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).

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. Surface Runoff Management study has been conducted & the recommendations of the same will be implemented when the mine is in operation. Installation of STP & ETP will be done within stipulated timeframe and after starting of mining operation.
B.	**Standard Conditions:**	
I.	**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.
(I)	**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	It will be complied once the mine is operational. 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-G/FY'24 dated 07.09.2023.

	transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.	Manual monitoring of ambient air quality is being carried out in core & buffer zone. Air Monitoring report attached herewith.
(ii)	Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from ah sources shall be regularly controlled by installation of required equipment/ machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEF&CC/ Central Pollution Control Board.	Effective safeguard measures for dust generation & subsequent suppression will be taken during mining operation. Fugitive emission from sources will be monitored by installation of pollution control equipment and necessary dust suppression arrangements shall be made to ensure air pollution level conform to the standards prescribed by the MoEF&CC/ Central Pollution Control Board.
(II)	**Water quality monitoring and preservation**	
(i)	In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEF&CC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro-geological study of the area.	Agreed During current mining scheme period there is no intersection of ground water (GW) table. In case there is an intersection of GW level permission/NOC shall be taken from CGWA & MoEF&CC.
(ii)	Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintain. The natural water bodies and or streams which are flowing in an around the village, should not be disturbed. The Water Table should be nurtured so as not to go down below the pre-mining period. In case of any water scarcity in the area, the Project 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-	Being Complied. Regular water quality monitoring of the springs & nallahs is being carried out by NABL accredited lab. Monitoring report for surface water quality analysis attached herewith.

	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-a-vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and/ or alteration be made to water bodies during mining operations without justification and prior approval of 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 and Central 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 be monitored along with Total Suspended Solids	Agreed. It will be complied after the commencement 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 chartered civil engineer is enclosed.
(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.	It will be complied. An ETP will be established to treat the industrial wastewater after treating it through oil & grease trap. The inlet & outlet properties of effluent will be monitored as per the standards issued by SPCB.
(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.
(III)	**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.	Agreed. All precautionary actions will be taken not to disturb the habitations or the animal population around.
(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)	**Mining Plan**	
(i)	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 Plan cum 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 air 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**	
(i)	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 half-yearly basis.	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)	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.

	chest; For Noise Audiometric; for Lead Exposure Blood Lead, For Welders Full Ophthalmologic Assessment; for Manganese Miners a complete Neurological Assessment by a Certified Neurologist, and Manganese (Mn) estimation in Blood; For Inorganic Chromium-Fortnightly skin 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).	
(v)	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.	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.
(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.	Agreed. Provision for housing with necessary 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 wastewater.
(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.	The work is in progress and the status report will be submitted to Regional Office of the Ministry along with District Administration. Details of budget expended for fulfilling Public Hearing issues being submitted periodically.
(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.	The Mine operation has not started. Issues raised will be dealt as per the prescribed plan and within stipulated time frame.
(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.	MoEFCC, vide its OM dated 30th September 2020, has stated that the CER (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. Details of budget expended for fulfilling Public Hearing issues being submitted periodically.
(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	Complied. Land use & land cover of the entire lease area is attached herewith.

	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.	It is being complied. 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.	Not Applicable in our case.

By E-mail

Annexure-I

DIRECTORATE OF MINES & GEOLOGY
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-0017-2023-10766**/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.

Behera 19/8/2023

JOINT DIRECTOR OF MINES

Memo No. 10767 **/DoMG** **Dt.** 21-08-2023

Copy to Deputy Director of Mines, Koira for information.

Behera 19/8/2023

JOINT DIRECTOR OF MINES

By e-mail/Fax

Government of Odisha
Steel & Mines Department
***

No 7286 /SM, Bhubaneswar, Dated the 17/07/2023
SM-MC1-MISC-0027-2021

From

Sri S.K.Mohanty,
Deputy Secretary to Government.

To

The Director of Mines & Geology,
Odisha, Bhubaneswar.

DIRECTORATE OF MINES & GEOLOGY
14121
18 JUL 2023
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,

17-07-2023
Deputy Secretary to Government

MC1-MISC-0027-2021/6/2023

By e-mail/Fax

Government of Odisha
Steel & Mines Department
***

No 8184 /SM, Bhubaneswar, Dated the 11.08.2023
SM-MC1-MISC-0027-2021

From

Sri S. K. Mohanty,
Deputy Secretary to Government.

To

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: 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,
11-08-2023
Deputy Secretary to Government

Annexure-2

I/60717/2023

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:

1. 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;

4. *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*

I/60717/2023

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;

7. *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;*
8. *A Bio-diversity Conservation Plan for this entire landscape shall also be prepared by the State Govt at the cost of UA;*
9. *Soil and moisture conservation measures shall be undertaken in and around 10 KM radius of the mining lease areas at project cost;*
10. *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;

I/60717/2023

b. 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;
c. 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;
    b. 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;
18. Trees should be felled in phased manner as per the requirement in the approved Mining Plan with prior permission of concerned DFO;
19. 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

I/60717/2023

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;
26. The User Agency shall undertake that prevention of fall of wild animals into mining pit by fencing the open pit area;
27. 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 re-grassing, 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;

32. 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;
37. 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
Date: 22-12-2023 10:12:02

(Charan Jeet Singh)
Scientist 'D'

Copy to:

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

I/60717/2023

3. DDGF (Central), Regional Office of MoEF&CC at Bhubaneswar.
4. User Agency.
5. Monitoring Cell, FC Division, MoEF&CC, New Delhi
6. 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:	Village-kalamang And Ghodabudani		
Village:	Kalmanga	Block:	Koida
District:	Sundargarh	State:	Odisha
Pin Code:			
Communication Address:	Bombay House, 24 Homi Mody Steet Fort, Mumbai-400001, Mumbai, Mumbai, Maharashtra - 400001		
Address of CGWB Regional Office :	Central Ground Water Board South Eastern Region, Bhujal Bhawan, Khandagiri Square, Nh-5, Bhubaneshwar, Khordha, Odisha - 751030		

1.	**NOC No.:**	CGWA/NOC/MIN/REN/1/2024/10145	2.	**Date of Issuence**	12/11/2024
3.	Application No.:	21-4/3864/OR/MIN/2022	4.	Category: (GWRE 2023)	Safe
5.	Project Status:	Existing With Additional Ground Water Requirment	6.	NOC Type:	Renewal
7.	**Valid from:**	01/09/2024	8.	**Valid up to:**	31/08/2026

9. Ground Water Abstraction Permitted:

Fresh Water		Saline Water		Dewatering		Total	
m³/day	m³/year	m³/day	m³/year	m³/day	m³/year	m³/day	m³/year
100.00	36500.00					100.00	36500.00

10. Details of ground water abstraction /Dewatering structures

	Total Existing No.:0						Total Proposed No.:2					
	DW	DCB	BW	TW	MP	MPu	DW	DCB	BW	TW	MP	MPu
Abstraction Structure*	0	0	0	0	0	0	0	0	2	0	0	0

*DW- Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mine Pit;MPu-Mine Pumps

11.	Ground Water Abstraction/Restoration Charges paid (Rs.):	36500.00
12.	Environment Compensation (if applicable) paid (Rs.):	0.00

13.	Number of Piezometers(Observation wells) to be constructed/ monitored & Monitoring mechanism.	No. of Piezometers	Monitoring Mechanism		
			Manual	DWLR**	DWLR With Telemetry
	**DWLR - Digital Water Level Recorder	1	0	1	0

(Compliance Conditions given overleaf)

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

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

O/C

Annexure-4

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

Sarpanch
GUALI GRAM PANCHAYAT
GUALI

Encl: As above

TATA STEEL LIMITED
Mines Division Joda Keonjhar, Odisha 758 034 Tel 91 9238101031
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

O/C

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

Suruball Patra
Sarpanch Malda G.P
Pin-770048

TATA STEEL LIMITED
Mines Division Joda Keonjhar, Odisha 758 034 Tel 91 9238101031
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

News paper Advertisement in English Daily, Sunday Pioneer dated 23.10.2022

sunday pioneer
BHUBANESWAR | SUNDAY | OCTOBER 23, 2022

NZ CRUSH AUSTRALIA BY 89 RUNS IN SUPER 12 OPENER

We were very clinical in what we needed to do: Williamson

All-round England beat Afghanistan by 5 wickets after Curran's 5/10

We have plans for everyone, not just Surya: Babar

Surya tells me he will take his chances, just wants me to be there: Kohli

Strategy to deal with Shaheen is to play within 'V': Tendulkar

The Match: Confident India hoping to turn tables on Pakistan

AFFIDAVIT

I, Sri Prasun Kumar Dandasena aged about 40 years S/o Late Sreedeb Dandasena, R/o Pukupada, Post/P.S. Kharian, Dist-Nuapada solemnly confirm and state the oath before the Notary Public, Kharian that since dt.22.10.2022, the original sale deed of my land under Khata No.272/302 of Mauza Kharia recorded in my name vide MC No. 4941/3 dtd.10.06.2013 has been missing. This affidavit has been submitted before IIC, Kharian Police Station as a supporting document of FIR. Anyone who finds the same is hereby requested to contact me on my phone No. 9668955201 to return the same.

Newspaper Advertisement in Odiya Daily, Pragativadi dated 23.10.2022

ଟ୍ୱିନ୍‌ସିଟି ମିରର୍

ଭୁବନେଶ୍ୱର

ପ୍ରଗତିଶୀଳ ଓଡ଼ିଶାର ପ୍ରତିଜ୍ଞା

ପ୍ରଗତିବାଦୀ

ଶାସ୍ତ୍ରୀୟ ନୃତ୍ୟ ଜଗତର ଆଦ୍ୟ ଆନନ୍ଦମୟ ଉତ୍ସବଟିଏ

କଳାକାରଙ୍କ ନୃତ୍ୟ ପ୍ରଦର୍ଶନ

ଦାବି ପୂରଣ ନ ହେଲେ କୁକୁଡାଚାଖାଙ୍କ ଆନ୍ଦୋଳନ

ସଂକୀର୍ତ୍ତନ ମହୋତ୍ସବ

TATA

ଜିଲ୍ଲାପାଳ ଓ ଜିଲ୍ଲା ଦଣ୍ଡାଧିକାରୀଙ୍କ କାର୍ଯ୍ୟାଳୟ

ଟେଣ୍ଡରନୋଟିସ

F.L.A-II-04

File No. ...

ଜିଲ୍ଲାପାଳ ଓ ଜିଲ୍ଲା ଦଣ୍ଡାଧିକାରୀ

TATA

110

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.environmentclearance.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

GOVT. OF INDIA
MoEF & CC Integrated R.O.
Bhubaneswar-751023
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.

Sl. 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 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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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 (m^3/min)
Average Flow Rate of Gases : 0.4 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	76.3	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	34.9	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	13.1	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	28.7	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	0.573	mg /m^3	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
Snehal Raut
Deputy Technical Manager

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

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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	: 15/04/2024 to 16/04/2024
Sample Drawn By	: 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 (m^3/min)
Average Flow Rate of Gases	: 0.4 (lpm)
Weather Conditions	: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	68.3	µg /m^3	**100 (24 hrs)**
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	31.6	µg /m^3	**60 (24 hrs)**
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	12.4	µg /m^3	**80 (24 hrs)**
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	27.1	µg /m^3	**80 (24 hrs)**
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	0.519	mg /m^3	**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
Snehal Raut
Deputy Technical Manager

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

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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 (m^3/min)
Average Flow Rate of Gases	: 0.4 (lpm)
Weather Conditions	: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	56.3	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	27.9	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	9.1	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	21.6	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg /m^3	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
Snehal Raut
Deputy Technical Manager

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

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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 (m^3/min)
Average Flow Rate of Gases : 0.4 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	62.7	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	31.6	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	11.3	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	24.9	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg /m^3	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
Snehal Raut
Deputy Technical Manager

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

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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 (m^3/min)
Average Flow Rate of Gases : 0.4 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	56.1	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	27.6	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	9.7	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	21.4	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg /m^3	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
Snehal Raut
Deputy Technical Manager

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

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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-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 : 17/04/2024 to 18/04/2024
Sample Drawn By : 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 (m^3/min)
Average Flow Rate of Gases : 0.3 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	63.9	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	28.1	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	11.7	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	23.4	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg /m^3	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
Snehal Raut
Deputy Technical Manager

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

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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
Analysis Duration : 23/04/2024
Sampling Time : 24 Hrs.
Ambient Temperature : 34°C
Average Flow Rate of SPM : 1.2 (m^3/min)
Average Flow Rate of Gases : 0.3 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	56.4	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	23.6	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	8.2	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	17.4	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg /m^3	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
Snehal Raut
Deputy Technical Manager

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

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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-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 : 08/05/2024 to 09/05/2024
Sample Drawn By : 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 : 1.2 (m^3/min)
Average Flow Rate of Gases : 0.4 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	72.9	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	31.6	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	12.4	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	27.1	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	0.593	mg /m^3	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
Deputy Technical Manager

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

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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 (m^3/min)
Average Flow Rate of Gases : 0.4 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	78.1	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	34.9	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	13.6	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	29.7	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	0.571	mg /m^3	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
Deputy Technical Manager

Authorized Signatory

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

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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 : 09/05/2024 to 10/05/2024
Sample Drawn By : 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 : 1.2 (m^3/min)
Average Flow Rate of Gases : 0.4 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	63.7	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	28.4	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	11.9	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	21.6	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg /m^3	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
Deputy Technical Manager

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

----End of Report----

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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 (m^3/min)
Average Flow Rate of Gases : 0.3 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	68.2	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	27.9	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	13.6	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	18.4	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg /m^3	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
Deputy Technical Manager

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

----End of Report----

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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 (m^3/min)
Average Flow Rate of Gases	: 0.4 (lpm)
Weather Conditions	: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	61.9	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	24.7	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	12.1	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	19.3	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg /m^3	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
Deputy Technical Manager

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

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
FP-34, 35,Food Park, Five Star Industrial Estate,
MIDC Butibori, Nagpur, Maharashtra, India - 441 122
+ 91 8045585558 Email : info@anacon.in
https: // www.anaconlaboratories.com

Anacon Laboratories

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 (m^3/min)
Average Flow Rate of Gases : 0.4 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	68.1	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	26.3	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	11.9	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	21.7	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg /m^3	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
Deputy Technical Manager

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

----End of Report----

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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 (m^3/min)
Average Flow Rate of Gases	: 0.4 (lpm)
Weather Conditions	: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	57.2	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	23.4	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	9.1	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	18.6	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg /m^3	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
Deputy Technical Manager

Authorized Signatory

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

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories

Anacon Laboratories Pvt. Ltd. Nagpur Lab
FP-34, 35,Food Park, Five Star Industrial Estate,
MIDC Butibori, Nagpur, Maharashtra, India - 441 122
+ 91 8045685558 Email : info@anacon.in
https: // www.aneconlaboratories.com

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	: 13/06/2024 to 14/06/2024
Sample Drawn By	: Anacon Representative
Sample Received On	: 21/06/2024
Sampling Location	: Mines Lease Area (AAQ-1)
Sampling Plan & Procedure	: ANtd/7.2/Mon-01
Analysis Duration	: 22/06/2024
Sampling Time	: 24 Hrs.
Ambient Temperature	: 32°C
Average Flow Rate of SPM	: 1.2 (m^3/min)
Average Flow Rate of Gases	: 0.3 (lpm)
Weather Conditions	: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	64.7	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	28.4	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	11.9	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	23.8	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	0.572	mg /m^3	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
Dr. (Mrs.) S. D. Garway
Quality Manager

----End of Report----

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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 : 13/06/2024 to 14/06/2024
Sample Drawn By : 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.
Ambient Temperature : 34°C
Average Flow Rate of SPM : 1.1 (m^3/min)
Average Flow Rate of Gases : 0.3 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	68.1	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	32.8	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	14.6	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	27.9	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	0.561	mg /m^3	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
Dr. (Mrs.) S. D. Garway
Quality Manager

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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-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 (m^3/min)
Average Flow Rate of Gases : 0.4 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	57.2	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	21.8	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	12.6	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	19.1	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg /m^3	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
Dr. (Mrs.) S. D. Garway
Quality Manager

----End of Report----

Anacon Laboratories

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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-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. : ALPL/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 (AAQ-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 (m^3/min)
Average Flow Rate of Gases : 0.4 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	63.9	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	21.6	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	12.8	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	19.1	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg /m^3	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
Dr. (Mrs.) S. D. Garway
Quality Manager

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories

Anacon Laboratories Pvt. Ltd. Nagpur Lab
FP-34, 35,Food Park, Five Star Industrial Estate,
MIDC Butibori, Nagpur, Maharashtra, India - 441 122
+ 91 8045885558 Email : info@anacon.in
https: // www.anaconlaboratories.com

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 (AAQ-5)**
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 (m^3/min)
Average Flow Rate of Gases	: 0.4 (lpm)
Weather Conditions	: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	62.8	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	21.4	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	13.6	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	18.2	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg /m^3	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
Dr. (Mrs.) S. D. Garway
Quality Manager

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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 (AAQ-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 (m^3/min)
Average Flow Rate of Gases : 0.3 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	64.9	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	23.8	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	12.1	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	21.7	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg /m^3	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
Dr. (Mrs.) S. D. Garway
Quality Manager

----End of Report----

Anacon Laboratories

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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-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 (m^3/min)
Average Flow Rate of Gases : 0.4 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	56.2	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	17.6	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	9.1	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	18.3	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg /m^3	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
Dr. (Mrs.) S. D. Garway
Quality Manager

----End of Report----

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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 (m^3/min)
Average Flow Rate of Gases : 0.3 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	58.3	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	23.1	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	12.4	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	20.9	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL(DL-0.5)	mg /m^3	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. • 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
Snehal Raut
Technical Manager

Authorized Signatory
Chinmay Garway
Deputy Quality Manager

----End of Report----

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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 (AAQ-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 (m^3/min)
Average Flow Rate of Gases : 0.4 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	63.7	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	26.4	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	9.7	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	21.2	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL(DL-0.5)	mg /m^3	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
Deputy Quality Manager

----End of Report----

Anacon Laboratories

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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-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
Analysis Duration	: 23/07/2024
Sampling Time	: 24 Hrs.
Ambient Temperature	: 28°C
Average Flow Rate of SPM	: 1.2 (m^3/min)
Average Flow Rate of Gases	: 0.4 (lpm)
Weather Conditions	: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	59.1	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	28.3	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	11.6	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	22.7	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg /m^3	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
Snehal Raut
Technical Manager

Authorized Signatory
Chinmay Garway
Deputy Quality Manager

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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.
Ambient Temperature : 28°C
Average Flow Rate of SPM : 1.1(m^3/min)
Average Flow Rate of Gases : 0.3 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	61.9	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	26.1	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	11.6	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	23.8	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	0.541	mg /m^3	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
Deputy Quality Manager

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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 (m^3/min)
Average Flow Rate of Gases	: 0.4 (lpm)
Weather Conditions	: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	57.3	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	16.9	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	9.1	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	17.4	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg /m^3	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

Snehal Raut
Technical Manager

Authorized Signatory

Chinmay Garway
Deputy Quality Manager

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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 : Mr. Biplab Giri (Sky Lab)
Sample Received On : 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 (m^3/min)
Average Flow Rate of Gases : 0.4 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	56.2	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	23.8	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	11.6	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	21.4	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BDL (DL-0.5)	mg /m^3	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
Snehal Raut
Technical Manager

Authorized Signatory
Chinmay Garway
Deputy Quality Manager

----End of Report----

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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 (m^3/min)
Average Flow Rate of Gases	: 0.3 (lpm)
Weather Conditions	: Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	CPCB Standard
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	54.7	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	16.3	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	11.1	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	18.6	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	0.521	mg /m^3	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
Snehal Raut
Technical Manager

Authorized Signatory
Chinmay Garway
Deputy Quality Manager

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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)**
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 (m^3/min)
Average Flow Rate of Gases : 0.4 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	NAAQMS Standards
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	56.1	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	23.7	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	11.9	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	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 /m^3	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
Deputy Quality Manager

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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 (m^3/min)
Average Flow Rate of Gases : 0.4 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	NAAQMS Standards
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	62.9	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	26.8	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	12.4	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	27.1	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BLQ(LOQ-0.5)	mg /m^3	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
Deputy Quality Manager

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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 (m^3/min)
Average Flow Rate of Gases : 0.4 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	NAAQMS Standards
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	47.2	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	16.9	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	9.1	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	18.7	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BLQ(LOQ-0.5)	mg /m^3	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
Deputy Quality Manager

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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
Analysis Duration : 20/08/2024
Sampling Time : 24 Hrs.
Ambient Temperature : 26°C
Average Flow Rate of SPM : 1.1 (m^3/min)
Average Flow Rate of Gases : 0.4 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	NAAQMS Standards
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	58.3	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	24.7	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	12.1	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	23.9	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BLQ(LOQ-0.5)	mg /m^3	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
Deputy Quality Manager

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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
Average Flow Rate of SPM : 1.2 (m^3/min)
Average Flow Rate of Gases : 0.4 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	NAAQMS Standards
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	48.1	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	16.2	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	7.6	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	21.7	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BLQ(LOQ-0.5)	mg /m^3	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 Gadway
Deputy Quality Manager

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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 : 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 (m^3/min)
Average Flow Rate of Gases : 0.4 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	NAAQMS Standards
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	52.7	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	18.6	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	8.4	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	23.1	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BLQ(LOQ-0.5)	mg /m^3	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
Deputy Quality Manager

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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 (m^3/min)
Average Flow Rate of Gases : 0.4 (lpm)
Weather Conditions : Clear

Sl. No.	PARAMETER	TEST METHOD	RESULT	UNIT	NAAQMS Standards
1	Particulate Matter (PM_{10})	IS:5182 (Part 23):2006	49.1	µg /m^3	100 (24 hrs)
2	Particulate Matter ($PM_{2.5}$)	USEPA-40 (Part 50):2011	17.3	µg /m^3	60 (24 hrs)
3	Sulphur dioxide (as SO_2)	IS:5182 (Part 2):2001	7.6	µg /m^3	80 (24 hrs)
4	Oxides of Nitrogen (as NO_2)	IS:5182 (Part 6):2006	21.8	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS:5182 (Part 10):1992	BLQ(LOQ-0.5)	mg /m^3	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
Deputy Quality Manager

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories

TC-12998

Test Report

ULR No.- TC129982400001615F

Test Report No.: ALPL/30092024/6-1A Dated: 30/09/2024

Issued To: M/s Kalamang Iron Mine (M/s TATA STEEL LIMITED)	**Sample Inward No.:** ALPL/23092024/MON-30-AAQ-1/7-1 **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 :**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
Wind direction : SSE
Wind speed : 2.8 m/sec

Temp°C (Max) : 27
Temp°C (Min) : 22

Relative Humidity
Min: 21%
Max: 92%

Test Results

Sr. No.	Test Parameters	Measurement Unit	Test Method	Test Results	NAAQMS Standards
I.	Discipline: Chemical	Group: Atmospheric Pollution		Material or Product tested : Ambient Air	
1.	Particulate Matter (PM_{10})	µg /m³	IS:5182 (Part 23)	61.7	100 (24 hrs)
2.	Particulate Matter ($PM_{2.5}$)	µg /m³	USEPA-40 (Part 50)	24.9	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

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.

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

TC-12998

Test Report

ULR No.- TC129982400001616F

Test Report No.: ALPL/30092024/6-2A Dated: 30/09/2024

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	Temp^{0}C (Max) : 27	Relative Humidity
Wind direction : SSE	Temp^{0}C (Min) : 22	Min: 21%
Wind speed : 2.8 m/sec		Max: 92%

Test Results

Sr. No.	Test Parameters	Measurement Unit	Test Method	Test Results	NAAQMS Standards
1.	**Discipline:** Chemical	**Group:** Atmospheric Pollution		**Material or Product tested :** Ambient Air	
1.	Particulate Matter (PM_{10})	µg /m^3	IS:5182 (Part 23)	64.3	100 (24 hrs)
2.	Particulate Matter ($PM_{2.5}$)	µg /m^3	USEPA-40 (Part 50)	26.1	60 (24 hrs)
3.	Sulphur dioxide	µg /m^3	IS:5182 (Part 2)	14.7	80 (24 hrs)
4	Oxides of Nitrogen	µg /m^3	IS:5182 (Part 6)	27.8	80 (24 hrs)
5.	Carbon Monoxide (as CO)	mg /m^3	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.

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

TC-12998

Test Report

ULR No.- TC129982400001617F

Test Report No.: ALPL/30092024/6-3A Dated: 30/09/2024

Issued To:		
M/s Kalamang Iron Mine (M/s TATA STEEL LIMITED)	**Sample Inward No.:** ALPL/23092024/MON-30-AAQ-1/7-3 **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 :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°C (Max) : 28
Temp°C (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: Atmospheric Pollution Material or Product tested : Ambient Air				
1.	Particulate Matter (PM_{10})	µg /m³	IS:5182 (Part 23)	51.3	100 (24 hrs)
2.	Particulate Matter ($PM_{2.5}$)	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)	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 applicabl to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs. • BLQ= below limit c quantification , LOQ= 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 on feedback@anacon.in.

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

TC-12998

Test Report

ULR No.- TC129982400001618F

Test Report No.: ALPL/30092024/6-4A Dated: 30/09/2024

Issued To:		
M/s Kalamang Iron Mine (M/s TATA STEEL LIMITED)	**Sample Inward No.:** ALPL/23092024/MON-30-AAQ-1/7-4 **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 :**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/Mon-02/Sept-2024/3

Other Technical Data

Weather Conditions : Satisfactory & Clear Wind direction : SW Wind speed : 1.7 m/sec	Temp°C (Max) : 28 Temp°C (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: Atmospheric Pollution Material or Product tested : Ambient Air				
1.	Particulate Matter (PM_{10})	µg /m³	IS:5182 (Part 23)	58.3	100 (24 hrs)
2.	Particulate Matter ($PM_{2.5}$)	µg /m³	USEPA-40 (Part 50)	27.1	60 (24 hrs)
3.	Sulphur dioxide	µg /m³	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: • 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.

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

TC-12998

Test Report

ULR No.- TC129982400001619F

Test Report No.: ALPL/30092024/6-5A **Dated:** 30/09/2024

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^{O}C (Max) : 30
Temp^{O}C (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: Atmospheric Pollution		Material or Product tested : Ambient Air	
1.	Particulate Matter (PM_{10})	µg /m^3	IS:5182 (Part 23)	48.7	100 (24 hrs)
2.	Particulate Matter ($PM_{2.5}$)	µg /m^3	USEPA-40 (Part 50)	19.3	60 (24 hrs)
3.	Sulphur dioxide	µg /m^3	IS:5182 (Part 2)	9.1	80 (24 hrs)
4	Oxides of Nitrogen	µg /m^3	IS:5182 (Part 6)	21.4	80 (24 hrs)
5.	Carbon Monoxide (as CO)	mg /m^3	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.

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

TC-12998

Test Report

ULR No.- TC129982400001620F

Test Report No.: ALPL/30092024/6-6A Dated: 30/09/2024

Issued To: **M/s Kalamang Iron Mine** **(M/s TATA STEEL LIMITED)**	**Sample Inward No.:** ALPL/23092024/MON-30-AAQ-1/7-6 **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 :**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°C (Max) : 30 Temp°C (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: Atmospheric Pollution		Material or Product tested : Ambient Air	
1.	Particulate Matter (PM_{10})	µg /m³	IS:5182 (Part 23)	57.3	100 (24 hrs)
2.	Particulate Matter ($PM_{2.5}$)	µg /m³	USEPA-40 (Part 50)	24.9	60 (24 hrs)
3.	Sulphur dioxide	µg /m³	IS:5182 (Part 2)	13.8	80 (24 hrs)
4	Oxides of Nitrogen	µg /m³	IS:5182 (Part 6)	24.1	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.

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

TC-12998

Test Report

ULR No.- TC129982400001621F

Test Report No.: ALPL/30092024/6-7A Dated: 30/09/2024

Issued To: M/s Kalamang Iron Mine (M/s TATA STEEL LIMITED)	**Sample Inward No.:** ALPL/23092024/MON-30-AAQ-1/7-7 **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 :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^{O}C (Max) : 31
Temp^{O}C (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: Atmospheric Pollution		Material or Product tested : Ambient Air	
1.	Particulate Matter (PM_{10})	µg /m^3	IS:5182 (Part 23)	48.7	100 (24 hrs)
2.	Particulate Matter ($PM_{2.5}$)	µg /m^3	USEPA-40 (Part 50)	21.4	60 (24 hrs)
3.	Sulphur dioxide	µg /m^3	IS:5182 (Part 2)	9.2	80 (24 hrs)
4	Oxides of Nitrogen	µg /m^3	IS:5182 (Part 6)	18.9	80 (24 hrs)
5.	Carbon Monoxide (as CO)	mg /m^3	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.

