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

Ref No: SCM/ ENV/ 012/ 30/14
Date: 30th May' 2014

Sub: Submission of Six monthly compliance report on implementation of Environmental safeguards of Sukinda Chromite Mine, for the period from **Oct' 2013 to March'14**.

Ref: Ministry of Environment and Forests Letter No: **J-11015/96/2011-IA.II (M), dated 06.09.2013**

Dear Sir,

We are herewith submitting the six monthly compliance report in respect of the stipulated Environmental Clearance conditions of Sukinda Chromite Mine for the period from Oct' 2013 to March'2014 as per EIA Notification, 2006.

We are also sending you the soft copy of the report to your good office on email: mef.or@nic.in for your ready reference.

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

Thanking you,

Yours faithfully,

f: Tata Steel Limited.

Manager cum Agent
Sukinda Chromite Mine

Encl: As above

Manager Cum Agent
Sukinda Chromite Mine
Tata Steel Limited

Copy to :MoEF, New Delhi
:MoEF, Regional office Bhubaneswar
:CPCB, Zonal Office Kolkata
: OSPCB, Bhubaneswar
: OSPCB, Regional office Kalinganagar

TATA STEEL LIMITED
Sukinda Chromite Mine PO Kalarangiatta Dist Jajpur Odisha 755028
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Compliance

to

Environmental Clearance Conditions

of

Sukinda Chromite Mine

M/s. Tata Steel Limited

For the period: Oct' 13 – March' 14

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

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	Condition	Compliance
I	No mining activities will be allowed in forest area for which the Forest Clearance is not available	No mining is being carried out in forest area over 73.697 ha for which the Forest Clearance/ TWP is available.
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 there 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 has 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.	Renewal Forest Diversion Proposal for entire forest land of 73.697 ha within the Mining Lease area has been applied in time. The FDP has been duly recommended by the F&E department, Govt. of Odisha to the Ministry of Environment & Forests, Govt. of India for onward consideration for grant of Forest Clearance.
III	Till all the clearances are obtained for the proposed tailing pond/dam the project would only use existing tailing dam.	The Forest Diversion proposal for 8.370 ha of forest land involved in the proposed area for dry tailing disposal is under active consideration of State Forest Dept. For the non-forest part i.e. 65.315 ha land lease proposal is in preview of Odisha State Land Settlement and it is now under process. Till the time the above clearances are not obtained, the tailing is being disposed within the existing tailing dam.
IV	Environmental clearance is subject to obtaining clearance under the Wildlife (Protection) Act, 1972 from the Standing Committee of National Board for Wildlife, as may be applicable to this project.	There is no Wild Life sanctuary, National Park, Biosphere reserves or other Eco sensitive zone located within 10 km from the mining lease boundary. Hence, clearance under the Wildlife (Protection) Act, 1972 from the Standing Committee of National Board for Wildlife is not applicable.
V	The project proponent shall obtain Consent to Establish and Consent to Operate from the State Pollution Control Board, Odisha and effectively implement all the conditions stipulated therein.	The Consent to Establish has been already obtained from Odisha State Pollution Control Board vide letter no. 17750/IND-II-NOC-5664 dated 30.09.2013. Consent to Operate would be applied and obtained before the proposed expansion activity for increase in production. The condition stipulated in the Consent to Establish and Consent to Operate shall be effectively implemented.
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	As per Ministry of Environment Notification and local forest notification, there are no wildlife sanctuaries, national park/ biosphere reserve or any other sensitive zones located within 10 Km radius from the mining lease boundary.

<table>
<tr><th>Sl</th><th>Condition</th><th>Compliance</th></tr>
<tr><td></td><td>this project.</td><td></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>The ambient air quality is being monitored twice a week. Personal dust sampling is also being carried out. The mineralogical composition has been done and result thereof has been enclosed as Annexure-I. The analysis report for personal dust sampling the during period Oct13 to March'14 is enclosed as Annexure-II</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>Mineral and ores which is transported out of the mine lease boundary to the various destinations using the outside trucks is being completely covered by tarpaulin and is secured in position by plastic straps. All the vehicles are weighed with help four Weigh Bridge located within the mining lease boundary to ensure that vehicle is not overloaded. Photograph showing the same is enclosed as Annexure-III.</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>To limit the fugitive emissions, various control measures like water sprinkling on haul road, transfer points, Ore stack yard, etc is being done. Four graders have been deployed for grading all the haul roads to remove the accumulated muck. Nine water sprinklers (two of 28 KL, four of 20 KL, one 12 KL, one 10 KL and one 8 KL) have been deployed in the mine area for dust suppression on haul road and at mineral storage yards. The main haul roads and areas in maintenance, stack yard and chrome ore beneficiation plant have been concreted and for controlling dust stationary water sprinkler have also been installed in these permanent haulage roads. Plantation of 5-20 m width has also been raised in between colony and mines to minimize any air borne problems to the inhabitants.

Stationary water sprinklers have been installed in roads within COB Plant and Workshop also. Water spraying is done through pressure water jets at feed hopper, transfer points, discharge chute to prevent dust generation. The process at COB Plant is totally wet and eliminates the chance of any dust generation. The concentrate stacks are now being covered using tarpaulin sheets to prevent finer concrete particle from getting air borne. Successful trials have also been conducted by using Dustex chemical (a lignosulphonate product derived from the wood pulping process and developed specially for road stabilization and dust control) during water sprinkling for effective dust suppression and less consumption of water. It is nontoxic, easy to handle and satisfies all environmental requirements. Photographs showing measures taken to control dust are attached in 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>
<tr><td rowspan="4">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>
</table>
All these majors are being successfully implemented to maintain</td></tr>
</table>

Sl	Condition	Compliance
		Ambient Air Quality. The monitoring report is for period of Oct'13 to March' 14 is attached in **Annexure V**.
X	The project authority shall implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	Rain water harvesting proposal has already been submitted to the Regional Ground Water Board, Bhubaneswar. The final approval is awaited. However, we have started the roof top harvesting project at GM Office building which would be completed by June' 2014. Further, feasibility study was conducted through KRG Foundation to explore the possibility of water harvesting in the nearby villages located in the mine periphery. Recommendations thereof shall be implemented in phased manner.
XI	Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and installing new piezometers during the mining operation. The periodic monitoring [(at least four times in a year pre monsoon (April-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.	Presently there are 10 nos. of piezometers installed in the periphery of the quarry. We have plans to install further 6 nos. of piezometers during 2014-15. Till that time, we are conducting regular monitoring of ground water of the open wells/ dug wells located around the nearby villages on monthly basis and all the data are being submitted to OSPCB on monthly basis along with the Form-1 of Water Cess Return. Now it would be consulted with Central Ground Water Board and data to be submitted to all concerned. The ground water quality and level recorded in nearby villages is enclosed as **Annexure-VI.**
XII	The maximum height of the overburden dumps from its toe to the top of the dump on sloping ground shall not be more than 110 m. The dump slope shall be suitably terraced by leaving berms of adequate width in between lifts such that the overall slope angle (i.e. angle between the line joining the crest to the toe of the dump and across all such lifts with the horizontal) does not exceed 28 degrees.	The maximum height of the overburden dumps from its toe to the top of the dump on sloping ground is being maintained within 110 m. Dump Stability Study was taken up in 2010-11 with IIT, Kharagpur as per advice of the Regional Office of the MoEF, Bhubaneswar, for assessing long term dump stability requirements. As per the Report of May'2011, dumps upto 110m height are stable. The topography of the present dumping area is undulated and hilly ranging from 140 mRL to 200 mRL. There is another hillock in front of the present dumping area which is an advantage to keep the slope more stable and safe. Benched have been provided and overall slope of these benched dumps are less than 28^{o}. To gain further confidence, another study was conducted in association with CIMFR, Nagpur to assess the in-situ stress of foundation and dump slope and to get a clue of various geotechnical techniques for stabilisation of dump. As per the draft report the dump is found to be stable at a height of 110m. Further, recommendations as per final report shall be implemented.
XIII	The individual slopes and berms of each lift or bench of the overburden dump when completed shall be provided with	Each level of dump is provided with garland drain and water from each level flow to next level via concrete patch path (channel) provided for same purpose. The concrete patch path ensures less

Sl	Condition	Compliance
	adequate drainage arrangements or shall be suitably stabilized by such other means to prevent erosion due to surface run-offs.	soil erosion and flow of water from designated path. Further, coir matting has been done on the dump slopes to prevent wash off during the monsoon. Garland drains with 10 nos. of settling pits for silt collection of 1.5 m-2m width and 1m-1.5m deep have been constructed on the toe of all the OB dumps to collect the surface run-off during rainy season. The collected run-off is being treated in the Geological Camp ETP and Temple ETP and then discharged beyond the lease boundary. The garland drains and settling pits are being cleaned before the onset of rainy season for efficient and better management of surface run off in the lease area.
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.	Dump Stability Study was taken up in 2010-11 with IIT, Kharagpur as per advice of the Regional Office of the MoEF, Bhubaneswar, for assessing long term dump stability requirements. As per the Report of May'2011, dumps upto 110m height are stable. The topography of the present dumping area is undulated and hilly ranging from 140 mRL to 200 mRL. There is another hillock in front of the present dumping area which is an advantage to keep the slope more stable and safe. Benched have been provided and overall slope of these benched dumps are less than 28^{o}. To gain further confidence, as per the advice of EAC members another study was conducted in association with CIMFR, Nagpur to assess the in-situ stress of foundation and dump slope and to suggest various geotechnical techniques including buttressing etc for stabilisation of dump. As per the draft report of March'2013 the dump is found to be stable. Further, recommendations as per final report shall be implemented. However as a precautionary measure, present dump have been made with bench height of 10-15m with adequate berm width to maintain overall slope angle less than 28 degree. Each level of bench is provided with garland drain and water from each level flow to next level via concrete patch path provided for same purpose. The concrete patch path (channel) ensures less soil erosion and flow of water from designated path. Garland drains with 10 nos. of settling pits for silt collection of 1.5 m-2m width and 1m-1.5m deep have been constructed so that water do not get stagnant at one place which may increase chances of failure. Similarly toe wall along with garland drain is constructed all around dump photograph attached in **Annexure-VII**. Practice like coir mating along with dump plantation is also followed to stabiles dump. Photograph attached in **Annexure-VIII**.
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.	As per the approved Mining Plan & Progressive Mine Closure Plan, all the external overburden dumps at the end of life shall reclaimed and rehabilitated through plantation in time bound phased manner. The compliance report of the same shall also be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar
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	Garland drains with 10 nos. of settling pits for silt collection of 1.5 m-2m width and 1m-1.5m deep have been constructed on the toe of all the OB dumps to collect the surface run-off during rainy season. The collected run-off is being treated in the Geological camp ETP and Temple ETP and then discharged beyond the lease boundary. The garland drains and settling pits are being cleaned

