Dr. R.K. DEY, IFS
Addnl. PCCF (C)
Regional Office (EZ)
Ministry of Environment, Forests & Climate Change,
Govt. of India
A/3, Chandrasekharpur
Bhubaneswar–751 013 (Odisha)

MD/ENV/ 80 /102 /18
Date: 29.05.2018

Sub: Half-yearly compliance status report of Environmental Clearance conditions for the period October'17 – March'18 in respect of Joda East Iron Mine.

Ref: Environmental Clearance letter no. J-11015/215/2008-IA.II(M), dated: 11.03.2013

Dear Sir,

We are herewith submitting the six-monthly compliance report in respect of the stipulated Environmental Clearance conditions of Joda East Iron Mine for the period from **October'17 – March'18** as per EIA Notification, 2006. We are also sending you the soft copy of the report to your good office on email: roez.bsr-mef@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

Head (Planning), OMQ

Encl: As above

Copy to : The Chairman, Central Pollution Control Board, Southernd Conclave, Block 502, 5th & 6th Floors, 1582 Rajdanga Main Road, Kolkata - 700107 (W. B.)
: The Member Secretary, State Pollution Control Board, Paribesh Bhawan, A/118, Nilkanta Nagar, Unit – VIII, Bhubaneswar – 751012 (Odisha)
: The Regional Officer, State Pollution Control Board, College Road, At/PO-Baniapat, Keonjhar – 758001 (Odisha)

TATA STEEL LIMITED
Mines Division Noamundi 833 217 India
Tel 91 92343-1340 Fax 91 6596 290737
Registered Office Bombay House 24 Homi Mody Street Mumbai 400 001

TATA

TATA STEEL

Compliance

to

Environmental Clearance Conditions

of

Joda East Iron Ore Mine
M/s. Tata Steel Limited

For the period: Oct'17 – March'18

(Environmental Clearance letter no. J-11015/215/2008-IA.II(M) dated: 11.03.2013)

COMPLIANCE REPORT PERIOD: Oct'2017 - March'2018

ENVIRONMENTAL CLEARANCE TO
JODA EAST IRON MINE OF TATA STEEL LIMITED
VIDE MoEF's LETTER NO. J-11015/215/2008-IA.II(M), DATED: 11.03.2013
FOR PRODUCTION OF 12 MTPA (ROM) OF IRON ORE

Special Conditions

Sl. No.	Conditions	Compliance
1	No mining activities will be allowed in forest area for which the FC is not available	The present mining operation is restricted within 567.087 ha of forest land for which Forest Clearance has been obtained under the Forest (Conservation) Act, 1980 vide letter no. F. No. 8-32/1993-FC (vol-II), date: 24.09.2007 **(Annexure-1)**
2	The project proponent shall seek and obtain approval under the FC Act for diversion of the entire forest land located within the mining lease within a period of two years w.e.f. 01.02.2013, 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.	New Guidelines for Forest Diversion Proposal by FC vide there letter F. No. 11-599/ 2014-FC, dated: 01.04.2015 has been issued by MoEF&CC regarding this matter in which guidelines of letter F. No. 11-362/2012-FC, dated: 01.02.2013 have been supressed. At present, mining operation is restricted within 567.087 ha of forest area for which due approval for diversion has already been obtained. In addition, we have also submitted fresh DRP for remaining forest area of 32.425 ha (leaving a total forest area of 9.394 ha for safety zone).
3	The project proponent shall abide by the guidelines dated 01.02.2013 vide no. 1 362/12012-FC put in place by the FC Division of MoEF in respect of cases of mines where at present the forest clearance is available to only a part of the forest land involved in the mine	New Guidelines for Forest Diversion Proposal by FC vide there letter F. No. 11-599/ 2014-FC,dated: 01.02.2013 has been issued by MoEFCC regarding this matter in which guidelines of letter F. No. 11-362/ 2012-FC, dated: 01.02.2013 have been suppressed. As per guidelines of letter vide no. 11-362/12012-FC dated 01.02.2013 the mine has applied for diversion of entire forest area
4	Environmental clearance is subject to obtaining Clearance as may be necessary under the Wildlife (Protection) Act, 1972 from the competent authority	No specific clearance under the Wildlife (Protection) Act, 1972 is required for the project
5	The project proponent shall obtain Consent to Establish and Consent to Operate from the State Pollution Control Board., Orissa and effectively implement all the conditions stipulated therein	Consent to Establish has been obtained from OSPCB vide letter no. 21271/IND-II-NOC-5144, dated: 08.07.2011.**(Annexure-2)**.Consent to Operate has also been obtained from State Pollution Control Board, Orissa vide letter No. 2523/IND-I-CON-184, dated: 22.02.2017 and the consent order is valid till 31.03.2021**(Annexure-3)**

6	The Company shall submit Within 3 months their policy towards Corporate Environment. Responsibility which should inter-alia provide for (i) Standard operating process /process to bring into focus any infringement /deviation /violation of the environmental or forest norms/conditions, (ii) Hierarchical system or Administrative order of the Company to deal with the environmental issues and for ensuring compliance With the EC conditions and (iii)System of reporting of non-compliances /violations of environmental norms to the Board of Directors of the company and / or Share holders or stakeholders.	Details on Tata Steel's Policy on corporate Environment Responsibility and other requirements have been submitted to the MoEF vide letter no. MD/ENV/233A/102/2013, Dated. 8th June, 2013. Tata Steel Environmental Policy is attached as **Annexure-4.**
7	The mining operations shall be restricted to above ground water table and it should not intersect the groundwater table. In case of working below the ground water table, prior approval of the Ministry of Environment and Forests and the Central Ground Water Authority shall be obtained, for which a detailed hydrogeological study shall be carried out.	The mining operation is restricted above the ground water table. There has been no intersection of ground water table. The lowest working depth of our mine pits is at 612 m RL, whereas the presence of ground water table has been estimated to be at 492 mRL. A detailed hydro-geological study was carried out for the purpose.Ground water level report has been attached as **Annexure-5**
8	The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any mining operations.	No natural watercourse or water resources are obstructed due to our mining operations. Further, no first order or the second order streams are emanating.
9	The top soil, if any shall temporarily be stored at earmarked site(s) only and it should not be kept Unutilized for long. The topsoil shall be used for land reclamation and plantation.	Since there is no longitudinal mining going on right now, so no top soil generation is going on. Whatever top soil generated before was stacked at earmarked place and has already been used for plantation purpose.
10	As part of Ambient Air Quality monitoring during operational phase of the project the air samples shall also be analysed for their mineralogical composition and records maintained.	As a part of Ambient Air Quality monitoring, R&D department has been engaged for the analysis of mineralogical composition. Dust fall analysis report is attached as **Annexure-6**
11	The water recovery and spill way system shall be so designed that the natural water resources are not affected and that no spill water from the plant goes into the Kundra nallah or any other water body	The water recovery and spill way system has been designed such that the natural water resources are not affected and no spill water from the mine goes beyond the lease boundary. The slime is stored in the zero discharge slime pond. The decanted water from the slime pond is completely recycled back to beneficiation plant within the mine, ensuring zero outside discharge. Photograph of zero discharge slime dam, water recovery system are shown in **Annexure-7**
12	The filter cake shall be disposed at the earmarked site, which shall be above highest water table and shall be lined to prevent any leaching from the filter cake disposal site into groundwater. Efforts shall also be made to gainfully utilize the filter cake so generated in an environmentally compatible manner	There is no filter cake generation in our operations.
13	Effective safeguard measures such as conditioning of ore with water, regular water sprinkling shall be carried out in critical areas prone to air	Effective safeguard measures such as regular water sprinkling on the haul roads, loading & unloading points for effective dust suppression are being done.

	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	Fixed water sprinklers have been put into operation on the main haul road in addition to two 40 KL & one 28 KL mobile water tankers and dust suppressants are added into the sprinkling water for effective dust suppression. Photographs of Mobile and Fixed water sprinklers, mist canon are shown in next slide is attached in **Annexure-8** Ambient Air Quality is monitored regularly and the results are well within the limit prescribed. The results are also sent to the OSPCB office, Bhubaneswar once in every month. AAQ monitoring reports are shown in **Annexure-9** results are also sent to the OSPCB office, Bhubaneswar once in every month.
14	The over burden (OB) generated during the mining operation shall be stacked at earmarked dump site(s) only and should not be kept active for long period. There shall be one external OB dump having maximum projected height of 30m with three terraces of 10m each. The overall slope of the dump shall not exceed 27°. The OB dump should be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles shall be undertaken for stabilization of the dump. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests and its Regional Office Located at Bhubaneswar on six monthly basis.	The OB and minerals rejects are being dumped as per the approved mining plan and at earmarked dumping area only. The slopes of the OB dumps are terraced and the overall slope is maintained. The inactive dump slopes are vegetated with native species. The compliance status report is regularly sent to the Regional office, MoEF, Bhubaneswar and SPCB, Orissa once in every six months. Photograph of OB dump plantation shown in **Annexure-10**
15	Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine working, soil, OB and mineral dumps. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly de-silted particularly after monsoon and maintained properly. Garland drain of appropriate size, gradient and length shall be constructed for both mine pit and OB dump and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 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 should be constructed at the corners of the garland drains and designed at regular intervals.	Garland drains of running meterage of 2500 meters with settling pits, have been constructed all along the OB dumps to prevent run off of water and flow of sediments directly into the natural stream. Sedimentation pits of total 11Nos. have been constructed at the corner of the garland drains to take care of runoff water even during peak rain fall and they are de silted regularly before and after monsoon. Photograph of Garland drain, settling ponds along toe wall and Sedimentation pit are shown in **Annexure-11**
16	Dimension of the retaining wall at the toe of dumps and OB benches within the mine to check run-off and siltation should be based on the rainfall data.	Retaining walls of dimension 1m x 1m x 0.6m & running meterage of 2100 meters have been provided at the toe of over burden dumps to check run-off. Moreover, another layer of toe wall covering 1500 m length has been provided all along the existing toe walls for better effectiveness. This

		is being effective to meet the purpose even during peak rain fall. Photograph of retention wall along OB dump is shown in **Annexure-12**
17	Plantation shall be raised in an area of 11 ha including a 7.5m wide green belt in the safety zone around the mining lease by planting the native species around OB dump, reclaimed area, mine benches, along the roads etc. in consultation with the local DFO/Agriculture Department	Plantation has been in safety zone, waste dump slopes & surfaces etc. Till April, 2018, we have planted about 6.52 Lakh nos. of plants over an area of 152.96 ha with native species. The density has been maintained at the rate of over 4367 plants per ha. Moreover, vetiver plantation is being carried out over 1 ha with 1,00,000 slips. Plantation over an area of 606.229 ha shall be achieved gradually at the time of post mine closure (Conceptual land use). Photographs of vetiver, safety zone, and dump plantation are shown in **Annexure-13**
18	Effective safeguard measures such as 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. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	Safeguard measures such as regular water sprinkling is done on the haul roads, loading & unloading points for effective dust suppression. Fixed water sprinklers have been put into operation on the main haul road in addition to two 40 KL & one 28 KL mobile water tankers and dust suppressants are added into the sprinkling water for effective dust suppression. Photographs of Mobile and Fixed water sprinklers are shown in **Annexure-8.** Ambient Air Quality is monitored regularly and the results are well within the limit prescribed. The results are also sent to the OSPCB office, Bhubaneswar once in every month
19	The project Proponent shall Obtain necessary prior permission of the competent authority for drawl of requisite quantity of surface water, if any, required for the Project	Joda East Iron mine has current surface water drawl permission of 8531 KLD. Our operation is now being managed within that quantity. However, for increased requirement of 9000 KL/day of water, we have applied to Department of water Resources, Govt. of Odisha for obtaining drawl permission, which is in active consideration. As a step towards conservation of ground water, it is not used for mining operation purpose. Further, the rain water collected in the mine pits during monsoon is not pumped out. Rather, it is allowed to be collected in the lowest level sumps to augment the ground water resources gradually. However, rain water harvesting ponds and ground water recharge structures have been constructed and now they are operational. The rain water harvesting system has been approved by the CGWB, Bhubaneswar. Photograph of Rain water harvesting pond at Joda east Mines is shown in **Annexure-14.**
20	Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing 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 in each season) shall be carried out in	Ground water quality and Ground water level are being monitored four times a year pre-monsoon (April- May), monsoon (August), post-monsoon (November) and winter(January). The results are being sent to Regional office, MoEF&CC and SPCB, Odisha half yearly. Latest report of Ground Water Quality and Ground Water Level are shown in **Annexure-15 &5.** Since, our mining operations

	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 Director, Central Ground Water Board. If at any stage, it is observed that the ground water table is getting depleted due to the mining activity, necessary corrective measures shall be carried out.	are carried out above the ground water table; there will be no depletion of ground water table because of our mining activity. We also like to mention that because of Rain Water Harvesting structures at Joda East Mine, the ground water level has been increased.
21	The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water required for the project.	Joda East Iron mine has current surface water drawl permission of 8531 KLD. Our operation is now being managed within that quantity. However, for increased requirement of 9000 KL/day of water, we have applied to Department of water Resources, Govt. of Odisha for obtaining drawl permission, which is in active consideration. The copy of surface with drawl permission is shown in **Annexure-16**
22	The safeguard measures as suggested by the Central Ground Water Board vide letter No. 21-4(231)/CGWA/SER/2010-1010 dated 11.06.2010 shall be effectively implemented	The safeguard measures as suggested by the Central Ground Water Board vide letter No. 21-4(231)/CGWA/SER/2010-1010, dated:11.06.2010 has been effectively implemented
23	The project proponent shall practice suitable rainwater harvesting measures on long term basis and work out a detailed scheme for rainwater harvesting, in consultation with the Central Ground Water Authority and submit a copy of the same to the Ministry of Environment and Forests and its Regional Office, Bhubneswar.	After getting NOC from CGWA for ground water withdrawal vide letter no. 21-4(343)/CGWA/SER/2011-956, dated: 27.07.2011, we have submitted Rain Water Harvesting Scheme to CGWB vide letter no. MD/ENV/214/102/2013, dated: 31.05.2013 and same was forwarded to CGWA by CGWB for necessary action vide letter no. 5-22/SER/CGWA/2013-539, dated: 17.06.2013. as shown in **Annexure-17**. Rainwater harvesting structures has been constructed at the mine site by the engagement of expertise of M/s. KRG Rainwater Foundation, Chennai and is now operational. Photograph of Rain water harvesting pond at JEIM and Joda town is shown in **Annexure-14**
24	Vehicular emission shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of minerals. The vehicles should be covered with a tarpaulin and shall not be overloaded.	Regular vehicular emission testing is being conducted once in every 6 months. The vehicles those who do not meet the emission standard, are withdrawn from operation and maintained properly. A vehicle is kept abeyance from operation till it does not meet the emission standard. Also the vehicles are not run overloaded. Overloading of trucks is avoided to prevent spillage of material.
25	No blasting shall be carried out after the sunset. Blasting operation shall be carried out only during the daytime. Controlled blasting shall be practices. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented	Blasting is carried out during day time only. Controlled Blasting is carried out for control of ground vibrations and to arrest fly rocks, as per the recommendations of CIMFR, Dhanbad
26	Drills shall either be operated with the dust extractors or equipped with water injection system.	Wet drilling is in practice and All drills are also provided with dust suppression system. Photograph of wet drilling is shown in **Annexure-18**