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/30042024/I-14 dated 30/04/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22042024/ENV-98-SW-1 & 2 **Inward Date** 22/04/2024	**Analysis Start** 23/04/2024 **Analysis End** 30/04/2024 **Report Issue Date** 30/04/2024 **Sample Category** Water

Sample Name	Sample Source	Sample Particulars	Sample Condition	Quantity Received
Surface Water	1. Upstream 2. Downstream	Sample Code-SW-1 & 2	Sealed & Ice Preserved	2.0 Ltr & 250 ml

Sample Collected By	Sampling Date	Sampling Time	Sampling Location
Anacon Representative	19/04/2024	3.50 pm & 4.20 pm	1. Sona River Upstream (SW-1) 2. Sona River Downstream (SW-2)

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 2296:1992 Class C	Test Result	
					SW-1	SW-2
I	**Biological Testing 1.Water**					
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
II	**Chemical Testing 1.Water**					
2	pH value	-	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/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 In Water					
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/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	--	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. ● 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. ● 'mg/l' is equivalent to 'ppm'. ● BDL- Below detection limit ● DL- Indicates detection limit of instrument/method and shall be considered as 'absent'.

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

Verified By

Nidhi Dubey
Deputy Technical Manager

for Snehal Raut
Deputy Technical Manager

Authorized Signatories

Pooja Kathane
Technical Manager

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

-----End of Report-----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

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 on **feedback@anacon.in.**

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/30042024/1-15 dated 30/04/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22042024/ENV-98-SW-3 & 4 **Inward Date** 22/04/2024	**Analysis Start** 23/04/2024 **Analysis End** 30/04/2024 **Report Issue Date** 30/04/2024 **Sample Category** Water

Sample Name	Sample Source	Sample Particulars	Sample Condition	Quantity Received
Surface Water	1. Upstream 2. Downstream	Sample Code-SW-3 & 4	Sealed & Ice Preserved	2.0 Ltr & 250 ml

Sample Collected By	Sampling Date	Sampling Time	Sampling Location
Anacon Representative	19/04/2024	12.50 pm & 1.20 pm	1. Karo River Upstream (SW-3) 2. Karo River Downstream (SW-4)

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 2296:1992 Class C	Test Result	
					SW-3	SW-4
I	**Biological Testing 1.Water**					
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
II	**Chemical Testing 1.Water**					
2	pH value	-	IS 3025 (Part 11) : 2022	6.0 to 9.0	6.82 at 25°C	7.16 at 25°C
3	Colour	Hazen units	IS 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	--	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	--	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)	mg/l	IS 3025 (Part 32) :1988	600	136	118
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	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	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 In 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/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	--	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. ● 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. ● 'mg/l' is equivalent to 'ppm'. ● BDL- Below detection limit ● DL- Indicates detection limit of instrument/method and shall be considered as 'absent'.

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

Verified By

Nidhi Dubey
Deputy Technical Manager

Snehal Raut
Deputy Technical Manager

Authorized Signatories

Pooja Kathane
Technical Manager

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

-----End of Report-----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

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 on **feedback@anacon.in.**

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/22052024/1-14 dated 22/05/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/17052024/ENV-131-SW-1 & 2 **Inward Date** 17/05/2024	**Analysis Start** 17/05/2024 **Analysis End** 22/05/2024 **Report Issue Date** 22/05/2024 **Sample Category** Water

Sample Name	Sample Source	Sample Particulars	Sample Condition	Quantity Received
Surface Water	1. Upstream 2. Downstream	Sample Code-SW-1 & 2	Sealed & Ice Preserved	2.0 Ltr & 250 ml

Sample Collected By	Sampling Date	Sampling Time	Sampling Location
Anacon Representative	11/05/2024	3.20 pm & 3.50 pm	1. Sona River Upstream (SW-1) 2. Sona River Downstream (SW-2)

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 2296:1992 Class C	Test Result	
					SW-1	SW-2
I	**Biological Testing 1.Water**					
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
II	**Chemical Testing 1.Water**					
2	pH value	-	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	--	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/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 In Water					
17	Iron (as Fe)	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-0.02)
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	--	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. • 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. • 'mg/l' is equivalent to 'ppm'. • BDL- Below detection limit • DL- Indicates detection limit of instrument/method and shall be considered as 'absent'.

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

Verified By

Nidhi Dubey
Deputy Technical Manager

Snehal Raut
Deputy Technical Manager

Authorized Signatories

Pooja Kathane
Technical Manager

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

-----End of Report-----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

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 on **feedback@anacon.in.**

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/22052024/1-15 dated 22/05/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/17052024/ENV-131-SW-3 & 4 **Inward Date** 17/05/2024	**Analysis Start** 17/05/2024 **Analysis End** 22/05/2024 **Report Issue Date** 22/05/2024 **Sample Category** Water

Sample Name	Sample Source	Sample Particulars	Sample Condition	Quantity Received
Surface Water	1. Upstream 2. Downstream	Sample Code-SW-3 & 4	Sealed & Ice Preserved	2.0 Ltr & 250 ml

Sample Collected By	Sampling Date	Sampling Time	Sampling Location
Anacon Representative	11/05/2024	4.45 pm & 5.15 pm	1. Karo River Upstream (SW-3) 2. Karo River Downstream (SW-4)

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 2296:1992 Class C	Test Result	
					SW-3	SW-4
I	**Biological Testing 1.Water**					
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
II	**Chemical Testing 1.Water**					
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	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/l	IS 3025 (Part 2) : 2019	1.5	0.06	0.03
10	Chloride (as Cl)	mg/l	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)	mg/l	APHA method 23rd edition: 2017	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 In Water					
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/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	--	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. ● 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. ● 'mg/l' is equivalent to 'ppm'. ● BDL- Below detection limit ● DL- Indicates detection limit of instrument/method and shall be considered as 'absent'.

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

Verified By

Nidhi Dubey
Deputy Technical Manager

Snehal Raut
Deputy Technical Manager

Authorized Signatories

Pooja Kalbane
Technical Manager

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

-----End of Report-----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

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 on **feedback@anacon.in.**

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

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

Issued To : M/s Kalamang Iron Mine (M/s TATA Steel Limited)	**Sample Inward No.** **Inward Date**	ALPL/21062024/ENV-151-SW-1 & 2 21/06/2024	**Analysis Start** 22/06/2024 **Analysis End** 25/06/2024 **Report Issue Date** 25/06/2024 **Sample Category** Water

Sample Name	Sample Source	Sample Particulars	Sample Condition	Quantity Received
Surface Water	1. Upstream 2. Downstream	Sample Code-SW-1 & 2	Sealed & Ice Preserved	2.0 Ltr & 250 ml

Sample Collected By	Sampling Date	Sampling Time	Sampling Location
Anacon Representative	15/06/2024	2.45 pm & 3.10 pm	1. Sona River Upstream (SW-1) 2. Sona River Downstream (SW-2)

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 2296:1992 Class C	Test Result	
					SW-1	SW-2
I	**Biological Testing 1.Water**					
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
II	**Chemical Testing 1.Water**					
2	pH value	-	IS 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
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	--	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/l	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/l	IS 3025 (Part 24) : 2022	400	252.19	172.81
12	Nitrate (as NO_3)	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	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 In 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	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^{+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	--	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. ● 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. ● 'mg/l' is equivalent to 'ppm'. ● BDL- Below detection limit ● DL- Indicates detection limit of instrument/method and shall be considered as 'absent'.

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

Verified By

Nidhi Dubey
Deputy Technical Manager

Snehal Raut
Technical Manager

Authorized Signatories

Pooja Kathane
Technical Manager

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

—End of Report—

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
FP-34, 35,Food Park, Five Star Industrial Estate,
MIDC Bulibori, Nagpur, Maharashtra, India - 441 122
+ 91 8045685558 Email : info@anacon.in
https: // www.anaconlaboratories.com

Anacon Laboratories

Test Report

Test Report No. : ALPL/25062024/1-15 dated 25/06/2024

Issued To : M/s Kalamang Iron Mine (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/21062024/ENV-151-SW-3 & 4 **Inward Date** 21/06/2024	**Analysis Start** 22/06/2024 **Analysis End** 25/06/2024 **Report Issue Date** 25/06/2024 **Sample Category** Water	

Sample Name	Sample Source	Sample Particulars	Sample Condition	Quantity Received
Surface Water	1. Upstream 2. Downstream	Sample Code-SW-3 & 4	Sealed & Ice Preserved	2.0 Ltr & 250 ml

Sample Collected By	Sampling Date	Sampling Time	Sampling Location
Anacon Representative	15/06/2024	4.20 pm & 4.45 pm	1. Karo River Upstream (SW-3) 2. Karo River Downstream (SW-4)

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 2296:1992 Class C	Test Result	
					SW-3	SW-4
I	**Biological Testing 1.Water**					
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
II	**Chemical Testing 1.Water**					
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	4.0	6.3	5.8
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) :2022	--	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	IS 3025 (Part 2) : 2019	1.5	0.07	0.04
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) 1988	600	138	116
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	400	142	139
12	Nitrate (as NO_3)	mg/l	APHA method 23rd edition 2017	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/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 In Water					
17	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.5	0.41	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/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	--	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. ● 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. ● 'mg/l' is equivalent to 'ppm'. ● BDL- Below detection limit ● DL- Indicates detection limit of instrument/method and shall be considered as 'absent'.

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

Verified By

Nidhi Dubey
Deputy Technical Manager

Snehal Raut
Technical Manager

Authorized Signatories

Pooja Kalbande
Technical Manager

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

-----End of Report-----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/05082024/1-14 dated 05/08/2024

Issued To : M/s Kalamang Iron Mine (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22072024/ENV-185-SW-1 & 2 **Inward Date** 22/07/2024	**Analysis Start** 23/07/2024 **Analysis End** 30/07/2024 **Report Issue Date** 05/08/2024 **Sample Category** Water

Sample Name	Sample Source	Sample Particulars	Sample Condition	Quantity Received
Surface Water	1. Upstream 2. Downstream	Sample Code-SW-1 & 2	Sealed & Ice Preserved	2.0 Ltr & 250 ml

Sample Collected By	Sampling Date	Sampling Time	Sampling Location
Mr. Biplab Giri (Sky Lab)	19/07/2024	3.05 pm & 3.20 pm	1. Sona River Upstream (SW-1) 2. Sona River Downstream (SW-2)

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 2296:1992 Class C	Test Result	
					SW-1	SW-2
I	**Biological Testing 1.Water**					
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
II	**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	mg/l	IS 3025 (Part 38) :1989	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 Cu)	mg/l	IS 3025 (Part 2) : 2019	1.5	0.05	0.06
10	Chloride (as Cl)	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 In Water					
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^{+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	--	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. • 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. • 'mg/l' is equivalent to 'ppm'. • BDL- Below detection limit • DL- Indicates detection limit of instrument/method and shall be considered as 'absent'.

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

Verified By

Nidhi Dubey
Deputy Technical Manager

Snehal Raut
Technical Manager

Authorized Signatories

Pooja Kathane
Technical Manager

Chinmay Garwady
Deputy Quality Manager

-----End of Report-----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

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 on **feedback@anacon.in.**

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/05082024/1-15 dated 05/08/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22072024/ENV-185-SW-3 & 4 **Inward Date** 22/07/2024	**Analysis Start** 23/07/2024 **Analysis End** 30/07/2024 **Report Issue Date** 05/08/2024 **Sample Category** Water

Sample Name	Sample Source	Sample Particulars	Sample Condition	Quantity Received
Surface Water	1. Upstream 2. Downstream	Sample Code-SW-3 & 4	Sealed & Ice Preserved	2.0 Ltr & 250 ml

Sample Collected By	Sampling Date	Sampling Time	Sampling Location
Mr. Biplab Giri (Sky Lab)	19/07/2024	3.55 pm & 4.35 pm	1. Karo River Upstream (SW-3) 2. Karo River Downstream (SW-4)

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 2296:1992 Class C	Test Result	
					SW-3	SW-4
I	**Biological Testing 1.Water**					
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
II	**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	IS 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 Cl)	mg/l	IS 3025 (Part 32) :1988	600	201	163
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	400	187	212
12	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	50	22.4	18.6
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.36	0.27
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 In 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	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^{+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	--	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. • 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. • 'mg/l' is equivalent to 'ppm'. • BDL- Below detection limit • DL- Indicates detection limit of instrument/method and shall be considered as 'absent'.

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

Verified By

Nidhi Dubey
Deputy Technical Manager

Snehal Raut
Technical Manager

Authorized Signatories

Pooja Kathane
Technical Manager

Chinmay Garway
Deputy Quality Manager

-----End of Report-----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/31082024/1-14 dated 31/08/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/19082024/MON-430-EW-1/9-6 & 7 **Inward Date** 19/08/2024	**Analysis Start** 20/08/2024 **Analysis End** 26/08/2024 **Report Issue Date** 31/08/2024 **Sample Category** Water

Sample Name	Sample Source	Sample Particulars	Sample Condition	Quantity Received
Surface Water	1. Upstream 2. Downstream	Sample Code-SW-1 & 2	Sealed & Ice Preserved	2.0 Ltr & 250 ml

Sample Collected By	Sampling Date	Sampling Time	Sampling Location
Mr. Biplab Giri	16/08/2024	3.05 pm & 3.20 pm	1. Sona River Upstream (SW-1) 2. Sona River Downstream (SW-2)

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 2296:1992 Class C	Test Result	
					SW-1	SW-2
I	**Discipline : Biological**		**Group : Water**		**Subgroup : Surface water**	
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BLQ (LOQ-2)	BLQ (LOQ-2)
II	**Discipline : Chemical**		**Group : Water**		**Subgroup : Surface water**	
2	pH value	-	IS 3025 (Part 11) : 2022	6.0 to 9.0	6.42 at 25°C	6.91 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4) Clause 4 : 2021	300	32	45
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	4.0	4.3	4.7
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17)	--	27	16
6	BOD (3 days at 27°C)	mg/l	IS-3025 (Part 44) : 2023	3.0	2.16	2.41
7	Chemical oxygen demand	mg/l	IS-3025(Part-58)	--	6.53	7.19
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 2023	1500	1354	1247
9	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	1.5	0.06	0.04
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) Clause 2:1988	600	192.64	176.38
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24/ Sec1) Clause 5 : 2022	400	208.51	193.57
12	Nitrate (as NO_3)	mg/l	APHA 23rd edition: Method 4500-NO3:2017	50	16.24	12.49
13	Fluoride (as F)	mg/l	IS 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)	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)
III	**Discipline : Chemical**		**Group : Residues and contaminants in water**		**Subgroup : Trace metal elements**	
17	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.5	0.43	0.37
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.01	BLQ (LOQ-0.002)	BLQ (LOQ-0.002)
19	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.05	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.2	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-0.02)	BLQ (LOQ-0.02)
23	Hexa Chromium (as Cr^{+6})	mg/l	IS 3025 (Part 52) :2003	0.05	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)
24	Mercury (as Hg)	mg/l	IS : 3025 (Part 48) : 1994	--	BLQ (LOQ-0.001)	BLQ (LOQ-0.001)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	--	BLQ (LOQ-0.02)	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 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

Nidhi Dubey
Deputy Technical Manager

Snehal Raut
Technical Manager

Authorized Signatories

Pooja Kathane
Technical Manager

Chinmay Garway
Deputy Quality Manager

-----End of Report-----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

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 on **feedback@anacon.in.**

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/31082024/1-15 dated 31/08/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** **Inward Date**	ALPL/19082024/MON-430-EW-1/9-8 & 9 19/08/2024
		Analysis Start 20/08/2024 **Analysis End** 26/08/2024 **Report Issue Date** 31/08/2024 **Sample Category** Water

Sample Name	Sample Source	Sample Particulars	Sample Condition	Quantity Received
Surface Water	1. Upstream 2. Downstream	Sample Code-SW-3 & 4	Sealed & Ice Preserved	2.0 Ltr & 250 ml

Sample Collected By	Sampling Date	Sampling Time	Sampling Location
Mr. Biplab Giri	16/08/2024	4.20 pm & 4.35 pm	1. Karo River Upstream (SW-3) 2. Karo River Downstream (SW-4)

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 2296:1992 Class C	Test Result	
					SW-3	SW-4
I	**Discipline : Biological**		**Group : Water**		**Subgroup : Surface water**	
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BLQ (LOQ-2)	BLQ (LOQ-2)
II	**Discipline : Chemical**		**Group : Water**		**Subgroup : Surface water**	
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 Cl)	mg/l	IS 3025 (Part 32) Clause 2:1988	600	237	216
11	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 23rd 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)
III	**Discipline : Chemical**		**Group : Residues and contaminants in water**		**Subgroup : Trace metal elements**	
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	BLQ (LOQ-0.002)	BLQ (LOQ-0.002)
19	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.05	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.2	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-0.02)	BLQ (LOQ-0.02)
23	Hexa Chromium (as Cr^{+6})	mg/l	IS 3025 (Part 52) :2003	0.05	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)
24	Mercury (as Hg)	mg/l	IS : 3025 (Part 48) : 1994	--	BLQ (LOQ-0.001)	BLQ (LOQ-0.001)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	--	BLQ (LOQ-0.02)	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 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

for Nidhi Dubey
Deputy Technical Manager

Snehal Raut
Technical Manager

Authorized Signatories

Pooja Kadiane
Technical Manager

Chinmay Garwaya
Deputy Quality Manager

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

----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 endeavor towards ensuring that your next experience will be significantly better than the current one, we welcome your feedback on **feedback@anacon.in.**

Anacon Laboratories

TC-12998

Test Report

ULR No.- TC129982400001632F

Test Report No. : ALPL/30092024/1-17A **dated** 30/09/2024

Issued To : M/s Kalamang Iron Mine (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/23092024/MON-30-W-1/5-4 **Inward Date** 23/09/2024 **Reference** W.O.- 4700126596/962 **Reference Date** 30.05.2024		**Analysis Start** 24/09/2024 **Analysis End** 30/09/2024 **Report Issue Date** 30/09/2024

Sample Name	**Sample Source**	**Sample Condition**	**Purpose of Analysis**	**Quantity Received**
Ground Water	Dugwell	Sealed & Ice Preserved	Drinking	5.0 Ltr & 250 ml

Sampling done by	**Sampling Date**	**Sampling Time**	**Sampling Location**
Anacon Representative Mr. Biplab Giri	18/09/2024	12.40 pm to 4.30 pm	Gandalpada 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 #	
1	**Discipline : Chemical**		**Group : Water**			**Material or Product tested: Drinking water**
1	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23)	200	600	191.36
2	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K)	0.2	1.0	BLQ (LOQ-0.01)
3	Colour	Hazen units	IS 3025 (Part 4) Clause 4	5	15	1
4	Cyanide (as CN)	mg/l	IS 3025 (Part 27/Sec 1) Clause 5	0.05	No relaxation	BLQ (LOQ-0.005)
5	Chloride (as Cl)	mg/l	IS 3025 (Part 32) Clause 2	250	1000	28.46
6	Calcium (as Ca)	mg/l	IS 3025 (Part 40) Clause 5	75	200	53.91
7	Free Residual Chlorine	mg/l	IS 3025 (Part 26) Clause 7	0.2	1	BLQ (LOQ-0.1)
8	Fluoride (as F)	mg/l	IS 3025 (Part 60) Clause 6	1.0	1.5	0.21
9	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) Clause 6	30	100	13.46
10	Nitrate (as NO_3)	mg/l	APHA 23rd edition: Method 4500-NO3	45	No relaxation	7.21
11	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
12	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.29 @ 25°C
13	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec 1) Clause 6	0.001	0.002	BLQ (LOQ-0.001)
14	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24/ Sec1) Clause 5	200	400	11.64
15	Taste	-	IS 3025 (Part 8)	Agreeable	Agreeable	Agreeable
16	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	452
17	Turbidity	NTU	IS 3025 : (Part 10)	1	5	0.1
18	Total hardness (as $CaCO_3$)	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

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.

Anacon Laboratories Pvt. Ltd. Nagpur Lab
FP-34, 35,Food Park, Five Star Industrial Estate, MIDC Butibori, Nagpur, Maharashtra, India - 441 122
+91 8045885558 Email : info@anacon.in
https: // www.anaconlaboratories.com

Anacon Laboratories

TC-12998

Test Report

ULR No.- TC129982400001632F

Test Report No. : ALPL/30092024/1-17A dated 30/09/2024

Issued To : M/s Kalamang Iron Mine (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/23092024/MON-30-W-1/5-4 **Inward Date** 23/09/2024 **Reference** W.O.- 4700126596/962 **Reference Date** 30.05.2024		**Analysis Start** 24/09/2024 **Analysis End** 30/09/2024 **Report Issue Date** 30/09/2024

Sample Name	Sample Source	Sample Condition	Purpose of Analysis	Quantity Received
Ground Water	Dugwell	Sealed & Ice Preserved	Drinking	5.0 Ltr & 250 ml

Sampling done by	Sampling Date	Sampling Time	Sampling Location
Anacon Representative Mr. Biplab Giri	18/09/2024	12.40 pm to 4.30 pm	Gandalpada 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 #	
II	**Discipline : Chemical**	**Group : Residues contaminants in water**		**Material or Product tested: Drinking water**		
19	Pesticide Residues Organochlorine					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01	0.01	No relaxation	BLQ (LOQ-0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01	0.04	No relaxation	BLQ (LOQ-0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01	2	No relaxation	BLQ (LOQ-0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01	0.04	No relaxation	BLQ (LOQ-0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01	20	No relaxation	BLQ (LOQ-0.03)
vi	Aldrin	µg/l	ANtr/7.2/RES/01	0.03	No relaxation	BLQ (LOQ-0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01	0.03	No relaxation	BLQ (LOQ-0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01	125	No relaxation	BLQ (LOQ-0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01	2	No relaxation	BLQ (LOQ-0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01	0.3	No relaxation	BLQ (LOQ-0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01	-	-	BLQ (LOQ-0.03)
xix	Malachion	µg/l	ANtr/7.2/RES/01	190	No relaxation	BLQ (LOQ-0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01	-	-	BLQ (LOQ-0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01	3	No relaxation	BLQ (LOQ-0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01	30	No relaxation	BLQ (LOQ-0.03)
xxiii	Phorate Phorate-sulfone Phorate-sulfoxide	µg/l	ANtr/7.2/RES/01	2	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. ● 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'. ● 'µg/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 ● **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

Pradnya Pillewan
Deputy Technical Manager

Authorized Signatory

Chinmay Garway
Deputy Quality Manager

Thank you for trusting your trust and faith in our services. We cherish our relationship with you and 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.

End of Report

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/30042024/1-9A dated 30/04/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22042024/ENV-98-GW-1 **Inward Date** 22/04/2024	**Analysis Start** 23/04/2024 **Analysis End** 30/04/2024 **Report Issue Date** 30/04/2024 **Sample Category** Water	

Sample Name	**Sample Source**	**Sample Particulars**	**Sample Condition**	**Quantity Received**
Ground Water	Dugwell	Sample Code-GW-1	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	**Sampling Date**	**Sampling Time**	**Sampling Location**
Anacon Representative	18/04/2024	12.30 pm to 4.45 pm	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	Permissible Limit #	
I	**Biological Testing 1. Water**					
1	*Escherichia coli*	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	**Chemical Testing 1. Water**					
2	Total Alkalinity (as $CaCO_3$)	mg/l	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	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	28.94
7	Calcium (as Ca)	mg/l	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/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	11.94
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	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.97 at 25°C
14	Phenolic compounds (as C_6H_5OH)	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	-	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	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

Snehal Raut
Deputy Technical Manager

Authorized Signatories

Pooja Kathape
Technical Manager

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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/30042024/1-9A dated 30/04/2024

Issued To :	**Sample Inward No.**	ALPL/22042024/ENV-98-GW-1	**Analysis Start**	23/04/2024
M/s Kalamang Iron Mine	**Inward Date**	22/04/2024	**Analysis End**	30/04/2024
(M/s TATA Steel Limited)			**Report Issue Date**	30/04/2024
			Sample Category	Water

Sample Name	**Sample Source**	**Sample Particulars**	**Sample Condition**	**Quantity Received**
Ground Water	Dugwell	Sample Code-GW-1	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	**Sampling Date**	**Sampling Time**	**Sampling Location**
Anacon Representative	18/04/2024	12.30 pm to 4.45 pm	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	Permissible Limit #	
II	**Chemical Testing 2. Residues 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	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/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

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

Anacon Laboratories

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/30042024/1-9A dated 30/04/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22042024/ENV-98-GW-1 **Inward Date** 22/04/2024	**Analysis Start** 23/04/2024 **Analysis End** 30/04/2024 **Report Issue Date** 30/04/2024 **Sample Category** Water	

Sample Name	**Sample Source**	**Sample Particulars**	**Sample Condition**	**Quantity Received**
Ground Water	Dugwell	Sample Code-GW-1	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	**Sampling Date**	**Sampling Time**	**Sampling Location**
Anacon Representative	18/04/2024	12.30 pm to 4.45 pm	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	Permissible Limit #	
34	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/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	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	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'. ● 'µg/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. ● **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-----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/30042024/1-10A dated 30/04/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22042024/ENV-98-GW-2 **Inward Date** 22/04/2024		**Analysis Start** 23/04/2024 **Analysis End** 30/04/2024 **Report Issue Date** 30/04/2024 **Sample Category** Water

Sample Name	**Sample Source**	**Sample Particulars**	**Sample Condition**	**Quantity Received**
Ground Water	Dugwell	Sample Code-GW-2	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	**Sampling Date**	**Sampling Time**	**Sampling Location**
Anacon Representative	18/04/2024	12.30 pm to 4.45 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 #	
I	**Biological Testing 1. Water**					
1	*Escherichia coli*	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	**Chemical Testing 1. Water**					
2	Total Alkalinity (as $CaCO_3$)	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	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	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_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	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.97 at 25°C
14	Phenolic compounds (as C_6H_5OH)	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	Agreeable	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

Please refer last Page for Note and Remarks.