Sl	Condition	Compliance
	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.	before the onset of rainy season for efficient and better management of surface run off in the lease area. Besides, we are now constructing one new ETP with sophisticated treatment facility like automated dosing system, clari-focculator, and flash mixture, dry sludge collection system etc to ensure more effective treatment of surface runoff and mine discharge water before it is let out of the lease boundary. The garland drains have also been designed considering the waterfall data of the region.
XVII	Retaining wall having adequate dimensions shall be constructed at the toe of the over burden dumps to check run-off and siltation.	During the Oct'13 to March' retaining wall of length of 561.30 m of dimension 1m height and 1m width was constructed using with cement & boulder masonry was constructed and 98 m toe wall was constructed by using of dry boulder. In addition of this mine have already well laid toe wall around dumps.
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.	The plantation programme is being carried out as per the approved Mining Plan & Progressive Mine Closure Plan same as that was envisaged in the EIA report. During 2013-14 total 58026 of saplings were planted over 6.92 ha of area within the Mining lease and in the Additional area of 100 ha allotted for overburden dumping. Further to above company had taken up plantation programme in the nearby villages through TSRDS (Tata Steel rural Development Society). During 2013-14 total 6656 nos of sapling were planted in the nearby villages over 18.2 ha. The density of tree more than 2500 trees per ha is being maintained. After the completion of opencast mining a 7.5m wide greenbelt in the safety zone around the mining lease, backfilled and reclaimed area shall be maintained.
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	To limit the fugitive emissions, various control measures like water sprinkling on haul road, transfer points, Ore stack yard, etc is being done. Four graders have been procured for grading all the haul roads to remove the accumulated muck. Nine water sprinklers (two of 28 KL, four of 20 KL, one 12 KL, one 10 KL and one 8 KL) have been deployed in the mine area for dust suppression on haul road and at mineral storage yards. The main haul road and areas in maintenance stack yard and chrome ore beneficiation plant has been concreted. Stationary water sprinkler has also been installed in these permanent haulage roads. Photograph showing the already installed stationary water sprinkling system is enclosed as **Annexure-IV**. Stationary water sprinklers have been installed in roads within COB Plant and Workshop also. Water spraying is done through pressure water jets at feed hopper, transfer points, discharge chute to prevent dust generation. The process at COB Plant is totally wet and eliminates the chance of any dust

Sl	Condition	Compliance
		generation. The concentrate stacks are now being covered using tarpaulin sheets to prevent finer concrete particle being getting air borne. Plantation of 5-20 m width has also been raised in between colony and mines to minimize any air borne problems to the inhabitants. Successful trials have also been conducted by using Dustexchemical (a lignosulphonate product derived from the wood pulping process and developed specially for road stabilization and dust control) during water sprinkling for effective dust suppression and less consumption of water. It is nontoxic, easy to handle and satisfies all environmental requirements. All parameter w.r.t ambient air quality is complying with the prescribed limit **Annexure-V**
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.	Presently, the mine has installed 3 ETPs to treat the mine discharge water and surface runoff. The mine discharge water is treated in the ETP-1 having ferro sulphate dosing facility, mixing chamber, channels, roughing filters and de-sludging facility. Similarly, surface runoff is treated in the ETP-2 & ETP-3 having baffles and ferro sulphate dosing facility and is located near Old Geological camp & near Jabnnath temple respectively. Network of concrete drain. Garland drains have been made to channelize the surface runoff from stackyard, OB dumps for its treatment in the ETP. Water samples are tested on hourly basis for qualitative analysis using DPC and H2SO4 for immediate detection of Cr+6. Water samples are tested at our own laboratory on daily basis to monitor the presence of Cr+6. Further, water samples are drawn and tested at OPCB accredited 3rd party on monthly basis and records are maintained. Company is now installing one more sophisticated ETP automated dosing system, clari-focculator, and flash mixture, dry sludge collection system, multi-bed filtration system etc to ensure more effective treatment of surface runoff and mine discharge water before it is let out of the lease boundary. Futher, company has 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. Photographs showing herbal treatment plant are attached as **Annexure-IX.**
XXI	The decanted water from the beneficiation plant shall be re-circulated within the plant and there shall be zero discharge.	Tailings produced from the plant are fed to thickener. Thickener increases the settling rate of particles 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.
XXII	Regular monitoring of water quality upstream and downstream of Damsala Nallah shall be carried out and record of monitoring data should be maintained and submitted to Ministry of Environment and Forests, its Regional Office, Bhubneswar, Central Groundwater Authority, Regional Director, Central Ground Water Board,	The water quality upstream and downstream of Damsala Nallah is being carried out once in a month and record of monitoring data is maintained and submitted to State Pollution Control Board on monthly basis. Analysis report for the period Oct'13 to March'14 is enclosed as **Annexure-X**

Sl	Condition	Compliance
	State Pollution Control Board and Central Pollution Control Board.	
XXIII	Appropriate mitigative measures shall be taken to prevent pollution of Damsala Nallah, if any, in consultation with the State Pollution Control Board.	At present, the mine discharge water and surface run off water is treated in 3 ETPs before discharging it out of our lease. Further, we are constructing new ETP of higher capacity with facilities like, settling pit, flash mixture, clarri-focculator, automatic dosing system, dry sludge collection system, multi sand filters etc as per the Direction of State Pollution Control Board. The Phase-I job would be over by Aug' 2014. The water so treated in the above ETPs shall continue to be analysed at regular interval to confirm the CPCB standards before releasing the same to outside.
XXIV	The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water for the project.	We have made necessary application for drawl of Surface water from Damsala nalla for domestic uses vide our letter no. FAMD/ L&L/56-4/2012, dated 28.07.2012. Necessary Water Management Plan has also been submitted. The Proposal is now active consideration of the Water Resources dept. However, we continued to pay the water rent to Tahsildar, Sukinda as demanded as the area falls under Rural Category.
XXV	Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with Regional Director, Central Ground Water Board.	Rainwater harvesting study was done and submitted to Eastern Regional Office, CGWB, Bhubaneswar and final approval is awaited. As per the report, one roof top rain water harvesting structure has already started at GM office building which shall be fully operational prior to monsoon. Further, feasibility study has been carried out for possible water harvesting in the periphery through KRG Foundation which shall be implemented in future in phased manner.
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.	Vehicular emission is done on six monthly basis through a third party for the HEMMs used for Mining. The transport vehicles are also allowed after they get necessary PUC from RTO office. It is ensured that the vehicles are not being overloaded.
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.	The blasting operation takes place only in day time. The timing of blasting is 1:00 PM to 2:00 PM. However during summer time is has been changed to 8:30 AM to 9:30 AM as per guideline of State Government of Odisha. Practices like pre-wetting of blast area is used to control dust generation. Controlled blasting method like pre-splitting is being practiced here to reduce back break. Both, SME and NONEL blasting are being practiced to reduce huge inventory in the magazine house and control ground vibration, respectively. Further, Blast Vibration study is conducted through CIMFR, Dhanbad on quarterly basis and recommendation thereof is being strictly followed.
XXVIII	Drills shall either be operated with dust extractors or equipped with water injection system.	In-built wet drilling facility exists in all the drilling machines to reduce dust generation. Most of the drill cabins have been made air conditioned. Apart from this, the drill operators as well as workmen working in the dust prone area of the mining area have also been provided with nose mask. Pre-wetting of blasting area is also a regular practice to control fly rocks and from the dust getting airborne. Both, SME and NONEL blasting are being practiced to control ground vibration and dust generation.
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	Roads in COB plant has been concreted and stationary water sprinklers have been installed in roads within COB Plant. Spraying by pressure water jets are done at feed hopper, transfer points, discharge chute to prevent dust generation. The process at COB Plant is totally wet and eliminates the chance of any dust

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	transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.	generation.
XXX	Consent to operate shall be obtained from State Pollution Control Board prior to start of enhanced production from the mine.	Consent to operate shall be obtained from State Pollution Control Board prior to start of enhanced production from the mine as advised.
XXXI	Sewage treatment plant shall be installed for the colony. ETP shall also be provided for workshop and wastewater generated during mining operation.	Domestic effluent of the township is treated at Sewage Treatment Plant constructed as per BIS standard and the treated water is being reused for garden development. An oil and grease trap system has been provided in the workshop to remove oil and grease from the workshop effluents. Similar type oil and grease separation pit has also been provided at contractor workshop also. The effluents free of oil and grease is again reused for washing of HEMMs and is an effort is being made towards recycling of process water to 100%. Centralized used oil collection system is place in workshop to arrest spillage of oil on shop floor. Similarly, mine water is also being treated in the ETP and is let out beyond the lease area which finds way into a small drain. This let out water is being used by the villagers for agriculture purpose only. From the inference of the recent data for the period Oct'13 to March'13 (**Annexure-XI**), it is evident that the let out water quality confirms to the quality of effluents discharged to the mainland. The garland drains are now so connected that now surface runoff during the monsoon is coursed to the Geological Camp ETP and Temple ETP where it is fully treated before discharge out from our leasehold. Garland drains have been provided to collect the surface runoff from the ore stock yards within the lease. Company is now installing one more sophisticated ETP automated dosing system, clari-focculator, and flash mixture, dry sludge collection system, multi-bed filtration system etc to ensure more effective treatment of surface runoff and mine discharge water before it is let out of the lease boundary. An Herbal Treatment Plant is also there in COB Plant since 2007-08 for the online hexa-chrome treatment of the chrome concentrate. Photographs showing herbal treatment plant are attached as **Annexure-IX**. After settlement in the tailing pond, the clear water is recycled and used in the beneficiation plant.
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, Bhubneswar.	Digital processing of the entire lease area using remote sensing technique was carried out for baseline information of land use pattern and was report submitted to Ministry of Environment and Forests and its Regional Office, Bhubneswar in the Chapter-3 of the EIA report in year 2013. Next map along with the findings shall be submitted to the Ministry in due course of time.
XXXIII	Regular monitoring of ambient air quality including free silica shall be carried out and records maintained.	Regular monitoring of ambient air quality including free silica shall be carried out and records maintained. The analysis report for the Period Oct13 to March'14 is enclosed as **Annexure-II**
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	All the employees do undergo periodical medical examination (PME) in hospital every five years. However as per the recent notification, PME of all the employees shall be carried out once in three years for those employees who have reached 45 years of age or more. As of now, no occupational diseases have been reported

Sl	Condition	Compliance
	examination of the workers should be drawn and followed accordingly.	till date. Approx. 251 nos. of contract workers and 29 persons were covered under PME and pre placement medical examination respectively during year 2013-2014.To improve the occupational health and removing the safety hazards at industrial workplace, 3 ACT (Advice, Connect & Transform) teams have been made under Wellness@ Workplace programme. We have carried out the health surveillance program for both permanent and contractual employees for the period 2000 to 2011, in which 994 permanent and 744 contractual employees have been undergone. The chromium level in the blood samples of all the employees is found to be normal.
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	We have deposited Rs 81,20,000/- and Rs 24,36,000/- through DD No. DD no. 111682, dated 21.07.2009 and through RTGS mode on 07.03.2014 respectively in the State Specific CAMPA account towards the cost of Wildlife Management Plan @ Rs 26,000/- per ha of ML area for implementation of Regional Wildlife Management Plan. Further, Project specific Wild Life Conservation Plan has already been submitted to DFO, Cuttack vide our letter no. SCM/ ENV/091/13, dated 18.12.2013. All the precautionary measures stipulated by State Forest Department and laid down during the approval of Site Specific Wild Life Conservation Plan shall be adhered to. Once, the Site Specific Wild Life Conservation Plan is approved, copy of the same shall be submitted to Ministry and its Regional Office, Bhubaneswar.
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.	At present Final Closure of the mine is not envisaged. However, as per Rule 23C of MCDR, 1988, Final Mine Closure Plan shall be submitted to IBM one year prior to such proposal for final closure of the mine and copy of the approved plan shall be provided to the . Ministry of Environment & Forests.

