the proposed ultimate pit is about 140 m, as evident in section W04 and W05 provided by the mine management (Fig. 6 & 7 respectively). Therefore, in this report optimum bench configurations for maximum pit depth of 140 m has been designed. The bench height has been kept constant at 10 m and the width of the bench has been varied to get the desired optimum design of the ultimate pit profile for 140 m depth. It is evident in the geological plan provided by the mine management, that the working benches would be created in a phased manner, where it will encounter iron, shale, BHJ/BHQ. There will be instances where the working benches would be created in a combination of more than one lithology. As per the surface plan provided by the mine management in Figure 2, maximum height of the temporary dump will be 45 m. As shown in section along W-09 and W-10 in Figure 13, the following observation have been made regarding the temporary dump and pit slopes, as shown in Table 4.

Table 4: Details of dump and pit along section W-09 and W-10

Section No.	Maximum depth of the pit along the section	Maximum Dump height along the section	Distance between pit's crest and dump's toe	Remarks
W-09 30		45	100	Distance between pit's crest and dump's toe is
W-10	30	45	60	more than the dump's height

Slope design has been provided by considering all the conditions of lithology present in the mines.

SLOPE STABILITY

The importance of safe, professionally designed and scientifically engineered slopes of the mine and dumps are well known. The benefit of an open pit operation largely depends on the use of the steepest possible slopes for pit and dumps, which should not fail during the intended life. So, the design engineer is faced with the two opposite requirements, stability and steepness, in designing the deep open pit slopes or high and steep overburden dumps.

Steepening the slopes of a mine, thereby reducing the amount of material to be excavated, can save a vast sum of money. Similarly steepening and heightening of overburden dumps with adequate precautionary measures permits high quantity of OB material to be accommodated in less land area for dumping. At the same time excessive steepening may result into slope failure leading to loss of production, extra stripping costs to remove failed material, reforming of benches, rerouting of haul roads and production delays. Directorate of Mines Safety may even close the mine or dumping operation on dump in case unsafe conditions are created. Therefore, it is necessary that a balance between economics and safety should be achieved.

The slope stability department of CSIR-CIMFR is rendering its services for optimum and safe slope design of mines and dumps for different mining companies all over India. During last about 30 years, CIMFR has completed hundreds of slope design and safety monitoring projects in coal and non-coal sectors for pits and dumps.

The stability of the slope primarily depends on the slope geometry and strength properties of the slope materials. Ground water and surface water flow condition also plays a critical role on the stability of dump and pit slopes. The orientation and other properties of discontinuity planes in rock mass with respect to slope face determines the types of failure possible within that slope. Generally, plane, wedge, circular and toppling types of failure occur in rock slopes while in soil slopes and weathered / highly fractured rock slopes circular failure is the main type of failure.

GEO-TECHNICAL PROPERTIES OF PIT AND DUMP

Engineering properties of materials of pit and OB dump will influence the analysis for slope stability. The average value of relevant strength properties, which were determined in the soil and rock mechanics laboratory of CIMFR and subsequently used for slope stability analyses of the Pit and Dump of Kalamang West (Northern Part) Iron Ore Mine of M/s Tata Steel Limited are summarized in Table 5. The properties were determined on the samples collected from outcrop regions, exposed portions, neighboring mines for estimating the shear strength properties of the materials present in the mine and properties provided in approved mining plan of Kalamang West (Northern Part) Iron Ore Mine. Properties along with sound engineering judgement was used in the process of analyzing and evaluating the stability of pit and OB dump under different geometrical configurations.

Color Lithology Cohesion Sr. No. Friction angle Density (kN/m^3) (kPa)Code (degree) BHJ/BHQ 1. 265 33 31.3 2. Shale 140 29 22.5 28.4 3. Iron Ore 165 31 Shale + Iron 153 30 25.5 4. Shale + BHJ/BHQ 205 5. 30 27.0

32

21

29.9

19.6

210

53

Table 5: Geo-Mechanical Properties of Materials of Kalamang West (Northern Part) Iron Ore Mine

SLOPE STABILITY ANALYSIS

BHJ/BHQ + Iron

Dump Mass

6.

7.

The limit equilibrium method is widely accepted and commonly used design tool in slope engineering. The failure analysis was done by SLIDE software, which is based on limit equilibrium method. In this method, it is assumed that sliding occurs when a limit equilibrium condition is reached, i.e., when the resisting forces balance the driving forces. These methods are the most widely accepted and commonly used design methods and they permit a quantification of slope performance with the variations in all the parameters involved in the slope design. The basic idea behind the limit equilibrium approach is to find a state of stress along the failure surface so that the free body, within the slip surface and the free ground surface, is in static equilibrium. This state of stress is known as the mobilized stress, which may not be necessarily the actual state along this surface. This state of stress is then compared with the available strength, i.e., the stress necessary to cause failure along the slip surface.

Limit equilibrium analysis considers the slope performance only at the equilibrium condition between the resisting and disturbing forces for sliding. To represent the slope performance other than the equilibrium condition, it is necessary to have an index and the widely used index used to be factor of safety. Factor of safety is calculated as the ratio of shear strength to the available shear stress required for equilibrium, integrated through the whole slide. It is assumed to be constant throughout the potentially sliding mass. Due to scatter of test results and the uncertainty of these input parameters, a cut-off value of 1.3 safety factor is recommended for pit slope stability analysis on the basis of the long-term stability (Hoek and Bray, 1981). However, keeping in view the DGMS circular no. 03 of 2020 dated 16-01-2020, optimum design of pit and dumps were worked out with minimum a factor of safety more than 1.5.

Water table within the slope mass and the implementation of different remedial drainage measures and water management measures have been taken into consideration in the process of slope design. It is one of the principles of the open pit design that some localized instability may occur, which will influence a relatively small area especially during monsoon. This is consistent with the mining environment. It should be acknowledged that some clean-up may be required within the pit or dump, particularly after the monsoon season.

Optimum slope design for the ultimate pit profile has been recommended by CSIR-CIMFR keeping in mind the ultimate depth of Kalamang West (Northern Part) Iron Ore Mine of 140 m as shown in Figure 6 and Figure 7. After analyzing the cross sections as shown in figures 3 to 12, it is evident that the benches would be created in different lithology (for e.g. Iron Ore, Shale, BHJ/BHQ, combination of Shale & Iron Ore, combination of Shale & BHJ/BHQ, combination of BHJ/BHQ & Iron ore), therefore, slope design has been provided by considering all the six lithologies / combination of lithologies. Height of all benches has been kept fixed at 10 m for the desired depth of pit. Considering the slope angle of benches at 70-degree, bench width has been varied to find out the optimum pit slope profile having minimum 1.50 factor of safety. As mentioned in Figure 14, the height of the temporary dump will be 45 m. The bench height of the temporary dump has been fixed at 15 m. The analysis of the ultimate dump has been shown in Figure 20. In order to assess the impact of the temporary dump that will be created in the mine on overall slope stability of the pit, mine management was requested to submit the sections showing the position of the working pit as well as dump as per the 5-year working plan (up to development year 2026-27, as shown in Figure 13). The observations regarding the relative position of dump and pit has been shown in Table 4. The Draft Metalliferous Mines Regulations, 2019 published on February 20, 2020 have specified in Regulation 118(5) that the toe of a spoil bank (i.e. waste dump, subgrade stack etc.) shall not extend to any point within a distance equal to height of the spoil bank from a mine opening. Observations that are made from Figure 13 and recorded in Table 4

states that the minimum distance between the pit's crest and dump's toe is more than the dump's height along both section and thus meets the above-mentioned requirement also. Moreover, depth of the working pit near the temporary dump is only 30 m and thus it can be said there will no impact of temporary dump on the overall slope stability of pit and/or dump. Result of the slope stability analysis have been shown in Figures 14 to 20 and factor of safety obtained after slope stability analysis have been shown in Table 6.

Table 6: Stability Analysis of Ultimate Pit Slopes of Kalamang West (Northern Part) Iron Ore Mine

Profile Description	FOS	Figure No.
Ultimate slope design considering shale as the only geological material present for 140 m depth with bench width of 12.5 m.	1.51	14
Ultimate slope design considering iron ore as the only geological material present for 140 m depth with bench width of 11.5 m.	1.51	15
Ultimate slope design considering BHJ/BHQ as the only geological material present for 140 m depth with bench width of 8 m.	1.51	16
Ultimate slope design considering the mixture of shale and iron as the only geological material present for 140 m depth with bench width of 12 m.	1.51	17
Ultimate slope design considering the mixture of shale and BHJ/BHQ as the only geological material present for 140 m depth with bench width of 10.5 m.	1.52	18
Ultimate slope design considering the mixture of BHJ/BHQ and Iron as the only geological material present for 140 m depth with bench width of 10 m.	1.53	19
Ultimate dump slope design recommended by CSIR-CIMFR for 43 m dump height and 15 m bench width.	1.69	20