27	Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and Unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated	Effective and high efficiency dust extraction systems are in place at the mineral handling plant. Loading and unloading areas including transfer points have been provided with dust suppression facilities. Photographs of dust suppression system are shown in **Annexure-19**
28	Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the Workshop and wastewater generated during the mining Operation.	5 nos. of Sewage treatment plant have been constructed with capacity 10 KLD, 50 KLD and 630 KLD in residential colony. Further two more STP with 150 KLD is constructed for community. Apart from these STPs in residential colony, Soak pits have been provided inside the mining area because STP constructed in not feasible in the hilly topography of the mine.The oil catchment pit has also been constructed inside mining area. Photographs of the STPs and Oil catchment pit are shown in **Annexure-20**.
29	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	Pre-placement medical examination and periodical examination of the workers engaged are being conducted & record maintained. The schedule of Periodical Medical Examination is once in every 3 years for the employees of age more than 40 years and once in 5 years for the employees of age less than 40 years. The concentration of Respirable dust at different locations is monitored. The employees are also given regular awareness training on safety and health aspects as part of implementation process of OHSAS-18001 systems.
30	Provision shall be made for the housing of construction labour within the site with necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may in the form of temporary structures to be removed after the completion of the project	All constructional activities for the project have been completed and there was no requirement for construction of temporary housing since the mine has permanent infrastructural facilities
31	The project proponent shall take all precautionary measures during mining operation for conservation and Protection of endangered fauna namely elephant, sloth bear etc. spotted in the study area. All the safeguard measures brought out in the Wildlife Conservation Plan so prepared specific to this project site and approved by the Chief Conservator of Forest,(Wildlife) shall be effectively implemented. A copy of Wildlife Conservation Plan shall be submitted to the Ministry of Environment and Forest and its Regional Office Bhubaneswar	Tata Steel is taking all precautionary measures towards conservation and protection of endangered flora and fauna. We have also deposited a sum of Rs. 1,00,66,395/- with the forest department for implementation of the wildlife management plan in order to protect them within our mine and its periphery. Besides that, the mine had prepared Site Specific Wild Life Conservation Plan and it has been approved by the Principle Chief Conservator of Forests (Wildlife) & Chief Wildlife Warden vide letter no. 3195/1WL-SSP-97/2016, dated: 25.04.2016..
32	The critical parameters such as RSPM(Particulate matter with size less than 10 micron i.e., PM10) and NO in the ambient air within the impact zone, peak particle Velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically . Further, quality of discharged water shall also be monitored [(TDS,	Ambient Air Quality is monitored regularly and the results are shown in **Annexure-9.** No water is discharged out of the mine premises. Monitoring data is being uploaded on the Company's website www.tatasteelindia.com as part of this report and also displayed on a display board at the main entrance gate of the mine.The photograph od

	DO, pH and total suspended solids (TSS)]. The monitored data shall be uploaded on the website of the Company as well as display on a display board at the project site at a suitable location near the main gate of the Company in public domain. The Circular No. J-20012/1/2006-IA.II(M) dated 27.05.2009 issued by Ministry of Environment and Forest which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance	display board is shown in **Annexure-21**
33	A Final Mine closure Plan along with detail of Corpus fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval	A progressive mine closure plan approved by IBM is in place. The final mine closure plan along with details of Corpus fund shall be submitted to the Ministry of Environment & Forests 5 years in advance.

General Conditions

Sl. No.	Condition	Compliance
1	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests	We are operating as per the approved mining technology and scope of working mentioned in Environmental Clearance granted to us and No change in mining technology and scope of working shall been made and adhered to the condition of MoEF&CC.
2	No change in the calendar plan including excavation, quantum of mineral iron ore and waste should be made.	Calendar plan (IBM Approved Mining Plan) prepared for the mine is being strictly adhered to and we are well within the limits specified in Mining Plan as well as EC and CTO granted capacity.
3	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	Ambient air quality monitoring is regularly being carried out at four different stations within the core zone. The stations were located in consultation with the visiting officers of State Pollution control Board, Orissa. The ambient air quality reports are submitted to Regional office, MoEF, Bhubaneswar and SPCB, Orissa, once in every six months. AAQ monitoring report is attached as **Annexure-9**
4	Data on Ambient Air Quality(RSPM(particulate matter with size less than 10 micron i.e. PM10) and NOx] should be regularly submitted to the Ministry including its Regional office located at Bhubneswar and the State Pollution Control Board / Central Pollution Control Board once in six months	The Ambient Air Quality reports are submitted to Regional office, MoEF, Bhubaneswar and SPCB, Orissa, once in every six months. Please find enclosed the monitoring details in **Annexure-9.**
5	Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.	Effective water sprinkling is being done on haul roads and at loading and unloading points. Dust suppression systems in the drills have been provided for effective functioning. Dust fall analysis reports are attached as **Annexure-6**

6	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	High noise areas are earmarked and people working there are provided with ear protection equipment's and the system is ensured by certification to OHSAS 18001 and regular field audits. Noise quality reports are attached as **Annexure- 22.**
7	Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the Standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	Oil & Grease separation pits have been provided to take care of effluents from the workshop. The same water quality is monitored regularly and the parameters meet the prescribed standard. There is no waste water generation from the mines. The result of the workshop effluent is enclosed as **Annexure-23**
8	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. 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.	Adequate dust masks are provided to employees engaged in dusty areas. It is also ensured that they use the same. The employees are also given regular awareness training on safety and health aspects as part of implementation process of OHSAS– 18001 systems. Further, employees undergo Lung Function Tests during the Periodical Medical Examination. Periodical Medical Examination of employees and contractor workers are organized regularly to observe any contractions due to exposure to dust and other occupational hazards.
9	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	A separate environmental management cell is in place with the people having relevant qualification on environmental science. The Head of the environment department reports to General Manager i.e. the head of the organization.
10	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	Funds allocated for environmental management are spent only for environment related purposes and not diverted to any other purpose. During the year 2017-18 till April'18 an amount of Rs.635 lakhs (approx) was spent towards environmental protection measures at Joda East Iron Mine. **Annexure-24**
11	The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closing and final approval of the project by the concerned authorities and the date of start of land development work.	This is a running mine. No specific date for start of land development work can be assigned. However, the copy of the Environmental Clearance has been sent to the Regional Office, MoEF&CC, Bhubaneswar for kind information
12	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	We extend full co-operation to the officers of the Regional Office during their visit and furnish the required data, information and monitoring reports.
13	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 Bhubneswar, the respective Zonal Office of	Six monthly compliance reports are being submitted regularly to the MoEF, its Regional Office Bhubaneswar, Central Pollution Control Board Kolkata and State Pollution Control Board. Further, the six monthly compliance reports along with the monitoring results are uploaded in Tata Steel's website www.tatasteel.com and updated

	Central Pollution Control Board and the State Pollution Control Board. The proponent shall upload the status of compliance of the environment 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, Bhubneswar, the respective Zonal Officer of CPCB and the SPCB.	periodically. Last six monthly compliance report was sent vide letter No MD/ENV/191/102/16, dated:24.05.2016. Screenshot of EC Compliance upload on company's website is shown in **Annexure-25**
14	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, were received while processing the proposal. The Clearance letter shall also be put on the website of the Company by the proponent.	A copy of the Environmental Clearance letter was sent to Member Secretary-OSPCB Bhubaneswar and to Addl. PCCF (Central), Eastern Regional Office Bhubaneswar, vide letter nos. MD/ENV/104/102/2013, dated: 14.03.2013 and MD/ENV/105/102/2013, dated: 14.03.2013 respectively. Similarly, A copy of the Environmental Clearance letter was also sent to President (Zila Parishad) - Keonjhar and Chairman (Joda Municipality) vide letter nos. MD/ENV/108/102/2013, dated: 16.03.2013 and MD/ENV/109/102/2013, dated: 16.03.2013 respectively.All the letters are mentioned in **Annexure-26** EC letter has been uploaded on the Tata Steel website, www.tatasteelindia.com
15	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 from State Pollution Control Board, Odisha
16	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 email.	The environmental statement for financial year 2016-17 has been submitted to the State Pollution Control Board vide letter no. MD/ENV/599/120/17, dated:26.09.2017 and the same has been hosted on company's website www.tatasteelindia.com along with half-yearly compliance environmental clearance co.nditions The Environment statement submitted for FY 2016-17 is shown in **Annexure-27**
17	The project authority should advertise at least in two local newspapers 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 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	Details of Environmental Clearance with regard to Joda East Iron Mine was published in local newspapers (English Daily, New Indian Express & in oriya (Dainik Jagran) on 16.03.2013. The news paper cutting is shown in **Annexure-28**

Annexure - 1

F. No. 8-32/1993-FC (vol. II)
Government of India
Ministry of Environment & Forests
(FC Division)

GM(ONQ)

Cc: VP(RM)

Chenalyse
27/9/07

Paryavaran Bhawan,
CGO Complex, Lodhi Road,
New Delhi – 110003

Dated: 24th September 2007

To

The Principal Secretary (Forests),
Government of Orissa,
Bhubaneshwar.

Sub: Diversion of 567.087 ha of forest land in (including 54.470 ha of DLC forest land) in Keonjhar Forest Division for renewal of mining lease for Iron and Manganese Ore mining in Joda East Iron Ore Mine and Manmora Manganese Mine of M/s Tata Iron and Steel Company Limited (TISCO), Orissa.

Sir,

I am directed to refer to State Government's letter No.10.F. (Cons) / 61 / 2005 / 177 / F&E dated 05.01.2006 on the subject cited above seeking prior approval of the Central Government under the Forest (Conservation) Act, 1980. After careful consideration of the proposal by the Forest Advisory Committee constituted under Section-3 of the said Act, **in-principle approval** for the said Mining Lease was granted vide this Ministry's letter of even number dated 02.06.2006 subject to fulfillment of certain conditions. The State Government has furnished compliance report in respect of the conditions stipulated in the in-principle approval and has requested the Central Government to grant final approval.

2. In this connection, I am directed to say that on the basis of the compliance report furnished by the State Government vide letter No. 10.F. (Cons) / 61 / 2005 / 6346 / F&E dated 27.04.2007, approval of the Central Government is hereby granted under Section-2 of the Forest (Conservation) Act, 1980 for diversion of 567.087 ha of forest land in (including 54.470 ha of DLC forest land) in Keonjhar Forest Division for renewal of mining lease for Iron and Manganese Ore mining in Joda East Iron Ore Mine and Manmora Manganese Mine of M/s Tata Iron and Steel Company Limited (TISCO), Orissa subject to fulfillment of the following conditions:

1. Legal status of the diverted forest land shall remain unchanged.

2. (i) Compensatory Afforestation shall be raised and maintained by the State Forest Department at the project cost.
   (ii) Fencing, protection and regeneration of the safety zone area (7.5 metres strip all along the outer boundary of the mining lease area) shall be done at the project cost. Besides this, afforestation on degraded forest land, to be selected elsewhere, measuring one and a half times the area under safety zone, shall also be done at the project cost.
   (iii) Wherever possible and technically feasible, the User Agency shall undertake afforestation measures in the blanks within the lease area, as well as along the roads outside the lease area diverted under this approval, in consultation with the State Forest Department at the project cost.

3. Following activities shall be undertaken by the State Forest Department at the project cost:
   (i) Proper mitigative measures to minimize soil erosion and choking of streams shall be prepared and implemented.
   (ii) Planting of adequate drought hardy plant species and sowing of seeds to arrest soil erosion.
   (iii) Construction of check dams, retention/toe walls to arrest sliding down of the excavated material along the contour.

4. The period of diversion under this approval shall be twenty (20) years subject to possession of valid lease by User Agency under the MMDR Act, 1957.

5. (i) The User Agency shall take up planting work on the static dumps during the advance mining operations.
   (ii) All the dumps shall be fully reclaimed by afforestation immediately after closure of the mine in the shortest possible period under supervision of the State Forest Department.

6. Any tree felling shall be done only when it is absolutely necessary and unavoidable, and that too under strict supervision of the State Forest Department.

7. No damage to the flora and fauna of the area shall be caused.

8. Reclamation Plan shall be strictly implemented which shall be monitored regularly by the State Forest Department.

9. It shall be ensured that no labour-camps are set up inside the forest area.

10. The mining lease area shall be demarcated on ground at the project cost, using four feet high RCC pillars, with each pillar inscribed with the serial number, forward and backward bearings and distance between two adjacent pillars.

11. The forest land shall not be used for any purpose other than that specified in the proposal.

12. Any other condition that the CCF (Central), Regional Office, Bhubaneshwar, may impose from time to time for protection and improvement of flora and fauna in the forest area, shall also be applicable.

Yours faithfully,

(C.D. Singh)
Assistant Inspector General of Forests

Copy to :-

1. The Principal Chief Conservation of Forests, Government of Orissa, Bhubaneshwar.
2. The Nodal Officer, O/o the PCCF, Government of Orissa, Bhubaneshwar.
3. The Chief Conservator of Forests (Central), Regional Office, Bhubaneswar.
4. User Agency.
5. Guard file.
6. Monitoring Cell of FC Section.

Annexure-2

BY REGD POST

OFFICE OF THE

STATE POLLUTION CONTROL BOARD, ORISSA

Parivesh Bhawan, A/118, Nilakantha Nagar, Unit-VIII,
Bhubaneswar - 751 012

No. 11271 / IND-II-NOC - 5144 Date 08.07.11

OFFICE MEMORANDUM

In consideration of the application for obtaining Consent to Establish for **Joda East Iron Mine of M/s Tata Steel Limited(Expansion)** the State Pollution Control Board has been pleased to convey its Consent to Establish under section 25 of Water (Prevention & Control of Pollution) Act, 1974 and section 21 of Air (Prevention & Control of Pollution) Act, 1981 for increase in iron ore production of **ROM from 6.0 Million Ton /Annum to 12.0 Million Ton/Annum with Iron ore beneficiation plant(wet circuit) of capacity up to 7.0 Million Ton/Annum(1800 TPH) and Dry circuit plant of capacity up to 5.0 Million Ton/Annum (1000 TPH)(Over mine lease hold area of 671.093 Ha) At/PO: Joda** in the district of **Keonjhar** with the following conditions.

GENERAL CONDITIONS:

1. **This Consent to establish is valid for the ROM, product, method of mining and capacity mentioned in the application form. This order is valid for five years, which means the proponent shall commence mining activities for the proposal within a period of five years from the date of issue of this order. If the proponent fails to commence mining activities for the proposal within five years then a renewal of this consent to establish shall be sought by the proponent.**
2. Adequate effluent treatment facilities are to be provided such that the quality of sewage and trade effluent satisfies the standards as prescribed under Environment Protection Rule,1986 or as prescribed by the Central Pollution Control Board and/or State Pollution Control Board or otherwise stipulated in the special conditions.
3. All emission from the mining activities as well as the ambient air quality and noise shall conform to the standards as laid down under Environment (Protection) Act. 1986 or as prescribed by Central Pollution Control Board/State Pollution Control Board or otherwise stipulated in the special conditions.
4. Appropriate method of disposal of solid waste is to be adopted to avoid environmental pollution.
5. The mine shall comply to the provisions of Environment Protection Act, 1986 and the rules made there under with their amendments from time to time such as the Hazardous Waste (Management & Handling) Rules 1989, Hazardous Chemical Rules, /Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 etc. and amendments there under. The mine shall also comply to the provisions of Public Liability Insurance Act, 1991, if applicable.

