



TSL/SCM/079/FY24
Date: 25-11-2023

To,
Dy. Director General,
Integrated Regional Office,
Ministry of Environment and Forest & Climate Change, Eastern Region Office,
A/3, Chandrasekharpur, Bhubaneswar-751023

Subject: Submission of half-yearly compliance report on the stipulated environmental clearance terms and conditions in respect of Sukinda Chromite Block of M/s Tata Steel Limited, for the period from April'2023 to September'2023.

Reference:

- 1) MoEF Letter Ref No: J-11015/96/2011-IA. II (M), dated 06.09.2013
- 2) MoEF&CC's notification vide S.O-5845, dt. 28th Nov 2018

Respected Sir,

We are herewith submitting the six-monthly compliance report on the status of the implementation of the conditions stipulated in environmental clearance vested in favor of Sukinda Chromite Block of M/s Tata Steel Limited vide MoEF Letter Ref No: J-11015/96/2011-IA. II (M), dated 06.09.2013, for the period from April'2023 to September'2023 for your kind perusal.

This is in reference to the MoEF&CC's notification vide S.O-5845, dt. 28th Nov 2018, the six-monthly compliance report is being submitted only in soft copy mode, shared with your good office over e-mail @ roez.bsr-mef@nic.in and is being uploaded in Parivesh portal. As per the Vesting order No. 5555 /SM/IV(B)SM-32/2020 dated 29th June'2020 issued by the Office of Nodal Officer, Steel & Mines Department of Government of Odisha, above environmental clearance has been vested to Tata Steel Mining Limited (Merged with Tata Steel Limited from 1st September 2023) for 50years (As per MMDR Act, 2021).

We believe the above submission is in order.

Thanking You.

Yours faithfully,
f: Tata Steel Limited

Manager
Sukinda Chromite Block

Copy to: 1. Member Secretary, State Pollution Control Board, Odisha, Paribesh Bhawan, A/118, Nilakantha Nagar, Bhubaneswar, 751012.

TATA STEEL LIMITED

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Corporate Identity Number L27100MH1907PLC000260



Half-Yearly Compliance Report

On

Environmental Clearance Conditions

MoEF Letter Ref No: J-11015/96/2011-IA. II (M), dated 06.09.2013

Period: April'23 – September'23

Submitted By:

Sukinda Chromite Block

M/s. Tata Steel Limited

At/Po: Kalarangiatta, Block-Sukinda

District- Jajpur, Odisha -755028

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A. INTRODUCTION: Lease of Sukinda Chromite Block of M/s Tata Steel Mining Limited was executed over leased area of 406.0Ha in the Sukinda Block of Jajpur District in the State of Odisha, which was previously owned by M/s. Tata Steel Limited from 1952 to 2020. As per the Vesting order No. 5555/SM IV(B)SM-32/2020 Dated 29.06.2020 and amended vesting order No. 2357/SM, SM-MC1-MISC-0025-2020 Dated 15.03.2022 issued by the Office of Nodal Officer, Steel & Mines Department of Government of Odisha, Tata Steel Mining Limited (formerly known as T S Alloys Limited) has been vested with following Statutory Clearances/permissions/ NOCs for 50years (As per MMDR Act, 2021) (**Annexure - I**). Further, Subsequent to the Scheme of Amalgamation of Tata Steel Mining Limited ('TSML' CIN No. U27109OR2004PLC009683) into and with Tata Steel Limited (CIN-L27100MH1907PLC000260) ('Scheme of Amalgamation'), and its approval and sanction by the Hon'ble National Company Law Tribunal, Cuttack Bench vide Order ('NCLT Order'), in terms of Clause 8.1 read with Clause 9.1(h) of Part I of the Scheme of Amalgamation, the captioned Scheme of Amalgamation of Tata Steel Mining Limited ('TSML') into and with Tata Steel Limited has become operative and effective from September 1, 2023 ('Effective Date'). With the above merger the legal entity of Tata Steel Mining limited has now ceased, and all its respective business and operation has become part of Tata Steel Ltd. The schematic representation of the site is depicted in the fig.1 and its layout in fig.2 below.

Fig.1: Location of Sukinda Chromite Block (Tata Steel Limited)

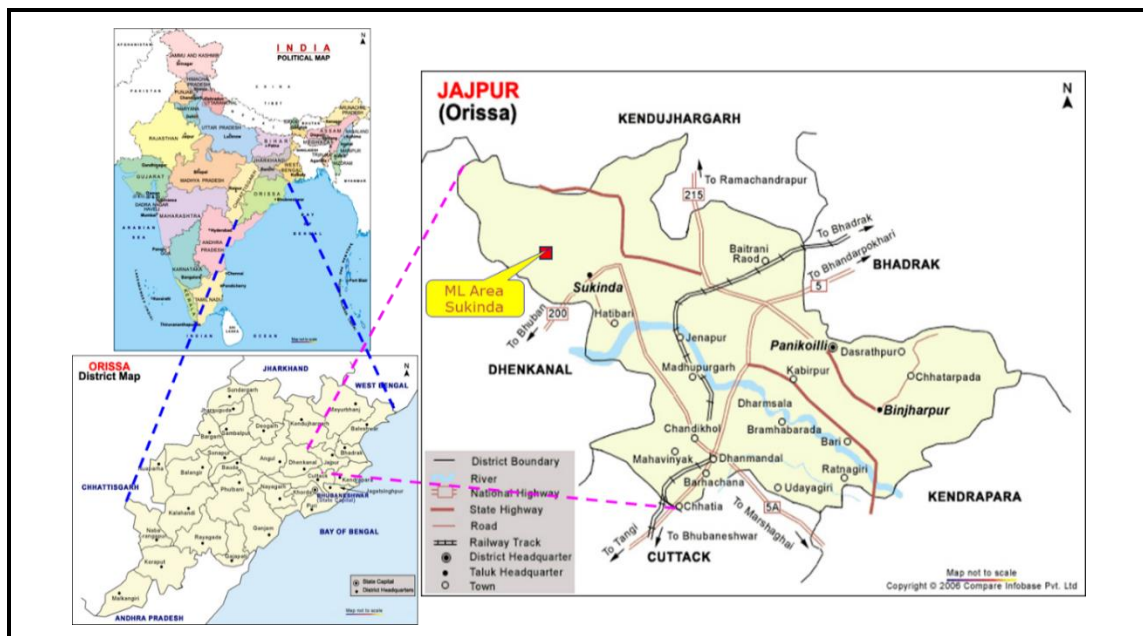
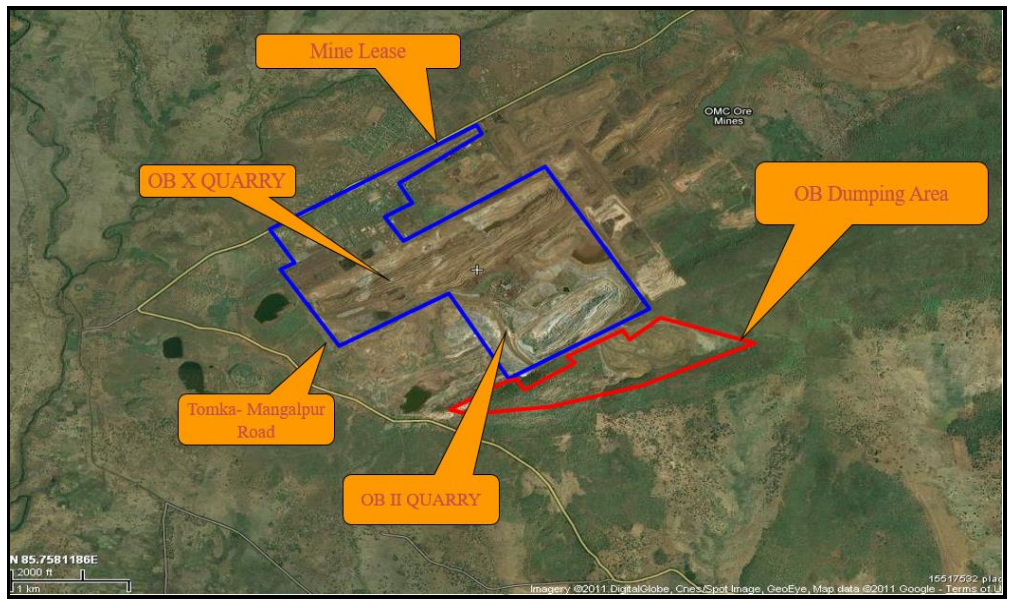


Fig.2 Mine Lay out (Aerial View of Sukinda Chromite Block)



B. Compliance to the Environment Clearance Letter No: J-11015/96/2011-IA. II (M), dated 06.09.2013 in respect of Sukinda Chromite Mine for Mining Lease renewal, increase in production for Chrome Ore (ROM): 2.40 MTPA, Pyroxenite Ore (ROM): 0.50 MTPA, Chrome Concentrate: 0.65 MTPA, change in mining technology to opencast & underground mining, change in beneficiation technology and increase in project area.

A. Specific Condition:

Sl. No	Specific Condition	Compliance Status (April'23 to September'23)
I	No mining activities will be allowed in forest area for which the Forest Clearance is not available.	<p>Compliance: The lease of 406.00ha comprised 404.669ha of forest land (73.697 ha as per HAL + 330.972 ha as per SABIK) and 1.331ha of non-forest land. The details of Forest Clearance granted by MoEF&CC are;</p> <p>a) Letter no. 8-78/96-FC dated 27.01.1998 over 73.797 ha. &</p> <p>b) Letter No. 8-15/2016-FC dated 18.05.2018 over 330.972 ha.</p> <p>Mining and allied activities were carried within the lease hold area of 406.0ha within which the entire forest land had been diverted as per FC Act,1980.</p> <p>[Copies of forest clearances enclosed as Annexure-I]</p>
II	The project proponent will seek and obtain approval under the FC Act, 1980 for diversion of the entire forest land located within the mining lease within a period of two years from 01.02.2013 i.e. the date of issue of guidelines by FC vide their letter-F. No. 11-362/ 2012-FC, failing which the mining lease area will be reduced to the non-forest area plus the forest area for which the project proponent had been able to obtain the FC at the end of this time period. In the case of reduction in mine lease area, the project proponent will need to get a revised mining plan approved from the competent authority for reduced area and enter into a new mining lease as per reduced lease area. The EC will be construed to be available for the mining lease area as per the revised mining lease deed.	<p>Compliance: Renewal Forest Diversion Proposal for entire forest land of 73.697 ha within the Mining Lease area was applied in time. The FDP has been duly recommended by the F&E department, Govt. of Odisha to the Ministry of Environment & Forests, Govt. of India for onward consideration for grant of Forest Clearance. MoEF, Govt. of India has granted Stage-I Forest Clearance with one year working permission vide its letter no. 8-78/1996-FC (pt-I), dated 03.11.2014. Copy of the letter enclosed as Annexure-I.</p> <p>Subsequent to endorsement of the MMDR Amendment Act, 2015, the Govt. of Odisha extended the mining lease from 12.01.2013 to 31.03.2020 for which the supplementary lease deed was executed on 24.08.2015 and registered on 26.08.2015. In accordance to the MoEF & CC Circular No. F.No.11-51/2015-FC, dated.01.04.2015, the forest clearance dated 27.01.1998 got extended till 31.03.2020.</p> <p>Further, in accordance to the MoEF & CC Circular dated F.No.8-78/1996-FC, dated.10.03.2015, the forest area as on 25.10.1980 (i.e Sabik Settlement) 404.669 ha. within the mining lease of 406 ha is now termed as forest land. Hence, fresh forest diversion proposal over an area of 330.972 ha (404.669 ha – already diverted area of 73.697 ha) has been applied on 02.11.2015 and with reference to the Agenda No.1 (F.No.8-15/2016-FC) of the Minutes of meeting of Forest Advisory Committee held on 25th April 2017 (published in the web site), and has accorded Stage-I clearance vide letter F.No 8-15/2016-FC , dated 04.07.2017 over 330.972 ha of forest land as on 25.10.1980 and stage -II in 2018. Copy of the letter enclosed as Annexure-I.</p> <p>Thus, forest clearance was obtained in due time as per the rule then applicable. However, due to major change in land categorization of HAL & SABIK settlement by state government</p>

Sl. No	Specific Condition	Compliance Status (April'23 to September'23)
		the identified SABIK forest land was diverted in 2018 as per the guidelines. [Please refer Annexure-I]
III	Till all the clearance are obtained for the proposed tailing pond/dam the project would only use existing tailing dam.	Compliance: No chrome ore beneficiation plant is operated in present days. Thus, there is no tailing pond/dam.
IV	Environmental clearance is subject to obtaining clearance under the Wildlife (Protection) Act, 1972 from the Standing Committee of National Board for Wildlife, as may be applicable to this project.	Compliance: The project area neither fall partly/wholly within any protected areas viz. wildlife sanctuary, national park, biosphere reserves or other eco sensitive zones nor within 10 Kms from the boundaries of such protected areas, thus clearance under the Wildlife (Protection) Act, 1972 from the Standing Committee of National Board for Wildlife is not applicable.
V	The project proponent shall obtain Consent to Establish and Consent to Operate from the State Pollution Control Board, Odisha and effectively implement all the conditions stipulated therein.	Compliance: The Consent to Establish had already been obtained from Odisha State Pollution Control Board vide letter no. 17750/IND-II-NOC-5664 dated 30.09.2013 and same has been vested for two years. Consent to Operate vide letter no. 14781/IND-I-CON-226 dated 01.10.2016 has been vested for two years. However, as per SPCB, Odisha office Memorandum No. 6181/ IND-I-Con (M)1603, Dated 16.07.2020, it has been stated that the new lessee shall apply for CTO a fresh from Board through the SPCB web portal (www.odocmms.nic.in), for a period not exceeding five years, with the applicable fees as notified in Gazette notification no. 1503 & 1504 dated 30.07.2012, published by Govt. of Odisha. Thus, we have obtained the new CTO as consent order No. 2950 issued vide letter No. 4175/IND-I-CON-226, dt. 20/03/2023, valid till 31.03.2024 in the name of TSML [Please refer to Annexure-II]
VI	Environmental Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No. 460 of 2004, as may be applicable to this project.	Compliance: Final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No. 460 of 2004, is awaited. The petition status from the website of Supreme court of India read as " Pending for Motion hearing "; however, this didn't affect the legal status of environmental clearance since the project area/ lease area neither falls partly/wholly within any protected areas (wildlife sanctuaries, national parks, biosphere reserves or any other sensitive zones) nor within 10kms from the boundaries of such protected areas concerning which the original petition was filed. We have not yet received any instructions from the Ministry of Environment, Forest & Climate Change in this regard. The previous Environmental Clearance is vested for 50 years.
VII	As part of ambient air quality monitoring during operational phase of the project, the air samples shall also be analysed for their mineralogical composition as may be so prescribed or notified by this Ministry and records maintained.	Compliance: The ambient air quality is monitored twice a week at six locations within the Core Zone. The air samples are also analysed for their mineralogical composition on quarterly basis. All the stipulated parameters are being analyses and reported in Annexure-III- Extracts on Environmental Monitoring. [Please refer to Annexure-III]
VIII	The ores and minerals shall be covered by tarpaulin or by such other means when transported out of the mine by road. The vehicles shall not be overloaded.	Compliance: Mineral and ores, transported out of the mine lease boundary to the various destinations are completely covered by tarpaulin and secured in position by plastic straps. Photographs are enclosed as Annexure-IV-Environmental Management Practices. [Please refer to Annexure-IV]

Sl. No	Specific Condition	Compliance Status (April'23 to September'23)															
IX	Effective safeguard measures such as conditioning of ore with water, regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant, loading and unloading point and transfer points. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	<p>Compliance: To limit the fugitive emissions, following safeguard measures had been implemented:</p> <ol style="list-style-type: none"> 1. Water sprinkling on haul road, transfer points, Ore stack yard, etc was ensured on regular basis. 2. Deployment of seven (7) water sprinklers (Four of 20 KL, two of 28KL and one of 15 KL) within mine area for haul road dust suppression and at mineral storage yards. 3. Stationary water sprinklers are installed and in operation on the main/permanent haul roads with permanent concrete bunds and maintenance areas and stack yard. 4. One automatic sprinkler was also installed at the truck parking area. 5. Two Number of mist canon are provided at the ore stackyard area to reduce the ore dust emission. <p>The details of concrete road including provision of fixed water sprinkler are as follows:</p> <p style="text-align: center;">Table I: Movable and Fixed Water Sprinkler Details</p> <table border="1" data-bbox="762 752 1481 1003"> <thead> <tr> <th>Particulars</th> <th>Location</th> <th>Length(m)</th> <th>Width(m)</th> </tr> </thead> <tbody> <tr> <td>Stationary Water sprinkling</td> <td>Mine Haulage Road</td> <td>5000</td> <td>15</td> </tr> <tr> <td rowspan="2">Fixed water sprinkling system</td> <td>Concrete mining road (old & New)</td> <td>800 & 1050</td> <td>-</td> </tr> <tr> <td>Workshop</td> <td>100</td> <td>-</td> </tr> </tbody> </table> <p>Ambient air quality is being monitored at six locations within the core zone/lease area as per NAAQS-2009 guidelines.</p> <p style="text-align: right;">[Please refer to Annexure-III & IV]</p>	Particulars	Location	Length(m)	Width(m)	Stationary Water sprinkling	Mine Haulage Road	5000	15	Fixed water sprinkling system	Concrete mining road (old & New)	800 & 1050	-	Workshop	100	-
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Stationary Water sprinkling	Mine Haulage Road	5000	15														
Fixed water sprinkling system	Concrete mining road (old & New)	800 & 1050	-														
	Workshop	100	-														
X	The project authority shall implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	<p>Compliance: Rainwater harvesting measures in the form of series of harvesting ponds were constructed in coordination with the Tata steel foundation, wing of Tata Steel at peripheral villages.</p> <p>Presently, a fully functional roof top rainwater harvesting project (water harvesting potential of 1220m³) at the administrative office inaugurated in Oct 2014 is in working condition.</p> <p>The application for CGWA NOC has been submitted to CGWA with detailed hydrogeology study and proposal for rainwater harvesting. The final approval is awaited. However, we now have a fully functional roof top rainwater harvesting project operating at the administrative office inaugurated in Oct 2014. Further, feasibility study was conducted through KRG Foundation to explore the possibility of water harvesting in the nearby villages located in the mine periphery. As per the recommendations we have constructed 14 nos of rainwater harvesting ponds (30x30x3 mtr) and check dams for water recharge. Approximately 3500KL/ year of water is being recharges from the community ponds. Same will be discussed and certified during inspection of CGWB team for NOC approval.</p> <p style="text-align: right;">[Please refer to Annexure-IV]</p>															
XI	Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and installing new piezometers during the mining operation. The periodic monitoring [(at least four times in a year pre-monsoon (April-	<p>Compliance: Ground water is being monitored on monthly basis by a network of piezometers constructed along the mine periphery.</p> <p>Apart from this, regular monitoring of ground water around nearby villages is also conducted on quarterly basis at approx. ten (10) locations through a network of open wells/ dug wells.</p>															

Sl. No	Specific Condition	Compliance Status (April'23 to September'23)
	May), monsoon (August), post-monsoon (November) and winter (January); once in each season]] shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office Bhubaneswar, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out.	<p>As per the NOC obtained from CGWA three piezometers were fitted with Digital Water Level Recorder and telemetry system the credentials have been submitted to the CGWB and CGWA for remote surveillance.</p> <p>Ground water monitoring is being carried in both core and buffer zones and reports are attached.</p> <p>Presently there are 5 nos. of piezometers installed in the periphery of the quarry and data on ground water level is being submitted to Ministry in six monthly basis. As presented above, we shall take consult with CGWB/CGWA during the inspection for fresh NOC. The trend analysis of the ground water level is now given in Annexure – III. It was observed that during dry season water level was decreased about 5mtr and adjusted during rainy season.</p> <p style="text-align: right;">[Please refer to Annexure-III]</p>
XII	The maximum height of the overburden dumps from its toe to the top of the dump on sloping ground shall not be more than 110 m. The dump slope shall be suitably terraced by leaving berms of adequate width in between lifts such that the overall slope angle (i.e. angle between the line joining the crest to the toe of the dump and across all such lifts with the horizontal) does not exceed 28 degrees.	<p>Compliance: As per approved mining plan, we are now backfilling the OB-II quarry and it will attain a height of 215 mRL. At present as per the approved mine plan only back filling is being carried out. The internal OB II back fill dump which was shown during the visit has achieved a height of 70 meter which is proposed to be carried out up to a height of 85m in the plan period. Further, over all slope angle of OB II back fill dump is Approx. 12 degree which is under the prescribed limit of 28 degree.</p>
XIII	The individual slopes and berms of each lift or bench of the overburden dump when completed shall be provided with adequate drainage arrangements or shall be suitably stabilized by such other means to prevent erosion due to surface run-offs.	<p>Compliance: Adequate stabilization measures will be implemented for the dump slopes maintained with proper drainage network are outlined as follows:</p> <ol style="list-style-type: none"> 1. Each tier of dump is provided with garland drains connected via concrete patch path for flow along the benches without creating gullies. 2. Practices like coir matting and vetiver plantation on the slopes to prevent wash off and rain cuts on the surface. 3. Garland drains and settling pit will be constructed as per approved mining plan 4. Toe walls supporting the garland drains will be constructed all along the dump periphery. 5. De-siltation activities for the drainage network will ensured before the onset of monsoon and during post monsoon season every year. <p>As per the gradient and water flow direction, proper drainage arrangement has been provided around the dump to collect surface & dump run-off to a sedimentation pit back side of the COB plant. Photograph of the drain around the dump is given as Annexure – IV.</p> <p style="text-align: right;">[Please refer Annexure-IV]</p>
XIV	Adequate precautionary measures shall be taken for strengthening the dump foundation. Particularly while dumping over soft ground, the toe region all along the extremities of such dumps shall be suitably buttressed with hard rocky boulders after excavating the topsoil and soft ground. Dumping operations shall commence only after such preparatory work for the dump foundation is completed in order to	<p>Compliance: Dumping is being carried out only after ensuring the preparatory works for the dump foundation and with careful consideration of the stability aspects.</p>