B. General Conditions:

I	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	There is no change in mining technology and scope of working proposed be made beyond the scope of the present EC obtained. Prior approval from the Ministry would be sought in case of change in scope of working in future.
II	The calendar plan including excavation, quantum of chrome ore, beneficiated chrome concentrates, pyroxenite ore and waste shall not be exceeded.	During the year 2013-14 total excavation, quantum of chrome ore, beneficiated chrome ore and waste (OB) has not exceeded the approved quantity granted in approved mining plan. Details are given in table below. There was no production from pyroxenite quarry. Table IV: Excavation Approved Quantity Vs. Actual

Compliance for the year 2013-14		
Particulars	Plan	Actual
Total Excavation (Lakh cum)	68.6	44.8
Chrome Ore ROM (MT)	1756677	1355460
Waste Generation (Lakh cum)	62.5	40.1
Beneficiated chrome concentrate (MT)	480926	475599.7

* Target as per approved Mining Plan

Sl	Condition	Compliance
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.	Six air quality monitoring stations (four in the work zone, one in residential area and one in hospital i.e. sensitive area) had been set up within the mine lease area. Monitoring of the air quality was being conducted twice in a week as per CPCB guide lines. Likewise quarterly monitoring is done in 10 buffer zone locations. PM10, PM2.5, SO2,NOx, CO, O3, Pb, NH3, Benzene, benzo(a) Pyrene, Arsenic & Nickel parameters in the air quality were being monitored. We have started ambient air quality monitoring as per recent Gazette Notification 826(E), dated 16.11.2009. The data on ambient air quality of core zone as well as buffer zone for the period Oct'13 to March'14 reveal that all the parameters are within the stipulated standards (**Annexure-V**).
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.	Noise monitoring is being done once in a three months both in work zone and in ambient. The data on noise level for the period Oct'13 to March'14 indicate that the values of noise levels are within the prescribed limits. To limit exposure of noise level of 85 dBA, due precautions at source and at the receiver end are being taken adequately. 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. DG sets have also been provided with acoustic enclosures to prevent noise propagation. The operator's cabin of HEMM's has been made air conditioned including drills and dozers. Controlled blasting technique like presplit blasting, use of Nonel and SME (Site Mixed Emulsion) is being followed as per CIMFR, Dhanbad's recommendation minimize noise pollution and fly rock generation. However, the people working in the noisy areas are provided with personal protective appliances to reduce exposure of high noise. Regular test of all the vehicles is being carried out to check whether the vehicles are meeting pollution under control (PUC) norms. The K factor for all the vehicles is <0.33. Noise monitoring for the period Oct'13 to March'14 is attached as **Annexure-XII.**
V	There will be zero waste water discharge from the plant	Tailings produced from the plant are fed to thickener. Thickener increases the settling rate of particles 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 to the COB plant. Photographs are attached in **Annexure-XIII**.
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.	Persons working in comparatively dusty and noisy areas have been provided with dust mask and ear muffs approved by the DGMS. Regular training programme is conducted among the employees to bring awareness in respect to safety and health. Company has now tied up with M/s Dupont to drive its safety excellence journey.
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.	All the employees do undergo periodical medical examination (PME) in hospital every five years. However as per the recent notification, PME of all the employees shall be carried out once in three years for those employees who have reached 45 years of age or more. As of now, no occupational diseases have been reported

<table>
<tr><th>Sl</th><th>Condition</th><th>Compliance</th></tr>
<tr><td></td><td></td><td>till date. Approx 251 of workers covered under PME during April'13 to March'14.To improve the occupational health and removing the safety hazards at industrial workplace, 3 ACT (Advice, Connect & Transform) teams have been made under Wellness@ Workplace programme.

We have carried out the health surveillance program for both permanent and contractual employees for the period 2000 to 2011, in which 994 permanent and 744 contractual employees have been undergone. The chromium level in the blood samples of all the employees is found to be normal.</td></tr>
<tr><td>VIII</td><td>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.</td><td>The Environmental Management Cell is being headed by the Head (Mine and Production Planning) and is supported by Senior Manager(Mine Planning & Environment), Manager (Environment), Environmental Supervisor and Chemists. The Head (MPP) is directly reporting to the GM, Operations of the Division. Roles, responsibility and authorities of all members of environmental cell's employees have been defined in integrated management system and proper communication has been made.</td></tr>
<tr><td>IX</td><td>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.</td><td>Separate budgetary provisions are made for environmental protection measures every year. Funds earmarked for this purpose and actually planned during 2013-14 in Rs Lakh is as follows:
<table>
<tr><th>Sl no.</th><th>Item/ Particulars</th><th>Plan</th><th>Actual</th></tr>
<tr><td>1</td><td>Afforestation</td><td>78.0</td><td>110</td></tr>
<tr><td>2</td><td>Dust suppression</td><td>58.0</td><td>95.9</td></tr>
<tr><td>3</td><td>Treatment of mine discharge &</td><td>55.0</td><td>120.91</td></tr>
<tr><td>4</td><td>Environment & weather , exhaust monitoring</td><td>27.1</td><td>39.2</td></tr>
<tr><td>5</td><td>Horticulture development</td><td>55.5</td><td>51.2</td></tr>
<tr><td>6</td><td>Drinking water supply</td><td>40.0</td><td>41.1</td></tr>
<tr><td>7</td><td>STP Operation & Maintenance</td><td>7.0</td><td>4.5</td></tr>
<tr><td>8</td><td>Sanitation</td><td>40.0</td><td>37.52</td></tr>
<tr><td>9</td><td>Malaria eradication</td><td>5.0</td><td>9</td></tr>
<tr><td>10</td><td>Garland drain& storm water drain</td><td>25.0</td><td>20.4</td></tr>
<tr><td>11</td><td>Family planning</td><td>2.0</td><td>1.3</td></tr>
<tr><td>12</td><td>Slime dam management</td><td>20.0</td><td>110</td></tr>
<tr><td>13</td><td>Environment awareness (EMS)</td><td>6.0</td><td>52.35</td></tr>
<tr><td>14</td><td>Community Development through</td><td>145</td><td>17.6</td></tr>
<tr><td>15</td><td>Hazardous waste management</td><td>8.5</td><td>2.6</td></tr>
<tr><td>16</td><td>Bio medical waste</td><td>4.0</td><td>2</td></tr>
<tr><td></td><td>Total (Rs Lakh)</td><td>576.1</td><td>715.58</td></tr>
</table></td></tr>
<tr><td>X</td><td>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.</td><td>The Financial closure of the mine is not envisaged in near future. Necessary intimation to the Regional Office would be provided before commencement of land development activity.</td></tr>
<tr><td>XI</td><td>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</td><td>The mine management will always extend full cooperation to officer(s) of Regional office by furnishing the requisite data/ information/ monitoring report as and when required.</td></tr>
</table>

Sl	Condition	Compliance
	requisite data/ information/ monitoring reports.	
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.	Six monthly reports on the status of compliance report of the stipulated environmental clearance conditions including results of monitored data is submitted 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 is submitted in both hard copy as well as soft copy. Last EC compliance was submitted vide letter no. SCM/ENV/012/084/13 dated 08.11.2013. We are also uploading the same in our website on our website www.tatasteelindia.com. The snapshot of the site is attached as **Annexure-XIV**
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.	Environment Clearance letters were sent to concerned Panchayat, Zila Parisad / Municipal Corporation, Urban Local Body and is attached in **Annexure XVI.** No suggestion was received. We are also uploading the same in our website on our website www.tatasteelindia.com. The snapshot of the site is attached as **Annexure-XIV**.
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	Complied by the State Pollution 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.	The Environment Statement in Form-V is being submitted before 30th Sept of every year and the same is also uploaded in the company website as shown in screenshot in **Annexure-XIV**. Environment Statement for the year 2012-13 was submitted vide letter no. SCM/ENV/002/073/13 to the State Pollution Control Board and to the Regional Office of MoEF 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	The grant of Environmental Clearance was advertised in the Oriya daily **"The Samaja"** (date: 11.09.2013, page-5) and in English daily "**The New Indian Express**" (date: 11.09.2013, page-5). Copy of the above advertisement was also forwarded to the Eastern Regional

Sl	Condition	Compliance
	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 has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar.	Office of the MoEF vide letter no. SCM/ ENV/ 012/066/13, dated 18.06.2013. Copy of the letter is enclosed as **Annexure-XV.**

Date: 30th May' 2014

Manager Cum Agent

Sukinda Chromite Mine

Manager Cum Agent
Sukinda Chromite Mine
Tata Steel Limited

ANNEXURE I
MINERALOGICAL COMPOSITION OF PARTICULATE MATTER

Sl. No.	Location	Mineralogical Composition (%)						
		Cr_2O_3	Fe_2O_3	MnO_2	SiO_2	Al_2O_3	MgO	CaO
1.	COB Plant	20.2	7.3	1.5	22.3	12.3	13.5	3.3
2.	Stack Yard	22.3	7.1	1.8	20.8	11.9	14.2	2.9
3.	Laboratory Top	19.6	7.6	1.3	23.5	11.6	13.6	3.0
4.	Hospital Top	16.3	6.9	1.0	22.1	11.9	12.7	2.8
5.	Mining Complex	23.4	8.0	1.7	23.7	11.3	12.8	3.2
6.	Tailing Pond	18.6	7.6	1.2	20.8	10.9	12.3	3.5
7.	Residential Colony (Qtr No.L2/R-73)	17.3	7.2	0.9	21.7	14.7	11.9	3.8

ANNEXURE II
PERSONAL RESPIRABLE DUST

Date	Sampler Attached to the Person	Personal Respirable Dust in µg/m^3	Respirable Free Silica (%)
12.03.2014	G. Xaloko Dumper Operator, pno-195444	51.9	4.1
13.03.2014	Haladhar Patra Sovel Operator, pno-195743	38.6	4.8
14.03.2014	Purna chandra Sahoo, Dumper Operator , pno-97325	58.4	5.1
15.03.2014	Charan Karua , Shovel Operator, pno-195841	47.2	3.9

ANNEXURE III
COVERING OF LOADED TRUCK BY TARPAULIN

ANNEXURE IV

DUST CONTROLING MAJORS

Concrete Path

Stationary Water Sprinkler

Dust Suppression System at Hopper

Water Sprinkling

Concentrate Stack Covered With Tarpaulin

Truck Covered With Tarpaulin

ANEXURE-V

TATA STEEL LIMITED, SUKINDA CHROMITE MINE

AMBIENT AIR QUALITY PARAMETERS (Oct'13 to March'14)

