Ref: FAMD/SCM/ 052/FY20
Date: 14 / 01 /2020

To,
The Additional Director,
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 Mine of M/s Tata Steel Limited, for the period from October'2019 to March'2020.

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 (E), 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 granted in favor of Sukinda Chromite Mine of M/s Tata Steel Limited vide MoEF Letter Ref No: J-11015/96/2011-IA. II (M), dated 06.09.2013, in respect of Sukinda Chromite Mine of M/s Tata Steel Limited, for the period from October'2019 to March'2020 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.

We would also like to bring it to your kind information that, our mine lease has expired on 31st March 2020, henceforth no mining operation is carried out on or after 31st March 2020, except for dispatch of already excavated minerals and other movable properties as permissible under the provision of MCDR, 2017.

We believe the above submission is in order.

Thanking you,

Yours faithfully,

F: TATA STEEL LTD.

Head
Mine & Production Planning
Sukinda Chromite Mine
Encl: As above.

TATA STEEL LIMITED
Sukinda Chromite Mine PO Kalarangiatta Dist Jajpur Odisha 755028
Phone no 91 6726 268763 Fax 91 6726 268734
Registered Office Bombay House 24 Homi Mody Street Fort Mumbai 400 001 India
Tel 91 22 6665 8282 Fax 91 22 66657724
Corporate Identity Number L27100MH1907PLC000260 Website www.tatasteel.com

Half-Yearly Compliance Report

On

Environmental Clearance Conditions

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

Period: October'19 – March'20

Submitted By:

Sukinda Chromite Mine

M/s. Tata Steel Limited

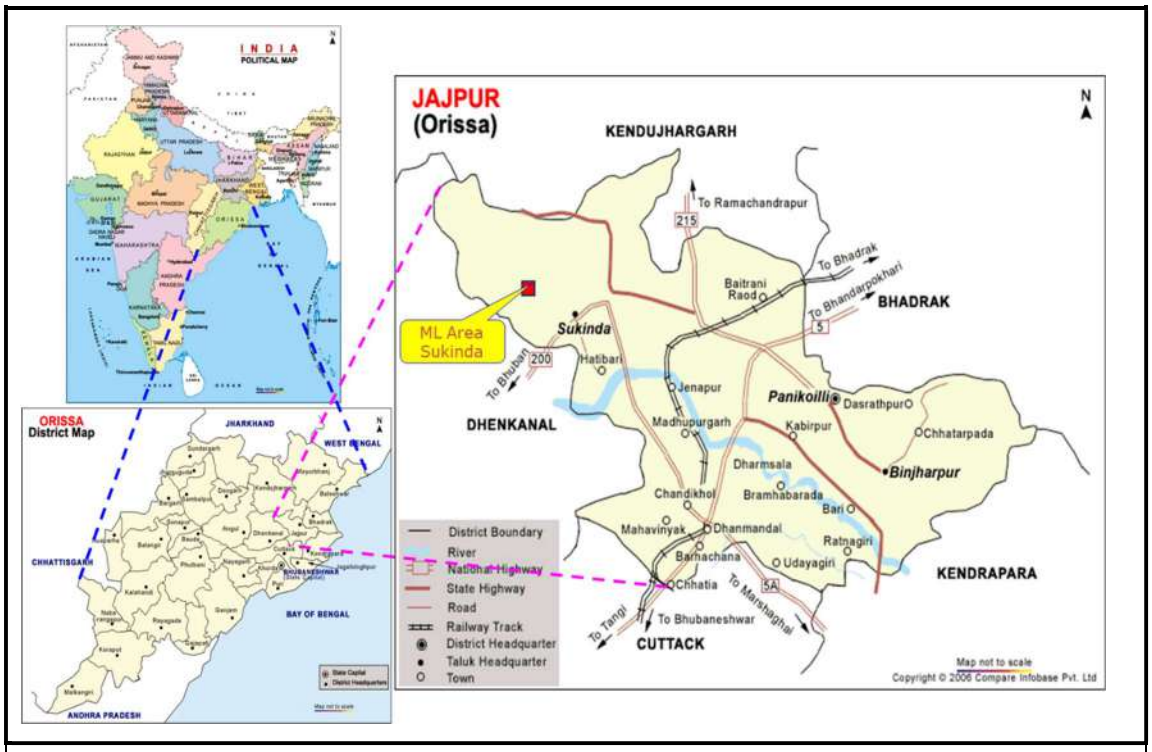
At/Po: Kalarangiatta, Block-Sukinda

District- Jajpur, Odisha -755028

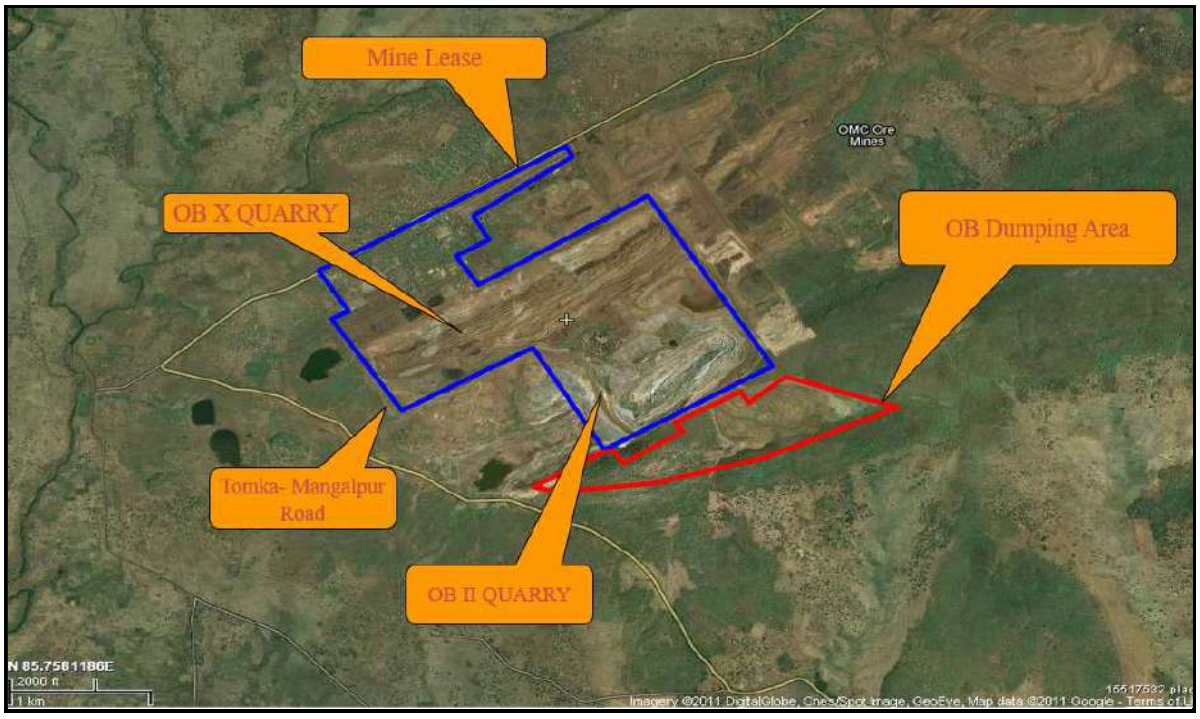
Table of Contents

A. <u>INTRODUCTION:</u> Sukinda Chromite Mine, one of the raw material divisions of M/s Tata Steel Limited established in 1953, was operated over leased area of 406.0Ha in the Sukinda Block of Jajpur District in the State of Odisha. Schematic representation of the site is depicted in the fig.1 and its layout in fig.2 below.

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



<u>Fig.2 Mine Lay out (Aerial View of Sukinda Chromite Mine)</u>



LOCATION FEATURES: The salient features on the environmental setting of the project is outlined in the Table.1 below.

Table.1 Environmental Setting of Sukinda Chromite Mine.

S.No	Particulars	Details on the Particulars
01	Latitude	N $20^0$59'34.88" – N $21^0$02'5.81"
02	Longitude	E $85^0$44'27.10" – E $85^0$47'32.69"
03	Nearest Villages	Kalarangiatta, Kaliapani, Mahulkhal
04	Tehsil, District, State	Sukinda, Jajpur, Odisha
05	Elevation Above MSL	The Valley lies between Mahagiri Hill at 707.69m (South) and Tomka Range at 782.42m (North)
06	Climatic Condition as per IMD	Tropical, Semiarid and Hot climate; however experiences bitter cold during winter and intense warm during summer.
07	Nearest Highway	NH-200 (29Km)
08	Nearest Railway	Jajpur-Keonjhar Road (52Km, SE)
09	Nearest Airport	Biju Patnaik International Airport Bhubaneswar (135Km, SE)
10	Ecological Sensitivity	**No** such ecologically sensitive area/zone (as per Wildlife Protection Act,1972) prevails within 10km radius from the lease boundary of the mine.
11	Nearest Water Bodies	Dumsala Nallah (0.7Kms, NW) Brahmani River (15Kms, S)
12	Nearby Industries	There are total 13 operating mines in the sukinda valley operating since 1960/80s.

SIZE OF THE PROJECT:

- **As per EIA Notification, 2006:** The project was classified as category A project based on the extent of the operational area of 406Ha.
- As per CPCB Classification of the industries: RED-B.

Table.2 Capacity of Sukinda Chromite Mine

S.No	Particulars	Details on the Particulars
01	Lease Area	406.00Ha
02	Forest Area	404.669Ha
03	Production Capacity	1. ROM Chrome: 2.4MTPA (Million Tons Per Annum) 2. ROM Pyroxenite: 0.5MTPA 3. Chrome Ore Concentrate: 0.65MTPA
04	Mining Method	Opencast Mining and Underground Mining *[Presently mining was done from opencast mines and planning for UG mine was not pursued further since the lease expired on 31st March 2020]*
05	Capital Investment	**Opencast: 74.23.22,277/-(INR)** [Land: Nil; Buildings: 9,65.7Lakhs; Plant & Machineries: 52,08.2Lakhs; Others: 12,49.4Lakhs] Underground: 825Crores (INR) (Planned)

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 (October'19 to March'20)
I	No mining activities will be allowed in forest area for which the Forest Clearance is not available.	**Complied.** 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; a) Letter no. 8-78/96-FC dated 27.01.1998 over 73.797 ha. & b) Letter No. 8-15/2016-FC dated 18.05.2018 over 330.972 ha. 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. **[Copies of forest clearances enclosed as Annexure-I]**

Sl. No	Specific Condition	Compliance Status (October'19 to March'20)
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.	**Complied.** Forest Clearances for the entire prevailing forest land of 404.669Ha out of 406Ha of Mine Lease area had been regularised and the clearance copies are enclosed as **Annexure-I.** **[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.	**Agreed & Complied.** The mine had applied for 73.685 Ha, consisting of 8.370 ha of forest land and 65.315 ha of non-forest land for tailing disposal for which environmental clearance has already been accorded. This proposal was on hold at present in accordance to the verdict passed by Hon'ble Supreme court of India on disposal of WP(Civil) No. 435 of 2012 (Goa Foundation vs Union of India). Since this proposal was not further expedited thus the mine continued with the existing tailing facilities/dam. Old Tailing Dam over an area of 3.74Ha had been converted to a grassland as per the provision of Final Mine Closer Plan (FMCP).
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.	**Not Applicable.** The project area neither fall partly/wholly within any protected areas viz. wild life 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 was 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.	**Complied.** 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. Consent to Operate had been renewed up to 31st March 2020, vide letter no. 14781/IND-I-CON-226 dated 01.10.2016. The conditions stipulated in the Consent to Establish and Consent to Operate were effectively implemented. Copy of consent to operate is enclosed as Annexure-II. **[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.	**Noted.** 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***";

<table>
<tr><th>Sl. No</th><th>Specific Condition</th><th>Compliance Status (October'19 to March'20)</th></tr>
<tr><td></td><td></td><td>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 prevailing lease of the Sukinda Chromite Mine has expired on 31st March 2020. Since, Environmental Clearance is co-terminus with lease, thus EC Compliance for the last six months is being submitted by this report.</td></tr>
<tr><td>VII</td><td>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.</td><td>Complied.
The ambient air quality was monitored twice a week at six locations within the Core Zone. The air samples were also analysed for their mineralogical composition on quarterly basis.
The abstract of environmental monitoring results is enclosed as Annexure-III.
[Please refer to Annexure-III]</td></tr>
<tr><td>VIII</td><td>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.</td><td>Complied
Mineral and ores, transported out of the mine lease boundary to the various destinations were completely covered by tarpaulin and secured in position by plastic straps.
Four weigh bridges had been established and overloading of all the vehicles were prevented, which used to be regulated by system generated transit permits. Photographs are enclosed as Annexure-IV-Environmental Management Practices.
[Please refer to Annexure-IV]</td></tr>
<tr><td>IX</td><td>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.</td><td>Complied
To limit the fugitive emissions, following safeguard measures had been implemented:
1. Water sprinkling on haul road, transfer points, Ore stack yard, etc was ensured on regular basis.
2. Deployment of ten (10) water sprinklers (two of 28 KL, four of 25 KL, and four 8 KL) within mine area for haul road dust suppression and at mineral storage yards.
3. Stationary water sprinklers had been installed and were in operation on the main/permanent haul roads with permanent concrete bunds and maintenance areas, stack yard, chrome ore beneficiation plant.
4. Water spraying through pressure water jets at feed hopper, transfer points, discharge chute were provided to prevent dust generation.
5. The concentrate stacks were covered using tarpaulin sheets, prevents finer concrete particle from getting air borne.
6. One automatic sprinkler was also installed at the truck parking area. [Please refer to Annexure-IV]
The details of concrete road including provision of fixed water sprinkler are as follows:
Table I: Concrete and Fixed Water Sprinkler Details
<table>
<tr><th>Particulars</th><th>Location</th><th>Length(m)</th><th>Width(m)</th></tr>
<tr><td rowspan="4">Concrete road</td><td>Main Haulage road</td><td>1000</td><td>13</td></tr>
<tr><td>COB Plant</td><td>100</td><td>10</td></tr>
<tr><td>LOP Plant</td><td>200</td><td>06</td></tr>
<tr><td>Workshop</td><td>200</td><td>06</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Sl. No</th><th>Specific Condition</th><th>Compliance Status (October'19 to March'20)</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td rowspan="5">Fixed water sprinkling system</td><td>Main Haulage road</td><td>1000</td><td>-</td></tr>
<tr><td>COB Plant</td><td>100</td><td>-</td></tr>
<tr><td>LOP Plant</td><td>200</td><td>-</td></tr>
<tr><td>Workshop</td><td>100</td><td>-</td></tr>
<tr><td>Mining Road</td><td>1500</td><td>11</td></tr>
</table>
Ambient air quality had been monitored at six locations within the core zone/lease area as per NAAQS-2009 guidelines.
[Please refer to Annexure III]</td></tr>
<tr><td>X</td><td>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.</td><td><u>Complied.</u>
Rain water harvesting measures in the form of series of Harvesting ponds were constructed in coordination with the TSRDS wing of Tata Steel at peripheral villages.
Presently, a fully functional roof top rain water harvesting project at the Administrative office inaugurated in Oct 2014 is in working condition.
[Photograph enclosed as Annexure-IV]</td></tr>
<tr><td>XI</td><td>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-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.</td><td><u>Complied</u>
During the reporting period, ground water had been monitored on monthly basis by a network of eight (08) piezometers constructed along the mine periphery.
Apart from this, regular monitoring of ground water around nearby villages was conducted on quarterly basis at approx. ten (10) locations through a network of open wells/ dug wells.

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.

[Please refer to Annexure-III]</td></tr>
<tr><td>XII</td><td>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.</td><td><u>Complied</u>
Overburden generated from mine was used for backfilling of the old quarry in line with the approved mine plan with benches of adequate slope and berm width. The entire OB-II over an area of 39Ha have been rehabilitated by native varieties of forestry saplings.

The existing dumps have been maintained with maximum height on sloping ground within 110 mtr. The stability aspects have been assessed by engaging reputed institutes such as IIT(Kharagpur), CIMFR (Nagpur), etc. from time to time.
The assessments of 2010-11 (IIT-Kharagpur), CIMFR-Nagpur and by IIT Kharagpur in March-April'18 conforms to the stability of existing dumps, maintained at ultimate height of 110mtr & slope angle within 28^0.</td></tr>
<tr><td>XIII</td><td>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.</td><td><u>Complied</u>
Adequate stabilization measures have been implemented for the dump slopes maintained with proper drainage network are outlined as follows:</td></tr>
</table>

Sl. No	Specific Condition	Compliance Status (October'19 to March'20)
		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 guided with ten (10) nos. of settling pits of approx. 1.5 mX1.5mX2m constructed on the toe of the dumps for arresting silt & sediments during monsoon season. 4. Toe walls supporting the garland drains constructed all along the dump periphery. 5. De-siltation activities for the drainage network was ensured before the onset of monsoon and during post monsoon season every year. **[Please refer Annexure-IV]**
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 prevent its failure, which may trigger a slide of the entire dump.	**Complied.** Dumping had been carried out only after ensuring the preparatory works for the dump foundation and with careful consideration of the stability aspects. All sorts of precautionary measures as identified during the geotechnical assessments of 2010-11 by IIT, Kharagpur, assessment of the in-situ stress of foundation and dump slope in 2013 by CIMFR, Nagpur and slope stability assessment of March- April 2018 by IIT Kharagpur have been implemented and the dumps were maintained as per the recommended heights of 110mtr (Max.) and benches provided with adequate space/berm width and overall slope angle maintained below 28°. Key precautionary measures were outlined as follows: 1. Each tier of benches is maintained with max. height of 10-15m with adequate berm width to maintain overall slope angle less than 28 degree. 2. Each level of bench was provided with garland drain and water from each level flow to next level via concrete patch path provided to prevent the formation of gullies. 3. Garland drains with 10 nos. of settling pits of 1.5mX1.5mX2m (approx.) for siltation. 4. Toe walls/gabion wall provided along the periphery of the dumps. 5. Practices like coir mating (geotextiles) and Vetiver Plantation along the dump slope had been undertaken. **[Photographs enclosed as Annexure IV]**
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.	**Complied** Rehabilitation of OB dumps is carried out in accordance with the provisions of the approved mine plan and final mine closure plan. As on. 31.03.2020, area of Approx. 70ha out of dumping area of (outside mine lease) had been rehabilitated with plantation of native forestry species. In addition to this, 44Ha of the old quarry had been rehabilitated as a part of compliance to the provisions of Final Mine Closer Plan. The implementation of FMCP had been inspected and reviewed by Indian Bureau of Mines, Bhubaneswar. After which certificate of compliance had been granted in favour of the Sukinda Chromite Mine of M/s Tat Steel Limited.

