



To
**The Additional Principal Chief Conservator of Forest,
Regional Office (Eastern Central Zone)
Ministry of Environment, Forests and Climate Change, Govt. of India
Bungalow No. A-2, Shyamali Colony,
Ranchi – 834002, Jharkhand.**

Ref No. - JMB/ENV/BAC/39/ 446 /2018

May 18, 2018

Ref.: Environmental Clearance letter No.- J-11015/29/2012-IA.II(M) dated- April 28, 2017.

SUB: Half Yearly Compliance Status Report of Environment Clearance conditions issued by MoEFCC, New Delhi to Bhelatand A. Colliery & Bhelatand Coal Washery, Tata Steel Limited, Dhanbad for the period October'17 to March'18.

Dear Sir,

We are enclosing herewith compliance report for the period **October'17 to March'18** for the EC granted vide letter no.- J-11015/29/2012-IA.II(M) dated- April 28, 2017 issued by Ministry of Environment, Forest and Climate Change, New Delhi.

Copy of the compliance report is also being sent in soft format through email at ro.ranchi-mef@gov.in for your kind perusal. We trust the information furnished is in line with your requirement.

Thanking you,

Yours faithfully,

**Head (Planning)
Jharia Division, Tata Steel Ltd.**

Encl: As above.

Copy to: Member Secretary, CPCB, Eastern Zonal Office, Southend Conclave, 502, 5th Floor
1582, Rajdanga Main Road, Kolkata -700107.

Copy to: Member Secretary, JSPCB, T.A. Division Building (Ground Floor), H.E.C, Dhurwa,
Ranchi - 834004.

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HALF YEARLY COMPLIANCE REPORT
(PERIOD: OCTOBER'17 – MARCH'18)

BHELATAND A. COLLIERY
(EXPANSION FROM 0.38 MTPA TO 0.41 MTPA OF RAW COAL PRODUCTION)
AND
BHELATAND COAL WASHERY
(EXPANSION FROM 0.96 MTPA TO 1.5 MTPA RAW COAL THROUGHPUT)

P.O.: BHELATAND, DIST: DHANBAD, JHARKHAND



TATA STEEL LIMITED, JHARIA DIVISION

**P.O.- JAMADOBA, DIST. - DHANBAD,
STATE- JHARKHAND, PIN CODE – 828112.**

Compliance status of Environmental Clearance of Expansion of Bhelatand A. Colliery (0.38 MTPA to 0.41 MTPA of raw coal production) and Bhelatand Coal Washery (Expansion from 0.96 MTPA to 1.5 MTPA raw coal throughput) of M/s Tata Steel Ltd., District- Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/29/2012-IA.II (M) dated April 28, 2017