6. The mine shall apply for grant of Consent to operate under section 25/26 of Water(Prevention & Control of Pollution)Act, 1974 & Air (Prevention & Control of Pollution)Act, 1981 at least 3 (three) months before the commencement of production and obtain Consent to Operate from this Board.
7. **This consent to establish is subject to statutory and other clearances from Govt. of Orissa and/or Govt. of India, as and when applicable.**

SPECIAL CONDITIONS : -

1. **The Proponent shall obtain environmental clearance for the proposal as per the EIA notification 2006 and mining activity for proposed mining project shall commence after obtaining environmental clearance.**
2. **A bank guarantee commensurate with the production level will be taken by the Board for continuous satisfactory environmental compliance of the mine during the period for which consent to operate is granted as and where required.**
3. **The proponent shall take proper steps for protection of Kundra nallah which passing at a distance of 200mt from mining lease area in west direction and a detailed proposal to this effect shall be submitted to the Board within 3 months of grant of this consent to establish.**
4. **The mine shall obtain permission for drawl of water from Kundra nallah / Baitarani river from Water Resource Deptt., Govt. of Orissa before implementation of this mining project.**
5. No change in mining technology and scope of working shall be made without prior approval of the Board.
6. Top soil should be stacked separately with proper slope at earmarked site(s) with adequate measures and shall be used for reclamation and rehabilitation of mined out areas.
7. Concurrent back-filling should be started from the fourth year of operation. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status in this regard shall be submitted to the Ministry of Environment & Forests with a copy to the Board on yearly basis.
8. Dimension of the retaining wall at the toe of dumps and OB benches within the mine to check run-off and siltation shall be based on the rainfall data. The detail specification shall be worked out and submitted to the Board within one month.
9. At stockpile and loading plant area, a network of drains shall be constructed at a depth of 1.5 meter below the lowest level on the sites parallel to the stockpile area with interconnected box culverts. The sloping of surface shall be given inward to the stockpiles so that surface water will only infiltrate into the drain.

10. Surface run-off from OB dump area, mineral stock yard, top soil storage area iron ore beneficiation plant, tailings disposal area and rain water to be pumped from quarry shall be routed through adequate settling pond (designed maximum hourly rain fall basis) to meet prescribed standard of SS-50 mg/l and Oil & Grease-10 mg/l before discharge into natural stream/water courses during monsoon.

11. Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells. The monitoring should be done four times a year in pre-monsoon (April/May), Monsoon (August), Post-monsoon (November) and winter (January) seasons. Data thus collected should be submitted to the Board quarterly. Following heavy metals need to be monitored at least once during post monsoon period whose values shall not exceed as per following standard.

i) Cd	-	2.0 mg/l
ii) Cr^{+6}	-	0.10 mg/l
iii) Copper	-	3.0 mg/l
iv) Lead	-	0.10 mg/l
v) Mercury	-	0.01 mg/l
vi Nickel	-	0.50 mg/l
vii) Zinc	-	5.0 mg/l

12. Domestic effluent from mine shall be discharged to soak pit via septic tank constructed as per BIS specification. The project proponent shall provide STP as proposed for domestic effluent generated from colony outside the ML area and treated effluent shall be reused for greenbelt development.

13. Oil and grease trap should be installed before discharge of effluent from workshop. Wastewater (workshop, wastewater from the mine i.e. pit water, check dams or any other discharge leaving lease boundary of the mine) should be properly collected, treated so as to conform the prescribed standard i.e. pH = 5.5 – 9.0, SS = 50 mg/l, & Oil & Grease = 10mg/l or as amended under E (P)Rule from time to time.

14. The effluent generated from iron ore beneficiation process shall be treated and completely recycled with make-up water in the beneficiation process.

15. The overflow from tailing pond shall be treated in settling pond and reused in process. The seepage from tailing pond area shall be collected through garland/toe drain and shall be treated in settling pond and reused for dust suppression.

16. Garland drains along with settling pit shall be provided around the iron ore fines stock yard to control washout of iron ore fines from the stockyard along with surface runoff.

17. Drill should be wet operated or with dust extractors and controlled blasting should be practices. Pre-wetting of blasting site shall be practiced.

18. Ambient air quality shall be maintained as per MoEF,Govt. of india Notification dtd.4.10.2010(**Annexure-I**) and fugitive emission shall be monitored in the predominant downwind direction at a distance of 25+2 m from the source of fugitive emission as per the notification and data submitted to the Board in every six month.

19. The speed of dumpers / trucks on haul roads shall be controlled as increased speed increases dust emission. Overloading of transport vehicles shall be avoided.

20. Drilling operation need to be conducted as per the recommendations of the manufacturer using sharp drill bits. Applying sufficient thrust on the drill bit and providing dust hood at the mouth of drill hole collar to prevent the generation of dust to be air-borne.

21. Optimized blasting methods shall be practiced i.e. matching the explosive to the drilling pattern, rock characteristics and proper stemming of the holes. Site specific drilling pattern, optimum charging of explosives, adequate stemming and introduction of delays shall be practiced.

22. Dust suppression on mine haul roads, active OB dumps and mine working benches shall be done by spraying water through water sprinklers along with chemical binders/wetting agents at frequent interval in order to reduce water consumption and to improve retention and re-absorption capacity of water. The additive chemicals should not have any adverse impact on the environment. Water sprinklers of fixed type shall also be provided at the mine HEMM maintenance shop, other service centers and approach roads from mines to raw material handling & product handling area to prevent the generation of dust to be air borne.

23. Regular collection of spilled over raw material from haul roads shall be practiced to prevent the generation of dust due to movement of dumpers /truck.

24. The mine shall provide dry fog as well as dust extraction system (bag filter) in the potential dust generating points of Crusher & screening plant of iron ore beneficiation plant(dry circuit& wet circuit) to control fugitive emission. The particulate matter emission in the stack attached to bag filters shall be **as per Annexure-I.**

25. **A green belt of adequate width and density preferably with local species along the periphery of the mine shall be raised so as to provide protection against particulates and noise. It must be ensured that at least 33% of the total land area shall be under permanent green cover. The proponent shall ensure the maintenance of green belt throughout the year and for all time to come. It is advised that they may engage professionals in this field for creation and maintenance of the green belt. An action plan for this purpose shall be prepared and shall be submitted accordingly.**

26. Noise barriers shall be constructed between sources and affected areas (thick belt of trees around mine boundaries, waste dumps, hills and mountainous land forms can act as such barrier).

27. Adequate measures shall be taken for control of noise levels in the work environment of mine area so that noise levels at the boundary line of M.L area shall not exceed 75 dB(A) during day time (6 AM to 10 AM) and 70 dB(A) during night time (10, PM to 6 AM).

28. The waste dumps shall be located away from the natural nallas, rivers in the area and on an impervious & non-mineralised area to minimize the water pollution.

29. The OB/waste dumps shall be properly dressed benched stopped at low angle with terracing and bamboo barricades in the slopes making retaining walls stone barriers at the toe of the dumps gully plugging etc to prevent the solid erosion during monsoon, besides establishing vegetation on dump top as well as its slope surface. In difficult cases, hydro-seedling technique or use of geo-tiles mat embedded with seeds shall be adopted.

30. The completed out slope of the waste dumps should not exceed 37degrees from horizontal to avoid excessive erosion and easy vegetation.

31. Tailings shall be disposed in mined out quarry of Manmora manganese mine of area 6.26ha as proposed.

32. The tailing pond shall be designed suitably with reclaimation of clarified water and control of seepage water shall be provided by constructing seepage water collection ditch at the down stream side along with the recirculation facilities. Desilting of tailings shall be carried out periodically before onset of monsoon.

33. The tailing pond shall be covered through vegetation once the life of pond is over.

34. Maximum recovery of iron ore fines/micro fines need to be encouraged by adoption of hydro-cyclones, slow speed classifiers in the wet beneficiation circuit in order to increase the life of tailing dam.

35. The mine shall make effort to use the tailings generated from wet beneficiation plant as raw materials for value added products like ceramic floor tiles, wall tiles and bricks.

36. The slurry pipe line shall be laid in such a manner so that there will be no leakage/seepage of slurry during transportation from iron ore beneficiation plant to tailing disposal area.

37. Environmental laboratory should be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board.

38. 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.

39. **No change shall be undertaken in the site before obtaining forest clearance under Forest (Conservation) Act, 1980 for forest land in the mining lease area.**

40. This consent to establish is granted subject to grant of Explosive License from competent Authority. The valid Explosive License must be submitted to this Board while applying for consent to operate to this Board.

41. The Board may impose further conditions or modify the conditions stipulated in this order during installation and/or at the time of obtaining consent to operate and may revoke this clearance in case the stipulated conditions are not implemented.

42. The above conditions will be enforced, inter-allia, under the provisions of the water (Prevention & Control of pollution) Act, 1974 and Air(Prevention & Control of Prevention)Act,1981 and Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rule.

Encl: Copy of notification of Air quality standard

MEMBER SECRETARY

To,

The General Manager (OMQ)
Joda East Iron Mine
Tata Steel Ltd., Mine Division,
Noamundi- 8333217(Jharkhand)

Memo No._____/Dt.

Copy forwarded to:

1. The Secretary Steels & Mines, Govt. of Orissa, Bhubaneswar
2. The Collector, Keonjhar.
3. The Director, Factories & Boiler, Bhubaneswar
4. Regional Officer, .S.P.C.Board, Keonjhar
5 DFO, Keonjhar
6. Copy to Guard file/Consent section

SR. ENV. ENGINEER (N)

Annexure-I

MINISTRY OF ENVIRONMENT AND FORESTS

NOTIFICATION

New Delhi, the 4th October, 2010

G.S.R. 809(E).—In exercise of the powers conferred by Sections 6 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following Rules further to amend the Environment (Protection) Rules, 1986, namely:-

1. (1) These rules may be called the Environment (Protection) (Sixth Amendment) Rules, 2010.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. In the Environment (Protection) Rules, 1986, in schedule I, after serial number 77 and the existing entries relating thereto, the following serial number and entries shall be inserted, namely :-

S. No	Industry	Parameter	Standard
(1)	(2)	(3)	(4)
"78	Iron Ore Mining and Ore Processing	A. Emission Standards for Stack for De-dusting Unit	
		Particulate matter	100 mg/ Nm^3
		Stack height **	15.0 m
		** Stack height for De-dusting unit shall be calculated as $H=74\ Q^{0.27}$, where H and Q are stack height in metre and particulate matter (PM) emission in tonne/hr respectively, i.e Q (kg/hr) — H (metre) up to 2.71 — 15 2.72 - 7.86 — 20 7.87 - 17.96 — 25 17.97 - 35.29 — 30	
		Note:- Stack attached to De-dusting unit shall have minimum height of 15.0 metres and would be atleast 2.50 metres above the top-most point of the nearby building/shed or plant in the mine.	
		B. Fugitive Emission Standards	
		Particulate matter	1200 µg/m^3
		Note:- Fugitive emission shall be monitored in the predominant downwind direction at a distance 25.0±2.0 metres from the source of fugitive emission as per following:	

1	2	3	4
		Area	**Monitoring location**
		Mine face/ Benches	Drilling, excavation and loading applicable for operating benches above watertable
		Haul Roads/ Service Roads	Haul roads to ore processing plant, waste dumps and loading areas and service road
		Crushing plant	Run-off mine unloading at hopper, crushing areas, screens and transfer points
		Screening Plant	Screens, conveying and transportation of ore discharge points
		Ore Storage & Loading	Intermediate stock bin/pile areas, ore stock bin/pile areas, wagon/truck loading areas
		Waste dump	Active waste/reject dumps
		C. Effluent Standards	
		pH	5.5-9.0
		Suspended solids (non-rainy day)	50 mg/l
		Suspended solids (rainy day)	100 mg/l
		Oil & grease	10 mg/l
		Note:-	
		(i) All efforts shall be made to reuse and re-circulate the treated effluent. (ii) The aforesaid effluent standards shall be complied with for sewage, service water, beneficiation of ore washwater and surface run-off put together.".	

[F. No. Q-15017/21/2007-CPW]

RAJNEESH DUBE, Jt. Secy

Note: The principal rules were published in the Gazette of India vide number S.O. 844 (E) 19th November, 1986; and subsequently amended vide S.O. 433 (E) dated 18th April 1997, S.O. 64 (E), dated the 18th January 1988 and recently amended vide G.S.R. 97(E), dated the 18th February, 2009; G.S.R. 149 (E), dated the 4th March, 2009; G.S.R. 512(E), dated the 9th July, 2009; G.S.R. 543 (E), dated the 22nd July, 2009; G.S.R. 595(E), dated the 21st August, 2009; G.S.R. 794 (E), dated the 4th November, 2009; G.S.R. 826 (E), dated the 16th November, 2009; G.S.R. 01 (E), dated the 01st January, 2010, G.S.R. 61 (E), dated the 5th February, 2010; GSR 485(E), dated the 9th June, 2010; GSR 608 (E), dated the 21st July, 2010 and GSR 739 (E), dated, the 9th September, 2010.

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BY REGD. POST WITH AD

STATE POLLUTION CONTROL BOARD, ODISHA

A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012
Phone-2561909, Fax: 2562822, 2560965

CONSENT ORDER

No. 1484 / IND-I-CON- 184 Dt. 19-01-2016

CONSENT ORDER NO. 599

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: **(i) Your online application No. 366542 Dated 30.09.2015**

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: **JODA EAST IRON MINE OF M/S. TATA STEEL LIMITED,**

Name of the Occupier & Designation: **M. C. THOMAS, GENERAL MANAGER (OMQ)**

Address : **AT/PO: JODA, DIST: KEONJHAR, PIN: 758034**

This consent order is valid for the period from **01.04.2016 to 31.03.2021**

Details of Products Manufactured

Sl. No	Product	Quantity
01.	*Iron Ore*	*11.0 MTPA*

Details of Mineral Handling Plants /Units

01	*Operation of wet Beneficiation plant of capacity 1x1800 TPH*
02.	*Operation of dry crushing plant of capacity 1X1000 TPH.*
03.	*Operation of railway siding of capacity 11 MTPA*
04.	*Operation of Mobile screening plant of capacity 2 X 250 TPH*

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.

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)	Oil & Grease (mg/l)	BOD (mg/l)
01	*Outlet of STP*	*On land*	*--*	*5.5-9.0*	*200*	*--*	*100*
02	*Canteen Effluent*	*Soak pit*	*--*	*5.5-9.0*	*200*	*--*	*100*
03	*Mine drainage water/ surface runoffs/ other wastewater.*	*On land*	*28783.68 (Max.)*	*5.5-9.0*	*100 (Rainy day)* *50 (Non-Rainy day)*	*10*	*--*

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			
				PM (mg/Nm^3)	SO_2	NO_x	

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 & over burden*	*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 face 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.

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.

D. SPECIAL CONDITIONS :

1) 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.

2) The Environmental Statement report shall be submitted to the Board in proper format every year.

3) Drills shall either be operated with dust extractors or equipped with water injection system to minimize dust generation in the work environment.

4) Controlled blasting shall be practiced to minimize generation of dust and fly rocks. No blasting shall be carried out after the sunset.

5) The Top soil shall be stored at earmarked site (s) only and stabilized or shall be used for land reclamation of excavated land.

6) The Overburden generated during the course of mining shall be stacked at earmarked dump site (s) and stabilized or used for reclamation of excavated land.

7) The project proponent shall ensure that no natural water course and / or water resources are obstructed due to any mining operations.