Monthly Average	PM10 µg/m3						PM2.5µg/m3						SO2 µg/m3						NOX µg/m3						CO						O3					
	C	S	L	H	M	T	C	S	L	H	M	T	C	S	L	H	M	T	C	S	L	H	M	T	C	S	L	H	M	T	C	S	L	H	M	T
Oct-13	43.56	48.56	39.00	31.33	35.33	27.00	25.51	28.12	22.89	18.98	21.32	16.42	4.49	4.81	4.28	4.06	4.13	4.01	11.20	11.77	10.66	10.01	10.30	9.58	0.14	0.17	0.13	0.11	0.12	0.10	6.71	7.16	6.22	5.38	5.83	4.93
Nov-13	52.00	56.89	47.67	39.56	43.33	35.00	30.21	32.56	27.71	23.41	24.88	20.94	4.54	4.89	4.34	4.10	4.20	4.03	11.58	11.99	11.12	10.24	10.68	9.84	0.18	0.21	0.15	0.12	0.13	0.11	6.87	7.30	6.42	5.54	5.97	5.20
Dec-13	59.33	63.67	54.89	47.33	51.56	43.22	33.77	35.98	30.98	27.46	29.83	25.60	4.47	4.76	4.26	4.04	4.12	4.02	11.68	12.11	11.26	10.37	10.86	9.90	0.22	0.25	0.19	0.14	0.16	0.12	7.89	8.30	7.43	6.54	6.99	6.18
Jan-14	63.56	69.56	57.33	48.33	52.56	43.00	35.78	39.44	31.37	28.12	30.34	25.38	5.11	5.49	4.77	4.21	4.42	4.08	12.00	12.53	11.42	10.43	10.94	9.99	0.27	0.32	0.22	0.15	0.18	0.12	8.97	9.53	8.46	7.51	7.99	7.02
Feb-14	61.13	66.13	56.38	47.50	51.13	44.25	34.19	37.61	32.33	27.49	29.15	26.20	4.71	5.05	4.45	4.13	4.26	4.05	11.73	12.24	11.31	10.54	10.94	10.14	0.22	0.26	0.19	0.15	0.17	0.13	8.21	8.65	7.75	6.85	7.30	6.46
Mar-14	60.63	64.88	55.75	47.00	51.13	42.38	33.98	36.20	31.98	27.46	29.58	25.09	4.53	4.90	4.31	4.08	4.18	4.00	11.93	12.43	11.43	10.41	10.99	9.96	0.21	0.25	0.17	0.13	0.15	0.11	7.28	7.71	6.90	5.90	6.43	5.49
ANNUAL AVERAGE	56.70	61.61	51.84	43.51	47.50	39.14	32.24	34.99	29.54	25.49	26.92	23.27	4.64	4.98	4.40	4.10	4.32	4.03	11.68	12.18	11.20	10.33	10.78	9.90	0.21	0.24	0.17	0.13	0.15	0.12	7.65	8.11	7.20	6.29	6.75	5.88

Monthly Average	Pb µg/m3						NH3 µg/m3						Benzene µg/m3						Benzo(a)Pyrene ng/m3						Arsenic ng/m3						Nickel ng/m3					
	C	S	L	H	M	T	C	S	L	H	M	T	C	S	L	H	M	T	C	S	L	H	M	T	C	S	L	H	M	T	C	S	L	H	M	T
Oct-13	0.025	0.030	0.021	BDL	0.018	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.64	0.69	0.59	0.49	0.54	0.43	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Nov-13	0.027	0.027	0.023	0.016	0.019	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.65	0.75	0.60	0.49	0.54	0.43	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Dec-13	0.019	0.023	0.017	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.72	0.77	0.67	0.55	0.60	0.50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Jan-14	0.020	0.024	0.016	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.77	0.82	0.71	0.58	0.65	0.52	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Feb-14	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.73	0.80	0.68	0.58	0.63	0.53	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Mar-14	0.016	0.019	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.71	0.77	0.62	0.53	0.59	0.48	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
ANNUAL AVERAGE	0.021	0.024	0.019	0.016	0.019	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.70	0.77	0.64	0.54	0.59	0.48	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

C:COB Plant
S:Stackyard
M:Mining Complex
T: Tailing Dam

Residential Area: L: Laboratory Top
Sensitive Area : H: Hospital

BUFFER ZONE AAQ

Sl.No	Location		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
1	Birasa Birasal	AVERAGE	43.50	25.53	BDL	10.00	0.13	6.23	BDL	BDL	0.58	BDL	BDL	BDL
2	Kanehipal	AVERAGE	51.00	28.78	BDL	11.10	0.15	6.85	BDL	BDL	0.64	BDL	BDL	BDL
3	Kalarangiatta	AVERAGE	72.50	42.08	5.33	13.23	0.29	8.70	0.024	BDL	0.87	BDL	BDL	BDL
4	Kaliapani	AVERAGE	56.75	32.90	4.53	11.88	0.18	7.75	0.020	BDL	0.70	BDL	BDL	BDL
5	Kakudia	AVERAGE	48.75	27.45	BDL	10.93	0.14	7.00	BDL	BDL	0.62	BDL	BDL	BDL
6	Sendashara	AVERAGE	40.75	24.15	BDL	10.10	0.12	6.18	BDL	BDL	0.52	BDL	BDL	BDL
7	Laxmidharpur	AVERAGE	55.50	31.85	4.40	11.40	0.17	7.75	BDL	BDL	0.68	BDL	BDL	BDL
8	Sukarangi	AVERAGE	56.25	31.83	4.55	11.55	0.18	7.50	0.019	BDL	0.71	BDL	BDL	BDL
9	Muruabil	AVERAGE	51.75	30.30	4.27	11.35	0.15	7.45	BDL	BDL	0.69	BDL	BDL	BDL
10	Kharkhari	AVERAGE	48.75	28.40	4.18	10.90	0.14	6.75	0.017	BDL	0.62	BDL	BDL	BDL

Annual Average Ambient Air Quality in Buffer Zone

Sl.No	Location	Month of Monitoring	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
1	Birasal	**Dec'13**	47	28.1	BDL	9.8	BDL	6.8	BDL	BDL	0.60	BDL	BDL	BDL
		March'14	56	31.5	BDL	10.8	0.18	7.3	BDL	BDL	0.72	BDL	BDL	BDL
2	Kanehipal	**Dec'13**	54	29.7	BDL	11.3	BDL	7.1	BDL	BDL	0.67	BDL	BDL	BDL
		March'14	61	35.8	BDL	11.6	0.21	7.8	BDL	BDL	0.79	BDL	BDL	BDL
3	Kalarangiatta	**Dec'13**	73	40.2	4.9	13.4	0.18	8.0	BDL	BDL	0.84	BDL	BDL	BDL
		March'14	82	49.2	5.9	12.8	0.38	9.7	0.017	BDL	1.12	BDL	BDL	BDL
4	Kaliapani	**Dec'13**	61	35.9	4.6	12.6	0.13	9.1	0.021	BDL	0.71	BDL	BDL	BDL
		March'14	69	38.6	4.7	11.2	0.26	8.3	BDL	BDL	0.91	BDL	BDL	BDL
5	Kakudia	**Dec'13**	53	29.1	BDL	11.1	BDL	8.4	BDL	BDL	0.65	BDL	BDL	BDL
		March'14	58	32.9	BDL	10.4	0.19	7.1	BDL	BDL	0.76	BDL	BDL	BDL
6	Sendashara	**Dec'13**	47	27.3	BDL	10.9	BDL	7.9	BDL	BDL	0.57	BDL	BDL	BDL
		March'14	41	25.3	BDL	9.6	0.12	5.4	BDL	BDL	0.58	BDL	BDL	BDL
7	Laxmidharpur	**Dec'13**	59	34.5	4.8	11.9	0.13	9.5	BDL	BDL	0.68	BDL	BDL	BDL
		March'14	66	37.1	BDL	10.7	0.24	7.9	BDL	BDL	0.84	BDL	BDL	BDL
8	Sukarangi	**Dec'13**	54	29.8	BDL	11.5	BDL	7.3	0.016	BDL	0.62	BDL	BDL	BDL
		March'14	78	44.6	5.3	12.1	0.33	9.2	BDL	BDL	0.95	BDL	BDL	BDL
9	Muruabil	**Dec'13**	62	35.7	5.1	12.3	0.15	9.8	BDL	BDL	0.74	BDL	BDL	BDL
		March'14	54	30.2	BDL	10.4	0.16	6.6	BDL	BDL	0.71	BDL	BDL	BDL
10	Kharkhari	**Dec'13**	57	32.4	4.3	11.5	0.11	8.3	BDL	BDL	0.66	BDL	BDL	BDL
		March'14	60	34.4	4.4	10.9	0.21	7.3	BDL	BDL	0.77	BDL	BDL	BDL

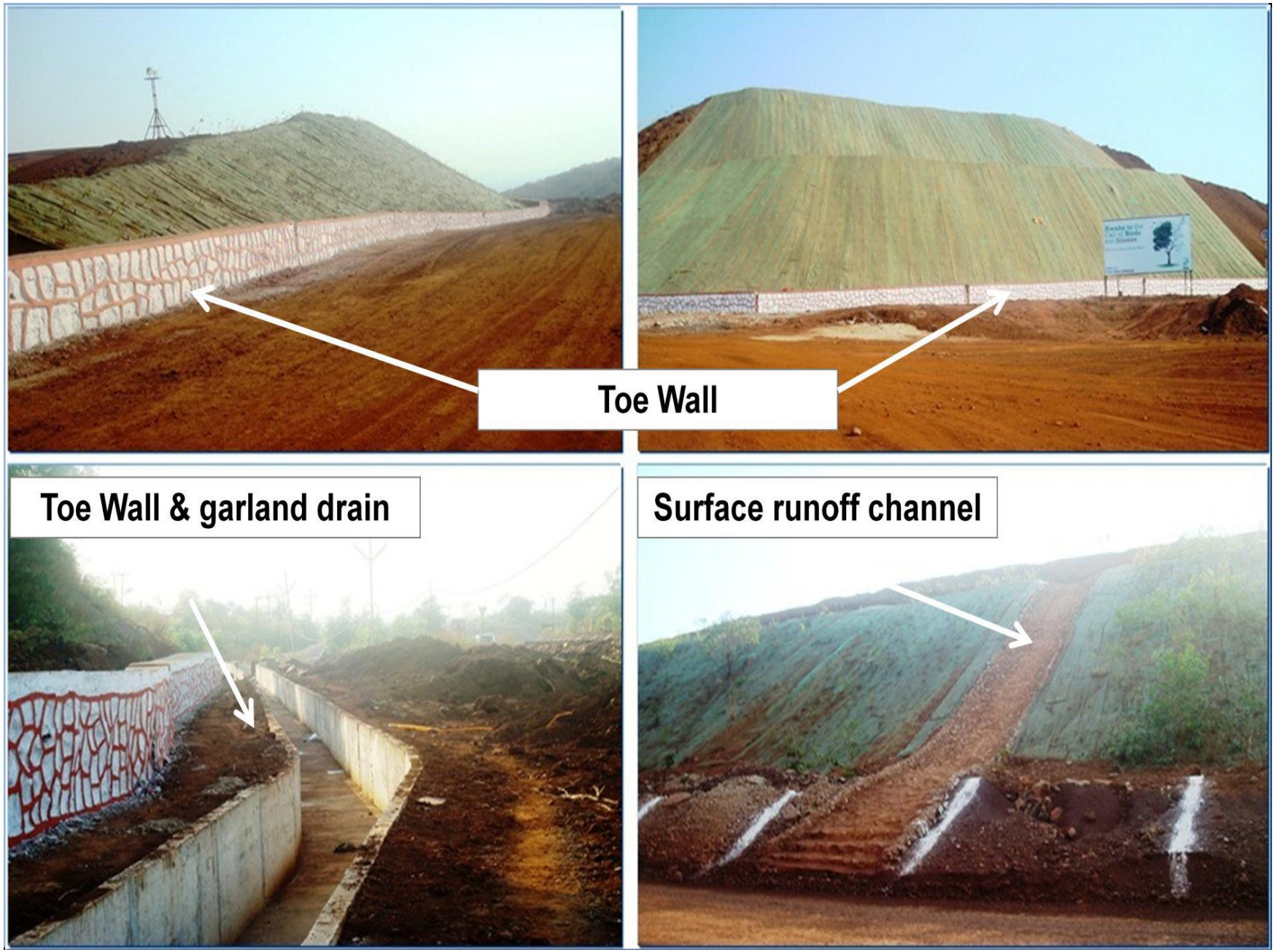
ANEXURE-VI

Ground Water Quality in Villages (Oct'13 to March 14)