S. No.	Condition	Compliance Status															
Specific Condition																	
(i)	The maximum production from the mine at any given time shall not exceed the limit as prescribed in the EC.	<p>It is being strictly followed. The EC capacity of Bhelatand A. Colliery is for 0.41 MTPA raw coal production is well within the limit. The EC capacity of Bhelatand Coal Washery is for 1.5 MTPA raw coal throughput which is also being maintained within the limit. The production details of last three years are as follow-</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Bhelatand A. Colliery- Raw Coal Production (MTPA)</th> <th>Bhelatand Coal Washery- Raw Coal Throughput (MTPA)</th> </tr> </thead> <tbody> <tr> <td>FY15</td> <td>0.323</td> <td>0.937</td> </tr> <tr> <td>FY16</td> <td>0.336</td> <td>0.869</td> </tr> <tr> <td>FY17</td> <td>0.270</td> <td>0.685</td> </tr> <tr> <td>FY18</td> <td>0.207</td> <td>0.625</td> </tr> </tbody> </table>	Year	Bhelatand A. Colliery- Raw Coal Production (MTPA)	Bhelatand Coal Washery- Raw Coal Throughput (MTPA)	FY15	0.323	0.937	FY16	0.336	0.869	FY17	0.270	0.685	FY18	0.207	0.625
Year	Bhelatand A. Colliery- Raw Coal Production (MTPA)	Bhelatand Coal Washery- Raw Coal Throughput (MTPA)															
FY15	0.323	0.937															
FY16	0.336	0.869															
FY17	0.270	0.685															
FY18	0.207	0.625															
(ii)	The washery shall be as per the project report submitted and presented to EAC.	It shall be strictly complied with and status report shall be submitted.															
(iii)	The validity of the EC is for the life of mine or as specified in the EIA Notification, 2006, whichever is earlier.	The mining lease of Bhelatand A. Colliery is valid for 999 years i.e. 20.01.2903 and life of mine as per approved mining plan is 25 years. However, the validity of EC for mines as per EIA Notification amendment dt. 14.09.2016 is kept as 30 years. Hence it is valid till 31.03.2038.															
(iv)	Transportation of coal should be carried out by covered conveyor belts. Mitigative measures to be undertaken to control dust and other fugitive emission all along the roads by providing sufficient numbers of water sprinklers.	<ul style="list-style-type: none"> •The transportation of coal from underground colliery to coal handling plant (CHP) is through covered conveyor belt networks. •Dry-fog system has been already installed to suppress the dust generated at CHP and transfer points of belt conveyor systems. •Fixed-type water sprinklers are also installed on the internal roads of the washery. These are operated effectively at all times to check the fugitive emissions. •Fugitive dust emission monitoring is done on half-yearly basis. The values are within the stipulated norms. 															

Compliance status of Environmental Clearance of Expansion of Bhelatand A. Colliery (0.38 MTPA to 0.41 MTPA of raw coal production) and Bhelatand Coal Washery (Expansion from 0.96 MTPA to 1.5 MTPA raw coal throughput) of M/s Tata Steel Ltd., District- Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/29/2012-IA.II (M) dated April 28, 2017

(v)	Continuous monitoring of occupational safety and other health hazards, and the corrective action need to be ensured.	The periodic health checkup of the workers is done regularly by our Occupational Health Department, Tata Central Hospital, Jamadoba. We have a PME (Periodic Medical Examination) centre approved by DGMS where 20 % of the workers identified from workforce engaged in active mining operations and washery plant are subjected to full medical checkup every year including hearing impairment checkup, etc. These results are regularly submitted to DGMS as per mines rules.
(vi)	Modern practices for agriculture to be encouraged with promotion of organic farming through training and demonstration (where ever feasible)	Total 80 farmers have been effectively trained in SRI (Systems of root intensification) in FY17 and FY18 which helps in more production of quality grains with lesser seed requirement. This helps farmers to produce grains at lesser cost. Matka Khad, etc. promotes organic farming which helps farmers to use less chemicals (pesticides, insecticides etc.). In last two years, total 14 villages have been covered under this training program where farmers received hands on demonstration and training on organic farming.
(vii)	Special emphasis should be on training and demonstration on conservation of crops and foods and food processing (Wherever feasible)	For the conservation of crops and foods, the following training programs are being through our CSR wing, TSRDS (Tata Steel Rural Development Society)- <ul style="list-style-type: none"> • SRI • Second crops (Rabi crops) • Dry land farming • Fisheries training Pisciculture • Animal Husbandry (goat farming)
(viii)	CCTV cameras to be installed at washery gate to check compliance of covering of trucks.	CCTV cameras at washery entrance gate have been provided while it is also being installed near weigh bridge. The details along with photographs shall be submitted in next compliance report. It is to be mentioned here that no truck is allowed into the premises which are not covered by tarpaulin sheets.
(ix)	This is an underground mine. Afforestation /green belt development takes place every year on the open	<ul style="list-style-type: none"> • Tree plantation activities are carried out every year on the barren/ degraded areas, areas along road-side, infrastructure, etc of the colliery