Sl. No	Specific Condition	Compliance Status (April'23 to September'23)
	prevent its failure, which may trigger a slide of the entire dump.	
XV	All external over burden dumps at the end of the mine life shall be reclaimed and rehabilitated by afforestation. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on six monthly basis.	Compliance: Rehabilitation of OB dumps will be carried out in accordance with the provisions of the approved mine plan and final mine closure plan.
XVI	Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, soil, mineral and OB dump(s) to prevent run off of water and flow of sediments directly into the Damsala Nallah and other water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly. Garland drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed both around the mine pit and over burden dump(s) to prevent run off of water and flow of sediments directly into the Damsala Nallah and other water bodies and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 20 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits shall be constructed at the corners of the garland drains and desilted at regular intervals.	<p>Compliance: Garland drain and settling pits of appropriate dimensions will be constructed to arrest the silts and sediments during the wash out/runoff from the mine workings/dumps. The adequacy of the surface runoff management is to be assessed and validated while considering the rainfall data of the region.</p> <p>Entire surface runoff from the mine is guided up to the Effluent Treatment Plant of capacity 4500Kl/hr from where the treated effluent is reused/recycled back for greenbelt development & maintenance, dust suppression, drinking and other domestic utilities.</p> <p>Discharge of effluent beyond the mine lease is allowed only after adequate treatment preventing the silt/sediment surging into the adjoining areas/Dumsala Nallah.</p> <p>As per approved mining plan, we are now backfilling the OB-II quarry as proposed. About 6362 mtr of garland drains has been made around the waste dump area. During 2022-23 another 410 mts of garland drain was constructed around the mineral storage area to collect the surface run-off. There are 10 numbers of settling pits are constructed around the dump to collect the silt from the run-off. During rainy season, the water is diverted to a sump capacity of 60000 KL, which was earlier used for COB plant feed water sump. Attached as Annexure – IV.</p>
XVII	Retaining wall having adequate dimensions shall be constructed at the toe of the over burden dumps to check run-off and siltation.	<p>Compliance: Toe wall along with garland drains will be constructed if any new is required as per the mine plan. The ruptured retaining wall is boulder pitched & maintained around the periphery of the dump.</p> <p>About 1030 mtr of retailing has been provided around the old dump area. As per approved mining plan, we are now backfilling the OB-II quarry as proposed. After completion of backfill and attaining optimum height, the retaining wall will be provided.</p> <p style="text-align: right;">[Please refer Annexure-IV]</p>
XVII I	Plantation shall be raised in an area of 384.44 ha including a 7.5m wide green belt in the safety zone around the mining lease, backfilled and reclaimed area, around the higher benches of /excavated void etc. after the completion of opencast mining activity by planting the native species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500 plants per ha.	<p>Compliance: The plantation programme will be carried out as per the approved Mining Plan & Final Mine Closure Plan. The previous plantation details and proposed plantation programme is attached.</p> <p style="text-align: right;">[Please refer Annexure-V]</p>
XIX	Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high	Compliance: To limit the fugitive emissions, following safeguard measures were implemented:

Sl. No	Specific Condition	Compliance Status (April'23 to September'23)
	levels of SPM and RPM such as haul road, loading and unloading point and transfer points. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard	<ol style="list-style-type: none"> 1. Water sprinkling on haul road, transfer points, Ore stack yard, etc was ensured on regular basis. 2. Deployment of four (04) graders haul road maintenance & muck clearance along with water sprinklers for haul road dust suppression and at mineral storage yards. 3. Stationary water sprinklers have been installed and is in operation on the main/permanent haul roads, maintenance areas, stack yard, truck parking area, etc. Ambient air quality is monitored at six locations within the core zone/lease area as per NAAQS-2009 guidelines. [Please refer Annexure-IV]
XX	Mine water discharge and/or any waste water shall be properly treated in an ETP/s for the removal of hexavalent chromium and to meet the prescribed standards before reuse/discharge. The run off from OB dumps and other surface run off shall be analyzed for hexavalent chrome and in case its concentration is found higher than the permissible limit, the waste water should be treated before discharge/reuse.	Compliance: An Effluent Treatment Plant (ETP) of capacity 4500KL/hr designed with automated dosing system, clariflocculator, and flash mixture, dry sludge collection system, multi-bed filtration system, etc, was in operation for surface runoff/mine water treatment. FeSO ₄ is used as the reductant to ensure removal of Cr ⁺⁶ . The effectiveness of the treatment was continuously monitored through real-time online monitoring system with Sensor based analysers for parameters like pH, TSS and Cr ⁺⁶ . Apart from the continuous effluent monitoring system, samples from the Inlet & Outlet are also analysed at our laboratory (inhouse facility) on daily basis for all the operational shifts. Surface water samples are also analysed from the mine pits, runoffs from dumps, etc. by an OSPCB accredited third party on monthly basis and records are being maintained. No discharge of runoff/effluent is allowed without prior treatment and checking it's conformance with the permissible standards. [Please Refer to Annexure-IV]
XXI	The decanted water from the beneficiation plant shall be re-circulated within the plant and there shall be zero discharge.	Compliance: No Beneficiation pant, hence there will be no waste water generated.
XXII	Regular monitoring of water quality upstream and downstream of Damsala Nallah shall be carried out and record of monitoring data should be maintained and submitted to Ministry of Environment and Forests, its Regional Office, Bhubneswar, Central Groundwater Authority, Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board.	Compliance: The monitoring of water quality at upstream and downstream of Damsala Nallah is being carried out by an OSPCB empanelled laboratory and the records were maintained and submitted to the State Pollution Control Board on monthly basis. Monitoring results were also submitted along with the compliance report to the MoEF&CC (regional Office) with the abstract of the monitoring results.
XXII I	Appropriate mitigative measures shall be taken to prevent pollution of Damsala Nallah, if any, in consultation with the State Pollution Control Board.	Compliance: Following mitigative measures were implemented to prevent pollution of Damsala Nallah: <ol style="list-style-type: none"> 1. ETP with capacity of 4500KL/hr, designed with settling pit, flash mixture, clarri-focculator, automatic dosing system, dry sludge collection system, multi sand filters etc. was in operation. 2. Treated water from the ETP was reused /recycled within the mine for various purposes like greenbelt, dust suppression, drinking water treatment etc. to minimize the discharge load on the Damsala Nallah. 3. No effluent was discharged beyond the mine premises without prior treatment and its conformance with the permissible discharge norms.

Sl. No	Specific Condition	Compliance Status (April'23 to September'23)
		<p>4. Effluents discharged from the outlet of ETP, which was monitored on real-time basis with continuous effluent monitoring system for parameters like pH, TSS, flow and Cr+6.</p> <p>5. We have been utilising the mine effluents for drinking purpose within the camp since May'2018 after two stage treatment processes such as primary treatment at ETP with correction to suspended solids, pH, Hexavalent Chromium and secondary treatment at WTP with disinfection and other subsequent processes.</p>
XXI V	The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water for the project.	Compliance: The total water requirement is fulfilled from the ETP treated water. No surface water is now withdrawal for industrial use.
XXV I	Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with Regional Director, Central Ground Water Board.	<p>Compliance: One roof top rain-water harvesting structure had been constructed at Administrative office building which is working effectively.</p> <p>The application for CGWA NOC has been submitted to CGWA with detailed hydrogeology study and proposal for rainwater harvesting. The final approval is awaited. However, we now have a fully functional roof top rainwater harvesting project operating at the administrative office inaugurated in Oct 2014. Further, feasibility study was conducted through KRG Foundation to explore the possibility of water harvesting in the nearby villages located in the mine periphery. As per the recommendations we have constructed 14 nos of rainwater harvesting ponds (30x30x3 mtr) and check dams for water recharge. Approximately 3500KL/ year of water is being recharges from the community ponds. Same will be discussed and certified during inspection of CGWB team for NOC approval.</p>
XXV I	Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral from mine face to the beneficiation plant. The vehicles shall not be overloaded.	Compliance: Monitoring of vehicular emission done on six monthly basis for the HEMMs deployed in Mining through a third party recognised by state transport authority. Regular conditioning monitoring of the HEMMs will be also carried out to keep the vehicle in good condition.
XXV II	Blasting operation shall be carried out only during the daytime. Controlled blasting shall be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.	<p>Compliance: The blasting operation is carried out during the lean hours of the day and in acceptance with the district administrative authority. In summer season, the timing is around 08:00A.M to 09:00A., whereas in other times the timing resorts to 01:00P.M to 2:0P.M.</p> <p>Practices like pre-wetting of blast, controlled blasting methods like pre-split blasting, use of both SME and NONEL, delay detonators were practiced ensuring ground vibration within permissible limits with improved fragmentation arresting fly rock & boulders and minimal dust generation.</p>
XXV III	Drills shall either be operated with dust extractors or equipped with water injection system.	Compliance: All the drills deployed within mine is equipped with in-built wet drilling facilities to reduce dust generation. Apart from this, the drill operators as well as workmen working in the dust prone areas are provided with adequate PPEs.
XXI X	Mineral handling plant shall be provided with either adequate number of high efficiency dust extraction system or water injection system. Loading and unloading areas including all the	Compliance: No mineral handing plant (COB Plant).

Sl. No	Specific Condition	Compliance Status (April'23 to September'23)
	transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.	
XXX	Consent to operate shall be obtained from State Pollution Control Board prior to start of enhanced production from the mine.	Compliance: Consent to operate has been vested for two (02) years, however, we have obtained the new CTO as consent order No. 2950 issued vide letter No. 4175/IND-I-CON-226, dt. 20/03/2023, valid till 31.03.2024 in the name of TSML
XXX I	Sewage treatment plant shall be installed for the colony. ETP shall also be provided for workshop and waste water generated during mining operation.	Compliance: A Sewage Treatment Plant of 1000KLD had been constructed as per BIS standard for domestic effluent/sewerage & the treated effluent is being reused for garden development. An oil and grease trap system fitted with oil skimmers is constructed in the workshop. The effluents free from oil and grease is completely recycled back for vehicle washing purpose. An ETP with capacity of 4500 Kl/hr having the facilities like, settling pit, flash mixture, clarri-flocculator, dry sludge collection system, multi sand filters, etc. had been constructed and in operation for the treatment of mine pit water and surface runoff. As per CTO specific effluent discharge conditions, after attending required water quality parameters such as pH – 6.5 to 9.0; Total Suspended Solids – 100 mg/L; BOD – 30 mg/L and Fecal Coloform <1000 (MPN/100mL), the water is used for gardening or discharge. [Please Refer to Annexure-IV]
XXX II	Digital processing of the entire lease area using remote sensing technique shall be carried out regularly once in three years for monitoring land use pattern and report submitted to Ministry of Environment and Forests and its Regional Office, Bhubaneswar.	Compliance: Digital processing of the entire lease area using remote sensing technique was carried out for baseline information of land use pattern and the report was submitted to Ministry of Environment, Forests & Climate Change and its Regional Office, Bhubaneswar vide letter no. SCM/MPP/39/16 dated 24.11.2016. As per Gazette Notification No. S.O. 719(E) dated 14th Feb 2023 regarding submission of a copy of the Digital Aerial Images under Rule 34A of MCDR 2017 to the State Government while submitting Digital Aerial Images to Indian Bureau of Mines. We have already submitted the drone image to your good office during compliance report submission to RO, inspection on 02.08.2023.
XXX III	Regular monitoring of ambient air quality including free silica shall be carried out and records maintained.	Compliance: Regular monitoring of ambient air quality is carried out at six locations as per NAAQS-2009 and the free silica in ambient air is monitored by personal dust sampling to assess the workforce's exposure to RPM in ambient air and %free silica content in it. The record is maintained. [Please Refer to Annexure-III]
XXX IV	Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.	Compliance: Pre-Employment/Pre-placement medical examination is mandatorily ensured for employees prior to their joining. Apart from this, periodical medical examination (PME) is conducted for all and the records are maintained. Besides this the company is also undertaking various initiatives for the improvement in the occupational health and removing the safety hazards at industrial workplace.
XXX V	The project proponent shall take all precautionary measures during mining operation for conservation and protection of	Compliance: We have deposited Rs 81,20,000/- vide DD No 111682 dated 21.07.2009 and differential cost of Rs 24,36,000/- through RTGS dated 7.03.2014 respectively in the

Sl. No	Specific Condition	Compliance Status (April'23 to September'23)
	endangered fauna such as elephant etc. spotted in the buffer zone of the mine and contribute towards the cost of implementation of the plan and/or Regional Wildlife Management Plan for conservation of flora and fauna so prepared by the State Forest and Wildlife Department. The amount so contributed shall be included in the project cost. A copy of action plan shall be submitted to the Ministry and its Regional Office, Bhubaneswar within 3 months.	<p>State Specific CAMPA account towards the cost of Wildlife Management Plan for implementation of Regional Wildlife Management Plan. Further, Site specific Wildlife Conservation Plan has already been submitted to DFO, Cuttack vide our letter no. SCM/ ENV/091/13, dated 18.12.2013. Same was recommended by RCCF, Angul vide his letter no. 1197, dated 19.03.2015 and presentation before PCCF (WL), Odisha was made on 10.04.2015 and got approved vide letter No. 4895/1 WL-SSP-92/2015, dated 10.06.2015. We have deposited Rs 6,86,86,240/-in RTGS Mode in State Specific CAMPA Fund towards contribution for Site Specific Wildlife Conservation Plan on 7.12.2015. All the precautionary measures stipulated by State Forest Department and laid down during the approval of Site-Specific Wildlife Conservation Plan is adhered to. As per proposal we have distributed saplings in community. As per year wise afforestation programme proposed in Mining Plan, plantation is being carried out in optimized waste dump floor and slope. During 2022-23, we have planted 10,026 nos of 7-8 ft height saplings in 4ha of dump area. About 32.38 ha of Safety/Green zone is maintained in and around the mine lease area. About 5,27,760 nos of saplings were planted over an area of 63.33ha of outside waste dump area. The Kakudia dump is not reclaimed and rehabilitated completely. To cope with the Tata Steel's Net No Loss Biodiversity commitment, we have carried out Biodiversity Management plan and the activities like, eradication of invasive species, Butterfly Garden, and herbal cum medicinal garden. Initiatives cum awareness programmes were carried out to restore the flora and fauna of the area.</p> <p>About 7720 nos of saplings are distributed in community in different villages during 2021-23. We have also supported the Sukinda Eco-race to support the Sukinda taser variety. Details are attached as Annexure - V.</p>
XXX VI	A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.	Compliance: A Final Mine Closure Plan along with details of Corpus Fund will be submitted to the Ministry of Environment, Forests & CC, 5 years in advance of final mine closure for approval.

B. General Conditions of Environmental Clearance

I	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	Compliance: There was no change in mining technology and scope of working. Mine is operated within the scope of the vested EC and approved mining plan.										
II	The calendar plan quantity of excavation, chrome ore, beneficiated chrome concentrates, pyroxenite ore and waste shall not be exceeded.	<p>Compliance: The calendar plan is followed as per approved mining plan.</p> <p>The EC was accorded for production of 2.4 MTPA chromite ore as ROM and concentrate. The EC was vested to TSML from previous lessee post auction as per Mineral Laws Amendment, 2020. As per approved mining plan and CTO, we have excavated Ore & OB within the prescribed limit of approved mine plan proposal & CTO. Year wise proposal of excavation is given below.</p> <table border="1"> <thead> <tr> <th>FY</th> <th>ROM as per EC</th> <th>ROM as per MP</th> <th>ROM as per CTO</th> <th>OB as per MP</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	FY	ROM as per EC	ROM as per MP	ROM as per CTO	OB as per MP					
FY	ROM as per EC	ROM as per MP	ROM as per CTO	OB as per MP								

Sl. No	Specific Condition	Compliance Status (April'23 to September'23)				
		20-21	2.4	0.8	1.6	4.48
		21-22	2.4	1.36	1.36	6.13
		22-23	2.4	1.31	1.6	7.21
III	At least four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10 micron i.e., PM10) and NOX monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board. The data so recorded should be regularly submitted to the Ministry including its Regional office located at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.	<p>Compliance: Six ambient air quality monitoring stations (four in the work zone, one in residential area and one near dispensary) is established for ambient air quality monitoring in line with CPCB guidelines fulfilling the requirements of NAAQS-2009.</p> <p>Apart from this, quarterly monitoring is also done at 10 buffer zone locations in the nearby villages. Parameters monitored are as per NAAQS-2009.</p> <p>The locations have been finalized in consultation with Regional Officer, State Pollution Control board according to the impact zone and wind direction. Quarterly monitoring of the same is being carried out by regional office, SPCB, Kalinganagar. The monthly monitoring report is being submitted to SPCB for compliance to the specific and general conditions.</p> <p style="text-align: right;">[Please Refer to Annexure-III]</p>				
IV	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.	<p>Compliance: Following measures were implemented to control the noise level below 85dB(A) in the work environment.</p> <ol style="list-style-type: none"> 1. DG sets were provided with acoustic enclosures. 2. The operator's cabin of all the HEMM's were fitted with air conditioner. 3. Use of Earmuffs/ Ear plugs is ensured by putting it in the list of mandatory PPEs for the operational workforce engaged in high noisy areas. 				
V	There will be zero waste water discharge from the plant.	<p>Compliance: No chromite Ore beneficiation plant is in operation. Visit was executed during rainy day; thus, excess treated water was being discharged outside from ETP.</p> <p>As per CTO specific effluent discharge conditions, after attending required water quality parameters such as pH – 6.5 to 9.0; Total Suspended Solids – 100 mg/L; Oil & Grease – 10 mg/L, Cr+6 – 0.05 mg/L and Total Chromium 2.0mg/L, the water is being discharged to onland/Inland surface water body i.e. Damsala Nalla. Same was observed during the inspection.</p>				
VI	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.	<p>Compliance: Persons working in dusty areas were provided with DGMS approved dust masks. Regular training programmes is conducted for the employees for raising awareness on health & safety aspects.</p>				
VII	Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	<p>Compliance: All the employees have to undergo periodical medical examination (PME) in hospital. To improve the occupational health and removing the safety hazards at industrial workplace, TSML has formulated "Zero harm" policy. Apart from this, persons engaged in mining operations are also tested for their exposure to free silica content in respirable air (RPM) on quarterly basis.</p>				
VIII	A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.	<p>Compliance: The Environmental Management Cell is headed by the Head SHE (Health, Safety & Environment) at the corporate level and is supported by Manager (Environment) and Environmental Monitoring Group at the site. The administrative reporting of the environmental functions is</p>				

Sl. No	Specific Condition	Compliance Status (April'23 to September'23)
		<p>attributed with the Head Safety, Health & Environment who directly reports to the GM and MD. The Environmental Management Cell attached.</p> <p style="text-align: right;">[Please Refer to Annexure-VI]</p>
IX	<p>The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneswar.</p>	<p>Compliance: Separate budget is allocated for environmental protection measures every year and maintained under a separate cost centre. Actual Expenditure on Environmental Protection Measures will be reported at the end of the fiscal year i.e year ending 31st March 2024.</p> <p style="text-align: right;">[Please Refer to Annexure-VII]</p>
X	<p>The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.</p>	<p>Compliance: As per MMDR Amendment Act 2015, the lease of Tata Steel was expired on 31st Mar, 2020. Further in accordance to the Rule 24 of MCDR 2017, the final mine closure plan was submitted during 2018 to IBM for its approval and copy of the same was also provided to the Ministry of Environment, Forests & Climate Change after subsequent approval. Again, same lease was auctioned during 2020 and Tata Steel Mining Limited (Now merged with Tata Steel) was vested the same EC and lease up to 2070. As per statute, we shall be submitted the final mine closure plan before two years and the approved copy will be submitted to IRO office. Necessary intimation for land development activity for closure operation as per approved final mine closure plan would be provided to regional office before commencement of the activity. Intimation of commencement of mining operation & Annexure to be attached. Due intimation of the same has been given to IBM, DGMS & Collector, Jajpur. (Annexure - X)</p>
XI	<p>The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data/ information/ monitoring reports.</p>	<p>Compliance: The mine management will be always extended full cooperation to officer(s) of Regional office by furnishing the requisite data/ information/ monitoring report as and when required.</p>
XII	<p>The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Office Bhubaneswar, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar, the respective Zonal Officer of Central Pollution Control Board and the State Pollution Control Board.</p>	<p>Compliance: Six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data will be submitted to the Ministry of Environment, Forests & Climate Change and it's Regional Office Bhubaneswar, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board in soft copy. The Six-monthly EC compliance report along with environmental monitoring data is being uploaded in our website (www.tatasteel.com).</p>
XIII	<p>A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad / Municipal Corporation, Urban Local</p>	<p>Compliance: Earlier the Environment Clearance letters has sent to concerned Panchayat, Zila Parisad / Municipal Corporation, Urban Local Body. The receiving of the EC letter</p>

Sl. No	Specific Condition	Compliance Status (April'23 to September'23)
	Body and the Local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	from concerned Panchayat, Zila Parisad / Municipal Corporation, Urban Local Body and the communication to Regional Office of the Ministry is attached as Annexure - IX. The EC letter is to be uploaded in our website (www.tatasteel.com). [Please Refer to Annexure-XI]
XIV	The State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and the Collector's office/ Tehsildar's Office for 30 days.	Compliance: Copy of the EC clearance letter has already been sent to Odisha State Pollution Control Board, its Regional office, District Industry Centre and the Collector's office/ Tehsildar's Office.
XV	The environmental statement for each financial year ending 31 st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Office of the Ministry of Environment and Forests, Bhubaneswar by e-mail.	Compliance: The Environment Statement in Form-V vide letter number TSL/SCM/012/FY24, dated 28.09.2023 is submitted before 30th Sept of every year and the same is also uploaded in the company website. Copy of Environmental Statement is being sent to the State Pollution Control Board and to the Regional Office of MoEF&CC by e-mail. Environmental statement is being updated/uploaded on the website (www.tatasteel.com).
XVI	The project authorities should advertise at least in two local newspapers of the District or State in which the project is located and widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project had been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar.	Compliance: The grant of Environmental Clearance is advertised earlier in the Oriya daily " The Samaja " (date: 11.09.2013, page-5) and in English daily " The New Indian Express " (date: 11.09.2013, page-5). Copy of the above advertisement is also forwarded to the Eastern Regional Office of the MoEF vide letter no. SCM/ ENV/ 012/066/13, dated 18.06.2013. Now the same EC has been vested to Sukinda Chromite Block, M/s. Tata Steel Mining Limited(TSML) for fifty (50) years. [Please Refer to Annexure-XI]

C. Additional Conditions as per MoE F&CC OM No. Z-1101.3/57/2014-IA-II (M) dated 9th October, 2014 issued to all Non-Coal Mining Projects.