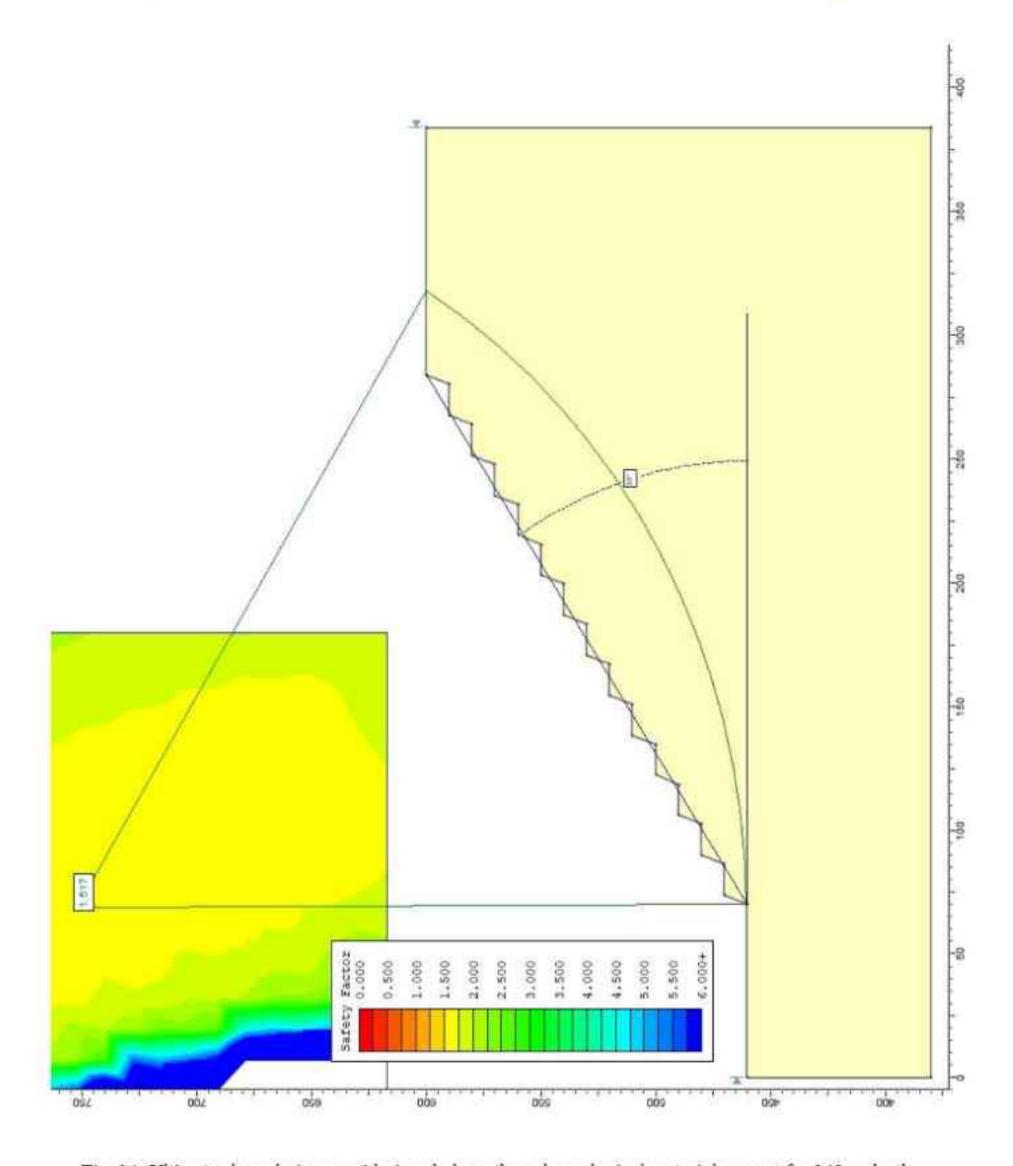


Fig. 14: Ultimate slope design considering shale as the only geological material present for 140 m depth.

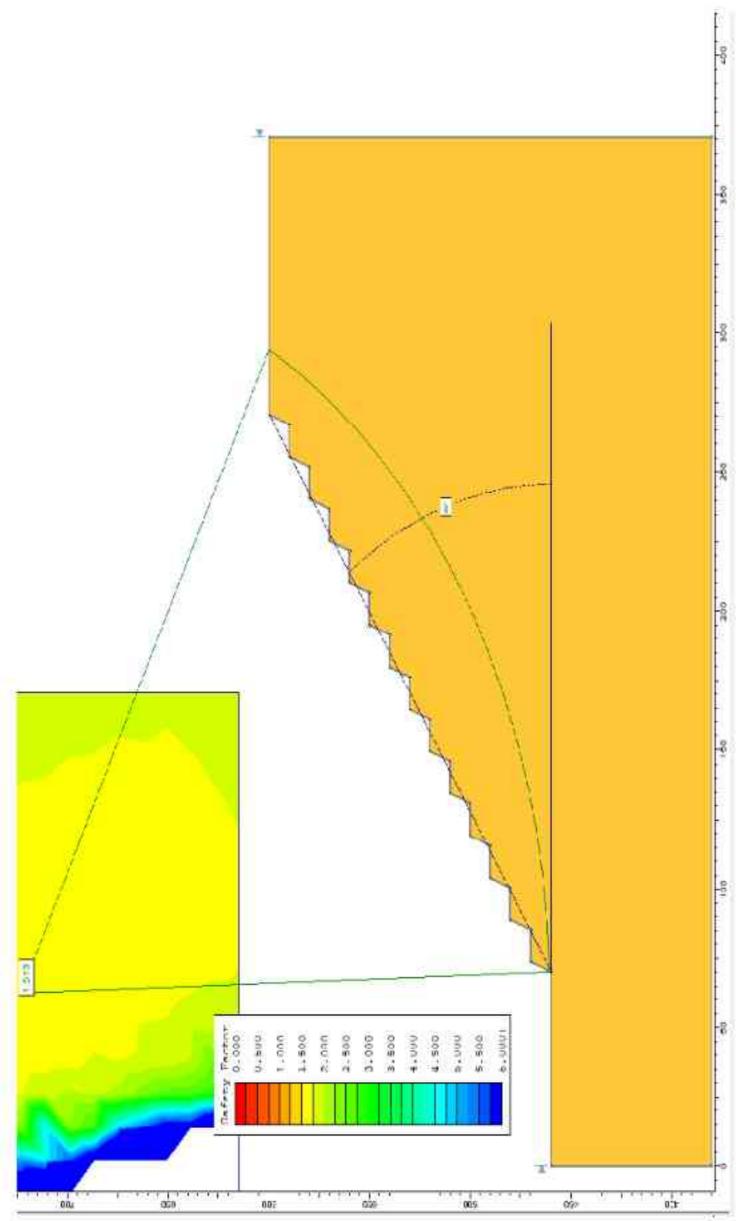


Fig. 15: Ultimate slope design considering iron as the only geological material present for 140 m depth.

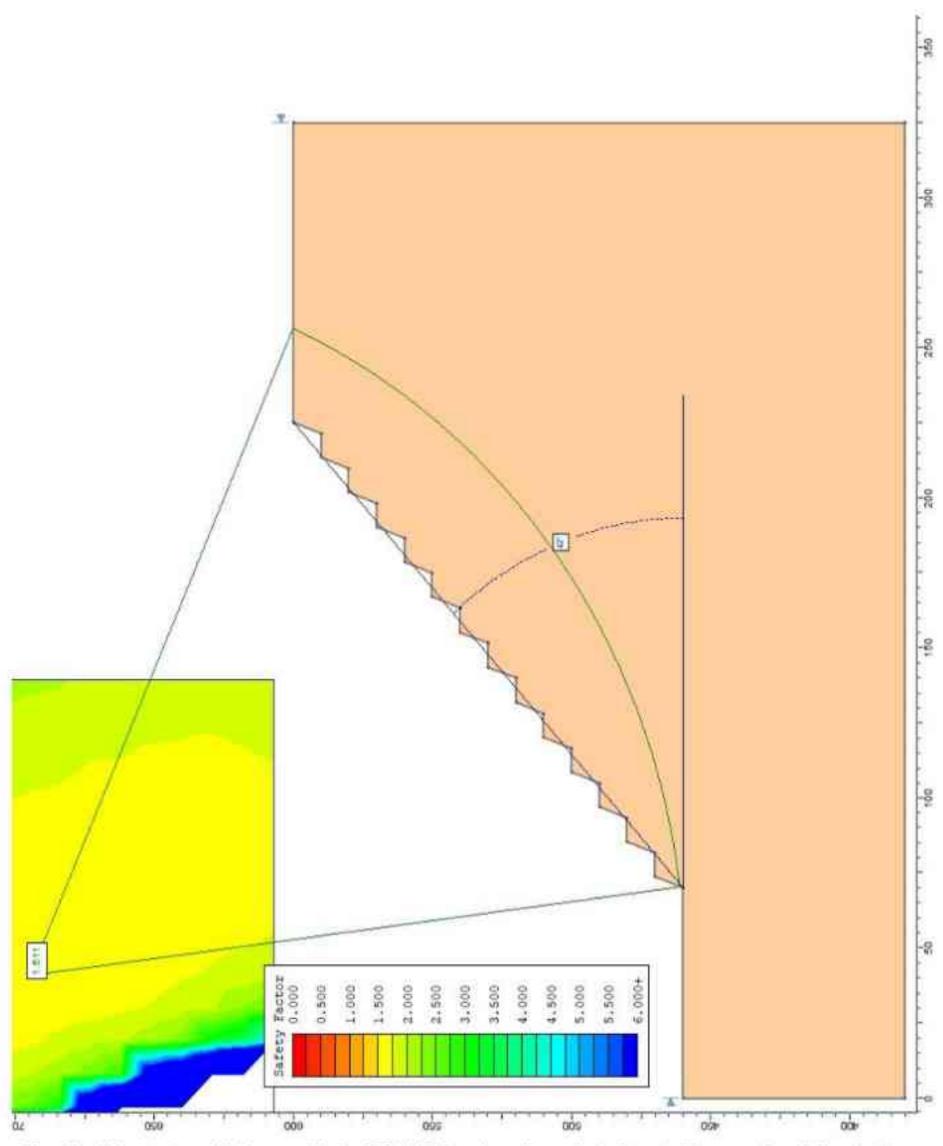


Fig. 16: Ultimate slope design considering BHJ/BHQ as the only geological material present for 140 m depth