Verified By
for
Snehal Raut
Deputy Technical Manager

Authorized Signatories

Pooja Kathane
Technical Manager

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

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/30042024/1-10A dated 30/04/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22042024/ENV-98-GW-2 **Inward Date** 22/04/2024		**Analysis Start** 23/04/2024 **Analysis End** 30/04/2024 **Report Issue Date** 30/04/2024 **Sample Category** Water

Sample Name	Sample Source	Sample Particulars	Sample Condition	Quantity Received
Ground Water	Dugwell	Sample Code-GW-2	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	Sampling Date	Sampling Time	Sampling Location
Anacon Representative	18/04/2024	12.30 pm to 4.45 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 #	
II	**Chemical Testing 2. Residues 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	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	0.24
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

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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/30042024/I-10A dated 30/04/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22042024/ENV-98-GW-2 **Inward Date** 22/04/2024	**Analysis Start** 23/04/2024 **Analysis End** 30/04/2024 **Report Issue Date** 30/04/2024 **Sample Category** Water	

Sample Name	**Sample Source**	**Sample Particulars**	**Sample Condition**	**Quantity Received**
Ground Water	Dugwell	Sample Code-GW-2	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	**Sampling Date**	**Sampling Time**	**Sampling Location**
Anacon Representative	18/04/2024	12.30 pm to 4.45 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 #	
34	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/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	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p`-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p`-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p`-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p`-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p`- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p`- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	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'. ● 'µg/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. ● **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-----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/30042024/I-11A dated 30/04/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22042024/ENV-98-GW-3 **Inward Date** 22/04/2024		**Analysis Start** 23/04/2024 **Analysis End** 30/04/2024 **Report Issue Date** 30/04/2024 **Sample Category** Water
Sample Name Ground Water / **Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-3	**Sample Condition** Sealed & Ice Preserved	**Quantity Received** 5.0 Ltr & 250 ml
Sample Collected By Anacon Representative	**Sampling Date** 18/04/2024	**Sampling Time** 12.30 pm to 4.45 pm	**Sampling Location** Sagasahi 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 #	
I	**Biological Testing I. Water**					
1	*Escherichia coli*	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	**Chemical Testing I. Water**					
2	Total Alkalinity (as $CaCO_3$)	mg/l	IS 3025 (Part 23) : 1986	200	600	168.39
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	24.81
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	52.73
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	0.31
10	Magnesium (as Mg)	mg/l	IS 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	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_6H_5OH)	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	21.46
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 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
Snehal Raut
Deputy Technical Manager

Authorized Signatories
Pooja Kathane
Technical Manager

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

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

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 on **feedback@anacon.in.**

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/30042024/1-11A dated 30/04/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22042024/ENV-98-GW-3 **Inward Date** 22/04/2024		**Analysis Start** 23/04/2024 **Analysis End** 30/04/2024 **Report Issue Date** 30/04/2024 **Sample Category** Water

Sample Name	Sample Source	Sample Particulars	Sample Condition	Quantity Received
Ground Water	Dugwell	Sample Code-GW-3	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	Sampling Date	Sampling Time	Sampling Location
Anacon Representative	18/04/2024	12.30 pm to 4.45 pm	Sagasahi 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 #	
II	**Chemical Testing 2. Residues 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	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	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

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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/30042024/I-11A dated 30/04/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22042024/ENV-98-GW-3 **Inward Date** 22/04/2024		**Analysis Start** 23/04/2024 **Analysis End** 30/04/2024 **Report Issue Date** 30/04/2024 **Sample Category** Water

Sample Name	**Sample Source**	**Sample Particulars**	**Sample Condition**	**Quantity Received**
Ground Water	Dugwell	Sample Code-GW-3	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	**Sampling Date**	**Sampling Time**	**Sampling Location**
Anacon Representative	18/04/2024	12.30 pm to 4.45 pm	Sagasahi 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 #	
34	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/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	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	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'. ● 'µg/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. ii 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----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/30042024/1-12A dated 30/04/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22042024/ENV-98-GW-4 **Inward Date** 22/04/2024	**Analysis Start** 23/04/2024 **Analysis End** 30/04/2024 **Report Issue Date** 30/04/2024 **Sample Category** Water	

Sample Name	Sample Source	Sample Particulars	Sample Condition	Quantity Received
Ground Water	Dugwell	Sample Code-GW-4	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	Sampling Date	Sampling Time	Sampling Location
Anacon Representative	18/04/2024	12.30 pm to 4.45 pm	Gandalpada 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 #	
I	**Biological Testing 1. Water**					
1	*Escherichia coli*	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	**Chemical Testing 1. Water**					
2	Total Alkalinity (as $CaCO_3$)	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	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	26.81
7	Calcium (as Ca)	mg/l	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	0.36
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	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.64 at 25°C
14	Phenolic compounds (as C_6H_5OH)	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	24.81
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	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 $CaCO_3$)	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

Pooja Kathane
Technical Manager

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

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

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 on **feedback@anacon.in.**

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/30042024/1-12A dated 30/04/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22042024/ENV-98-GW-4 **Inward Date** 22/04/2024	**Analysis Start** 23/04/2024 **Analysis End** 30/04/2024 **Report Issue Date** 30/04/2024 **Sample Category** Water	

Sample Name	**Sample Source**	**Sample Particulars**	**Sample Condition**	**Quantity Received**
Ground Water	Dugwell	Sample Code-GW-4	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	**Sampling Date**	**Sampling Time**	**Sampling Location**
Anacon Representative	18/04/2024	12.30 pm to 4.45 pm	Gandalpada 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 #	
II	**Chemical Testing 2. Residues 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	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/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

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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/30042024/1-12A dated 30/04/2024

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 Limited)		**Report Issue Date** 30/04/2024
		Sample Category Water

Sample Name	**Sample Source**	**Sample Particulars**	**Sample Condition**	**Quantity Received**
Ground Water	Dugwell	Sample Code-GW-4	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	**Sampling Date**	**Sampling Time**	**Sampling Location**
Anacon Representative	18/04/2024	12.30 pm to 4.45 pm	Gandalpada 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 #	
34	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/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	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	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'. ● 'µg/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. ● **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-----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

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 on **feedback@anacon.in.**

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/30042024/1-13A **dated** 30/04/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22042024/ENV-98-GW-5 **Inward Date** 22/04/2024		**Analysis Start** 23/04/2024 **Analysis End** 30/04/2024 **Report Issue Date** 30/04/2024 **Sample Category** Water

Sample Name	**Sample Source**	**Sample Particulars**	**Sample Condition**	**Quantity Received**
Ground Water	Dugwell	Sample Code-GW-5	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	**Sampling Date**	**Sampling Time**	**Sampling Location**
Anacon Representative	18/04/2024	12.30 pm to 4.45 pm	Sunindpur 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 #	
I	**Biological Testing 1. Water**					
1	*Escherichia coli*	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	**Chemical Testing 1. Water**					
2	Total Alkalinity (as $CaCO_3$)	mg/l	IS 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 Cl)	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/l	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 (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	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.16 at 25°C
14	Phenolic compounds (as C_6H_5OH)	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	17.32
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
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

Pooja Kathane
Technical Manager

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

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/30042024/I-13A dated 30/04/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22042024/ENV-98-GW-5 **Inward Date** 22/04/2024	**Analysis Start** 23/04/2024 **Analysis End** 30/04/2024 **Report Issue Date** 30/04/2024 **Sample Category** Water	

Sample Name	**Sample Source**	**Sample Particulars**	**Sample Condition**	**Quantity Received**
Ground Water	Dugwell	Sample Code-GW-5	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	**Sampling Date**	**Sampling Time**	**Sampling Location**
Anacon Representative	18/04/2024	12.30 pm to 4.45 pm	Sunindpur 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 #	
II	**Chemical Testing 2. Residues 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	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	0.21
26	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.01)
27	Manganese (as Mn)	mg/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

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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/30042024/1-13A dated 30/04/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22042024/ENV-98-GW-5 **Inward Date** 22/04/2024	**Analysis Start** 23/04/2024 **Analysis End** 30/04/2024 **Report Issue Date** 30/04/2024 **Sample Category** Water	

Sample Name	**Sample Source**	**Sample Particulars**	**Sample Condition**	**Quantity Received**
Ground Water	Dugwell	Sample Code-GW-5	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	**Sampling Date**	**Sampling Time**	**Sampling Location**
Anacon Representative	18/04/2024	12.30 pm to 4.45 pm	Sunindpur 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 #	
34	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/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	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	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'. ● 'µg/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. ● **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-----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/22052024/1-9A **dated** 22/05/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/17052024/ENV-131-GW-1 **Inward Date** 17/05/2024		**Analysis Start** 17/05/2024 **Analysis End** 22/05/2024 **Report Issue Date** 22/05/2024 **Sample Category** Water

Sample Name	**Sample Source**	**Sample Particulars**	**Sample Condition**	**Quantity Received**
Ground Water	Dugwell	Sample Code-GW-1	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	**Sampling Date**	**Sampling Time**	**Sampling Location**
Anacon Representative	11/05/2024	12.30 pm to 4.45 pm	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	Permissible Limit #	
I	**Biological Testing 1. Water**					
1	*Escherichia coli*	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	**Chemical Testing 1. Water**					
2	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23) : 1986	200	600	157.47
3	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	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	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_3)	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_6H_5OH)	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	12.68
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	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

Pooja Kathane
Technical Manager

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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/22052024/1-9A dated 22/05/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/17052024/ENV-131-GW-1 **Inward Date** 17/05/2024	**Analysis Start** 17/05/2024 **Analysis End** 22/05/2024 **Report Issue Date** 22/05/2024 **Sample Category** Water	

Sample Name	**Sample Source**	**Sample Particulars**	**Sample Condition**	**Quantity Received**
Ground Water	Dugwell	Sample Code-GW-1	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	**Sampling Date**	**Sampling Time**	**Sampling Location**
Anacon Representative	11/05/2024	12.30 pm to 4.45 pm	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	Permissible Limit #	
II	**Chemical Testing 2. Residues 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	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	0.24
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

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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/22052024/1-9A **dated** 22/05/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/17052024/ENV-131-GW-1 **Inward Date** 17/05/2024		**Analysis Start** 17/05/2024 **Analysis End** 22/05/2024 **Report Issue Date** 22/05/2024 **Sample Category** Water
Sample Name Ground Water	**Sample Source** 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

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 #	
34	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/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	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	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'. ● 'µg/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. ii 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----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

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 on **feedback@anacon.in.**

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/22052024/1-10A **dated** 22/05/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/17052024/ENV-131-GW-2 **Inward Date** 17/05/2024		**Analysis Start** 17/05/2024 **Analysis End** 22/05/2024 **Report Issue Date** 22/05/2024 **Sample Category** Water
Sample Name Ground Water / **Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-2	**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** 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 #	
I	**Biological Testing I. Water**					
1	*Escherichia coli*	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	**Chemical Testing I. 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/l	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_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	9.52
12	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.94 at 25°C
14	Phenolic compounds (as C_6H_5OH)	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	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 $CaCO_3$)	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

Pooja Kathane
Technical Manager

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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/22052024/1-10A **dated** 22/05/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/17052024/ENV-131-GW-2 **Inward Date** 17/05/2024		**Analysis Start** 17/05/2024 **Analysis End** 22/05/2024 **Report Issue Date** 22/05/2024 **Sample Category** Water
Sample Name Ground Water / **Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-2	**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** 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 #	
II	**Chemical Testing 2. Residues 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	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	0.17
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

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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/22052024/1-10A **dated** 22/05/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/17052024/ENV-131-GW-2 **Inward Date** 17/05/2024		**Analysis Start** 17/05/2024 **Analysis End** 22/05/2024 **Report Issue Date** 22/05/2024 **Sample Category** Water
Sample Name Ground Water / **Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-2	**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** 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 #	
34	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/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	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	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'. ● 'µg/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. ● **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-----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/22052024/1-11A **dated** 22/05/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/17052024/ENV-131-GW-3 **Inward Date** 17/05/2024	**Analysis Start** 17/05/2024 **Analysis End** 22/05/2024 **Report Issue Date** 22/05/2024 **Sample Category** Water	

Sample Name	**Sample Source**	**Sample Particulars**	**Sample Condition**	**Quantity Received**
Ground Water	Dugwell	Sample Code-GW-3	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	**Sampling Date**	**Sampling Time**	**Sampling Location**
Anacon Representative	11/05/2024	12.30 pm to 4.45 pm	Sagasahi 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 #	
I	**Biological Testing 1. Water**					
1	*Escherichia coli*	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	**Chemical Testing 1. Water**					
2	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23) : 1986	200	600	196.28
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	24.81
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	47.52
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	0.17
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 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	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.18 at 25°C
14	Phenolic compounds (as C_6H_5OH)	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	9.17
16	Taste	-	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	IS 3025 : (Part 10): 2023	1	5	0.4
19	Total hardness (as $CaCO_3$)	mg/l	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 Katlube
Technical Manager

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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/22052024/1-11A dated 22/05/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/17052024/ENV-131-GW-3 **Inward Date** 17/05/2024		**Analysis Start** 17/05/2024 **Analysis End** 22/05/2024 **Report Issue Date** 22/05/2024 **Sample Category** Water
Sample Name Ground Water / **Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-3	**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** Sagasahi 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 #	
II	**Chemical Testing 2. Residues 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	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	0.27
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	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

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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/22052024/1-11A **dated** 22/05/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/17052024/ENV-131-GW-3 **Inward Date** 17/05/2024		**Analysis Start** 17/05/2024 **Analysis End** 22/05/2024 **Report Issue Date** 22/05/2024 **Sample Category** Water
Sample Name Ground Water / **Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-3	**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** Sagasahi 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 #	
34	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/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	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	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'. ● 'µg/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. ● **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-----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

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 on **feedback@anacon.in.**

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/22052024/I-12A **dated** 22/05/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/17052024/ENV-131-GW-4 **Inward Date** 17/05/2024		**Analysis Start** 17/05/2024 **Analysis End** 22/05/2024 **Report Issue Date** 22/05/2024 **Sample Category** Water

Sample Name	**Sample Source**	**Sample Particulars**	**Sample Condition**	**Quantity Received**
Ground Water	Dugwell	Sample Code-GW-4	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	**Sampling Date**	**Sampling Time**	**Sampling Location**
Anacon Representative	11/05/2024	12.30 pm to 4.45 pm	Gandalpada 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 #	
I	**Biological Testing 1. Water**					
1	*Escherichia coli*	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	**Chemical Testing 1. Water**					
2	Total Alkalinity (as Calcium Carbonate)	mg/l	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 Cl)	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	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	0.18
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	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.81 at 25°C
14	Phenolic compounds (as C_6H_5OH)	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	7.93
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
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 $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	171.49

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut
Deputy Technical Manager

Authorized Signatories

Pooja Kathane
Technical Manager

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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/22052024/1-12A dated 22/05/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/17052024/ENV-131-GW-4 **Inward Date** 17/05/2024		**Analysis Start** 17/05/2024 **Analysis End** 22/05/2024 **Report Issue Date** 22/05/2024 **Sample Category** Water

Sample Name	**Sample Source**	**Sample Particulars**	**Sample Condition**	**Quantity Received**
Ground Water	Dugwell	Sample Code-GW-4	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	**Sampling Date**	**Sampling Time**	**Sampling Location**
Anacon Representative	11/05/2024	12.30 pm to 4.45 pm	Gandalpada 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 #	
II	**Chemical Testing 2. Residues 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	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/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

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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/22052024/1-12A **dated** 22/05/2024

Issued To : M/s Kalamang Iron Mine (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/17052024/ENV-131-GW-4 **Inward Date** 17/05/2024		**Analysis Start** 17/05/2024 **Analysis End** 22/05/2024 **Report Issue Date** 22/05/2024 **Sample Category** Water

Sample Name	**Sample Source**	**Sample Particulars**	**Sample Condition**	**Quantity Received**
Ground Water	Dugwell	Sample Code-GW-4	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	**Sampling Date**	**Sampling Time**	**Sampling Location**
Anacon Representative	11/05/2024	12.30 pm to 4.45 pm	Gandalpada 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 #	
34	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/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	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	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'. ● 'µg/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. ● **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-----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/22052024/I-13A dated 22/05/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/17052024/ENV-131-GW-5 **Inward Date** 17/05/2024		**Analysis Start** 17/05/2024 **Analysis End** 22/05/2024 **Report Issue Date** 22/05/2024 **Sample Category** Water
Sample Name Ground Water	**Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-5	**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** Sunindpur 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 #	
I	**Biological Testing I. Water**					
1	*Escherichia coli*	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	**Chemical Testing I. Water**					
2	Total Alkalinity (as Calcium Carbonate)	mg/l	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/l	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	0.16
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	12.54
11	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	8.17
12	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.92 at 25°C
14	Phenolic compounds (as C_6H_5OH)	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	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

Pooja Kathane
Technical Manager

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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/22052024/1-13A dated 22/05/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/17052024/ENV-131-GW-5 **Inward Date** 17/05/2024		**Analysis Start** 17/05/2024 **Analysis End** 22/05/2024 **Report Issue Date** 22/05/2024 **Sample Category** Water

Sample Name	**Sample Source**	**Sample Particulars**	**Sample Condition**	**Quantity Received**
Ground Water	Dugwell	Sample Code-GW-5	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	**Sampling Date**	**Sampling Time**	**Sampling Location**
Anacon Representative	11/05/2024	12.30 pm to 4.45 pm	Sunindpur 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 #	
II	**Chemical Testing 2. Residues 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	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	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

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

Anacon Laboratories

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/22052024/1-13A dated 22/05/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/17052024/ENV-131-GW-5 **Inward Date** 17/05/2024		**Analysis Start** 17/05/2024 **Analysis End** 22/05/2024 **Report Issue Date** 22/05/2024 **Sample Category** Water

Sample Name	**Sample Source**	**Sample Particulars**	**Sample Condition**	**Quantity Received**
Ground Water	Dugwell	Sample Code-GW-5	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	**Sampling Date**	**Sampling Time**	**Sampling Location**
Anacon Representative	11/05/2024	12.30 pm to 4.45 pm	Sunindpur 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 #	
34	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/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	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	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'. ● 'µg/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. ● **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-----

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/25062024/I-9A **dated** 25/06/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/21062024/ENV-131-GW-1 **Inward Date** 21/06/2024	**Analysis Start** 22/06/2024 **Analysis End** 25/06/2024 **Report Issue Date** 25/06/2024 **Sample Category** Water	
Sample Name Ground Water	**Sample Source** 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** 14/06/2024	**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	Permissible Limit #	
I	**Biological Testing 1. Water**					
1	*Escherichia coli*	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	**Chemical Testing 1. Water**					
2	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23) : 1986	200	600	163.94
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 Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	23.81
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	52.47
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	0.16
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	13.94
11	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	7.36
12	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.87 at 25°C
14	Phenolic compounds (as C_6H_5OH)	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	13.87
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 2023	500	2000	472
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	5	0.2
19	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	188.42

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut
Technical Manager

Authorized Signatories

Pooja Kathane
Technical Manager

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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/25062024/1-9A dated 25/06/2024

Issued To : M/s Kalamang Iron Mine (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/21062024/ENV-131-GW-1 **Inward Date** 21/06/2024	**Analysis Start** 22/06/2024 **Analysis End** 25/06/2024 **Report Issue Date** 25/06/2024 **Sample Category** Water	
Sample Name Ground Water	**Sample Source** 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** 14/06/2024	**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	Permissible Limit #	
II	**Chemical Testing 2. Residues 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	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	0.17
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

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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/25062024/1-9A dated 25/06/2024

Issued To :	Sample Inward No.	ALPL/21062024/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 Limited)			Report Issue Date	25/06/2024
			Sample Category	Water

Sample Name	Sample Source	Sample Particulars	Sample Condition	Quantity Received
Ground Water	Dugwell	Sample Code-GW-1	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	Sampling Date	Sampling Time	Sampling Location
Anacon Representative	14/06/2024	11.50 am to 3.20 pm	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	Permissible Limit #	
34	Pesticide Residues Organochlorine					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/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	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	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'. • 'µg/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. • 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----

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/25062024/I-10A **dated** 25/06/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/21062024/ENV-131-GW-2 **Inward Date** 21/06/2024		**Analysis Start** 22/06/2024 **Analysis End** 25/06/2024 **Report Issue Date** 25/06/2024 **Sample Category** Water
Sample Name Ground Water / **Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-2	**Sample Condition** Sealed & Ice Preserved	**Quantity Received** 5.0 Ltr & 250 ml
Sample Collected By Anacon Representative	**Sampling Date** 14/06/2024	**Sampling Time** 11.50 am to 3.20 pm	**Sampling Location** 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 #	
I	**Biological Testing 1. Water**					
1	*Escherichia coli*	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	**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 Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	23.87
7	Calcium (as 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/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	14.83
11	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	7.62
12	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.81 at 25°C
14	Phenolic compounds (as C_6H_5OH)	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	7.16
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 2023	500	2000	482
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	189.38

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut
Technical Manager

Authorized Signatories

Pooja Kathane
Technical Manager

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

Anacon Laboratories

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/25062024/1-10A dated 25/06/2024

Issued To :	Sample Inward No.	ALPL/21062024/ENV-131-GW-2	Analysis Start	22/06/2024
M/s Kalamang Iron Mine (M/s TATA Steel Limited)	Inward Date	21/06/2024	Analysis End	25/06/2024
			Report Issue Date	25/06/2024
			Sample Category	Water

Sample Name	Sample Source	Sample Particulars	Sample Condition	Quantity Received
Ground Water	Dugwell	Sample Code-GW-2	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	Sampling Date	Sampling Time	Sampling Location
Anacon Representative	14/06/2024	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 #	
II	**Chemical Testing 2. Residues 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	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	0.24
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

for Swati Gondhalekar
Deputy Technical Manager

Authorized Signatory

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

Anacon Laboratories

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/25062024/1-10A **dated** 25/06/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/21062024/ENV-131-GW-2 **Inward Date** 21/06/2024		**Analysis Start** 22/06/2024 **Analysis End** 25/06/2024 **Report Issue Date** 25/06/2024 **Sample Category** Water
Sample Name Ground Water / **Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-2	**Sample Condition** Sealed & Ice Preserved	**Quantity Received** 5.0 Ltr & 250 ml
Sample Collected By Anacon Representative	**Sampling Date** 14/06/2024	**Sampling Time** 11.50 am to 3.20 pm	**Sampling Location** 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 #	
34	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/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	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	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'. ● 'µg/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. ● **ANtr/7.2/RES -01,06,: Inhouse validated method.** ● 'NT' indicates not Tested as sample taken 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

for Gbgaikar
Swati Gondhalekar
Deputy Technical Manager

Authorized Signatory

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

----End of Report----

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/25062024/I-11A **dated** 25/06/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)		**Sample Inward No.** ALPL/21062024/ENV-131-GW-3 **Inward Date** 21/06/2024	**Analysis Start** 22/06/2024 **Analysis End** 25/06/2024 **Report Issue Date** 25/06/2024 **Sample Category** Water
Sample Name Ground Water	**Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-3	**Sample Condition** Sealed & Ice Preserved	**Quantity Received** 5.0 Ltr & 250 ml
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	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**					
1	*Escherichia coli*	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	**Chemical Testing 1. Water**					
2	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23) : 1986	200	600	176.29
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	23.87
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	47.36
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	0.16
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	11.67
11	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	6.92
12	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.26 at 25°C
14	Phenolic compounds (as C_6H_5OH)	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	7.39
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 2023	500	2000	487
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	166.33

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut
Technical Manager

Authorized Signatories

Pooja Kathale
Technical Manager

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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/25062024/I-TTA dated 25/06/2024

Issued To :	Sample Inward No.	ALPL/21062024/ENV-131-GW-3	Analysis Start	22/06/2024
M/s Kalamang Iron Mine	Inward Date	21/06/2024	Analysis End	25/06/2024
(M/s TATA Steel Limited)			Report Issue Date	25/06/2024
			Sample Category	Water

Sample Name	Sample Source	Sample Particulars	Sample Condition	Quantity Received
Ground Water	Dugwell	Sample Code-GW-3	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	Sampling Date	Sampling Time	Sampling Location
Anacon Representative	14/06/2024	11.30 am to 3.20 pm	Sagasahi 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 #	
II	**Chemical Testing 2. Residues 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	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	0.21
26	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.01)
27	Manganese (as Mn)	mg/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

for Chopgeve

Swati Gondhalekar
Deputy Technical Manager

Authorized Signatory

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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/25062024/I-11A **dated** 25/06/2024

Issued To : M/s Kalamang Iron Mine (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/21062024/ENV-131-GW-3 **Inward Date** 21/06/2024		**Analysis Start** 22/06/2024 **Analysis End** 25/06/2024 **Report Issue Date** 25/06/2024 **Sample Category** Water

Sample Name	Sample Source	Sample Particulars	Sample Condition	Quantity Received
Ground Water	Dugwell	Sample Code-GW-3	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	Sampling Date	Sampling Time	Sampling Location
Anacon Representative	14/06/2024	11.50 am to 3.20 pm	Sagasahi 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 #	
34	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/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	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	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'. ● 'µg/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. ● **ANtr/7.2/RES -01,06,: Inhouse validated method.** ● **NT** indicates not tested as sample taken is **eatables 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

for cswagawre
Swati Gondhalekar
Deputy Technical Manager

Authorized Signatory

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

-----End of Report-----

Anacon Laboratories

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/25062024/1-12A dated 25/06/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/21062024/ENV-131-GW-4 **Inward Date** 21/06/2024		**Analysis Start** 22/06/2024 **Analysis End** 25/06/2024 **Report Issue Date** 25/06/2024 **Sample Category** Water
Sample Name Ground Water	**Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-4	**Sample Condition** Sealed & Ice Preserved	**Quantity Received** 5.0 Ltr & 250 ml
Sample Collected By Anacon Representative		**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	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Biological Testing 1. Water**					
1	*Escherichia coli*	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	**Chemical Testing 1. Water**					
2	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23) : 1986	200	600	176.39
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/l	IS 3025 (Part 40) : 1991	75	200	51.87
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	0.17
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	12.94
11	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	8.52
12	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.87 at 25°C
14	Phenolic compounds (as C_6H_5OH)	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	6.52
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	0.2
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

Pooja Kathane
Technical Manager

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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/25062024/1-T2A dated 25/06/2024

Issued To :	Sample Inward No.	ALPL/21062024/ENV-131-GW-4	Analysis Start	22/06/2024
M/s Kalamang Iron Mine (M/s TATA Steel Limited)	Inward Date	21/06/2024	Analysis End	25/06/2024
			Report Issue Date	25/06/2024
			Sample Category	Water

Sample Name	Sample Source	Sample Particulars	Sample Condition	Quantity Received
Ground Water	Dugwell	Sample Code-GW-4	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	Sampling Date	Sampling Time	Sampling Location
Anacon Representative	14/06/2024	11.50 am to 3.20 pm	Gandalpada 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 #	
II	**Chemical Testing 2. Residues 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	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	0.14
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

for Swati Gondhalekar
Deputy Technical Manager

Authorized Signatory

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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/25062024/1-T2A dated 25/06/2024

Issued To :	Sample Inward No.	ALPL/21062024/ENV-131-GW-4	Analysis Start	22/06/2024
M/s Kalamang Iron Mine (M/s TATA Steel Limited)	Inward Date	21/06/2024	Analysis End	25/06/2024
			Report Issue Date	25/06/2024
			Sample Category	Water

Sample Name	Sample Source	Sample Particulars	Sample Condition	Quantity Received
Ground Water	Dugwell	Sample Code-GW-4	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	Sampling Date	Sampling Time	Sampling Location
Anacon Representative	14/06/2024	11.50 am to 3.20 pm	Gandalpada 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 #	
34	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/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	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	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'. ● 'µg/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. ● 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

for Swati Gondhalekar
Deputy Technical Manager

Authorized Signatory

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

-----End of Report-----

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/25062024/I-13A dated 25/06/2024

Issued To : M/s Kalamang Iron Mine (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/21062024/ENV-131-GW-5 **Inward Date** 21/06/2024	**Analysis Start** 22/06/2024 **Analysis End** 25/06/2024 **Report Issue Date** 25/06/2024 **Sample Category** Water	
Sample Name Ground Water	**Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-5	**Sample Condition** Sealed & Ice Preserved
Quantity Received 5.0 Ltr & 250 ml			
Sample Collected By Anacon Representative	**Sampling Date** 14/06/2024	**Sampling Time** 11.50 am to 3.20 pm	**Sampling Location** Sumindpur 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 #	
I	**Biological Testing I. Water**					
1	*Escherichia coli*	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	**Chemical Testing I. Water**					
2	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23) : 1986	200	600	168.27
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 Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	23.87
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	47.31
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	0.17
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	13.68
11	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	9.36
12	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.84 at 25°C
14	Phenolic compounds (as C_6H_5OH)	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	7.92
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 2023	500	2000	471
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	5	0.6
19	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	174.46

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut
Technical Manager

Authorized Signatories

Pooja Kathane
Technical Manager

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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/25062024/I-13A dated 25/06/2024

Issued To :	Sample Inward No.	ALPL/21062024/ENV-131-GW-5	Analysis Start	22/06/2024
M/s Kalamang Iron Mine (M/s TATA Steel Limited)	Inward Date	21/06/2024	Analysis End	25/06/2024
			Report Issue Date	25/06/2024
			Sample Category	Water

Sample Name	Sample Source	Sample Particulars	Sample Condition	Quantity Received
Ground Water	Dugwell	Sample Code-GW-5	Sealed & Ice Preserved	5.0 Ltr & 250 ml

Sample Collected By	Sampling Date	Sampling Time	Sampling Location
Anacon Representative	14/06/2024	11.50 am to 3.20 pm	Sunindpur 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 #	
II	**Chemical Testing 2. Residues 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	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	0.24
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

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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/25062024/1-T3A **dated** 25/06/2024

Issued To : M/s Kalamang Iron Mine (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/21062024/ENV-131-GW-5 **Inward Date** 21/06/2024		**Analysis Start** 22/06/2024 **Analysis End** 25/06/2024 **Report Issue Date** 25/06/2024 **Sample Category** Water
Sample Name Ground Water	**Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-5	**Sample Condition** Sealed & Ice Preserved	**Quantity Received** 5.0 Ltr & 250 ml
Sample Collected By Anacon Representative		**Sampling Date** 14/06/2024	**Sampling Time** 11.50 am to 3.20 pm	**Sampling Location** Sunindpur 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 #	
34	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/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	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	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. ● 'ng/l' is equivalent to 'ppt'. ● 'µg/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. ● **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 Goudhulekar
Deputy Technical Manager

Authorized Signatory

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

——End of Report——

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/05082024/I-9A dated 05/08/2024

Issued To : M/s Kalamang Iron Mine (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/2207/2024/ENV-185-GW-1 **Inward Date** 22/07/2024		**Analysis Start** 23/07/2024 **Analysis End** 30/07/2024 **Report Issue Date** 05/08/2024 **Sample Category** Water
Sample Name Ground Water / **Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-1	**Sample Condition** Sealed & 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

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**					
1	*Escherichia coli*	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	**Chemical Testing 1. Water**					
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	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	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 (as 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	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.24 at 25°C
14	Phenolic compounds (as C_6H_5OH)	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	52.14
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 2023	500	2000	375
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	5	0.6
19	Total hardness (as $CaCO_3$)	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 Kathane
Technical Manager