Sl. No.	Stipulated Condition	Compliance Status (April'23 to September'23)
a.	The project authority shall adopt best mining practices for given conditions in the mining area, adequate number of check dam, retaining wall/ structure, garland drains and settling ponds should be provided to arrest the wash off with rain water in catchment area.	Compliance: We are practicing best available mining technologies for given conditions in the mining area. Adequate number of check dam, retaining wall/ structure, garland drains and settling ponds will be provided to arrest the wash off with rain water in catchment area as per approved mining plan.
b.	The natural water bodies and or stream which are flowing in and around the village should not be disturbed. The water table should be nurtured so as not to go down below the pre-mining period. In case of any water scarcity in the area, the project authority has to provide water to the villagers for their use. A provision for regular monitoring of water table in open dug well	Compliance: No such water bodies exist within mine lease area. Dumslla Nallah being the only water bodies flowing within the buffer zone of mine whereby mining operation doesn't have any direct intervention w.r.t diversion or alteration to its existence, however, effluents from mine is discharged into the streams of Dumsalla Nallah but only after ensuring

Sl. No.	Stipulated Condition	Compliance Status (April'23 to September'23)
		<p>proper treatment within mine for which an ETP of capacity 4500KL/hr is in operation.</p> <p>Ground water monitoring was regularly carried out by means of a network of open dug wells at 10 locations in the buffer zone i.e nearby villages on quarterly basis. Water harvesting and water recharge structure like pond will be constructed in nearby villages.</p> <p>The change in ground water level is given in Annexure III. During dry season we have supplied the drinking water to the near by villages. During 2022-23, we have supplied about 1200 KL of drinking water to the villages.</p>
C.	<p>The illumination and sound at night at project sites disturb the village in respect of both human and animal population. Consequent sleeping disorder and stress may affect the health in the village located close to mining operation. Habitations have a right to darkness and minimal noise level at night. The Project Proponents must ensure that the biological clock of the village is not disturbed by orienting the floodlights mask way from the village and keeping the noise levels well within prescribed limits for day/ night hours.</p>	<p>Compliance: No such long-range flood lights have been installed within mine. All Lighting masts installed within mine are oriented for optimal illumination within mine lease area.</p> <p>There are no such villages located in closed proximity to the mine other than village Kakudia, which is distantly located from the working pits and is near to OB dumps where mining operation (dumping) is no longer carried out since 2014 and more ever there lies a barrier of natural forest b/w dump and the village.</p> <p>Safety zone all along the lease periphery is maintained with plantation which also acts as a barrier.</p> <p>The noise monitoring data of nearby villages are attached as Annexure - III.</p>
d.	<p>The project Authority shall make necessary alternative arrangement, where required, in consultation with state Government to provided alternated areas for livestock grazing. In this case context, the Project Authority should implement the direction of Hon'ble Supreme Court with regard to acquiring grazing land. The sparse tress on such grazing ground, which provides mid-day shelter from the scorching sun, should be scrupulously guarded felling lest the cattle abandon the grazing ground or return home by noon.</p>	<p>Compliance: The entire mine area of 406.00ha is of govt lands (404.669ha of forest land and 1.331ha of non-forest land). No such grazing land have been acquired by the company.</p>
e.	<p>Where ever blasting is undertaken as part of mining activity, the Project Authority shall carry out vibration studies well before approaching any such habitats or other building to evaluate the zone of influence and impact of blasting on neighbourhood. Within 500 meters of such sites vulnerable to blasting vibration, avoidance of use of explosives and adoption of alternative means of mineral extraction such as ripper/dozer combination/ rock breakers/ surface mineral etc should be seriously considered and practiced wherever practicable. A provision for monitoring of each blast should be made so that impact of blasting on nearby habitation and dwelling unit could be ascertained. The covenant of lease deed under rule 31 of MCR 1960 provided that no mining operation shall be carried out within 50 meters of public works such as public roads and building or inhabited sites except with prior permission from the competent Authority.</p>	<p>Compliance: Vibrations studies have been carried out earlier by CIMFR Dhanbad and recommendations there of are followed. Now the blast vibration study is being conducted by NIT, Rourkela and is in progress.</p> <p>Controlled blasting with the use of SME & NONEL and presplit blast is practiced minimizing ground vibration and Peak Particle velocity is monitored during blasting events. Public works such as public roads and building or inhabited sites are well away from the mine lease.</p>

Sl. No.	Stipulated Condition	Compliance Status (April'23 to September'23)
f.	Main haulage road in the mines should be provided with permanent water sprinkler and other road should be regularly wetted water tanker fitted with sprinkler. Crusher and material transfer points should be invariably be provided with bag filter and or dry fogging system. Belt conveyor fully covered to avoid air borne dust.	<p>Compliance: To limit the fugitive emissions, following safeguard measures are implemented:</p> <ol style="list-style-type: none"> 1. Various control measures like Mobile water sprinkling on haul road, transfer points, Ore stack yard, etc is done on regular basis. 2. Mineral is dispatched by means of trucks and which are completely covered with tarpaulins and regulated by system generated transit permits which prevents overloading. 3. We have already installed two (02) numbers of mist canon system at our ore stack yard to minimize the dust pollution. 4. A new fixed water sprinkling system of 1050 mts is also operative to control the dust in the mining haul road. <p style="text-align: center;">[Please Refer to Annexure-IV]</p>
g.	The project Authority shall ensure that productivity of agriculture crops is not affected due to the mining operation. Crop Liability Insurance Policy has to be taken by PP as a precaution to compensate for the crop loss. The impact zone shall be 5 Km from the boundary of mine lease area for insurance policy. In case, several mines are located in cluster mines, formed inter – alia, to sub serve such and objective shall be responsibility for securing such Crop Liability Policy.	<p>Compliance: The mine is surrounded by many mines owned by other lessees. So far there is no such potential adverse impact on the agricultural land had been evidence. However, in case of any such scenario is envisaged in future the same will be addressed in desired manner. We are agreed to insure the crop liability insurance policy as suitable to operation and impact.</p>
h.	In case any village is located within the mining leasehold which is not likely to be affected due to mining activities during the life of mine, the Expert Appraisal Committee (EAC) should consider the proposal of Environmental Clearance (EC) for reduced mining area. The mining lease may be executed for the area for which EC is accorded. The mining plan also accordingly revised and required stipulation under the MMDR Act 1957 and MCR 1969 met.	<p>Compliance: There are no villages within the lease hold area of 406.0ha for which EC had been accorded by MoEF&CC.</p>
i.	Transportation of minerals by road passing through the village shall not be allowed. A “bypass” road should be constructed (say leaving a gap of at least 200 m) for the purpose of transportation of minerals so that the impact of sound, dust and accidents could be mitigated. The PP shall bear the cost towards the widening and strengthening of existing public road network in case same is proposed to be used for the project. No road movement should be allowed on existing village road network without appropriately increasing carrying capacity of such road	<p>Compliance: Mineral is transported via public Tamka-Mangalpur road maintained by state R&B. Transit of mineral is regulated by valid transit permits issued under Odisha Minerals (prevention of theft, smuggling, illegal mining and regulation of possession, storage trading and transportation) Rules,2007.</p> <p>During the construction phase, M/s. Tata Steel Limited has contributed in the construction of a major segments of the road from Kaliapani up to Kankadapal of 12Kms (approx.) in totality. In future, TSML will construct the road as required.</p>
j.	Likewise, alteration or re-routing of foot paths, pagdandies, cart road and village infrastructure/ public utilities or roads (for purpose of land acquisition for mining) shall be avoided to extent possible and in such case acquisition is inevitable, alternative arrangements shall be made first and the only the area can be acquired. In these types of cases Inspection reports by site visit by expert may be insisted upon which should be done through reputed Institutes.	<p>Compliance: Entire lease area of 406.0ha is govt. land (404.669ha of forest land and 1.331ha of non-forest land thus this project is not subjected to land acquisition.</p>

Sl. No.	Stipulated Condition	Compliance Status (April'23 to September'23)
k.	<p>The CSR activates by companies including mining establishment has become mandatory up to 2% their financial turn over, socio Economic Development of neighbourhood. Habitats could also be planned and executed by the PPs more systemically based on need based door to door survey by established Social Institute/ Workers on the lines as required under TOR. " R&R Plan// compensation details for Project Affected People (PAP) should be furnished. While preparing the R&R plant, the relevant State/ national Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs and STs and weaker section of society in study, a need bashed sample survey, family-wise, should be undertaken to assess their requirement, and action programmes prepared and submitted accordingly, integrating the sectoral programs of line department of State Government. It may be clearly brought out whether the village including their R&R and socio-economics aspect should be discussed in EIA report.</p>	<p>Compliance: CSR activities were undertaken by TSF dept. of Tata Steel in and around the mine. Total expenditure on CSR fonts will be following the 2% obligation as per Companies Act attached in annexure. However, this mine is not subjected to land acquisition because the nature of land involved (govt. land) eliminating the R&R obligations of the company.</p> <p style="text-align: center;">[Please Refer to Annexure-VIII]</p>

Annexure-I Forest Clearance-Sukinda Chromite Mines-Tata Steel

F. No. 8-78/1996-FC (pt.-I)
Government of India
Ministry of Environment, Forests and Climate Change
(Forest Conservation Division)

Indira Paryavaran Bhawan
Aliganj, Jorbagh Road
New Delhi -110 003
Dated: 3rd November, 2014

To,

The Principal Secretary (Forests),
Government of Odisha,
Bhubaneswar.

Sub: Diversion of 73.697 hectares of forest land in Sukinda Chromite Mines of M/s. TATA Steel Ltd. In Jajpur district during 3rd Renewal of mining lease (RML) period.

Sir,

I am directed to refer to the Government of Odisha's letter No 10F (Cons) 73/ 2014-8679/ F &E dated 9th May 2014 on the above mentioned subject, seeking prior approval of the Central Government under Section 2 of the Forest (Conservation) Act, 1980, and to say that the said proposal has been examined by the Forest Advisory Committee constituted by the Central Government under section-3 of the aforesaid Act.

2. After careful consideration of the proposal of the State Government of Odisha and on the basis of the recommendations of the Forest Advisory Committee, the Central Government hereby agrees to accord **stage-I approval** for the diversion of 73.697 hectares of forest land in Sukinda Chromite Mines of M/s. TATA Steel Ltd. In Jajpur district during 3rd Renewal of mining lease (RML) period, subject to the following conditions:

- (i) Legal status of the diverted forest land shall remain unchanged;
- (ii) Following activities shall be undertaken by the user agency at the project cost:
 - (a) A plan containing appropriate mitigative measures to minimize soil erosion and choking of streams shall be prepared and implemented;
 - (b) Planting of adequate drought hardy plant species and sowing of seeds in the appropriate area within the mining lease to arrest soil erosion;
 - (c) Construction of check dams, retention /toe walls to arrest sliding down of the excavated material along the contour;
 - (d) Stabilize the overburden dumps by appropriate grading/benching so as to ensure that that angles of repose at any given place is less than 28°; and
 - (e) Strict adherence to the prescribed top soil management.
- (iii) State Government shall charge the Net Present Value (NPV) of the forest area diverted under this proposal from the user agency as per the Orders of the Hon'ble

2 23/11/2014

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 05.02.2009 in this regard;

- (iv) 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;
- (v) All the funds received from the User Agency under the project shall be transferred to Ad-hoc CAMPA in the concerned Saving Bank Account in Corporation Bank, Lodhi Road, New Delhi-110003;
- (vi) User agency shall obtain the Environment Clearance as per the provisions of the Environmental (Protection) Act, 1986;
- (vii) User agency shall maintain 7.50 meters wide strip all along the periphery of the mining lease as safety zone. No mining activity shall be undertaken in the safety zone;
- (viii) State Government shall ascertain the status, as on 25th October 1980, of the area located in the mining lease which has been treated as 'non-forest' as per the Hal (present) record of rights and intimate the same to the Ministry of Environment and Forests, Government of India within a period of one month from the date of grant of stage-I approval;
- (ix) User agency shall prepare a schedule of the surrender of the fully(biologically) reclaimed mined out forest land and submit the same to the Ministry of Environment and Forests before grant to stage-II approval under the FC Act;
- (x) The User Agency shall pay the proportionate cost of implementation of Regional Wildlife Management Plan at revised cost; and
- (xi) The user agency shall pay towards the cost of site specific conservation plan to be approved by the CWLW, Odisha for its implementation in leasehold as well as surrounding area.
- (xii) User agency in consultation with the State Forest Department shall create and maintain alternate habitat/ home for the avifauna, whose nesting trees are to be cleared in this project. 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;
- (xiii) User agency either himself or through the State Forest Department shall undertake fencing, protection and afforestation of the safety zone area (7.5 meter strip all along the outer boundary of the area identified to undertake mining), at the project cost;

03/10/2023

- (xiv) User agency either himself or through the State Forest Department shall undertake afforestation on degraded forest land, one and half time in extent to the area used for safety zone;
- (xv) 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, and the Rules framed there-under, subject to a maximum period of 20 years;
- (xvi) 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 0.4), if any, located in the area within 100 meters from outer perimeter of the mining lease;
- (xvii) User agency shall undertake de-silting of the village tanks and other water bodies located within five km from the mine lease boundary so as to mitigate the impact of siltation of such tanks/water bodies, whenever required;
- (xviii) User agency shall undertake mining in a phased manner and take due care for reclamation of the mined over area. The concurrent reclamation plan shall be executed by the User Agency as per the approved mining plan/scheme and an annual report on implementation thereof shall be submitted to the Nodal Officer, Forest (Conservation) Act, 1980, Government of Odisha and the Addl. Principal Chief Conservator of Forests (Central), Ministry of Environment & Forests, Regional Office (Eastern Zone), Bhubaneswar. 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 Addl. Principal Chief Conservator of Forests (Central) may direct that the mining activities shall remain suspended till such time, such reclamation activities are satisfactorily executed;
- (xix) No labour camp shall be established on the forest land;
- (xx) User agency shall provide firewood preferably alternate fuel to the labourers and the staff working at the site so as to avoid any damage and pressure on the adjacent forest areas;
- (xxi) Boundary of the mining lease and safety zone shall be demarcated on ground at the project cost, by erecting four feet high reinforced cement concrete pillars, each inscribed with its serial number, forward and back bearing and distance from pillar to pillar;
- (xxii) Forest land shall not be used for any purpose other than that specified in the proposal;
- (xxiii) State Government shall complete settlement of rights, in term of the Scheduled Tribes and Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, if

03/11/2017

any, on the forest land to be diverted and submit the documentary evidence as prescribed by this Ministry in its letter No. 11-9/1998-FC (pt.) dated 3rd August 2009, in support thereof;

(xxiv) Any other condition that the Regional Office (Eastern Zone), Bhubaneswar of this Ministry, Bhubaneswar may stipulate, from time to time, in the interest of conservation, protection and development of forests & wildlife; and

(xxv) User agency and the State Government shall ensure compliance to provisions of the all Acts, Rules, Regulations and Guidelines, for the time being in force, as applicable to the project.

3. After receipt of the report on compliance to the conditions stipulated in the paragraph-2 above, from the Government of Odisha, final/ stage-II approval for diversion of the said forest under Section-2 of the Forest (Conservation) Act, 1980 will be issued by this Ministry. Transfer of the said forest land to the user agency shall not be affected by the Government of Odisha till final/stage-II approval for its diversion is issued by this Ministry.

4. However, pending receipt of report on compliance to the conditions stipulated in paragraph-2 above and grant of final/stage-II approval under the Forest (Conservation) Act, 1980 for diversion of the said forest land, State Government may allow the user agency to undertake mining, as per the approved mining plan, in the already broken up forest land being diverted for mining purposes (as per the approved land use plan), for a period not exceeding one year from the date of issue of this letter.

5. Stage-I approval and Working Permission for mining over already broken up area is subject to in-principle decision of the authority in the State Government in terms of section 8(3) of the Mines and minerals (Development and Regulation) Act, 1957 that in the interest of mineral development it is necessary to renew the lease.

Yours faithfully,

SIL

(H. C. Chaudhary)
Director

Copy to:

1. The Principal Chief Conservator of Forests, Government of Odisha, Bhubaneswar.
2. The Nodal Officer, the Forest (Conservation) Act, 1980, the Government of Odisha, Bhubaneswar.
3. The Addl. Principal Chief Conservator of Forests (Central), Regional Office (Eastern Zone), Bhubaneswar.
4. User Agency.
5. Monitoring Cell, FC Division, MoEF, New Delhi.
6. Guard File.

03/11/23
(H. C. Chaudhary)
Director

No.10F (Con) 51/2018 11885/F&E, Bhubaneswar, dated the 23-05-18

ORDER

Sub: Diversion of balance 330.972 ha. of sabik kism forest land as on 25.10.1980 in addition to already diverted forest land of 73.697ha. for Chromite mining in their Sukinda Chromite Mine in Jajpur District under Cuttack Forest Division by M/s TATA STEEL LIMITED

WHEREAS, M/s Tata Steel Limited, At/PO Kalarangiatta, Dist. Jajpur, Odisha had applied for diversion of balance 330.972 ha. of sabik kism forest land as on 25.10.1980 in addition to already diverted forest land of 73.697ha. for Chromite mining in their Sukinda Chromite Mine in Jajpur District under Cuttack Forest Division by them.

And whereas, the Ministry of Environment, Forests and Climate Change (hereinafter referred to as MoEF&CC), Government of India, had accorded 'in-principle' approval for diversion of balance 330.972 ha. of sabik kism forest land as on 25.10.1980 in addition to already diverted forest land of 73.697ha. for Chromite mining in their Sukinda Chromite Mine in Jajpur District under Cuttack Forest Division by M/s Tata Steel Limited vide its letter F.No. 8-15/2016-FC dt. 4.7.2017 (ANNEXURE-1).

And whereas, the MoEF&CC, Government of India, in consideration of the compliance of the conditions of the 'in-principle' approval, has accorded final approval for diversion of said 330.972ha. of forest land for Chromite mining in their Sukinda Chromite Mine in Jajpur District under Cuttack Forest Division by M/s Tata Steel Limited vide its letter F. No. 8-15/2016-FC dt.18.5.2018 (Annexure-2) under Section 2 of the Forest (Conservation) Act, 1980. Detailed land schedule of 330.972ha. of diverted forest land(4 pages) duly authenticated by Tahasildar, Sukinda as received earlier from PCCF, Odisha vide his letter No. 11780 dt 13.6.2016 is appended herewith as Annexure-3.

Now therefore, the Government of Odisha, do hereby allow diversion of above mentioned 330.972ha forest land in Cuttack Forest Division of Jajpur district in favour of M/s Tata Steel Limited as per approved land use pattern subject to fulfillment of the conditions of final forest clearance order as stipulated by the MoEF&CC, Government of India.

The Collector of Jajpur district is authorized to handover the diverted forest land to the user agency **subject to having valid lease and compliance of Court's order, if any,** following due procedure of law. Before handing over the diverted forest land to the user

agency, it shall be ensured that Net Present Value for forest land for this project as well as for any other projects, belonging to same user agency, is deposited, in full, at applicable rates.

The Divisional Forest Officer of Cuttack Forest Division is also directed to monitor compliance to the conditions stipulated for such diversion in the respective forest/Wildlife clearance order and to report violations, if any, to the Nodal Officer, O/O Pr. CCF, Odisha and to the Forest & Environment Department.

Execution of project activities will be subject to availability of all other statutory clearances required under relevant Act/Rules for this infrastructure project, deposit of requisite funds and compliance of Court's order, if any.

By order of Governor


(Debidutta Biswal)

Special Secretary to Government

Memo No. 11886 /F&E, Dated: 23-05-18

Copy along with the copy of Annexure 1, Annexure-2 and Annexure-3 above forwarded to the Principal Chief Conservator of Forests, Odisha for kind information and necessary follow up action.

Appropriate instruction to the Divisional Forest Officer of Cuttack Forest Division and user agency may be imparted for required follow up action at his end. It may be ensured by the Divisional Forest Officer that Net Present Value for the forest land involved in this project of user agency as well as for any other projects of the same user agency, is deposited by them in appropriate head of account in Adhoc-CAMPA in full, at applicable rates. The user agency may also be instructed to furnish compliance to the conditions of forest/Wild life clearance pertaining to the project in every quarter to the Divisional Forest Officer of Cuttack Division for facilitating monitoring of compliances.


Special Secretary to Government

Memo No. 11887 /F&E, Dated: 23-05-18

Copy along with the copy of annexures as above forwarded to the Asst. Inspector General of Forests, Government of India, MoEF&CC(FC Division), Indra Paryavaran Bhawan, Jor Bagh, Aliganj Road, New Delhi, Pin-110003/Addl. Principal Chief Conservator of Forests(Central), MoEF&CC, Government of India, A/3, Chandrasekharpur, Bhubaneswar for kind information and necessary follow up action in compliance to the order of Hon'ble NGT dt. 7.11.2012 in Appeal No. 7/2012 communicated by the MoEF, Government vide their letter F. No.7-23/2012-FC dt. 24.7.2013.


Special Secretary to Government

Memo No. 11888 /F&E, Dated: 23-05-18


Copy along with the copy of annexures as above forwarded to the Pr. CCF(WL)&CWLW, Odisha/Director, Environment, F&E department/ Member Secretary, Forest, Odisha, for information and necessary action.

Memo No. 11889 /F&E, Dated: 23.05.18

Copy along with the copy of annexures as above forwarded to the Regional Chief Conservator of Forests, Angul/ Collector, Jajpur /Divisional Forest Officer, Cuttack Forest Division for information and immediate necessary compliance.

It may be ensured by the Divisional Forest Officer that Net Present Value for the forest land involved in this project of user agency as well as for any other projects of the same user agency, shall be deposited by them in full at applicable rates in appropriate head of account in Adhoc-CAMPA before handing over of the forest land to user agency. Besides, funds, if any, due to be deposited by the user agency in this project shall also be deposited by the project proponent before the forest land is handed over to them. The user agency may also be instructed to furnish compliance to the conditions of forest/Wild life clearance pertaining to the project in every quarter to the Divisional Forest Officer concerned for facilitating monitoring of compliances by them.


The Divisional Forest Officer of Cuttack Division is also instructed to ensure that the direction given to the user agency are executed immediately.