Sl. No	Specific Condition	Compliance Status (October'19 to March'20)
		Detailed Annual report on the status of implementation of Final Mine Closer Plan along with the certificate compliance issued in this regard is enclosed as **Annexure-IX.** Survival monitoring and management including regular maintenance of the plantation are ensured in line with a site-specific Biodiversity Management Plan, which was reviewed every quarter by independent experts from IUCN. **[Photographs enclosed as Annexure-IV]**
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.	**Complied** Garland drain with 10 nos. of settling pits of approx. 1.5mX1.5mX2m had been constructed to arrest the silts and sediments during the wash out/runoff from the mine workings/dumps. The adequacy of the surface runoff management had been assessed and validated by **NIT Rourkela** through a scientific study of drainage pattern and management of surface runoff at Sukinda Chromite Mine. The garland drains have also been designed considering the waterfall data of the region. Entire surface runoff from the mine was 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, beneficiation, drinking and other domestic utilities. Discharge of effluent beyond the mine lease was allowed only after adequate treatment preventing the silt/sediment surging into the adjoin areas/Dumsala Nallah.
XVII	Retaining wall having adequate dimensions shall be constructed at the toe of the over burden dumps to check run-off and siltation.	**Complied.** Toe wall along with garland drain having cross section of 1.5mX1.5mX2m were constructed all around periphery of the dump. **[Please refer Annexure-IV]**
XVIII	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.	**Complied** The plantation programme was carried out as per the approved Mining Plan & Final Mine Closure Plan. As on 31.03.2020, total area of Approx. 184.02ha (114.76ha within Mining lease & 70ha on OB dump) had been covered under plantation as per the site-specific biodiversity management plan with a sapling density in both the cases maintained beyond 2500 trees/ha. This figure is erroneously mentioned as 201.02ha as against the 154ha in the six-monthly compliance report submitted for the period from April'19 to Sep'19. **[Please refer Annexure-IV]**
XIX	Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high 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	**Complied** To limit the fugitive emissions, following safeguard measures were implemented: 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 ten (10) water sprinklers (two of 28 KL, four of 25 KL, and four 8 KL) m within mine area

Sl. No	Specific Condition	Compliance Status (October'19 to March'20)
		for haul road dust suppression and at mineral storage yards. 3. Stationary water sprinklers have been installed and was in operation on the main/permanent haul roads, maintenance areas, stack yard, chrome ore beneficiation plant, truck parking area, etc. 4. Water spraying by pressure water jets at feed hopper, transfer points, discharge chute to prevent dust generation. 5. Adoption of wet process at COB Plant eliminates the chance of any dust generation. 6. The concentrate stacks were covered using tarpaulin sheets to prevent finer concrete particle from getting air borne. Ambient air quality was monitored at six locations within the core zone/lease area as per NAAQS-2009 guidelines. **[Please refer Annexure-III & 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.	**Complied** 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 form dumps, etc. by an OSPCB accredited third party on monthly basis and records are being maintained. Further, company had also commissioned one Herbal Treatment Plant in the COB plant since 2007-08 for the online hexa-chrome treatment of the chrome concentrate. Some of its related processes have been patented and Company has also won DSIR National Award for the same. No discharge of runoff/effluent was 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.	**Complied.** Tailings produced from the plant are fed to thickener to increase the settling rate of particles and thus producing clarified water which is re-circulated to the plant. Thickener's discharge is fed to tailings dewatering plant and tailing pond. Clarified water from the tailing pond & clear water produced from the dewatering plant is re-circulated back to the COB plant ensuring zero discharge from the plant. Recently, company has installed one Tailing dewatering unit at the COB Plant to recover the water from the tailings and then tailings are disposed in the form of dry cake in safe and environment friendly manner. **[Photographs enclosed as Annexure-IV]**
XXII	Regular monitoring of water quality upstream and downstream of Damsala Nallah shall be carried out and record of monitoring data	**Complied** The monitoring of water quality at upstream and downstream of Damsala Nallah was carried out by an OSPCB empanelled

Sl. No	Specific Condition	Compliance Status (October'19 to March'20)
	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.	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. **[Please Refer to Annexure-III]**
XXIII	Appropriate mitigative measures shall be taken to prevent pollution of Damsala Nallah, if any, in consultation with the State Pollution Control Board.	**Complied.** Following mitigative measures were implemented to prevent pollution of Damsala Nallah: 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, COB operation, 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. 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. 5. Raw water intake from Damsalla Nallah had been avoided and only resorted in case of emergency situations. 6. 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.
XXIV	The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water for the project.	**Complied.** An agreement for the drawl of 2100 Cu.M of surface water from Damsala Nalla had been signed with Executive Engineer, Jaraka Irrigation Division on December'15 for a period of three (03) years i.e up to 30th Nov 2018, subsequently renewed till 31.03.2020, however reuse of treated water from ETP has resulted in significant reduction in the water drawl of from the damsala nallah. **[Surface Water Agreement enclosed as Annexure-V]**
XXV	Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with Regional Director, Central Ground Water Board.	**Complied** Rainwater harvesting study had been conducted and findings submitted to Regional Office, CGWB, Bhubaneswar. One roof top rain water harvesting structure had been constructed at GM office building which is in working effectively. Rainwater harvesting measures were implemented through TSRDS wing of Tata Steel in the buffer areas. A series of surface impoundments (ponds) were constructed at Kakudia Village along the recharge line of the acquirer.
XXVI	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.	**Complied** Monitoring of vehicular emission was 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 were also carried out to keep the vehicle in good condition.

Sl. No	Specific Condition	Compliance Status (October'19 to March'20)
		Transport vehicles were regulated by certificate of PUC from RTO office and system generated permits to ensure load under permissible limit.
XXVII	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.	**Complied & Ongoing** The blasting operation was 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. 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.
XXVIII	Drills shall either be operated with dust extractors or equipped with water injection system.	**Complied.** All the drills deployed within mine were 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 were provided with necessary PPEs.
XXIX	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 transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.	**Complied.** The process at mineral handing plant (COB Plant) is totally wet, thus the chance of any dust generation is eliminated. Roads in COB plant had been concreted fitted with stationary water sprinklers. Spraying by pressure water jets at feed hopper, transfer points, discharge chute is done on regular basis to prevent dust generation.
XXX	Consent to operate shall be obtained from State Pollution Control Board prior to start of enhanced production from the mine.	**Complied.** Consent to operate had been renewed vide OSPCB's letter no. 14781/IND-I-CON-226 dt. 01.10.16 valid till 31st March 2020 for the enhanced production capacities of 1.948670MTPA, 0.5MTPA & 0.65MTPA for ROM, Pyroxenite & Throughput from COB respectively. **[Please Refer to Annexure-II]**
XXXI	Sewage treatment plant shall be installed for the colony. ETP shall also be provided for workshop and waste water generated during mining operation.	**Complied.** 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. (in the previous compliance report the capacity of STP was mentioned as 100KLD as against the actual capacity of 1000KLD). **[Please Refer to Annexure-IV]**
XXXII	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.	**Complied.** Digital processing of the entire lease area using remote sensing technique is carried out for baseline information of land use pattern and the report is submitted to Ministry of Environment, Forests & Climate Change and its Regional Office, Bhubaneswar vide letter no. SCM/MPP/39/16 dated 24.11.2016. Monitoring is conducted periodically every three

Sl. No	Specific Condition	Compliance Status (October'19 to March'20)
		years by engaging an ORSAC empanelled consultants and the report is submitted to the MoEF&CC. The latest Satellite imagery study had been conducted in the year 2019 and the findings therewith was submitted to MoEF&CC.
XXXIII	Regular monitoring of ambient air quality including free silica shall be carried out and records maintained.	**Complied** Regular monitoring of ambient air quality was 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. **[Please Refer to Annexure-III]**
XXXIV	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.	**Complied.** Pre-Employment/Pre-placement medical examination was mandatorily ensured for employees prior to their joining. Apart from this, periodical medical examination (PME) was conducted for all in every five years and for those with age of 45years or more PME was conducted once in every three (03) years and the records are maintained. Besides this the company also undertaook various initiatives for the improvement in the occupational health and removing the safety hazards at industrial workplace, by forming 3 ACT (Advice, Connect & Transform) teams under Wellness@ Workplace programme.
XXXV	The project proponent shall take all precautionary measures during mining operation for conservation and protection of 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.	**Complied.** We had deposited a sum of Rs 1,05,56,000/- in the State Specific CAMPA account towards the cost of implementation of Regional Wildlife Management Plan. Further, site specific wild life conservation Plan has already been submitted to DFO, Cuttack vide our letter no. SCM/ ENV/091/13, dated 18.12.2013, which is finally approved by PCCF (WL) Odisha vide letter No. 4895/1 WL-SSP-92/2015, dated 10.06.2015. We have also deposited a sum of 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. As a proactive measure, site specific Biodiversity Management Plans have been formulated and implemented in consultation with experts from IUCN and state forest dept.'s directives/instructions, etc.
XXXVI	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.	**Complied.** Final Mine Closure Plan in respect of our unit as required under Rule 25 of Mineral Conservation and Development Rules, 2017 was approved by Regional Controller of Mines, (IBM) vide letter no. MFMCP/FM/60-ORI/BHU/2018-19, dt. 29.04.2019. **[Please Refer to Annexure-VI]** Regarding corpus fund: A sum of Rs. 12.18 Cr. (@ Lease Area – 406 ha. X Rs.3,00,000/- ha) was deposited with the Regional Controller of Mines, Bhubaneswar as a part of financial assurance for the mine closure activities. After the implementation of protective reclamation and rehabilitation measures, duly inspected and validated jointly by DDM, Jajpur and Indian Bureau of Mines, Bhubaneswar on 24th March and 12th June 2020. The compliance certificate in this regard had been granted/issued by IBM favouring the release of Bank

Sl. No	Specific Condition	Compliance Status (October'19 to March'20)
		Guarantee as deposited towards the financial assurance. Copy enclosed as **Annexure-IX**.

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.	**Complied.** There was no change in mining technology and scope of working. Mine is operated within the scope of the present EC. Prior approval from the Ministry was not expedited, since the mine lease was expiring on 31st March 2020, because of Auction provision of the mine as per MMDR/MCDR. This mine is put on for auction as per the prevailing provisions of MMDR.
II	The calendar plan quantity of excavation, chrome ore, beneficiated chrome concentrates, pyroxenite ore and waste shall not be exceeded.	**Complied.** The calendar plan was followed. Calendar plan for Year 2019-20 Particulars in LMT / EC Limit / Mining Plan Limit / Actual (FY20) Chrome Ore ROM: 24 / **19.45** / 17.8599190 Chrome Concentrate: 6.50 / **3.31** / 0.09250680 Pyroxenite: 5.50 / **0.94** / NIL
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.	**Complied.** Six air quality monitoring stations (four in the work zone, one in residential area and one near hospital) were established for ambient air quality monitoring in line with CPCB guidelines fulfilling the requirements of NAAQS-2009. Apart from this, quarterly monitoring were also done at 10 buffer zone locations in the nearby villages. Parameters monitored are as per NAAQS-2009. **[Please Refer to Annexure-III]**
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.	**Complied.** Following measures were implemented to control the noise level below 85dB(A) in the work environment. 1. Wherever possible the noise is controlled at the source by replacement of metallic screens by rubber screens & polyurethane panels, etc. at Chrome Ore Beneficiation and Lumpy Ore Processing plant. 2. DG sets were provided with acoustic enclosures. 3. The operator's cabin of all the HEMM's were fitted with air conditioner. 4. Use of Earmuffs/ Ear plugs were used by putting it in the list of mandatory PPEs for the operational workforce engaged in high noisy areas. **[Please Refer to Annexure-III]**
V	There will be zero waste water discharge from the plant.	**Complied.**

Sl. No	Specific Condition	Compliance Status (October'19 to March'20)
		Tailings produced from the plant were fed to thickener to promote the settling rate of particles thus producing clarified water, which used to be re-circulated to the plant. Thickener's discharge is fed to Tailings Dewatering Plant and Tailing pond. Clarified water from the tailing pond & clear water produced from the dewatering plant used to be re-circulated back to the COB plant to ensure Zero waste Water discharge is ensured at COB plant. **[Photographs enclosed as Annexure-IV]**
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.	**Complied.** Persons working in dusty areas were provided with DGMS approved dust masks. Regular training programmes were conducted for the employees for raising awareness on health & safety aspects.
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.	**Complied.** All the employees used to undergo periodical medical examination (PME) in hospital every five years and those with age of 45years or more undergo PME once in every three (03) years. To improve the occupational health and removing the safety hazards at industrial workplace, 3 ACT (Advice, Connect & Transform) team is formed under Wellness@ Workplace programme. Apart from this, persons engaged in mining operations were also tested for their exposure to free silica content in respirable air (RPM) on quarterly basis. As of now, no occupational diseases have ever been reported till date.
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.	**Complied.** The Environmental Management Cell is headed by the Head (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 attributed with the Head (Mine & Production Planning) who directly reports to the GM, Operations of the Division.
IX	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.	**Complied.** Separate budget used to be allocated for environmental protection measures every year and maintained under a separate cost centre. Actual Expenditure on Environmental Protection Measures in the last fiscal year i.e year ending 31st March 2020 is enclosed as **Annexure-IX**. Mostly the funds allocated for environmental expenditure is spent for the implementation of protective reclamation & rehabilitation measures.
X	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.	**Complied.** The Final Mine Closure Plan is approved by Indian Bureau of Mines vide its office letter no. MFMCM/FM/60-ORI/BHU/2018-19, dt. 29.04.2019. Annual Report detailing the implementation of provisions of Final Mine Closer Plan, duly certified by Indian Bureau of Mines is enclosed as Annexure-IX. Certificate of Compliance under sub rule 4 of Rule 21 of Mineral Conservation & development Rule, 2017 had been issued in favour of Sukinda Chromite Mine of M/s Tata Steel Limited. **Copy enclosed as Annexure-IX.**

Sl. No	Specific Condition	Compliance Status (October'19 to March'20)
XI	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.	**Complied.** The mine management has always extended full cooperation to officer(s) of Regional office by furnishing the requisite data/ information/ monitoring report as and when required.
XII	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.	**Complied** Six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data is 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. Last EC compliance is submitted vide letter no. FAMD/SCM/264/FY20, dt. 26/11/2019and a copy of the same is also uploaded in our company's website. www.tatasteelindia.com.
XIII	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad / Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/representations, if any, where received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	**Complied.** Environment Clearance letters were sent to concerned Panchayat, Zila Parisad / Municipal Corporation, Urban Local Body and is attached in **Annexure IV.** A copy of the same is also uploaded on our website @ www.tatasteelindia.com. **[Please refer to Annexure-IV]**
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.	Not Applicable for the project proponent. As informed, the same is complied by Odisha State Polution Control Board.
XV	The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the 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.	**Complied.** The Environment Statement in Form-V is submitted before 30th Sept of every year and the same is also uploaded in the company website. Environment Statement for the year ending 31st March 2019 is submitted vide letter no. FAMD/SCM/210/FY20, dt. 28/Sep/2019 to the State Pollution Control Board and to the Regional Office of MoEF&CC by e-mail.
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	**Complied.** The grant of Environmental Clearance is 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 also forwarded to the Eastern Regional Office of the MoEF vide letter no. SCM/ ENV/ 012/066/13, dated 18.06.2013.

Sl. No	Specific Condition	Compliance Status (October'19 to March'20)
	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.	