S.No.	Parameter	Unit	IS-10500	Oct'13 (Odisha Village)	Nov'13 (Murabil village)	Dec'13 (Sukarangi Village)	Jna'14 (Kanehipal)	Feb'14 (Sendashara village)	Mar'14 (Laxmydharpur village)
1	Colour	Hazen	5	CL	CL	CL	CL	CL	CL
2	Odour	-	U/O	U/O	U/O	U/O	U/O	U/O	U/O
3	Taste	-	Agreeable	Agreeable	Agrreable	Agreeable	Agreeable	Agreeable	Agreeablr
4	Turbidity	NTU max	5	1.04	<1	1.27	1.56	1.69	1.28
5	pH	-	6.5-8.5	7.2	7.2	7.1	7.1	6.9	7.1
6	Dissolved Oxygen	Mg /l	-	6.9	7.1	6.7	6.8	6.6	6.8
7	Total Hardness (as $CaCO_3$)	Mg/l	300	53	49	61	41	56	64
8	Iron (as Fe)	Mg/l	0.3	0.14	0.11	0.13	0.13	0.15	0.16
9	Chloride (as Cl)	Mg/l	250	10.1	9.7	11.4	11.4	11.6	10.9
10	Rsidual free chlorine	Mg/l	0.2	ND	ND	ND	ND	ND	ND
11	Fluorides (as F)	Mg/l	1	0.09	0.065	0.092	0.061	0.063	0.072
12	Total Dissolved Solids	Mg/l	500	118	101	116	123	134	141
13	Calcium as Ca	Mg/l	75	9.7	9.3	9.4	9.1	10.1	9.4
14	Magnesium (as Mg)	Mg/l	30	5.9	5.1	4.6	5.7	7.2	6.9
15	Copper (as Cu)	Mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
16	Manganese (as Mn)	Mg/l	0.1	BDL	BDL	BDL	BDL	BDL	BDL
17	Sulphates (as SO_4)	Mg/l	200	13.4	14.9	13.6	12.8	13.7	12.5
18	Nitrate (as NO_3)	Mg/l	45	0.15	0.17	0.21	0.17	0.33	0.27
19	Mercury (as Hg)	Mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
20	Cadmium (as Cd)	Mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
21	Selenium (as Se)	Mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
22	Arsenic (as As)	Mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
23	Cyanide (as CN)	Mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
24	Lead (as Pb)	Mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
25	Zinc (as Zn)	Mg/l	5	0.17	0.14	0.14	0.13	0.19	0.15
26	Chromium (as Cr^{+6})	Mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
27	Mineral Oil	Mg/l	0.01	Nil	Nil	Nil	Nil	Nil	Nil
28	Alkalinity	Mg/l	200	29	27	31	14	31	22
29	Boron	Mg/l	1	BDL	BDL	BDL	BDL	BDL	BDL
30	Ground Water Level	m	-	3.4	5.7	9.2	12.1	12.6	15.2

ANEXURE-VII

Toe wall, Garland Drain and Surface Runoff Channel



ANEXURE-VIII

Coir Mating and Dump Plantation

ANEXURE-IX

Herbal Treatment Plant

ANEXURE-X

Water Quality Report At Upstream and Downstream of Damsala Nallah

Month	Parameter	Location		
		MINE WATER OF QUARRY O.B.- X	DAMSALA RIVER UPSTREAM	DAMSALA RIVER DOWNSTREAM
Oct'13	Hexavalent Chromium as Cr+6 (mg/l)	0.68	0.39	0.22
Nov'13		0.56	0.26	0.18
Dec'13		0.49	0.22	0.16
Jan'14		0.35	0.19	0.14
Feb'14		0.66	0.19	0.15
Mar'14		0.73	0.16	0.14

ANEXURE-XI

Water Quality Report

TATA STEEL LIMITED

SUKINDA CHROMITE MINE

Water Quality Parameters of ETP INLET(Oct' to March' 14)

Sl. No	Parameter	Unit	Standards (In land Surface water)	Oct'13	Nov'13	Dec'13	Jan'14	Feb'14	Mar'14	AVERAGE
				Inlet	Inlet	Inlet	Inlet	Inlet	Inlet	**Inlet**
1	Colour & Odour	Hazan/-	5.0 / U/O	28 & U/O	24 & U/O	21 & U/O	18 & U/O	21 & U/O	24 & U/O	**24.18 & U/O**
2	Suspended Solids	mg/ltr	100	114	106	65	57	72	64	**79.67**
3	Particular Size of Suspended Solids	µ(micron)	<850	<850	<850	<850	<850	<850	<850	**<850**
4	Dissolve Solids	mg/ltr	-	187	174	162	189	177	168	**176.17**
5	PH	--	5.5-9.0	6.6	6.8	6.9	6.8	6.9	6.8	**6.80**
6	Temperature	^{0}c.	Shall not exceed 5ºC above the receiving water	25	25	24	24	24	25	**24.50**
7	Oil & Grease	mg/ltr	10	0.86	0.63	0.52	0.39	0.56	0.48	**ND**
8	Total Residual Chlorine	mg/ltr	1	ND	ND	ND	ND	ND	ND	**ND**
9	Amm. Nitrogen as N	mg/ltr	50	1.36	1.19	1.1	1.16	1.34	1.22	**1.23**
10	Total Kjeldal Nitrogen as NH_3	mg/ltr	100	1.94	1.77	1.48	1.59	1.87	1.65	**1.72**
11	Free Ammonia as NH_3	mg/ltr	5	ND	ND	ND	ND	ND	ND	**ND**
12	BOD (3) days at 27^{0}c.	mg/ltr	30	14.6	12.8	10.6	11.2	12.7	10.4	**12.05**
13	COD	mg/ltr	250	43.8	34.1	29.8	34.8	35.1	31.7	**34.88**
14	Arsenic as As	mg/ltr	0.2	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
15	Mercury as Hg	mg/ltr	0.01	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
16	Lead as Pb	mg/ltr	0.1	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
17	Cadmium as Cd	mg/ltr	2	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
18	Hexa Chromium as Cr^{+6}	mg/ltr	0.1	0.61	0.53	0.44	0.38	0.59	0.69	**0.540**
19	Total Chromium as Cr	mg/ltr	2	0.98	0.81	1.21	0.74	0.88	0.75	**0.90**
20	Copper as Cu	mg/ltr	3	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
21	Zinc as Zn	mg/ltr	5	0.19	0.22	0.2	0.18	0.21	0.18	**0.20**
22	Selenium as Se	mg/ltr	0.05	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
23	Nickel as Ni	mg/ltr	3	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
24	Cyanide as CN	mg/ltr	0.2	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
25	Fluoride as F	mg/ltr	2	0.21	0.19	0.15	0.096	0.14	0.11	**0.149**
26	Diss. Phosphate as P	mg/ltr	5	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
27	Sulphide as S	mg/ltr	2	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
28	Phenolic Compounds as C_6H_5OH	mg/ltr	1	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
29	Bio-assay Test	--	90% survival of fish after 96 hours in 100% effluent	97%	97%	97%	97%	97%	97%	**96.90 %**
30	Manganese as Mn	mg/ltr	2	0.11	0.09	0.07	0.062	0.089	0.11	**0.09**
31	Iron as Fe	mg/ltr	3	0.66	0.49	0.61	0.53	0.56	0.46	**0.55**
32	Vanadium as V	mg/ltr	0.2	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
33	Nitrate Nitrogen	mg/ltr	10	0.37	0.26	0.33	0.26	0.31	0.27	**0.30**
34	Cobalt as Co	mg/ltr	-	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**

NB : *C.L. Colourless, O.L – Odourless, BDL- Below DetectableLlimit. ND- Not Detectable.*

TATA STEEL LIMITED
SUKINDA CHROMITE MINE
Water Quality Parameters of ETP OUTLET (Oct' to March' 14)

Sl. No	Parameter	Unit	Standards (In land Surface water)	Oct'13	Nov'13	Dec'13	Jan'14	Feb'14	Mar'14	AVERAGE
				Outlet	Outlet	Outlet	Outlet	Outlet	Outlet	**Outlet**
1	Colour & Odour	Hazan/-	5.0 / U/O	CL & U/O	CL & U/O	CL & U/O	CL & U/O	CL & U/O	CL & U/O	**CL & U/O**
2	Suspended Solids	mg/ltr	100	32	24	18	21	26	17	**23.00**
3	Particular Size of Suspended Solids	µ(micron)	<850	<850	<850	<850	<850	<850	<850	**<850**
4	Dissolve Solids	mg/ltr	-	134	129	117	124	134	124	**127.00**
5	PH	--	5.5-9.0	7.1	7.2	7.1	7.1	7.2	7.1	**7.13**
6	Temperature	^{0}c.	Shall not exceed 5ºC above the receiving water	25	25	24	24	24	25	**24.50**
7	Oil & Grease	mg/ltr	10	ND	ND	ND	ND	ND	ND	**ND**
8	Total Residual Chlorine	mg/ltr	1.0	ND	ND	ND	ND	ND	ND	**BDL**
9	Amm. Nitrogen as N	mg/ltr	50	1.21	1.07	0.93	0.87	1.07	1.14	**1.05**
10	Total Kjeldal Nitrogen as NH_3	mg/ltr	100	1.72	1.62	1.18	1.24	1.69	1.53	**1.50**
11	Free Ammonia as NH_3	mg/ltr	5.0	ND	ND	ND	ND	ND	ND	**ND**
12	BOD (3) days at 27^{0}c.	mg/ltr	30	1.9	1.52	1.24	1.46	1.33	1.63	**1.51**
13	COD	mg/ltr	250	5.5	4.23	2.95	4.15	3.94	4.82	**4.27**
14	Arsenic as As	mg/ltr	0.2	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
15	Mercury as Hg	mg/ltr	0.01	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
16	Lead as Pb	mg/ltr	0.1	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
17	Cadmium as Cd	mg/ltr	2.0	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
18	Hexa Chromium as Cr^{+6}	mg/ltr	0.1	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
19	Total Chromium as Cr	mg/ltr	2.0	1.04	0.93	0.82	0.91	0.76	0.82	**0.88**
20	Copper as Cu	mg/ltr	3.0	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
21	Zinc as Zn	mg/ltr	5.0	0.13	0.17	0.14	0.13	0.17	0.15	**0.148**
22	Selenium as Se	mg/ltr	0.05	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
23	Nickel as Ni	mg/ltr	3.0	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
24	Cyanide as CN	mg/ltr	0.2	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
25	Fluoride as F	mg/ltr	2.0	0.16	0.13	0.11	0.084	0.072	0.086	**0.107**
26	Diss. Phosphate as P	mg/ltr	5.0	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
27	Sulphide as S	mg/ltr	2.0	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
28	Phenolic Compounds as C_6H_5OH	mg/ltr	1.0	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
29	Bio-assay Test	--	90% survival of fish after 96 hours in 100% effluent	98%	98%	98%	98%	98%	98%	**98.00 %**
30	Manganese as Mn	mg/ltr	2.0	0.065	0.058	0.038	0.049	0.053	0.076	**0.057**
31	Iron as Fe	mg/ltr	3.0	0.27	0.31	0.2	0.37	0.38	0.33	**0.31**
32	Vanadium as V	mg/ltr	0.2	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
33	Nitrate Nitrogen	mg/ltr	10	0.29	0.21	0.18	0.21	0.19	0.21	**0.22**
34	Cobalt as Co	mg/ltr	-	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**