 23/5/18

Special Secretary to Government

Memo No. 11890 /Dated. 23-05-18


Copy along with the copy of annexures as above forwarded to the Steel & Mines Department /Revenue & Disaster Management Department for information and necessary follow action.

 23/5/18

Special Secretary to Government

Memo No. 11891 /Dated. 23-05-17

Copy along with the copy of annexures as above forwarded to the Private Secretary to Minister of Forest & Environment Department for kind information of Hon'ble Minister.

 23/5/18

Special Secretary to Government

Memo No. 11892 /Dated. 23-05-18

Copy along with the copy of the enclosures forwarded to M/s Tata Steel Limited, At/PO Kalarangiatta, Dist. Jajpur, Odisha for information and immediate necessary action.

The user agency is asked to take following actions immediately as per orders of Hon'ble National Green Tribunal dt. 7.11.2012 in Appeal No. 7/2012 communicated by the MoEF, Government vide their letter F. No.7-23/2012-FC dt. 24.7.2013.

- (i) *They shall publish the entire forest clearance granted in verbatim along with conditions and safeguards imposed by the Central Government in Stage-I/II forest clearance in two widely circulated daily newspapers, one in vernacular language and the other in English language so as to make people aware of the permission granted to the Project for use of forest land for non-forest purposes.*
- (ii) *They shall submit the copies of forest clearance orders granted by the Central Government/State Government to the Heads of local bodies and Municipal bodies along with the relevant offices of the State Government, who in turn, shall display the same for 30 days from date of receipt.*
- (iii) *Detailed action taken in compliance to the above order of State Government shall be intimated to the DFO, Cuttack/RCCF, Angul/Dy. CCF, Odisha/E&E*

the user agency on account of this project shall also be deposited in Adhoc-CAMPA Account.

The user agency shall furnish compliances to the conditions prescribed in the forest/wildlife clearance order to the Divisional Forest Officer of Cuttack Division in every quarter, for the purpose of monitoring by him.

FA 22/5/18

Special Secretary to Government

Memo No. *11893* Dated- *23.05.18*

Copy with copy of enclosure forwarded to the O.I.C., State Portal, N.I.C., I.T. Department, Odisha Secretariat, Bhubaneswar/ M/s Luminous Inforways Pvt. Ltd, Sadhana, N-6/373, Nayapalli, Jayadev Vihar, Bhubaneswar-15 for information and necessary action. They are requested to upload this letter along with enclosed forest clearance order of Government of India, MoEF&CC, in the website of Forest & Environment Department **immediately** for information of all concerned. **This is required in compliance to order of Hon'ble National Green Tribunal dt. 7.11.2012 in Appeal No. 7/2012. Hence this may be done unfailingly.**

FA 22/5/18

Special Secretary to Government

Memo No. *11894* Dated- *23.05.18*


Copy with copy of enclosure forwarded to the Under Secretary to Government, Office Establishment Section, F&E Department for information and necessary action with reference to their letter No.21646/F&E Dt. 22.11.2016.

FA 22/5/18

Special Secretary to Government

CS
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24/5/18

Annexure – II: Consent to Operate-Sukinda Chromite Block-Tata Steel Mining Limited



CONSSENT ORDER
SUKINDA CHROMITE BLOCK OF M/S. TATA STEEL MINING LTD.

Page 1 of 12

BY REGD. POST WITH AD

STATE POLLUTION CONTROL BOARD, ODISHA
[DEPARTMENT OF FOREST, ENVIRONMENT & CLIMATE CHANGE, GOVERNMENT OF ODISHA]
A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012
Phone-2561909, Fax: 2562822, 2560955 E-mail: panibesh1@spcoboard.org, Website: www.spcoboard.org

CONSSENT ORDER

No. 4175 / IND-I-CON-226 Dt. 20.03.2023 /

CONSSENT ORDER NO. 2950

Sub: Consent for discharge of sewage and trade effluent under section 25/26 of Water (PCP) Act, 1974 and for existing / new operation of the plant under section 21 of Air (PCP) Act, 1981.

Ref: Your online application No. 4628711 dated 08-01-2023 .

Consent to operate is hereby granted under section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act, 1981 and rules framed thereunder to

Name of the Industry: SUKINDA CHROMITE BLOCK OF M/S. TATA STEEL MINING LTD.

Name of the Occupier & Designation: SRI PANKAJ KUMAR SATIJA, MANAGING DIRECTOR

Address: AT/PO: KALARANGIATTA, DIST: JAJPUR

This consent order is valid for the period from 01.04.2023 to 31.03.2024.

Details of Products Manufactured :

Sl. No	Product	Quantity
01.	Chrome ore(ROM)	0.6 MTPA

This consent order is valid for the specified outlets, discharge quantity and quality, specified chimney/stack, emission quantity and quality of emissions as specified below. This consent is granted subject to the general and special conditions stipulated therein.



CONSENT ORDER
SUKINDA CHROMITE BLOCK OF M/S. TATA STEEL MINING LTD.

Page 2 of 12

A. Discharge permitted through the following outlet subject to the standard

Outlet No.	Description of outlet	Point of discharge	Quantity of discharge KL/hr	Pre-scribed Standard								
				pH	TSS (mg/l)	BOD (mg/l)	COD (mg/l)	Oil & Grease (mg/l)	Cr+6 (mg/l)	Total Chromium (mg/l)	Fecal Coliform (MPN/100ml)	
01	Outlet of STP (Domestic effluent)	Reused for plantation	800 KLD	6.5 to 9.0	100	30	--	--	--	--	--	<1000
02	Mine drainage water / surface run off/ other wastewater	On land / inland surface water body	19800	5.5 to 9.0	100	--	--	10	0.05	2.0	-	

B. Emission permitted through the following stack subject to the prescribed standard

Chimney Stack No.	Description of Stack	Stack height (m)	Quantity of emission	Prescribed Standard				

C. Disposal of solid waste permitted in the following manner

Sl. No.	Type of Solid waste	Quantity generated (TPD)	Quantity to be reused on site(TPD)	Quantity to be reused off site(TPD)	Quantity disposed off (TPD)	Description of disposal site.
01.	Top soil / overburden	As per approved mining plan	--	--	--	As per approved mining plan



CONSENT ORDER
SUKINDA CHROMITE BLOCK OF M/S. TATA STEEL MINING LTD.

Page 3 of 12

D. GENERAL CONDITIONS FOR ALL UNITS

1. The consent is given by the Board in consideration of the particulars given in the application. Any change or alteration or deviation made in actual practice from the particulars furnished in the application will also be the ground base for revocation/variation/revocation of the consent order under section 21 of the Act of Water (Prevention & Control of Pollution) Act, 1974 and section 21 of Air (Prevention & Control of Pollution) Act, 1987 and to make such variations as seemed fit for the purpose of the Acts.
2. The industry would immediately submit revised application for consent to operate to this Board in the event of any change in the quantity and quality of raw material / and products / manufacturing process or quantity / quality of the effluent / rate of emission / air pollution control equipment / system etc.
3. The applicant shall not change or alter either the quality or quantity or the rate of discharge or temperature or the route of discharge without the previous written permission of the Board.
4. The application shall comply with and carry out the directions/orders issued by the Board in the consent order and at all subsequent times without any negligence on his part. In case of non-compliance of any order/directives issued at any time and/or violation of the terms and conditions of this consent order, the applicant shall be liable for legal action as per the provisions of the Law/Act.
5. The applicant shall make an application for grant of fresh consent at least 90 days before the date of expiry of this consent order.
6. The issuance of this consent does not convey any property right in either real or personal property or any exclusive privileges nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Central, State laws or regulation.
7. This consent does not authorize or approve the construction of any physical structure or facilities or the undertaking of any work in any natural water course.
8. The applicant shall display this consent granted to him in a prominent place for perusal of the public and inspecting officers of this Board.
9. An inspection book shall be opened and made available to Board's Officers during the visit to the factory.
10. The applicant shall furnish to the visiting officer of the Board any information regarding the construction, installation or operation of the plant or of effluent treatment system / air pollution control system / stack monitoring system any other particulars as may be pertinent to preventing and controlling pollution of Water / Air.
11. Meters must be affixed at the entrance of the water supply connection so that such meters are easily accessible for inspection and maintenance and for other purposes of the Act provided that the place where it is affixed shall in no case be at a point before which water has been tapped by the consumer for utilization for any purposes whatsoever.
12. Separate meters with necessary pipe-line for assessing the quantity of water used for each of the purposes mentioned below:
 - a) Industrial cooling, spraying in mine pits or boiler feed.
 - b) Domestic purpose.
 - c) Process.
13. The applicant shall display suitable caution board at the place where the effluent is entering into any water body or any other place to be indicated by the Board, indicating therein that the area into which the effluents are being discharged is not fit for the domestic use/bathing.
14. Storm water shall not be allowed to mix with the trade and/or domestic effluent or the upstream of the terminal manholes where the flow measuring devices will be installed.
15. The applicant shall maintain good house-keeping both within the factory and the premises. All pipes, valves, sewers and drains shall be leak-proof. Floor washing shall be admitted into the effluent collection system only and shall not be allowed to find their way in storm drains or open areas.
16. The applicant shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems install or used by him to achieve with the term(s) and conditions of the consent.
17. Care should be taken to keep the anaerobic lagoons, if any, biologically active and not utilized as mere stagnation ponds. The anaerobic lagoons should be fed with the required nutrients for effective digestion. Lagoons should be constructed with sides and bottom made impervious.
18. The utilization of treated effluent on factory's own land, if any, should be completed and there should be no possibility of the effluent gaining access into any drainage channel or other water courses either directly or by overflow.
19. The effluent disposal on land, if any, should be done without creating any nuisance to the surroundings or inundation of the lands at any time.
20. If at any time the disposal of treated effluent on land becomes incomplete or unsatisfactory or create any problem or becomes a matter of dispute, the industry must adopt alternate satisfactory treatment and disposal measures.
21. The sludge from treatment units shall be dried in sludge drying beds and the drained liquid shall be taken to equalization tank.
22. The effluent treatment units and disposal measures shall become operative at the time of commencement of production.



CONSENT ORDER
SUKINDA CHROMITE BLOCK OF M/S. TATA STEEL MINING LTD.

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23. The applicant shall provide port holes for sampling the emissions and access platform for carrying out stack sampling and provide electrical outlet points and other arrangements for chimneys/stacks and other sources of emissions so as to collect samples of emission by the Board or the applicant at any time in accordance with the provision of the Act or Rules made therein.
24. The applicant shall provide all facilities and render required assistance to the Board staff for collection of samples / stack monitoring / inspection.
25. The applicant shall not change or alter either the quality or quantity or rate of emission or install, replace or alter the air pollution control equipment or change the raw material or manufacturing process resulting in any change in quality and/or quantity of emissions, without the previous written permission of the Board.
26. No control equipments or chimney shall be altered or replaced or as the case may be erected or re-erected except with the previous approval of the Board.
27. The liquid effluent arising out of the operation of the air pollution control equipment shall be treated in the manner and to an of standards prescribed by the Board in accordance with the provisions of Water (Prevention and Control of Pollution) Act, 1974 (as amended).
28. The stack monitoring system employed by the applicant shall be opened for inspection to the Board at any time.
29. There shall not be any fugitive or episodic discharge from the premises.
30. In case of such episodic discharge/emissions the industry shall take immediate action to bring down the emission within the limits prescribed by the Board in conditions/stop the operation of the plant. Report of such accidental discharge emission shall be brought to the notice of the Board within 24 hours of occurrence.
31. The applicant shall keep the premises of the industrial plant and air pollution control equipments clean and make all floors, pipes, valves, joints/chimneys leak proof. The air pollution control equipments, location, inspection chambers, sampling port holes shall be made easily accessible at all times.
32. Any upset condition in any of the participants of the factory which is likely to result in increased effluent discharge/emission of air pollutants and / or result in violation of the standards mentioned above shall be reported to the headquarters and Regional Office of the Board by fax / speed post within 24 hours of its occurrence.
33. The industry has to ensure that minimum three varieties of trees are planted at the density of not less than 1500 trees per acre. The trees may be planted along boundaries of the industries or industrial premises. This plantation is stipulated over and above the bulk plantation of trees in that area.
34. The solid waste such as sweeping, wastage packages, empty containers residues, sludge including that from air pollution control equipments collected within the premises of the industrial plants shall be disposed off scientifically to the satisfaction of the Board, so as not to cause fugitive emission, dust problems through leaching etc., of any kind.
35. All solid wastes arising in the premises shall be properly classified and disposed off to the satisfaction of the Board by:
 - i) Land fill in case of inert material, care being taken to ensure that the material does not give rise to leachate which may percolate into ground water or carried away with storm runoff
 - ii) Controlled incinerator, wherever possible in case of combustible organic material
 - iii) Composting, in case of bio-degradable material
36. Any toxic material shall be decontaminated if possible, otherwise be sealed in steel drums and buried in protected areas after obtaining approval of this Board in writing. The decontamination or sealing and burying shall be carried out in the presence of Board's authorized persons only. Letter of authorization shall be obtained for handling and disposal of hazardous wastes.
37. If due to any technological improvement or otherwise this Board is of opinion that at or any of the conditions referred to above requires variation (including the change of any control equipment either in whole or in part) this Board shall after giving the applicant an opportunity of being heard, vary all or any of such condition and thereupon the applicant shall be bound to comply with the conditions so varied.
38. The applicant, his/her/its representatives or assignees shall have no claim whatsoever to the condition or renewal of this consent after the expiry period of this consent.
39. The Board reserves the right to review, impose additional conditions or condition, revoke change or alter the terms and conditions of this consent.
40. Notwithstanding anything contained in this conditional letter of consent, the Board hereby reserves to it the right and power under section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 to review any and/or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Act by the Board.
41. The conditions imposed as above shall continue to be in force until revoked under section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 and section 21-A of Air (Prevention & Control of Pollution) Act, 1981.
42. In case the consent fee is revised upward during this period, the industry shall pay the differential fees to the Board (for the remaining years) to keep the consent order in force. If they fail to pay the amount within the period stipulated by the Board the consent order will be revoked without prior notice.
43. The Board reserves the right to revoke/refuse consent to operate at any time during period for which consent is granted in case any violation is observed and to modify stipulate additional conditions as deemed appropriate.

Annexure-III EXTRACTS OF ENVIRONMENTAL MONITORING**(PERIOD: Oct'2022 to Mar'2023)****1. Air Quality Monitoring: CORE ZONE**

01. COB Plant												
Monthly Average	PM10 µg/m3	PM2.5 µg/m3	SO2 µg/m3	NOx µg/m3	CO mg/m3	O3 µg/m3	NH3 µg/m3	Benzene µg/m3	Benzo(a)Pyrene ng/m3	Pb µg/m3	Arsenic ng/m3	Nickel ng/m3
Apr'23	61.6	32.8	12.1	18.9	0.68	10.6	BDL	BDL	BDL	BDL	BDL	BDL
May'23	62	33.7	12	19.1	0.68	10.8	BDL	BDL	BDL	BDL	BDL	BDL
Jun'23	60.5	31.7	11.9	18.9	0.67	10.7	BDL	BDL	BDL	BDL	BDL	BDL
Jul'23	53.5	28	11	17.3	0.57	10.1	BDL	BDL	BDL	BDL	BDL	BDL
Aug'23	50.7	27.9	10.5	16.2	0.52	9.7	BDL	BDL	BDL	BDL	BDL	BDL
Sep'23	44.9	25.5	10.1	15.7	0.49	9.4	BDL	BDL	BDL	BDL	BDL	BDL

02. VIEW POINT												
Monthly Average	PM10 µg/m3	PM2.5 µg/m3	SO2 µg/m3	NOx µg/m3	CO mg/m3	O3 µg/m3	NH3 µg/m3	Benzene µg/m3	Benzo(a)Pyrene ng/m3	Pb µg/m3	Arsenic ng/m3	Nickel ng/m3
Apr'23	61.1	32.3	8.4	16.3	0.56	7.4	BDL	BDL	BDL	BDL	BDL	BDL
May'23	61.5	32.7	8.3	16.2	0.56	7.2	BDL	BDL	BDL	BDL	BDL	BDL
Jun'23	60.6	32.3	8.2	16.1	0.56	7.2	BDL	BDL	BDL	BDL	BDL	BDL
Jul'23	53.2	28	7.4	13.5	0.47	6.1	BDL	BDL	BDL	BDL	BDL	BDL
Aug'23	50.1	27.8	6.7	12.3	0.42	5.3	BDL	BDL	BDL	BDL	BDL	BDL
Sep'23	45.6	26	6.4	12.1	0.41	5.2	BDL	BDL	BDL	BDL	BDL	BDL

03. STACKYARD												
Monthly Average	PM10 µg/m3	PM2.5 µg/m3	SO2 µg/m3	NOx µg/m3	CO mg/m3	O3 µg/m3	NH3 µg/m3	Benzene µg/m3	Benzo(a)Pyrene ng/m3	Pb µg/m3	Arsenic ng/m3	Nickel ng/m3
Apr'23	61.5	33.3	12.4	18.3	0.5	8.6	BDL	BDL	BDL	BDL	BDL	BDL
May'23	61.9	33.4	12.3	18.5	0.5	8.6	BDL	BDL	BDL	BDL	BDL	BDL
Jun'23	59.9	31.9	12.1	18.2	0.52	8.5	BDL	BDL	BDL	BDL	BDL	BDL
Jul'23	54.4	27.1	11.4	16.8	0.47	8	BDL	BDL	BDL	BDL	BDL	BDL
Aug'23	49.6	27.6	10.6	15.6	0.42	7.4	BDL	BDL	BDL	BDL	BDL	BDL
Sep'23	45.2	24.6	10.2	15.1	0.4	7.3	BDL	BDL	BDL	BDL	BDL	BDL

04. PARADEEP GATE												
Monthly Average	PM10 µg/m3	PM2.5 µg/m3	SO2 µg/m3	NOx µg/m3	CO mg/m3	O3 µg/m3	NH3 µg/m3	Benzene µg/m3	Benzo(a)Pyrene ng/m3	Pb µg/m3	Arsenic ng/m3	Nickel ng/m3
Apr'23	61	33.1	10.6	19.1	0.56	9.2	BDL	BDL	BDL	BDL	BDL	BDL
May'23	61.7	33.6	10.8	19.2	0.56	9.4	BDL	BDL	BDL	BDL	BDL	BDL
Jun'23	60.5	32	10.6	19.1	0.55	9.6	BDL	BDL	BDL	BDL	BDL	BDL
Jul'23	54.6	27.8	10.1	14.6	0.45	8.3	BDL	BDL	BDL	BDL	BDL	BDL
Aug'23	49.2	28.3	9.6	13.1	0.4	7.8	BDL	BDL	BDL	BDL	BDL	BDL
Sep'23	45.8	25.6	9.4	12.8	0.38	7.6	BDL	BDL	BDL	BDL	BDL	BDL

05. NICKEL GUEST HOUSE

Monthly Average	PM10 µg/m3	PM2.5 µg/m3	SO2 µg/m3	NOx µg/m3	CO mg/m3	O3 µg/m3	NH3 µg/m3	Benzene µg/m3	Benzo(a)Pyr ene ng/m3	Pb µg/m3	Arsenic ng/m3	Nickel ng/m3
Apr'23	61.5	32.8	11.4	16.7	0.57	8.2	23.1	BDL	BDL	BDL	BDL	BDL
May'23	62	33.2	11.4	16.9	0.59	8.2	23.2	BDL	BDL	BDL	BDL	BDL
Jun'23	60.2	32.2	11.1	16.9	0.58	8.1	23.3	BDL	BDL	BDL	BDL	BDL
Jul'23	55.7	28.7	10.2	15.1	0.53	7.7	21.5	BDL	BDL	BDL	BDL	BDL
Aug'23	49.3	27.4	9.6	13.7	0.47	7.2	18.9	BDL	BDL	BDL	BDL	BDL
Sep'23	45.7	25	9.3	13	0.4	7	17.8	BDL	BDL	BDL	BDL	BDL
Apr'23	61.5	32.8	11.4	16.7	0.57	8.2	23.1	BDL	BDL	BDL	BDL	BDL

06. LABORATORY TOP

Monthly Average	PM10 µg/m3	PM2.5 µg/m3	SO2 µg/m3	NOx µg/m3	CO mg/m3	O3 µg/m3	NH3 µg/m3	Benzene µg/m3	Benzo(a)Pyrene ng/m3	Pb µg/m3	Arsenic ng/m3	Nickel ng/m3
Apr'23	61.3	32.7	12.4	19.1	0.54	9.8	23.6	BDL	BDL	BDL	BDL	BDL
May'23	62.1	33.5	12.5	19.2	0.55	10	24	BDL	BDL	BDL	BDL	BDL
Jun'23	60	31.7	12.5	19.1	0.52	9.9	23.6	BDL	BDL	BDL	BDL	BDL
Jul'23	52.3	27.1	11.3	17.3	0.48	9.7	21.7	BDL	BDL	BDL	BDL	BDL
Aug'23	49	26.8	10.4	16.7	0.43	9.1	19.1	BDL	BDL	BDL	BDL	BDL
Sep'23	44.9	24.9	9.8	16.1	0.4	8.9	17.7	BDL	BDL	BDL	BDL	BDL

2. Air Quality Monitoring: BUFFER ZONE**1. BIRASAL VILLAGE**

Monthly Average	PM10 µg/m3	PM2.5 µg/m3	SO2 µg/m3	NOx µg/m3	CO mg/m3	O3 µg/m3	Pb µg/m3	NH3 µg/m3	Benzene µg/m3	Benzo(a)Pyrene ng/m3	Arsenic ng/m3	Nickel ng/m3
Jun'22	64.1	34.2	6.3	13.1	0.33	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Sep'22	52.1	26.9	5.7	12.6	0.31	BDL	BDL	BDL	BDL	BDL	BDL	BDL

2. KANHEIPAL VILLAGE

Monthly Average	PM10 µg/m3	PM2.5 µg/m3	SO2 µg/m3	NOx µg/m3	CO mg/m3	O3 µg/m3	Pb µg/m3	NH3 µg/m3	Benzene µg/m3	Benzo(a)Pyrene ng/m3	Arsenic ng/m3	Nickel ng/m3
Jun'22	62.2	33.5	6.1	13.8	0.31	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Sep'22	53.1	27.5	5.4	13.5	0.29	BDL	BDL	BDL	BDL	BDL	BDL	BDL