C. Additional Conditions as per MoEFCC Letter No. 106-9/11/EPE dt. 02.12.2014 issued to all Non-Coal Mining Projects.

Sl. No.	Stipulated Condition	Compliance Status (Oct'19 to March'20)
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 ish off with rain water in catchment area.	**Complied** The mine is operated by opencast mining method using shovel-dumper combination. Production from underground mines has not yet started. Due care is taken during all the aspects of mining operations (starting from excavation till dispatch of the minerals) to ensure feasible sustainable practices are adopted such as: 1. Wet drilling (Drills with inbuilt features of wet drilling) for preventing fugitive dust generation at the working face. 2. Controlled blasting by means of pre-split blasts using both NONEL & SME for arresting fly rocks and improved fragmentation with minimal ground vibration is practiced. 3. Pre-wetting is also carried out prior to blasting to minimize dust generating potential of blasts. 4. Deployment of four (04) graders for haul road maintenance and muck clearance along with ten (10) Nos of water sprinklers (two of 28 KL, four of 25 KL, and four 8 KL). 5. Stationary water sprinklers installed and are in operation on the main/permanent haul roads, areas in maintenance, stack yard, chrome ore beneficiation plant, etc. 6. Water spraying through pressure water jets at feed hopper, transfer points, discharge chute to prevent dust generation. 7. The process at COB Plant is totally wet and eliminates the chance of any dust generation. 8. The concentrate stacks are covered using tarpaulin sheets to prevent finer concrete particle from getting air borne. 9. An Effluent treatment plant of 4500Kl/hr in operation for treatment of mine water and surface runoff. 10. Slope stability monitoring and its assessment on periodic basis and extensive afforestation for land reclamation. 11. Bench width & height as per the statute provisions are maintained. 12. Garland drains all along the periphery of dumps supported with toe walls/gabion walls and 10nos of settling pits (1.5mX1.5mX2m) for guiding effluents/surface runoff up to ETP. 13. Approx. 85% of the effluents generated is reused/recycled back for various purposes such as

Sl. No.	Stipulated Condition	Compliance Status (Oct'19 to March'20)
		greenbelt development, COB operations, dust suppression, etc. 14. No discharge of effluent beyond the mine premises without treatment and its conformance with permissible discharge norms and the quality monitored on real-time basis by means of continuous effluent monitoring system (sensor based analysers, both at inlet & outlet of ETP).
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	**Complied.** No such water bodies exist within mine lease area. Dumsla 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 proper treatment within mine for which an ETP of capacity 4500Kl/hr is in operation. Surface water drawl had been minimised because the emphasized reuse of treated effluent within the camp. 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. Periodic desilting of the village ponds were also undertaken by TSRDS dept. of Tata Steel. During the period from 2003-04 to 2014-15 total 16 ponds have been desilted in neighbouring villages.
C.	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.	**Complied.** 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. 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. Safety zone all along the lease periphery is maintained with plantation which also acts as a barrier.
d.	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	**Not Applicable.** 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.

Sl. No.	Stipulated Condition	Compliance Status (Oct'19 to March'20)
	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.	
e.	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.	**Complied.** Vibrations studies have been carried out by CIMFR Dhanbad and recommendations thereof are followed. 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.
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.	**Complied.** To limit the fugitive emissions, following safeguard measures were implemented: 1. Various control measures like water sprinkling on haul road, transfer points, Ore stack yard, etc is done on regular basis. 2. Ten (10) water sprinklers (two of 28 KL, four of 25 KL, and four 8 KL) have been deployed in the mine area for haul road dust suppression and at mineral storage yards. 3. Stationary water sprinklers have been installed and are in operation on the main/permanent haul roads with permanent concrete bunds and areas in maintenance, stack yard, chrome ore beneficiation plant.

Sl. No.	Stipulated Condition	Compliance Status (Oct'19 to March'20)
		4. Water spraying is done through pressure water jets at feed hopper, transfer points, discharge chute to prevent dust generation. 5. The process at COB Plant is totally wet and eliminates the chance of any dust generation. 6. The concentrate stacks are covered using tarpaulin sheets to prevent finer concrete particle from getting air borne. 7. Mineral is dispatched by means of trucks and which are completely covered with tarpaulins and regulated by system generated transit permits which prevents overloading.
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.	**Complied** 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 shall be addressed in desired manner for which a company level public liability insurance scheme is in place. **[Refer to PLI Policy enclosed as Annexure-VIII]**
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.	**Not Applicable.** There are no villages within the lease hold area of 406.0ha for which EC had been accorded by MoEF&CC.
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	**Complied.** 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. During the construction phase, we have contributed in the construction of a major segments of the road from Kaliapani up to Kankadapal of 12Kms (approx.) in totality.

Annexure-I-Forest Clearances-Sukinda Chromite Mines

Sl. No.	Stipulated Condition	Compliance Status (Oct'19 to March'20)
	without appropriately increasing carrying capacity of such road	
j.	Likewwase, alteration or re-routing of foot paths, pagdandies, cart road and village infrastructure/ public utilities or roads (for purpose of land acquwasition for mining) shall be avoided to extent possible and in such case acquwasition was inevitable, alternative arrangements shall be made first and the only the area can be acquired. In these types of cases Inspection reports by site vwasit by expert may be inswasted upon which should be done through reputed Institutes.	**Not Applicable.** Entire lease area of 406.0ha was govt. land (404.669ha of forest land and 1.331ha of non-forest land thus thwas project was not subjected to land acquwasition.
k.	The CSR activates by companies including mining establwashment has become mandatory up to 2% their financial turn over, socio Economic Development of neighborhood. Habitats could also be planned and executed by the PPs more systemically based on need based door to door survey by establwashed Social Institute/ Workers on the lines as required under TOR. " R&R Plan// compensation details for Project Affected People (PAP) should be furnwashed. While preparing the R&R plant, the relevant State/ national Rehabillitation & 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-wwase, 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 dwascussed in EIA report.	**Complied.** CSR activities are undertaken by TSRDS dept. of Tata Steel in and around the mine. Total expenditure on CSR fonts was in compliance with the 2% obligation as per Companies Act. However, thwas mine was not subjected to land acquwasition because the nature of land involved (govt. land) eliminating the R&R obligations of the company.

Head
Mine & Production Planning
Sukinda Chromite Mine
Ferro Alloys Mineral Divwasion
Tata Steel Limited

Date: 14/06/2020

No.10F (Con) 51/2018 11885 /F&E, Bhubaneswar, dated the 23.05.18

ORDER

Sub: Diversion of balance 330.972 ha. of sabik kisam 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 kisam 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 kisam 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

1

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

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, Lodi 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;

(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 it's 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,

(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.

(H. C. Chaudhary)
Director

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

22/5/18

(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.

22/5/18

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), Indira 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.

22/5/18

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, [illegible] 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 a re 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/Pr. CCF, Odisha/F&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.

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 Infoways 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.**

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.

22/5/18

Special Secretary to Government

Consent To Operate-Sukinda Chromite Mine-Tata Steel

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

BY REGD. POST WITH AD

STATE POLLUTION CONTROL BOARD, ODISHA

A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012
Phone-2561909, Fax: 2562822, 2560955 E-mail: paribesh1@ospcboard.org, Website: www.ospcboard.org

CONSENT ORDER

No. 14781 / IND-I-CON-226 Dt. 01-10-16 /

CONSENT ORDER NO. 1223

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. 388853 dated 10.12.2015 & online reply dated 29.09.2016.**

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 MINES OF M/S. TATA STEEL LTD.

Name of the Occupier & Designation: SRI PANKAJ KUMAR SATIJA, GENERAL MANAGER

Address: AT/PO: KALARANGIATTA, DIST: JAJPUR

This consent order is valid for the period **up to 31.03.2020**

Details of Products Manufactured

Sl. No	Product	Quantity
01.	Chrome ore(ROM)	1.948670 MTPA
02.	Pyroxenite(ROM)	0.5 MTPA

Details of Mineral Handling/ Processing Plants

01.	COB Plant of throughput capacity	0.65 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 MINES OF M/S. TATA STEEL LTD.

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)	Fe (mg/l)
01.	*Outlet of STP (Domestic effluent)*	*Used for plantation.*	*2*	*6.5 to 9.0*	*20*	*10*	*50*	--	--	--	-
02.	*Mine drainage water / surface run off/ other wastewater*	*On land / inland surface water body*	*1715*	*6.0 to 9.0*	*100*	--	--	*10*	*0.05*	*2.0*	*3*

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

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 alternation or deviation made in actual practice from the particulars furnished in the application will also be the ground liable for review/variation/revocation of the consent order under section 27 of the Act of Water (Prevention & Control of Pollution) Act, 1974 and section 21 of Air (Prevention & Control of Pollution) Act, 1981 and to make such variations as deemed 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 directives/orders issued by the Board in this 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 taped 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 lace 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 on 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.

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.

ODISHA

CONSENT ORDER

SUKINDA CHROMITE MINES OF M/S. TATA STEEL LTD.

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 ion 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 this Board at any time.

29. There shall not be any fugitive or episodal discharge from the premises.

30. In case of such episodal 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 hoods, pipes, valves, stacks/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 plant/plants 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 occurence.

33. The industry has to ensure that minimum three varieties of trees are planted at the density of not less than 1000 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 no 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 run-off.
    ii) Controlled incineration, wherever possible in case of combustible organic material.
    iii) Composting, in case of bio-degradable material.

36. Any toxic material shall be detoxicated if possible, otherwise be sealed in steel drums and buried in protected areas after obtaining approval of this Board in writing. The detoxication 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 all 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/heirs/legal 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.

GENERAL CONDITIONS FOR UNITS WITH INVESTMENT OF MORE THAN Rs 50 CRORES, AND 17 CATEGORIES OF HIGHLY POLLUTING INDUSTRIES (RED A).

1. The applicant shall analyse the emissions every month for the parameters indicated in TABLE .B & C as mentioned in this order and shall furnish the report thereof to the Board by the 10th of the succeeding month.

2. The applicant shall provide and maintain at his own cost three ambient air quality monitoring stations for monitoring Suspended Particulate Matter, Sulphor Dioxide, Oxides of Nitrogen, Hydro-Carbon, Carbon-Monixide and monitor the same once in a day/week/fortnight/month. The data collected shall be maintained in a register and a monthly extract be furnished to the Board.

3. The applicant shall provide and maintain at his own cost a meteorological station to collect the data on wind velocity, direction, temperature, humidity, rainfall, etc. and the daily reading shall be recorded and the extract sent to the Board once in a month.

4. The applicant shall forward the following information to the Member Secretary, State Pollution Control Board, Odisha, Bhubaneswar regularly.
   a. Report of analysis of stack monitoring, ambient air quality monitoring meteorological data as required every month.
   b. Progress on planting of trees quarterly.

5. The applicant shall install mechanical composite sampling equipment and continuous flow measuring / recording devices on the effluent drains of trade as well as domestic effluent. A record of daily discharge shall be maintained.

6. The following information shall be forwarded to the Member Secretary on or before 10th of every month.
   a. Performance / progress of the treatment plant.
   b. Monthly statement of daily discharge of domestic and/or trade effluent.

7. **Non-compliance with effluent limitations**

   a) If for any reason the applicant does not comply with or is unable to comply with any effluent limitations specified in this consent, the applicant shall immediately notify the consent issuing authority by telephone and provide the consent issuing authority with the following information in writing within 5 days of such notification.

      i) Causes of non-compliance

      i) A description of the non-compliance discharge including its impact on the receiving waters.

      ii) Anticipated time of continuance of non-compliance if expected to continue or if such condition has been corrected the duration or period of non-compliance.

      iii) Steps taken by the applicant to reduce and eliminate the non-complying discharge and

      iv) Steps to be taken by the applicant too prevent the condition of non-compliance.

   b) The applicant shall take all reasonable steps to minimize any adverse impact to natural waters resulting from non-compliance with any effluent limitation specified in this consent including such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge.

   c) Nothing in this consent shall be construed to relieve the applicant from civil or criminal penalties for non-compliance whether or not such non-compliance is due to factors beyond his control, such as break-down, electric failure, accident or natural disaster.

8. The applicant shall at his own cost get the effluent samples collected both before and after treatment and get them analysed at an approval laboratory every month for the parameters indicated in Part-D and shall submit in duplicate the report thereof to the Board.

9. The addition of various treatment chemicals should be done only with mechanical dosers and proper equipment for regulation of correct dosages determined daily and for proper uniform feeding. Crude practices such as dumping of chemicals in drains or sumps or trickling of acids or alkalies arbitrarily and utilizing poles for stirring etc. should not be resorted to.

10. In the disposal of treated effluent on land for irrigation, the industry shall keep in view of the need for;

    Rotation of crops

    Change of point of application of effluent on land

    A portion of land kept fallow.

11. The adoption of these would avoid soil becoming sick or slate, the industry may ensure this in consultation with the Agriculture Department.

12. It is the sole responsibility of the industry to ensure that there are no complaints at any time from the royats in the surrounding areas as a result of discharge of sewage or trade effluent if any.

13. Proper housekeeping shall be maintained by a dedicated team.

14. The industry must constitute a team of responsible and technically qualified personnel who will ensure continuous operation of all pollution control devices round the clock (including night hours) and should be in a position to explain the status of operation of the pollution control measures to the inspecting officers of the Board at any point of time. The name of these persons with their contact telephone numbers shall be intimated to the concerned. Regional Officer and Head Office of the Board and in case of any change in the team it shall be intimated to the Board immediately.

E. SPECIAL CONDITIONS:

1. This consent order is subject to permission of Forest Department, Government of Odisha to continue mining operation in the Forest land under Sabik Kissam.
2. A copy of the annual return (annual return submitted to IBM, Govt. of India/ Directorate of Mines, Govt. of Odisha) shall be submitted every year.
3. The environmental statement report shall be submitted to the Board in proper format every year.
4. Wet drilling shall be practiced or suitably designed dust extractor shall be provided for dry drilling to prevent generation of dust in the work environment.
5. Pre-wetting of blasting site and controlled blasting shall be practiced. Blasting shall be carried out during day time.
6. Water sprinkling through tankers / fixed sprinklers shall be carried out on the mine haulage roads and should always be in wet condition, so as to prevent generation of dust during transportation of materials.
7. Wheel washing facility for the ore transport vehicles shall be provided at the exit point of the mine.
8. The vehicles carrying ore for transportation from the mine shall be covered with tarpaulin.
9. Regular water sprinkling on mineral transportation roads passing through the habitation area as well as other strategic point on the ore transportation road shall be done jointly by the mining lessees.
10. All mine haulage roads and other transportation roads shall be maintained properly to avoid creation of ruts and pot holes.
11. Adequate measures shall be taken for control of noise levels below 85 dB(A) in work zone.
12. Regular monitoring of ambient air quality shall be carried out at three appropriate places and monitoring report shall be furnished to the Board once in six months. The permanent monitoring stations shall be fixed in consultation with the Regional Officer of the Board.
13. Ambient air quality of the mine shall meet the prescribed standards for industrial area.
14. Wastewater generated from the ore beneficiation plant shall be completely reused.
15. The slime generated from the ore beneficiation plant shall be disposed of safely as per mining plan and action shall be taken to prevent the contamination of ground water due to its disposal.

16. Retention wall shall be constructed at the toe of OB dump with provision of garland drain. Provision shall be made to divert the runoff from OB, ore stack yard and other areas of the mine to the ETP. Garland drains, channels and sedimentation pits constructed for the purpose shall be desilted after monsoon or as and when required.

17. Mine drainage water shall be used for wet beneficiation of sub-grade ore. Excess water if any, shall be discharged into surface water body after adequate treatment in the ETP. The treated wastewater of ETP shall also be utilized for sprinkling activities at various sources of generation of dust.

18. Online continuous monitoring system with data transfer facility to SPCB server shall be installed at the inlet and outlet of the ETP for monitoring of flow rate,pH, TSS& hexavalent chromium.

19. Overburden / waste rock shall be properly stacked in the earmarked areas approved by IBM and shall be suitably terraced and stabilized through vegetative cover or otherwise.

20. Restoration and rehabilitation of the mine shall be done in accordance with approved mine closure plan.

21. Seasonal monitoring of ground water level and its quality shall be carried out four times a year and report shall be submitted to the Board.

22. Domestic effluent of the township shall be treated in suitable and well-designed sewage treatment plant or shall be discharged to soak pit via septic tank constructed as BIS specifications.

23. Oil and grease trap with sedimentation pit shall be provided for treatment of workshop effluent, if any. The treated wastewater shall be completely recycled.

24. Ambient Air Quality monitoring data, Noise Monitoring data & Water/Waste Water Quality Monitoring data shall be electronically displayed at the entry point of the mine or at a suitable location of the mine.

25. Plantation of trees shall be undertaken in the colony/ township, over top soil dumps, OB dumps, back filled areas, along the side of haul road and in other areas of the mines not being utilized for mining activities. The mine shall take up avenue plantation and plantation in nearby village areas in consultation with DFO/Horticulture Department. The density of the plantation shall be around 2500 plants per hectare. Nursery shall also be developed for plantation activities within the ML area and free distribution of seedlings to nearby villagers. The annual statements pertaining to the number of trees planted areas where plantation has been done, survival percentage and area in Ha. covered under plantation shall be submitted to the Board, every year in prescribed format.

26. Mining operation is subject to availability of all other statutory clearances required under relevant Acts/Rules.

CONSENTORDER
SUKINDA CHROMITE MINES OF M/S. TATASTEEL LTD

27. The mine shall submit a declaration by 30th April every year that all pollution control systems are in good condition, are operated efficiently and ambient air quality as well as wastewater quality are conforming to the prescribed standards.

1/10/12

MEMBER SECRETARY
STATE POLLUTION CONTROL BOARD, ODISHA

TO,

THE GENERAL MANAGER,
SUKINDA CHROMITE MINES OF M/S. TATA STEEL LIMITED,
AT/PO: KALARANGIATTA, DIST: JAJPUR
PIN-755 028.

Memo No. _____ /Dt.