NB : *C.L. Colourless, O.L – Odourless, BDL- Below Detectable limit. ND- Not Detectable.*

TATA STEEL LIMITED
SUKINDA CHROMITE MINE
Water Quality Parameters at Oil separation System - INLET (Oct' to March' 14)

Sl. No	Parameter	Unit	Standards	Oct'13	Nov'13	Dec'13	Jan'14	Feb'14	Mar'14	**AVERAGE**
				Inlet	Inlet	Inlet	Inlet	Inlet	Inlet	**Inlet**
1	Colour & Odour	--	-.	21 & U/.O	18 & U/.O	16 & U/.O	14 & U/.O	17 & U/.O	18 & U/.O	**19.36& U/.O**
2	Suspended Solids	mg/l	200	113	73	65	53	65	94	**77.17**
3	Particular Size of S.S.	µ(micron)	-	<850	<850	<850	<850	<850	<850	**<850**
4	Dissolved Solids	mg/l	-	219	183	155	148	178	208	**181.83**
5	pH	--	5.5 to 9.0	7.8	7.6	7.4	7.5	7.6	7.4	**7.55**
6	Temperature	^{0}C	-	25	24	23	23	24	25	**24.00**
7	Oil & Grease	mg/l	10	2.7	1.9	1.55	1.18	1.27	2.18	**1.80**
8	Total Residual Chlorine	mg/l	-	ND	ND	ND	ND	ND	ND	**ND**
9	Amm. Nitrogen as N	mg/l	-	1.31	0.86	0.65	0.57	0.67	0.74	**0.80**
10	Total Kjeldal Nitrogen as NH_3	mg/l	-	1.99	1.59	1.32	1.25	1.39	1.46	**1.50**
11	Free Ammonia as NH_3	mg/l	-	ND	ND	ND	ND	ND	ND	**ND**
12	BOD(3) days at 27^{0}c	mg/l	100	13.4	11.9	10.4	8.9	5.3	6.8	**9.45**
13	COD	mg/l	-	41.8	32.5	28.7	24.6	16.4	19.6	**27.27**
14	Arsenic as As	mg/l	0.2	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
15	Mercury as Hg	mg/l	-	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
16	Lead as Pb	mg/l	-	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
17	Cadmium as Cd	mg/l	-	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
18	Hexa Chromium as Cr^{+6}	mg/l	-	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
19	Total Chromium as Cr	mg/l	-	0.19	0.16	0.21	0.08	0.11	0.14	**0.15**
20	Copper as Cu	mg/l	-	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
21	Zinc as Zn	mg/l	-	0.35	0.24	0.17	0.19	0.27	0.19	**0.24**
22	Selenium as Se	mg/l	-	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
23	Nickel as Ni	mg/l	-	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
24	Boron as B	mg/l	-	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
25	Cyanide	mg/l	0.2	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
26	Fluoride as F	mg/l	-	0.11	0.16	0.12	0.18	0.14	0.096	**BDL**
27	Diss. Phosphate as P	mg/l	-	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
28	Sulphate as SO_4	mg/l	-	17.2	21.5	14.9	17.4	14.7	13.1	**16.47**
29	Sulphide as S	mg/l	-	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
30	Pesticide	-	-	Absent	Absent	Absent	Absent	Absent	Absent	**Absent**
31	Phenolic Compounds as C_6H_5OH	mg/l	-	ND	ND	ND	ND	ND	ND	**ND**

NB : *C.L. Colourless, O.L – Odourless, BDL- Below DetectableLlimit., ND- Not Detectable.*

TATA STEEL LIMITED
SUKINDA CHROMITE MINE
Water Quality Parameters at Oil separation System - OUTLET (Oct' to March' 14)

Sl. No	Parameter	Unit	Standards	Oct'13	Nov'13	Dec'13	Jan'14	Feb'14	Mar'14	AVERAGE
				Outlet	Outlet	Outlet	Outlet	Outlet	Outlet	**Outlet**
1	Colour & Odour	--	-.	CL & U/O	CL & U/O	CL & U/O	CL & U/O	CL & U/O	CL & U/O	**CL & U/O**
2	Suspended Solids	mg/l	200	34	29	17	14	16	26	**22.67**
3	Particular Size of S.S.	µ(micron)	-	<850	<850	<850	<850	<850	<850	**<850**
4	Dissolved Solids	mg/l	-	156	134	121	131	144	162	**141.33**
5	pH	--	5.5 to 9.0	7.1	7.2	7.1	7.2	7.1	7.1	**7.13**
6	Temperature	^{0}C	-	25	24	23	23	24	25	**24.00**
7	Oil & Grease	mg/l	10	ND	ND	ND	ND	ND	ND	**ND**
8	Total Residual Chlorine	mg/l	-	ND	ND	ND	ND	ND	ND	**ND**
9	Amm. Nitrogen as N	mg/l	-	1.18	0.72	0.51	0.49	0.55	0.62	**0.68**
10	Total Kjeldal Nitrogen as NH_3	mg/l	-	1.74	1.36	1.24	1.17	1.23	1.31	**1.34**
11	Free Ammonia as NH_3	mg/l	-	ND	ND	ND	ND	ND	ND	**ND**
12	BOD(3) days at 27^{0}c	mg/l	100	1.96	1.27	1.02	1.47	1.24	1.37	**1.39**
13	COD	mg/l	-	6.3	3.69	3.11	4.24	3.71	3.91	**4.16**
14	Arsenic as As	mg/l	0.2	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
15	Mercury as Hg	mg/l	-	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
16	Lead as Pb	mg/l	-	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
17	Cadmium as Cd	mg/l	-	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
18	Hexa Chromium as Cr^{+6}	mg/l	-	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
19	Total Chromium as Cr	mg/l	-	0.11	0.13	0.14	0.066	0.084	0.092	**0.10**
20	Copper as Cu	mg/l	-	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
21	Zinc as Zn	mg/l	-	0.22	0.17	0.12	0.16	0.22	0.17	**0.18**
22	Selenium as Se	mg/l	-	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
23	Nickel as Ni	mg/l	-	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
24	Boron as B	mg/l	-	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
25	Cyanide	mg/l	0.2	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
26	Fluoride as F	mg/l	-	0.09	0.073	0.086	0.13	0.09	0.082	**BDL**
27	Diss. Phosphate as P	mg/l	-	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
28	Sulphate as SO_4	mg/l	-	13.9	16.2	11.6	14.2	12.9	11.6	**13.40**
29	Sulphide as S	mg/l	-	BDL	BDL	BDL	BDL	BDL	BDL	**BDL**
30	Pesticide	-	-	Absent	Absent	Absent	Absent	Absent	Absent	**Absent**
31	Phenolic Compounds as C_6H_5OH	mg/l	-	ND	ND	ND	ND	ND	ND	**ND**

NB : *C.L. Colourless, O.L – Odourless, BDL- Below Detectable limit., ND- Not Detectable.*

Annexure XII: Noise Survey Report

Noise Survey Report at COB Plant, LOP Plant of SCM, TATA STEEL LTD.

SL.No.	LOCATION	Dec'13	Mar'14	AVERAGE
		Noise level in dB(A)	**Noise level in dB(A)**	
1	COB Plant Gate	58.2	57.5	57.85
2	Canteen	62.7	64.3	63.50
3	Work Shop	68.9	70	69.45
4	Office	61.5	60.6	61.05
5	D.G.Shed	71.9	73.2	72.55
6	MCC Room	67.9	68.7	68.30
7	Vibrating Screen	75.0	74.1	74.55
8	Scrubber	69.7	68.8	69.25
9	Control Room	64.9	64.2	64.55
10	Secondary Appron	66.7	67.5	67.10
11	Cone Crusher	68.0	69.8	68.90
12	DTJ Crusher	71.9	71	71.45
13	Concentrated Ore Loading	69.2	69.7	69.45
14	Wobbler area	70.3	71.1	70.70
15	Primary Apron feeder	73.1	74.2	73.65
16	C -1A	68	67.1	67.55
17	Shaking Table	74.1	73.4	73.75
18	Multiple Bin	72.7	73.5	73.10
19	H.T Room	63.7	64.8	64.25
20	Hydro Cyclone	68.7	67.8	68.25
21	Spirals	65.4	65.6	65.50
22	VS Ball Mill	72.5	73.3	72.90
23	C.6A	71.3	72.4	71.85
24	H.F Screen	70.8	71.9	71.35
25	Sieve band area	76.0	74.1	75.05
26	C3	74.1	73.7	73.90
27	C4	73.7	74.5	74.10
28	LOPP Sayaji Crusher	75.6	74.7	75.15
29	LOPP Screen	73.2	72.3	72.75
30	LOPP Control Room	73.0	72.3	72.65
31	LOPP Hopper	69.8	71.2	70.50

SUKINDA CHROMITE MINE, TATA STEEL LTD., EQUIPMENT (MAINTENANCE)
Status of Noise Level of the Equipments