Chinmay Gadway
Deputy Quality Manager

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

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 on **feedback@anacon.in.**

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/05082024/1-9A **dated** 05/08/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22072024/ENV-185-GW-1 **Inward Date** 22/07/2024		**Analysis Start** 23/07/2024 **Analysis End** 30/07/2024 **Report Issue Date** 05/08/2024 **Sample Category** Water
Sample Name Ground Water / **Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-1	**Sample Condition** Sealed & 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

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 #	
II	**Chemical Testing 2. Residues 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	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/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

Pradnya Pillewan
Deputy Technical Manager

Authorized Signatory

Chinmay Gadkay
Deputy Quality Manager

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/05082024/I-9A dated 05/08/2024

Issued To : M/s Kalamang Iron Mine (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22072024/ENV-185-GW-1 **Inward Date** 22/07/2024		**Analysis Start** 23/07/2024 **Analysis End** 30/07/2024 **Report Issue Date** 05/08/2024 **Sample Category** Water
Sample Name Ground Water / **Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-1	**Sample Condition** Sealed & 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

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 #	
34	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/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	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	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'. ● 'µg/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. ● **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
Pradnya Pillewan
Deputy Technical Manager

Authorized Signatory
Chinmay Garway
Deputy Quality Manager

----End of Report----

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/05082024/1-10A **dated** 05/08/2024

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		**Analysis Start** 23/07/2024 **Analysis End** 30/07/2024 **Report Issue Date** 05/08/2024 **Sample Category** Water
Sample Name Ground Water	**Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-2	**Sample Condition** Sealed & 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** 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 #	
I	**Biological Testing 1. Water**					
1	*Escherichia coli*	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	**Chemical Testing 1. Water**					
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	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	37.64
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	46.27
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	0.11
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 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	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.96 at 25°C
14	Phenolic compounds (as C_6H_5OH)	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	69.45
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	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
19	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	133.36

□ **Please refer last Page for Note and Remarks.**

Verified By

Snehal Raut
Technical Manager

Authorized Signatories

Pooja Kathane
Technical Manager

Chinmay Gajbay
Deputy Quality Manager

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/05082024/1-10A **dated** 05/08/2024

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		**Analysis Start** 23/07/2024 **Analysis End** 30/07/2024 **Report Issue Date** 05/08/2024 **Sample Category** Water
Sample Name Ground Water / **Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-2	**Sample Condition** Sealed & 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** 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 #	
II	**Chemical Testing 2. Residues 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	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	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

Pradnya Pillewan
Deputy Technical Manager

Authorized Signatory

Chinmay Gadkay
Deputy Quality Manager

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/05082024/1-10A **dated** 05/08/2024

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		**Analysis Start** 23/07/2024 **Analysis End** 30/07/2024 **Report Issue Date** 05/08/2024 **Sample Category** Water
Sample Name Ground Water / **Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-2	**Sample Condition** Sealed & 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** 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 #	
34	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/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	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	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'. ● 'µg/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. ● **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
Pradnya Pillewan
Deputy Technical Manager

Authorized Signatory
Chinmay Gurway
Deputy Quality Manager

-----End of Report-----

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/05082024/1-11A **dated** 05/08/2024

Issued To : M/s Kalamang Iron Mine (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22072024/ENV-185-GW-3 **Inward Date** 22/07/2024		**Analysis Start** 23/07/2024 **Analysis End** 30/07/2024 **Report Issue Date** 05/08/2024 **Sample Category** Water
Sample Name Ground Water / **Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-3	**Sample Condition** Sealed & 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** Sagasahi 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 #	
I	**Biological Testing 1. Water**					
1	*Escherichia coli*	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	**Chemical Testing 1. Water**					
2	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23) : 1986	200	600	196.47
3	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	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	36.42
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	51.29
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	0.75
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	17.32
11	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	7.16
12	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.89 at 25°C
14	Phenolic compounds (as C_6H_5OH)	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	10.54
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 2023	500	2000	436
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	199.35

□ **Please refer last Page for Note and Remarks.**

Verified By

Snehal Raut
Technical Manager

Authorized Signatories

Pooja Kalhapure
Technical Manager

Chinmay Gurway
Deputy Quality Manager

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/05082024/1-11A dated 05/08/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22072024/ENV-185-GW-3 **Inward Date** 22/07/2024		**Analysis Start** 23/07/2024 **Analysis End** 30/07/2024 **Report Issue Date** 05/08/2024 **Sample Category** Water
Sample Name Ground Water / **Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-3	**Sample Condition** Sealed & 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** Sagasahi 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 #	
II	**Chemical Testing 2. Residues 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	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	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

Padmja Pillewan
Deputy Technical Manager

Authorized Signatory
Chinmay Gadkay
Deputy Quality Manager

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/05082024/1-11A **dated** 05/08/2024

Issued To : M/s Kalamang Iron Mine (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22072024/ENV-185-GW-3 **Inward Date** 22/07/2024		**Analysis Start** 23/07/2024 **Analysis End** 30/07/2024 **Report Issue Date** 05/08/2024 **Sample Category** Water
Sample Name Ground Water / **Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-3	**Sample Condition** Sealed & 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** Sagasahi 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 #	
34	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/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	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	30	No relaxation	BDL (DL - 0.03)

NOTE: ● Please see watermark "Original Test Report" to confirm the authenticity of this report ● Results shall be related 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'. ● 'µg/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. ● **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

Pradipya Pillewan
Deputy Technical Manager

Authorized Signatory

Chinmay Gadway
Deputy Quality Manager

-----End of Report-----

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/05082024/1-12A **dated** 05/08/2024

Issued To : M/s Kalamang Iron Mine (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22072024/ENV-185-GW-4 **Inward Date** 22/07/2024		**Analysis Start** 23/07/2024 **Analysis End** 30/07/2024 **Report Issue Date** 05/08/2024 **Sample Category** Water
Sample Name Ground Water / **Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-4	**Sample Condition** Sealed & 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** Gandalpada 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 #	
I	**Biological Testing 1. Water**					
1	*Escherichia coli*	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	**Chemical Testing 1. Water**					
2	Total Alkalinity (as 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	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	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	1	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/l	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	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.14 at 25°C
14	Phenolic compounds (as C_6H_5OH)	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	-	IS 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 garway
Deputy Quality Manager

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/05082024/1-12A dated 05/08/2024

Issued To : M/s Kalamang Iron Mine (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22072024/ENV-185-GW-4 **Inward Date** 22/07/2024		**Analysis Start** 23/07/2024 **Analysis End** 30/07/2024 **Report Issue Date** 05/08/2024 **Sample Category** Water
Sample Name Ground Water / **Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-4	**Sample Condition** Sealed & 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** Gandalpada 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 #	
II	**Chemical Testing 2. Residues 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	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	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

Pradaya Pillewan
Deputy Technical Manager

Authorized Signatory

Chhiamay Gurway
Deputy Quality Manager

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/05082024/1-12A dated 05/08/2024

Issued To : M/s Kalamang Iron Mine (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22072024/ENV-185-GW-4 **Inward Date** 22/07/2024		**Analysis Start** 23/07/2024 **Analysis End** 30/07/2024 **Report Issue Date** 05/08/2024 **Sample Category** Water
Sample Name Ground Water	**Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-4	**Sample Condition** Sealed & 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** Gandalpada 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 #	
34	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/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	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	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'. • 'µg/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. • **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

Pradnya Pillewan
Deputy Technical Manager

Authorized Signatory

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

-----End of Report-----

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/05082024/1-13A **dated** 05/08/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22072024/ENV-185-GW-5 **Inward Date** 22/07/2024		**Analysis Start** 23/07/2024 **Analysis End** 30/07/2024 **Report Issue Date** 05/08/2024 **Sample Category** Water
Sample Name Ground Water / **Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-5	**Sample Condition** Sealed & Ice Preserved	**Quantity Received** 5.0 l tr & 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** Sunindpur 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 #	
I	**Biological Testing 1. Water**					
1	*Escherichia coli*	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	**Chemical Testing 1. Water**					
2	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23) : 1986	200	600	181.46
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	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	1	BDL (DL - 0.1)
9	Fluoride (as F)	mg/l	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	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.99 at 25°C
14	Phenolic compounds (as C_6H_5OH)	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	9.34
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	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 $CaCO_3$)	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 Kathane
Technical Manager

Chinmay Garway
Deputy Quality Manager

Anacon Laboratories

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/05082024/I-13A dated 05/08/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22072024/ENV-185-GW-5 **Inward Date** 22/07/2024		**Analysis Start** 23/07/2024 **Analysis End** 30/07/2024 **Report Issue Date** 05/08/2024 **Sample Category** Water
Sample Name Ground Water / **Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-5	**Sample Condition** Sealed & 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** Sunindpur 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 #	
II	**Chemical Testing 2. Residues 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	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	0.13
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

Pradnya Pillewan
Deputy Technical Manager

Authorized Signatory

Chinmay Garyali
Deputy Quality Manager

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/05082024/1-13A dated 05/08/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/22072024/ENV-185-GW-5 **Inward Date** 22/07/2024		**Analysis Start** 23/07/2024 **Analysis End** 30/07/2024 **Report Issue Date** 05/08/2024 **Sample Category** Water
Sample Name Ground Water / **Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-5	**Sample Condition** Sealed & 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** Sunindpur 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 #	
34	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/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	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	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'. ● 'µg/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. ● 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

Pradnya Pillewan
Deputy Technical Manager

Authorized Signatory

Chinmay Gadway
Deputy Quality Manager

-----End of Report-----

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/31082024/1-9A **dated** 31/08/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/19082024/MON-430-EW-1/9-1 **Inward Date** 19/08/2024	**Analysis Start** 20/08/2024 **Analysis End** 26/08/2024 **Report Issue Date** 31/08/2024 **Sample Category** Water	
Sample Name Ground Water	**Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-1	**Sample Condition** Sealed & Ice Preserved
Quantity Received 5.0 Ltr & 250 ml			
Sample Collected By Mr. Biplab Giri	**Sampling Date** 16/08/2024	**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	Permissible Limit #	
I	**Discipline : Biological**	**Group : Water**	**Subgroup : Drinking water**			
1	*Escherichia coli*	Per 100 ml	IS: 15185	Absent	Absent	Absent
II	**Discipline : Chemical**	**Group : Water**	**Subgroup : Drinking water**			
2	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23) : 1986	200	600	197.26
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	3
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 Cl)	mg/l	IS 3025 (Part 32) Clause 2:1988	250	1000	34.91
7	Calcium (as Ca)	mg/l	IS 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	IS 3025 (Part 46) Clause 6 : 1994	30	100	13.94
11	Nitrate (as NO_3)	mg/l	APHA 23rd edition: Method 4500-NO3:2017	45	No relaxation	5.16
12	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	8.13 at 25°C
14	Phenolic compounds (as C_6H_5OH)	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	IS 3025 (Part 24/ Sec1) Clause 5 : 2022	200	400	12.68
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
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 $CaCO_3$)	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 Gaday
Deputy Quality Manager

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/31082024/1-9A **dated** 31/08/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/19082024/MON-430-EW-1/9-1 **Inward Date** 19/08/2024	**Analysis Start** 20/08/2024 **Analysis End** 26/08/2024 **Report Issue Date** 31/08/2024 **Sample Category** Water	
Sample Name Ground Water	**Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-1	**Sample Condition** Sealed & Ice Preserved
Quantity Received 5.0 Ltr & 250 ml			
Sample Collected By Mr. Biplab Giri	**Sampling Date** 16/08/2024	**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	Permissible Limit #	
III	**Discipline : Chemical**	**Group : Residues and contaminants in water**			**Subgroup : Trace metal 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/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/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/l	ANtr/7.2/RES/03: 2018	0.1	No relaxation	BLQ (LOQ-0.03)
IV	**Discipline : Chemical**	**Group : Residues and contaminants in water**			**Subgroup : 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
Deputy Technical Manager

Pradnya Pillewan
Deputy Technical Manager

Authorized Signatory

Chinmay Garwaty
Deputy Quality Manager

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/31082024/1-9A dated 31/08/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/19082024/MON-430-EW-1/9-1 **Inward Date** 19/08/2024		**Analysis Start** 20/08/2024 **Analysis End** 26/08/2024 **Report Issue Date** 31/08/2024 **Sample Category** Water
Sample Name Ground Water	**Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-1	**Sample Condition** Sealed & Ice Preserved	**Quantity Received** 5.0 Ltr & 250 ml
Sample Collected By Mr. Biplab Giri		**Sampling Date** 16/08/2024	**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	Permissible Limit #	
V	**Discipline : Chemical**	**Group : Residues contaminants in water**		**Subgroup : Pesticide**		
35	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BLQ (LOQ-0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BLQ (LOQ-0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BLQ (LOQ-0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BLQ (LOQ-0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BLQ (LOQ-0.03)
vi	Aldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BLQ (LOQ-0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BLQ (LOQ-0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BLQ (LOQ-0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xiii	o,p' - DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xiv	p,p' - DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BLQ (LOQ-0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BLQ (LOQ-0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BLQ (LOQ-0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BLQ (LOQ-0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BLQ (LOQ-0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BLQ (LOQ-0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	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. ● 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'. ● 'µg/l' is equivalent to 'ppb'. ● **BLQ= below limit of quantification , LOQ= limit of quantification.** ● Result for test no. 8 is not relevant. ● **ANtr/7.2/RES -01, ANtr/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 IS: 10500:2012, for tests conducted only.**

Verified By

Pradnya Pillewan
Deputy Technical Manager

Authorized Signatory

Chinmay Garway
Deputy Quality Manager

-----End of Report-----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/31082024/1-10A dated 31/08/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)		**Sample Inward No.** **Inward Date**	ALPL/19082024/MON-430-EW-1/9-2 19/08/2024	**Analysis Start** 20/08/2024 **Analysis End** 26/08/2024 **Report Issue Date** 31/08/2024 **Sample Category** Water
Sample Name Ground Water	**Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-2	**Sample Condition** Sealed & Ice Preserved	**Quantity Received** 5.0 Ltr & 250 ml
Sample Collected By Mr. Biplab Giri		**Sampling Date** 16/08/2024	**Sampling Time** 11.50 am to 3.20 pm	**Sampling Location** 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 #	
I	**Discipline : Biological**	**Group : Water**	**Subgroup : Drinking water**			
1	*Escherichia coli*	Per 100 ml	IS: 15185	Absent	Absent	Absent
II	**Discipline : Chemical**	**Group : Water**	**Subgroup : Drinking water**			
2	Total Alkalinity (as Calcium Carbonate)	mg/l	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-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 Cl)	mg/l	IS 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/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	11.93
11	Nitrate (as NO_3)	mg/l	APHA 23rd edition: Method 4500-NO3-2017	45	No relaxation	3.87
12	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	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_6H_5OH)	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	IS 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/l	IS 3025 (Part 16) : 2023	500	2000	453
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	5	0.3
19	Total hardness (as $CaCO_3$)	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 Kathare
Technical Manager

Chinmay Gadway
Deputy Quality Manager

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/31082024/1-10A dated 31/08/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.**	ALPL/19082024/MON-430-EW-1/9-2	**Analysis Start** 20/08/2024 **Analysis End** 26/08/2024 **Report Issue Date** 31/08/2024 **Sample Category** Water
	Inward Date	19/08/2024	

Sample Name	**Sample Source**	**Sample Particulars**	**Sample Condition**	**Quantity Received**
Ground Water	Dugwell	Sample Code-GW-2	Sealed & 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	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 #	
III	**Discipline : Chemical**	**Group : Residues and contaminants in water**			**Subgroup : Trace metal 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/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)	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 contaminants in water**			**Subgroup : 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
Deputy Technical Manager

Pradnya Pillewan
Deputy Technical Manager

Authorized Signatory

Chinmay Gadway
Deputy Quality Manager

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/31082024/1-10A dated 31/08/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/19082024/MON-430-EW-1/9-2 **Inward Date** 19/08/2024	**Analysis Start** 20/08/2024 **Analysis End** 26/08/2024 **Report Issue Date** 31/08/2024 **Sample Category** Water	
Sample Name Ground Water	**Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-2	**Sample Condition** Sealed & Ice Preserved	**Quantity Received** 5.0 Ltr & 250 ml
Sample Collected By Mr. Biplab Giri		**Sampling Date** 16/08/2024	**Sampling Time** 11.50 am to 3.20 pm	**Sampling Location** 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 #	
V	**Discipline : Chemical**	**Group : Residues contaminants in water**		**Subgroup : Pesticide**		
35	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BLQ (LOQ-0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BLQ (LOQ-0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BLQ (LOQ-0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BLQ (LOQ-0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BLQ (LOQ-0.03)
vi	Aldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BLQ (LOQ-0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BLQ (LOQ-0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BLQ (LOQ-0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BLQ (LOQ-0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BLQ (LOQ-0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BLQ (LOQ-0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BLQ (LOQ-0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BLQ (LOQ-0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BLQ (LOQ-0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	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. ● 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'. ● 'µg/l' is equivalent to 'ppb'. ● **BLQ= below limit of quantification , LOQ= limit of quantification.** ● Result for test no. 8 is not relevant. ● **ANtr/7.2/RES -01, ANtr/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 IS: 10500:2012, for tests conducted only.**

Verified By

Pradnya Pillewan
Deputy Technical Manager

Authorized Signatory

Chinmay Gurway
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 endeavor 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
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/31082024/1-11A dated 31/08/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** **Inward Date**	ALPL/19082024/MON-430-EW-1/9-3 19/08/2024	**Analysis Start** 20/08/2024 **Analysis End** 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-3	Sealed & 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	Sagasahi 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 #	
I	**Discipline : Biological**	**Group : Water**	**Subgroup : Drinking water**			
1	*Escherichia coli*	Per 100 ml	IS: 15185	Absent	Absent	Absent
II	**Discipline : Chemical**	**Group : Water**	**Subgroup : Drinking water**			
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
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 Cl)	mg/l	IS 3025 (Part 32) Clause 2:1988	250	1000	24.91
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) Clause 5 : 1991	75	200	48.36
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	IS 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	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	8.21 at 25°C
14	Phenolic compounds (as C_6H_5OH)	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	IS 3025 (Part 24/ Sec1) Clause 5 : 2022	200	400	8.57
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 2023	500	2000	453
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	5	0.2
19	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) Clause 5 : 2009	200	600	178.03

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

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

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 on **feedback@anacon.in.**

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/31082024/1-11A dated 31/08/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.**	ALPL/19082024/MON-430-EW-1/9-3	**Analysis Start** 20/08/2024 **Analysis End** 26/08/2024 **Report Issue Date** 31/08/2024 **Sample Category** Water
	Inward Date	19/08/2024	

Sample Name	**Sample Source**	**Sample Particulars**	**Sample Condition**	**Quantity Received**
Ground Water	Dugwell	Sample Code-GW-3	Sealed & 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	Sagasahi 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 #	
III	**Discipline : Chemical**	**Group : Residues and contaminants in water**			**Subgroup : Trace metal 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/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)	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 contaminants in water**			**Subgroup : 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
Deputy Technical Manager

Pradnya Pillewan
Deputy Technical Manager

Authorized Signatory

Chinmay Gadway
Deputy Quality Manager

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/31082024/1-11A **dated** 31/08/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/19082024/MON-430-EW-1/9-3 **Inward Date** 19/08/2024	**Analysis Start** 20/08/2024 **Analysis End** 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-3	Sealed & 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	Sagasahi 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 #	
V	**Discipline : Chemical**	**Group : Residues contaminants in water**		**Subgroup : Pesticide**		
35	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BLQ (LOQ-0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BLQ (LOQ-0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BLQ (LOQ-0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BLQ (LOQ-0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BLQ (LOQ-0.03)
vi	Aldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BLQ (LOQ-0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BLQ (LOQ-0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BLQ (LOQ-0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BLQ (LOQ-0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BLQ (LOQ-0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BLQ (LOQ-0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BLQ (LOQ-0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BLQ (LOQ-0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BLQ (LOQ-0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	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. ● 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'. ● 'µg/l' is equivalent to 'ppb'. ● **BLQ= below limit of quantification , LOQ= limit of quantification.** ● Result for test no. 8 is not relevant. ● **ANtr/7.2/RES -01, ANtr/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 IS: 10500:2012, for tests conducted only.**

Verified By

Pradnya Pillewan
Deputy Technical Manager

Authorized Signatory

Chinmay Garway
Deputy Quality Manager

-----End of Report-----

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/31082024/I-12A dated 31/08/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/19082024/MON-430-EW-1/9-4 **Inward Date** 19/08/2024	**Analysis Start** 20/08/2024 **Analysis End** 26/08/2024 **Report Issue Date** 31/08/2024 **Sample Category** Water	
Sample Name Ground Water	**Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-4	**Sample Condition** Sealed & Ice Preserved	**Quantity Received** 5.0 Ltr & 250 ml
Sample Collected By Mr. Biplab Giri		**Sampling Date** 16/08/2024	**Sampling Time** 11.50 am to 3.20 pm	**Sampling Location** Gandalpada 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 #	
I	**Discipline : Biological** **Group : Water**		**Subgroup : Drinking water**			
1	*Escherichia coli*	Per 100 ml	IS: 15185	Absent	Absent	Absent
II	**Discipline : Chemical** **Group : Water**		**Subgroup : Drinking water**			
2	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23) : 1986	200	600	176.52
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
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 Cl)	mg/l	IS 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 23rd edition: Method 4500-NO3:2017	45	No relaxation	3.53
12	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.91 at 25°C
14	Phenolic compounds (as C_6H_5OH)	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	IS 3025 (Part 24/ Sec1) Clause 5 : 2022	200	400	8.53
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 2023	500	2000	476
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	5	0.3
19	Total hardness (as $CaCO_3$)	mg/l	IS 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 Kathane
Technical Manager

Chinmay Godway
Deputy Quality Manager

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/31082024/1-12A dated 31/08/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.**	ALPL/19082024/MON-430-EW-1/9-4	**Analysis Start** 20/08/2024 **Analysis End** 26/08/2024 **Report Issue Date** 31/08/2024 **Sample Category** Water
	Inward Date	19/08/2024	

Sample Name	**Sample Source**	**Sample Particulars**	**Sample Condition**	**Quantity Received**
Ground Water	Dugwell	Sample Code-GW-4	Sealed & 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	Gandalpada 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 #	
III	**Discipline : Chemical**	**Group : Residues and contaminants in water**			**Subgroup : Trace metal 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/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	0.27
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/l	ANtr/7.2/RES/03: 2018	0.1	No relaxation	BLQ (LOQ-0.03)
IV	**Discipline : Chemical**	**Group : Residues and contaminants in water**			**Subgroup : 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

for Nidhi Dubey
Deputy Technical Manager

Pradnya Pillewan
Deputy Technical Manager

Authorized Signatory

Chinmay Gadway
Deputy Quality Manager

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/31082024/1-12A dated 31/08/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/19082024/MON-430-EW-1/9-4 **Inward Date** 19/08/2024	**Analysis Start** 20/08/2024 **Analysis End** 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	Sealed & 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	Gandalpada 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 #	
V	**Discipline : Chemical**	**Group : Residues contaminants in water**		**Subgroup : Pesticide**		
35	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BLQ (LOQ-0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BLQ (LOQ-0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BLQ (LOQ-0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BLQ (LOQ-0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BLQ (LOQ-0.03)
vi	Aldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BLQ (LOQ-0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BLQ (LOQ-0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BLQ (LOQ-0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BLQ (LOQ-0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BLQ (LOQ-0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BLQ (LOQ-0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BLQ (LOQ-0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BLQ (LOQ-0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BLQ (LOQ-0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	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. ● 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'. ● 'µg/l' is equivalent to 'ppb'. ● **BLQ= below limit of quantification , LOQ= limit of quantification.** ● Result for test no. 8 is not relevant. ● **ANtr/7.2/RES -01, ANtr/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 IS: 10500:2012, for tests conducted only.**

Verified By

Pradnya Pillewan
Deputy Technical Manager

Authorized Signatory

Chinmay Garpay
Deputy Quality Manager

-----End of Report-----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/31082024/1-13A **dated** 31/08/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)		**Sample Inward No.** **Inward Date**	ALPL/19082024/MON-430-EW-1/9-5 19/08/2024	**Analysis Start** 20/08/2024 **Analysis End** 26/08/2024 **Report Issue Date** 31/08/2024 **Sample Category** Water
Sample Name Ground Water	**Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-4	**Sample Condition** Sealed & Ice Preserved	**Quantity Received** 5.0 Ltr & 250 ml
Sample Collected By Mr. Biplab Giri		**Sampling Date** 16/08/2024	**Sampling Time** 11.50 am to 3.20 pm	**Sampling Location** Sunindpur 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 #	
I	**Discipline : Biological** **Group : Water**		**Subgroup : Drinking water**			
1	*Escherichia coli*	Per 100 ml	IS: 15185	Absent	Absent	Absent
II	**Discipline : Chemical** **Group : Water**		**Subgroup : Drinking water**			
2	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23) : 1986	200	600	176.21
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
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 Cl)	mg/l	IS 3025 (Part 32) Clause 2:1988	250	1000	27.46
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) Clause 5 : 1991	75	200	48.97
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	0.21
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) Clause 6 : 1994	30	100	13.52
11	Nitrate (as NO_3)	mg/l	APHA 23rd edition: Method 4500-NO3:2017	45	No relaxation	7.29
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_6H_5OH)	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	IS 3025 (Part 24/ Sec1) Clause 5 : 2022	200	400	8.53
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 2023	500	2000	457
18	Turbidity	NTU	IS 3025 : (Part 10): 2023	1	5	0.3
19	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) Clause 5 : 2009	200	600	177.95

Please refer last Page for Note and Remarks.

Verified By
Snehal Raut
Technical Manager

Authorized Signatories
Pooja Kathane
Technical Manager

Chinmay Gadkay
Deputy Quality Manager

Anacon Laboratories

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/31082024/1-13A dated 31/08/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/19082024/MON-430-EW-1/9-5 **Inward Date** 19/08/2024	**Analysis Start** 20/08/2024 **Analysis End** 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	Sealed & 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	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
III	**Discipline : Chemical**	**Group : Residues and contaminants in water**			**Subgroup : Trace metal 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/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	0.24
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/l	ANtr/7.2/RES/03: 2018	0.1	No relaxation	BLQ (LOQ-0.03)
IV	**Discipline : Chemical**	**Group : Residues and contaminants in water**			**Subgroup : 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
Deputy Technical Manager

Pradnya Pillewan
Deputy Technical Manager

Authorized Signatory

Chinmay Ganeay
Deputy Quality Manager

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Test Report No. : ALPL/31082024/1-13A dated 31/08/2024

Issued To : **M/s Kalamang Iron Mine** (M/s TATA Steel Limited)	**Sample Inward No.** ALPL/19082024/MON-430-EW-1/9-5 **Inward Date** 19/08/2024	**Analysis Start** 20/08/2024 **Analysis End** 26/08/2024 **Report Issue Date** 31/08/2024 **Sample Category** Water	
Sample Name Ground Water	**Sample Source** Dugwell	**Sample Particulars** Sample Code-GW-4	**Sample Condition** Sealed & Ice Preserved
Quantity Received 5.0 Ltr & 250 ml			
Sample Collected By Mr. Biplab Giri	**Sampling Date** 16/08/2024	**Sampling Time** 11.50 am to 3.20 pm	**Sampling Location** Sunindpur 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 #	
V	**Discipline : Chemical**	**Group : Residues contaminants in water**		**Subgroup : Pesticide**		
35	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BLQ (LOQ-0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BLQ (LOQ-0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BLQ (LOQ-0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BLQ (LOQ-0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BLQ (LOQ-0.03)
vi	Aldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BLQ (LOQ-0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BLQ (LOQ-0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BLQ (LOQ-0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xiii	o,p' - DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xiv	p,p' - DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BLQ (LOQ-0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BLQ (LOQ-0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BLQ (LOQ-0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BLQ (LOQ-0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BLQ (LOQ-0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BLQ (LOQ-0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BLQ (LOQ-0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	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. ● 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' ● 'µg/l' is equivalent to 'ppb' ● **BLQ= below limit of quantification , LOQ= limit of quantification.** ● Result for test no. 8 is not relevant. ● **ANtr/7.2/RES -01, ANtr/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 IS: 10500:2012, for tests conducted only.**

Verified By

Pradnya Pillewan
Deputy Technical Manager

Authorized Signatory

Chinmay Gatway
Deputy Quality Manager

-----End of Report-----

Anacon Laboratories

TC-12998

Test Report

ULR No.- TC129982400001623F

Test Report No.: ALPL/30092024/1-9 Dated: 30/09/2024

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. Biplab Giri Date of Sampling : 17/09/2024 to 18/09/2024 Date & time of sampling : 11:40 & 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 Weather Conditions : Satisfactory & Clear Any other observation: (If applicable) : -	

Discipline: Chemical

Group: Atmospheric Pollution

Test Results

Ambient Noise Level

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)
1.	Discipline: Chemical		Group: Atmospheric Pollution		Material or Product tested : Ambient Noise		
1.	Near Mines Lease Area-2	IS 9989	71.3	62.8	Industrial Area	75	70
					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

Authorized Signatory

Chinmay Gatway
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.