3. KHARKHARI VILLAGE

Monthly Average	PM10 µg/m3	PM2.5 µg/m3	SO2 µg/m3	NOx µg/m3	CO mg/m3	O3 µg/m3	Pb µg/m3	NH3 µg/m3	Benzene µg/m3	Benzo(a)Pyrene ng/m3	Arsenic ng/m3	Nickel ng/m3
Jun'22	63.1	34.3	6.3	14.1	0.34	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Sep'22	54.4	29.2	5.7	13.7	0.24	BDL	BDL	BDL	BDL	BDL	BDL	BDL

5. KAKUDIA VILLAGE

Monthly Average	PM10 µg/m3	PM2.5 µg/m3	SO2 µg/m3	NOx µg/m3	CO mg/m3	O3 µg/m3	Pb µg/m3	NH3 µg/m3	Benzene µg/m3	Benzo(a)Pyrene ng/m3	Arsenic ng/m3	Nickel ng/m3
Jun'22	60.3	32.3	7.1	14.4	0.31	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Sep'22	52.3	27.9	5.5	13.3	0.26	BDL	BDL	BDL	BDL	BDL	BDL	BDL

6. SENDHESWAR VILLAGE

Monthly Average	PM10 µg/m3	PM2.5 µg/m3	SO2 µg/m3	NOx µg/m3	CO mg/m3	O3 µg/m3	Pb µg/m3	NH3 µg/m3	Benzene µg/m3	Benzo(a)Pyrene ng/m3	Arsenic ng/m3	Nickel ng/m3
Jun'22	62.8	33.1	6.5	12.9	0.38	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Sep'22	50.9	27.3	5.9	12.4	0.33	BDL	BDL	BDL	BDL	BDL	BDL	BDL

7. LAXMIDHARPUR VILLAGE

Monthly Average	PM10 µg/m3	PM2.5 µg/m3	SO2 µg/m3	NOx µg/m3	CO mg/m3	O3 µg/m3	Pb µg/m3	NH3 µg/m3	Benzene µg/m3	Benzo(a)Pyrene ng/m3	Arsenic ng/m3	Nickel ng/m3
Jun'22	62.5	33.9	6.6	14.2	0.37	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Sep'22	56.6	30.1	5.3	13.4	0.34	BDL	BDL	BDL	BDL	BDL	BDL	BDL

8. SUKARANGI VILLAGE

Monthly Average	PM10 µg/m3	PM2.5 µg/m3	SO2 µg/m3	NOx µg/m3	CO mg/m3	O3 µg/m3	Pb µg/m3	NH3 µg/m3	Benzene µg/m3	Benzo(a)Pyrene ng/m3	Arsenic ng/m3	Nickel ng/m3
Jun'22	62.7	33.1	6.4	15.1	0.36	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Sep'22	55.4	28.1	5.8	12.9	0.33	BDL	BDL	BDL	BDL	BDL	BDL	BDL

9. MARUABIL VILLAGE

Monthly Average	PM10 µg/m3	PM2.5 µg/m3	SO2 µg/m3	NOx µg/m3	CO mg/m3	O3 µg/m3	Pb µg/m3	NH3 µg/m3	Benzene µg/m3	Benzo(a)Pyrene ng/m3	Arsenic ng/m3	Nickel ng/m3
Jun'22	61.3	32.4	7.4	14.2	0.36	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Sep'22	53.4	28.4	6.1	13.8	0.34	BDL	BDL	BDL	BDL	BDL	BDL	BDL

10. KALARANGI VILLAGE

Monthly Average	PM10 µg/m3	PM2.5 µg/m3	SO2 µg/m3	NOx µg/m3	CO mg/m3	O3 µg/m3	Pb µg/m3	NH3 µg/m3	Benzene µg/m3	Benzo(a)Pyrene ng/m3	Arsenic ng/m3	Nickel ng/m3
Jun'22	61.9	33.5	7.5	14.2	0.36	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Sep'22	53.4	28.1	5.6	13.8	0.31	BDL	BDL	BDL	BDL	BDL	BDL	BDL

3. DG STACK 1000KVA

DG-1	PARAMETER	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23
	Stack Temp 0c	198	197	195	193	192	185
	Stack Velocity in m/sec	19.8	19.6	18.9	17.6	17.1	16.5
	Particulate Matter, PM, (mg/Nm ³)	73	72	71	68	66	64
	Oxides of Nitrogen as NOx (mg/Nm ³)	66	68	66	62	61	60
	Carbon Monoxide as (mg/Nm ³)	82	85	83	80	77	72
	Non-Methyl Hydro Carbon (as C) (mg/Nm ³)	31.6	31.9	30.9	30.4	30.2	29.6

DG-2	PARAMETER	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23
	Stack Temp 0c	195	194	193	190	188	178
	Stack Velocity in m/sec	18.7	18.4	18.1	17.1	16.8	16.1

Particulate Matter, PM, (mg/Nm ³)	71	70	70	64	63	61
Oxides of Nitrogen as NOx (mg/Nm ³)	68	69	68	65	64	62
Carbon Monoxide as (mg/Nm ³)	85	87	85	81	79	76
Non-Methyl Hydro Carbon (as C) (mg/Nm ³)	31.4	32.1	31.4	31.1	30.8	30.1

5. AMBIENT NOISE MONITORING

Sl. No	LOCATION	Apr'23		LOCATION Noise Level in dB(A)	Apr'23	
		Noise Level in dB(A)			Noise level in dB(A)	
		Day Time	Night Time		Day Time	Night Time
1	COB Plant Gate	68.9	63.4	Main Gate	64.2	62.5
2	Canteen	62.4	57.7	Market Complex	58.4	53.3
3	Work shop	69.7	64.5	Security control room	60.7	55.8
4	Stack Yard Office	65.2	60.1	Post office	58.1	52.4
5	DG Shed	72.5	67.8	Study Center	56.9	51.8
6	Mining Gate	64.8	60.4	WTP	60.3	56.7
7	View Point	66.5	61.2	STP	59.8	53.4
8	Paradeep Gate	63.8	58.9	Shishu mandir	52.6	48.3
9	Near ETP	61.5	58.5	Children Park	61.5	56.7
10	DECO Parking Area	68.9	64.2	3 RSF Quarters	58.4	54.1

Sl. No	LOCATION	May'23		LOCATION	May'23	
		Noise Level in dB(A)			Noise level in dB(A)	
		Day Time	Night Time		Day Time	Night Time
1	COB Plant Gate	70.2	65.4	Main Gate	65.4	61.2
2	Canteen	64.5	59.2	Market Complex	59.2	56.4
3	Work shop	72.7	67.5	Hospital	61.4	58.2
4	Stack Yard Office	66.2	63.2	Post office	59.2	55.3
5	DG Shed	74.5	71.3	Study Center	58.7	54.5
6	Mining Gate	66.8	62.4	WTP	61.8	66.4
7	View Point	67.5	62.7	STP	60.7	56.6
8	Paradeep Gate	64.7	62.4	Shishu mandir	54.5	50.4
9	Near ETP	62.4	58.3	Children Park	62.8	59.7
10	DECO Parking Area	69.7	66.2	3 RSF Quarters	59.4	54.8

Sl. No	LOCATION	Jun'23		LOCATION	Jun'23	
		Noise Level in dB(A)			Noise level in dB(A)	
		Day Time	Night Time		Day Time	Night Time
1	COB Plant Gate	71.2	67.8	Main Gate	64.8	59.8
2	Canteen	67.7	65.2	Market Complex	61.5	51.6
3	Work shop	66.4	62.6	Hospital	61.9	56.9
4	Stack Yard Office	65.5	61.4	Post office	58.6	54.2
5	DG Shed	67.3	63.2	Study Center	51.6	48.1
6	Mining Gate	72.2	68.7	WTP	60.8	54.9
7	View Point	66.7	62.5	STP	60.7	55.3
8	Paradeep Gate	73.9	69.7	Shishu mandir	54.4	49.5
9	Near ETP	63.2	59.8	Children Park	61.2	55.2
10	DECO Parking Area	70.4	66.8	3 RSF Quarters	55.7	51.4

Sl. No	LOCATION	Jul'23		LOCATION	Jul'23	
		Noise Level in dB(A)			Noise level in dB(A)	
		Day Time	Night Time		Day Time	Night Time
1	COB Plant Gate	68.7	66.4	Main Gate	62.3	59.7

2	Canteen	65.2	62.1	Market Complex	58.7	56.2
3	Work shop	62.4	60.8	Hospital	59.4	55.8
4	Stack Yard Office	63.8	61.2	Post office	52.9	50.1
5	DG Shed	68.1	66.7	Study Center	48.5	46.9
6	Mining Gate	67.4	65.5	WTP	55.3	52.7
7	View Point	60.2	57.3	STP	58.7	55.3
8	Paradeep Gate	70.7	66.4	Shishu mandir	51.2	49.7
9	Near ETP	61.2	59.6	Children Park	57.4	55.1
10	DECO Parking Area	67.3	65.5	3 RSF Quarters	50.9	47.2

Sl. No	LOCATION	Aug'23		LOCATION	Aug'23	
		Noise Level in dB(A)			Noise level in dB(A)	
		Day Time	Night Time		Day Time	Night Time
1	COB Plant Gate	69.2	66.8	Main Gate	61.2	59.2
2	Canteen	64.5	60.4	Market Complex	56.5	53.7
3	Work shop	63.7	60.1	Hospital	58.7	55.6
4	Stack Yard Office	62.1	59.8	Post office	53.1	50.8
5	DG Shed	69.7	66.2	Study Center	47.2	45.3
6	Mining Gate	64.2	61.6	WTP	56.4	52.7
7	View Point	61.1	59.2	STP	59.2	56.4
8	Paradeep Gate	67.5	64.8	Shishu mandir	50.8	47.5
9	Near ETP	60.3	58.2	Children Park	55.6	53.1
10	DECO Parking Area	68.8	65.7	3 RSF Quarters	52.4	48.8

Sl. No	LOCATION	Sep'23		LOCATION	Sep'23	
		Noise Level in dB(A)			Noise level in dB(A)	
		Day Time	Night Time		Day Time	Night Time
1	COB Plant Gate	68.3	64.2	Main Gate	64.7	59.8
2	Canteen	63.7	59.6	Market Complex	56.2	51.6
3	Work shop	69.2	64.4	Hospital	63.2	58.4
4	Stack Yard Office	63.4	58.4	Post office	59.2	55.4
5	DG Shed	66.8	63.2	Study Center	54.4	50.2
6	Mining Gate	70.2	64.8	WTP	56.6	52.2
7	View Point	62.4	58.2	STP	58.4	53.4
8	Paradeep Gate	66.2	61.6	Shishu mandir	52.5	46.8
9	Near ETP	64.8	60.4	Children Park	61.4	52.6
10	DECO Parking Area	67.6	62.5	3 RSF Quarters	55.8	50.2

**AMBIENT NOISE MONITORING ANALYSIS REPORT SEPTEMBER-2023
(BUFFER ZONE)**

- Name & Address of the Client : Sukinda Chromite Block,
M/s. Tata Steel Ltd., Sukinda, Dist. Jajpur, Odisha
- Sample Type : Ambient Noise (Buffer Zone)

Sl. No.	Date of monitoring	Location	Noise Level in dB(A)	Noise Level in dB(A)
			Day Time	Night Time
1	11.09.2023	Maruabil Village	51.2	46.5
2	11.09.2023	Sendheswar Village	49.8	43.2
3	11.09.2023	Birasal Village	50.5	47.8
4	11.09.2023	Laxmidharpur Village	53.4	50.1
5	11.09.2023	Kanheipal Village	50.1	46.2
6	12.09.2023	Sukrangi Village	47.6	44.3
7	12.09.2023	Kaliapani Village	49.8	45.7
8	12.09.2023	Kalarangi Village	48.2	46.5
9	12.09.2023	Kakudia Village	50.1	48.2
10	12.09.2023	Kharkhari Village	51.3	47.3

6. MINERALOGICAL COMPOSITION (RESULTS IN %)

PARAMETER	VIEW POINT		COB PLANT		PARADEEP GATE		NICKEL GUEST HOUSE	
	Jun'23	Sep'23	Jun'23	Sep'23	Jun'23	Sep'23	Jun'23	Sep'23
Cr2O3	25.5	22.1	26.3	23.2	24.7	21.4	24.3	21.6
Fe2O3	10.8	10.9	111.6	10.5	12.2	12.4	11.9	11.1
MnO2	4.4	3.6	3.7	3.5	4.1	3	4.2	3.4
SiO2	28.1	27.2	30.3	28.5	25.6	26.4	29.9	27.6
Al2O3	13.4	11.7	12.6	11.2	13.1	12.4	12.5	12.1
MgO	15.9	14.3	16.3	14.1	16.2	15.1	15.1	14.3
CaO	5.3	4.3	4.8	4.4	5.1	4.6	5	4.2

PARAMETER	Laboratory Top		Stack Yard	
	Jun'23	Sep'23	Jun'23	Sep'23
Cr2O3	23.1	20.9	25.9	22.8
Fe2O3	12.1	12	12.3	10.1
MnO2	3.6	3.7	4.4	4
SiO2	28.7	28.9	32.2	28.1
Al2O3	13.5	12.3	12.9	12.5
MgO	16.4	14.6	15.3	14.8
CaO	5.5	4.4	5.2	4.6

7. WATER QUALITY MONITORING**1. DRINKING WATER****DW1. WTP-INLET**

Sl. No	Parameter	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23
1	pH at 250C	7.23	7.28	7.23	7.16	7.23	7.2
2	Colour	<5	<5	<5	<5	<5	<5
3	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Total Hardness	160	168	172	184	196	196
5	Turbidity	2.2	2.3	2.1	2.5	2.8	3
6	Total Dissolved Solids	462	438	728	349	370	382
7	Chloride as Cl	38.5	38.1	36.5	32.6	33.5	34.2
8	Dissolve Oxygen	6.3	6.5	6.3	5.2	5.1	5.3
9	Calcium as Ca	44.1	43.6	42.1	35.2	34.2	33.6
10	Magnesium as Mg	12.1	14.4	16.3	23.4	26.9	27.2
11	Sulphate as SO4	7.5	7.8	7.2	8.1	8.9	8.5
12	Fluoride as F	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
13	Iron as Fe	0.41	0.43	0.39	0.37	0.42	0.34
14	Total Chromium as Cr	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

15	Hexavalent Chromium as Cr+6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
16	Mercury as Hg	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
17	Pesticide	Absent	Absent	Absent	Absent	Absent	Absent
18	Fecal Coliform	<1.1	<1.1	<1.1		Absent	<1.1
19	Nickel (as Ni)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
20	Total alkalinity as CaCO3	96	97	94	98	104	96
21	Manganese as Mn	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
22	Free Residual Chlorine	ND	ND	ND	ND	ND	ND
23	Anionic Detergents	ND	ND	ND	ND	ND	ND
24	Ammonia (as total ammonia-N)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
25	Aluminium (as Al)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
26	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable

DW2. WTP-OUTLET

Sl. No	Parameter	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23
1	pH at 25 degree C	7.28	7.3	7.35	7.28	7.31	7.26
2	Colour	<5	<5	<5	<5	<5	<5
3	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Total hardness	164	171	169	175	182	188
5	Turbidity	2.5	2.1	2.3	2.9	3.1	2.8
6	Total Dissolved Solids	395	389	396	382	398	390
7	Chloride as Cl	29.9	30.5	31.4	30.9	31.2	32.6
8	Dissolve Oxygen	5.8	5.9	5.8	5.5	5.4	5.7
9	Calcium as Ca	33.8	36.8	38.5	31.6	32.5	34.1
10	Magnesium as Mg	19.3	19.2	17.7	23.4	24.5	25
11	Sulphate as SO4	6.2	6.1	6.3	7.2	7.5	7.8
12	Fluoride as F	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
13	Iron as Fe	0.39	0.37	0.33	0.29	0.31	0.3
14	Total Chromium as Cr	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
15	Hexavalent Chromium as Cr+	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
16	Mercury as Hg	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
17	Pesticide	Absent	Absent	Absent	Absent	Absent	Absent
18	Fecal Coliform	<1.1	<1.1	<1.1	<1.1	Absent	<1.1
19	Nickel as Ni	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
20	Total Alkalinity as CaCO3	82	86	88	83	86	82
21	Manganese as Mn	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
22	Free Residual Chlorine	ND	ND	ND	ND	ND	ND
23	Anionic Detergents	ND	ND	ND	ND	ND	ND

24	Ammonia as (Total ammonia-N)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
25	Aluminium as Al	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
26	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable

DW3. Tap water near DECO Canteen

Sl. No	Parameter	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23
1	pH at 25 degree C	7.18	7.23	7.19	7.13	7.19	7.17
2	Colour	<5	<5	<5	<5	<5	<5
3	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Total hardness	163	165	170	182	189	192
5	Turbidity	2.1	2	1.9	2.2	2.4	2.6
6	Total Dissolved Solids	374	378	372	388	392	401
7	Chloride as Cl	26.7	27.8	28.6	30.1	30.9	31.8
8	Dissolve Oxygen	5.6	5.7	5.4	4.8	5.2	5.1
9	Calcium as Ca	36.7	38.7	39.4	32.9	33.1	32.9
10	Magnesium as Mg	17.3	16.6	17.4	24.3	25.8	26.7
11	Sulphate as SO4	6.4	6.5	6.6	6.6	6.8	7.1
12	Fluoride as F	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
13	Iron as Fe	0.4	0.41	0.42	0.36	0.38	0.34
14	Total Chromium as Cr	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
15	Hexavalent Chromium as Cr+	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
16	Mercury as Hg	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
17	Pesticide	Absent	Absent	Absent	Absent	Absent	Absent
18	Fecal Coliform	<1.1	<1.1	<1.1	<1.1	Absent	<1.1
19	Nickel as Ni	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
20	Total Alkalinity as CaCO3	78	80	83	81	84	89
21	Manganese as Mn	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
22	Free Residual Chlorine	ND	ND	ND	ND	ND	ND
23	Anionic Detergents	ND	ND	ND	ND	ND	ND
24	Ammonia as (Total ammonia-N)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
25	Aluminium as Al	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
26	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable

DW4. Water near Stack Yard

Sl. No	Parameter	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23
1	pH at 25 degree C	7.25	7.26	7.22	7.09	7.14	7.13
2	Colour	<5	<5	<5	<5	<5	<5
3	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Total hardness	158	162	164	175	190	196

5	Total Suspended Solid	1.9	2.3	2.2	2.4	2.5	2.3
6	Total Dissolved Solids	371	371	368	375	384	388
7	Chloride as Cl	26.1	29.4	29.4	31.4	31.8	32.2
8	Dissolve Oxygen	5.2	5.5	5.2	5.1	4.8	4.9
9	Calcium as Ca	35.2	36.1	36.2	33.7	33.6	33.8
10	Magnesium as Mg	17	17.5	17.9	22.1	25.8	27.1
11	Sulphate as SO4	7.1	6.9	6.4	5.9	6.1	6.5
12	Fluoride as F	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
13	Iron as Fe	0.36	0.39	0.36	0.33	0.35	0.32
14	Total Chromium as Cr	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
15	Hexavalent Chromium as Cr+	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
16	Mercury as Hg	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
17	Pesticide	Absent	Absent	Absent	Absent	Absent	Absent
18	Fecal Coliform	<1.1	<1.1		<1.1	Absent	<1.1
19	Nickel as Ni	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
20	Total Alkalinity as CaCO3	76	78	79	77	79	91
21	Manganese as Mn	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
22	Free Residual Chlorine	ND	ND	ND	ND	ND	ND
23	Anionic Detergents	ND	ND	ND	ND	ND	ND
24	Ammonia as (Total ammonia-N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
25	Aluminium as Al	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
26	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable

DW5.Water near Jagannath Temple

Sl. No	Parameter	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23
1	pH at 25 degree C	7.23	7.28	7.25	7.16	7.21	7.19
2	Colour	<5	<5	<5	<5	<5	<5
3	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Total hardness	162	174	170	178	182	190
5	Total Suspended Solid	1.7	1.9	1.7	1.9	2.1	2.4
6	Total Dissolved Solids	384	380	377	364	375	364
7	Chloride as Cl	25.9	26.4	28.2	29.8	30.6	30.9
8	Dissolve Oxygen	5.4	5.8	5.9	5.6	5.8	5.6
9	Calcium as Ca	34.1	39.2	40.2	38.6	36.8	35.6
10	Magnesium as Mg	18.7	18.5	16.9	19.8	21.9	24.6
11	Sulphate as SO4	7.3	7	7.2	7.4	7.8	7.9
12	Fluoride as F	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
13	Iron as Fe	0.31	0.35	0.32	0.27	0.29	0.28

14	Total Chromium as Cr	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
15	Hexavalent Chromium as Cr ⁺	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
16	Mercury as Hg	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
17	Pesticide	Absent	Absent	Absent	Absent	Absent	Absent
18	Fecal Coliform	<1.1	<1.1	<1.1	<1.1	Absent	<1.1
19	Nickel as Ni	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
20	Total Alkalinity as CaCO ₃	73	74	80	76	76	78
21	Manganese as Mn	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
22	Free Residual Chlorine	ND	ND	ND	ND	ND	ND
23	Anionic Detergents	ND	ND	ND	ND	ND	ND
24	Ammonia as (Total ammonia-N)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
25	Aluminium as Al	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
26	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable

DW6. Water near COB Plant

Sl. No	Parameter	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23
1	pH at 25 degree C	7.26	7.3	7.29	7.22	7.27	7.25
2	Colour	<5	<5	<5	<5	<5	<5
3	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Total hardness	163	166	163	170	179	184
5	Total Suspended Solid	2	2.1	2	2.3	2.7	2.9
6	Total Dissolved Solids	388	369	364	389	392	396
7	Chloride as Cl	24.8	27.1	27.5	27.9	29.7	29.8
8	Dissolve Oxygen	5.2	5.4	5.6	4.3	4.6	4.8
9	Calcium as Ca	32.6	37.2	38.5	34.2	32.6	34.2
10	Magnesium as Mg	19.8	17.8	16.2	20.6	23.7	24
11	Sulphate as SO ₄	6.6	6.8	6.7	7.4	7.9	7.3
12	Fluoride as F	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
13	Iron as Fe	0.29	0.31	0.34	0.29	0.3	0.31
14	Total Chromium as Cr	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
15	Hexavalent Chromium as Cr ⁺	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
16	Mercury as Hg	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
17	Pesticide	Absent	Absent	Absent	Absent	Absent	Absent
18	Fecal Coliform	<1.1	<1.1	<1.1	<1.1	Absent	<1.1
19	Nickel as Ni	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
20	Total Alkalinity as CaCO ₃	75	79	82	81	84	85
21	Manganese as Mn	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
22	Free Residual Chlorine	ND	ND	ND	ND	ND	ND
23	Anionic Detergents	ND	ND	ND	ND	ND	ND