Copy forwarded to :

i) Regional Officer, State Pollution Control Board, **Kalinganagar**
ii) District Collector, **Jajpur**
iii) Director of Mines, Govt. of Odisha, Bhubaneswar,
iv) Director, Environment -cum-Special Secretary, F & E Deptt. Govt. of Odisha, Bhubaneswar
v) D.F.O **Jajpur**
vi) Deputy Director of Mines, **Jajpur Road**
vii) Cess Section (Head Office)
viii) Sr. Env. Engineer-L-I (C) (Hazardous waste cell)
ix) Sr. Env. Scientist –L-I (L), Central Lab. SPCB, Bhubaneswar
x) Consent Register

SR. ENV. SCIENTIST (MINES)
STATE POLLUTION CONTROL BOARD, ODISHA

GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENTAL POLLUTANTS

BY SPEED POST

FAX : 0674-2564573/2562822/2560955
Tel : 2564033/2563924
EPABX : 2561909/2562847
E-mail: hwmd@ospcboard.org
paribesh1@ospcboard.org
Website: www.ospcboard.org

STATE POLLUTION CONTROL BOARD, ODISHA

[DEPARTMENT OF FOREST & ENVIRONMENT, GOVERNMENT OF ODISHA]
Paribesh Bhawan, A/118, Nilakantha Nagar, Unit – VIII
Bhubaneswar – 751 012, INDIA

FORM 2
[See rules 5(4)]

GRANT OF AUTHORIZATION FOR GENERATION, HANDLING, COLLECTION, STORAGE AND DISPOSAL OF HAZARDOUS WASTE

1. Number of authorization **IND-IV-HW-208/** 5607 and date of issue 29.03 **/ 2016.**
2. **M/S SUKINDA CHROMITE MINE OF M/S TATA STEEL LTD.** is hereby granted an authorization to operate a facility for generation, handling, collection, storage and disposal of hazardous waste on the premises situated **AT/PO - KALARANGIATTA, SUKINDA, DIST - JAJPUR, ODISHA - 755028.**
3. The authorization shall be in force for a period up to **31.03.2019.**
4. The authorization is subject to the conditions stated below and the such conditions as may be specified in the Rules for the time being in force under the Environment (Protection) Act, 1986.
5. The applicant shall handle hazardous waste as specified below:

Sl. No.	Stream	Schedule	Waste Description	Quantity /A	Disposal
1	2	3	4	5	6
1.	5.1	1	Used Oil	200KL.	Storage in impervious pits / containers under covered shed followed by sale to Authorized Recycler / Re-processor
2.	5.2	1	Waste containing oil	30 T	Storage in impervious pits / containers under covered shed followed by final disposal in Authorized Hazardous Waste incinerator / Common Hazardous Waste Treatment Storage Disposal Facility (CHWTSDF), Jajpur
3.	34.3 & 34.4	1	ETP Sludge	1200 T	Storage in impervious pits under covered shed followed by final disposal in CHWTSDF, Jajpur

TERMS AND CONDITIONS OF AUTHORIZATION

GENERAL CONDITIONS

1. This authorization does not permit you to either receive and process or generate hazardous waste in case validity of Consent to Operate of your unit ceases. However you can carry out handling, storage, treatment, transport and disposal of hazardous waste generated previously during such period to avoid accumulation of hazardous waste.
2. Authorization granted herewith does not relieve you in complying with other provision laid down under Water (PCP) Act, 1974, Air (PCP) Act, 1981 and Environment (Protection) Act, 1986, and the Rules made there under.
3. The authorization or its renewal shall be produced for inspection at the request of an officer authorized by the State Pollution Control Board.
4. The person authorized shall not rent, lend, sell, transfer or otherwise transport the hazardous wastes without obtaining prior, permission of the State Pollution Control Board.
5. Any unauthorized change in personnel, equipment as working conditions as mentioned in the application by the person authorized shall constitute a breach of this authorization.
6. It is the duty of the authorized persons to take prior permission of the State Pollution Control Board to close down the facility.

7. An application for the renewal of an authorization shall be made as laid down under these Rules.
8. Any other conditions for compliance as per the Guidelines issued by the MoEF or Central Pollution Control Board.
9. This authorization is subject to statutory and other clearances from Govt. of Odisha and / or Govt. of India as and when applicable.
10. In case the quantity of generation of hazardous Waste exceeds the Authorized quantity, the unit shall apply for amendment of Authorization order.

SPECIAL CONDITIONS

1. The mine / industry shall strictly comply to the provisions of Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 2008 and amendments made thereafter.
2. The mine / industry shall maintain records of hazardous waste in Form-3 [See Rule-5(6) & 22(1)] and furnish annual returns in Form - 4 [See Rules- 5(6) & 22(2)] to the Board for the financial year by 30th June of every year. It shall contain the detail quantities of generation, storage and disposal of different type of hazardous wastes such as recyclable, incinerable, land disposable.
3. Environmental Information with respect to Air, Water, Hazardous Waste and Hazardous Chemicals shall be displayed at the main gate for public view.
4. Transportation of hazardous waste shall be done in accordance with the provisions of the Rules-20 & the Rules made by the Central Government under the Motor Vehicle Act, 1988 and other guidelines issued from time to time in this regard. Manifest system (Movement document) shall be strictly followed as per Rule-21. The mine / industry shall check the authenticity of the way bill of the transport vehicle to ensure supply of hazardous waste to the authorized destination.
5. The hazardous waste shall be sold if required only to genuine recycler / re-processors having valid authorization and registration from the State Pollution Control Board, Odisha and concerned SPC Board.
6. Steps shall be taken for reduction and prevention of the hazardous waste generated or for recycling or reuse. In case the hazardous waste is proposed to be utilized as a supplementary resource or for energy recovery, or after processing shall be carried out by the units only after obtaining approval from the Central Pollution Control Board and authorization from SPCB, Odisha.
7. All the hazardous waste shall be stored in impervious pits / containers under cover shed with adequate capacity having spill containment facility. The spilled hazardous waste shall be re-collected and stored in impervious pits / containers prior to sale / disposal.
8. The schedule of hazardous waste and the quantity as specified in column 1, 2, 3, 4 & column 5 shall only be disposed off as per the stipulation prescribed under column 6.
9. The mine / industry shall apply for renewal of authorization in Form-1, 120 days before expiry of this authorization order enclosing Annual Return in Form-4, Manifest copies in Form-13 and compliance to the conditions stipulated in this order along with adequate processing fees.
10. The mine shall furnish the status of disposal of hazardous waste to CHWTSDF on quarterly basis.

Member Secretary

To

The Manager
Sukinda Chromite Mine of M/s Tata Steel Ltd.,
At/ Po - Kalarangiatta, Sukinda,
Dist - Jajpur, Odisha – 755028

Memo No._____/ Dt._____/

Copy to:

1. Collector & District Magistrate, Jajpur.
2. Director, Factories & Boilers, Odisha, Bhubaneswar.
3. Regional Officer, State Pollution Control Board, Odisha, Kalinganagar.
4. Guard file, HSM Cell.

Sr. Env. Engineer, L-I (C)

[2]

ENVIRONMENTAL MONITORING RESULTS

PERIOD: October'2019 to March'2020

1. Air Quality Monitoring: AAQ CORE ZONE

1. MINING COMPLEX

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
Oct'19	66.3	41.4	8.3	15.5	0.25	7.5	BDL	BDL	BDL	BDL	BDL	BDL
Nov'19	64.2	39.6	7.5	13.2	0.32	6.2	BDL	BDL	BDL	BDL	BDL	BDL
Dec'19	71.6	40.4	7.2	14.1	0.31	7.2	BDL	BDL	BDL	BDL	BDL	BDL
Jan'20	69.4	38.4	7.6	11.9	0.33	7.8	BDL	BDL	BDL	BDL	BDL	BDL
Feb'20	41.2	23.6	4.2	12.6	0.35	5.3	BDL	BDL	BDL	BDL	BDL	BDL
Mar'20	48.3	26.0	4.4	11.8	0.28	5.8	BDL	BDL	BDL	BDL	BDL	BDL

2. COB PLANT

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
Oct'19	69.6	41.8	7.4	11.8	0.28	7.0	BDL	BDL	BDL	BDL	BDL	BDL
Nov'19	69.5	39.6	7.6	12.0	0.40	7.6	BDL	BDL	BDL	BDL	BDL	BDL
Dec'19	71.7	39.2	7.4	13.2	0.25	7.0	BDL	BDL	BDL	BDL	BDL	BDL
Jan'20	69.0	39.5	6.6	13.4	0.23	7.0	BDL	BDL	BDL	BDL	BDL	BDL
Feb'20	51.7	29.6	4.2	11.3	0.16	6.21	BDL	BDL	BDL	BDL	BDL	BDL
Mar'20	47.4	26.8	4.1	12.8	0.12	5.8	BDL	BDL	BDL	BDL	BDL	BDL

3. STACK YARD

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
Oct'19	66.7	40.2	7.1	11.1	0.26	6.9	BDL	BDL	BDL	BDL	BDL	BDL
Nov'19	68.2	37.6	8.0	12.5	0.36	9.1	BDL	BDL	BDL	BDL	BDL	BDL
Dec'19	67.7	41.2	7.9	11.6	0.28	6.5	BDL	BDL	BDL	BDL	BDL	BDL
Jan'20	67.9	37.3	7.9	13.7	0.29	6.4	BDL	BDL	BDL	BDL	BDL	BDL
Feb'20	53.4	34.2	5.6	12.5	0.24	6.8	BDL	BDL	BDL	BDL	BDL	BDL
Mar'20	50.2	33.5	4.8	11.1	0.16	6.4	BDL	BDL	BDL	BDL	BDL	BDL

4. NEAR TAILING DAM

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
Oct'19	61.7	38.8	6.9	13.3	0.26	6.8	BDL	BDL	BDL	BDL	BDL	BDL
Nov'19	64.2	34.7	6.7	14.4	0.35	6.7	BDL	BDL	BDL	BDL	BDL	BDL
Dec'19	65.8	37.8	7.0	13.6	0.29	6.4	BDL	BDL	BDL	BDL	BDL	BDL
Jan'20	68.0	34.8	6.7	13.3	0.28	6.6	BDL	BDL	BDL	BDL	BDL	BDL
Feb'20	41.0	18.8	4.0	9.8	0.10	4.6	BDL	BDL	BDL	BDL	BDL	BDL
Mar'20	39.3	17.2	BDL	9.3	BDL	4.2	BDL	BDL	BDL	BDL	BDL	BDL

Annexure-III-Extracts of Environmental Monitoring Results-Sukinda Chromite Mines

5. HOSPITAL TOP

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
Oct'19	63.6	39.6	6.7	12.8	0.29	6.8	BDL	BDL	BDL	BDL	BDL	BDL
Nov'19	54.4	30.8	5.5	11.6	0.28	5.8	BDL	BDL	BDL	BDL	BDL	BDL
Dec'19	64.2	38.4	6.8	12.7	0.27	6.5	BDL	BDL	BDL	BDL	BDL	BDL
Jan'20	61.2	38.4	6.9	13.0	0.28	6.5	BDL	BDL	BDL	BDL	BDL	BDL
Feb'20	38.2	22.3	BDL	10.12	0.11	4.96	BDL	BDL	BDL	BDL	BDL	BDL
Mar'20	36.4	21.0	BDL	9.6	0.11	4.5	BDL	BDL	BDL	BDL	BDL	BDL

6. LABORATORY TOP

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
Oct'19	62.4	36.2	6.5	14.4	0.25	6.3	BDL	BDL	BDL	BDL	BDL	BDL
Nov'19	61.5	31.1	6.3	15.2	0.31	5.2	BDL	BDL	BDL	BDL	BDL	BDL
Dec'19	63.2	36.4	6.7	14.3	0.28	6.1	BDL	BDL	BDL	BDL	BDL	BDL
Jan'20	63.4	36.3	6.1	14.4	0.27	6.4	BDL	BDL	BDL	BDL	BDL	BDL
Feb'20	45.6	26.4	4.6	11.1	0.14	5.9	BDL	BDL	BDL	BDL	BDL	BDL
Mar'20	43.8	21.2	BDL	10.2	0.11	45.2	BDL	BDL	BDL	BDL	BDL	BDL

AAQ 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
Dec'19	62.4	33.4	4.1	11.4	0.27	BDL	BDL	BDL	BDL	BDL	BDL	BDL
March'20	53.0	24.0	BDL	8.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

2. SENDESWAR 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
Dec'19	60.4	35.2	5.5	10.8	0.26	BDL	BDL	BDL	BDL	BDL	BDL	BDL
March'20	55.2	23.4	4.4	10.6	0.12	BDL	BDL	BDL	BDL	BDL	BDL	BDL

3. 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
Dec'19	59.0	32.4	5.2	10.2	0.25	BDL	BDL	BDL	BDL	BDL	BDL	BDL
March'20	39.3	19.2	BDL	8.4	0.11	BDL	BDL	BDL	BDL	BDL	BDL	BDL

4. 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
Dec'19	61.5	34.2	4.8	9.5	0.24	BDL	BDL	BDL	BDL	BDL	BDL	BDL
March'20	44.4	23.7	5.3	8.9	0.15	BDL	BDL	BDL	BDL	BDL	BDL	BDL

5. KHARAKHARI 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
Dec'19	60.3	32.3	6.5	9.5	0.22	BDL	BDL	BDL	BDL	BDL	BDL	BDL
March'20	48.4	23.4	5.4	8.7	0.11	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Annexure-III-Extracts of Environmental Monitoring Results-Sukinda Chromite Mines

DG STACK 1000KVA

DG-1	PARAMETER	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20
	Stack Temp 0c	164.0	171.0	165.0	167.0	163.0	171.0
	Stack Velocity in m/sec	15.4	13.5	15.8	15.2	16.5	14.9
	Particulate Matter, PM, (mg/Nm³)	78.2	75.0	76.0	76.0	76.0	60.0
	Oxides of Nitrogen as NOx (mg/Nm3)	46.2	41.0	45.0	48.0	44.0	44.0
	Carbon Monoxide as (mg/Nm3)	41.6	48.0	43.0	42.0	41.0	61.0
	Non-Methyl Hydro Carbon (as C) (mg/Nm3)	21.8	20.3	23.6	25.2	24.8	28.0

DG-2	PARAMETER	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20
	Stack Temp 0c	174.0	181.0	169.0	165.0	175.0	169.0
	Stack Velocity in m/sec	17.1	16.1	16.4	16.7	16.1	15.1
	Particulate Matter, PM,(mg/Nm³)	73.0	73.0	81.2	76.0	75.0	64.0
	Oxides of Nitrogen as NOx (mg/Nm3)	44.0	39.0	47.4	43.0	43.0	38.0
	Carbon Monoxide as (mg/Nm3)	45.0	49.0	48.2	46.2	44.0	74.0
	Non Methyl Hydro Carbon (as C) (mg/Nm3)	24.1	22.3	23.4	24.4	26.1	31.0

AMBIENT NOISE MONITORING

Sl. No	LOCATION	Dec'19	Mar'20	LOCATION	Dec'19	Mar'20
		Noise Level in dB(A)			Noise level in dB(A)	
1	COB Plant Gate	73.4	71.5	Main Gate	61.6	60.5
2	Canteen	68.6	66.8	Market Complex	61.4	62.9
3	Work Shop	70.2	69.1	Hospital	52.3	50.5
4	Office	65.7	64.6	Post Office	52.4	47.8
5	D.G.Shed	71.4	70.2	Study Center	53.6	52.4
6	MCC Room	73.7	69.4	Water treatment Plant (D.G is not in operation)	57.5	56.7
7	Vibrating Screen	77.2	69.2	STP	61.2	60.1
8	Scrubber	68.6	66.4	Shishu Mandir	56.7	57.8
9	Control Room	69.5	70.2	Children's Park	58.3	57.5
10	Secondary Appron	71.2	67.4	3RSF Qtrs	61.5	60.2

MINERALOGICAL COMPOSITION (RESULTS IN %)

	MINING COMPLEX		COB PLANT		TAILING DAM	
PARAMETER	DEC'19	Mar'20	DEC'19	Mar'20	DEC'19	Mar'20
Cr2O3	25.4	24.8	23.4	23.2	24.4	24.3
Fe2O3	11.3	10.8	8.2	9.4	10.1	9.9
MnO2	2.5	3.1	3.6	3.6	3.2	3.5
SiO2	29.4	30.2	27.4	26.6	24.6	24.6

Al2O3	12.2	11.8	10.6	10.4	12.5	12.5
MgO	14.4	14.6	13.4	13.4	14.4	15.4
CaO	3.2	3.5	3.6	3.4	4.1	3.6

	NRD Lab		Hospital Top		Stack Yard	
PARAMETER	DEC'19	Mar'20	DEC'19	Mar'20	DEC'19	Mar'20
Cr2O3	24.8	25.3	19.2	18.7	22.7	22.4
Fe2O3	10.3	11.4	7.9	8.2	9.5	9.8
MnO2	2.9	3.1	1.4	1.8	2.6	2.7
SiO2	25.3	24.5	26.3	25.8	25.5	24.9
Al2O3	11.7	11.6	10.2	10.4	11.4	11.8
MgO	14.3	15.0	12.4	13.2	13.9	14.7
CaO	3.8	2.8	3.4	3.6	4.5	4.2