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

TC-12998

Test Report

ULR No.- TC129982400001624F

Test Report No.: ALPL/30092024/1-9 Dated: 30/09/2024

Issued To: **M/s Kalamang Iron Mine** **(M/s TATA Steel Limited)**	**Sample Inward No.:** ALPL/23092024/MON-30-NQ-1/7-3 **Inward Date:** 23/09/2024 **W.O.No.:** 4700126596/962/962-30.05.2024	**Report Issue Date:**30/09/2024
Sample Subgroup : Ambient Noise **Samplings details:** **Instrument ID :** ALPL-TSI/CEIS-SLM/2024/01 **Calibration Status :**23/08/2024-22/08/2025 **Make & Model :** HTC-SL-1352 **Serial No:**.202405728	**Sample Particulars:** **Name of Anacon Representative:** Mr. Biplab Giri **Date of Sampling :** 18/09/2024 to 19/09/2024 **Date & time of sampling :** 12:20 & 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 **Weather Conditions : Satisfactory & Clear** **Any other observation:** (If applicable) : -	

Discipline: Chemical

Group: Atmospheric Pollution

Test Results

Ambient Noise Level

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.	**Discipline:** Chemical		**Group:** Atmospheric Pollution		**Material or Product tested :** Ambient Noise		
3.	Near Guali Village	IS 9989	51.9	42.7	Industrial Area	75	70
					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

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.

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

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 **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	**Sample Particulars:** **Name of Anacon Representative:** Mr. Biplab Giri **Date of Sampling :** 18/09/2024 to 19/09/2024 **Date & time of sampling :** 12:55 & 24 hrs **Sampling location :** Near Kalamong 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) : -	

Discipline: Chemical

Group: Atmospheric Pollution

Test Results

Ambient Noise Level

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.	Discipline: Chemical		Group: Atmospheric Pollution		Material or Product tested : Ambient Noise		
4.	Near Kalamong Village	IS 9989	54.2	43.9	Industrial Area	75	70
					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

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.

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

TC-12998

Test Report

ULR No.- TC129982400001626F

Test Report No.: ALPL/30092024/1-11 Dated: 30/09/2024

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 **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	**Sample Particulars:** **Name of Anacon Representative:** Mr. Biplab Giri **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/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

Ambient Noise Level

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.	Discipline: Chemical		Group: Atmospheric Pollution		Material or Product tested : Ambient Noise		
5.	Near Sagasahi Village	IS 9989	48.3	39.7	Industrial Area	75	70
					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

Authorized Signatory

Chinmay Gatway
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.

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

TC-12998

Test Report

ULR No.- TC129982400001627F

Test Report No.: ALPL/30092024/1-12 Dated: 30/09/2024

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. Biplab Giri **Date of Sampling :** 19/09/2024 to 20/09/2024 **Date & time of sampling :** 13:55 & 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 **Weather Conditions :** Satisfactory & Clear **Any other observation:** (If applicable) : -	

Discipline: Chemical

Group: Atmospheric Pollution

Test Results

Ambient Noise Level

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.	**Discipline:** Chemical		**Group:** Atmospheric Pollution		**Material or Product tested :** Ambient Noise		
6.	Near Gandalpada Village	IS 9989	53.9	42.8	Industrial Area	75	70
					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

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.

Anacon Laboratories Pvt. Ltd. Nagpur Lab

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

Anacon Laboratories

TC-12998

Test Report

ULR No.- TC129982400001628F

Test Report No.: ALPL/30092024/1-13 **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-1/7-7 **Inward Date:** 23/09/2024 **W.O.No.:** 4700126596/962/962-30.05.2024	**Report Issue Date:**30/09/2024
Sample Subgroup : Ambient Noise **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	**Sample Particulars:** **Name of Anacon Representative:** Mr. Biplab Giri **Date of Sampling :** 20/09/2024 to 21/09/2024 **Date & time of sampling :** 14:25 & 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 **Weather Conditions :** Satisfactory & Clear **Any other observation:** (If applicable) : -	

Discipline: Chemical

Group: Atmospheric Pollution

Test Results

Ambient Noise Level

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.	**Discipline:** Chemical		**Group:** Atmospheric Pollution		**Material or Product tested :** Ambient Noise		
7.	Near Sunindpur Village	IS 9989	46.3	38.1	Industrial Area	75	70
					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

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.

Anacon Laboratories Pvt. Ltd. Nagpur Lab

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

Anacon Laboratories

TC-12998

Test Report

ULR No.- TC129982400001629F

Test Report No. : ALPL/30092024/1-14A dated 30/09/2024

Issued To : M/s Kalamang Iron Mine (M/s TATA Steel Limited)	**Sample Inward No.**	ALPL/23092024/MON-30-W-1/5-1	**Analysis Start** 24/09/2024
	Inward Date	23/09/2024	**Analysis End** 30/09/2024
	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	Sealed & Ice Preserved	Drinking	5.0 Ltr & 250 ml

Sampling done by	Sampling Date	Sampling Time	Sampling Location
Anacon Representative Mr. Biplab Giri	18/09/2024	12.40 pm to 4.30 pm	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	Permissible Limit #	
I	**Discipline : Chemical**		**Group : Water**	**Material or Product tested: Drinking water**		
1	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23)	200	600	176.31
2	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K)	0.2	1.0	BLQ (LOQ)-0.01)
3	Colour	Hazen units	IS 3025 (Part 4) Clause 4	5	15	1
4	Cyanide (as CN)	mg/l	IS 3025 (Part 27/Sec 1) Clause 5	0.05	No relaxation	BLQ (LOQ)-0.005)
5	Chloride (as Cl)	mg/l	IS 3025 (Part 32) Clause 2	250	1000	31.94
6	Calcium (as Ca)	mg/l	IS 3025 (Part 40) Clause 5	75	200	46.28
7	Free Residual Chlorine	mg/l	IS 3025 (Part 26) Clause 7	0.2	1	BLQ (LOQ)-0.1)
8	Fluoride (as F)	mg/l	IS 3025 (Part 60) Clause 6	1.0	1.5	0.21
9	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) Clause 6	30	100	15.58
10	Nitrate (as NO_3)	mg/l	APHA 23rd edition: Method 4500-NO3	45	No relaxation	5.76
11	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
12	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	6.93 at 25°C
13	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec 1) Clause 6	0.001	0.002	BLQ (LOQ-0.001)
14	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24/ Sec1) Clause 5	200	400	8.53
15	Taste	-	IS 3025 (Part 8)	Agreeable	Agreeable	Agreeable
16	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	451
17	Turbidity	NTU	IS 3025 : (Part 10)	1	5	0.1
18	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) Clause 5	200	600	172

□ **Please refer last Page for Note and Remarks.**

Verified By

Snehal Raut
Technical Manager

Authorized Signatory

Chinmay Marway
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
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

Issued To :	Sample Inward No.	ALPL/23092024/MON-30-W-1/5-1	Analysis Start	24/09/2024
M/s Kalamang Iron Mine (M/s TATA Steel Limited)	Inward Date	23/09/2024	Analysis End	30/09/2024
	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	Sealed & Ice Preserved	Drinking	5.0 Ltr & 250 ml

Sampling done by	Sampling Date	Sampling Time	Sampling Location
Anacon Representative Mr. Biplab Giri	18/09/2024	12.40 pm to 4.30 pm	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	Permissible Limit #	
II	Discipline : Chemical	Group : Residues contaminants in water		Material or Product tested: Drinking water		
19	Pesticide Residues Organochlorine					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01	0.01	No relaxation	BLQ (LOQ-0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01	0.04	No relaxation	BLQ (LOQ-0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01	2	No relaxation	BLQ (LOQ-0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01	0.04	No relaxation	BLQ (LOQ-0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01	20	No relaxation	BLQ (LOQ-0.03)
vi	Aldrin	µg/l	ANtr/7.2/RES/01	0.03	No relaxation	BLQ (LOQ-0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01	0.03	No relaxation	BLQ (LOQ-0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01	125	No relaxation	BLQ (LOQ-0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
xiii	o,p'-DDT	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
xiv	p,p'-DDT	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01	2	No relaxation	BLQ (LOQ-0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01	0.3	No relaxation	BLQ (LOQ-0.03)
xviii	Parathion methyl	µg/l	ANtr/7.2/RES/01	-	-	BLQ (LOQ-0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01	190	No relaxation	BLQ (LOQ-0.03)
xx	Malioxon	µg/l	ANtr/7.2/RES/01	-	-	BLQ (LOQ-0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01	3	No relaxation	BLQ (LOQ-0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01	30	No relaxation	BLQ (LOQ-0.03)
xxiii	Phorate Phorate-sulfone Phorate-sulfoxide	µg/l	ANtr/7.2/RES/01	2	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. ● 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'. ● 'µg/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 ● **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

Pradnya Pillewan
Deputy Technical Manager

Authorized Signatory

Chinmay Gurway
Deputy Quality Manager

End of Report

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/30092024/1-14B **dated** 30/09/2024

Issued To : M/s Kalamang Iron Mine (M/s TATA Steel Limited)	**Sample Inward No.**	ALPL/23092024/MON-30-W-1/5-1	**Analysis Start**	24/09/2024
	Inward Date	23/09/2024	**Analysis End**	30/09/2024
	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	Sealed & Ice Preserved	Drinking	5.0 Ltr & 250 ml

Sampling done by	**Sampling Date**	**Sampling Time**	**Sampling Location**
Anacon Representative Mr. Biplab Giri	18/09/2024	12.40 pm to 4.30 pm	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	Permissible Limit #	
I	**Discipline : Biological**	**Group : Water**				**Material or Product tested: Drinking water**
1	*Escherichia coli*	Per 100 ml	IS: 15185	Absent	Absent	Absent
II	**Discipline : Chemical**	**Group : Residues and contaminants in water**				**Material or Product tested: Drinking water**
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-0.02)
4	Barium (as Ba)	mg/l	IS 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)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ (LOQ-0.02)
7	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ (LOQ-0.002)
8	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.17
9	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ (LOQ-0.01)
10	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ (LOQ-0.02)
11	Mercury (as Hg)	mg/l	IS 3025 (Part 48)	0.001	No relaxation	BLQ (LOQ-0.001)
12	Selenium (as Se)	mg/l	IS 3025 (Part 56)	0.01	No relaxation	BLQ (LOQ-0.01)
13	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ (LOQ-0.02)
14	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ (LOQ-0.02)
15	Polynuclear aromatic hydrocarbon (PAH)	µg/l	ANtr/7.2/RES/03	0.1	No relaxation	BLQ (LOQ-0.03)
III	**Discipline : Chemical**	**Group : Residues and contaminants in water**				**Material or Product tested: Drinking water**
16	Mineral Oil	mg/l	ANtr/7.2/RES/06	1	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 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'. ● 'µg/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-ANid/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

Pradnya Pillewan
Deputy Technical Manager

Authorized Signatories

Pooja Kathane
Technical Manager

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 endeavor towards ensuring that your next experience will be significantly better than the current one, we welcome your feedback on feedback@anacon.in.

Anacon Laboratories

TC-12998

Test Report

ULR No.- TC129982400001630F

Test Report No. : ALPL/30092024/1-15A dated 30/09/2024

Issued To :	Sample Inward No.	ALPL/23092024/MON-30-W-1/5-2	Analysis Start	24/09/2024
M/s Kalamang Iron Mine (M/s TATA Steel Limited)	Inward Date	23/09/2024	Analysis End	30/09/2024
	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	Sealed & Ice Preserved	Drinking	5.0 Ltr & 250 ml

Sampling done by	Sampling Date	Sampling Time	Sampling Location
Anacon Representative Mr. Biplab Giri	18/09/2024	12.40 pm to 4.30 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 #	
1	**Discipline : Chemical**		**Group : Water**			**Material or Product tested: Drinking water**
1	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23)	200	600	194.57
2	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K)	0.2	1.0	BLQ (LOQ-0.01)
3	Colour	Hazen units	IS 3025 (Part 4) Clause 4	5	15	1
4	Cyanide (as CN)	mg/l	IS 3025 (Part 27/Sec 1) Clause 5	0.05	No relaxation	BLQ (LOQ-0.005)
5	Chloride (as Cl)	mg/l	IS 3025 (Part 32) Clause 2	250	1000	26.47
6	Calcium (as Ca)	mg/l	IS 3025 (Part 40) Clause 5	75	200	53.91
7	Free Residual Chlorine	mg/l	IS 3025 (Part 26) Clause 7	0.2	1	BLQ (LOQ-0.1)
8	Fluoride (as F)	mg/l	IS 3025 (Part 60) Clause 6	1.0	1.5	0.21
9	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) Clause 6	30	100	13.54
10	Nitrate (as NO_3)	mg/l	APHA 23rd edition: Method 4500-NO3	45	No relaxation	7.26
11	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
12	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.18 at 25°C
13	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec 1) Clause 6	0.001	0.002	BLQ (LOQ-0.001)
14	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24/ Sec1) Clause 5	200	400	11.32
15	Taste	-	IS 3025 (Part 8)	Agreeable	Agreeable	Agreeable
16	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	452
17	Turbidity	NTU	IS 3025 : (Part 10)	1	5	1
18	Total hardness (as $CaCO_3$)	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

Chinmay Garway
Deputy Quality Manager

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

TC-12998

Test Report

ULR No.- TC129982400001630F

Test Report No. : ALPL/30092024/1-15A dated 30/09/2024

Issued To : M/s Kalamang Iron Mine (M/s TATA Steel Limited)	**Sample Inward No.**	ALPL/23092024/MON-30-W-1/5-2	**Analysis Start**	24/09/2024
	Inward Date	23/09/2024	**Analysis End**	30/09/2024
	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	Sealed & Ice Preserved	Drinking	5.0 Ltr & 250 ml

Sampling done by	Sampling Date	Sampling Time	Sampling Location
Anacon Representative Mr. Biplab Giri	18/09/2024	12.40 pm to 4.30 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 #	
II	**Discipline : Chemical**	**Group : Residues contaminants in water**		**Material or Product tested: Drinking water**		
19	**Pesticide Residues Organochlorine**					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01	0.01	No relaxation	BLQ (LOQ-0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01	0.04	No relaxation	BLQ (LOQ-0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01	2	No relaxation	BLQ (LOQ-0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01	0.04	No relaxation	BLQ (LOQ-0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01	20	No relaxation	BLQ (LOQ-0.03)
vi	Aldrin	µg/l	ANtr/7.2/RES/01	0.03	No relaxation	BLQ (LOQ-0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01	0.03	No relaxation	BLQ (LOQ-0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01	125	No relaxation	BLQ (LOQ-0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01	2	No relaxation	BLQ (LOQ-0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01	0.3	No relaxation	BLQ (LOQ-0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01	-	-	BLQ (LOQ-0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01	190	No relaxation	BLQ (LOQ-0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01	-	-	BLQ (LOQ-0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01	3	No relaxation	BLQ (LOQ-0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01	30	No relaxation	BLQ (LOQ-0.03)
xxiii	Phorate Phorate-sulfone Phorate-sulfoxide	µg/l	ANtr/7.2/RES/01	2	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. ● 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'. ● 'µg/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** ● **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

Pradnya Pillewan
Deputy Technical Manager

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 put 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.

End of Report

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/30092024/1-15B **dated** 30/09/2024

Issued To : M/s Kalamang Iron Mine (M/s TATA Steel Limited)	**Sample Inward No.**	ALPL/23092024/MON-30-W-1/5-2	**Analysis Start**	24/09/2024
	Inward Date	23/09/2024	**Analysis End**	30/09/2024
	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	Sealed & Ice Preserved	Drinking	5.0 Ltr & 250 ml

Sampling done by	**Sampling Date**	**Sampling Time**	**Sampling Location**
Anacon Representative Mr. Biplab Giri	18/09/2024	12.40 pm to 4.30 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 #	
I	**Discipline : Biological**	**Group : Water**				**Material or Product tested: Drinking water**
1	*Escherichia coli*	Per 100 ml	IS: 15185	Absent	Absent	Absent
II	**Discipline : Chemical**	**Group : Residues and contaminants in water**				**Material or Product tested: Drinking water**
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-0.02)
4	Barium (as Ba)	mg/l	IS 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)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ (LOQ-0.02)
7	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ (LOQ-0.002)
8	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.24
9	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ (LOQ-0.01)
10	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ (LOQ-0.02)
11	Mercury (as Hg)	mg/l	IS 3025 (Part 48)	0.001	No relaxation	BLQ (LOQ-0.001)
12	Selenium (as Se)	mg/l	IS 3025 (Part 56)	0.01	No relaxation	BLQ (LOQ-0.01)
13	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ (LOQ-0.02)
14	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ (LOQ-0.02)
15	Polynuclear aromatic hydrocarbon (PAH)	µg/l	ANtr/7.2/RES/03	0.1	No relaxation	BLQ (LOQ-0.03)
III	**Discipline : Chemical**	**Group : Residues and contaminants in water**				**Material or Product tested: Drinking water**
16	Mineral Oil	mg/l	ANtr/7.2/RES/06	1	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 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'. ● 'µg/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 ● 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

Pradnya Pillewan
Deputy Technical Manager

Authorized Signatories

Pooja Kathane
Technical Manager

Chinmay Gurway
Deputy Quality Manager

—End of Report—

Anacon Laboratories

TC-12998

Test Report

ULR No.- TC129982400001631F

Test Report No. : ALPL/30092024/I-16A dated 30/09/2024

Issued To : M/s Kalamang Iron Mine (M/s TATA Steel Limited)	**Sample Inward No.**	ALPL/23092024/MON-30-W-1/5-3	**Analysis Start**	24/09/2024
	Inward Date	23/09/2024	**Analysis End**	30/09/2024
	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	Sealed & Ice Preserved	Drinking	5.0 Ltr & 250 ml

Sampling done by	**Sampling Date**	**Sampling Time**	**Sampling Location**
Anacon Representative Mr. Biplab Giri	18/09/2024	12.40 pm to 4.30 pm	Sagnsahi 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 #	
1	**Discipline : Chemical**		**Group : Water**			**Material or Product tested: Drinking water**
1	Total Alkalinity (as Calcium Carbonate)	mg/l	IS 3025 (Part 23)	200	600	164.37
2	Anionic Detergents (as MBAS)	mg/l	IS 13428 : (Annex K)	0.2	1.0	BLQ (LOQ-0.01)
3	Colour	Hazen units	IS 3025 (Part 4) Clause 4	5	15	1
4	Cyanide (as CN)	mg/l	IS 3025 (Part 27/Sec 1) Clause 5	0.05	No relaxation	BLQ (LOQ-0.005)
5	Chloride (as Cl)	mg/l	IS 3025 (Part 32) Clause 2	250	1000	27.96
6	Calcium (as Ca)	mg/l	IS 3025 (Part 40) Clause 5	75	200	52.81
7	Free Residual Chlorine	mg/l	IS 3025 (Part 26) Clause 7	0.2	1	BLQ (LOQ-0.1)
8	Fluoride (as F)	mg/l	IS 3025 (Part 60) Clause 6	1.0	1.5	0.24
9	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) Clause 6	30	100	12.57
10	Nitrate (as NO_3)	mg/l	APHA 23rd edition: Method 4500-NO3	45	No relaxation	5.91
11	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
12	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	8.16 at 25°C
13	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec 1) Clause 6	0.001	0.002	BLQ (LOQ-0.001)
14	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24/ Sec1) Clause 5	200	400	8.53
15	Taste	-	IS 3025 (Part 8)	Agreeable	Agreeable	Agreeable
16	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	437
17	Turbidity	NTU	IS 3025 : (Part 10)	1	5	1
18	Total hardness (as $CaCO_3$)	mg/l	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

Chinmay Gurway
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
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

Anacon Laboratories

TC-12998

Test Report

ULR No.- TC129982400001631F

Test Report No. : ALPL/30092024/1-16A dated 30/09/2024

Issued To :	Sample Inward No.	ALPL/23092024/MON-30-W-1/5-3	Analysis Start	24/09/2024
M/s Kalamang Iron Mine (M/s TATA Steel Limited)	Inward Date	23/09/2024	Analysis End	30/09/2024
	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	Sealed & Ice Preserved	Drinking	5.0 Ltr & 250 ml

Sampling done by	Sampling Date	Sampling Time	Sampling Location
Anacon Representative Mr. Biplab Giri	18/09/2024	12.40 pm to 4.30 pm	Sagasahi 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 #	
II	Discipline : Chemical	Group : Residues contaminants in water		Material or Product tested: Drinking water		
19	Pesticide Residues Organochlorine					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01	0.01	No relaxation	BLQ (LOQ-0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01	0.04	No relaxation	BLQ (LOQ-0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01	2	No relaxation	BLQ (LOQ-0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01	0.04	No relaxation	BLQ (LOQ-0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01	20	No relaxation	BLQ (LOQ-0.03)
vi	Aldrin	µg/l	ANtr/7.2/RES/01	0.03	No relaxation	BLQ (LOQ-0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01	0.03	No relaxation	BLQ (LOQ-0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01	125	No relaxation	BLQ (LOQ-0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
xiii	o,p'-DDT	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
xiv	p,p'-DDT	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01	1	No relaxation	BLQ (LOQ-0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01	2	No relaxation	BLQ (LOQ-0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01	0.3	No relaxation	BLQ (LOQ-0.03)
xviii	Parathion methyl	µg/l	ANtr/7.2/RES/01	-	-	BLQ (LOQ-0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01	190	No relaxation	BLQ (LOQ-0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01	-	-	BLQ (LOQ-0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01	3	No relaxation	BLQ (LOQ-0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01	30	No relaxation	BLQ (LOQ-0.03)
xxiii	Phorate Phorate-sulfone Phorate-sulfoxide	µg/l	ANtr/7.2/RES/01	2	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. ● 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'. ● 'µg/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** ● **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

Pradnya Pillewan
Deputy 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 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
FP-34, 35,Food Park, Five Star Industrial Estate, MIDC Butibori, Nagpur, Maharashtra, India - 441 122
+ 91 8045685558 Email : info@anacon.in
https: // www.aneconlaboratories.com

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Test Report No. : ALPL/30092024/1-168 dated 30/09/2024

Issued To : M/s Kalamang Iron Mine (M/s TATA Steel Limited)	**Sample Inward No.**	ALPL/23092024/MON-30-W-1/5-3	**Analysis Start**	24/09/2024
	Inward Date	23/09/2024	**Analysis End**	30/09/2024
	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	Sealed & Ice Preserved	Drinking	5.0 Ltr & 250 ml

Sampling done by	**Sampling Date**	**Sampling Time**	**Sampling Location**
Anacon Representative Mr. Biplab Giri	18/09/2024	12.40 pm to 4.30 pm	Sagasahi 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 #	
I	**Discipline : Biological**	**Group : Water**				**Material or Product tested: Drinking water**
1	*Escherichia coli*	Per 100 ml	IS: 15185	Absent	Absent	Absent
II	**Discipline : Chemical**	**Group : Residues and contaminants in water**				**Material or Product tested: Drinking water**
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-0.02)
4	Barium (as Ba)	mg/l	IS 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)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ (LOQ-0.02)
7	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ (LOQ-0.002)
8	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.17
9	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ (LOQ-0.01)
10	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ (LOQ-0.02)
11	Mercury (as Hg)	mg/l	IS 3025 (Part 48)	0.001	No relaxation	BLQ (LOQ-0.001)
12	Selenium (as Se)	mg/l	IS 3025 (Part 56)	0.01	No relaxation	BLQ (LOQ-0.01)
13	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ (LOQ-0.02)
14	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ (LOQ-0.02)
15	Polynuclear aromatic hydrocarbon (PAH)	µg/l	ANtr/7.2/RES/03	0.1	No relaxation	BLQ (LOQ-0.03)
III	**Discipline : Chemical**	**Group : Residues and contaminants in water**				**Material or Product tested: Drinking water**
16	Mineral Oil	mg/l	ANtr/7.2/RES/06	1	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 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'. ● 'µg/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** ● **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

Pradnya Pillewan
Deputy Technical Manager

Authorized Signatories

Pooja Kathane
Technical Manager

Chinmay Garway
Deputy Quality Manager

—End of Report—

N.R. Sl. No. 1239
Date 31-3-23

Annexure-9

भारतीय गैर न्यायिक

एक सौ रुपये Rs. 100

रु. 100 ONE HUNDRED RUPEES

INDIA NON JUDICIAL

ଓଡ଼ିଶା ओड़िशा ODISHA N 094316

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.

2. That, production is not started and as per EC dated 18.10.2022we will ensure 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.

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

DEPONENT
General Manager
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 31st day of March 2023 at Barbil.

DEPONENT
General Manager
Ore Mines & Quarries
TATA STEEL

ATO 31-3-23.

Anoja Manjari Mishra
ADVOCATE & NOTARY
Regd. No. ON/37/2012
BARBIL Dist Keonjhar (ODISHA

GR No. 1180 Date 27.3.23

Value 1/0 Purpose

Name TATA Steel Ltd A.K. Bhatnagar.

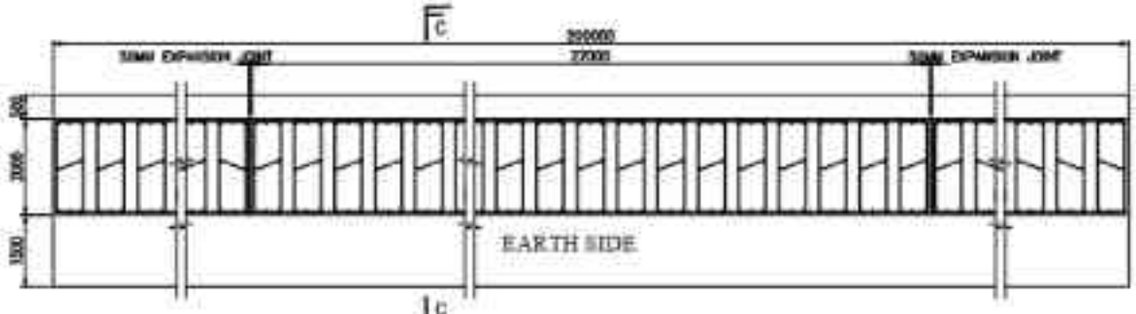
Address Naamuroli - (JH)

Signature of Party

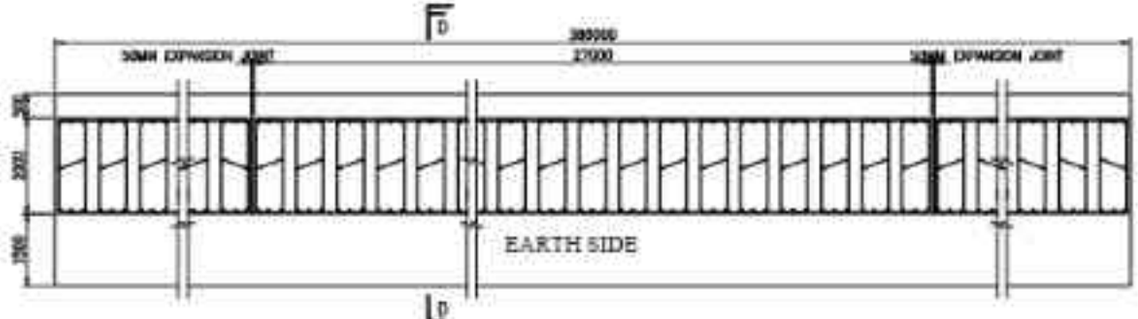
Stamp Vendor

Clerk

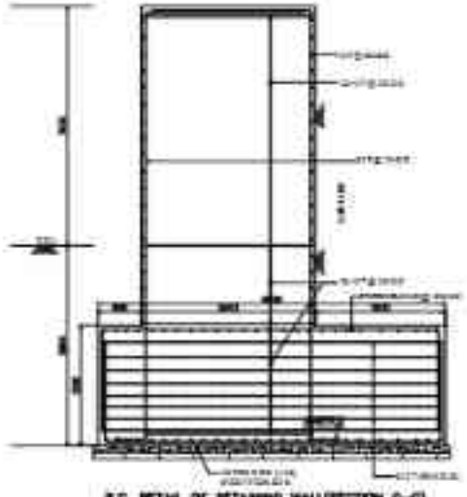
General Manager
Ore Mines & Quarries
TATA STEEL

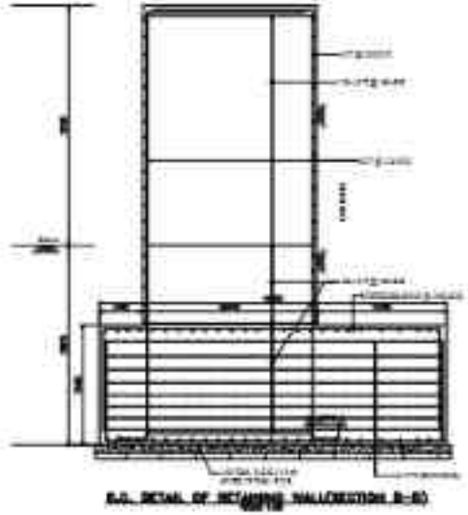


PLAN OF RETAINING WALL
SCALE 1:50



PLAN OF RETAINING WALL
SCALE 1:50





Notes:-

MITA SAHA

PROPOSED DESIGN OF RETAINING WALL AT VARIOUS LOCATION OF KALIMATIA IRON ORE MINES.