24	Ammonia as (Total ammonia-N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
25	Aluminium as Al	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
26	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable

DW7- Tap water canteen From TSML Canteen

Sl. No	Parameter	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23
1	pH at 25 degree C	7.22	7.24	7.3	7.27	7.32	7.23
2	Colour	<5	<5	<5	<5	<5	<5
3	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Total hardness	159	162	165	172	186	192.6
5	Total Suspended Solid	2.1	2.3	2.1	2.4	2.5	2.3
6	Total Dissolved Solids	366	381	383	397	379	384
7	Chloride as Cl	26.3	26.9	26.6	28.1	30.4	32.1
8	Dissolve Oxygen	5.9	5.8	5.5	5.2	5	4.4
9	Calcium as Ca	32.2	35.4	36.4	33.5	31.4	32.5
10	Magnesium as Mg	19.1	17.9	18	21.5	26.1	27.1
11	Sulphate as SO4	6.5	6.2	6.1	6.8	7.2	6.8
12	Fluoride as F	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
13	Iron as Fe	0.28	0.29	0.3	0.31	0.33	0.29
14	Total Chromium as Cr	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
15	Hexavalent Chromium as Cr+	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
16	Mercury as Hg	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
17	Pesticide	Absent	Absent	Absent	Absent	Absent	Absent
18	Fecal Coliform	<1.1	<1.1	<1.1	<1.1	Absent	<1.1
19	Nickel as Ni	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
20	Total Alkalinity as CaCO3	77	76	78	75	78	82
21	Manganese as Mn	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
22	Free Residual Chlorine	ND	ND	ND	ND	ND	ND
23	Anionic Detergents	ND	ND	ND	ND	ND	ND
24	Ammonia as (Total ammonia-N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
25	Aluminium as Al	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
26	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable

2. GROUND WATER

A. (GROUND WATER CORE ZONE)

Sl. No	Parameter	Tube well Infront of Main gate	Tube well Near Market Complex	Tube well Infront of Main gate	Tube well Near Market Complex	Tube well Infront of Main gate	Tube well Near Market Complex
		Apr'23		May'23		Jun'23	

1	pH at 250C	7.27	7.31	7.29	7.33	7.25	7.3
2	Turbidity	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
3	Total Hardness	124	129	122	126	126	132
4	Alkalinity	84	92	86	94	84	92
5	Total Dissolved Solids	229	238	231	235	238	241
6	Chloride as Cl	41.6	39.7	40.9	39.2	40.2	39.6
7	Residual free Chlorine	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
8	Dissolve Oxygen	5.6	6.1	5.4	6.2	5	5.8
9	Calcium as Ca	38.5	35.2	39.5	37.1	38.6	36.1
10	Magnesium as Mg	6.8	10	5.7	8.1	7.2	10.2
11	Sulphate as SO4	14.5	15.1	14.8	15.3	13.2	15.1
12	Fluoride as F	0.14	0.16	0.15	0.18	0.15	0.18
13	Nitrate	1.38	1.52	1.34	1.49	1.31	1.39
14	Hexavalent Chromium as Cr+6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
15	Cyanide (as CN)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
16	Arsenic (as As)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
17	Iron as Fe	0.47	0.41	0.45	0.39	0.42	0.38
18	Lead (as Pb)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
19	Zinc (as Zn)	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
20	Copper (as Cu)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
21	Manganese (as Mn)	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
22	Mercury as Hg	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
23	Cadmium (as Cd)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
24	Boron (as B)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
25	Selenium (as Se)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
26	Mineral Oil	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

B. (GROUND WATER CORE ZONE)

Sl. No	Parameter	Tube well Infront of Main gate	Tube well Near Market Complex	Tube well Infront of Main Gate	Tube well Near Market Complex	Tube well Infront of Main Gate	Tube well Near Market Complex
		Jul'23		Aug'23		Sep'23	
1	pH at 25 degree C	7.21	7.28	7.29	7.35	7.24	7.3
2	Turbidity	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
3	Total Hardness	132	146	146	162	158	167
4	Alkalinity	88	102	96	118	96	118
5	Total Dissolved Solids	242	261	268	291	276	289
6	Chloride as Cl	36.9	32.4	37.2	32.1	38.2	33.1
7	Residual free Chlorine	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
8	Dissolve Oxygen	5.4	6.2	5.6	6.8	5.7	6.9

9	Calcium as Ca	33.2	29.8	34.5	30.2	33.6	31.2
10	Magnesium as Mg	11.9	17.4	14.5	21	18	21.6
11	Sulphate as SO ₄	10.8	13.4	12.6	14.1	13.1	14.5
12	Fluoride as F	0.13	0.16	0.15	0.19	0.12	0.14
13	Nitrate	1.27	1.31	1.31	1.36	1.43	1.47
14	Hexavalent Chromium as Cr+6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
15	Cyanide (as CN)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
16	Arsenic (as As)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
17	Iron as Fe	0.41	0.35	0.44	0.37	0.41	0.36
18	Lead (as Pb)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
19	Zinc (as Zn)	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
20	Copper (as Cu)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
21	Manganese (as Mn)	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
22	Mercury as Hg	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
23	Cadmium (as Cd)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
24	Boron (as B)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
25	Selenium (as Se)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
26	Mineral Oil	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

C. (GROUND WATER BUFFER ZONE)

Sl. No	Parameter	Village Kanheipal	Village Sukarangi	Village Kaliapani	Village Kalarangi	Village Laxmidharpur
		Jun'23				
1	Colour	CL	CL	CL	CL	CL
2	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	<1	<1	<1	<1	<1
5	Total Dissolved Solids as TDS	124	122	118	132	120
6	pH at 250C	7.51	7.41	7.65	7.39	7.62
7	Aluminium (as Al)	<0.1	<0.1	<0.1	<0.1	<0.1
8	Ammonia (as total ammonia-N)	<0.1	<0.1	<0.1	<0.1	<0.1
9	Anionic Detergents	<0.2	<0.2	<0.2	<0.2	<0.2
10	Barium as Ba	<0.05	<0.05	<0.05	<0.05	<0.05
11	Boron as B	<0.1	<0.1	<0.1	<0.1	<0.1
12	Calcium as Ca	30.2	26.1	24.2	24.7	29.4
13	Chloride as Cl	20.4	15.9	18.2	21.7	19.6
14	Copper as Cu	<0.02	<0.02	<0.02	<0.02	<0.02
15	Fluoride as F	0.21	0.19	0.21	0.22	0.2
16	Free Residual Chlorine	ND	ND	ND	ND	ND
17	Iron as Fe	0.22	0.21	0.23	0.21	0.18
18	Magnesium as Mg	9	11.3	9.4	8.46	10.7
19	Manganese as Mn	<0.025	<0.025	<0.025	<0.025	<0.025
20	Mineral Oil	<0.5	<0.5	<0.5	<0.5	<0.5
21	Nitrate as NO ₃	3.9	3.2	3.4	3.6	3.7
22	Phenolic Compound	<0.05	<0.05	<0.05	<0.05	<0.05
23	Selenium as Se	<0.001	<0.001	<0.001	<0.001	<0.001
24	Silver as Ag	<0.1	<0.1	<0.1	<0.1	<0.1
25	Sulphate as SO ₄	6.4	7.4	6.3	5.9	6.2
26	Sulphide	<0.05	<0.05	<0.05	<0.05	<0.05

27	Total alkalinity as CaCO ₃	46	47	44	42	43
28	Total Hardness	88	86	84	89	93
29	Zinc as Zn	<0.03	<0.03	<0.03	<0.03	<0.03
30	Cadmium as Cd	<0.01	<0.01	<0.01	<0.01	<0.01
31	Cyanide as CN	<0.01	<0.01	<0.01	<0.05	<0.01
32	Lead as Pb	<0.02	<0.02	<0.02	<0.02	<0.02
33	Mercury as Hg	<0.004	<0.004	<0.004	<0.004	<0.004
34	Molybdenum as Mo	<0.05	<0.05	<0.05	<0.05	<0.05
35	Nickel (as Ni)	<0.1	<0.1	<0.1	<0.1	<0.1
36	Pesticide	Absent	Absent	Absent	Absent	Absent
37	Poly aromatic Hydrocarbon as PAH	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
38	Arsenic as As	<0.004	<0.004	<0.004	<0.004	<0.004
39	Total Chromium as Cr	<0.1	<0.1	<0.1	<0.1	<0.1
40	Total Coliform	CL	CL	CL	CL	CL

Sl. No	Parameter	Village Kakudia	Village Maruabil	Village Sandeswar	Village Birasal	Village Kharkhari
		Jun'23				
1	Colour	CL	CL	CL	CL	CL
2	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	<1	<1	<1	<1	<1
5	Total Dissolved Solids as TDS	124	116	135	132	99
6	pH at 250C	7.55	7.28	7.61	7.42	7.34
7	Aluminium (as Al)	<0.1	<0.1	<0.1	<0.1	<0.1
8	Ammonia (as total ammonia-N)	<0.1	<0.1	<0.1	<0.1	<0.1
9	Anionic Detergents	<0.2	<0.2	<0.2	<0.2	<0.2
10	Barium as Ba	<0.05	<0.05	<0.05	<0.05	<0.05
11	Boron as B	<0.1	<0.1	<0.1	<0.1	<0.1
12	Calcium as Ca	23.6	28.9	26.4	26.8	25.8
13	Chloride as Cl	19.2	20.2	22.5	23.9	18.3
14	Copper as Cu	<0.02	<0.02	<0.02	<0.02	<0.02
15	Fluoride as F	0.24	0.19	0.23	0.26	0.23
16	Free Residual Chlorine	ND	ND	ND	ND	ND
17	Iron as Fe	0.24	0.22	0.26	0.19	0.19
18	Magnesium as Mg	8.76	10.1	7	5.7	11.7
19	Manganese as Mn	<0.025	<0.025	<0.025	<0.025	<0.025
20	Mineral Oil	<0.5	<0.5	<0.5	<0.5	<0.5
21	Nitrate as NO ₃	4.4	3.8	5.2	4.6	4.1
22	Phenolic Compound	<0.05	<0.05	<0.05	<0.05	<0.05
23	Selenium as Se	<0.001	<0.001	<0.001	<0.001	<0.001
24	Silver as Ag	<0.1	<0.1	<0.1	<0.1	<0.1
25	Sulphate as SO ₄	7.4	6.5	9.3	6.8	8.1
26	Sulphide	<0.05	<0.05	<0.05	<0.05	<0.05
27	Total alkalinity as CaCO ₃	49	53	48	60	52
28	Total Hardness	84	92	85	83	94
29	Zinc as Zn	<0.03	<0.03	<0.03	<0.03	<0.03
30	Cadmium as Cd	<0.01	<0.01	<0.01	<0.01	<0.01
31	Cyanide as CN	<0.05	<0.05	<0.05	<0.05	<0.05
32	Lead as Pb	<0.02	<0.02	<0.004	<0.004	<0.02
33	Mercury as Hg	<0.004	<0.004	<0.002	<0.002	<0.004
34	Molybdenum as Mo	<0.05	<0.05	<0.05	<0.05	<0.05
35	Nickel (as Ni)	<0.1	<0.1	<0.1	<0.1	<0.1

36	Pesticide	Absent	Absent	Absent	Absent	Absent
37	Poly aromatic Hydrocarbon as PAH	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
38	Arsenic as As	<0.004	<0.004	<0.004	<0.004	<0.004
39	Total Chromium as Cr	<0.01	<0.01	<0.01	<0.01	<0.1
40	Total Coliform	CL	CL	CL	CL	CL

D. (GROUND WATER BUFFER ZONE)

Sl. No	Parameter	Village Kanheipal	Village Sukarangi	Village Kaliapani	Village Kalarangi	Village Laxmidharpur
		Sep'23				
1	Colour	CL	CL	CL	CL	CL
2	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	<1	<1	<1	<1	<1
5	Total Dissolved Solids as TDS	122	120	124	138	126
6	pH at 250C	7.42	7.34	7.46	7.36	7.55
7	Aluminium (as Al)	<0.1	<0.1	<0.1	<0.1	<0.1
8	Ammonia (as total ammonia-N)	<0.1	<0.1	<0.1	<0.1	<0.1
9	Anionic Detergents	<0.2	<0.2	<0.2	<0.2	<0.2
10	Barium as Ba	<0.05	<0.05	<0.05	<0.05	<0.05
11	Boron as B	<0.1	<0.1	<0.1	<0.1	<0.1
12	Calcium as Ca	32.4	28.4	25.6	25.6	31.8
13	Chloride as Cl	19.6	16.8	20.1	22.3	18.9
14	Copper as Cu	<0.02	<0.02	<0.02	<0.02	<0.02
15	Fluoride as F	0.23	0.15	0.18	0.19	0.21
16	Free Residual Chlorine	ND	ND	ND	ND	ND
17	Iron as Fe	0.21	0.21	0.24	0.22	0.19
18	Magnesium as Mg	13.4	11.7	11.1	8.34	15
19	Manganese as Mn	<0.025	<0.025	<0.025	<0.025	<0.025
20	Mineral Oil	<0.5	<0.5	<0.5	<0.5	<0.5
21	Nitrate as NO3	4	3.4	3.5	3.9	3.9
22	Phenolic Compound	<0.05	<0.05	<0.05	<0.05	<0.05
23	Selenium as Se	<0.001	<0.001	<0.001	<0.001	<0.001
24	Silver as Ag	<0.1	<0.1	<0.1	<0.1	<0.1
25	Sulphate as SO4	6.9	7.9	7.5	6.1	6.4
26	Sulphide	<0.05	<0.05	<0.05	<0.05	<0.05
27	Total alkalinity as CaCO3	46	58	62	66	50
28	Total Hardness	104	90	96	90	109
29	Zinc as Zn	<0.03	<0.03	<0.03	<0.03	<0.03
30	Cadmium as Cd	<0.01	<0.01	<0.01	<0.01	<0.01
31	Cyanide as CN	<0.01	<0.01	<0.01	<0.05	<0.01
32	Lead as Pb	<0.02	<0.02	<0.02	<0.02	<0.02
33	Mercury as Hg	<0.004	<0.004	<0.004	<0.004	<0.004
34	Molybdenum as Mo	<0.05	<0.05	<0.05	<0.05	<0.05
35	Nickel (as Ni)	<0.1	<0.1	<0.1	<0.1	<0.1
36	Pesticide	Absent	Absent	Absent	Absent	Absent
37	Poly aromatic Hydrocarbon as PAH	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
38	Arsenic as As	<0.004	<0.004	<0.004	<0.004	<0.004
39	Total Chromium as Cr	<0.1	<0.1	<0.1	<0.1	<0.1
40	Total Coliform	<1.8	<1.8	<1.8	<1.8	<1.8

Sl. No	Parameter	Village Kakudia	Village Kharkhari	Village Maruabil	Village Sandeswar	Village Birasal
		Sep'23				
1	Colour	CL	CL	CL	CL	CL
2	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	<1	<1	<1	<1	<1
5	Total Dissolved Solids as TDS	129	104	120	131	129
6	pH at 250C	7.48	7.3	7.26	7.49	7.36
7	Aluminium (as Al)	<0.1	<0.1	<0.1	<0.1	<0.1
8	Ammonia (as total ammonia-N)	<0.1	<0.1	<0.1	<0.1	<0.1
9	Anionic Detergents	<0.2	<0.2	<0.2	<0.2	<0.2
10	Barium as Ba	<0.05	<0.05	<0.05	<0.05	<0.05
11	Boron as B	<0.1	<0.1	<0.1	<0.1	<0.1
12	Calcium as Ca	24.9	28.1	29.1	27.2	26.3
13	Chloride as Cl	20.1	19.4	21.5	20.4	21.2
14	Copper as Cu	<0.02	<0.02	<0.02	<0.02	<0.02
15	Fluoride as F	0.2	0.21	0.16	0.21	0.24
16	Free Residual Chlorine	ND	ND	ND	ND	ND
17	Iron as Fe	0.21	0.18	0.23	0.27	0.2
18	Magnesium as Mg	9.43	13	10.3	10.2	14.8
19	Manganese as Mn	<0.025	<0.025	<0.025	<0.025	<0.025
20	Mineral Oil	<0.5	<0.5	<0.5	<0.5	<0.5
21	Nitrate as NO3	4.9	4.2	4.1	5.5	4.9
22	Phenolic Compound	<0.05	<0.05	<0.05	<0.05	<0.05
23	Selenium as Se	<0.001	<0.001	<0.001	<0.001	<0.001
24	Silver as Ag	<0.1	<0.1	<0.1	<0.1	<0.1
25	Sulphate as SO4	7.3	8.3	6.6	9.8	7.2
26	Sulphide	<0.05	<0.05	<0.05	<0.05	<0.05
27	Total alkalinity as CaCO3	65	71	59	73	66
28	Total Hardness	89	102	96	93	114
29	Zinc as Zn	<0.03	<0.03	<0.03	<0.03	<0.03
30	Cadmium as Cd	<0.01	<0.01	<0.01	<0.01	<0.01
31	Cyanide as CN	<0.05	<0.05	<0.05	<0.05	<0.05
32	Lead as Pb	<0.02	<0.02	<0.02	<0.004	<0.004
33	Mercury as Hg	<0.004	<0.004	<0.004	<0.002	<0.002
34	Molybdenum as Mo	<0.05	<0.05	<0.05	<0.05	<0.05
35	Nickel (as Ni)	<0.1	<0.1	<0.1	<0.1	<0.1
36	Pesticide	Absent	Absent	Absent	Absent	Absent
37	Poly aromatic Hydrocarbon as PAH	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
38	Arsenic as As	<0.004	<0.004	<0.004	<0.004	<0.004
39	Total Chromium as Cr	<0.01	<0.1	<0.01	<0.01	<0.01
40	Total Coliform	<1.8	<1.8	<1.8	<1.8	<1.8

C. SURFACE WATER QUALITY

1. Damsala River Upstream

Sl. No	Parameter	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23
1	Colour (max)	<15	<15	<15	<15	<15	<20
2	pH Value at 250C	7.35	7.38	7.35	7.23	7.31	7.26
3	Suspended solids	83	86	84	76	84	90
4	Dissolved Oxygen (minimum)	5.5	5.4	5.2	5.6	5.2	5.4
5	Turbidity	11.2	11.8	11.6	12.7	16.5	17.2
6	Chloride (max)	15.5	15.8	15.4	18.3	20.1	22.3

7	Total Dissolved Solids	198	196	198	202	224	235
8	BOD (3) days at 270C (max)	<1	<1	<1	<1	<1	<1
9	Arsenic as As	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
10	Lead as Pb(max)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
11	Cadmium as Cd (max)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
12	Hexa Chromium as Cr +6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
13	Copper as Cu (max)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
14	Zinc as Zn(max)	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
15	Selenium as Se (max)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
16	Cyanide as CN (max)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
17	Fluoride as F (max)	0.36	0.34	0.28	0.26	0.24	0.22
18	Sulphates (SO4) (max)	1.24	1.22	1.18	1.23	1.29	1.43
19	Phenolic Compounds as C6H5OH (max)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
20	Iron as Fe (max)	0.44	0.42	0.36	0.33	0.39	0.34
21	Nitrate as NO3, (max)	3.1	3	2.8	3.1	3.7	3.8
22	Anionic Detergents (max)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
23	Total Coli form	960	940	920	940	980	940

2. Damsala River Downstream

Sl. No	Parameter	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23
1	Colour (max)	<10	<10	<10	<10	<10	<15
2	pH Value at 250C	7.28	7.3	7.28	7.19	7.2	7.15
3	Suspended solids	87	88	86	88	96	98
4	Dissolved Oxygen (minimum)	5.1	4.9	4.8	5	4.8	5
5	Turbidity	9.6	9.8	9.4	8.9	13.2	13.9
6	Chloride (max)	16.8	17.1	17.2	20.1	24.3	24.9
7	Total Dissolved Solids	185	182	191	178	182	194
8	BOD (3) days at 270C (max)	<1	<1	<1	<1	<1	<1
9	Arsenic as As	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
10	Lead as Pb(max)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
11	Cadmium as Cd (max)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
12	Hexa Chromium as Cr +6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
13	Copper as Cu (max)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
14	Zinc as Zn(max)	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
15	Selenium as Se (max)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
16	Cyanide as CN (max)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
17	Fluoride as F (max)	0.45	0.42	0.36	0.31	0.29	0.25
18	Sulphates (SO4) (max)	1.33	1.31	1.24	1.34	1.45	1.56
19	Phenolic Compounds as C6H5OH (max)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
20	Iron as Fe (max)	0.39	0.38	0.32	0.28	0.3	0.29
21	Nitrate as NO3, (max)	3.5	3.4	3.1	3.6	4.2	4.3
22	Anionic Detergents (max)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
23	Total Coli form	840	870	840	860	860	820

D. WASTE WATER

1. ETP INLET (WW-1)

SL.No	LOCATION	ETP INLET (WW-1)						
	PARAMETERS	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23	Average
1	pH	7.16	7.21	7.36	7.29	7.32	7.26	7.27
2	Colour	<15	<15	<15	<15	<15	<15	<15
3	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Temperature	29.5	29.8	31.5	29.8	29.2	28.5	29.72
5	Suspended Solids	168	170	178	189	196	185	181.00

Six Monthly Compliance Report to EC-Sukinda Chromite Mines, M/s Tata Steel Limited for Oct'22 to March'23