8) Check dams and check weirs shall be constructed at appropriate places of the mine lease area to prevent direct flow of sediment directly into nearby water bodies. The surface run off water shall meet the prescribed standards before disposal to outside

9) Retention wall shall be constructed at the toe of topsoil dump, OB dump and mineral stockyard. Garland drain shall be constructed around topsoil dumps, over burden dumps and mineral stack yards terminating at settling pit to prevent run off of water and flow of sediments directly into nearby water bodies. Garland drain and sedimentation pit shall be desilted after monsoon or as when required. The discharge quality shall meet the standards prescribed by the Board.

10) The runoff management facilities like garland drain, settling pits and check dams shall be de-silted within 15 days from the date of issue of this order and report compliance for necessary verification by Regional Office.

11) Mineral handling plant (Crusher & screening unit) shall be provided with adequate number of high efficiency dust extraction system or dust suppression system preferably dry fog system. Loading & the unloading areas including all the transfer points shall also have efficient dust suppression arrangements. These shall be properly maintained and operated.

12) Action shall be taken to cover the fine stack yard so that the generation of dust due to wind action shall be prevented.

13) Dry fog system shall be installed at the discharge point of stacker – reclaimer.

14) Water sprinkling system or dry fog system shall be installed at the potential source of generation of fugitive dust in the beneficiation plant.

15) Fixed water sprinkling arrangement shall be installed at appropriate places of the railway siding area for control of generation of fugitive dust during handling of ore.

16) The mine shall take necessary action for compliance of the following Air and Water quality standards. Emission and waste water quality monitoring shall be done by the lessee twice in a week and report shall be submitted once in six months to the Board.

Parameter	**Standard**
A. Emission standards for stack for De-dusting unit	
Particulate matter	100mg/Nm^3
Stack height **	15.0m
** Stack height for De-dusting unit shall be calculated as H=74 Q $^{0.27}$, where H and Q are stack height in metre and particulate matter (PM) emission in tonne / hr respectively, i.e.,	
Q (kg/hr)	**H (metre)**
Up to 2.71	15
2.72-7.86	20
7.87-17.96	25
17.97-35.29	30
Note : Stack attached to De-dusting unit shall have minimum height of 15.0 meters and would be atleast 2.50 metres above the top-most point of the nearby building / shed or plant in the mine	
B. Fugitive Emission Standards	
Particulate Matter	1200 µg/m^3
Note : Fugitive emission shall be monitored in the predominant downwind direction at a distance 25.0 ± 2.0 metres from the source of fugitive emission as per following :	
Area	**Monitoring Location**
Mine face / Benches	Drilling, excavation and loading applicable for operating benches above water table
Haul Roads/ Service Roads	Haul roads to ore processing plant, waste dumps and loading areas and service road.
Crushing plant	Run-off mine unloading at hopper, crushing areas, screens and transfer points.
Screening plant	Screens, conveying and transportation of ore discharge points.
Ore storage and loading	Intermediate stock bin / pile areas, ore stock bin / pile areas, wagon / truck loading areas.
Waste dump	Active waste / reject dumps
C. Effluent Standards	
pH	5.5-9.0
Suspended solids (non-rainy day)	50 mg/l
Suspended solids (rainy day)	100 mg/l
Oil & Grease	10 mg/l
Note : (i) All efforts shall be made to reuse and re-circulate the treated effluent. (ii) The aforesaid effluent standards shall be complied with for sewage, service water, beneficiation of ore wash water and surface run-off put together".	

17) Ambient Air Quality Monitoring Stations (4 nos.) shall be established and location of the stations shall be decided based on the metrological data, topographical features and environmentally and ecologically sensitive targets in consultation with the Regional Officer, State Pollution Control Board.

18) Monitoring of Ambient Air Quality of the mine shall be done twice in a week (24 hourly) at a particular site and data shall be submitted to the State Pollution Control Board, once in six months.

19) It shall be ensured that the Ambient Air Quality Parameters conform to the norms prescribed for industrial Area (prescribed in the consent order)

20) Continuous real time ambient air quality monitoring stations (at least at two appropriate locations of the mine) shall be established in consultation with Regional Officer, Keonjhar with monitoring data transfer facility to SPCB server.

21) The slime generated from the beneficiation plant shall be discharged to slime ponds of adequate size and the water from the slime pond shall be completely reused for the beneficiation process.

22) The slurry pipe line shall be laid in such a manner so that there will be no leakage/seepage of slurry during transportation from iron ore beneficiation plant to tailing disposal area.

23) Regular monitoring of water quality of upstream and downstream on the nearby water bodies if any shall be carried out and record of monitored data shall be maintained and submitted to the State Pollution Control Board once in every year.

24) Appropriate mitigative measures shall be taken to prevent pollution of the nearby water bodies.

25) Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells. The monitoring should be done four times a year in pre-monsoon (April/May), monsoon (August), post-monsoon (November) and winter (January) seasons. Data thus collected should be submitted to the Board quarterly.

26) Sewage treatment plant shall be installed for the colony. Other domestic wastewater and canteen effluent shall be discharged to soak pit through septic tank constructed as per BIS specification.

27) Oil and grease trap with sedimentation pit shall be provided for treatment of workshop effluent. Effluent treatment plants for canteen effluent shall be installed.

28) Measures shall be taken for control of noise levels below 85 dBA in work environment.

29) 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.

30) 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.

31) The mine shall take steps for fulfillment of all the stipulations and necessary measures to check pollution.

32) Mining operation is subject to availability of all other statutory clearances required under relevant Acts/Rules and fulfillment of required procedural formalities.

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

MEMBER SECRETARY
STATE POLLUTION CONTROL BOARD, ODISHA

To,

M. C. THOMAS, HEAD (OMQ),
JODA EAST IRON MINE OF M/S. TATA STEEL LIMITED
AT/PO: NOAMUNDI, DIST: SINGHBHUM (W)
JHARKHAND-833217

Memo No._____/Dt.

Copy forwarded to :

i) Regional Officer, State Pollution Control Board, **Keonjhar.** He is requested to inspect the mine after 15 days from date of issue of this order for verification of desilting work of various runoff management structures.
ii) District Collector **Keonjhar**
iii) Director of Mines, Govt. of Odisha, Bhubaneswar
iv) Director, Environment-cum-Special Secretary, F & E. Dept. Govt. of Odisha, Bhubaneswar.
v) D.F.O **Keonjhar**
vi) Deputy Director of Mines, **Joda**
vii) Sr. Env. Engineer-L-I (C) (Hazardous waste cell)
viii) Cess Section (Head Office)
ix) Consent Register

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

GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENT POLLUTANTS

GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENTAL POLLUTANTS PART –A : EFFLUENTS

Sl.No.	Parameters	Standards			
		Inland surface	Public sewers	Land for irrigation	Marine Costal Areas
		(a)	(b)	(c)	(d)
1.	Colour & odour	Colourless/Odourless as far as practible	------	See 6 of Annex-1	See 6 of Annex-1
2.	Suspended Solids (mg/l)	100	600	200	For process wastewater – 100 b. For cooling water effluent 10% above total suspended matter of influent.
3.	Particular size of SS	Shall pass 850	-----	------	
5.	pH value	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
6.	Temperature	Shall not exceed 5^0C above the receiving water temperature	-------	--------	Shall not exceed 5^0C above the receiving water temperature
7.	Oil & Grease mg/l max.	10	20	10	20
8.	Total residual chlorine	1.0	----	------	1.0
9.	Ammonical nitrogen (as N) mg/l max.	50	50	------	50
10.	Total Kajeldahl nitrogen (as NH_3) mg/1 max.	100	----	------	100
11.	Free ammonia (as NH_3) mg/1 max.	5.0	----	------	5.0
12.	Biochemical Oxygen Demand (5 days at (20^0C) mg/1 max.	30	350	100	100
13.	Chemical Oxygen Demand, mg/1 max.	250	----	------	250
14.	Arsenic (as As) mg/1 max.	0.2	0.2	0.2	0.2
15.	Mercury (as Hg) mg/1 max.	0.01	0.01	------	0.001
16.	Lead (as pb) mg/1 max.	01.	1.0	------	2.0

17.	Cardmium (as Cd) mg/1 max.	2.0	1.0	------	2.0
18.	Hexavalent Chromium (as Cr + 6) mg/l max.	0.1	2.0	--------	1.0
19.	Total Chromium (as Cr) mg/l max.	2.0	2.0	---------	2.0
20.	Copper (as Cu) mg/l max.	3.0	3.0	---------	3.0
21.	Zinc (as Zn) mg/l max.	5.0	15	---------	15
22.	Selenium (as Sc) mg/l max.	0.05	0.05	---------	0.05
23.	Nickel (as Nil) mg/l max.	3.0	3.0	---------	5.0
24.	Cyanide (as CN) mg/l max.	0.2	2.0	0.2	0.02
25.	Fluoride (as F) mg/l max.	2.0	15	---------	15
26.	Dissolved Phosphates (as P) mg/l max.	5.0	-------	---------	--------
27.	Sulphide (as S) mg/l max.	2.0	--------	---------	5.0
28.	Phennolic compounds as (C_6H_5OH) mg/l max.	1.0	5.0	---------	5.0
29.	Radioactive materials a. Alpha emitter micro curie/ml. b. Beta emitter micro curie/ml.	10^7 10^6	10^7 10^8	10^8 10^7	10^7 10^6
30.	Bio-assay test	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent
31	Manganese (as Mn)	2 mg/l	2 mg/l	---------	2 mg/l
32.	Iron (Fe)	3 mg/l	3 mg/l	---------	3 mg/l
33.	Vanadium (as V)	0.2 mg/l	0.2 mg/l	---------	0.2 mg/l
34.	Nitrate Nitrogen	10 mg/l	--------	---------	20 mg/l

NATIONAL AMBIENT AIR QUALITY STANDARDS

Sl. No.	Pollutants	Time Weighed Average	Concentrate of Ambient Air		
			Industrial Residential, Rural and other Area	Ecologically Sensitive Area (notified by Central Government)	Methods of Measurement
(1)	(2)	(3)	(4)	(5)	(6)
1.	Sulphur Dioxide (SO_2), $\mu g/m^3$	Annual *	50	20	-Improved west and Gaeke
		24 Hours **	80	80	- Ultraviolet fluorescence
2.	Nitrogen Dioxide (NO_2), $\mu g/m^3$	Annual *	40	30	- Modified Jacob & Hochheiser (Na-Arsenite)
		24 Hours **	80	80	- Chemiluminescence
3.	Particulate Matter (size less than 10μm) or $PM_{10}\mu g/m^3$	Annual *	60	60	-Gravimetric - TOEM
		24 Hours **	100	100	- Beta Attenuation
4.	Particulate Matter (size less than 2.5μm) or $PM_{2.5}$ $\mu g/m^3$	Annual *	40	40	-Gravimetric - TOEM
		24 Hours **	60	60	- Beta Attenuation
5.	Ozone (O_3) $\mu g/m^3$	8 Hours **	100	100	- UV Photometric - Chemiluminescence
		1 Hours **	180	180	- Chemical Method
6.	Lead (Pb) $\mu g/m^3$	Annual *	0.50	0.50	-AAS/ICP method after sampling on EMP 2000 or
		24 Hours **	1.0	1.0	equivalent filter paper. - ED-XRF using Teflon filter
7.	Carbon Monoxide (CO) mg/m^3	8 Hours **	02	02	- Non Dispersive Infra Red (NDIR)
		1 Hours **	04	04	Spectroscopy
8.	Ammonia (NH_3) $\mu g/m^3$	Annual*	100	100	-Chemiluminescence - Indophenol Blue Method
		24 Hours**	400	400	
9.	Benzene (C_6H_6) $\mu g/m^3$	Annul *	05	05	-Gas Chromatography based continuous analyzer - Adsorption and Desorption followed by GC analysis
10.	Benzo (a) Pyrene (BaP)-Particulate phase only, ng/m^3	Annual*	01	01	-Solvent extraction followed by HPLC/GC analysis
11.	Arsenic (As), ng/m^3	Annual*	06	06	-AAS/ICP method after sampling on EPM 2000 or equivalent filter paper
12.	Nickel (Ni),ng/m^3	Annual*	20	20	-AAS/ICP method after sampling on EPM 2000 or equivalent filter paper

** Annual arithmetic mean of minimum I04 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

** 24 hourly or 08 hourly or 0I hourly monitored values, as applicable, shall be complied with 98% of the time in a year, 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

Annexure-4

The Director,
Ministry of Environment and Forests,
Paryavaran Bhawan, CGO Complex
Lodi Road, New Delhi - 110003

MD/ENV/233A/102/2013
Date: 08/06/2013

Ref: EC letter No. J-11015/215/2008-IA.II (M), dated 11th March, 2013 for Joda East Iron mine.

Sub: Compliance to EC conditions of Joda East Iron Mine, M/s. Tata Steel Ltd.

Dear Madam

Environmental Clearance was granted for the expansion project of Joda East Iron mine by the MoEF vide its letter No. J-11015/215/2008-IA.II (M), dated 11th March, 2013. As required, we are furnishing below the compliance status of one of the EC conditions for your kind perusal.

Specific Condition No. (vi) :

The Company shall submit within 3 months their policy towards Corporate Environment Responsibility which should inter-alia provide for i) Standard Operating process/process to bring into focus any infringement / deviation / violation of environmental or forest norms / conditions, ii) Hierarchical system or Administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions and iii) System of reporting of non compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders.

Status of Compliance :

The Corporate Environmental Responsibility of Joda East Iron mine is guided by the established Environmental policy of Tata Steel Ltd. The said policy is attached herewith as **Annexure – I** for reference. The environmental responsibilities focus for compliance to different industry standards and applicable statutory requirements, with an aim to go beyond. Further, the mine is certified to different international standards such as ISO 9001, ISO 14001 and OHSAS 18001. Standard Operating Procedures are also in place for all the activities to ensure compliance to different legal requirements and also to achieve operational excellence. The hierarchal system to deal with environmental issues and compliance to environmental norms has been established and is given herewith as **Annexure – II.**

Moreover, the environmental performance of Joda East Iron mine is periodically reviewed by the General Manager, OMQ and Vice President (Raw Materials) and necessary corrective & preventive actions are initiated to improve continually. The potential non-compliance if any, is

reported to the Managing Director, who then discusses the same in the subsequent meetings of the Board of Directors of the Company.

Thanking you,

Yours faithfully,

DB Sundara Ramam
General Manager, OMQ

Encl : As above

Copy to : The Addnl. PCCF, Regional Office (EZ), MoEF, A-3, Chandrasekharpur, Bhubaneswar – 751023

TATA

ENVIRONMENTAL POLICY

Tata Steel's environmental responsibilities are driven by our commitment to preserve the environment and are integral to the way we do business.

1. We are committed to deal proactively with Climate Change issue by efficient use of natural resources & energy; reducing and preventing pollution; promoting waste avoidance and recycling measures; and product stewardship.
   - We shall identify, assess and manage our environment impact.
   - We shall regularly monitor, review and report publicly our environmental performance.
   - We shall develop & rehabilitate abandoned sites through afforestation and landscaping and shall protect and preserve the biodiversity in the areas of our operations.
   - We shall enhance awareness, skill and competence of our employees and contractors so as to enable them to demonstrate their involvement, responsibility and accountability for sound environmental performance.
2. We are committed to continual improvement in our environmental performance.
   - We shall set objective-targets, develop, implement and maintain management standards and systems, and go beyond compliance of the relevant industry standards, legal and other requirements.
3. We will truly succeed when we sustain our environmental achievement and are valued by the communities in which we work.