Compliance status of Environmental Clearance of Expansion of Bhelatand A. Colliery (0.38 MTPA to 0.41 MTPA of raw coal production) and Bhelatand Coal Washery (Expansion from 0.96 MTPA to 1.5 MTPA raw coal throughput) of M/s Tata Steel Ltd., District- Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/29/2012-IA.II (M) dated April 28, 2017

	surface within leasehold areas. Massive plantation shall be carried out in open spaces in and around the mine and a 3-tier avenue plantation along the main approach road to the mine.	leasehold. Apart from these, fruit plants are distributed to employees and also to villagers, schools, institutions, etc. Species planted include Sisam, Karanj, Kadamb, Gamahar, Lagastromia, Alostromia, etc. <ul style="list-style-type: none"> • Avenue plantation is done in residential colony and along the road side every year. • Plan for 3-tier plantation is being prepared and plantation shall be done in this monsoon season accordingly.
(x)	There will be no external /internal OB dumps	Since this is an underground mine, it is not applicable.
(xi)	Waste water shall be effectively treated and recycled completely either for washery or maintenance of green belt around the plant.	Washery is already operating on a zero-discharge principle. No waste-water is discharged into the drains/ natural water systems. The recycled water is again used for plant operations and green-belt development.
(xii)	The assurances given during the Public Hearing and as per the Action plan developed by the proponent should be implemented.	The assurances given during the public hearing with respect to environment and CSR are already being executed. The detailed status report of implementation shall be submitted in next compliance report.
(xiii)	Hoppers of the coal crushing unit and washer unit shall be fitted with high efficiency bag filters or mist spray water sprinkling system and operated effectively at all times of operation to check fugitive emissions from crushing operations , transfer points of closed belt conveyor systems and from transportation roads.	<ul style="list-style-type: none"> • Dry-fog system has been installed to suppress the dust generated at CHP and transfer points of belt conveyor systems. • Fixed-type water sprinklers are also installed on the internal roads of the washery. • The Dust Extraction system (Bag filters)is installed at Coal Handling Plant. Extracted dust is mixed in water and then fed into the Tailing Thickener. <p>These are operated effectively at all times to check the fugitive emissions.</p>
(xiv)	All approach roads shall be black topped and internal roads shall be concreted. The roads shall be regularly cleaned with mechanical sweepers.	All the internal roads have been concreted while the approach roads are black-topped. There is a facility for parking of trucks within the unit. We are in process for installation of Mechanical sweepers and Bob Kat machine for internal roads. The details and update on the same shall be submitted in next compliance report.

Compliance status of Environmental Clearance of Expansion of Bhelatand A. Colliery (0.38 MTPA to 0.41 MTPA of raw coal production) and Bhelatand Coal Washery (Expansion from 0.96 MTPA to 1.5 MTPA raw coal throughput) of M/s Tata Steel Ltd., District- Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/29/2012-IA.II (M) dated April 28, 2017

(xv)	Records of quantum and ash content of raw coal being washed and clean coal and coal rejects produced from every batch of washing shall be maintained and details thereof be made available to Ministry whenever directed.	Proper records of quantity and ash content of raw coal being washed, clean/washed coal, and other by-products are being maintained regularly.
(xvi)	No ground water shall be used for the plant operations. Any additional water requirement envisaged shall be obtained by recycle/reuse of treated effluent and from rainwater harvesting measure.	No ground water is used for washery plant operations. Since, washery is operating on Zero Liquid Discharge Principle; all processed water is recycled back and reused for operations. The make-up water requirement is met by mine water and river. There are total 8 ponds (Capacity- 20622 m3) for tailing management which also act as surface runoff and rainwater storage ponds. In addition to that, Rooftop rainwater harvesting structure has been constructed in office premises of Bhelatand washery is being extended to colliery office.
(xvii)	Socio – economic and welfare measures for the local communities for the adjoining villages shall be implemented under CSR. Activities to be undertaken for the adjoining villages shall be identified in consultation with the local authorities, the details of status of implementation of CSR and expenditure thereon which should be annually updated on the company website.	CSR activities are being carried out through our CSR wing, TSRDS, which is managed by a team of experts who are full time involved in providing benefits and improving standard of living in over 30 villages. The list of activities are developed in consultation with the village representatives and implemented in a time-bound manner. The annual expenditure on CSR is updated in Integrated Report of Tata Steel every year which is uploaded in company’s website.
(xviii)	Heavy metal content in raw coal, and washed coal shall be analysed once in a year and records maintained thereof.	Heavy metal content analysis in raw coal and washed coal was done by CIMFR, Dhanbad during EIA/EMP study. The analysis reports of the same is being submitted as Annexure-III.