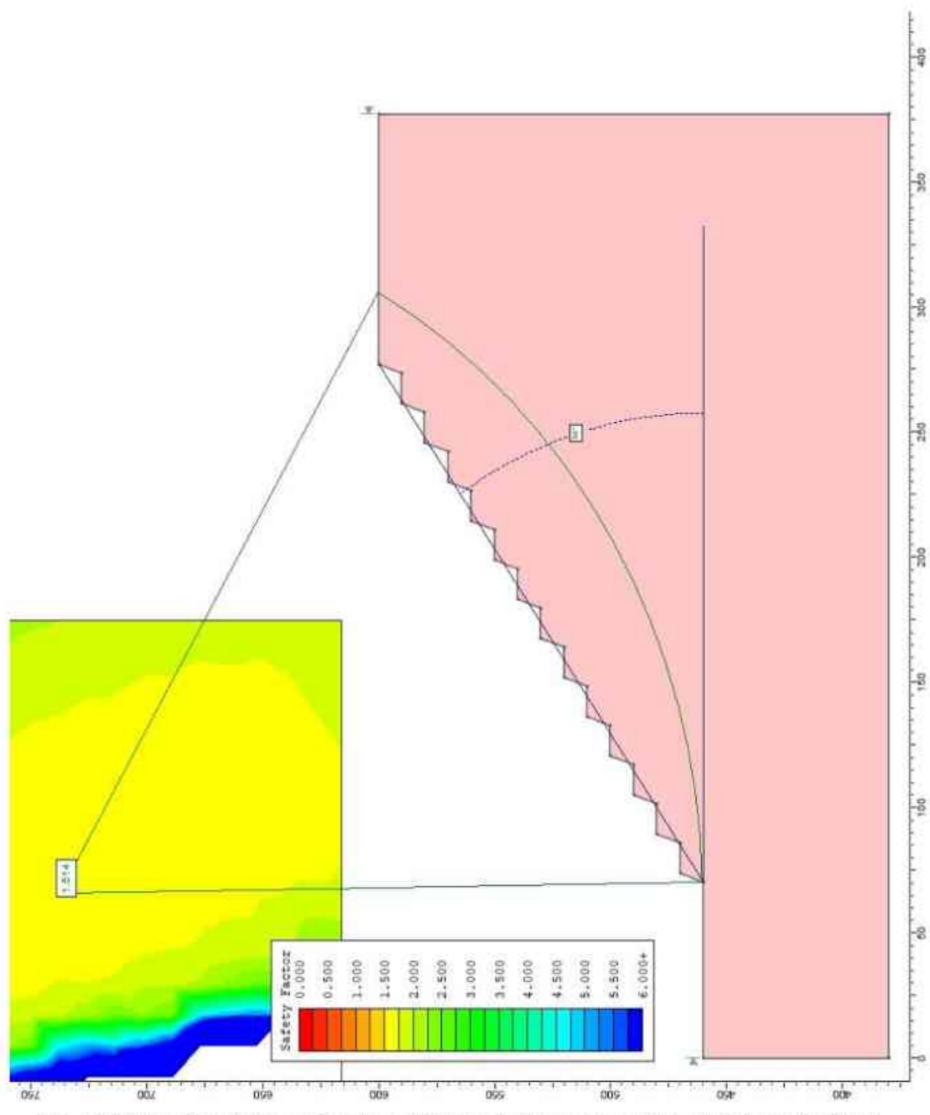


Fig. 17: Ultimate slope design considering combination of shale and iron as the only geological material present for 140 m depth

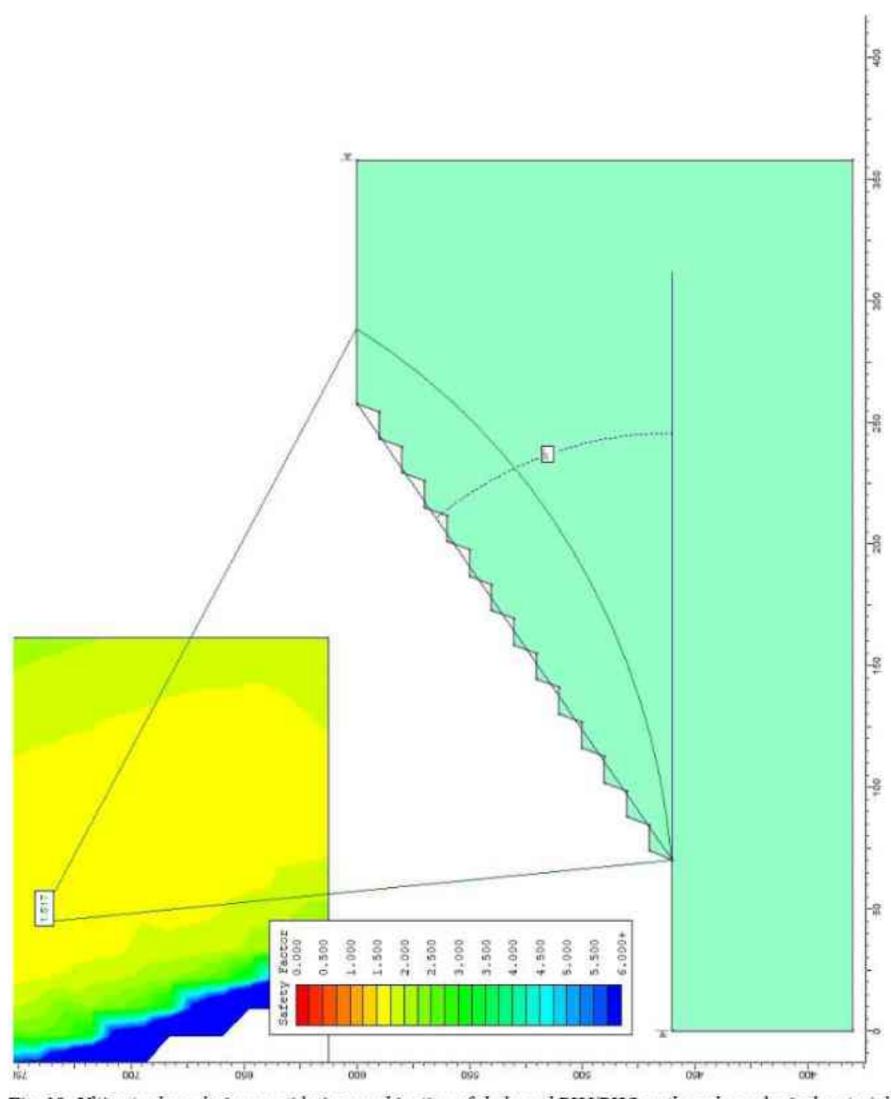


Fig. 18: Ultimate slope design considering combination of shale and BHJ/BHQ as the only geological material present for 140 m depth

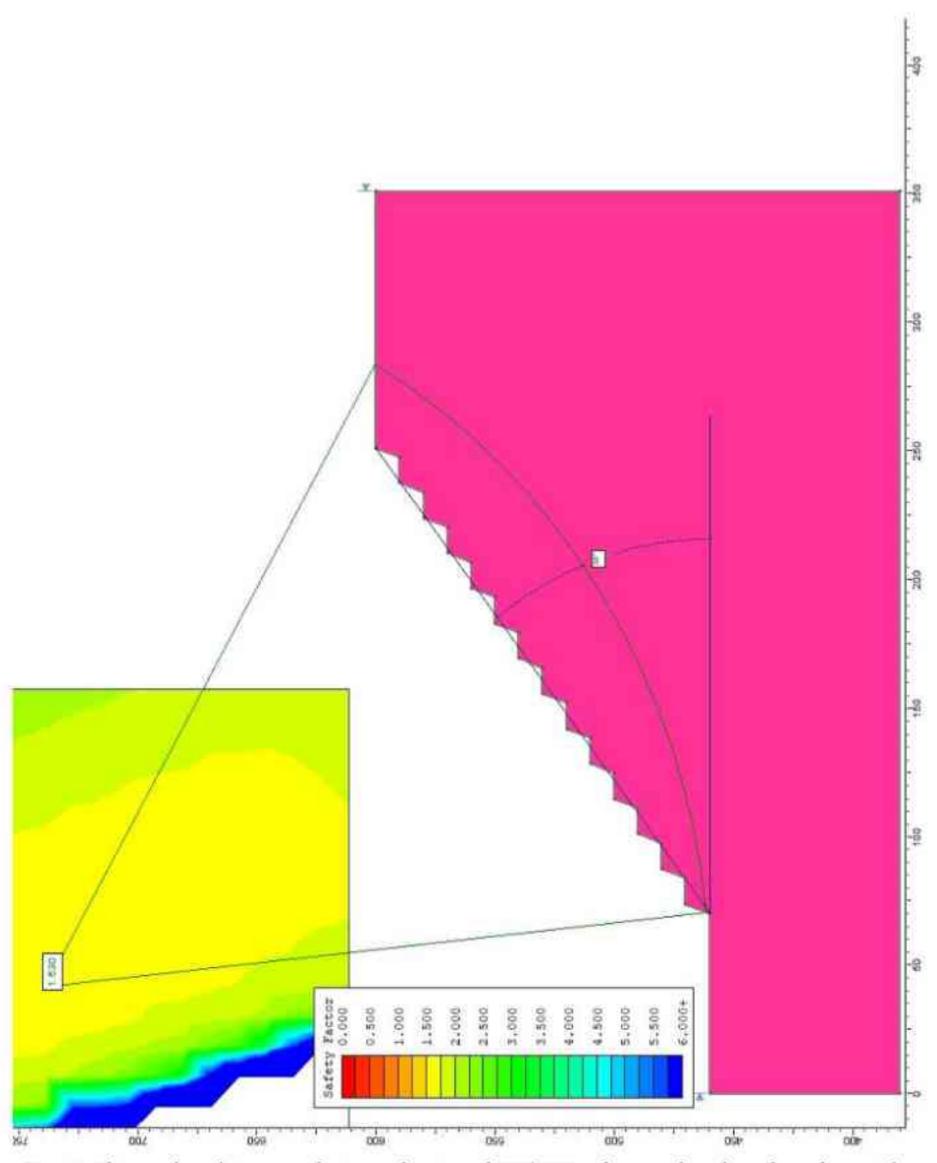


Fig. 19: Ultimate slope design considering combination of BHJ/BHQ and iron as the only geological material present for 140 m depth