CLIENTS : TATA STEEL LTD.

ARCHITECT: INDRANIL BASU & ASSOCIATES,
CE-94,SALT LAKE CITY,KOLKATA-700064

TATA STEEL LIMITED

DEPARTMENT:

EQUIP./AREA: KALIAMANGA WEST (NORTHEN PART) IRON ORE MINES

DETAIL: DETAIL OF RETAINING WALL

DATE	TRACED	MATERIAL	SCALE	WEIGHT IN KG	SHEET No.	SHEET SIZE
			1:100		1	A1

DRG No.

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Ambient Noise Report-April-2024

Report No.: AN/NE/TS-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.

Sl. No.	Location Name	Results dB(A)	
		Day Time (6:00 am to 10:00pm)	Night Time (10:00 pm to 06:00am)
Core Zone			
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
Norms:	**Industrial Area**	**75.0**	**70.0**
	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

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Ambient Noise Report-May-2024

Report No.: AN/NE/TS-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.

Sl. No.	Location Name	Results dB(A)	
		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
Norms:	**Industrial Area**	**75.0**	**70.0**
	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

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

Anacon Laboratories

Test Report

Ambient Noise Report-June-2024

Report No.: AN/NE/TS-KIM/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.

Sl. No.	Location Name	Results dB(A)	
		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
Norms:	**Industrial Area**	**75.0**	**70.0**
	Commercial Area	**65.0**	**55.0**
	Residential Area	**55.0**	**45.0**

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

----End of Report----

Anacon Laboratories

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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 Noise Report-July-2024

Report No.: AN/NE/TS-KIM/2024/1-8			**Date:**05/08/2024
Name and Address of Industry:-	**M/s Kalamang Iron Mine (M/s TATA Steel Limited)**		
Sample Description/Type	**Ambient Noise**	**Sample Ref. No.:-**	ALPL/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

Sl. No.	Location Name	Results dB(A)	
		Day Time (6:00 am to 10:00pm)	Night Time (10:00 pm to 06:00am)
Core Zone			
NE-1	Mines Lease Area	71.3	62.8
NE-2	Mines Lease Area	67.1	59.2
Buffer Zone			
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
Norms:	**Industrial Area**	**75.0**	**70.0**
	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

----End of Report----

Anacon Laboratories

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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 Noise Report-August-2024

Report No.: ALPL/31082024/1-8			**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/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

Sl. No.	Location Name	Results dB(A)	
		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
Norms:	**Industrial Area**	**75.0**	**70.0**
	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

Chinmay Garway
Deputy Quality Manager

----End of Report----

ANACON LABORATORIES PVT. LTD. ORIGINAL COPY

Anacon Laboratories

TC-12998

Test Report

ULR No.- TC129982400001622F

Test Report No.: ALPL/30092024/1-8 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-1/7-1 **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 Giri **Date of Sampling :** 17/09/2024 to 18/09/2024 **Date & time of sampling :** 10:55 & 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 **Weather Conditions :** Satisfactory & Clear **Any other observation:** (If applicable) : -	

Discipline: Chemical

Group: Atmospheric Pollution

Test Results

Ambient Noise Level

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.	Discipline: Chemical	Group: Atmospheric Pollution			Material or Product tested : Ambient Noise		
1.	Near Mines Lease Area-1	IS 9989	68.2	54.9	Industrial Area	75	70
					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

Authorized Signatory

Chinmay Karway
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.

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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

सीएसआईआर–केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान
CSIR-Central Institute of Mining and Fuel Research

(वैज्ञानिक तथा औद्योगिक 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/ 493

दिनांक: 27.06.2024

सेवा मे,
श्री एस.एस.मिश्रा
प्रमुख, कलामंग पश्चिम
कलामंग और गंधालपाड़ा परियोजना कार्यालय
जोडा वेस्ट, जोडा
क्योंझर, ओडिशा
पिन- 758034

To,
Sri S. S. Mishra
Head, Kalamang West
Kalamang and Gandhalpada Project Office
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 tick-marked, 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

संजय कुमार राय 27.06.2024

(डॉ संजय कुमार राय / Dr. SANJAY KUMAR ROY)
मुख्य वैज्ञानिक और अनुसंधान समूह प्रमुख / Chief Scientist & HORG
ढलान स्थिरीकरण और भूस्खलन प्रबंधन / Slope Stabilisation and Landslide Management,
सीएसआईआर - केंद्रीय खनन एवं ईंधन अनुसंधान संस्थान / CSIR - Central Institute of Mining and Fuel Research,
बरवा रोड, धनबाद, झारखंड – 826015 / Barwa Road, Dhanbad, Jharkhand - 826015
मोबाइल / Mobile: +91 9471192140, +91 7903939216

संलग्नक (Enclosure's): ऊपर वर्णित / As mentioned Above

सीएसआईआर-केंद्रीय खनन एवं ईंधन अनुसंधान संस्थान बरवा रोड, धनबाद

CSIR-CENTRAL INSTITUTE OF MINING AND FUEL RESEARCH BARWA ROAD, DHANBAD

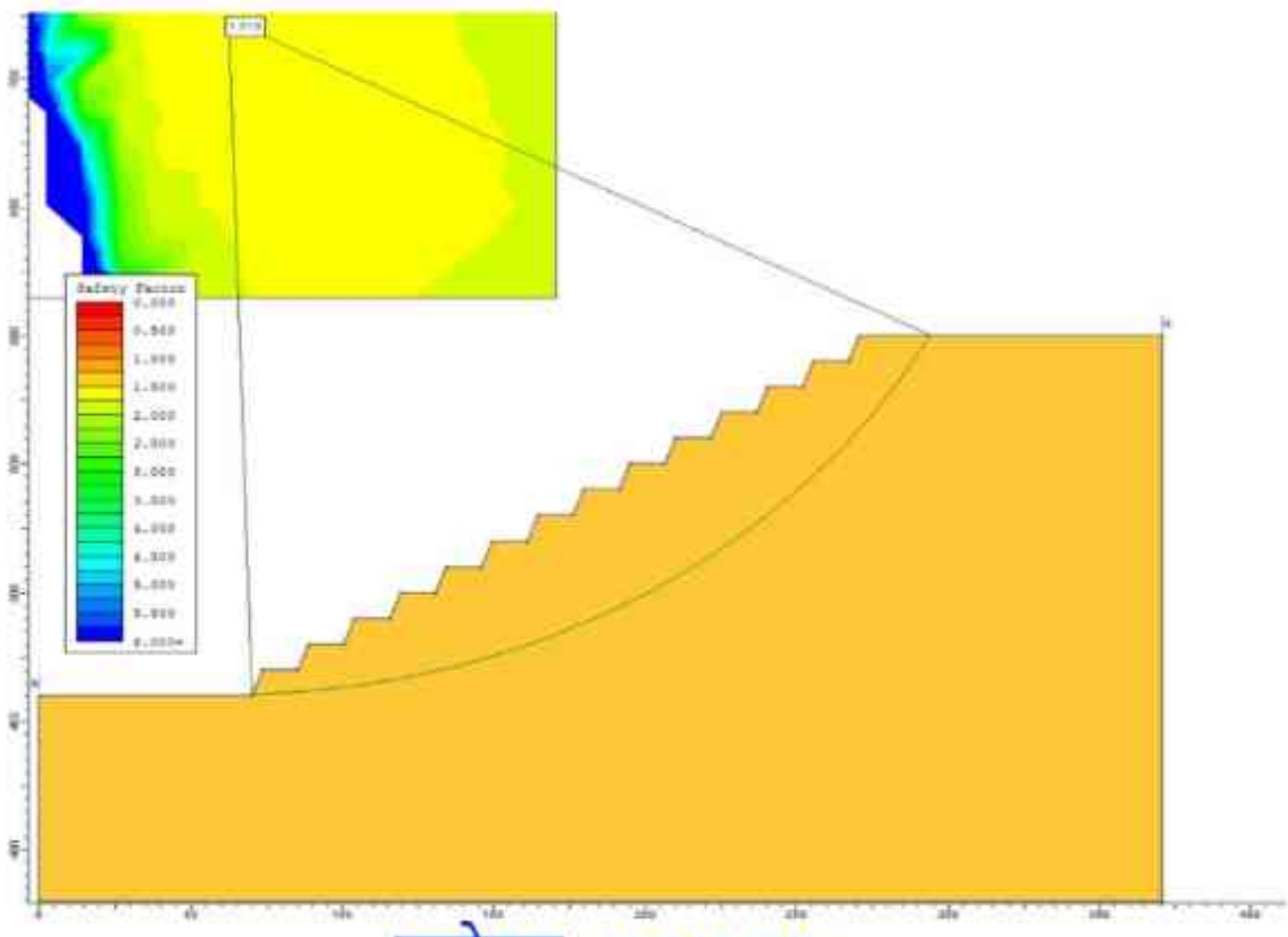
(वैज्ञानिक और औद्योगिक अनुसंधान परिषद)

(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.



प्रायोजक /SPONSOR:

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
Project Coordinator	:	Dr. S. K. Roy, Chief Scientist
Project Leader	:	Mr. Anand Singh, Scientist
Project Collaborator	:	Dr. Ritesh Kumar, Senior Scientist Mr. Kartik Varwade, Scientist Mr. R. K. Singh, S.T.O. (2) Mr. Manish Kumar, S.T.O. (2) Mr. Prince Kumar, Tech. Assistant Mr. Swapan Mahato, Technician

June, 2024

DISCLAIMER

The report is meant only for internal use of the sponsor and it should not be published in full or part by the sponsor or any of its staff members. It should not be communicated or circulated to outside parties except concerned Government department. CIMFR reserves the right to publish the results in a general way for the benefit of the industry without disclosing the name of the sponsor. Recommendations stipulated in the report should be implemented under the supervision of a competent agency and strictly be followed.

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.

Anand Singh 25/6/24

Project Leader
(Anand Singh)
Scientist
Slope Stabilisation & Landslide Management

25/06/2024

Project Co-ordinator
(S. K. Roy)
Chief Scientist & Head of Section
Slope Stabilisation & Landslide Management

CSIR-CIMFR Authorised Signatories

25/06/2024

(Niraj Kumar)
Senior Principal Scientist & HOS
Project Planning and Monitoring

25/6/2024

(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

Group/Formation	**Lithology**
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)
Upper Shale Fromation	Ferruginous Shale Unit: Shale of different coloration like pink, cream and yellow, variegated with inter beds of Iron ore Iron Ore Unit: powdery ore, soft laminated Ore (SLO) and Hard 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.

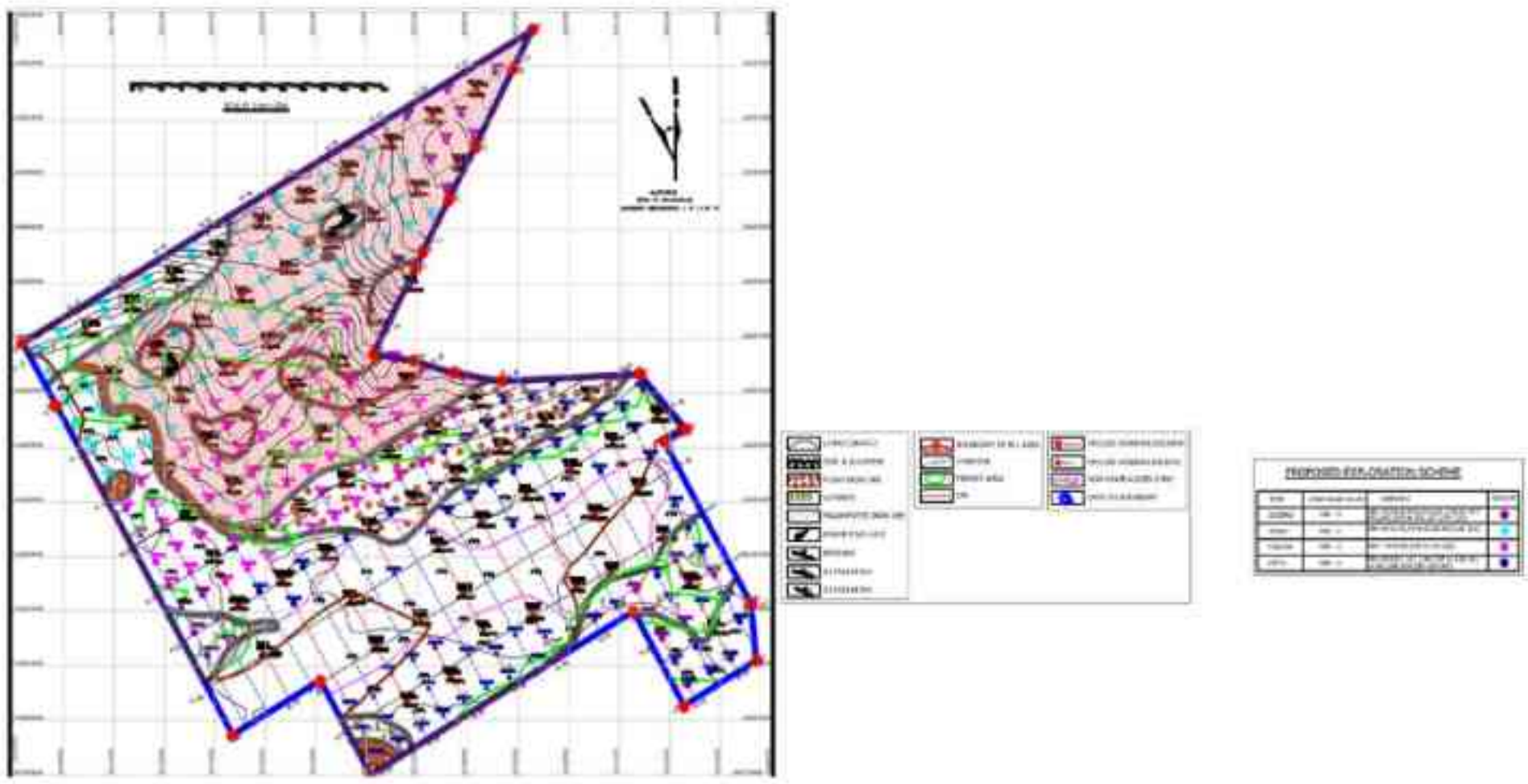


Fig. 1: Geological surface plan of Kalamang West (Northern Part) Iron Ore Mine

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 m^3 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