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General Conditions:		
A. Mining		
(i)	No change in mining technology and scope of work shall be made without prior approval of the Ministry of Environment Forest and climate Change. No change in the calendar plan including excavation, quantum of coal and waste should be made.	It is being strictly followed and complied with.
(ii)	Mining shall be carried out as per the approved mining plan, and also abiding by the relevant laws related to coal mining and the circulars issued by Directorate General Mines Safety (DGMS) An approved progressive Mine Closure Plan shall strictly be complied with and submitted.	It is being strictly followed. Mining is being carried out as per the approved mining plan in accordance with other mining rules, DGMS permissions etc. The mine closure plan was also approved along with mining plan. The provisions of mine closure plan are being complied with and status will be submitted in next compliance report.
B. Land Reclamation		
(i)	Digital processing of the entire lease area using remote sensing technique shall be carried out regularly once in three years for monitoring land use pattern and report submitted to Ministry of Environment, Forest and Climate Change its Regional Office.	It shall be complied with and report shall be submitted once in three year. Since this is an underground mine, hence there is no proposed changes in existing land use pattern as per EIA/EMP. The present land use land cover map is under preparation and report shall be submitted in next compliance report.
(ii)	Final mine void depth should not be more than 40m. The void area should be converted into water body. The remaining area should be back filled up to ground level and covered with thick top soil. The land after mining should be restored for agriculture or forestry purpose.	It is not applicable as this is an underground mine.

Compliance status of Environmental Clearance of Expansion of Bhelatand A. Colliery (0.38 MTPA to 0.41 MTPA of raw coal production) and Bhelatand Coal Washery (Expansion from 0.96 MTPA to 1.5 MTPA raw coal throughput) of M/s Tata Steel Ltd., District- Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/29/2012-IA.II (M) dated April 28, 2017

(iii)	<p>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. The overburden dumps should be vegetated with suitable native species to prevent erosion and surface run off. The entire excavated area shall be backfilled and afforested in line with the approved Mine Closure Plan. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self – sustaining Compliance status shall be submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office on six monthly basis.</p>	<p>There is no generation of top soil due to mining activities as this is an underground mine. Mining is being done by Bord and Pillar method with sand stowing. The rehabilitation is also not applicable in this case as there is no change in land use pattern due to underground mining operation.</p>
(iv)	<p>Greenbelt shall be developed all along the mine lease area in a phased manner. The width of the green belt along forest area should not be less than 7.5 m, and the total area covered by 3 tier green belt shall not be less than 100 ha. A 3 – tier green belt comprising of a mix of native species shall be developed all along the major approach roads.</p>	<ul style="list-style-type: none"> • Greenery has been developed in many areas around the colliery and washery premises. There is no forest land in core and buffer zone. However, green belt is being developed in the leasehold area. • 3-Tier plantation along the roads shall be developed in coming monsoon season. In last two years, around 7,500 saplings have been planted in the leasehold area.
C. Emissions, Effluents, and waste Disposal		
(i)	<p>Transportation of coal by road should be carried out by covered trucks only. Effective measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of PM10 and PM 2.5 such as haul road, loading and unloading point and transfer points. Fugitive dust emission from all the sources shall be controlled regularly it shall be ensured that the Ambient Air Quality parameters conform to the</p>	<ul style="list-style-type: none"> • Transportation of raw coal from Bhelatand A. Colliery to washery is done through underground belt conveyors. The washed coal from washery is sent to Jamshedpur or Haldia plant via rail network. The sand used for stowing is transported through Tarpaulin sheet covered trucks only. • Dry-fog system has been already installed to suppress the dust generated at CHP and transfer points of belt conveyor systems. Fixed-type water sprinklers are also installed on the internal roads