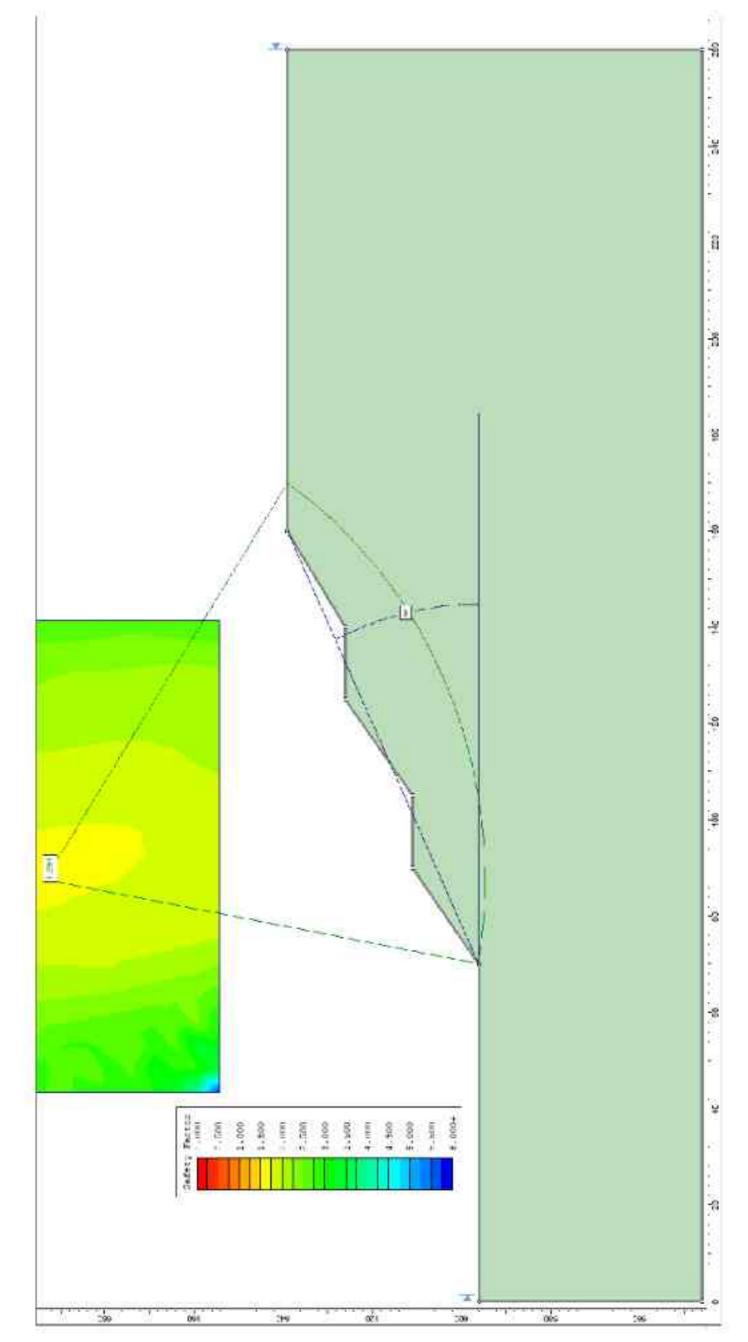


Fig. 20: Ultimate dump slope design of Kalamang West (Northern Part) Iron Ore Mine

Based on the analysis presented in From Table 6 and Figures 14 to 19, benching pattern of optimum design of ultimate pit slopes of Kalamang West (Northern Part) Iron Ore

Mine upto 140 m depth has been given in Table 7.

Table 7: Optimum Design of Ultimate Pit Slopes of Kalamang West (Northern Part) Iron Ore Mine up to 140 m depth

Maximum	Can mining	Bench Parameters			
depth of pit at ultimate stage	Geo-mining conditions	Maximum bench height (m)	Minimum exposed bench width (m)	Maximum bench angle (°)	
	Benches in shale	10	12.5	70	
	Benches in Iron	10	11.5	70	
140m	Benches in BHJ/BHQ	10	8.0	70	
	Benches in shale & Iron	10	12.0	70	
	Benches in shale & BHJ/BHQ	10	10.5	70	
	Benches in BHJ/BHQ & Iron	10	10.0	70	

Based on the analysis presented in Table 6 and Figure 20, benching pattern of optimum design of temporary dump of Kalamang West (Northern Part) has been given in Table 8.

Table 8: Optimum Design of Temporary Dump Slopes of Kalamang West (Northern Part) Iron Ore Mine for 43 m Height

Maximum	Bench Parameters				
height of the temporary dump	Maximum bench height (m)	Minimum exposed bench width (m)	Maximum bench angle (°)		
45	15	15	37		

From Figures 14 to 20, it is evident that the factor of safety of ultimate pit profile and dump profile as listed in Table 6 is varying between 1.51 to 1.69 which are more than the minimum desired value of 1.50 as per the DGMS circular no. 03 of 2020, dated 16-01-2020. Thus, they can be considered safe and stable from slope stability point of view.

Considering the prevailing conditions and precautions being taken by the mine management, most likely condition of the pit/ dump slopes was adjudged to be drained condition. The stability analyses for ultimate pit slopes were done with a consideration of machine cutting /controlled blasting, drained groundwater condition, proper drainage for rainwater and slope monitoring. Under drained condition, dump slopes are likely to be stable

with available shear strength of the slope material. If the pit /dump slopes are kept in undrained condition then the factor of safety would reduce substantially. In order to avoid undrained condition, attention must be paid to avoid uncontrolled entry of rain / surface water in the pit / dump mass by providing suitable drainage in and around the mine and dump, otherwise overall factor of safety of dump may reduce. If any observance is made for the occurrence of adverse condition, then this slope angle has to be corrected accordingly.

The analysis shows that the large-scale failure is unlikely but small-scale failure cannot be completely ruled out. The main philosophy in open pit and dump design is to avoid large-scale failure. Localized bench failure does not cause great concern as it can be arrested on the lower benches, which can be cleaned. So, machinery access on the benches must be maintained.

DRAINAGE AND WATER MANAGEMENT

From the slope stability analysis presented in this report, it is evident that the recommended ultimate profiles of Kalamang West (Northern Part) Iron Ore Mine are likely to be safe in drained geo-mining condition. The slopes may have reduced factor of safety in undrained condition or under changed dumping configurations. Therefore, mine management has to take all effective measures considering existing regulations and geo-mining conditions to keep the pit profile in drained conditions. In order to keep the pit in drained condition, attention must be paid to avoid entry of rain / surface water in the slope by providing suitable drainage in and around the pit and dumps.

The rainwater of the adjacent catchments area should not be allowed to enter in to pit in an uncontrolled way. It causes erosion and deep gullies in the weak formations, which in turn may result in to failure in due course of time. So, the rainwater of the catchments area should be directed away from the pit. The excavated pit must be provided with an effective garland drain/ bund depending upon the topography to check the entry of rainwater in to the pit during the monsoon. Similarly, all around the periphery of dump, a collector drain/ bund should be formed to divert the rainwater away from the dump. The drainage must always be directed away from the pit. All the drains should be kept clear of soil debris and effective for the free flow of water. The discontinuance of the pre- monsoon preparation at any location will jeopardize the whole effort of maintaining the designed slopes.

The benches should be provided with bench drains to collect the rainwater. The flowing rainwater should not be allowed to flow down to lower benches in an uncontrolled manner. The slope of the upper surface/ benches should be well graded so that the rainwater goes away from the quarry. At few locations it may not be possible to divert the rain/ seepage water away from the pit, in that case a proper drain pattern should be developed to channelize the water into the pit sump. The water should not be allowed to enter into the pit from many channels or left uncontrolled. By guiding the flow of water in a fixed channel erosion/ failure of soil/ clays can be checked. The unchecked erosion may lead to failure in these soil slopes in due course.

Every attempt should be made to make a proper gradient along the benches, top and floor of the dump. The dump top should be properly levelled with a slope to avoid water retention on dump top/ dump benches and to prevent the rainwater flowing along slope. The upper surface of the mine and dump should be properly graded to divert the run-off of rainwater away from the pit and dump. The proper leveling and grading of benches should be done for quick run-off of rainwater. All benches of external dump should have an effective toe drain. These drains should be interconnected to drain out the rainwater away from the pit.

The dumps should be provided with all necessary protective features wherever required such as toe wall and garland drain to arrest any surface run offs. Afforestation on the dump slopes should be done for stabilizing the dump slopes, once a part of the dump slope become inactive. The terraces should be designed so that rain water is drained out of the dump and there is no accumulation of rain water. The rain water should get channelized to the toe wall and garland drain provided at the base of the dump.