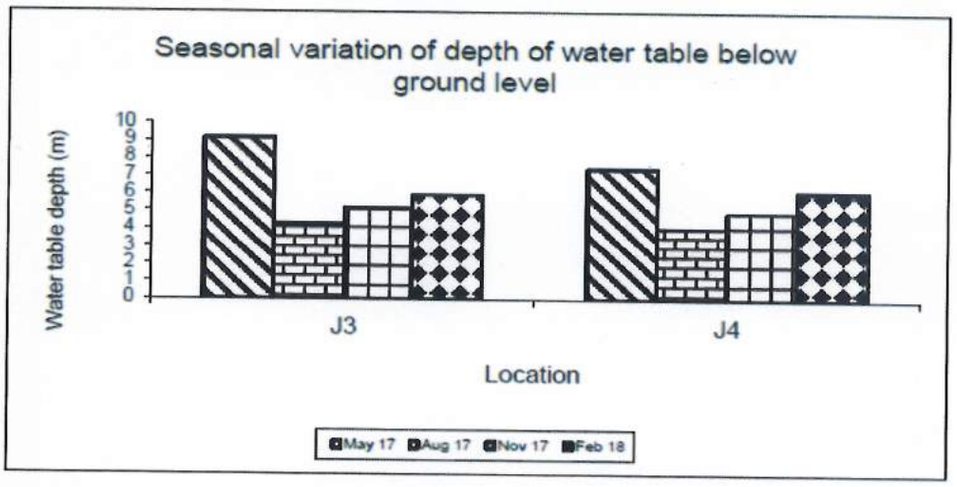
Date : 1st October 2009

H M Nerurkar
Managing Director

TATA STEEL

Annexure-5

Joda East Iron Mine
TATA STEEL LIMITED



J3 – Well at Khuntpani
J4 – Well Banspani (Mangal Munda House)

Annexure-6

Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref: VCSPL/17/R-3410

Date: 04-01-2018

DUST FALL MONITORING REPORT FOR THE MONTH OF DEC -2017

1. Name of Industry : **Joda East Iron Mines (M/s. TATA Steel Limited)**
2. Sample collected by : VCSPL Representative in presence of TATA Representative

Sl No.	Parameters	Unit	Analysis Results
			DF-1
1.	Nickel as Ni	%	0.029
2.	Cobalt as Co	%	0.01
3.	Mercury as Hg	%	<0.001
4.	Arsenic as As	%	<0.001
5.	Iron as Fe	%	1.42

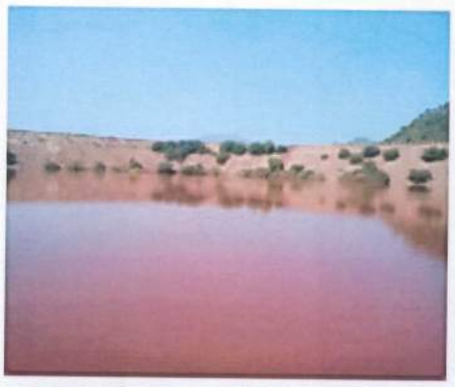
Total Dust fall for the month of Dec =4.12 t/km^2/month

VISIONTEK CONSULTANCY SERVICES PVT. LTD.

For Visiontek Consultancy Services Pvt. Ltd.

Annexure-7

Zero Discharge Slime Dam & Water Recovery System

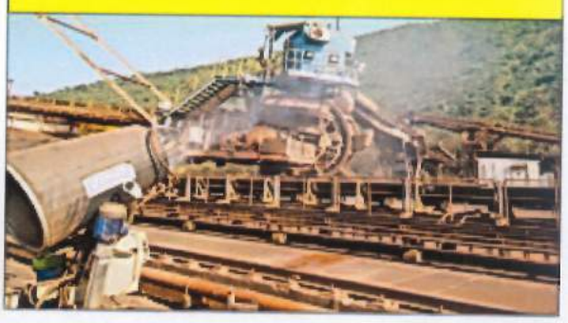


Annexure-8

Dust suppression system

Use of fixed water sprinklers at haul roads for dust suppression

Use of water Mist Canon for dust suppression



Use of Dry fog system at all transfer points in plants

Use of mobile tankers for water sprinkling on haul roads

Annexure - 9

JODA EAST IRON MINE
AVERAGE AIR QUALITY REPORT (CORE ZONE)

Month	Manmora Slime Dam					Near Rain Water Harvesting					Near Magazine					Near Equipment Maintenance				
	PM_{10}	$PM_{2.5}$	SO_2	NO_X	CO	PM_{10}	$PM_{2.5}$	SO_2	NO_X	CO	PM_{10}	$PM_{2.5}$	SO_2	NO_X	CO	PM_{10}	$PM_{2.5}$	SO_2	NO_X	CO
Oct 17	46.00	21.83	4.21	10.33	0.24	40.86	18.54	4.08	9.52	0.21	55.74	26.94	4.68	12.18	0.40	60.02	29.74	5.03	13.40	0.41
Nov 17	58.20	28.70	<4.4	11.90	0.34	51.80	25.50	4.20	10.80	0.30	55.70	26.90	4.70	12.20	0.40	60.00	29.70	5.00	13.40	0.41
Dec 17	70.38	35.40	4.91	14.29	0.41	63.76	31.81	4.39	12.83	0.36	78.70	40.08	5.90	16.33	0.51	85.35	46.24	6.45	17.40	0.55
Jan 18	71.98	35.49	5.01	15.06	0.40	64.63	31.99	4.32	13.56	0.35	76.84	38.50	5.63	16.80	0.50	83.44	43.46	6.08	17.70	0.54
Feb 18	70.40	35.56	4.96	15.65	0.43	62.29	31.24	4.36	13.24	0.33	74.30	37.86	5.35	17.13	0.51	82.78	43.73	6.06	18.16	0.54
Mar 18	72.80	36.89	4.89	15.23	0.42	64.99	32.13	4.43	14.05	0.38	81.14	41.59	5.53	17.19	0.51	89.44	49.06	6.06	18.38	0.57

AVERAGE AIR QUALITY REPORT (BUFFER ZONE)

Month	Baneikela					Birkela					Khuntpani					Joda Colony (VTC)				
	PM_{10}	$PM_{2.5}$	SO_2	NO_X	CO	PM_{10}	$PM_{2.5}$	SO_2	NO_X	CO	PM_{10}	$PM_{2.5}$	SO_2	NO_X	CO	PM_{10}	$PM_{2.5}$	SO_2	NO_X	CO
Oct 17	35.50	16.95	4.00	9.00	0.14	33.00	15.25	4.00	9.00	0.13	41.50	19.25	4.00	9.00	0.15	38.50	18.10	4.00	9.00	0.14
Nov 17	38.20	17.60	<4.0	<9.0	0.15	34.90	16.30	<4.0	<9.0	0.13	47.40	23.30	4.0	<9.0	0.19	44.20	21.30	4.00	9.00	0.17
Dec 17	51.80	25.60	<4.0	9.75	0.21	49.90	24.85	<4.0	9.35	0.20	52.30	25.10	4.0	9.80	0.22	48.10	23.30	4.00	9.40	0.18
Jan 18	55.70	27.10	<4.0	10.00	0.26	52.95	25.85	<4.0	9.75	0.25	58.05	27.90	4.0	10.45	0.28	52.30	25.35	4.00	9.75	0.24
Feb 18	52.50	25.40	<4.0	10.60	0.26	52.90	25.50	<4.0	10.5	0.26	56.50	27.30	4.0	10.80	0.29	54.45	26.65	4.00	10.45	0.28
Mar 18	56.75	27.25	<4.0	10.75	0.31	56.90	27.30	<4.0	10.8	0.30	56.45	27.20	4.10	11.05	0.30	56.10	27.30	4.00	11.05	0.30

Unit of measurement for all parameters except CO is $\mu g/m^3$. Co is in mg/m^3

Lab-in-charge

Annexure-10

Plantation on OB dump

Annexure-11

TATA
TATA STEEL

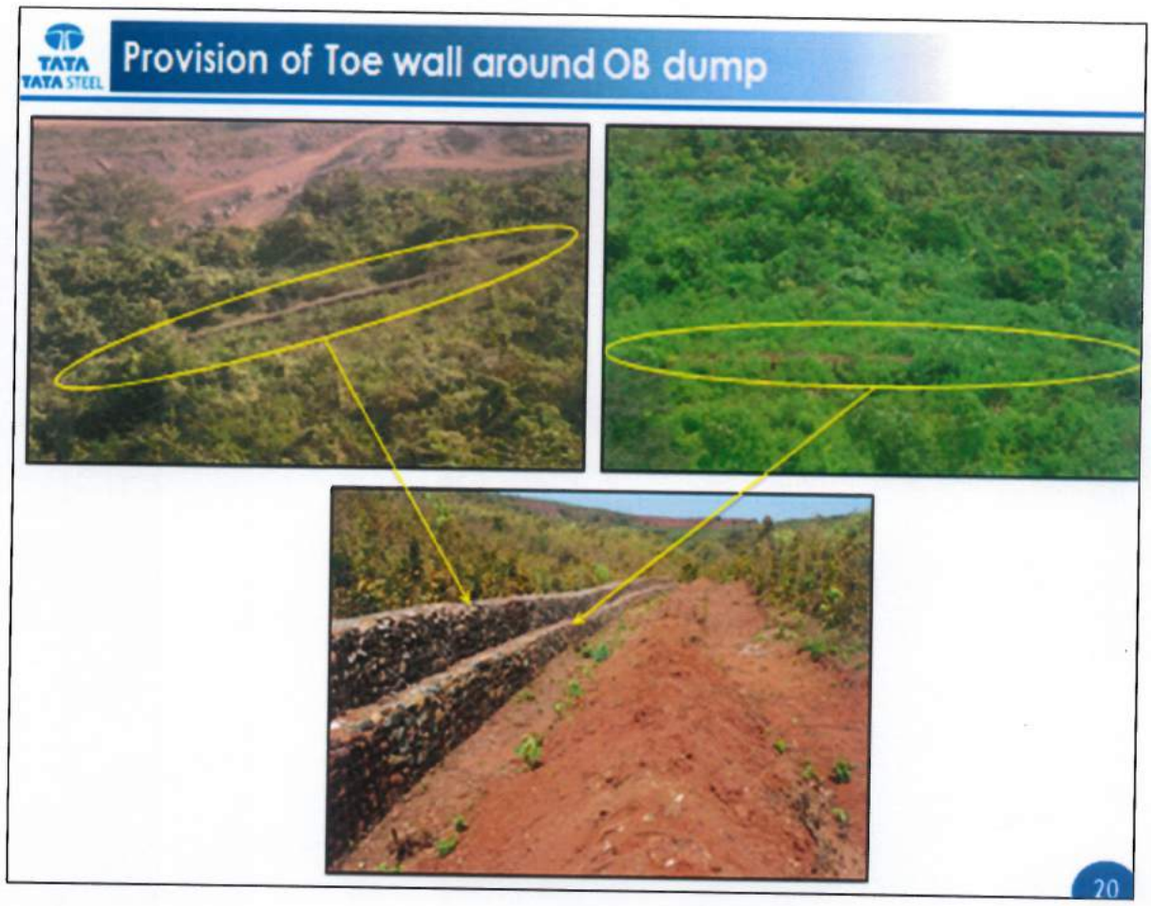
Garland Drains, Toe wall & Settling pits

Settling pit

Garland drain

Toe wall

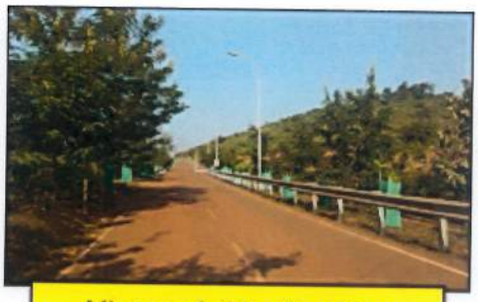
Annexure-12



Annexure-13

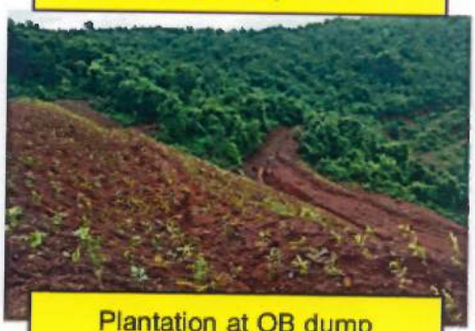
Green Belt development

Safety zone plantation



Mine road side plantation

Plantation at OB dump



Plantation at OB dump

Annexure-14

Rain water Harvesting structure

Rain Water Harvesting

New Rain water Harvesting structure

Old Rain water Harvesting structure

Annexure-15

Visiontek Consultancy Services Pvt. Ltd

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: ENVLAB/18/R-153 Date: 04/04/18

GROUND WATER QUALITY ANALYSIS REPORT FOR THE MONTH OF MAR -2018

1. Name of Industry : **Joda East Iron Mines (M/s TATA Steel Limited)**
2. Sampling location : **GW-1: Khuntpani Village;**
   GW-2: Bounsapani Village .
3. Date of sampling : 14.03.2018
4. Date of analysis : 15.03.2018 to 21.03.2018
5. Sample collected by : VCSPL Representative in presence of TATA Representative

Sl. No	Parameter	Testing Methods	Unit	Standard as per IS :10500:1991	Analysis Results	
					GW-1	GW-2
Essential Characteristics						
1	Colour	APHA 2120 B, C	Hazen	**5**	CL	CL
2	Odour	APHA 2150 B	--	**UO**	UO	UO
3	Taste	APHA 2160 C	--	**Agreeable**	AL	AL
4	Turbidity	APHA 2130 B	NTU	**5**	<2	<2
5	pH Value	APHA 4500H+ B	--	**6.5-8.5**	7.44	7.42
6	Total Hardness (as $CaCO_3$)	APHA 2340 C	mg/l	**300**	152.0	158.0
7	Iron (as Fe)	APHA 3500[Fe] B	mg/l	**0.3**	0.28	0.56
8	Chloride (as Cl)	APHA 4500Cl B	mg/l	**250**	42.9	46.6
9	Residual, free Chlorine	APHA 4500Cl B	mg/l	**0.2**	ND	ND
Desirable Characteristics						
10	Dissolved Solids	APHA 2540 C	mg/l	**500**	241.9	255.0
11	Calcium (as Ca)	APHA 3500Ca B	mg/l	**75**	40.5	41.3
12	Magnesium (as Mg)	APHA 3500Mg B	mg/l	**30**	12.4	12.4
13	Copper (as Cu)	APHA 3111 B,C	mg/l	**0.05**	<0.05	<0.05
14	Manganese (as Mn)	APHA 3500Mn B	mg/l	**0.1**	<0.005	<0.005
15	Sulphate (as SO_4)	APHA 4500 SO_4^{2-} E	mg/l	**200**	8.5	2.9
16	Nitrate (as NO_3)	APHA 4500 NO_3 E	mg/l	**45**	2.6	2.8
17	Fluoride (as F)	APHA 4500F C	mg/l	**1.0**	0.02	0.021
18	Phenolic Compounds (as C_6H_5OH)	APHA 5530 B,D	mg/l	**0.001**	<0.001	<0.001
19	Mercury (as Hg)	APHA 3500 Hg	mg/l	**0.001**	<0.001	<0.001
20	Cadmium (as Cd)	APHA 3111 B,C	mg/l	**0.01**	<0.001	<0.001
21	Selenium (as Se)	APHA 3114 B	mg/l	**0.01**	<0.001	<0.001
22	Arsenic (as As)	APHA 3114 B	mg/l	**0.05**	<0.001	<0.001
23	Cyanide (as CN)	APHA 4500 CN C,D	mg/l	**0.05**	ND	ND
24	Lead (as Pb)	APHA 3111 B,C	mg/l	**0.05**	<0.01	<0.01
25	Zinc (as Zn)	APHA 3111 B,C	mg/l	**5**	<0.05	<0.05
26	Anionic Detergents (as MBAS)	APHA 5540 C	mg/l	**0.2**	<0.2	<0.2
27	Chromium (as Cr^{6+})	APHA 3500 Cr B	mg/l	**0.05**	<0.05	<0.05
28	Mineral Oil	APHA 5520 B	mg/l	**0.01**	<0.001	<0.001
29	Alkalinity	APHA 2320 B	mg/l	**200**	133.0	143.0
30	Aluminium as(Al)	APHA 3500 Al B	mg/l	**0.03**	<0.001	<0.001
31	Boron (as B)	APHA 4500B, B	mg/l	**1**	<0.01	<0.01
32	Poly Aromatic Hydrocarbon as PAH	APHA 6440 B	mg/l	--	<0.0001	<0.0001
33	Pesticide	APHA 6630 B,C	mg/l	**Absent**	Absent	Absent
34	Total Coli form	APHA 9221 B	MPN/100	**Not more than 10 MPN/100 ml**	<2	<2

Note: CL : Colourless, AL: Agreeable, UO : Unobjectionable, ND: Not Detected

For Visiontek Consultancy Services Pvt. Ltd.