Sl. No	Mines Div No.	Equipment	Noise level in d B(A)				Noise level in d B(A)			
			Dec'13				March'14			
			Idle Speed		Max. RPM		Idle Speed		Max. RPM	
			Door Open	Door Closed	Door Open	Door Closed	Door Open	Door Closed	Door Open	Door Closed
1	O-352	Haul pack	82.4	78.7	86.4	84.0	85.2	81.5	89.2	86.8
2	O-353	Haul pack	84.3	80.9	87.6	84.0	81.9	78.5	85.2	81.6
3	O-354	Haul pack	88.4	84.0	93.8	89.1	90.6	86.2	96	91.3
4	O-355	Haul pack	86.4	82.6	91.6	86.9	88.8	85	94	89.3
5	O-356	Haul pack	90.1	86.7	96.4	91.8	89.7	86.3	96	91.4
6	O-357	Haul pack	96.5	92.4	99.2	95.9	97.2	93.1	99.9	96.6
7	O-358	Haul pack	84.9	78.7	87.5	83.7	84.1	79.2	88.1	84.2
8	O-359	Haul pack	91.8	89.2	97.4	92.2	92.7	88.7	96.9	91.7
9	O-360	Haul pack	90.3	85.2	92.7	88.2	91	85.7	93.3	88.7
10	O-361	Haul pack	88.5	85.0	94.0	90.3	90	86.6	95.5	91.8
11	O-362	Haul pack	86.2	82.1	90.5	86.0	87	82.9	91.3	86.8
12	O-363	Haul pack	88.4	83.5	92.4	87.4	87.4	82.5	91.4	86.4
13	O-375	Haul pack	86.8	83.2	91.3	88.0	86.1	82.5	90.6	87.3
14	O-376	Haul pack	87.8	85.2	91.7	88.3	90.3	87.7	94.2	90.8
15	O-377	Haul pack	88.6	85.1	91.8	88.1	87.6	84.1	90.8	87.1
16	O-378	Haul pack	88.4	84.8	92.7	88.3	89.4	85.8	93.7	89.3
17	O-379	Haul pack	88.0	81.0	92.9	85.7	89.1	83.4	95.4	88.1
18	O-380	Haul pack	89.8	85.5	96.1	91.8	90.7	85	95.6	91.3
19	O-381	Haul pack	85.0	80.5	88.5	85.9	85.9	81.2	89.3	86.6
20	O-382	Water Sprinkler	80.1	77.0	84.9	80.6	80.8	77.8	85.6	81.3
21	O-385	Water Sprinkler	75.6	79.9	80.4	85.3	76.3	80.6	81.1	86
22	S-404	TDV Explosive van	78.0	74.4	82.1	77.7	79.4	75.8	83.5	79.1
23	S-516	TDV Explosive van	72.8	69.2	77.3	72.9	71.9	68.3	76.4	72
24	S-470	TDV Scoop Tripper	71.3	67.9	75.5	73.1	73.5	70.1	77.7	75.3
25	S-474	TDV Scoop Tripper	76.0	71.3	79.7	76.1	73.8	69.1	77.5	73.9
26	S-431	TDV Scoop Tripper	81.1	76.9	85.6	82.0	83.6	79.4	88.1	84.5
27	S-466	TDV Scoop Tripper	82.2	76.6	84.8	79.8	83	78.7	87	81.9
28	S-302	Box Tipper	76.9	73.8	83.3	77.9	76.2	73.1	82.6	77.2
29	S-378	Box Tipper	80.8	76.5	84.5	81.4	83.2	78.7	86.8	83.6
30	S-382	Box Tipper	80.7	75.3	86.0	81.7	80.3	75	85.6	81.3
31	S-403	Box Tipper	73.1	67.9	77.5	72.3	73.9	68.7	78.3	73.1
32	S-418	Service van	82.2	78.0	87.4	83.2	81.4	77.2	86.6	82.4
33	S-485	Service van	72.7	76.3	77.9	81.3	73.7	77.3	78.9	82.3
34	S-427	Truck	78.8	74.1	83.8	79.2	78.3	73.6	83.3	78.7
35	S-484	Truck	73.8	70.3	78.7	75.1	75.9	72.4	80.8	77.2
36	S-490	Box Tipper	77.4	72.7	80.1	76.0	75.2	71.8	79.3	75.1
37	S-491	Box Tipper	71.6	68.6	75.7	72.2	74.1	69.7	76.8	73.3
38	SB-405	Bus	77.1	74.0	82.6	77.1	79.3	76	84.7	79.1

39	S-444	Diesel Tanker	81.0	77.2	85.4	81.1	78.8	75.1	83.2	78.9
40	S-387	Diesel Tanker	79.0	75.2	85.0	81.5	79.9	76.1	85.9	82.4
41	S-392	Placer Dumper	79.3	75.6	83.2	79.0	80.7	77	84.6	80.4
42	S-393	Placer Dumper	78.2	75.2	84.6	79.0	77.1	74.1	83.5	77.9
43	EX-300	Excavator	80.0	75.9	85.3	80.5	82.3	78.2	87.6	82.8
44	EX-600V	Excavator	83.8	80.9	88.6	85.5	84.9	82	89.7	86.6
45	T-465	Dozer	75.2	71.9	79.7	75.3	76.1	72.8	80.6	76.2
46	T-468	Dozer	80.7	75.4	76.7	80.1	80.2	76.2	77.6	80.9
47	T-469	Dozer	76.0	74.3	80.8	84.7	78	74.9	81.4	85.3
48	T-491	Dozer	79.4	76.3	85.3	80.8	78.6	75.3	84.4	79.8
49	T-494	Dozer	84.3	80.0	88.3	84.5	85.4	81.2	89.4	85.6
50	D-644	ReCp Drill	87.2	82.3	91.2	87.3	88.4	83.5	92.4	88.5
51	D-648	ReCp Drill	84.0	80.1	87.9	83.3	83.4	79.5	87.3	82.7
52	D-652	ReCp Drill	81.3	77.1	85.3	80.5	81.6	77.4	85.6	80.8
53	T-501	Loader	77.7	72.3	81.1	76.7	78.8	73.4	82.2	77.8
54	T-480	Loader	84.7	80.4	88.5	85.9	85.8	81.5	89.6	87
55	T-485	Loader	80.5	76.3	84.9	81.6	80.8	76.6	85.2	81.9
56	T-486	Loader	83.8	77.0	86.6	82.3	81.6	76.1	85.8	81.4
57	T-488	Loader	87.2	84.6	92.4	88.8	89.7	85.7	93.5	89.9
58	T-489	Loader	87.6	-	92.3	-	90.4	86.3	95	90.5
59	D-650	IR Drill	87.5	-	91.6	-	85.1	-	89.2	-
60	D-654	IR Drill	84.7	-	87.9	-	85.3	-	88.5	-
61	G-712	Grader	90.1	-	94.5	-	90.9	-	95.3	-
62	G-713	Grader	86.1	-	92.6	-	87.2	-	93.7	-
63		Compressor Mining Complex	89.6	-	95.4	-	88.7	-	94.5	-
64		Compressor Mining Complex	86.6	-	90.3	-	87.1	-	90.8	-
65		Compressor Eng. Complex	87.5	-	92.7	-	86.8	-	92	-
66		Compressor Work Shop	90.1	-	94.0	-	90.9	-	94.8	-

Ambient Noise Level Survey in Residential Areas of SCM, TSL from 6AM to 6AM (Next Day)

Sl.No	Time in Hrs.	Locations	Dec'13	Mar'14	AVERAGE
			Noise level in dB(A)	Noise level in dB(A)	
1	6.00	Main Gate	63.6	64.4	**64.0**
2	6.30	Market Complex	58.5	59	**58.8**
3	7.00	Hospital	49.2	48.5	**48.9**
4	7.30	Post Office	41.2	42	**41.6**
5	8.00	Study Center	46.3	47.4	**46.9**
6	8.30	Water treatment Plant (D.G was not in operation)	53.1	52.2	**52.7**
7	9.00	STP	51.7	52.2	**52.0**
8	9.30	Shishu Mandir	<40	<40	**<40**
9	10.00	Children's Park	48.1	49.2	**48.7**
10	10.30	3RSF Qtrs	51.6	50.7	**51.2**
11	11.00	L2R Qtrs	51.1	51.6	**51.4**
12	11.30	Recreation Club	49.1	48.4	**48.8**
13	12.00	B4-B6 Block Qtrs	55	56.6	**55.8**

14	12.30	B3-B4 Block Qtrs	48.9	50	**49.5**
15	13.00	Geological Camp	47.4	46.5	**47.0**
16	13.30	Babu Line	50.5	51	**50.8**
17	14.00	Guest House	49.7	49	**49.4**
18	14.30	3R Qtrs	55.2	56	**55.6**
19	15.00	VT Centre	52.5	53	**52.8**
20	15.30	SS High school	47.5	46.8	**47.2**
21	16.00	2RF Qtrs	47.4	48.2	**47.8**
22	16.30	CT Qtrs	<40	<40	**<40**
23	17.00	STP	46.3	45.4	**45.9**
24	17.30	Police Out Post	51.4	51.9	**51.7**
25	18.00	Jagarnnath Temple	45.1	45.9	**45.5**
26	18.30	GM Banglow	46.8	47.9	**47.4**
27	19.00	Market Complex	61	60.1	**60.6**
28	19.30	Laboratory	44.7	45.2	**45.0**
29	20.00	Chrome Vally Club	50.5	51.6	**51.1**
30	20.30	Atwal's Camp	48.7	48	**48.4**
31	21.00	Duplex Qtrs	44.8	45.6	**45.2**
32	21.30	FootBall Ground	<40	<40	**<40**
33	22.00	B4-B6 Block Qtrs	42.5	43	**42.8**
34	22.30	Sisu Mandir	<40	<40	**<40**
35	23.00	5 Star Qtrs	45.5	46.6	**46.1**
36	23.30	Stewart School	<40	<40	**<40**
37	0.00	A9-A13 Qtrs	49.1	48.4	**48.8**
38	0.30	A14-A19 Qtrs	43.2	44	**43.6**
39	1.00	A-17 - A23 Qtrs	<40	<40	**<40**
40	1.30	B1-B3 Block	<40	<40	**<40**
41	2.00	Hospital	<40	<40	**<40**
42	2.30	SBI	<40	<40	**<40**
43	3.00	Jagarnnath Temple	<40	<40	**<40**
44	3.30	TSRDS	<40	<40	**<40**
45	4.00	Babu Line	41.8	41.1	**41.5**
46	4.30	Guest House Annexe	<40	<40	**<40**
47	5.00	Banabharati Dance School	<40	<40	**<40**
48	5.30	Main Gate	45.7	44.8	**45.3**

Ambient Noise Level Survey in Industrial Areas of SCM, TSL from 6AM to 6AM(Next Day)

			Dec'13	Mar'14	AVERAGE
Sl.No	Time in Hrs.	Location	Noise level in d B(A)	Noise level in d B(A)	
1	6.00	Canteen Gate	53.7	52.8	53.3
2	6.30	Quarry Pump House	64.8	63.2	64.0
3	7.00	Stack Yard	59.4	60.2	59.8
4	7.30	Lumpy Plot	60.3	60.8	60.6
5	8.00	40 t. Weigh Bridge	62.4	63.1	62.8
6	8.30	Concentrated Ore Stack Yard	65.9	65	65.5
7	9.00	OB Dump	60.7	61.4	61.1
8	9.30	OB IX Quarry	48.1	47.2	47.7
9	10.00	Atwal's Pyroxinate Crusher	68.2	66.6	67.4
10	10.30	Magazine	65.8	66.6	66.2
11	11.00	Pyroxinate Quarry	69.6	70.3	70.0
12	11.30	OB-II Quarry	65.9	65	65.5
13	12.00	OB Dump	62.7	61.1	61.9
14	12.30	Naresh Kumar Crusher	72.2	73	72.6
15	13.00	OB-X Quarry	69.7	70.2	70.0
16	13.30	Old ETP	50.2	50.9	50.6
17	14.00	Mining Complex	69.3	68.4	68.9
18	14.30	Slime Dam	58	56.4	57.2
19	15.00	OB-IX Quarry	61.9	62.7	62.3
20	15.30	Pyroxinate Plot	62.4	62.9	62.7
21	16.00	OB Dump	60.3	61	60.7
22	16.30	Temple Gate	43.8	42.9	43.4
23	17.00	Air Strip	47	47.7	47.4
24	17.30	Hauling Gate	58.3	57.4	57.9
25	18.00	Work Shop	68.8	67.2	68.0
26	18.30	New ETP	46.7	47.5	47.1
27	19.00	20T Weigh Bridge	48.9	47.3	48.1
28	19.30	Engg. Complex	49.3	48.4	48.9
29	20.00	Atwal's Chrome Crusher	54.9	55.6	55.3
30	20.30	New ETP	53.4	52.5	53.0
31	21.00	Canteen Gate	56.8	57.5	57.2
32	21.30	Hauling Gate	53.3	52.4	52.9
33	22.00	Work Shop	53.5	54.3	53.9
34	22.30	Old ETP	45.5	46.2	45.9
35	23.00	Petrol Pump	47.9	47	47.5
36	23.30	Quarry Pump House	46.8	45.9	46.4
37	0.00	Hospital Gate	45.2	43.6	44.4
38	0.30	OB X Quarry	59.9	60.7	60.3
39	1.00	Alwal's chrome crusher	62.8	63.5	63.2
40	1.30	Atwal's Garage	57.1	56.2	56.7
41	2.00	Old OK Line	43.5	41.9	42.7