If two or more benches of pit or dumps are made steeper at any level in any part then it may decrease factor of safety. Although, the overall slope angle may be quite low but the steeper slope angle of two or more benches may increase the stress at the toe of relatively steeper part of the slope, which may cause failure. Two or three such small failures may cause a big failure. So, benching should be done properly at each stage of pit and dump formation.

The open cracks, whenever develop, in the partially consolidated new dump mass should be consolidated with the help of dozer/ compactor followed by proper leveling of the benches. It will help to consolidate the dumped material and will minimize infiltration of water inside dumps.

Because of steep slopes and well-connected hilly streams, the run off rate is very high. The rainwater of the adjacent catchments area should not be allowed to enter in the dump in an uncontrolled way. The surplus water flowing down the sloping surface of the dump remove soil particles from large areas causing small channels. These channels in due course get deepen and widen during each succeeding rain and finally integrate into larger channels called gullies, which sometimes bring instability to the dumps. So, the rainwater of the catchments area should be directed away from the dump. A bund/ garland drain, depending up on the topography of the area, should be made/ cut all around the toe of dumps to collect run-off of the rainwater before it reaches the dump.

Drains should be properly graded to promote rapid water flow and minimize chances of ponding. The drains should be effectively maintained to divert the drained water away from the dump. If this drainage system is not effectively achieved then the dumps may fail due to increase in saturation at the bottom of the dumps. These drainages should be made to handle even heavy rainfall events. Wherever drains are required for a sufficiently long duration, it should be cemented or lined with geo-membrane to avoid percolation of water into the dump mass. At some locations, if it is not possible to divert the rainwater away from the dumps, the rainwater should be diverted to the pit sump through drains.

During the rainy season, a dedicated team should be deputed to go in and around the mine and dump on daily basis to observe any sign of instability and to see the effectiveness of drain. If any blockage is observed, immediately steps should be taken to make it effective. If any deep tension crack is detected in the dump, the entry of water inside the crack should be checked.

Some part of the waste may be used for making the berms, haul roads, ramps and maintenance of bench floors. Moreover, the waste may also be used as landfill for filling up of low-lying areas and for construction activities within the leasehold boundaries. Efforts should be made for use of a part of waste dump material for value added products, whichever are feasible.

STABILITY OF BENCHES BY CONTROLLED BLASTING

The damage due to poor blasting has a significant influence upon stability of highwall slopes. Uncontrolled blasting results in rough uneven contours, over breaks, overhangs and extension of tension cracks in the slope. Poor blasting causes opening between various weak planes, which result in loss of resultant cohesion between them. It also results into shattering of the slope mass well behind the desired location and consequently allowing easier infiltration of surface water, which leads to unfavorable groundwater pressures and related problems.

Thus, ground vibrations from blasting have two-fold action of the rock mass. On one hand, they affect the integrity of rocks or their strength parameters while on the other, they can provoke wall or slope collapses when unstabilizing actions are introduced (Jimeno et. al. 1996). Therefore, peak particle velocity due to blasting should be controlled by proper selection of explosive types, blast pattern, maximum charge per delay etc. Bauer and Calder (1971) proposed the following generalized criteria, as given in Table 9, for damage level of particle velocity due to blasting on rock mass and slopes.

Particle velocity (mm/s)	Predictable damages
<250	No danger in sound rock
250-600	Possible sliding due to tensile breakage

600-2500

>2500

Strong tensile and some radial cracking

Complete break-up of rock masses

Table 9: Damage level of rock mass based on ground vibration (after Bauer & Calder, 1971)

These detrimental after effects, due to poor blasting, can be checked by controlled blasting. The aim of the controlled blasting is to minimize the damage of the slope mass forming the ultimate pit slope. The final slope face of any open pit quarry has to be maintained in the soundest possible condition. Better ultimate wall stability can be achieved with controlled blasting (Langefors and Kihlstrom, 1963). The uncontrolled blasting can make a slope unstable (Hoek and Londe, 1974).

The controlled blast holes should be closely spaced and lightly charged than the regular blast holes. It should be blasted before the main blast by applying the delay mechanism. It will help in making a crack line along the desired slope. The controlled blasting will not damage the slope mass beyond these lightly charged pre-split holes. It is

preferable to use electronic detonators in controlled blasting especially during formation of ultimate benches and when the blasting face if closer to dwelling to minimize the back break as well as side effects on vibration / shock generated during the blasting.

The controlled blasting can be tried, experimented and perfected during regular production blasts. The experience of production blast can be applied to ultimate pit slope blast. Mine management may optimize the pre-splitting technique for the site-specific geomining conditions to achieve better pit slope stability. The extra effort of controlled blasting is well justified because it checks the instability of the pit slopes thus increasing the profitability of the quarry substantially. It is recommended to optimize the pre-spliting technique for the site-specific geo-mining conditions, if required with help of experts, to ensure smooth surface of the highwalls and to minimize formation of loose boulders.

The blasting near the shear/ fault zone must be optimized. Otherwise, it would be impossible to maintain proper bench width in the zone where faults are present. Poor blasting may result in to merger of the benches which ultimately may lead to failure. Any heavy blast in the proximity of weak/ weathered lithology or near the day lighting major discontinuity would cause sliding of the overlying slope mass. The heavy production blasting should be avoided/ optimized.

SLOPE MONITORING

The main objective of slope monitoring study is to detect any instability well in advance so that any damage to men and machineries can be avoided. If the failure is unavoidable then it can be brought down in a predictable manner. The instability detected in the early stage can be stabilized by applying a suitable remedial measure. If the instability is detected at a later stage, then it will be very difficult to check the instability.

The early identification of movement zones allows steps to be taken to minimize the impact of mining on stability by the implementation of corrective measures and at the same time provides for optimum mineral extraction. The system contrasts strongly with more common 'passive' systems that frequently only record the occurrence of an event for subsequent post-mortem examination. The active monitoring system permits early and confident decision making by management both for safety purposes and for optimum excavation sequencing.

All geotechnical investigations aimed at collecting input design parameters, however complete, involve an inherent risk of inaccuracy. Hence, any attempt of slope stability analyses and evaluation need to be supported by a sound slope monitoring program in order to ensure the safe and smooth mining operations.

The continuous mining operation, blasting and changes in groundwater conditions continuously disturb the existing stress condition in the field. The whole system tries to come into equilibrium by stress redistribution and adjustment, which results into movement of the slope. Hence, it is advisable to monitor the trench slopes regularly to detect any movement. DGMS(Tech.) Circular No. 2 of 2020 dated 09.01.2020, mine manager should have a structured team of trained competent persons for slope monitoring headed by a slope monitoring officer with clearly defined duties and responsibilities.

The slope monitoring method allows failures to be predicted for ensuring safe working conditions. Slope monitoring can be used to confirm failure mechanisms. The review of monitoring results, visual inspection and regular briefing of field people help to detect the onset of failure.

The first sign of instability is a tension crack. So, it is important to carry out regular inspection to detect the development of tension cracks on the crest of the slope as well as on benches and to carry out prompt remedial measure. They may develop as a function of high stresses in the slopes. The opening of cracks will tell whether any deep - seated failure can occur or not. Tension cracks should be filled and sealed to prevent the entry of water, which may cause failure.

The slope monitoring techniques vary widely ranging from simple visual observations of signs of potential instability such as slope bulging, surface fretting and the formation of tension cracks to the use of somewhat complex instrumentation. The scale of the mining operation, transport system and the nature and location of the potential slope failure decides the application of a particular technique.

Survey based methods can be used for absolute monitoring, that is determining the movement of a point or points relative to some datum believed to be outside the zone of potential deformation.

The slope monitoring based on standard surveying techniques have wide acceptance because of the ability to remotely monitor a wall following the establishment of targets. Use of Total Station techniques along with angular measurements have become most popular because of the perceived advantage of low cost and easy availability of trained manpower.

Suggested Slope Monitoring System for Kalamang West (Northern Part) Iron Ore Mine

Considering the size of the mine, design of ultimate configurations etc., the suggested slope monitoring scheme for pits and dumps of Kalamang West (Northern Part) Iron Ore Mine are as follows:

Monitoring of pits and dumps of Kalamang West (Northern Part) Iron Ore Mine is recommended to be done with total station by installing monitoring stations. The monitoring pillars should be located initially at 30 to 50 m interval. Monitoring pillars should be installed all along the top most bench as well as on intermittent benches after every five to six benches of the pit. Advancing benches may not be suitable for installation of monitoring stations as these stations will get broken during machineries operation over those benches. Similarly, monitoring stations should be installed on top bench as well as on intermittent benches of the dump. Base station should be located at stable ground in opposite side of the monitoring stations. One or more base stations could be erected to cover all the area. The base station and monitoring stations should be so located that inter-visibility should be there. The gap between the stations can be increased or decreased as per the requirement of the site based on data analysis. It is a general guideline, which may be changed to meet the local requirement. DGMS (Tech.) Circular No. 2 of 2020 dated 09.01.20 requires mine manager to have a structured team of trained competent persons for slope monitoring headed by a slope monitoring officer with clearly defined responsibilities.

To start with, the monitoring of pits should be done periodically at least once in a month using total station by mine management and the results of monitoring should be recorded in a bound-paged register or in a temper proof electronic form. These data should be regularly analyzed for rate of movement for assessment of instability. Warning level / withdrawal level of slope movement is site-specific and can be decided based on analysis of monitoring data over a long period only. If the analysis of monitoring data reveals, no ground movement in any part of mine or dump, mine management may increase the monitoring frequency from once in a month to once in two months on those part of mine.