Plot No.-M-22&23, Chandka Industrial Estate, Patia, Bhubaneswar-751024, Dist-Khurda, Odisha Tel. : 91-674-6451781, 7752017995
E-mail : visiontekin@yahoo.co.in, visiontekin@gmail.com, Visit us at www.vcspl.org
Committed For Better Environment

Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref: VCSPL/17/R-3408 Date: 04.01.2018

GROUND WATER QUALITY ANALYSIS REPORT FOR THE MONTH OF DEC -2017

1. Name of Industry : **Joda East Iron Mines (M/s TATA Steel Limited)**
2. Sampling location : **GW-1: Khuntpani Village; GW-2: Bounspani Village .**
3. Date of sampling : 16.12.2017
4. Date of analysis : 18.12.2017 to 23.12.2017
5. Sample collected by : VCSPL Representative in presence of TATA Representative

Sl. No	Parameter	Testing Methods	Unit	Standard as per IS -10500:1991	Analysis Results	
					GW-1	GW-2
Essential Characteristics						
1	Colour	APHA 2120 B, C	Hazen	**5**	CL	CL
2	Odour	APHA 2150 B	--	**UO**	UO	UO
3	Taste	APHA 2160 C	--	**Agreeable**	AL	AL
4	Turbidity	**APHA 2130 B**	NTU	**5**	<2	<2
5	pH Value	APHA 4500H+ B	--	**6.5-8.5**	7.48	7.54
6	Total Hardness (as $CaCO_3$)	**APHA 2340 C**	mg/l	**300**	148.0	154.0
7	Iron (as Fe)	APHA 3500Fe, B	mg/l	**0.3**	0.23	0.26
8	Chloride (as Cl)	APHA 4500Cl B	mg/l	**250**	44.0	44.0
9	Residual, free Chlorine	**APHA 4500Cl, D**	mg/l	**0.2**	ND	ND
Desirable Characteristics						
10	Dissolved Solids	**APHA 2540 C**	mg/l	**500**	238.0	250.0
11	Calcium (as Ca)	**APHA 3500Ca B**	mg/l	**75**	39.7	40.9
12	Magnesium (as Mg)	APHA 3500Mg B	mg/l	**30**	11.9	12.6
13	Copper (as Cu)	APHA 3111 B,C	mg/l	**0.05**	<0.05	<0.05
14	Manganese (as Mn)	**APHA 3500Mn B**	mg/l	**0.1**	<0.003	<0.003
15	Sulphate (as SO_4)	**APHA 4500 SO_4^{2-} E**	mg/l	**200**	8.5	8.6
16	Nitrate (as NO_3)	**APHA 4500 NO_3 E**	mg/l	**45**	2.9	2.7
17	Fluoride (as F)	**APHA 4500F C**	mg/l	**1.0**	0.021	0.028
18	Phenolic Compounds (as C_6H_5OH)	APHA 5530 B,D	mg/l	**0.001**	<0.001	<0.001
19	Mercury (as Hg)	APHA 3500 Hg	mg/l	**0.001**	<0.001	<0.001
20	Cadmium (as Cd)	APHA 3111 B,C	mg/l	**0.01**	<0.001	<0.001
21	Selenium (as Se)	**APHA 3114 B**	mg/l	**0.01**	<0.001	<0.001
22	Arsenic (as As)	**APHA 3114 B**	mg/l	**0.05**	<0.001	<0.001
23	Cyanide (as CN)	**APHA 4500 CN C,D**	mg/l	**0.05**	ND	ND
24	Lead (as Pb)	APHA 3111 B,C	mg/l	**0.05**	<0.01	<0.01
25	Zinc (as Zn)	**APHA 3111 B,C**	mg/l	**5**	<0.05	<0.05
26	Anionic Detergents (as MBAS)	**APHA 5540 C**	mg/l	**0.2**	<0.2	<0.2
27	Chromium (as Cr^{+6})	APHA 3500Cr B	mg/l	**0.05**	<0.05	<0.05
28	Mineral Oil	**APHA 5220 B**	mg/l	**0.01**	<0.001	<0.001
29	Alkalinity	APHA 2320 B	mg/l	**200**	134.0	148.0
30	Aluminium as(Al)	**APHA 3500Al B**	mg/l	**0.03**	<0.001	<0.001
31	Boron (as B)	APHA 4500B, B	mg/l	1	<0.01	<0.01
32	Poly Aromatic Hydrocarbon as PAH	**APHA 6440 B**	µg/l	--	<0.0001	<0.0001
33	Pesticide	APHA 6630 B,C	mg/l	**Absent**	Absent	Absent
34	Total Coli form	**APHA 9221 B**	MPN/100	**Not more than 10 MPN/100 ml**	<2	<2

Note: CL : Colourless, AL: Agreeable, UAO : Unobjectionable, ND: Not Detected.

VISIONTEK CONSULTANCY SERVICES PVT. LTD.

For Visiontek Consultancy Services Pvt. Ltd.

Plot No.-M-22&23, Chandka Industrial Estate, Patia, Bhubaneswar-751024, Dist-Khurda, Odisha Tel. : 91-674-6451781, 7752017905
E-mail : visiontekin@yahoo.co.in, visiontekin@gmail.com, Visit us at. www.vcspl.org
Committed For Better Environment

Annexure-16

OFFICE OF THE TAHASILDAR: BARBIL: DISTRICT: KEONJHAR.

Order No. 423 /Dated Barbil the 16th Feb'96.

In persuance of the Orissa Irrigation(Ammendment)Act,1993 and the Rules framed there under vide Orissa Irrigation Ammendment Rules,1994,read with Rule 23-A(2),I Sri H.B.Mishra,O.A.S.,Tahasildar,Barbil accord sanction for drawal of water in favour of the Sr.Divisional Manager(Mines) M/s TISCO, Joda as scheduled below, with reference to his application dated 1.1.1996.

Schedule

Name of the water source	Location	Quantity of water
Kunduru Nallah	Village Baitarani R.F. near vill. Kamarjoda Khata No. Plot No. Area Side of the source Right side of the down streem.	Applied 18.75 lakh Gallons per day Sanctioned 18.75 lakh Gallons per day

Over and above the terms and conditions stipulated in the deed of agreement prescribed under Rule 23-A(2)(f) of Orissa Irrigation(Ammendment) Rules, 1994 the liceencee shall have to be abided with the following terms and conditions.

1.That the sanction order shall remain valid for a period of one month within which time the liceencee shall execute the deed of agreement as per format T provided under Rule 23-A (2)(f) with the licencing authority at his own cost.

2. The liceencee shall have to pay the license fee @ Rs.200/- per Annual of One lakh Gallons of

3. The liceencee shall at his own cost install a flow metre at the intake point under the supervision of the Public Health Engineering Organisation (including Rural water supply and sanitation) and the Linceeing authority, as well as the authorities of wates (Weights) and Measure Deptt.

4. The licencing authotity and/or his representative reserves the right to inspect drawal and use of the water so sanctioned, as and when required.

5. Violation of any of the terms and conditions stipulated in the sanction order and the deed of agreement referred above shall reasult in cancellation of the licence, and imposition of penal provisions as per law.

6. The Sanction order shall be given retrospective effect wie.f. 26.9.94.

Tahasildar, 16/2/96
Barbil.

Memo No. 424 /Dated 16.2.96.

Copy forwarded to **Asst. General Manager (Mines) M/s TATA IRON & STEEL CO. LTDE At/PO. Joda Dist. Keonjhar** for information and necessary action.

Tahasildar, Barbil. 16.2.96

Memo No. _____ /Dated.

Copy submitted to the Additional District Magistrate, Keonjhar/Sub Collector, Champua for information and necessary action.

Tahasildar, Barbil.

Sent 26/2/96 3 PM 26/2

Annexure-17

SPEED POST

No. 5-22/SER/CGWA/2013 -539
Govt. of India
Central Ground Water Board
South Eastern Region
Bhujal Bhawan, Khandagiri,
Bhubaneswar –751030.
Date: 17.06.2013

To

The Member Secretary
Central Ground Water Authority
Ministry of Water Resources
West Block -2, Wing-3 (Ground Floor),
Sector-1, R.K. Puram,
New Delhi – 110066.

Sub: Forwarding of Rain Water Harvesting report in respect of Joda East Iron Mine of M/s. Tata Steel Limited at Joda, District Keonjhar,Odisha – Reg.

Sir,

As per the directions under "NOC" issued vide letter no. 21-4(343)/SER/CGWA/2011-956 dated 27.07.2011 to M/s. Tata Steel Limited for its Joda East Iron Mine at Joda, District Keonjhar, the firm has submitted report " Rainwater Harvesting Scheme " for its Mines. The same is being forwarded for your kind perusal and necessary action.

Encl:- As above.

Yours faithfully,

(D.Y Sirsikar)
Regional Director

Copy to: The General Manager , OMQ, M/s. Tata Steel Limited, Mines Division, Noamundi, PIN-833217 for information.

(D.Y Sirsikar)
Regional Director

Annexure-18

TATA
TATA STEEL

Wet Drilling

Annexure-19

Water Mist & Dry Fog systems

Water Jet system at Primary Crusher

Dry fog system in plants

Annexure-20

Sewage Treatment Plant

STP – 630 KLD

STP – 50 KLD

Oil Catchment Pit

Annexure-21

Display Board at the entrance of the mine's gate

Annexure-22

AMBIENT NOISE QUALITY AT JODA EAST IRON MINE
AVERAGE OCT 17 TO MAR 18

	Location	Day Time 8.00 am to 10.00 pm	Limits in dB(A) Leq	Night Time 8.00 am to 10.00 pm	Limits in dB(A) Leq
Residential area	Hospital Premises	51.90	55.00	37.48	45.00
	Training Centre	52.27		37.33	
	Township	53.37		40.78	
Industrial area	Chief Office	50.32		39.87	70.00
	Mining area	67.53	75.00	62.98	
	Plant area	73.75		67.73	

Lab-in-charge

Annexure-23

Joda East Iron Mine
Workshop Effluent Quality
Oct 17 – Mar 18

Parameter	Joda East Equipment Maintenance	Limit
pH	5.92	5.5 – 9.0
Suspended Solids mg/l	54.82	100.00
Oil & Grease mg/l	7.20	10.00

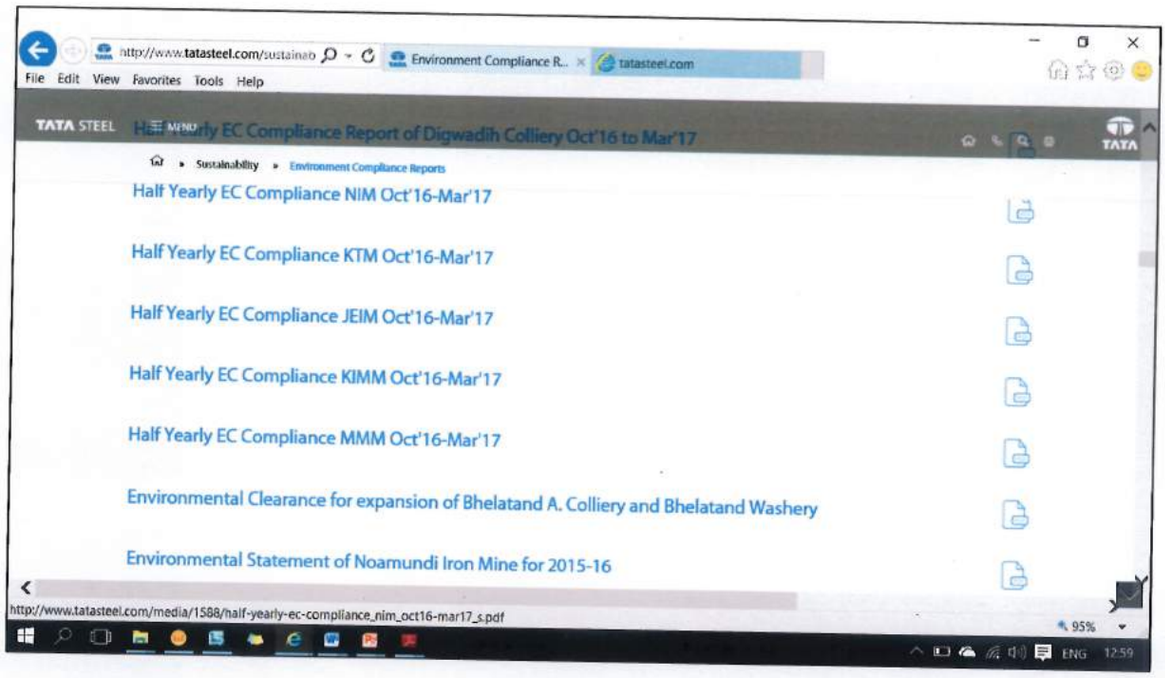
Lab-in-charge

Annexure-24

Expenses Incurred for Environment Management during Fy 17-18

Sl. No	Activity	Capital (Rs. In Lakhs)	Recurring (Rs.in Lakhs)
1	Covering stack fines	10	
2	Installation of fixed sprinklers on haul roads	40	
3	Maintennace of existing fixed water sprinkler		20
4	construction of Toe wall & garland drain	30	
5	Maintenance of toe wall & garland drain		15
6	Cleaning & desilting of check dam		15
7	Mobile water sprinkling arrangements		20
8	Dust supression Nalco chemicals		15
9	Operation and Maintenance of dry fog system		130
10	Purchase of spare parts of dry fog system	10	
11	Maintenance of vertiver plantation	10	
12	Maintenance of rain water harvesting structures		15
13	Installation of STPs-2 Nos.	30	
14	Operation and Maintenance of STP	20	
15	Installation of flow meters at input & out put points at wet plant	20	
16	Plantation & Its maintenance		30
17	operation & Maintenance of biomedical waste facilities	15	
18	Housekeeping of plant & Township		150
19	Development & execution for monsoon preperation plan	20	
20	Expenses incurred for Environment awareness sessions	20	
	Total	**225**	**410**

Annexure-25


http://www.tatasteel.com/sustainab
Environment Compliance R...
tatasteel.com
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TATA STEEL
MENU
Half Yearly EC Compliance Report of Digwadih Colliery Oct'16 to Mar'17
TATA
Sustainability
Environment Compliance Reports
Half Yearly EC Compliance NIM Oct'16-Mar'17
Half Yearly EC Compliance KTM Oct'16-Mar'17
Half Yearly EC Compliance JEIM Oct'16-Mar'17
Half Yearly EC Compliance KIMM Oct'16-Mar'17
Half Yearly EC Compliance MMM Oct'16-Mar'17
Environmental Clearance for expansion of Bhelatand A. Colliery and Bhelatand Washery
Environmental Statement of Noamundi Iron Mine for 2015-16
http://www.tatasteel.com/media/1588/half-yearly-ec-compliance_nim_oct16-mar17_s.pdf
95%
ENG
12:59

Annexure-2b

TATA

The Member Secretary
State Pollution Control Board, Orissa
Unit VIII, Paribesh Bhawan
A/118, Nilakantha Nagar
Bhubaneswar – 751 012

MD/ENV/104/102/2013
Date: 14/03/2013

Sub : Submission of a copy of Environmental Clearance for the expansion project of Joda East Iron Mine, M/s. Tata Steel Limited.