WATER QUALITY MONITORING

DRINKING WATER

Water Quality At Inlet of WTP

	Parameter	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20
1	pH	7.2	7.14	7.3	7.4	7.3	7.4
2	Colour	CL	CL	CL	CL	CL	CL
3	Odour	U/O	U/O	U/O	U/O	U/O	U/O
4	Total Hardness	81	83	84	76.4	81.2	91.2
5	Total Suspended Solids	13	10	12.2	14.5	15.3	12.4
6	Total Dissolved Solids	165	152	163	165	171	166
7	Chloride as Cl	28.4	35.2	36.4	35.3	34.2	32.4
8	Dissolve Oxygen	6.1	6.0	5.8	6.2	6.4	6.2
9	BOD	ND	ND	ND	ND	ND	ND
10	COD	ND	ND	ND	ND	ND	ND
11	Calcium as Ca	24.8	22.4	23.4	23.2	25.6	22.8
12	Magnesium as Mg	5.5	5.6	7.2	5.5	5.2	7.5
13	Sulphate as SO_4	5.7	5.3	5.6	5.2	4.8	4.6
14	Fluoride as F	0.15	0.11	0.13	0.12	0.11	0.11
15	Iron as Fe	0.32	0.35	0.34	0.32	0.28	0.28
16	Total Chromium as Cr	0.016	0.019	0.021	0.024	0..22	0.19
17	Hexavalent Chromium as Cr^{+6}	BDL	BDL	BDL	BDL	BDL	BDL
18	Mercury as Hg	BDL	BDL	BDL	BDL	BDL	BDL
19	Pesticide	Absent	Absent	Absent	Absent	Absent	Absent
20	Total Coliform	NIL	NIL	NIL	NIL	NIL	NIL

Water Quality at Outlet of WTP:

	Parameter	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20
1	pH	7.4	7.3	7.4	7.5	7.6	7.4
2	Colour	CL	CL	CL	CL	CL	CL
3	Odour	U/O	U/O	U/O	U/O	U/O	U/O
4	Total Hardness	72	70.2	71.4	73.2	76.4	78.2
5	Total Suspended Solids	NIL	NIL	NIL	NIL	NIL	NIL
6	Total Dissolved Solids	141	136	135	138	145	144
7	Chloride as Cl	21.5	22.3	23.5	24.5	23.5	23.2
8	Dissolve Oxygen	4.9	6.2	6.0	5.9	6.1	5.6
9	BOD	ND	ND	ND	ND	ND	ND
10	COD	ND	ND	ND	ND	ND	ND
11	Calcium as Ca	21.4	21.4	20.4	21.6	22.2	21.2
12	Magnesium as Mg	4.6	4.4	5.8	6.1	5.90	5.6
13	Sulphate as SO_4	2.4	1.90	1.3	1.8	2.1	2.4
14	Fluoride as F	0.06	0.08	BDL	BDL	BDL	BDL
15	Iron as Fe	0.15	0.11	0.10	0.12	0.14	0.17
16	Total Chromium as Cr	0.013	0.012	0.011	0.013	0.011	0.009
17	Hexavalent Chromium as Cr^{+6}	BDL	BDL	BDL	BDL	BDL	BDL
18	Mercury as Hg	BDL	BDL	BDL	BDL	BDL	BDL
19	Pesticide	Absent	Absent	Absent	Absent	Absent	Absent
20	Total Coliform	NIL	NIL	NIL	NIL	NIL	NIL

GROUND WATER (CORE ZONE)

Sl.No	PARAMETERS	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20
1	pH	7.3	7.4	7.5	7.4	7.3	7.2
2	Turbidity	NIL	NIL	NIL	NIL	NIL	NIL
3	Total Hardness	101	94.2	93.4	91.2	93.2	96.4
4	Alkalinity	75	70	65	68	70	72
5	Total Dissolved Solids	187	178	169	174	172	166
6	Chloride as Cl	26	27.5	26	24.5	25.5	27.5
7	Residual free Chlorine	ND	ND	ND	ND	ND	ND
8	Dissolve Oxygen	5.8	6	6.3	6.4	6.5	6.1
9	Calcium as Ca	28.05	25.65	24.85	26.46	25.4	27.6
10	Magnesium as Mg	7.8	7.8	7.3	7.76	7.67	8.04
11	Sulphate as SO_4	8.75	7.15	6.97	7.11	7.02	6.92
12	Fluoride as F	0.05	BDL	BDL	BDL	BDL	BDL
13	Nitrate	1.47	1.4	1.34	1.46	1.28	1.16
14	Hexavalent Chromium as Cr^{+6}	BDL	BDL	BDL	BDL	BDL	BDL
15	Cyanide (as CN)	BDL	BDL	BDL	BDL	BDL	BDL
16	Arsenic (as As)	BDL	BDL	BDL	BDL	BDL	BDL
17	Iron as Fe	0.16	0.14	0.13	0.16	0.15	0.18
18	Lead (as Pb)	BDL	BDL	BDL	BDL	BDL	BDL

Sl.No	PARAMETERS	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20
19	Zinc (as Zn)	0.25	0.31	0.26	0.28	0.29	0.3
20	Copper (as Cu)	0.009	BDL	BDL	BDL	BDL	BDL
21	Manganese (as Mn)	BDL	BDL	BDL	BDL	BDL	BDL
22	Mercury as Hg	BDL	BDL	BDL	BDL	BDL	BDL
23	Cadmium (as Cd)	BDL	BDL	BDL	BDL	BDL	BDL
24	Boron (as B)	BDL	BDL	BDL	BDL	BDL	BDL
25	Selenium (as Se)	BDL	BDL	BDL	BDL	BDL	BDL
26	Mineral Oil	ND	ND	ND	ND	ND	ND

PIEZOMETER: SCM/PZ/OBX/3600E/13

SL.No	PARAMETERS	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20
	pH	7.3	7.2	7.6	7.2	7.4	7.5
2	Turbidity	NIL	NIL	NIL	NIL	NIL	NIL
3	Total Hardness	118	117	114	121	106	123
4	Alkalinity	75	68.4	57	64.3	51	54
5	Total Dissolved Solids	242	231	238	246	244	252
6	Chloride as Cl	30.5	29	29.5	27	30.5	29.0
7	Residual free Chlorine	ND	ND	ND	ND	ND	ND
8	Dissolve Oxygen	5.5	6.1	6.5	6.1	6.1	6.4
9	Calcium as Ca	37.6	35.4	34.7	35.8	32.5	33.2
10	Magnesium as Mg	6.2	5.6	7.8	6.4	6.3	6.8
11	Sulphate as SO_4	9.8	8.4	8.8	8.4	8.5	8.3
12	Fluoride as F	BDL	BDL	BDL	BDL	BDL	BDL
13	Nitrate	1.4	1.6	1.4	1.7	1.5	1.2
14	Hexavalent Chromium as Cr^{+6}	BDL	BDL	BDL	BDL	BDL	BDL
15	Cyanide (as CN)	BDL	BDL	BDL	BDL	BDL	BDL
16	Arsenic (as As)	BDL	BDL	BDL	BDL	BDL	BDL
17	Iron as Fe	0.18	0.17	0.19	0.16	0.18	0.16
18	Lead (as Pb)	BDL	BDL	BDL	BDL	BDL	BDL
19	Zinc (as Zn)	0.21	0.25	0.23	0.26	0.21	0.24
20	Copper (as Cu)	0.007	BDL	BDL	BDL	BDL	BDL
21	Manganese (as Mn)	BDL	BDL	BDL	BDL	BDL	BDL
22	Mercury as Hg	BDL	BDL	BDL	BDL	BDL	BDL
23	Cadmium (as Cd)	BDL	BDL	BDL	BDL	BDL	BDL
24	Boron (as B)	BDL	BDL	BDL	BDL	BDL	BDL
25	Selenium (as Se)	BDL	BDL	BDL	BDL	BDL	BDL
26	Mineral Oil	ND	ND	ND	ND	ND	ND

PIEZOMETER: SCM/PZ/OBX/3900E/09

SL.NO	PARAMETERS	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20
	pH	7.34	7.4	7.3	7.2	7.6	7.53
2	Turbidity	NIL	NIL	NIL	NIL	NIL	NIL
3	Total Hardness	122	126	128	129	117	119.5
4	Alkalinity	92.8	85	87.8	94.5	94	96
5	Total Dissolved Solids	229	214	206	224	198	202
6	Chloride as Cl	29.5	28	27	24	29	31.5
7	Residual free Chlorine	ND	ND	ND	ND	ND	ND
8	Dissolve Oxygen	5.9	6.1	6.2	6.5	6.3	6.2
9	Calcium as Ca	36.7	32.6	33.5	35.2	34.8	36.8
10	Magnesium as Mg	8.7	8.5	10.7	9.3	10.7	9.62
11	Sulphate as SO_4	9.4	8.6	8.2	9.2	8.8	8.7
12	Fluoride as F	BDL	BDL	BDL	BDL	BDL	BDL
13	Nitrate	1.82	1.74	1.65	1.5	1.6	1.7
14	Hexavalent Chromium as Cr^{+6}	BDL	BDL	BDL	BDL	BDL	BDL
15	Cyanide (as CN)	BDL	BDL	BDL	BDL	BDL	BDL
16	Arsenic (as As)	BDL	BDL	BDL	BDL	BDL	BDL
17	Iron as Fe	0.2	0.17	0.15	0.18	0.17	0.19
18	Lead (as Pb)	BDL	BDL	BDL	BDL	BDL	BDL
19	Zinc (as Zn)	0.25	0.23	0.27	0.28	0.26	0.25
20	Copper (as Cu)	0.008	BDL	BDL	BDL	BDL	BDL
21	Manganese (as Mn)	BDL	BDL	BDL	BDL	BDL	BDL
22	Mercury as Hg	BDL	BDL	BDL	BDL	BDL	BDL
23	Cadmium (as Cd)	BDL	BDL	BDL	BDL	BDL	BDL
24	Boron (as B)	BDL	BDL	BDL	BDL	BDL	BDL
25	Selenium (as Se)	BDL	BDL	BDL	BDL	BDL	BDL
26	Mineral Oil	ND	ND	ND	ND	ND	ND

GROUND WATER (BUFFER ZONE),

SL.No	Village Name	Birasal Village		Sendeswar Village		Maruabil Village	
	Parameter	Dec'19	Jan'20	Dec'19	Jan'20	Dec'19	Jan'20
1	pH	6.9	7.12	7.14	7.16	6.9	6.98
2	Turbidity	0.8	1.2	1.34	0.7	0.9	0.5
3	Total Hardness	65	67	112	111	68.2	61.5
4	Alkalinity	47.5	46.5	82.5	84.5	50	52
5	Total Dissolved Solids	109.4	128.5	211.4	229	127	119.8
6	Chloride as Cl	13.3	14	18.0	19.5	13.5	21.3
7	Residual free Chlorine	ND	ND	ND	ND	ND	ND
8	Dissolve Oxygen	5.4	5.6	5.8	6.2	5.9	7.2
9	Calcium as Ca	14.4	15.1	29.6	28.2	18.4	18.2
10	Magnesium as Mg	5.8	6.3	10.5	10.8	4.9	5.4
11	Sulphate as SO_4	3.3	3.6	10.8	11.8	7.4	6.4

SL.No	Village Name	Birasal Village		Sendeswar Village		Maruabil Village	
	Parameter	Dec'19	Jan'20	Dec'19	Jan'20	Dec'19	Jan'20
12	Fluoride as F	ND	ND	ND	ND	0.86	0.86
13	Nitrate	0.68	0.75	2.45	2.35	1.45	1.6
14	Hexavalent Chromium as Cr^{+6}	BDL	BDL	BDL	BDL	BDL	BDL
15	Cyanide (as CN)	BDL	BDL	BDL	BDL	BDL	BDL
16	Arsenic (as As)	BDL	BDL	BDL	BDL	BDL	BDL
17	Iron as Fe	0.18	0.23	0.21	0.24	0.19	0.21
18	Lead (as Pb)	BDL	BDL	BDL	BDL	BDL	BDL
19	Zinc (as Zn)	0.10	0.12	0.06	0.08	0.052	0.064
20	Copper (as Cu)	BDL	BDL	BDL	BDL	BDL	BDL
21	Manganese (as Mn)	BDL	BDL	BDL	BDL	BDL	BDL
22	Mercury as Hg	BDL	BDL	BDL	BDL	BDL	BDL
23	Cadmium (as Cd)	BDL	BDL	BDL	BDL	BDL	BDL
24	Boron (as B)	BDL	BDL	BDL	BDL	BDL	BDL
25	Selenium (as Se)	BDL	BDL	BDL	BDL	BDL	BDL
26	Mineral Oil	ND	ND	ND	ND	ND	ND

SURFACE WATER

SL.NO	LOCATION	QUARRY NO. OB-X (SW-1)						
	PARAMETERS	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20	Average
1	pH	7.2	7.5	7.4	7.22	7.18	7.34	7.31
2	Iron as Fe	0.21	0.24	0.26	0.22	0.27	0.26	0.24
3	Hexavalent Chromium as Cr^{+6}	0.46	1.23	0.56	1.3	0.5	0.34	0.73

SL.NO	LOCATION	DAMSALA RIVER UP STREAM (SW-2)						
	PARAMETERS	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20	Average
1	pH	7.18	7.27	7.3	7.34	7.28	7.25	7.27
2	Iron as Fe	0.25	0.29	0.27	0.22	0.19	0.2	0.24
3	Hexavalent Chromium as Cr^{+6}	0.6	1.2	0.07	0.52	1.4	1.6	0.90

SL.NO	LOCATION	DAMSALA RIVER DOWN STREAM (SW-3)						
	PARAMETERS	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20	Average
1	pH	7.05	7.27	7.26	7.16	7.12	7.15	7.17
2	Iron as Fe	0.32	0.29	0.31	0.29	0.23	0.25	0.28
3	Hexavalent Chromium as Cr^{+6}	0.45	0.03	0.04	0.34	0.65	1.02	0.42

WASTE WATER

SL.No	LOCATION	ETP INLET (WW-1)						
	PARAMETERS	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20	Average
1	pH	7.3	6.9	7.43	7.5	7.4	7.5	7.34
2	Colour	2	3	3	5	5	5	3.83
3	Odour	U/O	U/O	U/O	U/O	U/O	U/O	U/O
4	Temperature	24	23	22.5	21.2	24.5	26.2	23.57
5	Suspended Solids	112	109	127	182	135	152	136.17
6	Total Residual Chlorine	ND	ND	ND	ND	ND	ND	ND
7	Oil & Grease	6.4	5.2	4.0	4.5	5.8	4.2	5.02
8	BOD	20	26.5	31.2	27	26.3	33.5	27.42
9	COD	56.3	78.5	81.3	73.2	62.4	71.3	70.50
10	Amm. Nitrogen (as N)	1.9	2.4	2.8	2.6	2.5	2.8	2.50
11	Total Kjeldahl Nitrogen	3.8	3.6	3.4	3.7	3.8	3.7	3.67
12	Free Ammonia	0.013	0.014	0.012	0.014	0.013	0.014	0.01
13	Nitrate as NO_3	1.2	1.4	1.5	1.9	1.5	1.4	1.48
14	Diss. Phosphate (as P)	0.7	0.9	0.8	0.8	0.7	0.5	0.73
15	Fluoride	0.26	0.23	0.24	0.25	0.26	0.22	0.24
16	Sulphide	ND	ND	ND	ND	ND	ND	ND
17	Phenolic Compound	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18	Cyanide (as CN)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19	Hexavalent Chromium as Cr +6	0.8	0.65	1.26	1.4	0.52	0.35	0.83
20	Mercury (as Hg)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21	Arsenic	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22	Lead (as Pb)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23	Cadmium (as Cd)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24	Total Chromium (as Cr)	0.51	0.54	0.65	0.71	0.67	0.58	0.61
25	Copper (as Cu)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26	Zinc (as Zn)	0.39	0.32	0.37	0.31	0.33	0.3	0.34
27	Selenium (as Se)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28	Nickel (as Ni)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29	Manganese (as Mn)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30	Iron (as Fe)	0.48	0.45	0.51	0.55	0.58	0.62	0.53
31	Vanadium (as V)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
32	Bio-assay Test	86%	86%	84%	85%	83%	84%	85%
33	Particle Size of Suspended Solids	< 850	< 850	< 850	< 850	< 850	< 850	< 850
34	Pesticide	Absent	Absent	Absent	Absent	Absent	Absent	Absent

SL.No	LOCATION	ETP OUTLET (WW-2)						
	PARAMETERS	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20	Average
1	pH	7.34	7.13	7.35	7.34	7.46	7.28	7.32
2	Colour	1	1	1	1	1	1	1.00
3	Odour	U/O	U/O	U/O	U/O	U/O	U/O	U/O