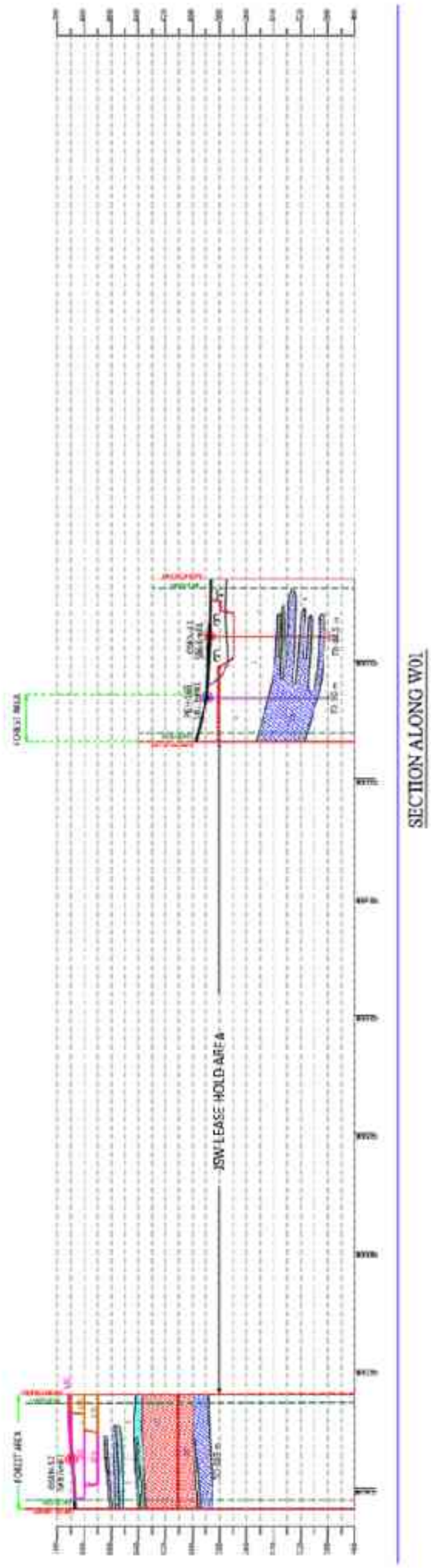


Fig. 3: Section Along W01 of Kalamang West (Northern Part) Iron Ore Mine

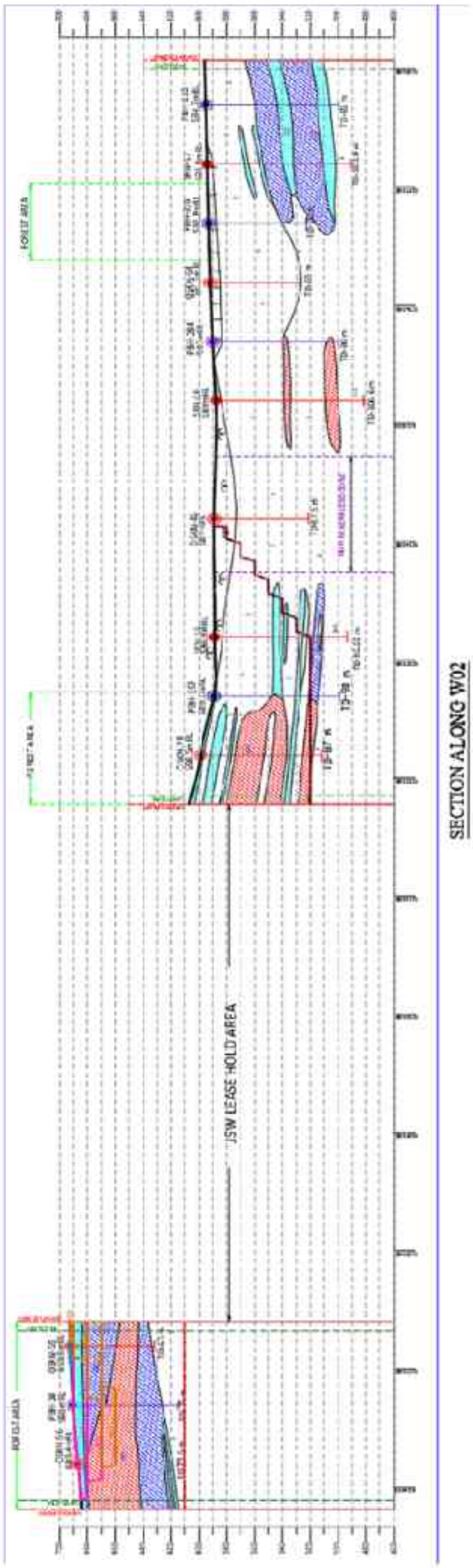


Fig. 4: Section Along W02 of Kalamang West (Northern Part) Iron Ore Mine

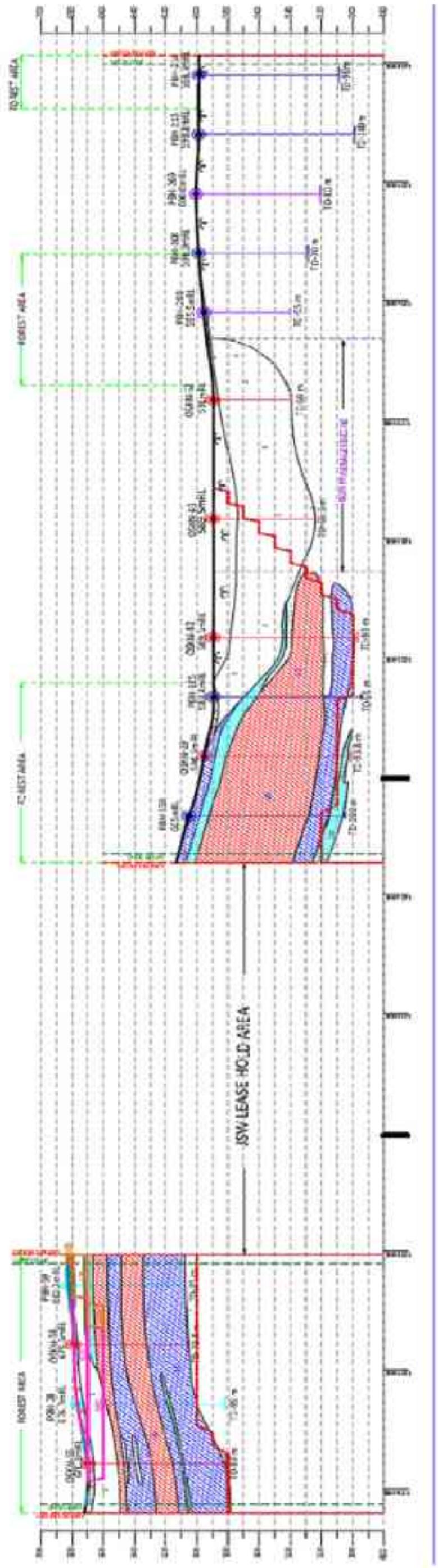


Fig. 5: Section Along W03 of Kalamang West (Northern Part) Iron Ore Mine

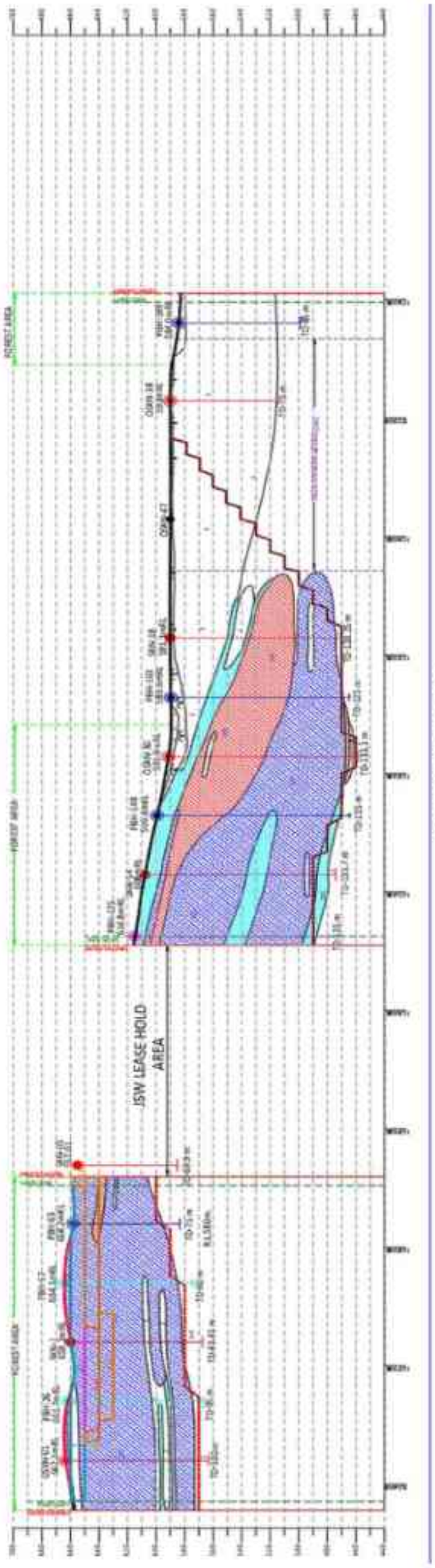


Fig. 6: Section Along W04 of Kalamang West (Northern Part) Iron Ore Mine

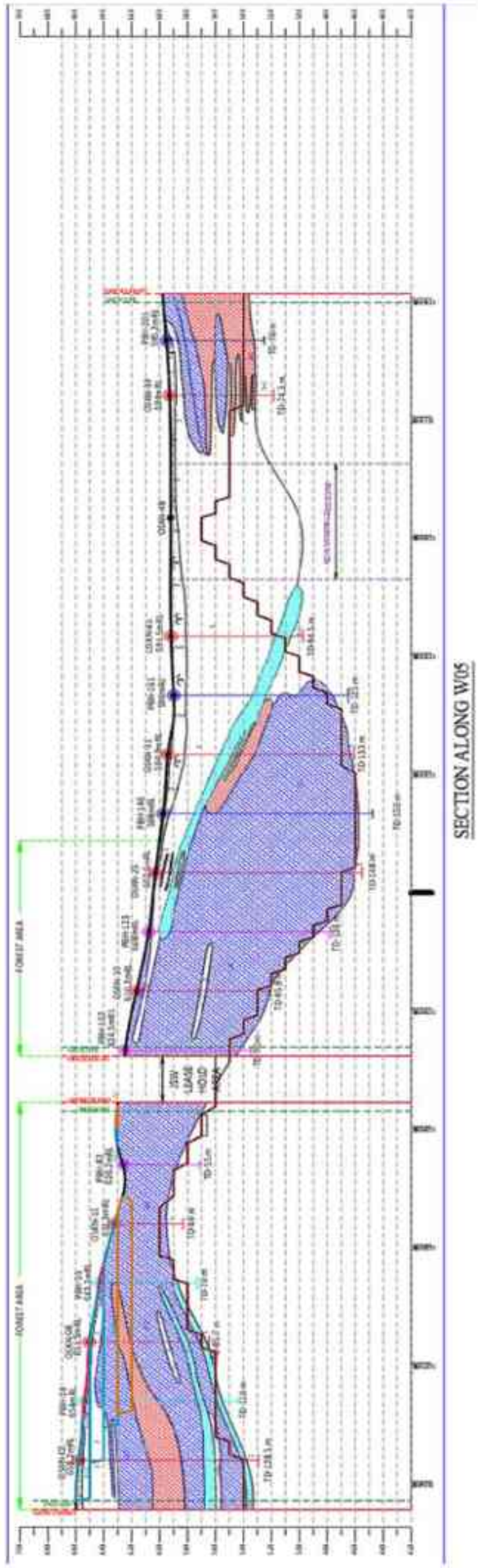


Fig. 7: Section Along W05 of Kalamang West (Northern Part) Iron Ore Mine

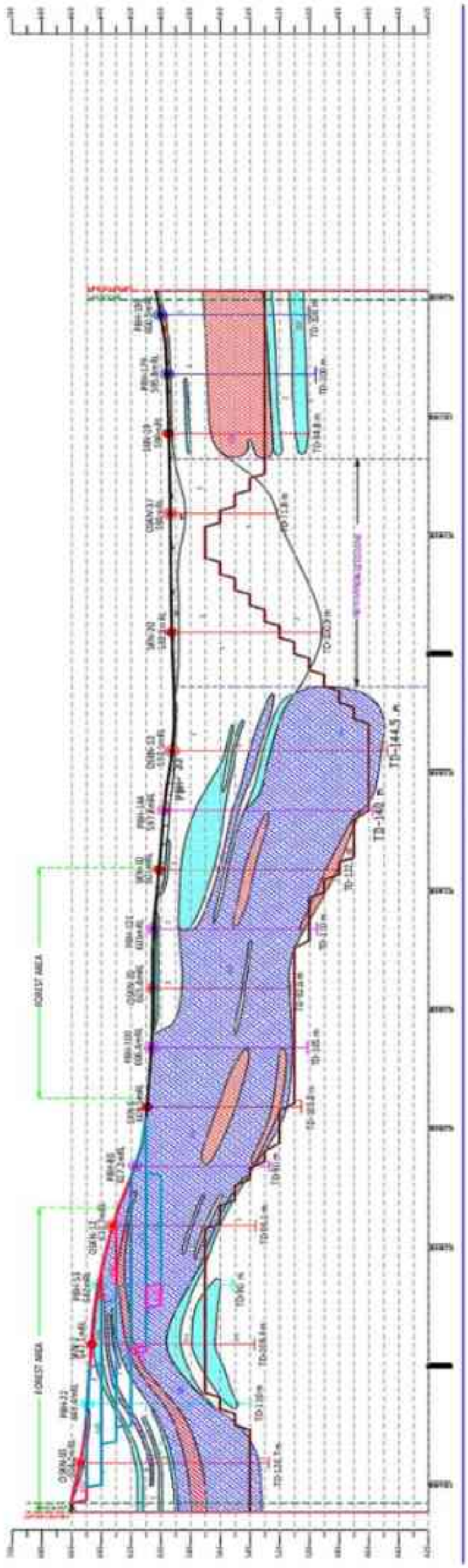


Fig. 8: Section Along W06 of Kalamang West (Northern Part) Iron Ore Mine

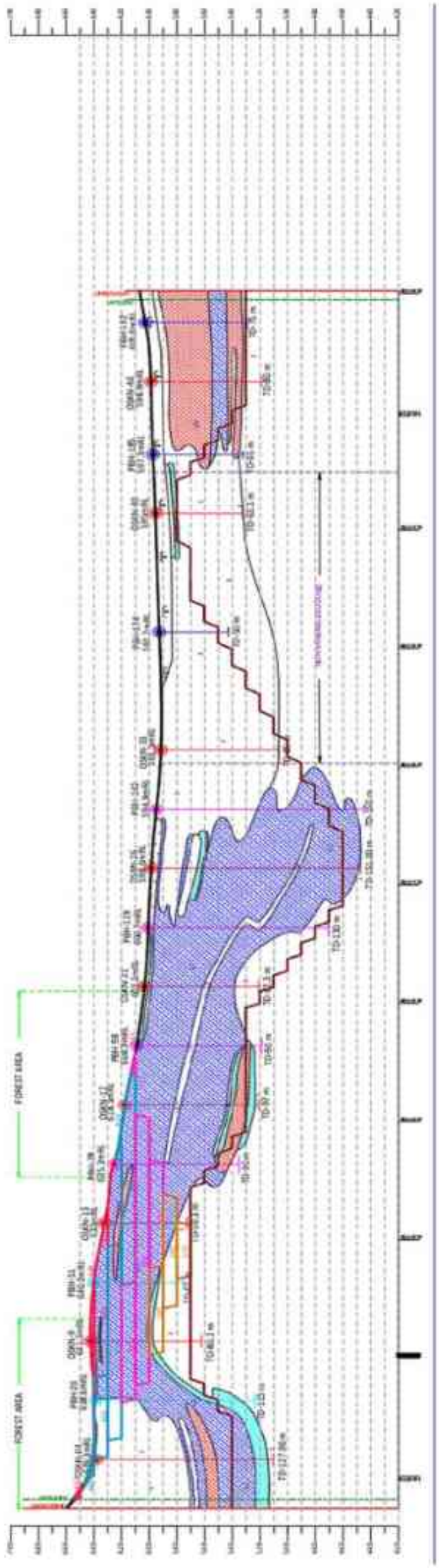


Fig. 9: Section Along W07 of Kalamang West (Northern Part) Iron Ore Mine

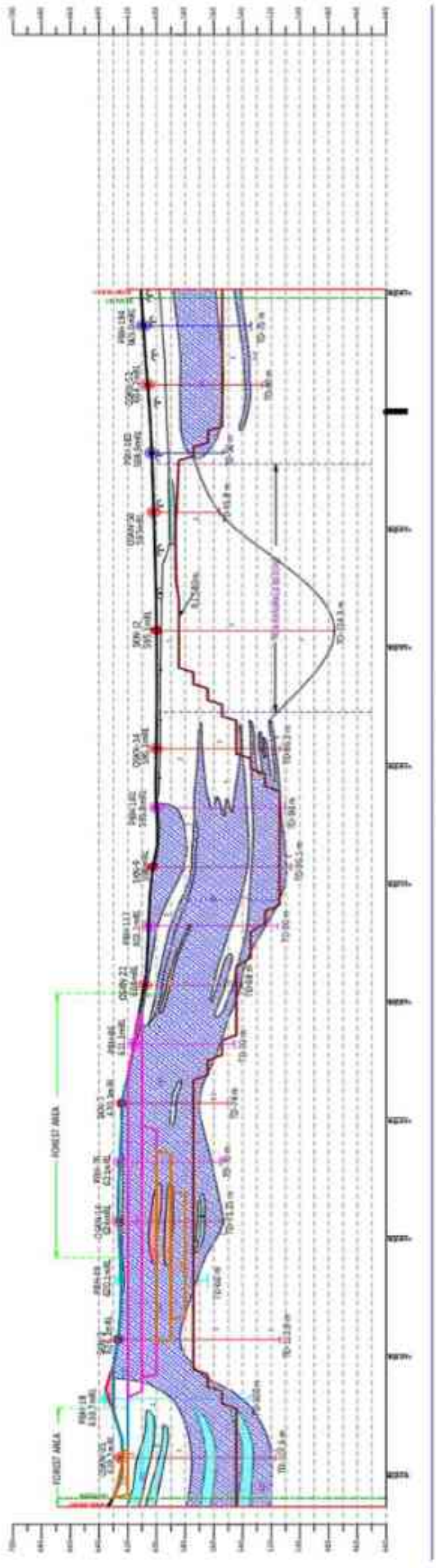


Fig. 10: Section Along W08 of Kalamang West (Northern Part) Iron Ore Mine

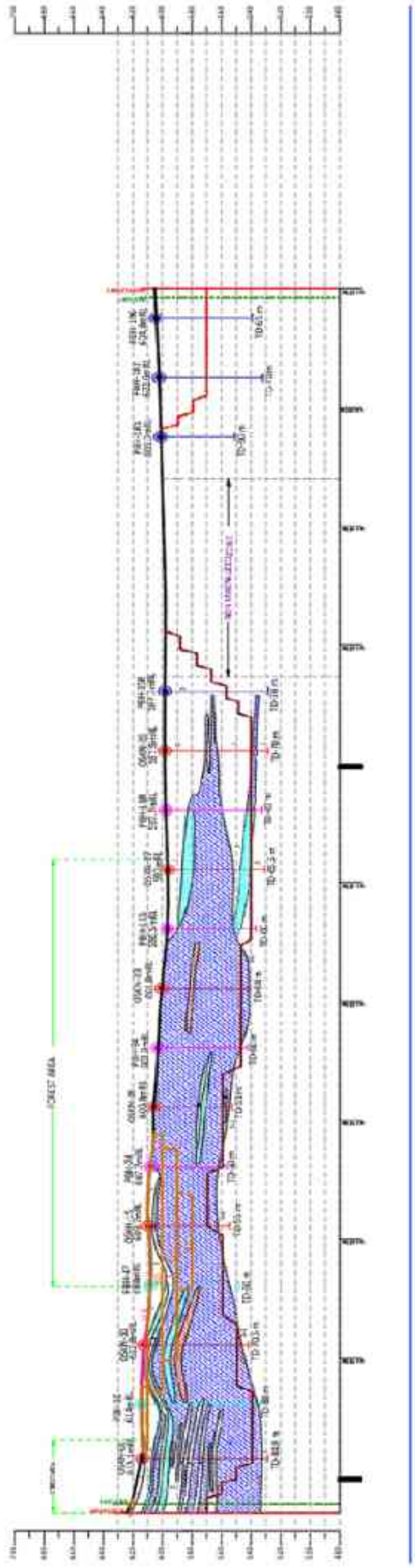


Fig. 11: Section Along W09 of Kalamang West (Northern Part) Iron Ore Mine

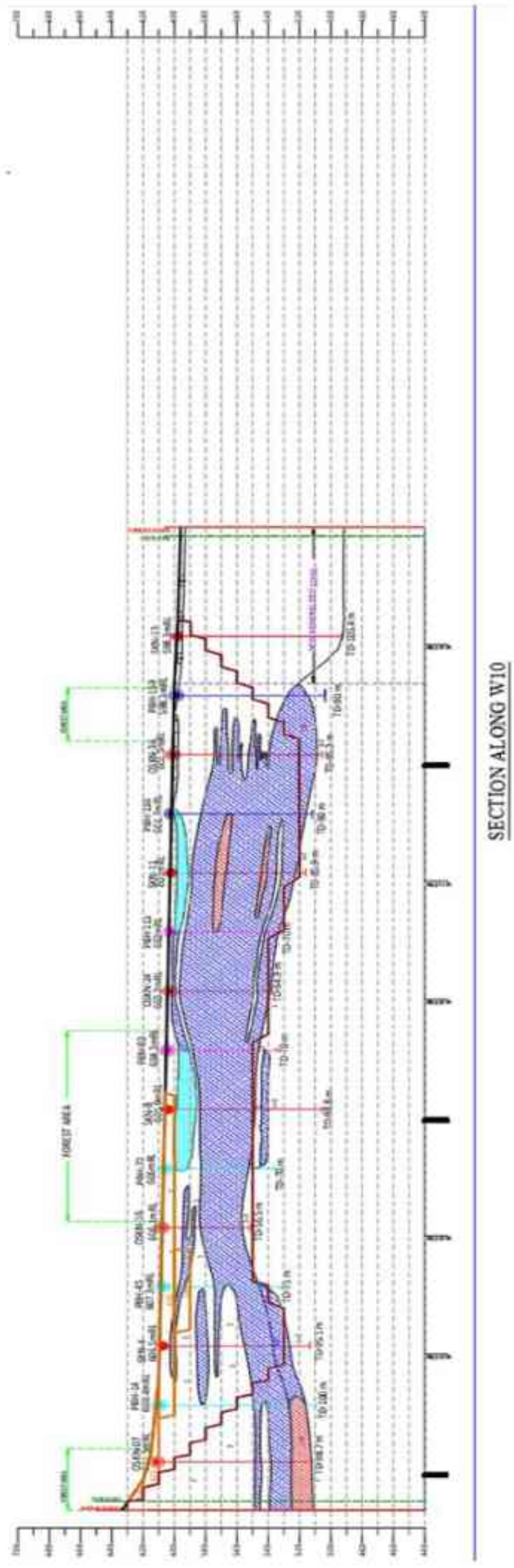


Fig. 12: Section Along W10 of Kalamang West (Northern Part) Iron Ore Mine

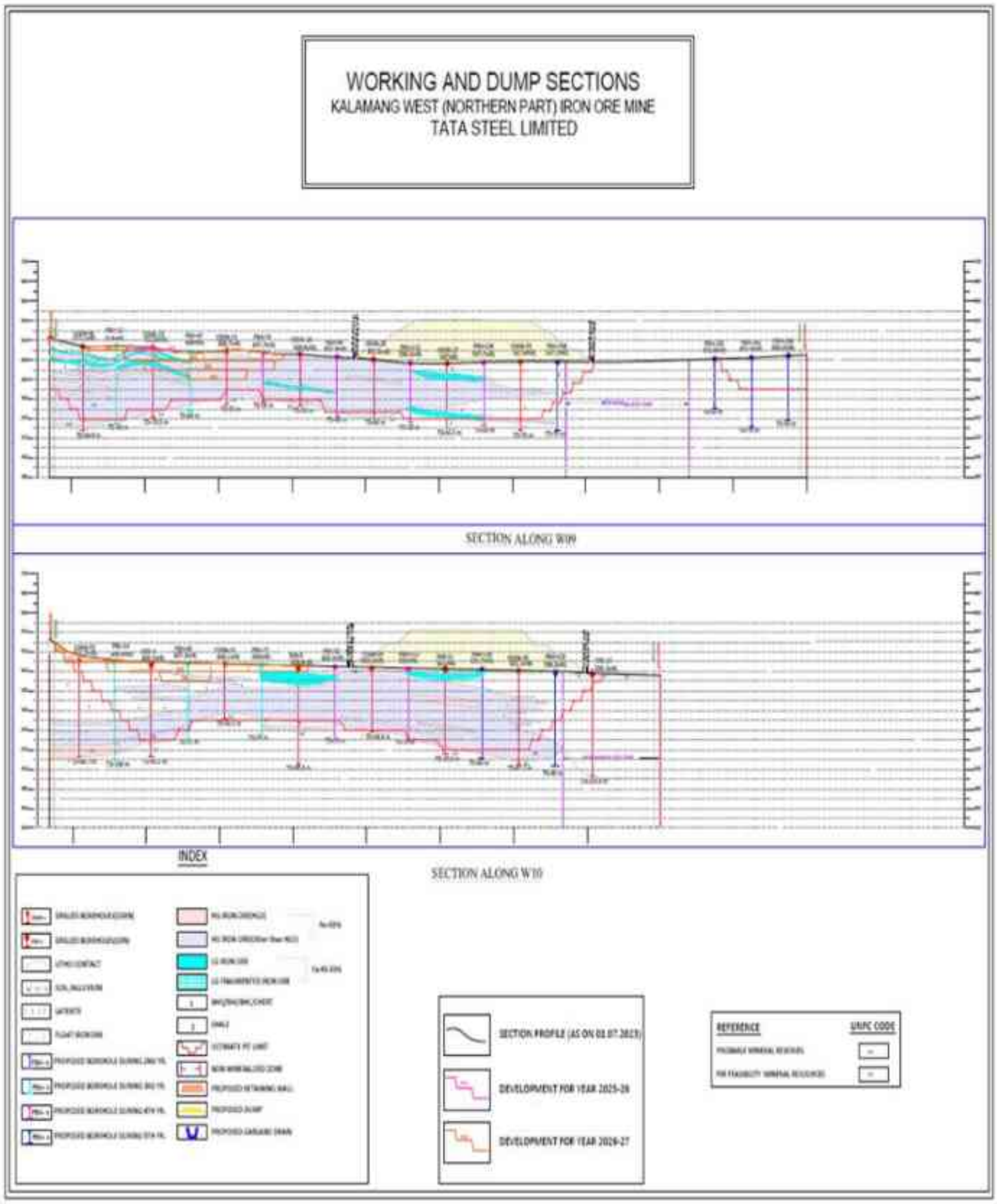


Fig. 13: Section for temporary dumps of Kalamang West (Northern Part) Iron Ore Mine

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 No.	Figure No.	Proposed Pit		
		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 more than the dump's height
W-10	30	45	60	

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.

Table 5: Geo-Mechanical Properties of Materials of Kalamang West (Northern Part) Iron Ore Mine

Sr. No.	*Lithology*	*Cohesion (kPa)*	*Friction angle (degree)*	*Density (kN/m^3)*	Color Code
1.	BHJ/BHQ	265	33	31.3	
2.	Shale	140	29	22.5	
3.	Iron Ore	165	31	28.4	
4.	Shale + Iron	153	30	25.5	
5.	Shale + BHJ/BHQ	205	30	27.0	
6.	BHJ/BHQ + Iron	210	32	29.9	
7.	Dump Mass	53	21	19.6	

SLOPE STABILITY ANALYSIS

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

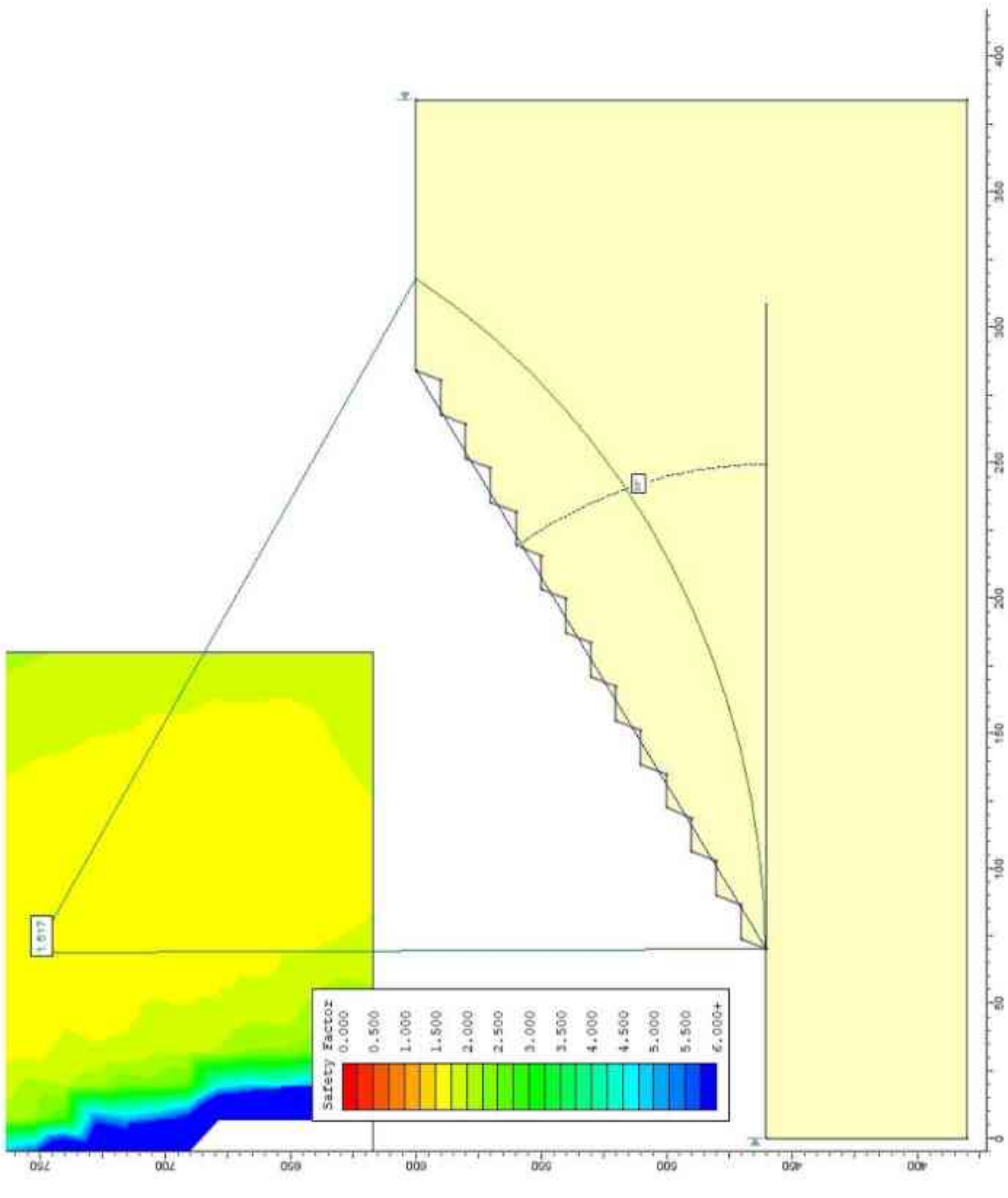


Fig. 14: Ultimate slope design considering shale as the only geological material present for 140 m depth.

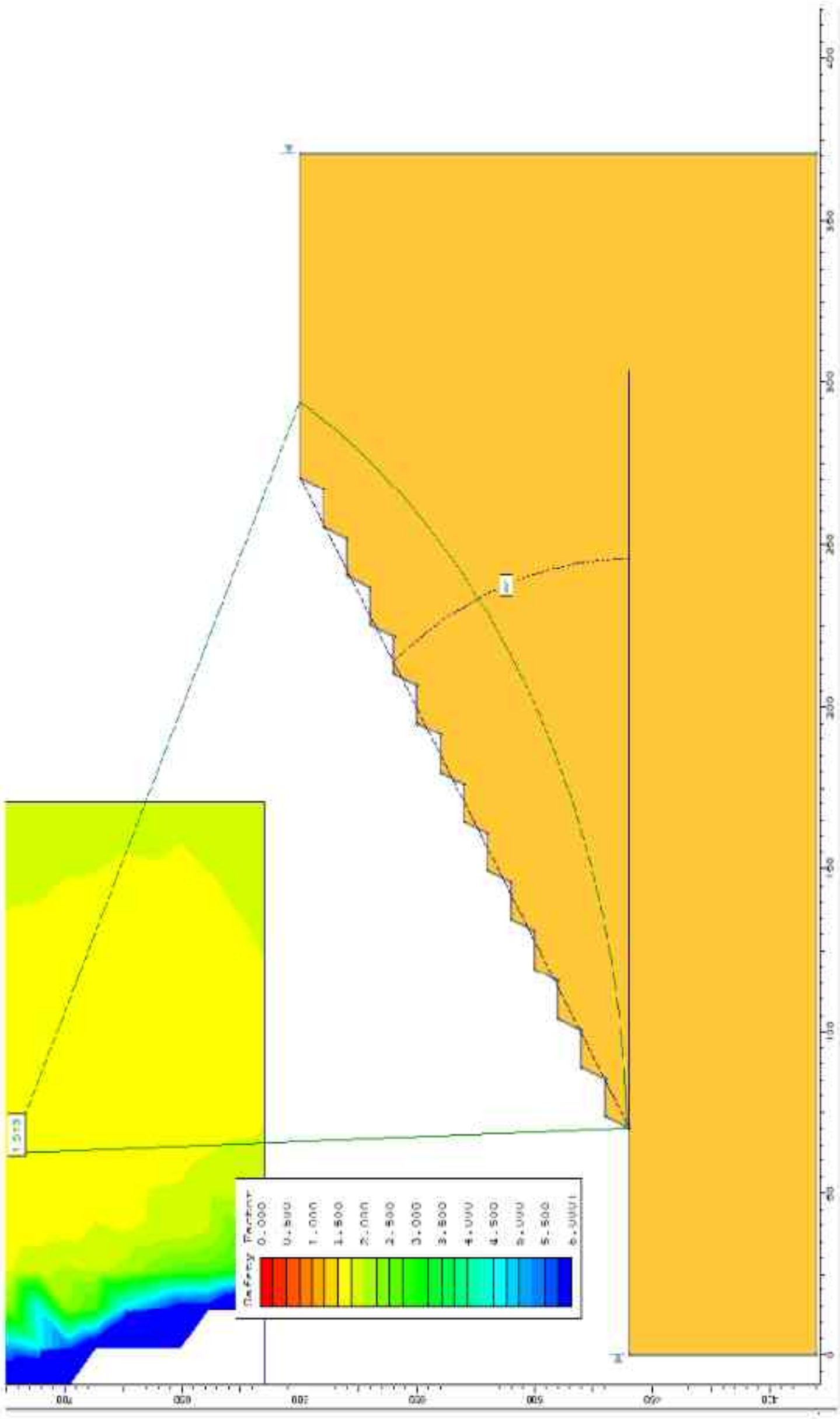


Fig. 15: Ultimate slope design considering iron as the only geological material present for 140 m depth.

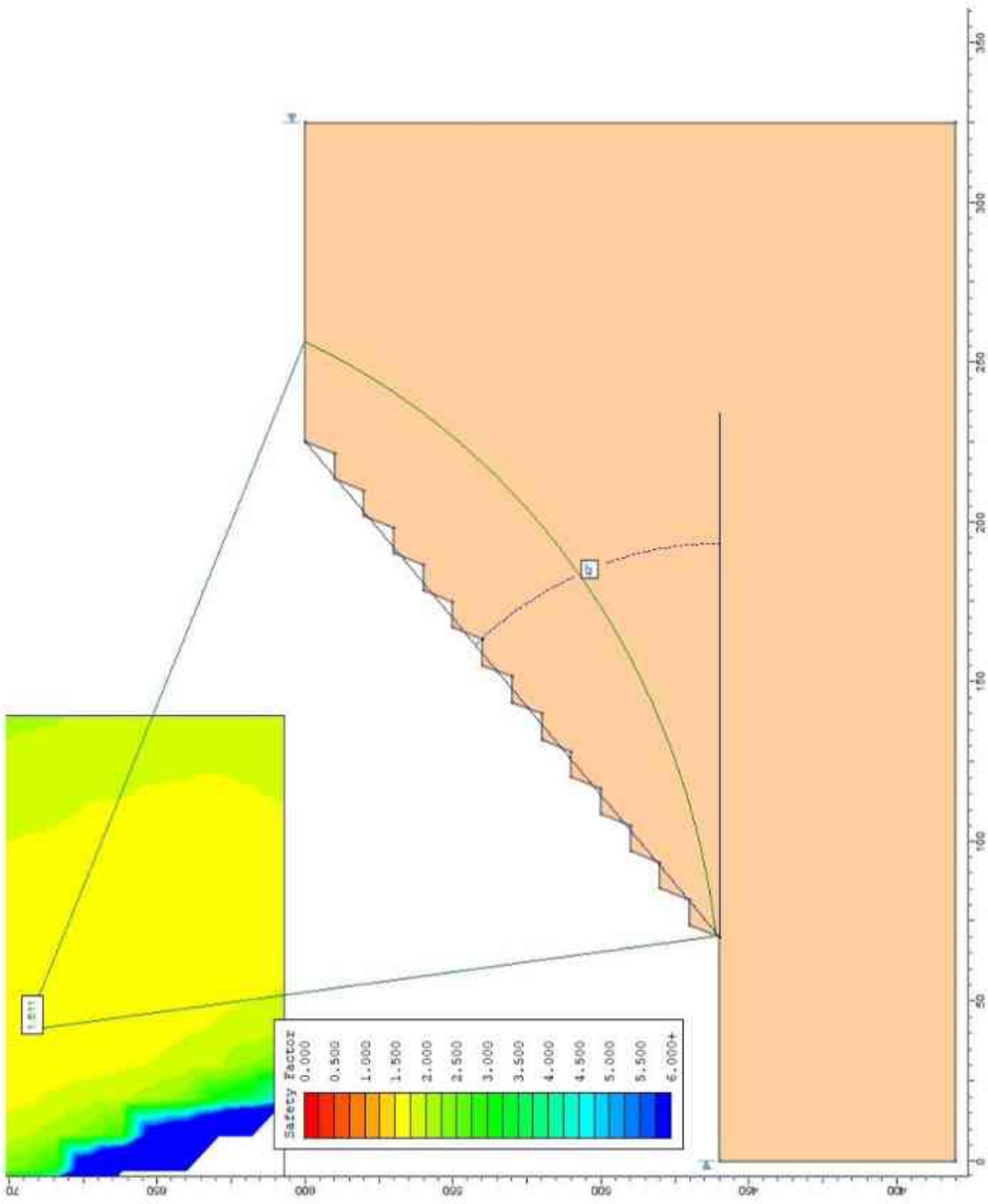


Fig. 16: Ultimate slope design considering BHJ/BHQ as the only geological material present for 140 m depth

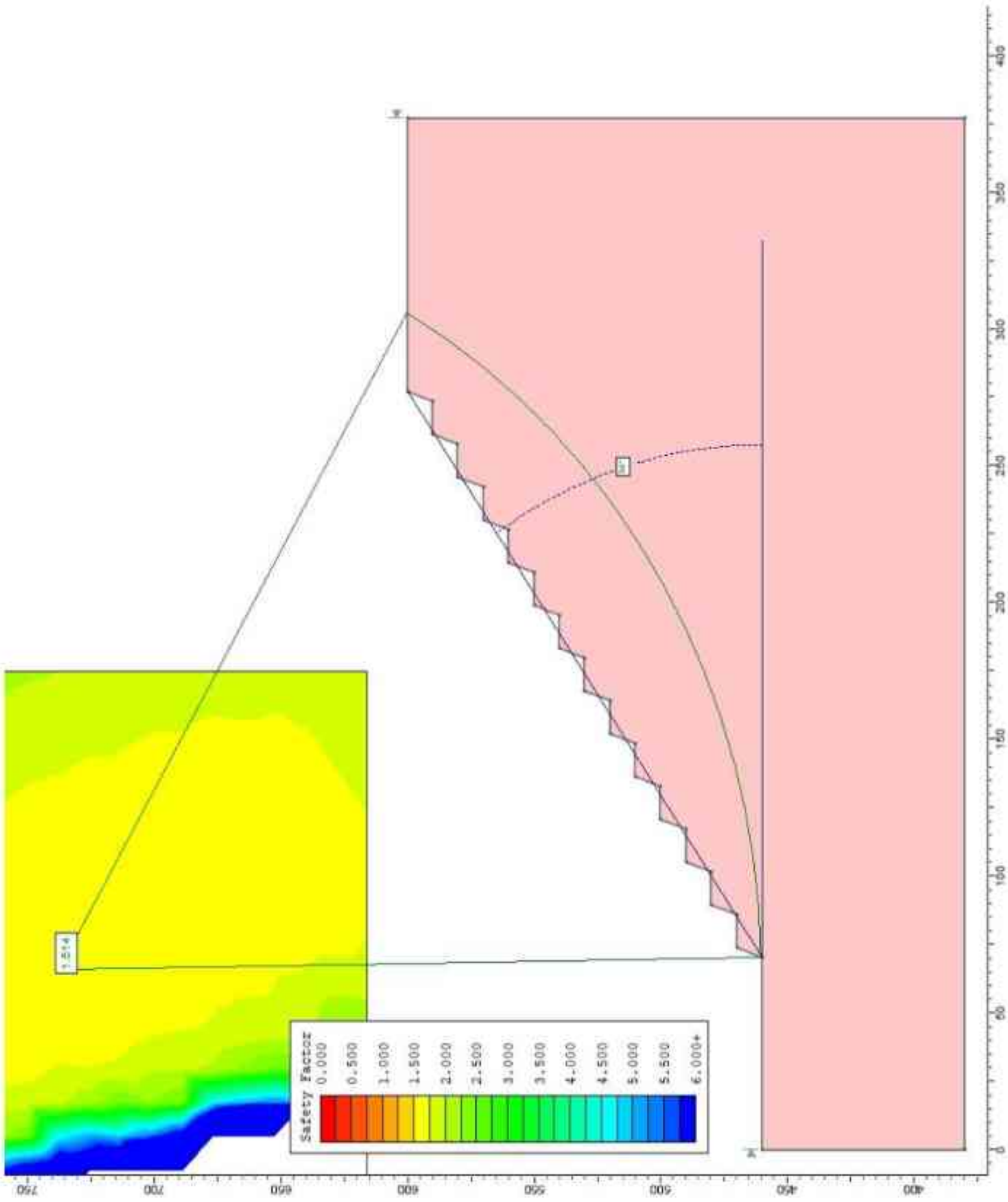


Fig. 17: Ultimate slope design considering combination of shale and iron as the only geological material present for 140 m depth