Dear Sir

Joda East Iron Mine has been accorded Environmental Clearance for enhancement of production of Iron ore from 6.0 Million TPA (ROM) to 12.0 Million TPA (ROM) and expansion of beneficiation plant capacity from 6.0 Million TPA to 12.0 Million TPA throughput, vide MoEF letter No. J-11015/215/2008-IA.II (M), dated 11th March, 2013

A copy of this EC letter is attached herewith for your kind perusal and necessary action.

Thanking you,

Yours faithfully,

Sr. Manager (Environment), OMQ

Encl : As above

Copy: The Regional Officer, SPCB, Keonjhar, Orissa.

Received on 15/3/13

No..... Dt.....

TATA

The Addl. PCCF (Central)
Eastern Regional Office
Ministry of Environment & Forests
Govt. of India
A/3 Chandrasekharpur
Bhubaneswar – 751 013

MD/ENV/105/102/2013
Date: 14/03/2013

Sub : Submission of a copy of Environmental Clearance for the expansion project of Joda East Iron Mine, M/s. Tata Steel Limited.

Dear Sir

Joda East Iron Mine has been accorded Environmental Clearance for enhancement of production of Iron ore from 6.0 Million TPA (ROM) to 12.0 Million TPA (ROM) and expansion of beneficiation plant capacity from 6.0 Million TPA to 12.0 Million TPA throughput, vide MoEF letter No. J-11015/215/2008-IA.II (M), dated 11th March, 2013

A copy of this EC letter is attached herewith for your kind perusal and necessary action.

Thanking you,

Yours faithfully,

Sr. Manager (Environment), OMQ

Encl : As above

Received
15/3/13
PS to APCCF (Central)
W/o Envt. & Forests
Regional Office
Bhubaneswar-751023

The President
Zila Parisad
Keonjhar, Odisha

MD/ENV/ 108 /102/2013
Date: 16/03/2013

Sub : Submission of a copy of Environmental Clearance for the expansion project of Joda East Iron Mine, M/s. Tata Steel Limited.

Dear Sir

Joda East Iron Mine has been accorded Environmental Clearance for enhancement of production of Iron ore from 6.0 Million TPA (ROM) to 12.0 Million TPA (ROM) and expansion of beneficiation plant capacity from 6.0 Million TPA to 12.0 Million TPA throughput, vide MoEF letter No. J-11015/215/2008-IA.II (M), dated 11th March, 2013

A copy of this EC letter is attached herewith for your kind perusal and necessary action.

Thanking you,

Yours faithfully,

Sr. Manager (Environment), OMQ

Encl : As above

The Chairman,
Joda Municiplity, Joda,
Odisha

MD/ENV/ 109 /102/2013
Date: 16/03/2013

Sub : Submission of a copy of Environmental Clearance for the expansion project of Joda East Iron Mine, M/s. Tata Steel Limited.

Dear Sir

Joda East Iron Mine has been accorded Environmental Clearance for enhancement of production of Iron ore from 6.0 Million TPA (ROM) to 12.0 Million TPA (ROM) and expansion of beneficiation plant capacity from 6.0 Million TPA to 12.0 Million TPA throughput, vide MoEF letter No. J-11015/215/2008-IA.II (M), dated 11th March, 2013

A copy of this EC letter is attached herewith for your kind perusal and necessary action.

Thanking you,

Yours faithfully,

Sr. Manager (Environment), OMQ

Encl : As above

Annexure-27

The Member Secretary
State Pollution Control Board
Paribesh Bhawan
A/118, Nilakantha Nagar
Unit: VIII
BHUBANESWAR-751012

MD/ENV/599/120/17
Date: 26.09.2017

Sub: Environment Statement of Joda East Iron Mine, Tata Steel Ltd. for 2016-17

Dear Sir,

As required under "Environmental (Protection) Amendment Rules, 1992", we are submitting here with the Environmental Statement for our Joda East Iron Mine for your kind perusal.

Thanking you,
Yours faithfully,

F: Tata Steel Limited

Head (Planning), OMQ

Encl: As above.

Copy to: Regional Officer, State Pollution Control Board, At: Baniapat, College Road, Dist: Keonjhar – 758001, Orissa.

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

ENVIRONMENT STATEMENT
2016-17

JODA EAST IRON MINE

TATA STEEL LIMITED

FORM - V
(See Rule -14)

ENVIRONMENT STATEMENT FOR THE FINANCIAL YEAR ENDING THE 31st MARCH, 2017

JODA EAST IRON MINE, TATA STEEL LIMITED

PART–A

1	Name and address of the owner/ occupier of the industry, operation or process	:	Joda East Iron Mine, Tata Steel Limited, Joda, Dist.-Keonjhar , Odisha–758034
	Agent	:	Mr Debasish Jena
	Nominated Owner	:	Mr T V Narendran, Managing Director, Tata Steel India & SEA, Jamshedpur-831001
2	Industry Category	:	Major
3	Production Capacity	:	12 MTPA Iron Ore
4	Year of Establishment	:	1956
5	Date of last Environmental Statement submitted.	:	20th September, 2016

PART–B
Water and Raw Material Consumption

(i) Water Consumption:

Consumption Head:	**2015-16 (in cum/day) (Annual average)**	**2016-17 (in cum/day) (Annual average)**
Process	4931	2744
Spraying in mine pit , services	219	210
Domestic	Nil (The colony is situated outside of the mining lease area. Hence, the consumption under domestic head is shown under Joda West Manganese Mine).	
Name of the product	**Process water consumption per product output (m3/MT)**	
	During the Previous financial Year (2015-16)	During the current financial Year (2016-17)
Washed Iron Ore	0.17	0.11

(Based on industrial water consumption in wet process)

(ii) Raw Material Consumption

The following items have been consumed/ utilized:

Name of Raw materials	Consumption of Raw Material	
	During previous financial year (2015-16)	During current financial year (2016-17)
High Speed Diesel	4224558 Litres	4747849 Litres
Lubricants	268554 Litres	318732 Litres
Grease	20748 kg	16962 kg
Explosives of all types (Explosive, codex, detonator)	2493394 kg	198144 kg
Electric Power:		
Consumed	27294472 KWH	25417714 KWH
Generated	18062 KWH	14337 KWH
Gas	5965 Cum	15481 Cum
Tyres	31 Nos.	39 Nos.
Drill rods	22 Nos.	475 Nos.

PART–C

POLLUTION DISCHARGED TO ENVIROMENT/ UNIT OF OUTPUT
(Parameters as specified in the consent issued)

Water Pollution: Not applicable as there is no outside discharge of any industrial effluent.

Air Pollution:

Average Air Quality of FY' 17:

Pollutants	Concentration of pollutants ($\mu g/m^3$)	Standards ($\mu g/m^3$)
Near Manmora Slime Dam		
1. PM_{10}	51.50	100
2. $PM_{2.5}$	25.99	60
3. SO_2	4.58	80
4. NO_x	11.11	80
Near Rain Water Harvesting		
1. PM_{10}	48.91	100
2. $PM_{2.5}$	24.44	60
3. SO_2	4.48	80
4. NO_x	11.09	80
Near Slime Dam		
1. PM_{10}	54.77	100
2. $PM_{2.5}$	27.68	60
3. SO_2	5.05	80
4. NO_x	12.16	80
Near Equipment Maintenance		
1. PM_{10}	59.85	100
2. $PM_{2.5}$	31.29	60
3. SO_2	5.60	80
4. NO_x	13.80	80

This is an opencast mine and does not have single point source of air pollutants. There is a DG set in the mine, but it runs only in case of power failure and hence very less operation. So, the quantity of air pollutants discharged in Kg/day cannot be ascertained. The above data shows the average ambient air quality during 2016-17.

PART–D
HAZARDOUS WASTES

As specified under the Hazardous Waste (Management, Handling and Transboundary) Rules, 2008 and amendment thereof

Hazardous Wastes	Total Quantity	
	During the Previous Financial Year (2015-16)	During the Current Financial Year (2016-17)
I) From Process: ▪ Used Oil ▪ Waste containing Oil ▪ Waste Battery	15250 Litre 0.50 MT 63 Nos.	41235 Litre 0.50 MT 63 Nos.
II) From Pollution Control Facility: ▪ Waste oil from oil & grease separation pit ▪ Sludge from oil and grease separation pit	Included in the Item I	Included in the Item I

PART–E
SOLID WASTES

Solid waste from this mine is generally of two categories i.e. Overburden/rejects removed during mining operations and slime generated in the process of iron ore washing.

Sources	TOTAL QUALITY	
	During the Previous Year (2015-16)	During the Current Year (2016-17)
a) From Process: ▪ From Mining as Overburden ▪ From OB plant as Tailing b) From Pollution Control Facility c) i. Quantity recycled or reused within the unit ii. Quantity sold ▪ General Office Waste iii. Quantity disposed ▪ Mining overburden ▪ Canteen and colony waste	 1166300 MT 462595.496 MT Not Applicable Study under Progress Nil 1166300 MT Organic wastes are disposed off in dumps	 2594476 MT 569725 MT Not Applicable Study under Progress Nil 2594476 MT Organic wastes are disposed off in dumps

The slime generated from the beneficiation plant has a potential mineral value. So it is pumped into the tailing/slime pond where it is stored for future use.

PART-F

THE CHARACTERISTICS (in terms of composition and quantum) OF HAZARDOUS ASWELL AS SOLID WASTES AND INDICATE DISPOSAL PRACTICE ADOPTED FOR BOTH THESE CATEGORIES OF WASTES.

The composition of hazardous wastes like used oil & waste containing oil are Gear oil: SP460, 320, 220 & 90, Hydraulic oil: 68, 10, 46, and 100, Mobil oil: 20W40, 30, 40 Transformer oil, Grease: Senogem EP2, KG 10. Solid waste generated as overburden, sub-grade mineral and slime are inert. The average chemical composition are

	Overburden/Sub-grade (in %)	Slime (in %)
Fe	53.98	48.63
SiO_2	12.97	10.75
Al_2O_3	4.11	9.61
Phos	0.066	0.129

DISPOSAL PRACTICE:-

a) SOLID WASTES:

The overburden is systematically and scientifically dumped on a geologically barren area and properly supported with hard material and the same is being reclaimed by plantation after being declared inactive.

The organic wastes from the canteen and other places are stored in individual different waste buckets which are later on disposed at defined place to enrich the nutrient content. This has been found to hasten the plant growth and the seeds contained in the vegetable waste have contributed to the green cover in the dumps.

The municipal solid wastes (other than above) are segregated as per their characteristics e.g. paper, jute bags, tins, bottles, plastics, metal scraps etc. The inert material like building debris etc. is used as landfills development of landscapes etc.

Slime from ore washing plant is separately stored in a slime dam.

b) HAZARDOUS WASTE:

Used Oil:

The waste oil generated at various sources is collected in leak proof barrels and then are kept under a covered roof and on concrete platforms (Capacity–200 Kl) in the barrels very carefully and sealed properly to avoid any spillage or leakage. The storage area is properly fenced and caution board displayed.

During transfer of waste oil to barrels, a trough is placed underneath in order to prevent land contamination due to oil spillage. Then at a fixed interval, these barrels are disposed through auction to the authorized recycler after due intimation to State Pollution Control Board. After dispatch of same, intimation of auction along with copy of manifest is also being sent to State Pollution Control Board.

Waste containing Oil:

Oil soaked jutes, filter and filter materials are produced during the schedule maintenance and repair of the vehicles from the workshop. Oil soaked sand/soil are stored in a vat made before the oil and grease separation system. Water is added to make the waste free from oil. The oil containing water is led to oil and grease separation system and the sand/soil is disposed of like filters and filter material mentioned above.

Oily waste in solid form are being collected and kept in an impervious pit. It is then regularly handed over to M/s West Bengal Waste Management Ltd. for incineration as advised by OSPCB.

c) WASTE BATTERIES :

The used lead acid batteries with diluted acid and caps intact are kept under a shed having impervious floor. Then at a fixed interval, these batteries are disposed through auction to the authorized recycler after due intimation to State Pollution Control Board. After dispatch of same, intimation of auction along with copy of manifest is also being sent to State Pollution Control Board.

PART-G

IMPACT OF POLLUTION ABATEMENT MEASURES TAKEN ON CONSERVATION OF NATURAL RESOURCES AND ON THE COST OF PRODUCTION

- Efforts were made to reduce the consumption of lubricant oil used in Heavy Mining Equipment's, by timely maintenance, arresting leakages and eliminating spillages. Similarly, attempts were also made to reduce the consumption of electricity in operations. In colony also, some electrical light points have been replaced with solar lights to save consumption of electricity.
- Water spraying on mine haul ways by water tankers has reduced the dust levels in the ambient air. The cost of maintenance of water sprinklers during 2016-17 was about ₹ 12.00 lakhs.
- Construction of Toe wall and garland drain constructed to arrest silt within the mining lease area. The cost of construction of toe wall and garland drain was about ₹ 45.00 lakhs.
- Desilting of all check dams done. The cost of this work was about ₹ 14.00 lakhs
- Installation of LED lights across the mining area and plant site. The cost of it was ₹ 80 lakhs
- An amount of Rs. 8.07 lakhs was spent towards Manpower Engagement in the Environment Department during the year 2016-17.
- Construction of new oil catchment pit at equipment division. The cost of it was ₹ 10 Lakhs
- Wet Plant Joda: Modification was done in hydro cyclone to improve reliability hence working hours of system It further avoid spillages. Increase in operation of hydro cyclone helps in improving recovery from slime before getting discharged to slime pond.
- To maintain tailing disposal system, the company has incurred an expenditure of ₹ 40.00 lakhs.
- An amount of ₹ 8.5 lakhs was spent towards monitoring of various environmental parameter.
- An amount of ₹ 1.29 lakhs was spent towards the maintenance of electronic boards at Joda during 2015-16
- For landscaping and horticultural development in the lease area at Joda, an amount of Rs. 2.54 lakhs was spent during 2016-17.
- During 2016-17, a total of 17,560 saplings were planted within the mine lease area at a cost of about ₹ 22.00 lakhs.
- To generate awareness among the employees and their families about environment, World Environment Day was celebrated at Joda. During 2016-17 an amount of ₹ 2.5 lakh was spent on this account.
- Wet drilling arrangement provided in each drill machine helps in minimizing the dust generation during the drilling activity. During 2016-17, the mine has spent an amount of 1.75 lakhs for the above measure.
- For maintenance/ evacuation of slime dam, the company has incurred an expenditure of ₹ 180.00 lakhs.