Compliance status of Environmental Clearance of Expansion of Bhelatand A. Colliery (0.38 MTPA to 0.41 MTPA of raw coal production) and Bhelatand Coal Washery (Expansion from 0.96 MTPA to 1.5 MTPA raw coal throughput) of M/s Tata Steel Ltd., District- Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/29/2012-IA.II (M) dated April 28, 2017

	norms prescribed by the Central/State Pollution Control Board in this regard.	of the washery. In addition to these, movable water sprinkler ply on regular intervals for dust suppression. The ambient air quality report is submitted to SPCB every quarter.
(ii)	Vehicular emission shall be kept under control and regularly. Project should obtain 'PUC' certificate for all the vehicles from authorized pollution testing centres.	Raw coal transportation is done through underground belt network. Only the vehicles having valid PUC certificates are being allowed to operate for sand transportation.
(iii)	Adequate ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for monitoring of pollutants, namely PM10 PM2.5 SO2 and NOX. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive in consultation with the state pollution Control Board. Monitoring of heavy metals such as Hg,As,Ni,Cd,Cr,etc carried out at least once in six months.	Based on meteorological data, total four ambient air quality stations are established in core zone and buffer zone. Monitoring and analysis of PM10, PM2.5, SO2, NO2 are done on monthly basis. The Air quality monitoring stations are: (i) Bhelatand Office Area (Core Zone) (ii) Russi Vihar Colony, Sijua (Buffer Zone) (iii) Malkera Colony (Buffer Zone) (iv) Bhelatand Colony (Buffer Zone) Monitoring of heavy metals in ambient air is being performed by an independent laboratory (recognised by MoEFCC) once in six months. The results are enclosed as Annexure-II.
(iv)	Crusher / feeder and breaker material transfer points should invariably be provided with dust suppression system. Belt – Conveyors should be fully covered to avoid air borne dust. Drills shall be wet operated or fitted with dust extractors.	The following measures have been implemented: i) Dry-fog system at all transfers points of CHP. ii) Dust extraction system (Bag filters) in CHP ii) Enclosures around crushers. iii) Belts have been covered on top and both sides. These arrangements will protect the coal mass moving on belt from blowing wind. In this way, the dust getting air borne is being minimized. iv) Fixed water sprinklers on the haulage roads. v) In addition, movable water sprinklers are also being deployed on the roads for dust suppression.
(v)	The project proponent shall not alter the major channels around the site. Appropriate embankment should be provided along the side of the river/nallah flowing near or adjacent	During the course of action, there is no proposed diversion or rechanneling of the water course is involved. The prominent stream in the region is Katri Nadi, a tributary of Damodar river. Appropriate embankment along the Katri river is already provided. Stone pitching at major portion is already

Compliance status of Environmental Clearance of Expansion of Bhelatand A. Colliery (0.38 MTPA to 0.41 MTPA of raw coal production) and Bhelatand Coal Washery (Expansion from 0.96 MTPA to 1.5 MTPA raw coal throughput) of M/s Tata Steel Ltd., District- Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/29/2012-IA.II (M) dated April 28, 2017