However, if mine management detects an average rate of slope movement of 0.5 mm/day over a period of at least one month for most of the pillars of a zone of mine then the mine management should increase the monitoring frequency to fortnightly. If the movement monitoring data shows average movement rate of more than 1.0 mm/day over a period of at least one month then monitoring system design, frequency, and monitoring technology may

have to reviewed by any agency expert in the field of slope design and slope monitoring.

Under the condition the working near the affected zone of the mine should also be restricted.

The recommendation of such study by expert agency should be implemented by the mine management for the sake of safety of men and machineries.

CONCLUSIONS AND RECOMMENDATIONS

 Based on the assessment of the proposed mining plan and sections, engineering geology, existing geo-mining conditions, strength properties and the related geotechnical controls indicated in the report, the following ultimate pit slope design for 140 m maximum depth of Kalamang West (Northern Part) Iron Ore Mine have been recommended.

Maniana		Bench Parameters			
Maximum lepth of pit at altimate stage Geo-mining conditions		Maximum bench height (m)	Minimum exposed bench width (m)	Maximum bench angle (°)	
	Benches in shale	10	12.5	70	
	Benches in Iron	10	11.5	70	
	Benches in BHJ/BHQ	10	8	70	
140m	Benches in shale & Iron	10	12	70	
	Benches in shale & BHJ/BHQ	10	10.5	70	
	Benches in BHJ/BHQ & Iron	10	10	70	

- Above mentioned optimum pit slope design are valid with well-developed drainage system in and around the mine to maintain the pit slope in drained condition as well as with machine cutting / controlled blasting for ultimate pit slopes as suggested in this report.
- The operating bench width of pit should never be less than that specified in MMR or
 as specified above, whichever is higher. Bench height above 10m should be avoided.
 If height of a bench is less than 10 m in any combination of lithology then bench
 width should be kept in same proportion to maintain the same overall slope angle.
- If more than 2 rocks are encountered while designing the benches of the mine, then
 the material which has the wider bench configurations should be adopted for the
 design of benches.
- Maximum height (i.e. difference in mRL of crest of top most bench to mRL of toe of bottom most bench) of temporary dump in Kalamang West (Northern Part) Iron Ore Mine is not expected to exceed 45 m and therefore, considering the geo-mining

conditions, the slope stability analysis is presented in the report. Optimum design of ultimate temporary dump profile of Kalamang West (Northern Part) Iron Ore Mine is recommended as follows:

Dump design parameters	Values	
Maximum height of the dump (i.e. difference of RL of crest of topmost bench and RL of toe of lowermost bench)	45 m	
Minimum number of bench /deck/lift/stages	3	
Maximum height of any bench/deck/lift/stage	15 m	
Minimum exposed width after each bench/deck/lift/ stage	15 m	
Ratio of bench height / exposed bench width	1.0	
Bench slope angle / Angle of repose	37°	
Factor of safety	1.69	
Overall slope angle at ultimate stage	26°	

- If height of a bench of dump is less than 15m, then bench width should be kept in same ratio as listed above.
- The large-scale instability of recommended ultimate pit profile and dump of Kalamang West (Northern Part) Iron Ore Mine as recommended in this report, is unlikely with above mentioned profile if a well-developed drainage system, slope monitoring and other precautions / recommendations are implemented. Any local steepness at any level or saturation of slope mass may reduce the FOS and may cause slope instability even if the overall slope angle is within the recommended slope angle.
- If two to three benches are made steeper at any level in any part/ depth of the pit /
 dump then it may reduce its factor of safety. Although the overall slope angle may be
 quite low but the steeper slope angle of three benches may increase the stress at the
 toe of relatively steeper part of the slope, which may cause failure. Two or three such
 small failures may cause a big failure. So, benching should be done properly from top
 to bottom.

- A fresh geo-technical study from scientific institutions should be conducted within five years or before exceeding 60 m pit depth or whenever there is major change in mining plan, whichever is earlier.
- Cutting of toe of benches of pit and OB dumps should be strictly avoided. Such action reduces the safety factor of the slope.
- Width, gradient and other safety measures like parapet walls, warning notices, signs etc. of all haul roads should meet the criteria specified in MMR and other guidelines.
- The mapping of weak zones, faults and bedding planes in the pit should be a regular
 process by the departmental geologist. It will help to detect any unfavorable
 conditions at different stages of mining at the earliest possible which may be utilized
 in future for re-analysing pit slope stability, or for taking remedial measures. The pits
 and dumps should be surveyed periodically to produce up-to-date and accurate dump
 geometry.
- The mine should have an effective garland drain/ bund, all around, to collect/ divert
 rain water of the catchment area before it reaches the mine slopes. It is essential that
 these drains should be kept clear of silt and debris. Horizontal drains may be installed
 in the pit for de-pressurization of adverse groundwater pressure, especially where
 seepage is observed.
- Every attempt should be made to make a proper gradient along the benches, top and floor of the dump. It will facilitate an effective seepage/ flow of water retained in dumps as well as run-off of rainwater to the drains to take the same away from the dump. The drains should be effectively maintained to divert the drained water away from the dump. During the rainy season, effectiveness of drains in and around the pit and dump should be checked frequently. If this drainage system is not effectively achieved then the dumps may fail due to increase in saturation at the bottom of the dumps.
- Mine management should take all precautions and measures to avoid entry of rain / surface water in the dump mass by providing suitable drainage in and around the mine and dump, failing which the slope may become undrained and thus may reduce stability.
- A bund/ garland drains, depending up on the topography of the area, should be made/ cut all around the toe of dumps to collect run-off of the rainwater before it reaches the dump. Drains should be properly graded to promote rapid water flow and minimize

chances of ponding. Proper cleaning/ desilting and leveling of the drains would be necessary to keep the drains effective.

- To prevent soil erosion, to arrest washed off solids from the fine stacks / dumps and surface run offs, the following measures are being taken and / or need to be continued / taken in future:
 - ✓ Stabilization of waste dump slopes by timely vegetation with native species
 - ✓ Toe wall and garland drains wherever required
 - ✓ Contour trenching
 - ✓ Check dams and siltation ponds
- Mine management should make a structured team of trained competent persons for slope monitoring headed by a slope monitoring officer with clearly defined duties and responsibilities as per DGMS(Tech.) Circular No. 2 of 2020 dated 09.01.2020. The monitoring should be done periodically at least once in a month using total station and the results of monitoring should be recorded in a bound-paged register or in a temper proof electronic form. These monitoring data should be regularly analyzed for rate of movement of monitoring pillars. Slope monitoring should, in general, be done by the mine survey/geotechnical team. In case any adverse situation from stability viewpoint is detected, advice may be sought from expert agencies in the field of slope stability and slope monitoring for monitoring system design, or data analysis & interpretation to assess slope condition.

Acknowledgements

Authors are thankful to the mine management for providing all facilities, information and helpful discussion during the period of study.

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OFFICE OF THE PRINCIPAL CHIEF CONSERVATOR OF FORESTS (WILDLIFE) & CHIEF WILDLIFE WARDEN, ODISHA

Government of Odisha, Forest, Environment & Climate Change Department
PRAKRUTI BHAWAN, PLOT NO.1459, SAHEED NAGAR, BHUBANESWAR-751007
Phone: 0674-2602250, Website: www.wildlife.odisha.gov.in, Email: odishawildlife@gmail.com

To

The Chief (Kalmong & Gandhalpada Project) M/s Tata Steel BSL Ltd. Mines Division Joda, Keonjhar

Sub: Approval of Site Specific Wildlife Conservation Plan in respect of Kalmang West (Northern Part) Iron Ore Mines of M/S Tata Steel Ltd. under Bonai & Keonjhar Forest Division in Sundargarh & Keonjhar District

Sir,

I am directed to convey the approval of PCCF (WL) & CWLW, Odisha for the Site Specific Wildlife Conservation Plan at financial outlay of ₹834.168 lakh (Rupees eight crore thirty-four lakh sixteen thousand eight hundred) only as per the details of activities mentioned in Chapter-IV & VI of the Plan in compliance to the condition stipulated in the Environmental Clearance granted by MoEF&CC vide Letter dtd. 18.10.2022.

(i)	In project impact area in Bonai Division:	₹607.200 lakh
(ii	In project impact area in Keonjhar Division:	₹226.968 lakh
	Total:	₹834.168 lakh

A sum of ₹834.168 lakh (Rupees eight crore thirty-four lakh sixteen thousand eight hundred) only shall be deposited in State CAMPA fund only through e-portal (https://parivesh.nic.in) for implementation of various activities within the project impact area by the Forest Department through concerned DFOs.

- Activities in the project area as per Chapter-IV of the Plan will be executed by the project proponent under the guidance of DFO, Bonai/ Keonjhar Forest Division, as the case may be.
- 3. The Plan period is five years and will be revisited by concerned DFOs at least one year before expiry of its implementation. The User Agency will bear the cost of such Plan on its approval. Further, the User Agency will bear additional cost, if any, towards enhancement of wage rate and escalation of price of materials at the time of implementation of this Plan. In case of any deviation, it will be dealt as per law for violations of Forest (Conservation) Act 1980, Environment (Protection) Act 1986 and Wildlife (Protection) Act 1972.

Encl: Copy of approved SSWLCP

Yours faithfully

Conservator of Forests (ET)



P.T.O.