Annexure-III-Extracts of Environmental Monitoring Results-Sukinda Chromite Mines

SL.No	LOCATION	ETP OUTLET (WW-2)						
	PARAMETERS	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20	Average
4	Temperature	26	23.4	21.8	21.5	25.2	26.3	24.03
5	Suspended Solids	12.4	10.2	12.3	10.6	9.8	10.4	10.95
6	Total Residual Chlorine	ND	ND	ND	ND	ND	ND	ND
7	Oil & Grease	ND	ND	ND	ND	ND	ND	ND
8	BOD	ND	ND	ND	ND	ND	ND	ND
9	COD	ND	ND	ND	ND	ND	ND	ND
10	Amm. Nitrogen (as N)	0.42	0.44	0.55	0.48	0.51	0.49	0.48
11	Total Kjeldahl Nitrogen	0.74	1.12	1.23	1.52	1.53	1.61	1.29
12	Free Ammonia	0.004	0.005	0.004	0.006	0.005	0.004	0.00
13	Nitrate as NO_3	0.21	0.26	0.24	0.28	0.22	0.2	0.24
14	Diss. Phosphate (as P)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15	Fluoride	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16	Sulphide	ND	ND	ND	ND	ND	ND	ND
17	Phenolic Compound	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18	Cyanide (as CN)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19	Hexavalent Chromium as Cr +6	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20	Mercury (as Hg)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21	Arsenic	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22	Lead (as Pb)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23	Cadmium (as Cd)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24	Total Chromium (as Cr)	0.014	0.016	0.019	0.020	0.024	0.018	0.019
25	Copper (as Cu)	0.008	0.013	0.017	0.014	0.018	0.013	0.014
26	Zinc (as Zn)	0.017	0.019	0.019	0.017	0.022	0.014	0.02
27	Selenium (as Se)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28	Nickel (as Ni)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29	Manganese (as Mn)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30	Iron (as Fe)	0.13	0.18	0.16	0.20	0.18	0.19	0.17
31	Vanadium(as V)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
32	Bio-assay Test	95%	95%	95%	92%	94%	95%	94%
33	Particle Size of Suspended Solids	< 850	< 850	< 850	< 850	< 850	< 850	< 850
34	Pesticide	Absent	Absent	Absent	Absent	Absent	Absent	Absent

OIL SEPARATION PIT INLET (WW-3)

SL.NO	LOCATION	OIL SEPARATION PIT INLET (WW-3)						
	PARAMETERS	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20	Average
1	pH	6.95	7.23	7.34	7.25	7.4	7.25	7.24
2	Colour	5	5	5	5	5	5	5.00
3	Odour	U/O	U/O	U/O	U/O	U/O	U/O	U/O
4	Temperature	21	22.3	23.4	21.8	24.9	25.3	23.12
5	Suspended Solids	77	97.5	104.5	106.2	112.8	122.5	103.42
6	Total Residual Chlorine	ND	ND	ND	ND	ND	ND	ND
7	Oil & Grease	7.8	7.3	7.5	7.8	7.6	8.4	7.73

Annexure-III-Extracts of Environmental Monitoring Results-Sukinda Chromite Mines

SL.NO	LOCATION	OIL SEPARATION PIT INLET (WW-3)						
	PARAMETERS	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20	Average
8	BOD	16.4	20.5	23.6	25.2	24.8	22.2	22.12
9	COD	72.6	84.3	72.7	88.4	84.2	88.7	81.82
10	Amm. Nitrogen (as N)	1.26	1.5	1.56	1.38	1.65	1.82	1.53
11	Total Kjeldahl Nitrogen	2.4	2.6	2.7	2.8	2.45	3.53	2.75
12	Free Ammonia	0.008	0.005	0.007	0.006	0.009	0.007	0.01
13	Nitrate as NO_3	1.92	1.86	1.74	1.72	1.84	1.85	1.82
14	Diss. Phosphate (as P)	0.65	0.72	0.78	0.92	0.84	0.73	0.77
15	Fluoride	0.29	0.45	0.23	0.28	0.26	0.21	0.29
16	Sulphide	ND	ND	ND	ND	ND	ND	ND
17	Phenolic Compound	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18	Cyanide (as CN)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19	Hexavalent Chromium as Cr +6	0.27	0.32	0.26	0.34	0.32	0.26	0.30
20	Mercury (as Hg)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21	Arsenic	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22	Lead (as Pb)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23	Cadmium (as Cd)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24	Total Chromium (as Cr)	0.76	0.67	0.72	0.82	0.83	0.92	0.79
25	Copper (as Cu)	0.12	0.074	0.06	0.083	0.07	0.034	0.07
26	Zinc (as Zn)	0.68	0.63	0.76	0.78	0.93	0.62	0.73
27	Selenium (as Se)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28	Nickel (as Ni)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29	Manganese (as Mn)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30	Iron (as Fe)	0.74	0.63	0.68	0.83	0.58	0.68	0.65
31	Vanadium (as V)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
32	Bio-assay Test	89%	89%	87%	86%	84%	86%	84%
33	Particle Size of Suspended Solids	<850	<850	<850	<850	<850	<850	<850
34	Pesticide	Absent	Absent	Absent	Absent	Absent	Absent	Absent

OIL SEPARATION PIT OUTLET (WW-4)

SL.NO	LOCATION	OIL SEPARATION PIT OUTLET (WW-4)						
	PARAMETERS	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20	Average
1	pH	7.34	7.42	7.53	7.63	7.45	7.28	7.44
2	Colour	1	1	1	1	1	1	1.00
3	Odour	U/O	U/O	U/O	U/O	U/O	U/O	U/O
4	Temperature	22	23.5	18.5	19.6	17.8	22.4	20.63
5	Suspended Solids	56.2	51.2	38.4	46.6	53.2	62.4	51.33
6	Total Residual Chlorine	ND	ND	ND	ND	ND	ND	ND
7	Oil & Grease	ND	ND	ND	ND	ND	ND	ND
8	BOD	ND	ND	ND	ND	ND	ND	ND
9	COD	ND	ND	ND	ND	ND	ND	ND
10	Amm. Nitrogen (as N)	BDL	BDL	BDL	BDL	BDL	BDL	BDL

SL.NO	LOCATION	OIL SEPARATION PIT OUTLET (WW-4)						
	PARAMETERS	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20	Average
11	Total Kjeldahl Nitrogen	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12	Free Ammonia	ND	ND	ND	ND	ND	ND	ND
13	Nitrate as NO_3	0.12	0.18	0.26	0.22	0.16	0.17	0.19
14	Diss. Phosphate (as P)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15	Fluoride	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16	Sulphide	ND	ND	ND	ND	ND	ND	ND
17	Phenolic Compound	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18	Cyanide (as CN)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19	Hexavalent Chromium as Cr +6	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20	Mercury (as Hg)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21	Arsenic	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22	Lead (as Pb)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23	Cadmium (as Cd)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24	Total Chromium (as Cr)	0.034	0.034	0.052	0.06	0.03	0.022	0.04
25	Copper (as Cu)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26	Zinc (as Zn)	0.052	0.048	0.043	0.04	0.045	0.042	0.05
27	Selenium (as Se)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28	Nickel (as Ni)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29	Manganese (as Mn)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30	Iron (as Fe)	0.18	0.13	0.17	0.15	0.18	0.14	0.16
31	Vanadium(as V)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
32	Bio-assay Test	96%	96%	95%	93%	92%	94%	94%
33	Particle Size of Suspended Solids	<850	<850	<850	<850	<850	<850	<850
34	Pesticide	Absent	Absent	Absent	Absent	Absent	Absent	Absent

STP INLET

SL.NO	LOCATION	STP INLET (WW-5)						
	PARAMETERS	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20	Average
1	pH	7.08	6.74	6.77	7.12	7.2	7.18	7.02
2	Suspended Solids	127	131	124	134	142	138	132.67
3	Oil & Grease	6.2	7.2	7.6	7.5	6.9	7.2	7.10
4	BOD	44	68	71	76	88	75	70.33
5	COD	124	142	84.3	89.5	73.2	95	101.33
6	Hexavalent Chromium as Cr +6	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
7	Total Chromium (as Cr)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
8	Faecal Coliform	45	84	59	46	73	47	59.0

STP OUTLET

SL.NO	LOCATION	STP (WW-6)						
	PARAMETERS	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20	Average
1	pH	7.7	7.34	7.25	7.5	7.36	7.2	7.39

SL.NO	LOCATION	STP (WW-6)						
	PARAMETERS	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20	Average
2	Suspended Solids	14	12	11	10.4	10.6	11.3	11.55
3	Oil & Grease	ND	ND	ND	ND	ND	ND	ND
4	BOD	5	7	6.8	6.2	5.5	7.2	6.28
5	COD	25	23	24	22.5	26.6	32.3	25.57
6	Hexavalent Chromium as Cr +6	BDL	BDL	BDL	BDL	BDL	BDL	BDL
7	Total Chromium (as Cr)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
8	Faecal Coliform	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8

GROUND WATER LEVEL (BUFFER ZONE)

Sl.no	Village name	Dec'19	Jan'20
		Result, mtr	Result, mtr
1	Birasal Village	2.7	3.2
2	Sendeswar Village	3.3	4.3
3	Maruabil Village	2.8	2.7
4	Kakudia Village	3.8	3.6
5	Kharakhari Village	2.6	2.8
6	Kalarangi Village	3.4	3.8
7	Kaliapani Village	2.7	3.2
8	Sukarangi Village	3.8	4.3
9	Laximdharapur Village	3.7	3.6
10	Kanehipal Village	4.2	4.5

Ground Water Level-Core Zone

Sl.No	Monitoring Location	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20
		Result, mtr	Result, mtr	Result, mtr	Result, mtr	Result, mtr	Result, mtr
1	SCM/PZ/OBX/3600E/01	16.5	19.3	22.4	0	0	Dry
2	SCM/PZ/OBX/3900E/09	84.5	90.2	94.3	95.4	96.3	95.9
3	SCM/PZ/OBX/3600E/13	38.8	39.4	42.2	43.8	42.7	46.5
4	SCM/PZ/OBX/3300E/17	23.6	26.2	26.2	26.1	27.2	28.5
5	SCM/PZ/OBX/3300E/18	32.4	37.5	33.1	33.9	34.6	34.8
6	SCM/PZ/OBX/3300E/19	36.6	39.2	43.5	61.9	61.4	67.3
7	SCM/PZ/OBX/3300E/20	58.8	62.6	61.4	59.6	51.2	51.5
8	SCM/PZ/OBX/3300E/21	51.9	76.6	78.5	79.5	77.8	79.6

ENVIRONMENTAL MANAGEMENT PRACTICES-SUKINDA CHROMITE MINE

COVERING OF LOADED TRUCK BY TARPAULIN

CONCERETE PATH:

DUST CONTROLING MAEASURES

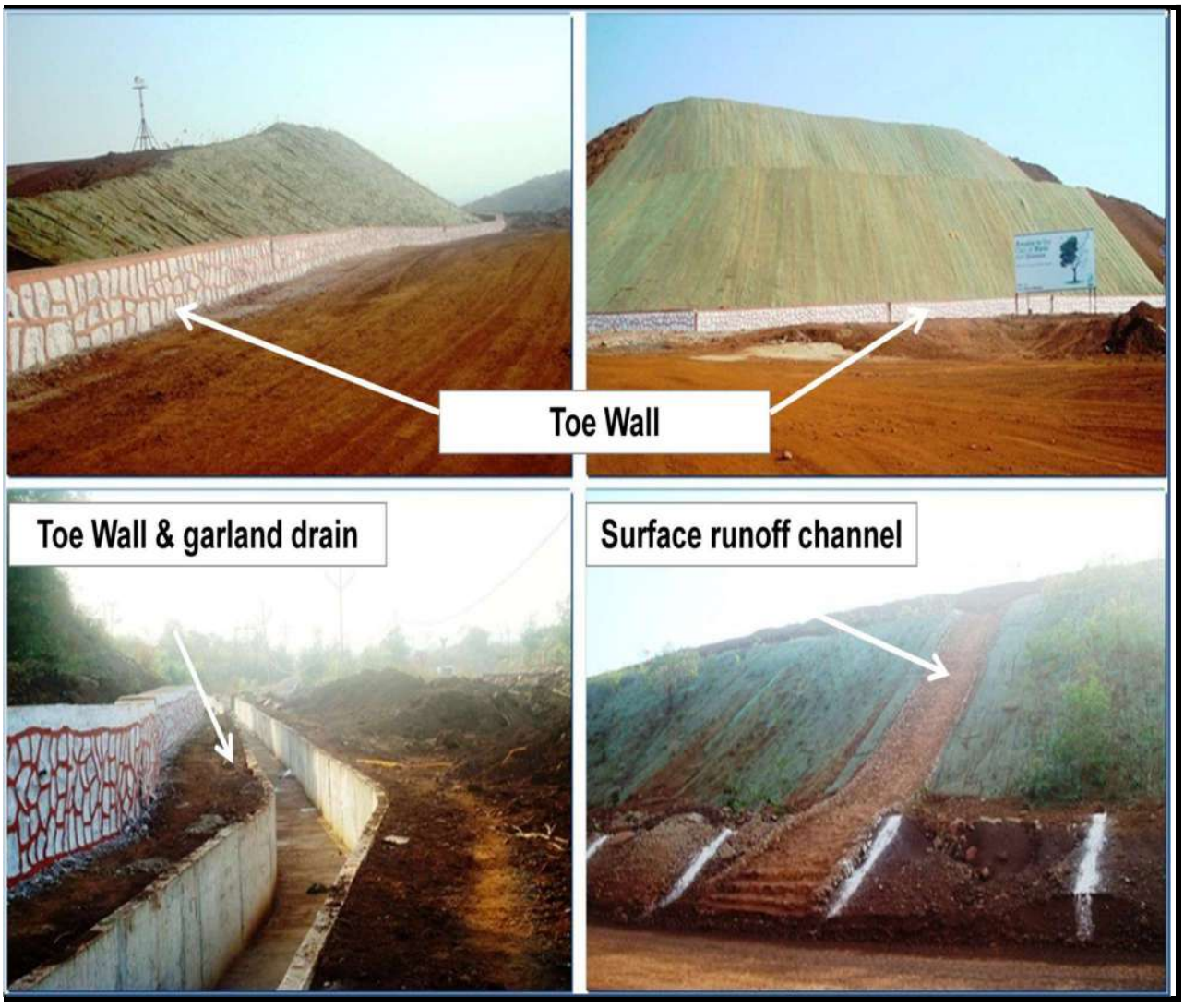
DUST SUPPRESSION AT HOPPER:

HAUL ROAD DUST SUPPRESSION SYSTEM:

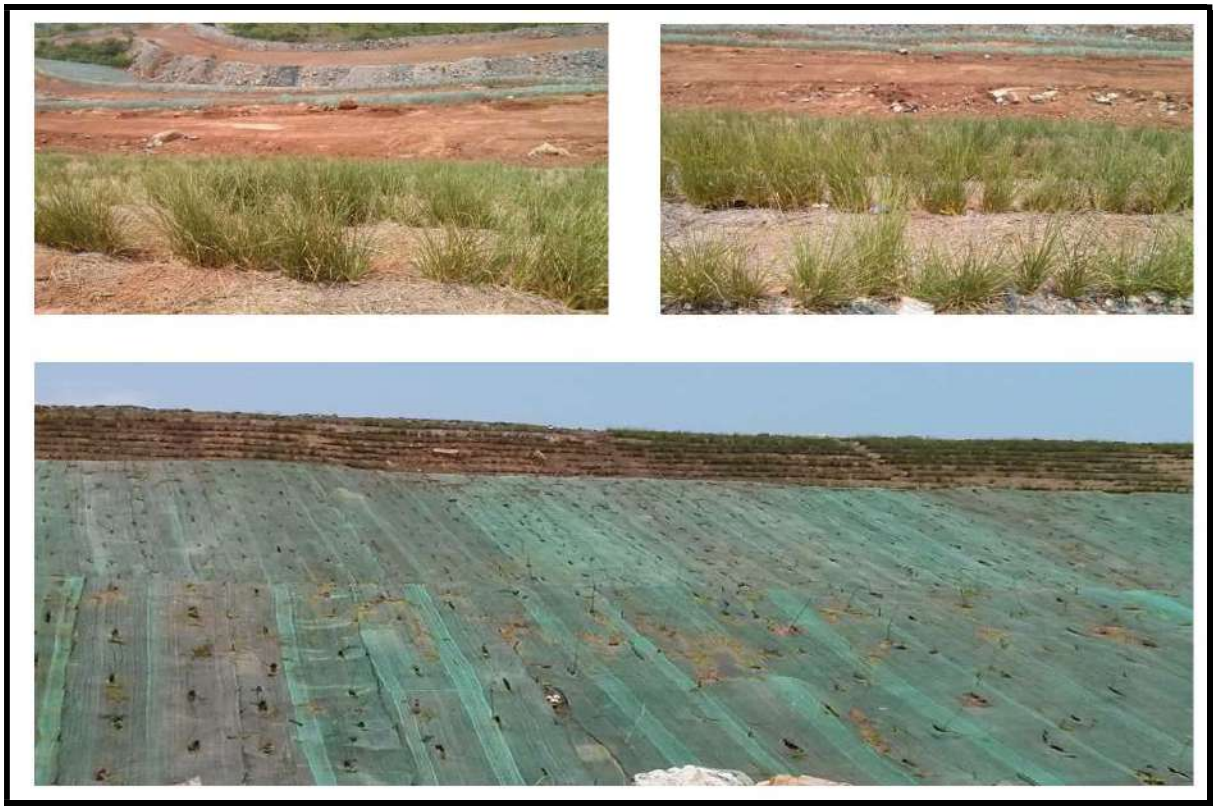
CONCERETE STACK WITH TRAUPLIN

RAIN WATER HARVESTING STRUCTURE:

Toe wall, Garland Drain and Surface Runoff Channel



VERTIBER PLANTATION & GEONET APPROACH-DUMP SLOPE:



EFFLUENT TREATMENT PLANT:

HERBAL TREATMENT PLANT:

TAILING MANAGEMENT SYSTEM:

Thickener and Water Recirculation Arrangement

Tailing Dewatering Plant and Water Recirculation Arrangement

OIL-WATER SEPARATION PIT

SURFACE WATER AGREEMENT

ଓଡ଼ିଶା ओड़िशा ODISHA K 222477

Agreement No. 8/2018

"FORM 'K'

[See rule 23-A (2) (e) & rule 26]

RENEWAL AGREEMENT FOR SUPPLY OF WATER FOR THE PURPOSE OFINDUSTRIAL/COMMERCIAL USE

THIS AGREEMENT is made on the 3rd day of December Two Thousand Eighteen.