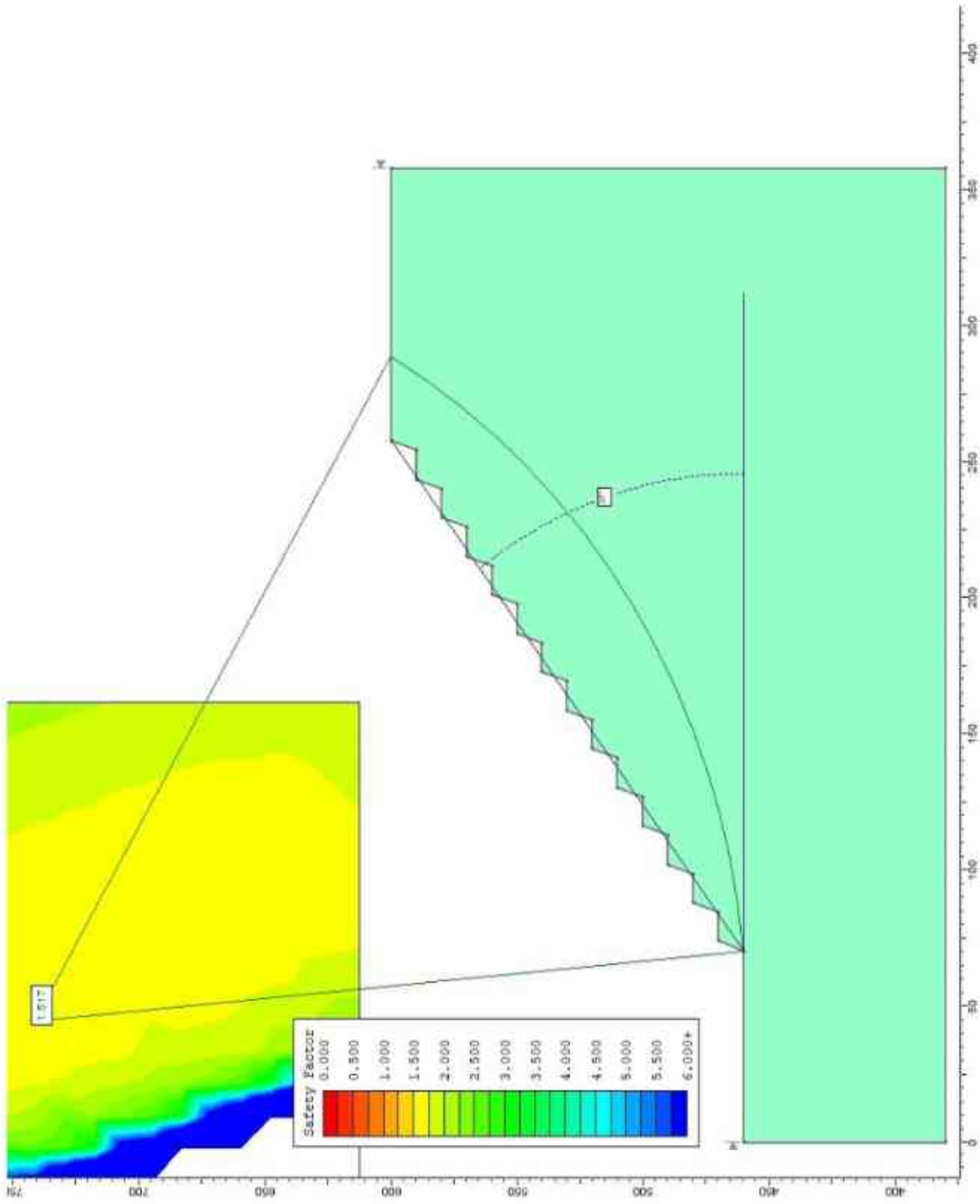


Fig. 18: Ultimate slope design considering combination of shale and BHJ/BHQ as the only geological material present for 140 m depth

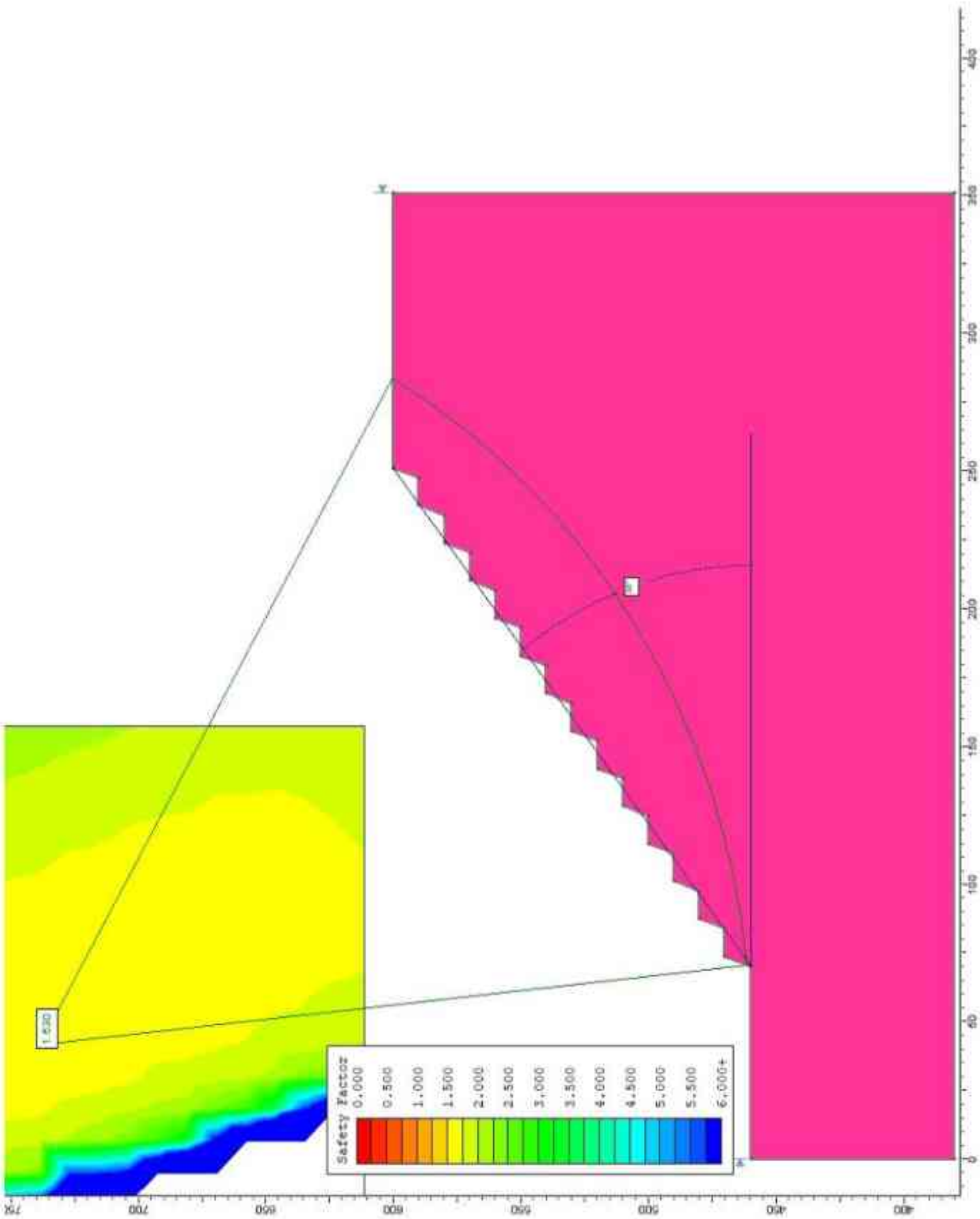


Fig. 19: Ultimate slope design considering combination of BHJ/BHQ and iron as the only geological material present for 140 m depth

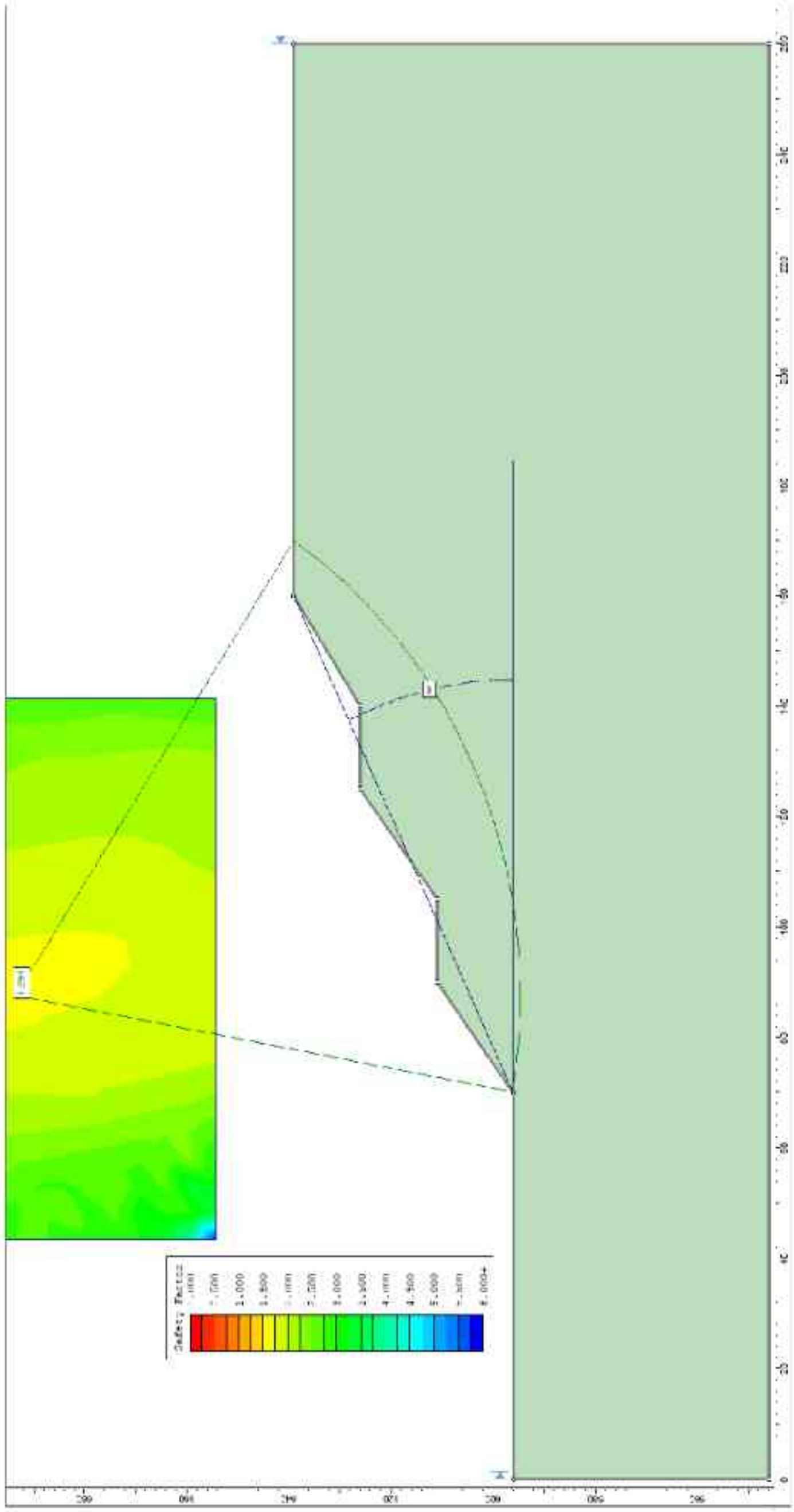


Fig. 20: Ultimate dump slope design of Kalamang West (Northern Part) Iron Ore Mine

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 depth of pit at ultimate stage	Geo-mining conditions	Bench Parameters		
		Maximum bench height (m)	**Minimum exposed** bench width (m)	**Maximum** bench angle (°)
140m	Benches in shale	10	12.5	70
	Benches in Iron	10	11.5	70
	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 height of the temporary dump	**Bench Parameters**		
	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.

Table 9: Damage level of rock mass based on ground vibration (after Bauer & Calder, 1971)

Particle velocity (mm/s)	Predictable damages
<250	No danger in sound rock
250-600	Possible sliding due to tensile breakage
600-2500	Strong tensile and some radial cracking
>2500	Complete break-up of rock masses

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 geo-mining 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.

Maximum depth of pit at ultimate stage	Geo-mining conditions	Bench Parameters		
		Maximum bench height (m)	**Minimum exposed** bench width (m)	Maximum bench angle (°)
140m	Benches in shale	10	12.5	70
	Benches in Iron	10	11.5	70
	Benches in BHJ/BHQ	10	8	70
	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 view-point 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.

Bibliography

Bandis, S.C., 1990. Mechanical properties of rock joints, Proc. Int. Symp. Rock Joints, Norway, eds. N. Barton and Ove Stephansson, A.A. Balkema, Rotterdam, 125- 140.

Barton, N., 1973. Review of a new shear strength criteria for rock joints, Eng. Geol., Vol. 7, pp. 287-330.

Barton, N. and Choubey, V., 1977. The shear strength of rock joints in theory and practice, Rock Mech., Vol. 10, pp. 1-54.

Bieniawski, Z.T., 1989. Engineering rock mass classification, John Wiley and Sons.

DGMS, 2017, Coal Mines Regulation, 2017 DGMS(Tech.)

Circular No. 2 of 2020 dated 09.01.2020 DGMS(Tech.) Circular No. 3 of 2020 dated 16.01.2020.

Hoek, E. and Bray, J.W., 1981. Rock Slope Engineering, 3rd ed., Inst. Min. Met., London. Hoek, E. and Brown, E.T., 1998. Practical estimates of rock mass strength, Intnl. J. Rock Mech. Min. Sci., Vol. 34, No. 8, pp. 1165-1186.

Hoek, E. and Londe, P., 1974. The design of rock slopes and foundations. General report 3rd Cong. ISRM, Denver, pp. 1-40.

ISRM, 1978. Suggested methods for the quantitative description of discontinuities in rock masses. Commission on the standardization of laboratory and field tests in rock mech.

Langefors, U. and Kihlstrom, B. (1963) The modern technique of rock blasting, John Wiley & Sons Inc., New York.

Pit Slope Manual, CANMET, Ottawa, Canada, (Chapter- Monitoring), 1977.

Singh, V.K., Influence of the geotechnical parameters on slope stability, Ph.D. thesis, 1992.

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

No. 11356 / CWLW-FDWC-FD-0170-2021
Dated, Bhubaneswar the 30 Oct, 2023

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.

2. 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

30/10/2023

Conservator of Forests (ET)

P.T.O.

CWLW-FDWC-FD-0170-2021/6/2023

Memo. No. 11357 /dt. 30/10/2023

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

30/10/2023

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)

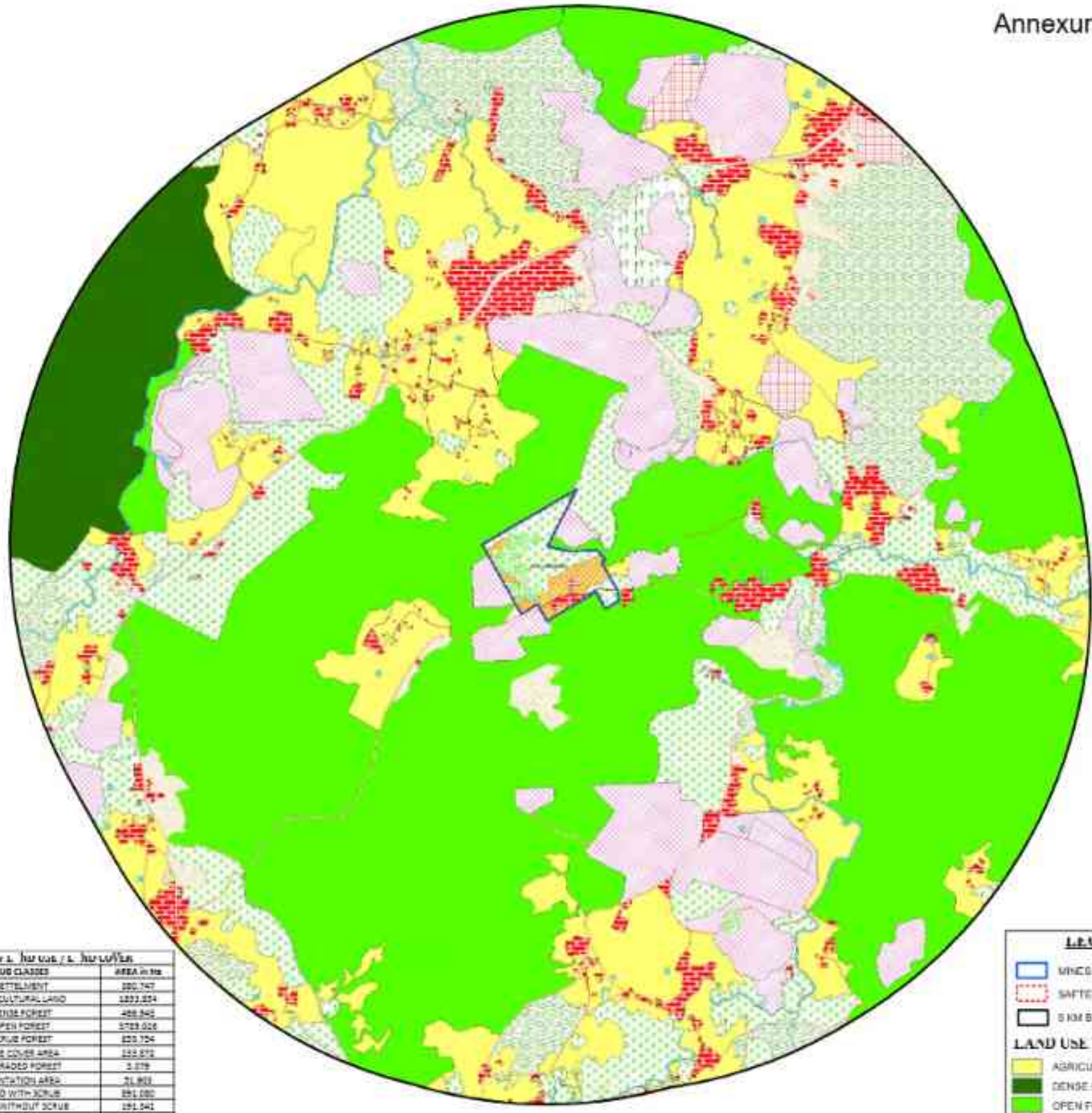
Tata Steel Limited

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 Mumbai 400 001
Tel 91 22 66658282 Fax 91 22 66657724
Corporate Identity Number L27100MH1907PLC000260 Website www.tatasteel.com

MAP SHOWING LAND USE /LAND COVER AREA OF KALAMANG WEST IRON ORE MINE OF M/s. TATA STEEL LIMITED

Annexure-14



MAJOR CLASSES	SUB CLASSES	AREA in Ha
BUILT UP LAND	SETTELMENT	280.747
AGRICULTURAL LAND	AGRICULTURAL LAND	1833.854
FOREST & VEGETATION	DENSE FOREST	466.845
	OPEN FOREST	5788.026
	SCRUB FOREST	829.754
	TREE COVER AREA	849.872
	DEGRADED FOREST	3.079
	PLANTATION AREA	71.803
WASTELAND	LAND WITH SCRUB	891.080
	LAND WITHOUT SCRUB	291.541
MINES & INDUSTRY	QUARRY	0.000
	BACKFILLING AREA	0.000
	STACKYARD	0.000
	DUMP	0.000
	BARREN ROCKY	23.868
	ABANDONED CRUSHER SITE	1.055
	HAUL ROAD	0.714
	DEGRADED FOREST	13.472
	INFRASTRUTRE/INDUSTRIAL AREA ETC	44.884
	7.5 METER SAFETY ZONE ALONG WITH MINES BOUNDARY	9.869
WATERBODY	WATERBODY	82.421
OTHERS	ROAD	112.911
	OTHER MINING	1067.567
	CRUSHER	0.150
	PLANT	76.113
GRAND TOTAL		10030.530

LEGEND

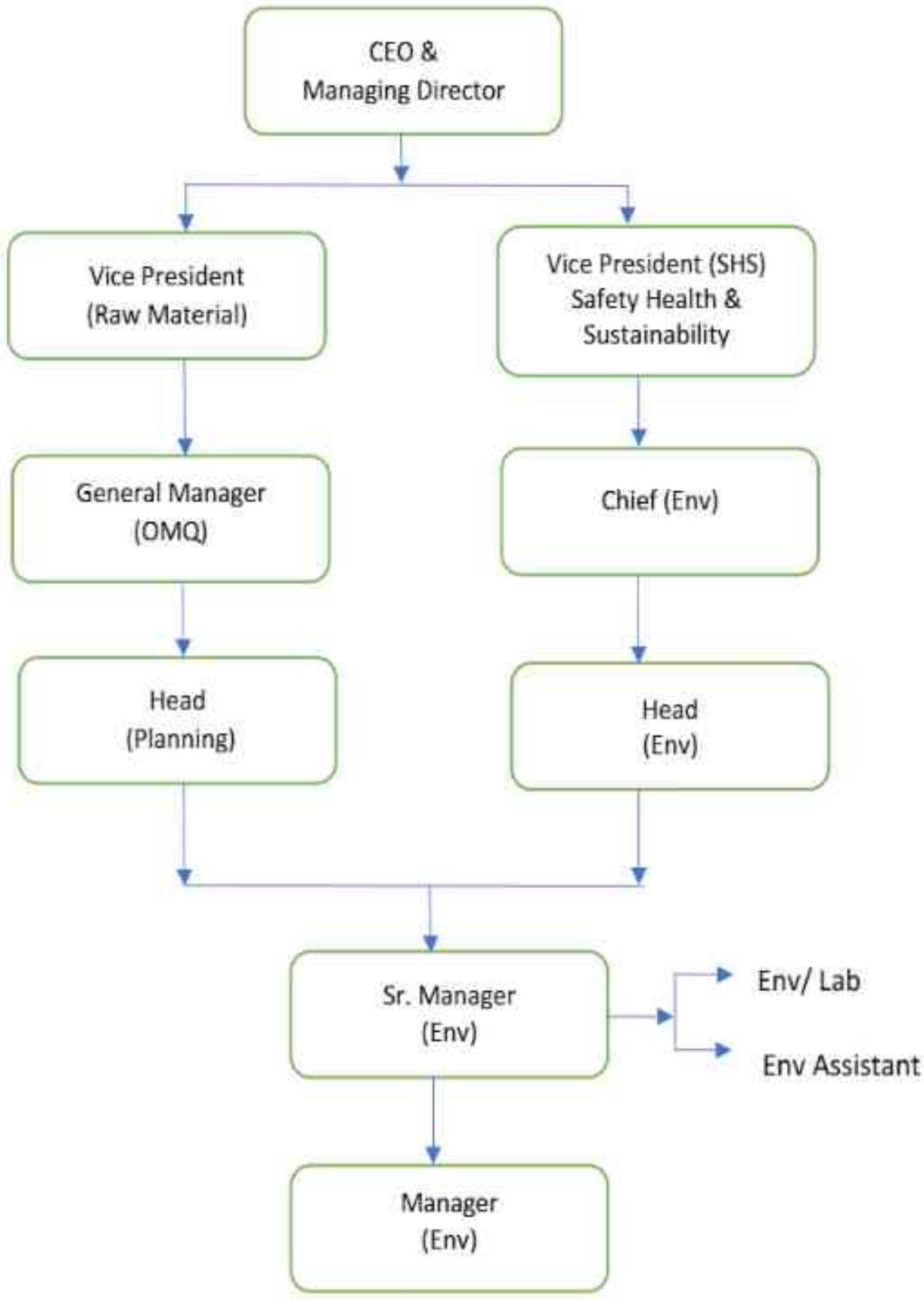
- MINES BOUNDARY
- SAFTEY ZONE (7.5 MTR)
- 5 KM BUFFER BOUNDARY

LAND USE TYPE

- AGRICULTURE LAND
- DENSE FOREST
- OPEN FOREST
- SCRUB FOREST
- TREE COVER AREA
- LAND WITH SCRUB
- LAND WITHOUT SCRUB
- SETTLEMENT
- PLANT
- KALAMANG MINES AREA
- OTHER MINING
- ABANDONED CRUSHER SITE
- HAUL ROAD
- ROAD
- WATER BODY

SOURCE:- CARTOSAT 3 MX 12968 52 9
CARTOSAT 3 MX 12968 51 9
DATE OF PASS:- 2.06.2022

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
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

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 ltd, 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, Dist.: East Singhbhum, Jharkhand-831001
2	Industry Category	:	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:	2023-24 (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 During current financial year (2023-24)
High Speed Diesel	0
Lubricants	0
Grease	0
Explosive of all types (Explosive, codex, detonator)	0
Gas	0
Tyres	0
Drill rods	0
Electricity Consumed	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 start. Thus, no ETP and STP is installed at site at present. However, provision of installation of the same is planned & under progress. Treated water from STP and ETP will be reused for water sprinkling purpose as well as horticulture purpose. Zero effluent discharge shall be maintained. **Water quality report for surface water is attached as Annexure-1**		
b) Air	The Kalamang West (Northern Part) Iron Mine is a proposed opencast iron mine with crushing & screening plant. The air quality in the form of fugitive, dust fall, ambient, respirable has been measured and monitored regularly and is well within limits. Air monitoring is being conducted in core & buffer zone. 3 continuous ambient air quality monitoring stations with PM_{10}, $PM_{2.5}$, SOx, NOx, (NO2 & NO) & CO parameters has been planned to be installed. **The results of air quality monitoring is attached as Annexure-2.**		

PART–D

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 (2023-24)
(a) From Process • 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.

Sources	Total Quantity During previous financial year (2023-24)
a) From Process • From mining as Overburden • Rejects 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	NIL

**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 Kashyap

Manager (Environment), Kalamang

Annexure - I

WATER QUALITY DATA 2023-24
Kalamang West (Northern Part) Iron Ore Mine
(Annual Average)

SURFACE WATER			
Parameters	**Sona river Upstream**	**Sona river Downstream**	**Standard**
pH	8.07	7.95	**6.0–9.0**
DO (mg/l)	6.68	6.3	**>4.0**
TSS (mg/l)	32	28	**-**
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.

Annexure - 2

AIR QUALITY DATA 2023-24
Annual Average Air quality of Kalamang Iron ore Mine of FY'24

Pollutants	Concentration of pollutants ($\mu g/m^3$)	Standards ($\mu g/m^3$)
AAQ-1		
1. PM_{10}	70.08	100
2. $PM_{2.5}$	30.81	60
3. SO_2	13.41	80
4. NO_x	25.86	80
5. CO	0.58	4*
AAQ-2		
1. PM_{10}	62.17	100
2. $PM_{2.5}$	24.94	60
3. SO_2	11.61	80
4. NO_x	23.19	80
5. CO	0.53	4*
AAQ-3		
1. PM_{10}	52.07	100
2. $PM_{2.5}$	19	60
3. SO_2	8.38	80
4. NO_x	19.4	80
5. CO	BDL	4*
AAQ-4		
1. PM_{10}	55.9	100
2. $PM_{2.5}$	22.8	60
3. SO_2	10.3	80
4. NO_x	21	80
5. CO	BDL	4*
AAQ-5		
1. PM_{10}	55.4	100
2. $PM_{2.5}$	22	60
3. SO_2	10.2	80
4. NO_x	19.4	80
5. CO	BDL	4*
AAQ-6		
1. PM_{10}	51.5	100
2. $PM_{2.5}$	18.6	60
3. SO_2	8.85	80
4. NO_x	18.8	80
5. CO	BDL	4*
AAQ-7		
1. PM_{10}	55.5	100
2. $PM_{2.5}$	21.3	60
3. SO_2	10.4	80
4. NO_x	21.25	80
5. CO	BDL	4*

*BDL – Below detective limit