- Environment Management Department is in function to manage regular environmental monitoring jobs and to ensure operation of environmental safeguards. The administrative expenditure of the department for year 2016-17 was ₹5.00 lakhs.
- An amount of ₹ 2.40 lakhs was spent towards study of ground vibration.
- An amount of ₹ 80.50 lakhs was spent towards monitoring through outside party of various environmental parameter.

The above abatement measures have resulted in improvement of air and water quality, reduction in noise exposure, greenery and aesthetics in the mine as well as in residential areas.

In addition to the above Tata Steel Rural Development Society (TSRDS) is engaged in peripheral developmental activities in villages around the mine. The projects of the Society include irrigation and agricultural extension projects, plantation programmes, installation of solar street lights and illuminate villages on through low cost, construction of ponds in support to provision of irrigation water and for other domestic use and in recharging groundwater by arresting the flow of rainwater in downstream, creation of SAVE FOREST groups, civic amenities development, medi-care and health education, rural sports, skill development and promotion of rural cultural activities.

PART-H

ADDITIONAL MEASURES/ INVESTMENT PROPOSAL FOR ENVIRONMENTAL PROTECTION INCLUDING ABATEMENT OF POLLUTION, PREVENTION OF POLLUTION

- ₹1.40 lakhs will be spent on monitoring of various environmental parameters during next financial year.
- During monsoon 2017, we are having the proposal to plant 10,000 saplings in available sites within the lease area, with a budgetary provision of ₹ 10.50 lakhs.
- ₹ 100.00 lakhs have been planned to be spent towards buying scientific equipment and strengthening the environmental laboratory.
- Implementation of wet drilling interlocking system in the new drill machine. The company incurred the expenditure of ₹ 15.00 lakhs
- Implementation of electronic detonator system in blasting to reduce ground vibration and fly rock. The company incurred the expenditure of ₹ 13.00 Lakhs
- Purchase & installation of two nos. of Lechar gun at dry fine stacking to reduce dust emission from fine stack which cost about ₹ 30.00 Lakhs
- Installation of automatic bit grinder to reduce scrap generation. The company has procured this of costing ₹ 40.00 Lakhs.
- Implementation of electronic detonator system in blasting to reduce ground vibration and fly rock which cost was ₹ 13.00 Lakhs
- Flow meters at different input and output points at wet processing plant were installed. The expenses incurred in the installation of these flow meters was ₹ 30.00 Lakhs.

PART-I

ANY OTHER PARTICULARS FOR IMPROVING THE QUALITY OF THE ENVIRONMENT

- The Company is having a full-fledged Environmental Management Department with personnel from relevant fields to take care of all environmental aspects relating to the mines of TATA STEEL. This department has in-house capabilities for monitoring various environmental parameters and suggesting to the management for necessary abatement measures.

- Implementation of online slime dam disposing monitoring system for which the company had incurred the expenditure of ₹ 5.00 Lakhs
- Thickeners are provided in the washing plant, from where water is recovered to the extent of 85%, thus minimising fresh water consumption.
- Hydro-cyclone has been installed in the wet circuit to maximise the ore recovery and to reduce loss of iron value in tailings.
- Study on advance vibration management using Monte Carlo simulation method was done which cost was ₹ 108 Lakhs.
- Project was done on to reduce the dust level at tertiary crusher floor from 8.9mg/m3 to 3mg/m3 . the expenses incurred in this project was ₹ 30.00 Lakhs
- Project was done to improve the availability of NBC2 conveyor by control of spillages in tail end side. The expenses incurred in this project was ₹ 15 Lakhs
- Study on iron recovery from slime is going on . The cost of the study is ₹ 100 Lakhs
- The mine is certified to ISO 9001:2015, ISO 14001:2015 & OHSAS 18001:2007. All the three systems have been integrated and implemented since 1st August, 2008.

Head (Planning), OMQ

Annexure-28

36 Ministers Shown the Door in 13 Years

by Bijay Chaki

Bhubaneswar: As many as 36 ministers were either removed by Chief Minister Naveen Patnaik or had to resign during the last 13 years of his rule while only four were able to make a comeback.

Ministers considered powerful and close to him were asked to quit by him whenever there were embarrassing situations for the Government to handle. The latest is the case of Raghunath Mohanty, who always got key portfolios in the last seven years he worked under Naveen.

Only last year, Mohanty was the Steel and Mines, Industries and Parliamentary Affairs Minister. In the last reshuffle also, he was given Law, Housing and Urban Development and Information and Technology portfolios. However, Mohanty was not the only minister who had to quit unceremoniously.

Naveen dropped his long serving Finance Minister Prafulla Chandra Ghadei along with four other ministers on August 2 last ahead of the last reshuffle for alleged links with rebel leader **Pyarimohan Mohapatra**, who wanted to overthrow him when he was on a foreign tour.

Ghadei and the four others are yet to be rehabilitated in the party after they lost the leader's confidence in them.

One of the ministers considered close to Naveen, A U Singhdeo, had to quit taking moral responsibility for the hooch tragedy last year in Khurda and Cuttack districts, which claimed 33 lives. The then agriculture minister Pradip Maharathi had to quit on January 19, 2012 for allegedly giving shelter to rape accused.

There were several instances when ministers had to quit following scams. Women and Child Development Minister Pramila Mallik had to tender her resignation on February 5, 2011 following allegations of large-scale irregularities in the purchase of 'dal' for the midday meal scheme.

Altogether seven ministers, including Ramakrushna Patnaik, were shown the door by Naveen in his first stint as the Chief Minister from 2000 to 2004.

Ramakrushna, considered a heavyweight in the BJD, resigned when his portfolio was changed from Finance to Agriculture. The six who were dropped from the ministry included Kamala Das, Prashant Nanda, Nalini Kanta Mohanty, Amar Prasad Satpathy, Debi Prasad Mishra and A P Singh.

The second term of BJD-BJP coalition Government led by Naveen saw the exit of 14 ministers. While Rabinarayan Nanda had to quit for his alleged links with liquor mafia from Madhya Pradesh, the then Excise Minister Kalindi Charan Behera had to resign for the Ganjam hooch tragedy.

In a surprise move, Naveen dropped four ministers in May 2006 __ Damodar Rout (Panchayatiraj), Bijayshree Routray (Health and Family Welfare), Nagendra Pradhan (Minister of State for School and Mass Education) and Balabhadra Majhi (Scheduled Tribes and Scheduled Castes Development).

Though Bishnu Das was among the six new faces inducted into the Cabinet, he had to resign two years later when the alleged tampering of marksheet of his son came to light. Steel and Mines Minister Padmanabha Behera had to quit following the Kandhmal riots.

Once a Naveen confidant, Debasis Nayak and the then Speaker Maheswar Mohanty had to quit following a controversy over the allegations of a former marshal of the Assembly. During Naveen's third term, 15 ministers have been removed so far, including Raghunath Mohanty.

ANNEXURE-2

BHUBANESWAR

ଲଗାତର ୩ ଦିନ ଧରି ବିଧାନସଭାରେ ଏହି ପ୍ରସଙ୍ଗ ଉଠିବା ପରେ ଗତକାଲି ଯୋଜନା ଓ ସମନ୍ୱୟ ବିଭାଗ ପକ୍ଷରୁ ଆରଡିସିଙ୍କୁ ତାଙ୍କ ନିର୍ଦ୍ଦେଶନାମା ପ୍ରତ୍ୟାହାର କରିନେବାକୁ କୁହାଯାଇଛି । ବିଭାଗର ଓଏସ୍‌ଡି ଡକ୍ଟର ଆର.ଭି. ସିଂହଙ୍କୁ ଏକ ପତ୍ର ଲେଖି ଦର୍ଶାଇଛନ୍ତି ଯେ, କେନ୍ଦ୍ର ସରକାରଙ୍କ ଯୋଜନାଭାବେ ସାଂସଦ ଉନ୍ନୟନ ପାଣ୍ଠି ଓ ରାଜ୍ୟ ସରକାରଙ୍କ ଯୋଜନା ଭାବେ ବିଧାୟକ ଉନ୍ନୟନ ପାଣ୍ଠି କାର୍ଯ୍ୟକାରୀ ହେଉଛି । ଏହି ଦୁଇଟି ଯୋଜନାର ପ୍ରଶାସନିକ ବିଭାଗ ହେଉଛି ଯୋଜନା ଓ ସମନ୍ୱୟ ବିଭାଗ ।

ସେ ଲେଖିଛନ୍ତି ଯେ, ସାଂସଦ ଉନ୍ନୟନ ପାଣ୍ଠି ଅର୍ଥ ବିନିଯୋଗରେ କେନ୍ଦ୍ର ସରକାରଙ୍କ ଦ୍ୱାରା ପ୍ରଦତ୍ତ ନିର୍ଦ୍ଦେଶାବଳୀ ଅନୁଯାୟୀ କାର୍ଯ୍ୟ କରାଯାଉଛି । ଅପରପକ୍ଷରେ ରାଜ୍ୟ ଯୋଜନା ଓ ସମନ୍ୱୟ ବିଭାଗ ଦ୍ୱାରା ପ୍ରଦତ୍ତ ନିର୍ଦ୍ଦେଶାବଳୀ ଅନୁଯାୟୀ ବିଧାୟକ ଉନ୍ନୟନ ପାଣ୍ଠି କାର୍ଯ୍ୟକାରୀ ହେଉଛି । ଏପରି ସ୍ଥଳେ ଯଦି ଅନ୍ୟ କୌଣସି କର୍ତ୍ତୃପକ୍ଷ ପୃଥକ ବା ସମାନ୍ତରାଳ ନିର୍ଦ୍ଦେଶାବଳୀ ଜାରି କରିବେ ତେବେ ଏହା କ୍ଷେତ୍ରୀୟସ୍ତରରେ ଯୋଜନା କାର୍ଯ୍ୟକାରିତାରେ ଦ୍ୱନ୍ଦ୍ୱ ସୃଷ୍ଟି କରିବ । ତେଣୁ ଗତ ଜାନୁଆରୀ ୧୧ ତାରିଖରେ ଆରଡିସି ଯେଉଁ ନିର୍ଦ୍ଦେଶନାମା ଜାରି କରିଛନ୍ତି ତାହାକୁ ପ୍ରତ୍ୟାହାର କରିନେବା ଦରକାର ।

[illegible] ମନ୍ତ୍ରୀ [illegible] ନନ୍ଦଙ୍କ ସହ ଏକ ଆଲୋଚନା ବୈଠକ ସଚିବାଳୟସ୍ଥିତ ମନ୍ତ୍ରୀଙ୍କ ପ୍ରକୋଷ୍ଠରେ ଅନୁଷ୍ଠିତ ହୋଇଯାଇଛି । ବୈଠକରେ ସର୍ବଶିକ୍ଷା ଅଭିଯାନରେ କାର୍ଯ୍ୟରତ କର୍ମଚାରୀମାନଙ୍କ ବିବିଧ ଦାବିର ପୁଙ୍ଖାନୁପୁଙ୍ଖ ତର୍ଜମା ପାଇଁ ଏକ କମିଟି ରାଜ୍ୟ ପ୍ରକଳ୍ପ ନିର୍ଦ୍ଦେଶକ, [illegible] ମନ୍ତ୍ରୀ ଦର୍ଶାଇଛନ୍ତି ।

ବୈଠକରେ ଗଣଶିକ୍ଷା ସଚିବ ଉଷା ପାଢ଼ୀଙ୍କ ସମେତ ରାଜ୍ୟ ପ୍ରକଳ୍ପ ନିର୍ଦ୍ଦେଶକ କୃଷ୍ଣ ଗୋପାଳ ମହାପାତ୍ର, ଓପେପା କର୍ମଚାରୀ ସଂଘର ସଭାପତି କନିଷ୍କବୋଧିସତ୍ତ୍ୱ, ସଂପାଦକ ପ୍ରଭାକର ପ୍ରତିହାରୀ ପ୍ରମୁଖ ଉପସ୍ଥିତ ଥିଲେ ।

ଇସ୍ତଫା ଦେଲେଣି ନବୀନଙ୍କ ୯ ମନ୍ତ୍ରୀ

ଥିବା ମନମୋହନ ସାମଲ ସେହିଭଳି ନୈତିକତା ଦୃଷ୍ଟିରୁ ଇସ୍ତଫା ଦେଇଥିବାବେଳେ ମଦମୃତ୍ୟୁ ଘଟଣାରେ ନୈତିକ ଦାୟିତ୍ୱ ନେଇ କାଳିନ୍ଦୀ ବେହେରା ଇସ୍ତଫା ଦେଇଥିଲେ ।

ମାଟ୍ରିକ ପରୀକ୍ଷାରେ ପ୍ରଭାବ ପକାଇ ପୁଅର ନମ୍ବର ବଢ଼ାଇଥିବା ଅଭିଯୋଗ ଉଠିବାରୁ ନୈତିକତା ଦୃଷ୍ଟିରୁ ସେହିପରି ବିଷ୍ଣୁ ଚରଣ ଦାସ ମନ୍ତ୍ରିମଣ୍ଡଳରୁ ଇସ୍ତଫା ଦେଇଥିବାବେଳେ ଅଦାଲତର ଗିରଫ ବିହୀନ ପରୱାନା ପାଇଁ ମହିଳା ଓ ଶିଶୁ ବିକାଶ ମନ୍ତ୍ରୀ ଥିବା ପ୍ରମିଳା ମଲ୍ଲିକ ପ୍ରଥମେ ଇସ୍ତଫା ଦେଇଥିଲେ । ପରେ ଡାଲି ଦୁର୍ନୀତି କଥା ଉଠିବାରୁ ସେହିଭଳି ନୈତିକତା ଦୃଷ୍ଟିରୁ ସେ ଇସ୍ତଫା ପ୍ରଦାନ କରିଥିଲେ ।

ଖୋର୍ଦ୍ଧା ଓ ପୁରୀ ଜିଲ୍ଲାରେ ମଦମୃତ୍ୟୁ ଘଟଣା ପାଇଁ ନୈତିକ ଦାୟିତ୍ୱ ନେଇ ଅବକାରୀ ମନ୍ତ୍ରୀ ଥିବା ଅନଙ୍ଗ ଉଦୟ ସିଂହଦେଓ ଇସ୍ତଫା ଦେଇଥିବାବେଳେ ପିପିଲି ଗଣଧର୍ଷଣ ମାମଲାରେ ନୈତିକତା ଦୃଷ୍ଟିରୁ କୃଷିମନ୍ତ୍ରୀ ପ୍ରଦୀପ ମହାରଥୀ ଇସ୍ତଫା ଦେଇଥିଲେ । ସେହିପରି କନ୍ଧମାଳ ଦଙ୍ଗା ଘଟଣାରେ ବିଭିନ୍ନ ଅଭିଯୋଗକୁ ଭିତ୍ତିକରି ନୈତିକତା ଦୃଷ୍ଟିରୁ ତତ୍କାଳୀନ ଖଣିମନ୍ତ୍ରୀ ପଦ୍ମନାଭ ବେହେରାଙ୍କୁ ଇସ୍ତଫା ଦେବାକୁ ପଡିଥିଲା । ତେବେ ଯୌତୁକ ନିର୍ଯାତନା ମାମଲା ଆସିବାରୁ ସେହି ଭଳି ନୈତିକତା ଦୃଷ୍ଟିରୁ ରଘୁନାଥ ମହାନ୍ତି ଇସ୍ତଫା ଦେଇଛନ୍ତି ।