6	Total Residual chlorine	0.33	0.33	0.35	0.29	0.26	0.24	0.30
7	Oil & Grease	5.7	5.5	5.1	4.3	4.1	3.5	4.70
8	BOD (3) days at 270c.	12	14	15	12	14	12	13.17
9	COD	53	52	62	50	52	50	53.17
10	Amm.Nitrogen	2.06	2.14	2.12	2.02	2.09	2.02	2.08
11	Total Kjeldahl Nitrogen	5.4	5.6	5.6	5.1	5.5	5.3	5.42
12	Free Ammonia	0.042	0.041	0.038	0.034	0.036	0.034	0.04
13	Nitrate as NO3	1.33	1.31	1.26	1.22	1.24	1.21	1.26
14	Diss. Phosphate as P	0.74	0.78	0.72	0.76	0.85	0.79	0.77
15	Fluoride as F	0.49	0.48	0.44	0.41	0.45	0.46	0.46
16	Sulphide as S	ND	ND	ND	ND	ND	ND	ND
17	Phenolic Compounds as C6H5OH	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
18	Cyanide as CN	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
19	Hexavalent chromium as Cr+6	0.65	0.22	0.23	0.21	0.23	0.2	0.2
20	Mercury as Hg	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
21	Arsenic	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
22	Lead as Pb	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
23	Cardmium as Cd	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
24	Total Chromium as Cr	0.39	0.34	0.29	0.26	0.24	0.23	0.29
25	Cupper as Cu	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
26	Zinc as Zn	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
27	Selenium as Se	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
28	Nickel as Ni	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
29	Manganese as Mn	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
30	Iron as Fe	0.32	0.31	0.28	0.27	0.31	0.33	0.30
31	Vanadium as V	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
32	Bio-assay Test	98%	96%	97%	95%	92%	91%	0.95
33	Particle size of Suspended Solides	< 850	< 850	< 850	< 850	< 850	< 850	< 850
34	Pesticide	Absent	Absent	Absent	Absent	Absent	Absent	Absent

1. ETP OUTLET (WW-2)

SL.No	LOCATION	ETP OUTLET (WW-2)						
	PARAMETERS	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23	Average
1	pH	6.98	7.03	7.08	7.03	7.09	7.12	7.06
2	Colour	<5	<5	<5	<5	<5	<5	<5
3	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Temperature	28.4	28.7	28.6	26.5	25.6	26.1	27.32
5	Suspended Solids	50.9	45.2	42.6	45.2	48.5	46.2	46.43
6	Total Residual chlorine	0.19	0.17	0.18	0.17	0.18	0.17	0.18
7	Oil & Grease	2.3	2.1	2.2	2	2.2	2.1	2.15
8	BOD (3) days at 270c.	<1	<1	<1	<1	<1	<1	<1
9	COD	<4	<4	<4	<4	<4	<4	<4
10	Amm.Nitrogen	0.71	0.73	0.45	0.42	0.48	0.44	0.54

11	Total Kjeldahl Nitrogen	3.2	3.4	3.2	3	3.2	3.1	3.18
12	Free Ammonia	0.055	0.054	0.052	0.048	0.05	0.042	0.05
13	Nitrate as NO3	0.64	0.62	0.61	0.52	0.51	1.39	0.72
14	Diss. Phosphate as P	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
15	Fluoride as F	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Sulphide as S	ND	ND	ND	ND	ND	ND	ND
17	Phenolic Compounds as C6H5OH	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
18	Cyanide as CN	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
19	Hexavalent chromium as Cr+6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
20	Mercury as Hg	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
21	Arsenic	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
22	Lead as Pb	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
23	Cardmium as Cd	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
24	Total Chromium as Cr	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
25	Copper as Cu	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
26	Zinc as Zn	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
27	Selenium as Se	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
28	Nickel as Ni	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
29	Manganese as Mn	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
30	Iron as Fe	0.25	0.27	0.23	0.21	0.27	0.26	0.25
31	Vanadium as V	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
32	Bio-assay Test	99%	98%	99%	98%	91%	90%	0.96
33	Particle size of Suspended Solides	< 850	< 850	< 850	< 850	< 850	< 850	< 850
34	Pesticide	Absent	Absent	Absent	Absent	Absent	Absent	Absent

3. OIL SEPARATION PIT INLET (WW-3)

SL. No	LOCATION	OIL SEPARATION PIT INLET (WW-3)						
	PARAMETERS	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23	Average
1	pH at 250C	7.3	7.32	7.42	7.34	7.39	7.3	7.35
2	Colour	<20	<20	<20	<20	<20	<20	<20
3	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Temperature	27.5	30.5	32.1	30.5	31.6	27.5	29.95
5	Suspended Solids	190	179	183	192	194	190	188.00
6	Total Residual Chlorine	0.2	0.29	0.29	0.26	0.24	0.2	0.25
7	Oil & Grease	10.6	13.5	13.1	10.9	11.8	10.6	11.75
8	Biochemical Oxygen Demand as BOD	14	16	16	14	16	14	15.00
9	Chemical Oxygen Demand as COD	56	56	66	58	60	56	58.67
10	Ammoniacal. Nitrogen (as NH4 N)	1.63	1.82	1.72	1.69	1.73	1.63	1.70
11	Total Kjeldahl Nitrogen	4.2	4.8	4.3	4.1	4.5	4.2	4.35
12	Free Ammonia	0.035	0.0044	0.04	0.038	0.037	0.035	0.03
13	Nitrate as NO3	1.16	1.25	1.21	1.19	1.2	1.16	1.20
14	Diss. Phosphate (as P)	0.56	0.65	0.6	0.61	0.66	0.56	0.61

SL. No	LOCATION	OIL SEPARATION PIT INLET (WW-3)						
	PARAMETERS	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23	Average
15	Fluoride	0.38	0.36	0.34	0.32	0.33	0.38	0.35
16	Sulphide	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
17	Phenolic Compound	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
18	Cyanide (as CN)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
19	Hexavalent Chromium as Cr +6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
20	Mercury (as Hg)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
21	Arsenic	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
22	Lead (as Pb)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
23	Cadmium (as Cd)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
24	Total Chromium (as Cr)	0.26	0.29	0.26	0.3	0.29	0.26	0.28
25	Copper (as Cu)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
26	Zinc (as Zn)	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
27	Selenium (as Se)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
28	Nickel (as Ni)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
29	Manganese (as Mn)	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
30	Iron (as Fe)	0.35	0.54	0.41	0.39	0.36	0.35	0.40
31	Vanadium (as V)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
32	Bio-assay Test	89%	95%	95%	93%	90%	89%	0.92
33	Particle Size of Suspended Solids	<850	<850	<850	<850	<850	<850	<850
34	Pesticide	Absent	Absent	Absent	Absent	Absent	Absent	Absent

4.OIL SEPARATION PIT OUTLET (WW-4)

SL.No	LOCATION	OIL SEPARATION PIT OUTLET (WW-4)						
	PARAMETERS	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23	Average
1	pH at 250C	7.1	7.11	7.15	7.11	7.15	7.1	7.12
2	Colour	<5	<5	<5	<5	<5	<5	<5
3	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Temperature	26.8	28.8	29.5	28.4	29.5	26.8	28.30
5	Suspended Solids	33.1	30.5	31.2	32.6	34.1	33.1	32.43
6	Total Residual Chlorine	ND	ND	ND	ND	ND	ND	ND
7	Oil & Grease	1.5	2.1	2.4	2.2	1.9	1.5	1.93
8	Biochemical Oxygen Demand as BOD	<1.0	<1	<1	<1	<1	<1.0	<1.0
9	Chemical Oxygen Demand as COD	<4.0	<4	<4	<4	<4	<4.0	<4.0
10	Ammonical. Nitrogen (as NH4 N)	0.59	0.93	0.85	0.71	0.66	0.59	0.72
11	Total Kjeldahl Nitrogen	2.8	3.5	3.6	2.9	3	2.8	3.10
12	Free Ammonia	0.026	0.0026	0.028	0.026	0.029	0.026	0.02
13	Nitrate as NO3	0.36	0.61	0.57	0.48	0.44	0.36	0.47
14	Diss. Phosphate (as P)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
15	Fluoride	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Sulphide	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
17	Phenolic Compound	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

SL.No	LOCATION	OIL SEPARATION PIT OUTLET (WW-4)						
	PARAMETERS	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23	Average
18	Cyanide (as CN)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
19	Hexavalent Chromium as Cr +6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
20	Mercury (as Hg)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
21	Arsenic	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
22	Lead (as Pb)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
23	Cadmium (as Cd)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
24	Total Chromium (as Cr)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
25	Copper (as Cu)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
26	Zinc (as Zn)	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
27	Selenium (as Se)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
28	Nickel (as Ni)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
29	Manganese (as Mn)	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
30	Iron (as Fe)	0.27	0.46	0.36	0.31	0.29	0.27	0.33
31	Vanadium (as V)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
32	Bio-assay Test	90%	97%	98%	97%	92%	90%	90%
33	Particle Size of Suspended Solids	<850	<850	<850	<850	<850	<850	<850
34	Pesticide	Absent	Absent	Absent	Absent	Absent	Absent	Absent

5. STP INLET

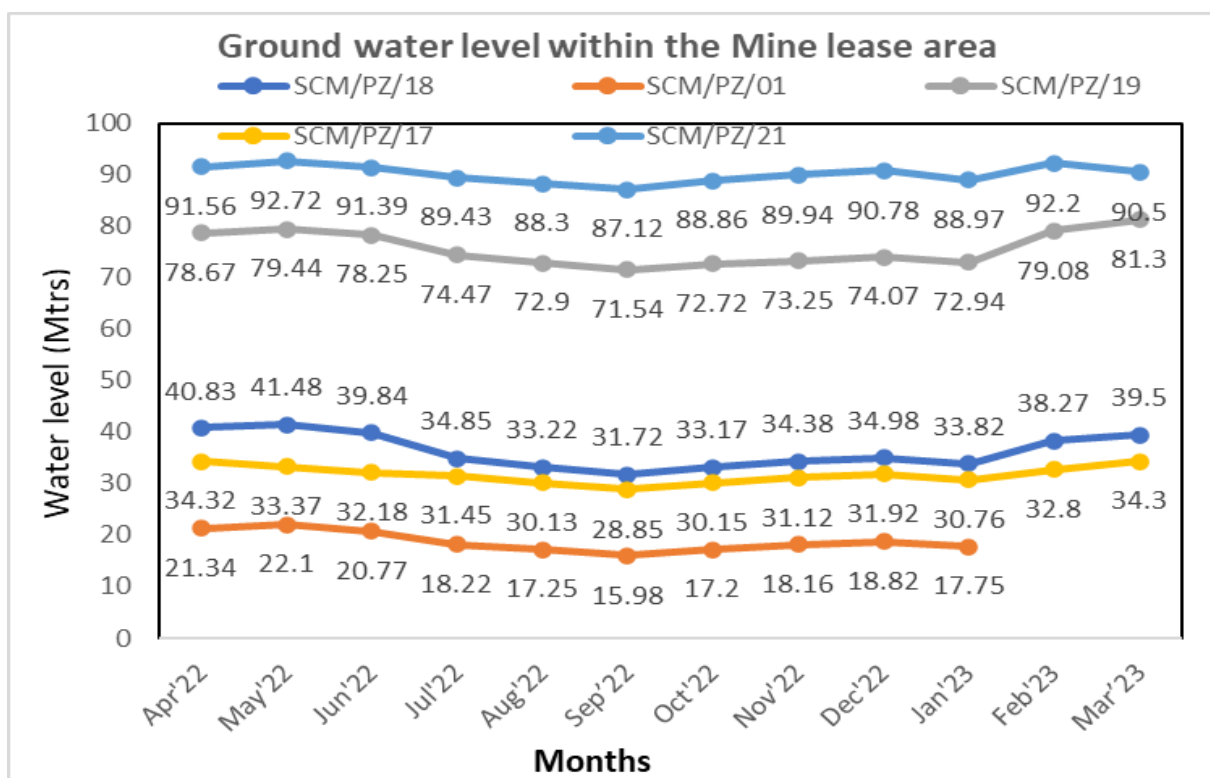
SL.No	LOCATION	STP INLET (WW-5)						
	PARAMETERS	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23	Average
1	pH	6.76	6.85	6.84	6.81	6.26	6.12	6.61
2	Suspended Solids	69.4	26.25	38.92	41.3	140.3	63.7	63.31
3	Oil & Grease	15.9	13.4	12.4	10.2	9.6	8.3	11.63
4	BOD	13.4	12.4	12.6	10.8	12.2	11.4	12.13
5	COD	68	52	55.4	44	46	42	51.23
6	Hexavalent Chromium as Cr +6	0.35	0.39	0.29	0.25	0.18	2.98	0.74
7	Total Chromium (as Cr)	0.58	0.41	0.4	0.31	0.25	0.29	0.37
8	Faecal Coliform	160	220	240	260	280	240	233.33

6. STP OUTLET

SL.No	LOCATION	STP (WW-6)						
	PARAMETERS	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23	Average
1	pH	7.12	7.29	7.09	7.39	7.25	7.21	7.23
2	Suspended Solids	1.55	1.34	1.15	1.4	0.81	1.44	1.28
3	Oil & Grease	ND	ND	ND	ND	ND	ND	ND
4	BOD	3.3	3.2	3.4	3.2	3.6	3	3.28
5	COD	22	14	12.9	10	11	10	13.32
6	Hexavalent Chromium as Cr +6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
7	Total Chromium (as Cr)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
8	Faecal Coliform	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8

7. Ground Water Level-Core Zone

Sl. No	Monitoring Location	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23
		Result (mtr)	Result, (mtr)	Result, (mtr)	Result, (mtr)	Result, (mtr)	Result, (mtr)
1	SCM/PZ/18	40.38	42.18	42.46	39.12	36.96	34.81
2	SCM/PZ/19	82.20	83.79	83.98	80.38	78.12	77.74
3	SCM/PZ/17	35.24	36.65	37.05	33.91	32.58	30.32
4	SCM/PZ/21	91.45	93.15	93.52	90.18	78.08	77.20



8. Ground Water Level (Buffer Zone)

Sl. No	Village name	Jun'23	Sep'23
		Result, mtr	Result, mtr
1	Kharkhari	7.1	2.45
2	Maruabil	4.63	1.82
3	Sendheswar	5.12	0.6
4	Birasal	5.79	0.91
5	Kakudia	8.56	2.2
6	Kanheipal	3.32	1.8
7	Sukarangi	3.24	0.3
8	Kaliapani	6.93	0.45
9	Kalarangi	5.82	0.75
10	Laxmidharpur	6.64	0.73

Annexure – IV: ENVIRONMENTAL MANAGEMENT PRACTICES-SUKINDA CHROMITE MINE

COVERING OF LOADED TRUCK BY TARPAULIN



CONCRETE PATH:



DUST CONTROLLING MEASURES



HAUL ROAD DUST SUPPRESSION SYSTEM:



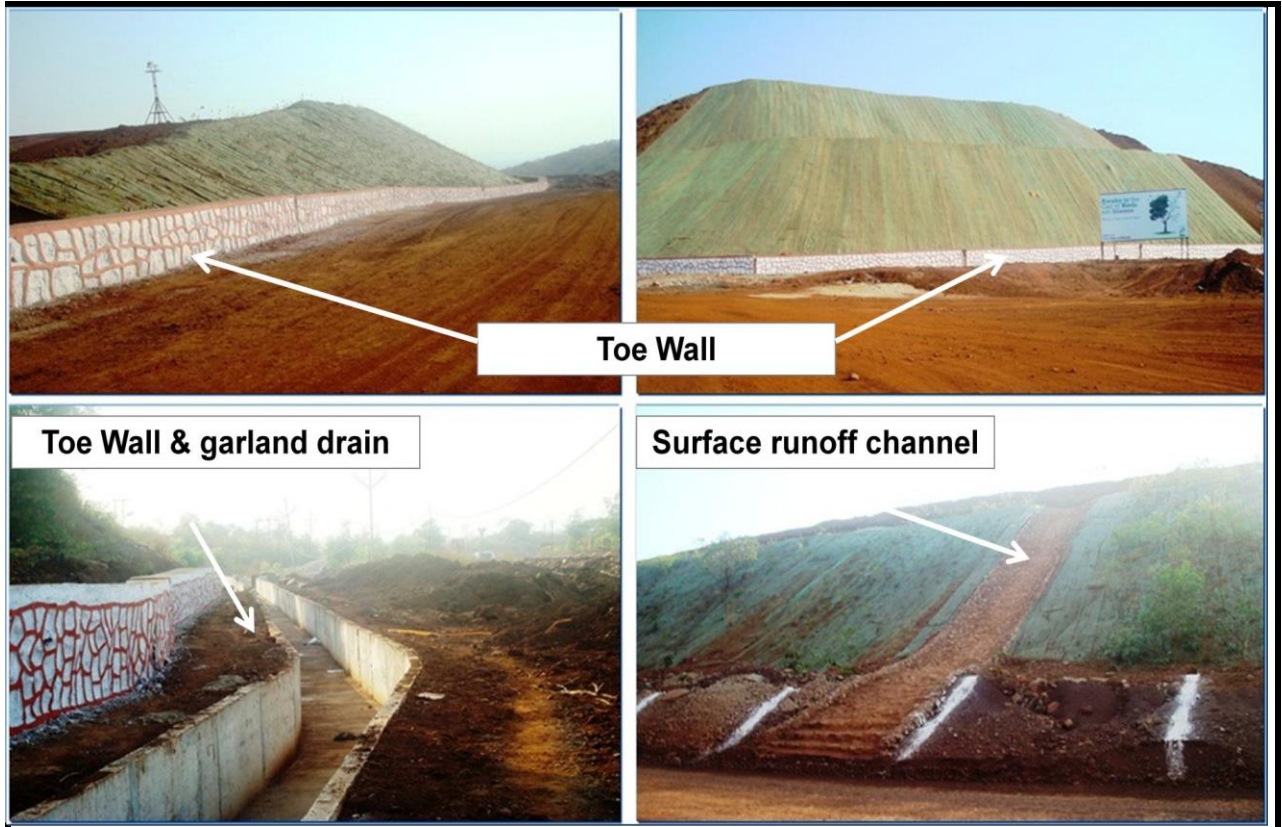
CONCRETE STACK WITH TRAUPLIN



RAIN WATER HARVESTING STRUCTURE:

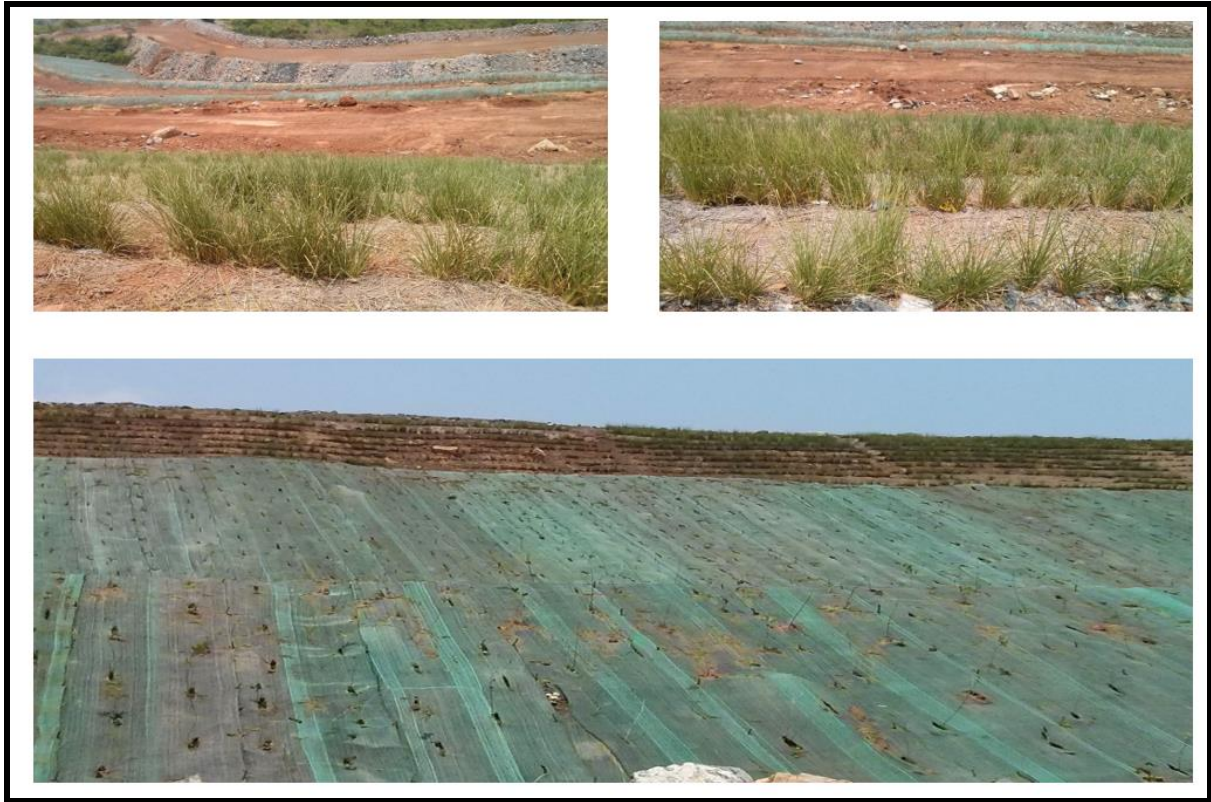


Toe wall, Garland Drain and Surface Runoff Channel



VERTIBER PLANTATION & GEONET APPROACH-DUMP SLOPE:





EFFLUENT TREATMENT PLANT:



OIL-WATER SEPARATION PIT



SEDIMENTATION PIT

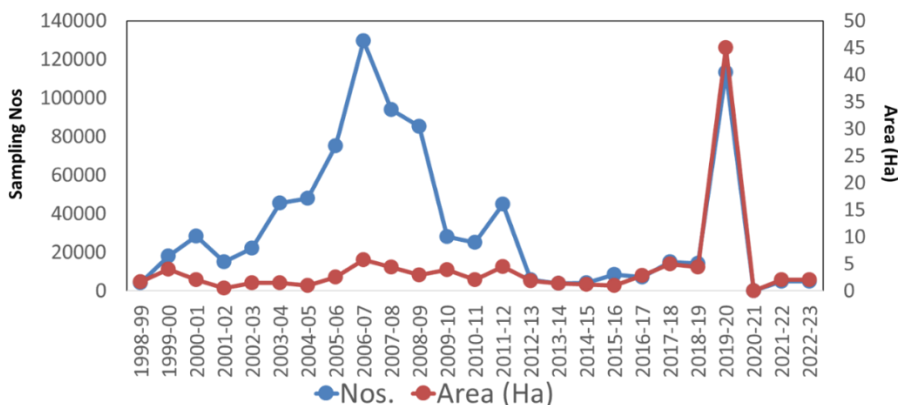


ANNEXURE-V Plantation Details (within and outside lease) Saplings distributed, Works on Biodiversity management and Socio-economic development)