Copy forwarded for information and necessary action to the: -

- 1. OSD-cum-Special Secretary to Government of Odisha, FE&CC Department, Bhubaneswar with reference to that Deptt. Memo No.FE-DIV-FLD-0154-2021-20931/FE&CC dt 30.11.2021
- 2. PCCF (FD & NO, FC Act), O/o PCCF & HoFF, Odisha, Bhubaneswar with reference to FE&CC Deptt. Memo No.20931/FE&CC dt 30.11.2021
- 3. Regional Chief Conservator of Forests, Rourkela Circle with reference to his office Memo. No.3270 dt. 29.09.2023
- 4. Divisional Forest Officer, Bonai Division alongwith copy of the approved SSWLCP with reference to Memo. No.3271 dt 29.09.2023 of RCCF, Rourkela Circle

5. Divisional Forest Officer, Keonjhar Division alongwith copy of the approved SSWLCP with reference to Memo. No.3272 dt 29.09.2023 of RCCF, Rourkela Circle

Conservator of Forests (ET)



UNDERTAKING

Ref. No.: MD/ENV/578/130/2023

Dated: 11.04.2023

TO WHOM IT MAY CONCERN

With reference to Environmental Clearance obtained for Kalamang West (Northern Part) Iron Ore Block from State Environment Impact Assessment Authority (SEIAA), Orissa vide SEIAA File No. 55807/89-MINB1/06-2022 dated 18.10.2022 (EC Identification no. EC22B001OR117596) stipulated standard condition no. B. VIII. (i), we undertake that we are committed for periodical occupational health check-up of the employee and the local people through an occupational health expert as per the detailed action plan.

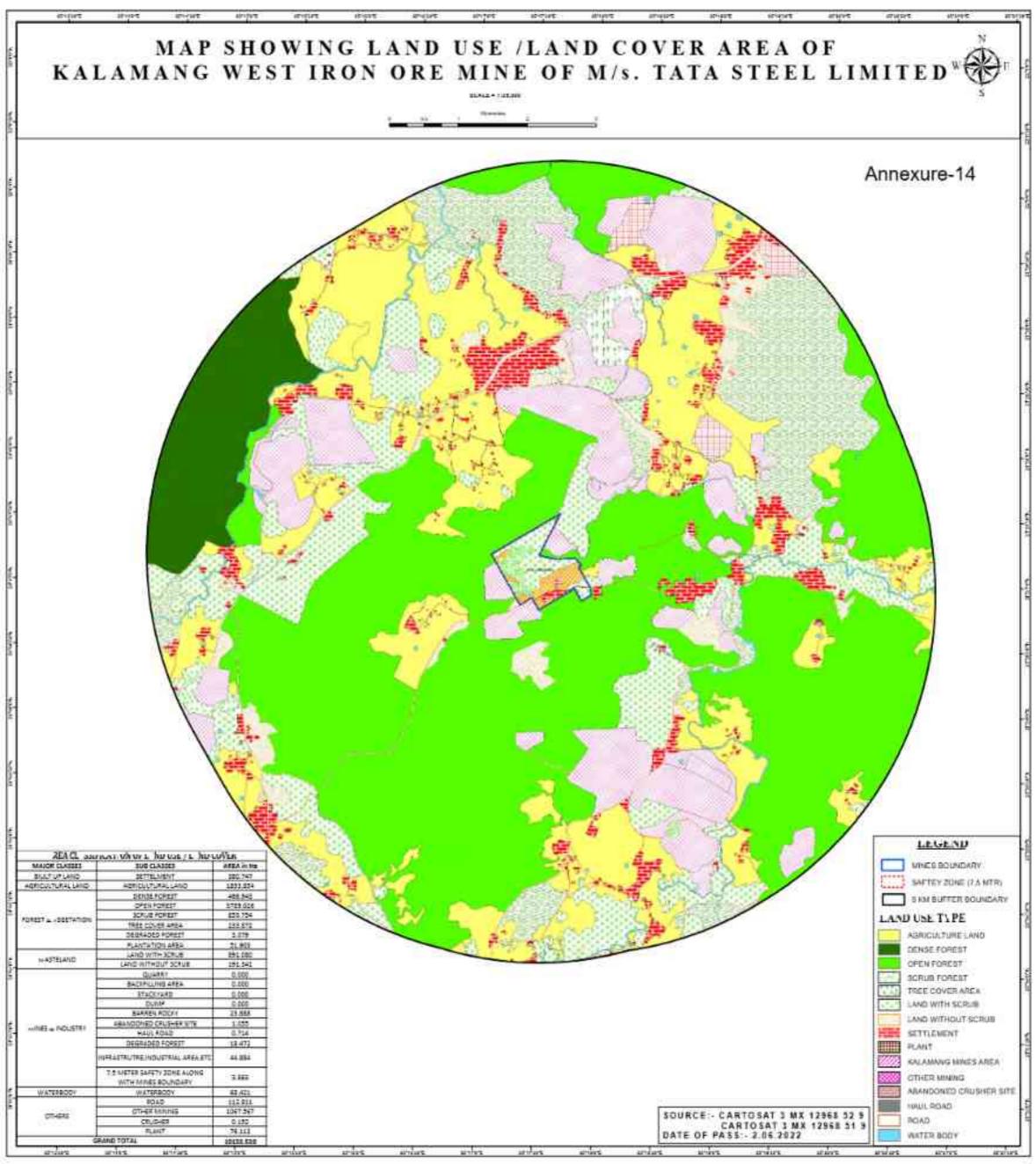
Chief (Kalamang & Gandhalpada Project)

Tata Steel Limited

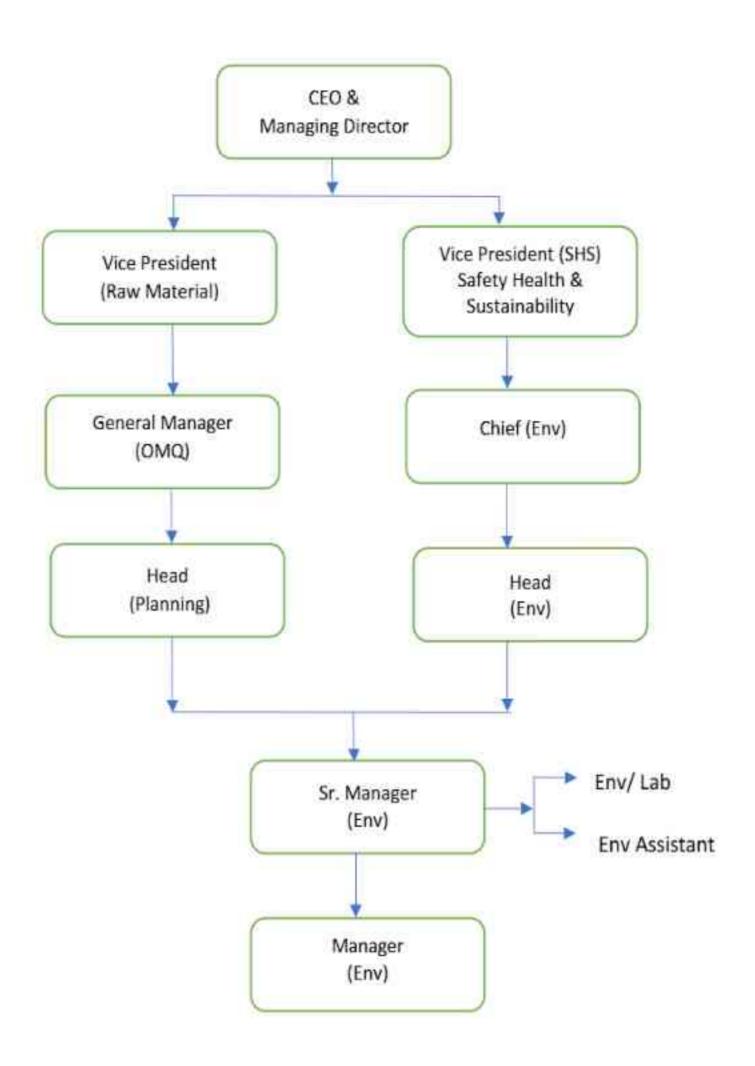
Chief (Kalamang & Gandhalpada Project) Tata Steel Limited

TATA STEEL LIMITED

Mines Division Joda Keonjhar Odisha 758 034 India
Tel 91 7440037036
Registered Office Bombay House 24 Homi Mody Street Fort Mumba: 400 001
Tel 91 22 66658282 Fax 91 22 66657724
Corporate Identity Number L27100MH1907PLC000260 Website www.tatasteel.com



Environment Management Organization Structure- Kalamang West Iron Ore Block





The Member Secretary State Pollution Control Board, Odisha Paribesh Bhawan A/118, Nilakantha Nagar, Unit - VIII Bhubaneswar - 751012

MD/ ENV/1228/120/ 2024 Date: 26th September 2024

Sub: Environmental Statement of Kalamang West (Northern Part) Iron Ore Mines, M/s Tata Steel Limited for 2023-24.

Dear Sir

Kindly find attach herewith the Environmental Statement in the prescribed format (Form V) as per "Environmental (Protection) Amendment Rules 1992" of our Kalamang West (Northern Part) Iron Ore Mines for your kind perusal.