BETWEEN

(1) **Sri G.P.Sahu alias Ganesh Prasad Sahu**, S/O. Late Shiv Nrayan Sahu, aged about 57 years, resident of Khunti, P.O Khunti, P.S-Chandil, District-Sareikala-Kharswan, State-Jharkhand,Head Ferro Alloys Plant), by profession and Constituted Power of Attorney Holder of the Company of M/s. Tata Steel Limited (Sukinda Chromite Mines) of Village: Kalarangiatta, Kaliapani, Mahulakhal and Forest Block No.27under Sukinda Tahasil, Dist. Jajpur, Odisha (Hereinafter called The "Applicant") of the **firstparty**.

AND

(2) **Sri Rajesh Patel**, S/o. Sri Narahari Patel, aghed about 45 years, resident of Shakti Nagar, Opposite Block Office, Jharsguda, Odisha-768202,

FOR TATA STEEL LTD.
By their Constituted Attorney

(GANESH PRASAD SAHU)
Head (Ferro Alloys Production)
Ferro Alloys & Minerals Division

1

Executive Engineer
Jaraka Irrigation Division
JARAKA
03.12.18

DISTRICT TREASURY OFFICER * JAJPUR *

Aftzur Rahaman Khan
Stamp Vendor
D.S.R. Office, Jajpur

ओड़िशा ओडिशा ODISHA 15AA 081652

Agent-Sukinda Chromite Mines, Tata Steel Limited, of Village: Kalarangiatta, Kaliapani, Mahulakhal and Forest Block No.27under Sukinda Teahasil, Dist. Jajpur, Odisha, employee of the applicant by profession(hereinafter referred to as The "Surety") of the **second party.**

AND

The Governor of Odisha through Executive Engineer, Jaraka Irrigation Division, Jaraka under **Water Resources,Department Govt. of Odisha** which expression unless repugnant to the context, shall include his successors and assigns (hereinafter called "The Government") of the **third party.**

WHEREAS, M/S. TATA STEEL LIMITED has made an application for supply of water from the Executive Engineer, Jaraka Irrigation Division ground/sub soil water source for the period as mentioned in the Schedule.

AND, WHERE AS, the sureties have agreed to give surety for payment of rates leviable for such supply in the manner hereinafter appearing and the Government has agreed to supply water for the [vide allocation order Letter No WT-17/4522 Date-27.10.2018 & Letter No 3843 Date-11.09.2018of Executive Engineer, Jaraka Irrigation Division, Jaraka, Dist. Jajpur.]for the purpose specified in the schedule annexed hereto

For TATA STEEL LTD.
By their Constituted Attorney

(GANESH PRASAD SAHU)
Head (Fe... Ferro Alloys Production)
Ferro Alloys & Minerals Division

2

Executive Engineer
Jaraka Irrigation Division
JARAKA
02.12.18
3.12.18

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NOW THIS AGREEMENT witnesses as follows:-

In pursuance of the said agreement and in consideration of supply of water to be made to**M/s. Tata Steel Limited**, **M/s Tata Steel Limited** and the sureties hereby jointly and severally covenant with the Government as follows:-

1. **M/s. Tata Steel Limited** shall make suitable arrangement to take the water from the Government water source/Irrigation works at which it will be supplied. **M/s. Tata Steel Limited** shall not use the water supplied to him for any purpose other than that which is specified in the said Schedule.

2. If the water rate/license fees for the aforesaid quantity of water or any part thereof, is not paid on or before the date specified in this agreement, it shall become payable at once (unless the Government sanction for special reason an extension of time) and**M/s. Tata Steel Limited** and the sureties shall be liable jointly and severally to pay the same with compound interest at the rate of two per cent per **mensem** from the date of default. All amount due to the Government under the terms of these presents shall if not paid in time, be recoverable as a public demand under the Orissa Public Demands Recovery Act, 1962.

3. **(i)M/s. Tata Steel Limited** shall be liable for criminal and civil action if by drawl of water, the rights of any third party are affected and shall

For TATA STEEL LTD.
By their Constituted Attorney 4

(GANES ASAD SAHU)
Head (Fe ys Production)
Kaniorois Division

Executive Engineer
Jaraka Irrigation Division
JARAKA
03.12.18
3.12.18

APPROVAL OF FINAL MINE CLOSURE PLAN (FMCP)

भारत सरकार GOVERNMENT OF INDIA
खान मंत्रालय MINISTRY OF MINES
भारतीय खान ब्यूरो INDIAN BUREAU OF MINES
क्षेत्रीय खान नियंत्रक के कार्यालय
OFFICE OF THE REGIONAL CONTROLLER OF MINES

REGD. POST
Phone: 0674-2352463
Tele Fax: 0674-2352490
E-mail: ro.bhubaneshwar@ibm.gov.in
Plot No.149, Pokhariput
BHUBANESWAR-751020

No. MFMCP/FM/60-ORI/BHU/2018-19 Date: 29.04.2019

To

Shri T V Narendran, Managing Director,
M/s Tata Steel Ltd,
At/P.o- Jamsedpur, Dist – East Singbhum,
Jharkhand - 831001

Sub: Approval of modification of Final Mine Closure Plan of Sukinda Chromite Mine over an area of 406.00 ha in Jajpur district of Odisha State, submitted by M/s Tata Steel Ltd under Rule 25 of Mineral Conservation and Development Rules, 2017.

Ref: - i) Your letter No. SCM/MPP/05/19 dated 22.03.2019.
ii) This office letter of even no. dated 27.03.2019.
iii) This office letter of even no. dated 27.03.2019 addressed to Director of Mines, Government of Odisha copy endorsed to you.
iv) This office letter of even no. dated 09.04.2019.
v) Your letter No. SCM/MPP/10/19 dated 22.04.2019.

Sir,

In exercise of the power delegated to me vide Gazette Notification No. T-43010/CGBM/2014 dated 11.05.2017 under Rule 25 (2) of Mineral Conservation and Development Rules, 2017, I hereby **APPROVE** the above said modification of Final Mine Closure Plan in respect of Sukinda Chromite Mine of M/s Tata Steel Ltd over an area of 406.00 ha in Jajpur district of Odisha state, submitted under Rule 25 of MCDR, 2017. This approval is subject to the following conditions:

I. That the modification of Final Mine Closure Plan is approved without prejudice to any other laws applicable to the mine/ area from time to time whether made by the Central Government, State Government or any other authority.

II. That this approval of the modification of Final Mine Closure Plan does not in any way imply the approval of the Government in terms of any other provision of Mines & Minerals (Development & Regulation) Act, 1957, or the Mineral Concession Rules, 2016 and any other laws including Forest (Conservation) Act, 1980, Environment (Protection) Act, 1986, or the rules made there under.

III. That this modification of Final Mine Closure Plan is approved without prejudice to any order or direction from any court of competent jurisdiction.

IV. That the Regional Office, Indian Bureau of Mines, Bhubaneswar shall be informed after completion of activities of final mine closure as per proposal of the modification of Final Mine Closure Plan.

V. Yearly report as require under Rule 26 (2) of MCDR, 2017 setting forth the extent of protection and rehabilitation works carried out as envisaged in the approved modification of final mine closure plan and if there is any deviations, reasons thereof shall be submitted before 1st July of every year to the Regional Office, IBM, Bhubaneswar.

VI. The Lessee shall submit a report on status of implementation of proposals given in the modification of FMCP on half-yearly basis.

भवदीय/ yours faithfully,

Encl: - One copy of approved modification of Final Mine Closure Plan.

(HARKESH MEENA)
क्षेत्रीय खान नियंत्रक / Regional Controller of Mines

Copy for kind information to:-

1. The Director of Mines, Directorate of Mines, Government of Odisha, Heads of the Department Building, Bhubaneswar– 751001, Odisha along with one copy of Final Mine Closure Plan by **REGISTERED PARCEL.**
2. Shri Sabyasachi Mishra, Head Mine Planning, M/s Tata Steel Ltd, At/P.o-Kalarangiatta, Dist- Jajpur, Odisha-755028

(HARKESH MEENA)
क्षेत्रीय खान नियंत्रक / Regional Controller of Mines

SOCIO ECONOMIC EXPENDITURE-SUKINDA (FY 2018-19)

Tata Steel Rural Development Society
Sukinda
(Register under Society registration Act. 1860)
Regd. Number 75/2008-2009
FCRA No. 031120004 dt. 21.12.1992

To,
Head (Administration),
Sukinda Chromite Mine

Ref. No.: TSRDY/SU/05/19
Date 06-05-2019

Sub: Annual Expenditure during the year 2018-19 towards welfare and socio economic development programmes for local communities in respect of Sukinda Chromite Mine.

We are enclosing herewith the annual expenditure incurred during the year 2018-19 towards the welfare and socio-economic development programmes for local communities in respect of Sukinda Chromite Mine.

Sl. No.	Heads	Budget (Rs. in Lakhs)	Actual Expenditure Amount (Rs. Lakhs)
1	Support to Health & Medical Facility	26.82	26.70
2	Drinking Water including Water Harvesting Structure for Agriculture	74.00	73.85
3	Promotion of Hygiene and Sanitation public health initiatives	1.00	0.85
4	Promotion of Literacy & Education	341.91	340.08
5	Skill Development & Vocational Training	1.00	1.15
6	Social, Cultural & Recreational Activities	50.20	49.35
7	Livelihood & Socio-economic standard improvement	17.50	17.02
8	Improvement of Road connectivity	5.57	5.70
	Total	**518.00**	**514.70**

This is for your kind information.

18/4/19 UNIT HEAD TSRDS, SUKINDA

Unit Head,
TSRDS, Sukinda.

Copy to : Chief (CSR), Jamshedpur
: Hony. Secretary, TSRDS, Jamshedpur
: Chief (Mining), Sukinda
: GM (Operations)
: Head (MPP)

Sukinda Chromite Mines, Kalarangiatta, Jajpur - 755028, Odisha
E-mail: tsrds.sukinda@tatasteel.com

PUBLIC LIABILITY INSURANCE

ICICI Lombard GENERAL INSURANCE

Attached & forming part of
Policy no.4007/144104478/01/000

IRDAN115P0005V01200102 Misc 07

PUBLIC LIABILITY INSURANCE POLICY

(UNDER PUBLIC LIABILITY INSURANCE ACT 1991)

PREAMBLE

ICICI Lombard General Insurance Company Limited ("the Company"), having received a Proposal and the premium from the Proposer named in the Schedule referred to hereinbelow, and the said Proposal and Declaration together with any statement, report or other document leading to the issue of this Policy and referred to therein having been accepted and agreed to by the Company and the Proposer as the basis of this contract do, by this Policy agree, in consideration of and subject to the due receipt of the subsequent premiums, as set out in the Schedule with all its Parts, and further, subject to the terms and conditions contained in this Policy, as set out in the Schedule with all its Parts that on proof to the satisfaction of the Company of the compensation having become payable as set out in Part I of the Schedule to the title of the said person or persons claiming payment or upon the happening of an event upon which one or more benefits become payable under this Policy, the Sum ***Insured*** appropriate benefit will be paid by the Company.

PART I OF SCHEDULE — Policy No: 4007/144104478/01/000

1	Name of the Insured	Tata Steel Ltd	
2	Address of the Insured	Bombay House, 24, Homi Mody Street Fort Mumbai India Maharashtra Mumbai Pin - 400001	
3	Business of the Insured	Manufacture of Steel & Steel related finished products	
4	Address of Premises Insured	All Premises owned / occupied by the insured in India	
5	Territorial Scope of cover Jurisdiction	India Indian courts	
6	Policy period	From: January 01, 2019 Time: 00:00 hrs	To: December 31, 2019 23.59 hrs
7	Retroactive date	Not Applicable	
8	Limit of Indemnity Aggregate One Year (AOY) Any One Accident (AOA) AOA: AOY 1:3	 INR INR	 150,000,000 50,000,000
9	Compulsory Excess		Nil
10	Net Premium GST 18% ERF Amount Total Premium	INR INR INR INR	25,000 4,500 25,000 54,500

ICICI Lombard GENERAL INSURANCE

iAAA Rating by ICRA Highest Claims Paying Ability

Attached & forming part of
Policy no.4007/144104478/01/000

11	Turnover	INR 750,000,000,000
12	Paid up Capital of the Insured	INR 50,000,000
13	Co-insurance details	Not applicable
14	Intermediary Details	Name : Direct
15	Proposal Form date	January 01, 2019
16	Special conditions	Policy shall stand cancelled ab initio in the event of non-realization of the premium

The stamp duty of Rs. 0.50/- (Fifty Paise Only) paid in cash or by demand draft or by pay order,vide Receipt/Challan No.CSD299201914419 **dated 11th-January- 2019**

Signed for and on behalf of ICICI Lombard General Insurance Company Limited, at Mumbai on this date **JANUARY 29**, 2019.

Mr. Sanjay Datta
Authorised Signatory

GSTIN Reg. No : 27AAACI7904G1ZN
IL GIC GSTIN Address: Ground, First and Second Floor, ICICI Lombard House, 414 Veer Savarkar Marg, Prabhadevi, Mumbai 400025 Maharashtra
Description of services: General Insurance Business
HSN/SAC : 9971
Policy shall stand cancelled ab initio in the event of non-realization of the premium."

Note – In case of renewal of the policy, policy benefit and terms & conditions of policy including premium may be subject to change

IRDA Reg. No.: 115

Page 2 of 13

IHZC5657947

ICICI Lombard General Insurance Company Limited.
Mailing Address: Ground and 4th Floor, Interface 11, Office Number 401 and 402, New Link Road, Malad (West), Mumbai - 400 064.
Registered **Address:** ICICI Lombard House, 414, Veer Savarkar Marg, Near Siddhivinayak Temple, Prabhadevi, Mumbai - 400 025.

Ref: FAMD/SCM/114 /FY21
Date: 02/Apr/2020

The Regional Controller of Mines
Indian Bureau of Mines
Ministry of Mines, Government of India
Plot- 149, In front of City Bus Depot
Pokhariput, Bhubaneswar 751202

Subject: Submission of Yearly Report (201-20) on the status of Implementation of the approved Final Mine Closure Plan (FMCP) with respect to the extent of the protective, reclamation and rehabilitation measures carried out during 2019-20, at Sukinda Chromite Mine of M/s Tata Steel Limited., over an area of 406 Ha. in Jajpur District of Odisha.

Reference: - i) Rule 26 of Mineral Conservation & development Rule,2017
ii) Modification of FMCP approval letter vide IBM's Letter no. MFMCP/FM/60-ORI/BHU/2018-19, Dtd. 29.04.2019 (condition no. V &VI)

Dear Sir,

This is in reference to Rule 26 of the Mineral Conservation & Development Rule, 2017, we are furnishing herewith the Yearly Report on the status of implementation of the Final Mine Closure Plan for the year 2019-20 in respect of our mine. The yearly report is detailed with the status of implementation supported with the visuals enclosed as Annexure-1, being sent in compliance to the condition no. V &VI of the approval letter of your goodself.

We take this opportunity to bring it to your kind information that during the joint inspection of our mine by the officials of Regional Office IBM, Bhubaneswar, Eastern Zone Office of IBM, Kolkata and DDM office, Jajpur on dtd. 24th March'2020, all the provisions of the FMCP were observed as implemented as per plan, except for the 5ha area out of 44ha, which was in implementation stage. This was also completed before 30th March'2020; thus, request your goodself in issuing us the Certificate of Compliance under Rule, 21(4) OF MCDR' 2017 and release the financial assurance of Rs 12,18,00,000 deposited vide Bank Guarantee of ICICI Bank Ltd, bearing BG no. 0089BGR0018118 dt. 3/11/2017, in accordance with Rule 27 (3) of MCDR, 2017.

Thanking You,

Yours faithfully,
F: Tata Steel Limited,

2/4/20

Agent & Chief (Mining)
Sukinda Chromite Mine

Encl: Yearly Report of FMCP Compliance (05 pages)
: Annexure-1 (07 pages)

TATA STEEL LIMITED
Sukinda Chromite Mine PO Kalarangiatta Dist Jajpur Odisha 755028
Phone no 8118095770 E-Mail : office.headm@tatasteel.com
Registered Office Bombay House 24 Homi Mody Street Fort Mumbai 400 001 India
Tel 91 22 6665 8282 Fax 91 22 66657724
Corporate Identity Number L27100MH1907PLC000260 Website www.tatasteel.com

YEARLY REPORT ON THE STATUS OF IMPLEMENTATION OF PROTECTIVE, RECLAMATION AND REHABILITATION MEASURES AS PER MODIFICATION OF FINAL MINE CLOSURE PLAN FOR THE PERIOD 2019-20
IN RESPECT OF SUKINDA CHROMITE MINE, TATA STEEL Ltd. (Lease Area:406 ha)

(As Per Rule 26 of Mineral Conservation and Development Rules, 2017)

Details of Reference Document:
Modification of Final Mine Closure Plan for the period 2019-20
(Approved vide letter no. MFMCP/FM/60-ORI/BHU/2018-19/270, Dtd. 29.04.2019.