Detail Plantation of Sukinda Chromite Mines

Details of Afforestation/ Greenbelt Plantation Carried Out				
Year	Inside Mining lease (Within 406 ha.)		Outside Mining Lease (Within 100 ha)	
	Numbers	Area (ha)	Numbers	Area (ha)
1998-99	4000	1.7		
1999-00	18000	4		
2000-01	28342	2		
2001-02	15000	0.5		
2002-03	22000	1.5		
2003-04	45500	1.5		
2004-05	48000	1		
2005-06	75000	2.5		
2006-07	129500	5.75	Additional Area (100ha) obtained	
2007-08	94000	4.42		
2008-09	85250	2.94	36750	1.76
2009-10	28000	3.9	56000	5.6
2010-11	25000	2	60000	6.5
2011-12	45000	4.5	35000	3.5
2012-13	5700	1.83	40000	6.5
2013-14	3700	1.32	54326	5.6
2014-15	4050	1.2	50100	5.1
2015-16	8500	1	64357	8
2016-17	7000	2.8	26000	6.7
2017-18	15000	5	44000	6
2018-19	14233	4.4	47577	8.07
2019-20	113320	45.03	13650	0
2020-21	0	0	0	0
2021-22	5011	2	0	0
2022-23	5015	2	0	0
2023-24	5030	2	0	0
TOTAL	849205	106.79	527760	63.33

Detailed Plantation at Sukinda Chromite Mines



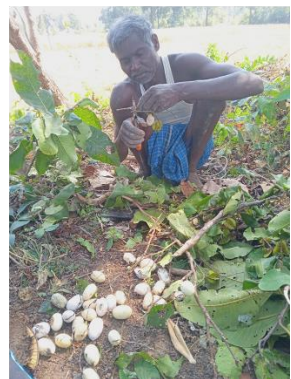
SL No	Year of Plantation	No of Saplings	GP	Village
1	2023-2024	1600	Kansa	Kansa
		400	Maruabil	Kharkhari
		100	Maruabil	Kharkhari
		900	Maruabil	Baldiapal
		200	Kankadapal	Kankadapal
2	2022-2023	800	Kansa	Kansa
		80	Kharkhari	Gudisahi
3	2021-2022	240	Ransol	Kakudia
		1000	Ransol	Kalaragi
		400	Maruabil	Kharkhari
		500	Kansa	Kansa
		1500	Kansa	Saruabil



Samplings distributed to local community to support biodiversity



- Harvested tasar cocoons (Sukinda Eco Race variety) – 2700 nos. by 29th Nov 2022
- Reelable cocoon (good quality) – 1800 nos.
- Spinnable Cocoon (Flimsy) – 900 nos.
- Cocoon in reeling stage and yet to harvest – 500 nos.
- Harvesting will complete by 15th Dec 2022



Sukinda Eco Race development and support

Results of Assessment of Biodiversity in August 2022



Locations of Biodiversity Assessment



Wild Boar mark (Kankudia Dump)



Asian Elephant Footmark (Daitari Forest Range)



White breasted Kingfisher (Buffer Zone)



Baronet (Buffer Area)



Great Eggfly (Buffer Area)



Blanford's Rock Agama (Buffer Area)



Indian Chameleon Sighted (Buffer Area)



Scaly-breasted Munia (Buffer Zone)



WeAlsoMakeTomorrow



40 Nest box installation at Sukinda and some birds spotted



WeAlsoMakeTomorrow

MARKETING & SALES

Some Notable Biodiversity Initiatives



Back filling of mined out ore body II. It is planned to accumulate ~ 300 lakh cum of overburden which will save 60 Ha of land from degradation



100 ha Kakudia Dump Restoration & Developed as Eco-tourism spot/ Nature walk.



13 Lacs Plantation on Dump



Assessment of Biodiversity Restoration at Kakudia Dump



Sir Dorabji Butterfly Park (0.653Ha)



Herbal Garden (0.471 Ha)



Nursery in 0.24 ha area



Vetiver Plantation on Dump Slope



WeAlsoMakeTomorrow

Biodiversity Initiatives (Contd.)



Concrete Road & Green Belt Development at Ferro-Chrome Plants



Go Paper less initiative: Reducing paperwork with SAP modification: Price Approval System has been introduced on SAP for better governance, which will replace paper/email-based system. Besides, meal booking system has also started



Coir Matting on Dump Slope

Dump Slope Plantation



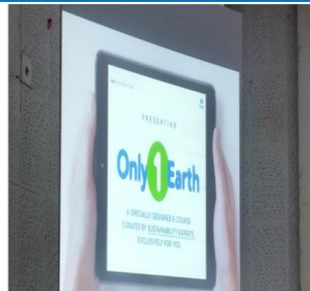
Garland Drains & Toe Walls



Community Awareness & Capacity Building Programs



Awareness Session on Snakes, Coverage 300 Stakeholders



Launch of Sustainability e-course at TSML, 260 participants



Conservation Days Celebration & Capacity Building Workshops: World Water Day, World Biodiversity Day, World Environment Day etc.

Significance: To impart awareness on biodiversity and ecosystem services to employees, communities and children

Aligned to SDG 15 – Life on Land



Awareness Program to Help Conserve Indigenous Tasar Silkworm Breed, Coverage 100



Awareness Programme Organized at different locations



Jaiba Kala Vividhata" explores the wonders embedded in nature and expresses it in different forms of Arts



Love Sparrow: Artificial nests were distributed to 40 volunteers who came forward for sparrow conservation



Awareness Programme Organized at different locations



Prajatiya Khadyotsav at Sukinda Chromite Mine to explore indigenous flavours; 1000 stakeholders



Green Therapy: Workshop on Biodiversity and Ethnobotanical Traditions



BIRS Assessment Workshop at Tata Steel Sukinda Mines



ANNEXURE-VI: Environmental Management Cell

Environmental Cell
Sukinda Chromite Block
M/s. Tata Steel Limited

Sl. No	Name	Designation	Experience (years)	E-mail	Mobile No.
1	Mr. Sambhu Nath Jha	Mines Head & Agent	23	jhasn@tatasteel.com	9438887778
2	Mr. Devraj Tiwari	Head Planning FAMD Ext. Affairs & Sustainability	12	devraj.tiwari@tatasteel.com	8092000271
3	Mr. Thakur Ajay Kumar Vishwambharnath	Head Safety Health & Environment FAMD	20	ajaykr.thakur@tatasteel.com	9238306143
4	Dr. Biswaranjan Dhal	Manager, Environment	13	biswaranjan.dhal5@tatasteel.com	8114371713
5	Kalva Navya	Deputy Manager, Environment	6	kalva.navya@tatasteel.com	8093033823
6	Swapnendu Soumyaranjan Panda	ADM, Mine planning	12	swapnendu.panda@tatasteel.com	8093033848
7	Mr. Debdip Senapati	Sr. ManagerQC	14	debdip.senapati@tatasteel.com	9238087043
8	Mr. Mohammad Mujaheed	Manager,Safety	7	mohammad.mujaheed@tatasteel.com	8093033836

ANNEXURE-VII

Environment Expenditure made during (Apr' 2023 - Sept' 2023)

SL NO.	Expenditure	Amount (in Lakhs)
1	ETP operation cost	
	a) Manpower	23.80
	b) ETP Electricity cost	29.53
	c) Chemical & maintenance cost	144.06
	d) ETP sludge disposal	3.57
2	Water sprinkling cost for haul road management	67.36
3	EQMS Online Analysis	1.77
4	EQMS Online Data Transmission	0.47
5	Monitoring & Analysis cost of Air, Water & Noise	19.16
6	Plantation	7.64
7	Display board	0.38
8	Ground Water Level Measurement & Data Transmission	0.28
	Total	298.02

ANNEXURE-VIII: Half-Yearly CSR Expenditure Tata Steel Limited (Sukinda, Saruabil & Kamarda Block) for the year 2023 – 2024.

Verticals	GL Description	Actual Expenditure up to August'2023 in Lakh
DRINKING WATER	Installation and repair of hand tube wells	1.90
	Supply of drinking water through tanker	19.81
	Others (open well, water storage, mine water pipeline, filtration plant etc)	
DRINKING WATER Total (A)		21.71
LIVELIHOODS (AGRICULTURE)	Water Harvesting structures (ponds)	12.98
	Agriculture Activities (SRI and dryland farming)	3.17
	Promote second crops	0
	Livelihood Agri allied, Livo, Diary, Poult	20.83
	Capacity Building of Farmers Institutions	0.97
	Promote horticulture in wastelands and dry land crops	11.14
LIVELIHOODS (AGRICULTURE) Total (B)		49.09
ENVIRONMENT	Protection of flora and fauna	5.11
ENVIRONMENT Total (C)		5.11
RURAL INFRASTRUCTURE & URBAN SERVICES	Infrastructural support for Rural Development	18.26
RURAL INFRASTRUCTURE & URBAN SERVICES Total (D)		18.26
	PROJECT EXPENDITURE (A+B+C+D)	94.17
	Admin. Expense	10.47
	TOTAL	104.64

ANNEXURE-IX IME-PME Details

SUKINDA CHROMITE MINE, TSMIL

NAME OF MINES	NAME OF INDUSTRY	DEPARTMENT	CONTRACTOR NAME	IME	PME	TOTAL
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	DHANSAR ENGINEERING CO. PVT. LTD.		68	4	072
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	TATA STEEL UTILITIES & INFRASTRUCTURE SERVICES		74	3	077
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	SBL ENTERPRISES		44	0	044
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	SECURITY & INTELLIGENCE SERVICES INDIA LTD.		8	0	008
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	POWER ENGINEERING		46	0	046
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	MITRA SK PVT. LTD.		20	0	020
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	KANDOI TRANSPORT LTD.		6	0	006
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	EXIM LOGISTICS PVT. LTD.		1	0	001
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	BHUKTA TRANSPORT		4	0	004
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	INTERFINATE TECHNOLOGY PVT. LTD.		3	0	003
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	CYBERTECH		9	0	009
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	SHRADHA ENTERPRISES		5	0	005
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	MAA SARALA ENTERPRISES		2	0	002
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	A.K. SAMAL & BROTHERS		5	0	005
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	NAYAK ENTERPRISES		0	0	000
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	DEBUG SENSE		21	0	021
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	ANU ENGINEERING		1	0	001
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	QUESS CORPORATION LTD.		10	0	010
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	AKAMAI WATER PROOFING SOLUTIONS		4	0	004
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	UTKAL COMPUTER CARE PVT. LTD.		2	0	002
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	SHIVJIVALI SHEDS PVT. LTD.		3	0	003
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	M.N. DASTUR & CO. PVT. LTD.		23	0	023
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	CHINAR STEEL SEGMENT CENTRE PVT. LTD.		8	0	008
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	MODUS CREATIVE & PROJECTS PVT. LTD.		186	0	186
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	SUIYOTI INDIA PVT. LTD.		10	0	010
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	AMPMESH LAB PVT. LTD.		1	0	001
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	GEIOD RESOURCES PVT. LTD.		2	0	002
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	FREEMISE		4	0	004
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.	PRASANNA KUMAR NATH		2	0	002
SUKINDA CHROMITE MINE	TATA STEEL MINING LTD.			21	0	021
TOTAL				593	7	600
GRAND TOTAL				993	13	1006



ANNEXURE - X - INTIMATION OF COMMENCEMENT OF MINING OPERATION



Ref No. TSML/SCM/017/FY21

Date: 01/10/2020

The Regional Controller of Mines
Indian Bureau of Mines
Bhubaneswar-751016.

Sub: Notice for commencement of work at Sukinda Chromite Block of Tata Steel Mining Limited

Dear Sir,

We are enclosing herewith the notice for commencement of work at Sukinda Chromite Mine of Tata Steel Mining Limited. Sukinda Chromite Block has been awarded to Tata Steel Mining Ltd (Formerly known as T S Alloys Ltd) a 100% subsidiary of Tata Steel Limited, Plot No – N3/24, IRC Village Nayapalli, Bhubaneswar, Odisha-751015 in the e-auction process held on 17th March 2020. Tata Steel Mining Limited received Letter of Intent for grant of mining lease for Sukinda Chromite Mine vide letter no. 5543/S&M, Bhubaneswar on 29.06.2020, Vesting order was issued vide vesting order No-5555/SM, dated- 29/06/2020 and Lease was executed vide e-Registration document no 11872000013 dated 23.07.2020.

Thanking you,

Yours faithfully,
F. M/S Tata Steel Mining Ltd.


AGM & Agent
Sukinda Chromite Block

Encl: Form-C

TATA STEEL MINING LIMITED

(Formerly known as T S Alloys Limited)

Registered Office Plot No N3/24 IRC Village Nayapalli Bhubaneswar Odisha Pin 751015 Ph +91 674 2551045
Sukinda Chromite Mine PO Kalarangiatta District Jajpur Odisha Pin 755028
CIN U27109OR2004PLC009683 Website www.tsalloys.com

Annexure – XI - Environment Clearance Intimation letters Panchayat, Zila Parisad & Paper advertisement



Ref: SCM/ENV/ 61 / 13
Date: 25/4/23

Mrs. Bhagabati Mohanta,
Chairman,
Panchayat Samiti, Sukinda Block,
Sukinda

Sub: Intimation of obtaining Environmental Clearance under EIA Notification, 2006 in respect of Sukinda Chromite Mine having Mining Lease area over 406 ha in Jajpur District,

Dear Madam,

We would like to inform you that Ministry of Environment & Forests (MoEF), Govt. of India has accorded Environmental Clearance in respect of Sukinda Chromite Mine, M/s Tata Steel Limited for renewal of mine lease, expansion of Chrome Ore Beneficiation plant and Pyrocorine ore capacities and change of mining & beneficiation technologies vide its letter no. J-11015/96/2011-GA.II(M), Dated 06.09.2011.

We, therefore request your good self to kindly acknowledge the receipt of the above letter.

Yours Faithfully
E: Tata Steel Limited

Chief (Mining)
&
Manager Cum Agent
Sukinda Chromite Mine

End: As above

*Bhagabati Mohanta
Chairman
Sukinda*

TATA STEEL LIMITED

Sukinda Block, Post P.O. Gopinagar, Dist. Jajpur, Odisha
Phone: 06726-22641 Fax: 06726-22642
Regional office, Survey Area, Sukinda Block, Dist. Jajpur, Odisha
www.tatasteel.com



Ref: SCM/ENV/ 66 / 13
Date: 25/9/13

Mr. Bidhyadhar Patra
Member,
Zila Parishad, Jaipur

Sub: Intimation of obtaining Environmental Clearance under EIA Notification, 2006 in respect of Sukinda Chromite Mine having Mining Lease area over 406 ha in Jaipur District.

Dear Sir,

We would like to inform you that Ministry of Environment & Forests (MoEF), Govt. of India has accorded Environmental Clearance in respect of Sukinda Chromite Mine, M/s Tata Steel Limited for renewal of mine lease, expansion of Chromite Ore Beneficiation plant and Pyrochromite ore capacities and change of mining & beneficiation technologies vide its letter no. J-11015/96/2013-IA.II(M), Dated 06/09/2013.

We, therefore request your good self to kindly acknowledge the receipt of the above letter.

Yours Faithfully
T. Tata Steel Limited

Chief (Mining)
&
Manager Cum Agent
Sukinda Chromite Mine

End: As above

Bidhyadhar Patra
Bidhyadhar Patra 25/9/13
Zila Parishad Member
IT Zone, Sukinda, Jaipur

TATA STEEL LIMITED

Head Office: 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

Environment Department



Ref: SCM/ENV/28/13
Date: 25/09/23

Mrs. Jinita Manda,
Sarpanch,
Kaliapuri Grama Panchayat
Kaliapuri

Sub: Intimation of obtaining Environmental Clearance under EIA Notification, 2006 in respect of Sukinda Chromite Mine having Mining Lease area over 406 ha in Jajpur District.

Dear Madam,

We would like to inform you that Ministry of Environment & Forests (MoEF), Govt. of India has accorded Environmental Clearance in respect of Sukinda Chromite Mine, M/s Tata Steel Limited for renewal of mine lease, expansion of Chrome Ore Beneficiation plant and Pyroxenite ore capacities and change of mining & beneficiation technologies vide its letter no. J-11015/96/2013-IA.II(M), Dated 06.09.2013.

We, therefore request your good self to kindly acknowledge the receipt of the above letter.

Yours Faithfully,
T. Tata Steel Limited


Chief (Mining)
&
Manager Cum Agent
Sukinda Chromite Mine

Jinita Manda
Sarpanch of Panchayat
KALIAPURI G.P.

Encl: As above

TATA STEEL LIMITED

Head Office: Sakchi, Bhubaneswar, Odisha-751005
Phone No. 91-6746-266111/111-1111111
Registered Office: Sakchi, Bhubaneswar, Odisha-751005
www.tatasteel.com



Ref: SCM/ENV/ 70 / 13
Date: 26/04/13

Mrs. Sashama Nayak
Sarpanch,
Ransol Grama Panchayat,
Ransol

Sub: Intimation of obtaining Environmental Clearance under EIA Notification, 2006 in respect of Sukinda Chromite Mine having Mining Lease area over 406 ha in Jajpur District.

Dear Madam,


We would like to inform you that Ministry of Environment & Forests (MoEF), Govt. of India has accorded Environmental Clearance in respect of Sukinda Chromite Mine, M/s Tata Steel Limited for renewal of mine lease, expansion of Chrome Ore Beneficiation plant and Pyrometallite ore capacities and change of mining & beneficiation technologies vide its letter no. J-11015/96/2011-LA.II(M), Dated 06.09.2012.

We, therefore request your good self to kindly acknowledge the receipt of the above letter.

Yours Faithfully
F: Tata Steel Limited


Chief (Mining)
&
Manager Core Agent
Sukinda Chromite Mine

Encl: As above


Sarpanch
Ransol Grama Panchayat

TATA STEEL LIMITED

Corporate Office: Tata Steel Limited, Sakinaka, Jamshedpur - 831001, Jharkhand
Registered Office: Tata Steel Limited, Sakinaka, Jamshedpur - 831001, Jharkhand
www.tatasteel.com



Ref: SCM/ENV/71 / 13
Date: 30/4/13

Mrs. Reshmi Dehari
Sarpanch,
Chingulpal Grama Panchayat,
Chingulpal

Sub: Intimation of obtaining Environmental Clearance under EIA Notification, 2006 in respect of Sukinda Chromite Mine having Mining Lease area over 406 ha in Jaipur District.

Dear Madam,

We would like to inform you that Ministry of Environment & Forests (MoEF), Govt. of India has accorded Environmental Clearance in respect of Sukinda Chromite Mine, M/s Tata Steel Limited for renewal of mine lease, expansion of Chrome Ore, Beneficiation plant and Pyrocentric ore capacities and change of mining & beneficiation technologies vide its letter no. J-11015/96/2011-1A,3(M), Dated 06.09.2013.

We, therefore request your good self to kindly acknowledge the receipt of the above letter.

Yours Faithfully
F: Tata Steel Limited


Chief (Mining)
&
Manager Cum Agent
Sukinda Chromite Mine

Encl. As above

Reshmi Dehari
Sarpanch
Chingulpal G.P.

TATA STEEL LIMITED

Sukinda-Chromite Mine, P.O. Sukinda, Dist. Jaipur, (Raj.)-308001
Telephone: 01422-262411/11741-41/42/43, 262414
Registered Office: Ministry of Environment & Forests, Govt. of India, New Delhi-110003
www.tatasteel.com



Ref: SCM/ENV/ 72 /13

Date: 25/04/13

Mr. Gobinda Chandra Dehari,
Sarpanch,
Kankadpal Grama Panchayat
Kankadpal

Sub: Intimation of obtaining Environmental Clearance under EIA Notification, 2006 in respect of Sukinda Chromite Mine having Mining Lease area over 406 ha in Jajpur District.

Dear Sir,

We would like to inform you that Ministry of Environment & Forests (MoEF), Govt. of India has accorded Environmental Clearance in respect of Sukinda Chromite Mine, M/s Tata Steel Limited for renewal of mine lease, expansion of Chrome Ore Beneficiation plant and Pyrosolite ore capacities and change of mining & beneficiation technologies vide its letter no. J-11015/96/2011-GA(H/M), Dated 06.09.2013.

We, therefore request your good self to kindly acknowledge the receipt of the above letter.

Yours Faithfully
F: Tata Steel Limited


Chief (Mining)
&
Manager-Cum Agent
Sukinda Chromite Mine

Encl: As above


25-09-2013
SARAPANCH
KANKADAPAL G.P.

TATA STEEL LIMITED

Corporate Office: 100, Park Road, Jamshedpur - 831001, Jharkhand, India
Registered Office: 100, Park Road, Jamshedpur - 831001, Jharkhand, India
www.tatasteel.com

Environmental Clearance Advertisement and Intimation to Eastern Regional Office of the MoEF



Addl. Director(S)
Ministry of Environment & Forests
Eastern Regional Office
A/3, Chandrasekharpur,
Bhubaneswar- 751023

Ref: SCM/ ENV/ 012/066 /13
Date: 18th June' 2013

Sub: Advertisement for grant of Environmental Clearance in respect of Sukinda Chromite Mine in Jajpur District of Odisha (Mining Lease area: 406 ha).

Ref: Ministry of Environment & Forests, Govt. of India letter no. J-11015/96/2011-IA.II(M), Dated 06.09.2013.

Dear Sir,

As per the General Condition no. xvi of the Environmental Clearance granted by Ministry of Environment & Forests, Govt. of India in respect of Sukinda Chromite Mine vide letter no. J-11015/96/2011-IA.II(M), Dated 06.09.2013, the matter was advertised in the Oriya daily " The Samaja" (date: 11.09.2013, page-5) and in English daily " The New Indian Express" (date: 11.09.2013, page-5). Copy of the above advertisement is enclosed as annexure for your ready reference.

Thanking you,

Yours sincerely,
f: Tata Steel Ltd.

Manager cum Agent
Sukinda Chromite Mine

Encl: as above

TATA STEEL LIMITED

Sukinda Chromite Mine, B3, Kalamangala Dist Jajpur Odisha 751023
Phone no. 91 6726 268700 Fax : 91 6726 268734
Registered Office: Marolli Street 24, Gore Road, Mumbai - 400 001

ANNEXURE XXIV



Advertisement in Daily "SAMAJ" on EC Notification of Sukinda Chromite Mine