	to the mine. The embankment constructed along the river/nallah boundary should be of suitable dimensions and critical patches should be strengthened by stone pitching on the river front side and stabilised with plantation so as to withstand the peak water flow and prevent mine inundation.	provided on the embankment, remaining portion shall be covered by Mar'18. The dense vegetation already exists between the river channel and lease which shall be strengthened further to check the peak water flow and prevent mine inundation.
(vi)	Rainwater harvesting shall be implemented for conservation and augmentation of ground water resource in the area in consultation with Central Ground Water Board.	In last nine years, total 38 Nos. of ponds (Total capacity-229150 m3) are either newly constructed or renovated/ deepened by removal of silts in and around Bhelatand lease area for conservation and augmentation of ground water. These ponds act as surface reservoir for rainwater. Additionally, we have initiated the rooftop rainwater harvesting measure in Bhelatand Washery Office premises which shall be further extended to other office areas.
(vii)	Catch drain and siltation ponds of appropriate size shall be constructed around the mine working coal heaps and OB dumps to prevent run off of water and flow of sediments directly into the river and other water bodies. The water so collected should be utilized for watering the mine area. Roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly. Sump capacity should provide adequate retention period to allow proper setting of silt material. Dimension of the retaining wall to be constructed at the toe of the dump and OB benches within the mine to check run – off and siltation should be based on the rainfall.	<ul style="list-style-type: none"> • There are no soil or OB dumps in the colliery and washery premises. Only the by-products are stored in the stockyards located in the washery premises which are sold off within 10-15 days. • Garland drains of adequate size and gradient already exist around the washery area to channelize the surface runoff. The runoff is diverted to the tailing ponds and clear water after settle is re-utilized in the washery.
(viii)	Industrial waste water (CHP, workshop and waste water from the mine) should be properly collected and treated so as to conform to the standards prescribed under the	No waste-water is discharged outside the washery premises. 100% water is re-circulated back for re-use in the washery. There is a central workshop and garage in Jamadoba where oil and grease trap has been provided. Approx half of the mine water is sent back into underground and remaining water is used

Compliance status of Environmental Clearance of Expansion of Bhelatand A. Colliery (0.38 MTPA to 0.41 MTPA of raw coal production) and Bhelatand Coal Washery (Expansion from 0.96 MTPA to 1.5 MTPA raw coal throughput) of M/s Tata Steel Ltd., District- Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/29/2012-IA.II (M) dated April 28, 2017

	Environment (Protection) Act, 1986 and the Rules made there under, and as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	for dust suppression, washery make-up water, greenbelt development and drinking water supply to colonies and stakeholders.
D. Noise & Vibration Control		
(i)	Adequate measure shall be taken for control of noise levels below 85dBA in the work environment Workers engaged in blasting in drilling operation of HEMM, etc shall be provided with plugs/muffs.	Regular noise survey is being conducted in the underground work environment. Workers are provided with ear-plugs/ muffs in high noise areas. Since this is an underground mine where no HEMM is used. Coal preparation is done by drilling & solid blasting. The noise levels report is provided as Annexure- I.
(ii)	Controlled blasting techniques should be practiced with use of delay detonators to mitigate ground vibrations and fly rocks.	Not applicable as it is an underground mine. However, due to implementation of various mitigation measures, and use of delay detonators due to blasting in underground vibration does not cause damage to any structure on the surface.
E. Occupational Health & Safety		
(i)	Besides carrying out regular periodic health check – up of their workers, 20% of the workers identified from workforce engaged in active mining operation shall be subjected to health check – up for occupational diseases and hearing impairment ,if any, through an specialised agency / institution within the District/ State and the results reported to this Ministry and to DGMS.	The periodic health check-up of the workers is done regularly by our Occupational Health Department, Tata Central Hospital, Jamadoba. We have a PME (Periodic Medical Examination) centre approved by DGMS where 20 % of the workers identified from workforce engaged in active mining operations are subjected to full medical check-up every year including hearing impairment check-up, etc. These results are regularly submitted to DGMS as per mines rules.
(ii)	Personal working in dusty area should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Supervisory staff shall be held responsible for ensuring compulsory wearing of dust mask.	Persons working in dusty area have been provided with dust masks & have been given awareness training on safety & health aspects. Regular PME (Periodic Medical Examinations) are also being done.