42	2.30	Air Strip	<40	<40	<40
43	3.00	Stack Yard	58.2	58.7	58.5
44	3.30	40Ton Weigh Bridge	61.1	61.8	61.5
45	4.00	Naresh Kumar Crusher	67.7	66.8	67.3
46	4.30	OB IX Quarry	62.3	60.7	61.5
47	5.00	Work shop	70.7	71.5	71.1
48	5.30	Canteen Gate	49.6	50.1	49.9

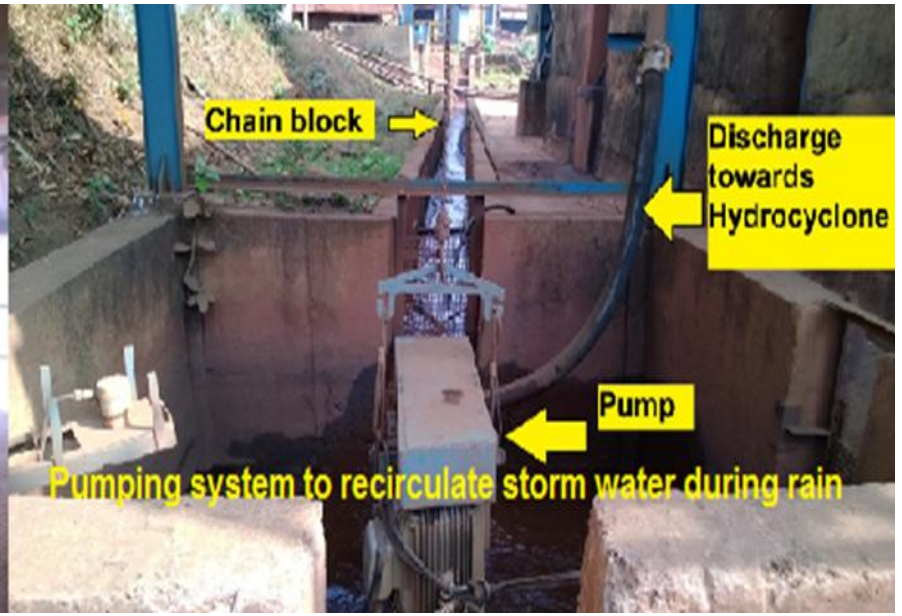
NOISE LEVEL SURVEY AT GEOLOGICAL LABORATORY IN COB PLANT SCM TSL

Sl.No	Location	Dec'13		March'13		AVERAGES	
		Noise Level in dB(A)		**Noise Level in dB(A)**		**Noise Level in dB(A)**	
		Max	**Min**	**Max**	**Min**	**Max**	**Min**
1	Exhaust Fan	57.4	53.2	58.5	54.3	58.0	53.8
2	Dry Sieve Shaker Machine	66.5	61.1	65.6	60.2	66.1	60.7
3	Wet Sieve Shaker Machine	61.8	57.3	62.3	57.8	62.1	57.6
4	Manual sample preparation table	65.4	56.0	66.5	57.1	66.0	56.6

ANEXURE-XIII

Recycling of Water At COB Plant

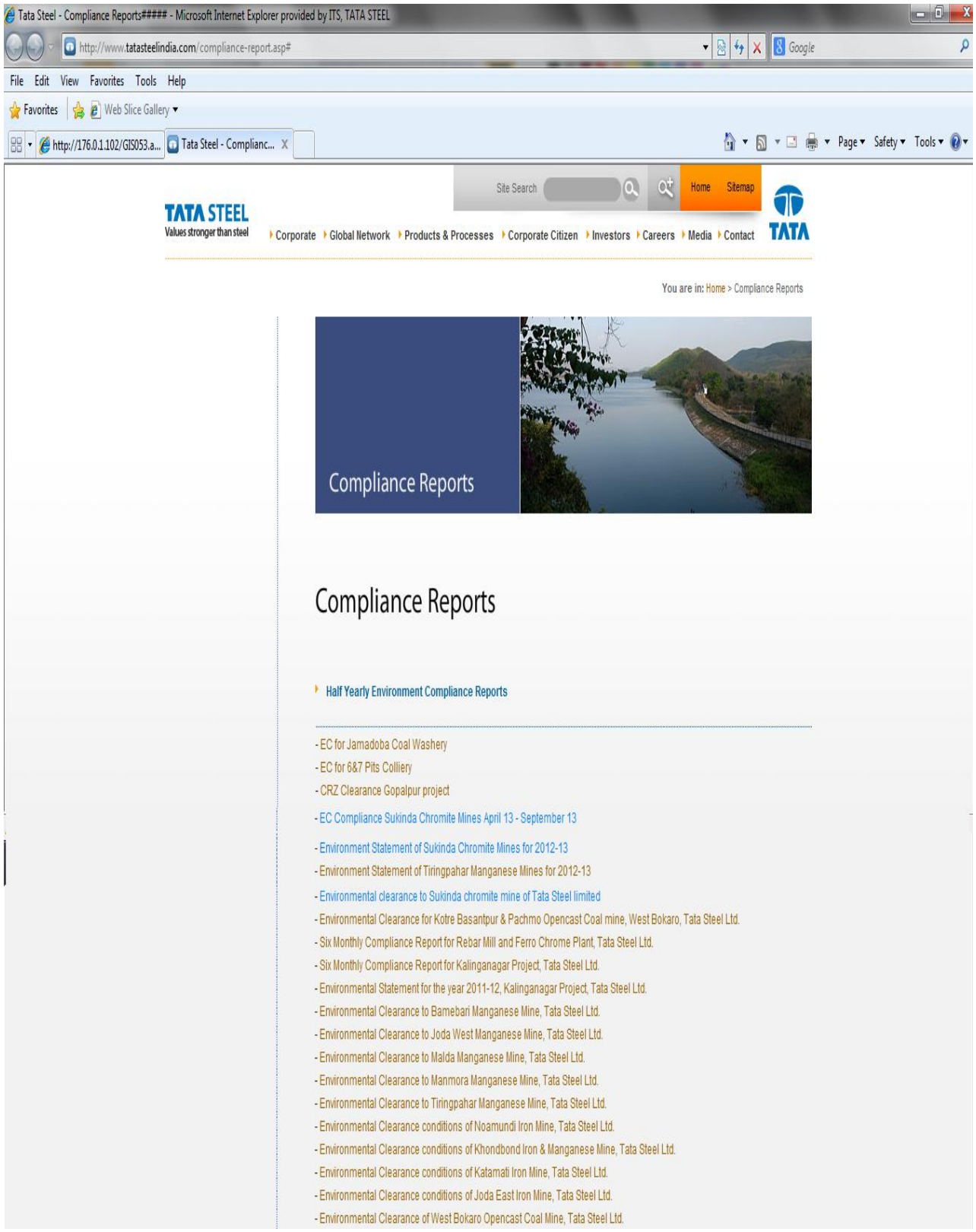
Thickener and Water Recirculation Arrangement



Tailing Dewatering Plant and Water Recirculation Arrangement

ANEXURE-XIV

Uploaded EC, EC Status Condition and Annual Environment Statement



ANEXURE-XV

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

TATA

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

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

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

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

Dear Sir,

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

Thanking you,

Yours sincerely,
f: Tata Steel Ltd.

Manager cum Agent
Sukinda Chromite Mine

Encl: as above

SAMAJ (ODIA)
11/2/13

ସୁକିନ୍ଦା କ୍ରୋମାଇଟ୍ ଖଣି
ଟାଟା ଷ୍ଟିଲ୍ ଲିମିଟେଡ୍,

TATA

TATA STEEL

SUKINDA CHROMITE MINE
M/s. TATA STEEL LIMITED,

TATA

Village: Kalarangiatta, Kaliapani & Maruabil, Tahsil Sukinda, Dist. Jajpur, Odisha

PUBLIC NOTICE

For

TATA STEEL

The New Indian Express
11/2/13

ANEXURE-XVI

Environment Clearance Intimation letters Panchayat, Zila Parisad

Ref: SCM/ ENV/ 61 /13
Date: 25/09/13

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

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

Dear Madam,

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

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

Yours Faithfully
F: Tata Steel Limited

Chief [Mining]
&
Manager Cum Agent
Sukinda Chromite Mine

Encl: As above

Bhagabati mohanty
chairman
Sukinda

TATA STEEL LIMITED

Ref: SCM/ ENV/ 66 / 13
Date: 25/09/13

Mr. Bidhyadhar Patra
Member,
Zila Parisad, Jaipur

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

Dear Sir,

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

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

Yours Faithfully
F: Tata Steel Limited

Chief (Mining)
&
Manager Cum Agent
Sukinda Chromite Mine

End: As above

Bidyadhar patra 25/9/13
Bidyadhar Patra
Zilaparisad Member
IT Zone, Sukinda, Jajpur

TATA

Ref: SCM/ ENV/ 69 / 13
Date: 25/09/13

Mrs. Jinita Munda,
Sarpanch,
Kaliapani Grama Panchayat
Kaliapani

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

Dear Madam,

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

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

Yours Faithfully
F. Tata Steel Limited

Chief (Mining)
&
Manager Care Agent
Sukinda Chromite Mine

Sarpanch
KALIAPANI GP.

Encl: As above

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

Mrs. Sashama Nayak
Sarpanch,
Rasol Grama Panchayat,
Rasol

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

Dear Madam,

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

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

Yours Faithfully
F: Tata Steel Limited

Chief (Mining)
&
Manager Care Agent
Sukinda Chromite Mine

Encl: As above

S. Nayak
Sarpanch
Rasol Grama Panchayat

Ref: SCM/ENV/ 71 / 13
Date: 25/09/13

Mrs. Renuka Behari
Sarpanch,
Chiegudipal Grama Panchayat
Chiegudipal

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

Dear Madam,

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

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

Yours Faithfully
F: Tata Steel Limited

Chief (Mining)
&
Manager Cum Agent
Sukinda Chromite Mine

Encl: As above

Renuka Behari
Sarpanch
Chiegudipal G.P.

TATA

Ref: SCM/ENV/ 72 /13
Date: 25/9/13

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

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

Dear Sir,

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

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

Yours Faithfully
F: Tata Steel Limited

Chief (Mining)
&
Manager Cum Agent
Sukinda Chromite Mine

Encl: As above

25-09-2013
SARAPANCH
KANKADAPAL G.P.