Thanking you,

Yours faithfully f: Tata Steel Limited

Area Manager (Environment), OMQ

Encl: As above

Copy to: The Regional Officer, State Pollution Control Board, Near Hockey Chowk, Panposh, Rourkela, Odisha 769004

TATA STEEL LIMITED

ENVIRONMENT STATEMENT 2023-24



Kalamang West (Northern Part) Iron ore Mines

KALAMANG WEST (NORTHERN PART) IRON ORE MINE TATA STEEL LIMITED

September 2024

FORM - V (See Rule -14)

ENVIRONMENT STATEMENT FOR THE FINANCIAL YEAR ENDING THE 31st MARCH. 2024

KALAMANG WEST (NORTHERN PART) IRON ORE MINE, TATA STEEL LIMITED

PART-A

1	Name and address of the owner/ occupier of the industry, operation or process		Mr. Dipak Behera, Chief (Kalamang West (Nothern Part) Iron Ore Mine) Kalamang West (Nothern Part) Iron Ore Mine Tata Steel Itd, Joda Dist Keonjhar, Odisha – 758034 Mr Subhransu Mishra, Mine Manager (Kalamang West (Nothern Part) Iron Ore Mine) Kalamang West (Nothern Part) Iron Ore Mine Tata Steel Limited, Joda Dist Keonjhar, Odisha – 758034
	Nominated Owner	***	Mr. Atul Bhatnagar, General Manager, OMQ division, Administrative Building, Noamundi Iron Mine, Tata Steel Limited PO.: Noamundi, Dist-West Singhbhum Jharkhand – 833217 Mr T V Narendran, Managing Director & CEO, Tata Steel Limited, PO: Jamshedpur.
2	Industry Category	:	Dist.: East Singhbhum, Jharkhand-831001 Opencast Iron Ore Mining, Crushing & Screening (Major)
3	Production Capacity*	:	Mining:- 2.95 MTPA Iron Ore
4	Year of Establishment	:	Mine Operation has not started till date.
5	Date of last Environmental Statement submitted.		NA

^{*}As per Environmental Clearance

PART-B Water and Raw Material Consumption

(i) Water Consumption:

Consumption Head:	(in Cu.m/day) (Annual Average)	
Process	0	
Spraying in mine pit, services	0	
Domestic	0	
Name of the product	Process water consumption per product (m3/MT)	
Iron Ore	0	

This is a proposed mechanised iron ore mine. The iron ore processing is dry crushing and screening only. Dust suppression at C&S plant will be carried out through a scientific way using dry fog system, thus reducing the requirement of water to very minimum level.

ii) Raw Material Consumption

The following items have been consumed/ utilized:

Name of Raw Materials	Consumption of Raw Material
High Speed Diseal	During current financial year (2023-24)
High Speed Diesel	0
Lubricants	0
Grease	
Explosive of all types (Explosive, codex, detonator)	0
Gas	7
Tyres	·
Drill rods	- <u>0</u>
Electricity Consumed	0
	0
Electricity Generated.	NA

^{*}Mine operation has not started.

PART-C POLLUTION DISCHARGED TO ENVIROMENT/ UNIT OF OUTPUT (Parameters as specified in the consent issued)

Pollutants	Quantity of Pollutants discharged (mass / day)	Concentration of Pollutants discharges (mass / day)	Percentage of variation from prescribed standards with reasons
a) Water	Mining operation is yet to present. However, provision progress. Treated water from purpose as well as hortic maintained. Water quality report for second progress.	on of installation of the som STP and ETP will be roulture purpose. Zero ef	STP is installed at site a same is planned & under eused for water sprinkling fluent discharge shall be
b) Air	The Kalamang West (North mine with crushing & screen dust fall, ambient, respirable is well within limits. Air monitoring is being conducted a continuous ambient air of NOx, (NO2 & NO) & CO particles of air quality in the results of air quality	ening plant. The air quali e has been measured and ducted in core & buffer zo quality monitoring stations rameters has been plann	ity in the form of fugitive, of monitored regularly and me. s with PM ₁₀ , PM _{2.5} , SOx, ed to be installed.

HAZARDOUS WASTES

As specified under the Hazardous & Other Waste (Management & Trans boundary Movement) Rules, 2016 and amendment thereof

Hazardous Wastes	Total Quantity During previous financial year	
(a) From Process	(2023-24)	
Used Oil Waste containing Oil Lead Bering residues (Batteries etc) Rejected & used hose pipes	NA	
ii) From Pollution Control Facility • Waste oil from oil & grease separation pit • Sludge from oil and grease separation pit	All the Hazardous waste generated will be disposed as per law. Nil (Included in process)	

^{*}Mine operation has not started.

PART-E SOLID WASTES

Solid wastes from Kalamang West (Northern Part) Iron ore mines are Overburden/rejects removed during mining operations. All the materials overburden will be stacked at designated place inside the mine as per the approved Mine Plan. However, other solid waste (scrap material, used conveyor belts, tyres etc.) from mining activity will be stored at designated place.

	Total Quantity During previous financial year (2023-24)	
Sources		
From Process From mining as Overburden Rejects	NIL	
b) From Pollution Control Facility		
c) i. Quantity recycled or reutilized within the unit		
ii. Quantity sold		
General Office waste		
iii. Quantity disposed		
 Mining overburden 		

^{*}Mine operation has not started.

PART-F

PLEASE SPECIFY THE CHARACTERISTICS (IN TERMS OF COMPOSITION AND QUANTUM) OF HAZARDOUS AS WELL AS SOLID WASTES AND INDICATE DISPOSAL PRACTICE ADOPTED FOR BOTH THESE CATEGORIES OF WASTES

The Kalamang West (Northern Part) Iron Ore Mine has not started operation till date. The used oil will be generated from HEMM maintenance, which are used in mining operations. The used oil will be disposed to authorized agency for recycling and reuse. The hazardous waste such as used batteries is sold to authorized agency.

The other solid waste in the form of overburden and sub-grade mineral are stocked in designated place.

PART-G

IMPACT OF POLLUTION ABATEMENT MEASURES TAKEN ON CONSERVATION OF NATURAL RESOURCES AND ON THE COST OF PRODUCTION

- For conservation of natural resources, high efficiency HEMM will be used with adequate maintenance so as to reduce the fuel consumption. Zero effluent discharge will be maintained.
- For ground water augmentation, various rainwater harvesting structures will be developed in future in the buffer zone which will harvest the groundwater.
- Scientific mining along with mixing of ore of different grades for conservation & common boundary mining will be practiced for conservation of mineral.

PART-H

ADDITIONAL MEASURES/ INVESTMENT PROPOSAL FOR ENVIRONMENTAL PROTECTION INCLUDING ABATEMENT OF POLLUTION, PREVENTION OF POLLUTION

Mine operation has not started till date. Below mentioned are some measures proposed for abatement of pollution.

- Settling ponds will be conducted for storage of surface runoff.
- Construction of toe walls, garland drains along with check dams will be done for arresting silts from overburden dumps.
- Awareness programme such as World Environment day, Biodiversity Day, Swachhata pakhwada, Earth Day was organised for creating awareness of people.
- In addition, Tata Steel Foundation (TSF) is engaged in peripheral developmental activities in villages around the mine. The projects of the Society include irrigation and agricultural extension projects, plantation programmes, creation of SAVE FOREST groups, civic amenities development, medical care and health education, rural sports and skill development, rural cultural promotion etc.

PART-I

ANY OTHER PARTICULARS FOR IMPROVING THE QUALITY OF THE ENVIRONMENT

- The Company is having a full-fledged Environmental Management Department with personnel from different backgrounds to take care of all environmental aspects relating to mines of Tata Steel. This department has in house capabilities for monitoring various environmental parameters and suggesting to the management necessary abatement measures.
- Various awareness programs throughout the year conducted in the area which included celebration of World Environment Day, World Water Day, Mine Environment & Mineral Conservation Week, Word Bio-diversity Week, Annual Flower & Vegetable Show etc. In which environment conservation models, current & future proposals are made, environment messages through Nukkad natak, poems, slogans, swachhata drive has been condcuted every year.

Rishi Raj Kashyarp

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Manager (Environment), Kalamang

WATER QUALITY DATA 2023-24 Kalamang West (Northern Part) Iron Ore Mine (Annual Average)

SURFACE WATER				
Parameters	Sona river Upstream	Sona river Downstream	Standard	
рН	8.07	7.95	6.0-9.0	
DO (mg/l)	6.68	6.3	The state of the s	
TSS (mg/l)	32	28	>4.0	
BOD 5 days (mg/l)	2.70	2.59	30	
COD (mg/l)	8.07	7.42		
Iron (mg/l)	0.41	0.35	0.5	

Note: BDL - Below detection limit.

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AIR QUALITY DATA 2023-24 Annual Average Air quality of Kalamang Iron ore Mine of FY'24

Pollutants	Concentration of pollutants (µg/m³)	Standards (µg/m³)
AAQ-1	11.5	(µg/m²)
1. PM ₁₀	70.08	100
2. PM _{2.5}	30.81	100
3. SO ₂	13.41	60
4. NO _x	25.86	80
5. CO	0.58	80
AAQ-2	0.00	4*
1. PM ₁₀	62.17	400
2. PM _{2.5}	24.94	100
3. SO ₂	11.61	60
4. NO _x	23.19	80
5. CO	0.53	80
AAQ-3	0.03	4*
1. PM ₁₀	52.07	100
2. PM _{2.5}	19	100
3. SO ₂		60
4. NO _x	8.38	80
5. CO	19.4	80
AAQ-4	BDL	4*
. PM ₁₀	55.0	
2. PM _{2.5}	55.9	100
3. SO ₂	22.8	60
. NO _x	10.3	80
CO	21	80
AQ-5	BDL	4*
. PM ₁₀		
. PM _{2.5}	55.4	100
. SO ₂	22	60
	10.2	80
. NO _x	19.4	80
	BDL	4*
AQ-6		
PM ₁₀	27.2	
	51.5	100
PM _{2.5} SO ₂	18.6	60
NO _x	8.85	80
CO	18.8	80
00	BDL	4*
AQ-7		
PM ₁₀		
PM _{2.5}	55.5	100
SO ₂	21.3	60
NO _x	10.4	80
CO	21.25	80
L - Below detective limit	BDL	4*

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