Items	Details	Proposal:2019-20			Actual Status of Implementation (2019-20)				
		Forest	Non-Forest	Total	Apr'19 to Sep'19 (H1)		Oct'19 to March'20 (H2)		2019-20
					Forest	Non-Forest	Forest	Non-Forest	Total
Dump Management (Within Mining Lease)	Area available for rehabilitation (ha.)	1.030	Nil	1.030	1.030	0	1.030	0	**1.030**
	Grid Reference (N-E)	1293N -1688N 2797E - 2823E	-	-	-	-	-	-	-
	Proposed Afforestation Area (ha.)	1.030	Nil	-	1.030	0	1.030	0	**1.030**
	Grid Reference (North/East)	1293N -1688N 2797E - 2823E	-	-	-	-	-	-	-
	No. of Saplings	2575	Nil	2575	2575	0	425	0	**3000**
	Any Other Method of Rehabilitation (Specify)	Plantation	Plantation of Native Varieties of forestry species saplings						
	Cost including Watch & Care during the Year (Rs)	2,75,417.00	0	2,75,417.00	1,15,875.0	0.00	212375.5	0	**3,28,250.5**
Dump Management (Within Addl. Area)	Area available for rehabilitation (ha.)	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	Grid Reference (N-E)	1600N – 1800N 3500E – 3800E	-	-	-	-	-	-	-

YEARLY REPORT ON THE STATUS OF IMPLEMENTATION OF PROTECTIVE, RECLAMATION AND REHABILITATION MEASURES AS PER MODIFICATION OF FINAL MINE CLOSURE PLAN FOR THE PERIOD 2019-20
IN RESPECT OF SUKINDA CHROMITE MINE, TATA STEEL Ltd. (Lease Area:406 ha)

(As Per Rule 26 of Mineral Conservation and Development Rules, 2017)

Details of Reference Document: Modification of Final Mine Closure Plan for the period 2019-20 (Approved vide letter no. MFMCP/FM/60-ORI/BHU/2018-19/270, Dtd. 29.04.2019.									
Items	**Details**	**Proposal:2019-20**			**Actual Status of Implementation (2019-20)**				
					Apr'19 to Sep'19 (H1)		**Oct'19 to March'20 (H2)**		**2019-20**
		Forest	**Non-Forest**	**Total**	**Forest**	**Non-Forest**	**Forest**	**Non-Forest**	**Total**
	Proposed Afforestation Area (ha.)	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	Grid Reference (N-E)	1600N – 1800N 3500E – 3800E	-	-	-	-	-	-	-
	No. of Saplings	10000	Nil	10000	13000	Nil	650	Nil	13650
	Any Other Method of Rehabilitation (Specify)	Gap Filling by Plantation	-	-	Plantation done at already rehabilitated Kakudia dump by replacing mortal saplings (Gap Filling)				
	Cost including Watch & Care during the Year (Rs)	1069583	Nil	10,69,583	5,85,000	Nil	5,00,000	Nil	**10,85,000.0**
Management of worked out benches	Area available for rehabilitation (ha.)	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	Grid Reference (N-E)	-	-	-	-	-	-	-	-
	Proposed Afforestation Area (ha.)	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	Grid Reference (N-E)	-	-	-	-	-	-	-	-
	No. of Saplings	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

YEARLY REPORT ON THE STATUS OF IMPLEMENTATION OF PROTECTIVE, RECLAMATION AND REHABILITATION MEASURES AS PER MODIFICATION OF FINAL MINE CLOSURE PLAN FOR THE PERIOD 2019-20
IN RESPECT OF SUKINDA CHROMITE MINE, TATA STEEL Ltd. (Lease Area:406 ha)

(As Per Rule 26 of Mineral Conservation and Development Rules, 2017)

Details of Reference Document: Modification of Final Mine Closure Plan for the period 2019-20 (Approved vide letter no. MFMCP/FM/60-ORI/BHU/2018-19/270, Dtd. 29.04.2019.									
Items	**Details**	**Proposal:2019-20**			**Actual Status of Implementation (2019-20)**				
		Forest	**Non-Forest**	**Total**	**Apr'19 to Sep'19 (H1)**		**Oct'19 to March'20 (H2)**		**2019-20**
					Forest	**Non-Forest**	**Forest**	**Non-Forest**	**Total**
	Any Other Method of Rehabilitation (Specify)	-	-	-	-	-	-	-	-
	Cost including Watch & Care during the Year (Rs)	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Reclamation and Rehabilitation of Mined Out Area/Stopes	Void available for Back Filling (L x B x D) pit wise	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	Grid Reference (N-E)	-	-	-	-	-	-	-	-
	Void Proposed for backfilling by waste/ tailings (Cu.M)	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	Available Area (ha.)	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	Backfilled Area Proposed for Plantation(ha.)	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	No of Saplings	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	Rehabilitation by making water reservoir	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

YEARLY REPORT ON THE STATUS OF IMPLEMENTATION OF PROTECTIVE, RECLAMATION AND REHABILITATION MEASURES AS PER MODIFICATION OF FINAL MINE CLOSURE PLAN FOR THE PERIOD 2019-20
IN RESPECT OF SUKINDA CHROMITE MINE, TATA STEEL Ltd. (Lease Area:406 ha)

(As Per Rule 26 of Mineral Conservation and Development Rules, 2017)

Details of Reference Document: Modification of Final Mine Closure Plan for the period 2019-20 (Approved vide letter no. MFMCP/FM/60-ORI/BHU/2018-19/270, Dtd. 29.04.2019.									
Items	**Details**	**Proposal:2019-20**			**Actual Status of Implementation (2019-20)**				
					Apr'19 to Sep'19 (H1)		**Oct'19 to March'20 (H2)**		**2019-20**
		Forest	**Non-Forest**	**Total**	**Forest**	**Non-Forest**	**Forest**	**Non-Forest**	**Total**
	Any other means (specify)	-	-	-	-	-	-	-	-
	Cost including Watch & Care during the Year (Rs)	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Rehabilitation of waste land within lease	Area Available (ha)	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	Grid Reference (N-E)	-	-	-	-	-	-	-	-
	Proposed Area for Rehabilitation (ha)	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	Method of Rehabilitation	-	-	-	-	-	-	-	-
	Cost including Watch & Care during the Year (Rs)	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Others measures within lease including safety & security (specify)	Rehabilitation of Backfilled Area (ha)	44	0	44	7	0	37	0	**44**
	Nos of Saplings	110000	0	110000	15220	0	95100	0	**110320**
	Cost including Watch & Care during the Year (Rs)	1,17,71,000.00	0	1,17,71,000.00	1665324.41	0	10405542.15	0	**1,20,70,866.6**

YEARLY REPORT ON THE STATUS OF IMPLEMENTATION OF PROTECTIVE, RECLAMATION AND REHABILITATION MEASURES AS PER MODIFICATION OF FINAL MINE CLOSURE PLAN FOR THE PERIOD 2019-20
IN RESPECT OF SUKINDA CHROMITE MINE, TATA STEEL Ltd. (Lease Area:406 ha)

(As Per Rule 26 of Mineral Conservation and Development Rules, 2017)

Details of Reference Document:
Modification of Final Mine Closure Plan for the period 2019-20
(Approved vide letter no. MFMCP/FM/60-ORI/BHU/2018-19/270, Dtd. 29.04.2019.

Items	Details	Proposal:2019-20			Actual Status of Implementation (2019-20)				
		Forest	Non-Forest	Total	Apr'19 to Sep'19 (H1)		Oct'19 to March'20 (H2)		2019-20
					Forest	Non-Forest	Forest	Non-Forest	Total
	Grassing over Old Tailing Pond (ha)	3.548	0.192	3.74	0.350	0	3.198	0.192	**3.74**
	Cost including watch & care during the Year (Rs)	35530	1870	37400	105000	0	959400	57600	**11,22,000.00**
	Coir Matting / Geo Netting of Mineral Reject Stacks (ha)	4.853	0	4.853	0	0	4.853	0	**4.853**
	Cost of Geonetting/Coir Matting Installation (Rs)	41,25,050.00	0	4125050.00	0	0	3793200.00	0	**3793200.00** #1
	Fencing of Tailing Pond, Pit & Lease Boundary (mtrs.)	8595	-	8595	1817	-	6778	-	**8595**#2

Date: 2/4/20.
Place: Sukinda

Date 2/4/20.
Agent & Chief (Mining)
Sukinda Chromite Mines
Tata Steel Limited

Annexure-1 of YEARLY REPORT ON THE STATUS OF IMPLEMENTATION OF PROTECTIVE, RECLAMATION AND REHABILITATION MEASURES AS PER MODIFICATION OF FINAL MINE CLOSURE PLAN FOR THE PERIOD 2019-20, IN RESPECT OF SUKINDA CHROMITE MINE, TATA STEEL Ltd.

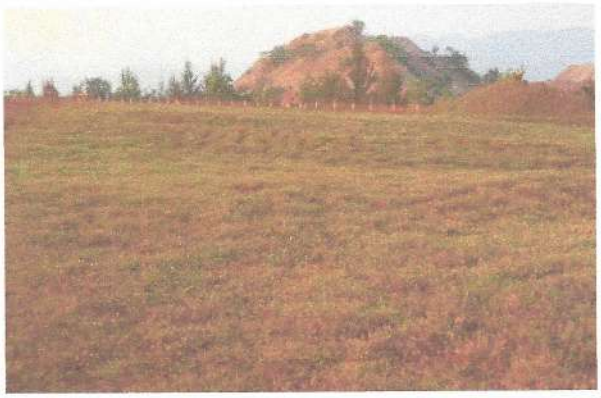
PHOTOGRAPHS OF IMPLEMENTATION OF FMCP AT SUKINDA CHROMITE MINE

1. Plantation over 1.030ha Within Mining Lease (Near Segregation Dump) as on 31-03-2020

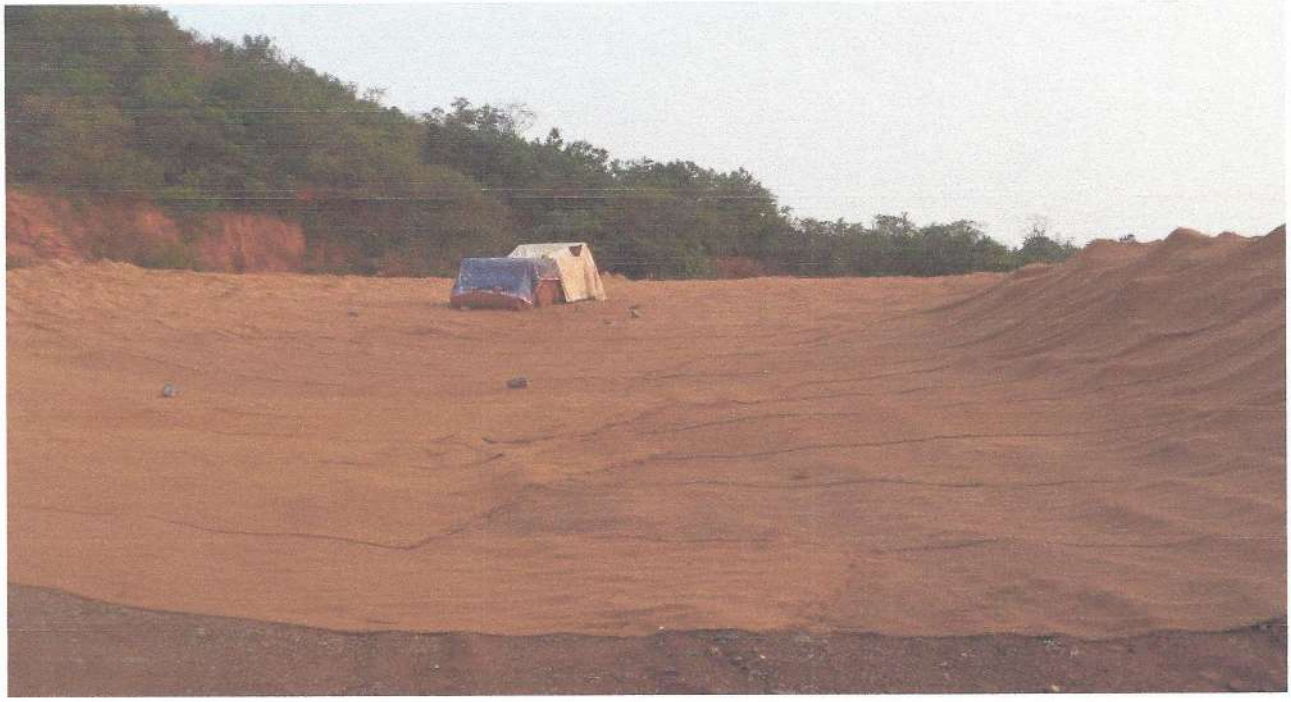
2. Gap Plantation at Kakudia Dump (Addl. Area outside lease) -13650 saplings as on 31-03-2020

3. Plantation over 44ha (Backfilled Area of OB-II Quarry (39ha) & Mid Band (5ha) as on 31-03-2020

4. Grassing over Old Tailing Pond/ Slime dam (3.74ha)



5. Coir Matting over mineral reject stacks (4.85ha) over 4 Nos of stacks



6. Fencing of Mine Lease, Tailing Ponds (old & New)-8595mtrs

भारत सरकार GOVERNMENT OF INDIA
खान मंत्रालय MINISTRY OF MINES
भारतीय खान ब्यूरो INDIAN BUREAU OF MINES
क्षेत्रीय खान नियंत्रक के कार्यालय
OFFICE OF THE REGIONAL CONTROLLER OF MINES

150 YEARS OF CELEBRATING THE MAHATMA

BY SPEED POST
Phone: 0674-2352463
Tele Fax: 0674-2352490
E-mail: ro.bhubaneshwar@ibm.gov.in
Plot No.149, Pokhariput
BHUBANESWAR-751020

No. ORI/CR/JJP/MCDR-7/BBS/Vol-III Date: 22.06.2020

To

The Branch Head/Branch Manager,
ICICI Bank Limited, Natraj Mansion,
Bistupur Main Road, Bistupur,
Jamshedpur-831001.

Sub: Releasing of Bank Guarantee issued in favor of M/s Tata Steel Limited… regarding.

Ref: - This office letter No. T/MCP/FA/BBS-2018/Vol-I dated 31.03.2020.

Sir,

This has reference to the letter cited above on the subject. In this connection, it is informed that, the lessee has been carried out the protective, reclamation and rehabilitation work as per proposal of Final Mine Closure Plan. Therefore, the bank guarantee no. 0089BGR0018118 dated 03.11.2017 of Rs. 121800000/- valid till 31.03.2020, submitted in respect of Sukinda Chromite Mine of M/s Tata Steel Limited may be released.

Yours faithfully,

o/c 22/06/2020

(HARKESH MEENA)
Regional Controller of Mines

Copy for kind information to:

(i) The Controller of Mines (EZ), Indian Bureau of Mines, CP-13, Sector V, Salt Lake City, Kolkata- 700091.
(ii) The Director of Mines, Government of Odisha, Heads of Department Building, Bhubaneswar-751001.
(iii) Thachat Viswanath Narendran, Managing Director, M/s Tata Steel Limited, At/Post-Jamshedpur, District- East Singhbhum, Jharkhand-831001.

22/06/2020

o/c

(HARKESH MEENA)
Regional Controller of Mines

भारत सरकार GOVERNMENT OF INDIA
खान मंत्रालय MINISTRY OF MINES
भारतीय खान ब्यूरो INDIAN BUREAU OF MINES
क्षेत्रीय खान नियंत्रक के कार्यालय
OFFICE OF THE REGIONAL CONTROLLER OF MINES

BY SPEED POST
Phone: 0674-2352463
Tele Fax: 0674-2352490
E-mail: ro.bhubaneshwar@ibm.gov.in
Plot No.149, Pokhariput
BHUBANESWAR-751020

No. ORI/CR/JJP/MCDR-7/BBS/Vol-III Date: 22.06.2020

CERTIFICATE

In exercise of the powers conferred on me under Sub-Rule (4) of Rule 21 of Mineral Conservation and Development Rules, 2017 delegated vide Notification No. T-43010/CGBM/2014 dated 11th May 2017 and published in the Gazette of India dated 31st May 2017; I, hereby, certify that, the protective, reclamation and rehabilitation work in accordance with the Final Mine Closure Plan approved vide letter No. MFMCP/FM/60-ORI/BHU/2018-19 dated 29.04.2019 have been carried out in the mining lease over an area of 406.00 hectares in respect of Sukinda Chromite Mine, held by M/s Tata Steel Limited in Jajpur district in the state of Odisha .

This Certificate is issued without prejudice to any other laws applicable to the mine/lease area from time to time and also without any prejudice to any other order or direction from any court of competent jurisdiction.

22/06/2020

(HARKESH MEENA)
Regional Controller of Mines
Indian Bureau of Mines

To

Thachat Viswanath Narendran,
Managing Director,
M/s Tata Steel Limited,
At/Post-Jamshedpur,
District- East Singhbhum,
Jharkhand-831001.

Not on Original:

Copy for kind information to :

(i) The Chief Controller of Mines, Indian Bureau of Mines, Nagpur – 440102.
(ii) The Controller of Mines (EZ), Indian Bureau of Mines, CP-13, Sector V, Salt Lake City, Kolkata- 700091.
(iii) The Director of Mines, Directorate of Mines, Govt. of Odisha, Heads of Deptt. Building, Bhubaneswar, Odisha -751001.

22/06/2020

(HARKESH MEENA)
Regional Controller of Mines
Indian Bureau of Mines