Compliance status of Environmental Clearance of Expansion of Bhelatand A. Colliery (0.38 MTPA to 0.41 MTPA of raw coal production) and Bhelatand Coal Washery (Expansion from 0.96 MTPA to 1.5 MTPA raw coal throughput) of M/s Tata Steel Ltd., District- Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/29/2012-IA.II (M) dated April 28, 2017

(iii)	In case of outsourcing of work through MDO, the project proponent shall ensure the strict enforcement of above condition.	Not applicable
F. Biodiversity		
(i)	The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna, if any, spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the state Forest and Wildlife Department. A copy of action plan shall be submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office.	Tata Steel has engaged a global organisation viz. IUCN (International Union for Conservation of Nature) which work in the field of faunal and floral conservation. We have prepared a Biodiversity Management Plan (BMP) and thereafter prepared BMP action plan (BAP) in association with IUCN for enhancement of biodiversity. We have already started to implement the BAP in our area for conservation and enhancement of flora and fauna. The progress report with action plan shall be submitted to MoEFCC along with next compliance report. Some key initiatives for biodiversity enhancement are medicinal garden development, Native species plantation and Butterfly park development, artificial niche nesting etc.
G. Implementation of Action Plan as per public Hearing And CSR Activities		
(i)	Implementation of Action Plan on the issues raised during the Public Hearing shall be ensured. The Project proponent shall complete all the tasks as per Action plan submitted with budgetary provisions during the public Hearing. Land oustees should be compensated as per the norms laid out R&R Policy of the Company or the National R&R Policy of the State Government, whichever is higher.	The implementation of action plan on the issues raised during public hearing is already in progress. The status of action plan along with expenditure incurred for FY18 shall be submitted in next half-yearly compliance reports. R&R is not applicable in this project.
(ii)	The Board of every company, shall ensure that the company spends in every financial year, at least two per cent. of the average net profits of the company made during the three immediately preceding financial year, in pursuance of its corporate Social Responsibility policy under Section 135 of the Companies Act,2013, for the socio economic development of the neighbourhood.	The proposed CSR expenditure for the entire company is decided as per the new Company Rules. Once the CSR budget for company is fixed, a share of that amount is dedicated and utilized for implementing the CSR activities at our Jharia Division level. The CSR expenditure for FY18 is Rs.4.27 crores. The CSR expenditure of Tata Steel in FY17 was Rs.194 crores which is much higher than 2% of PAT (Rs. 68.9 crores).

Compliance status of Environmental Clearance of Expansion of Bhelatand A. Colliery (0.38 MTPA to 0.41 MTPA of raw coal production) and Bhelatand Coal Washery (Expansion from 0.96 MTPA to 1.5 MTPA raw coal throughput) of M/s Tata Steel Ltd., District- Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/29/2012-IA.II (M) dated April 28, 2017

H. Corporate Environment Responsibility		
(i)	The Company should have a well laid down Environment Policy approved by the Board of Directors.	The Company already has an Environment Policy approved by the Managing Director. It is enclosed as Annexure- IV
(ii)	To have proper checks and balances, the Company should a well laid down system of reporting of non – compliances / violations of environmental norms to the Board of Directors of the Company and / or shareholders or stakeholders at large.	The status of adherence to the policy and compliance to Environmental laws and regulations is regularly discussed at higher levels. Any non-compliance noticed is corrected at divisional level. If any issue is beyond our control, it is brought to the notice of higher management.
(iii)	A separate environment 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	We have a separate Environmental Management Cell with four qualified personnel (One Head and Two Senior Managers and One Manager) and four employees. The reporting of Environmental Cell is directly to General Manager of the Division.
(iv)	The funds earmarked for environment protection measures should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office.	The Environment Cell has a separate fund for Environmental protection measures and for complying with legal requirements. The year-wise expenditure is being already submitted to JSPCB as Environment Statement in Form-V. The total annual environmental expenditure for the financial year 2017-18 is Rs. 666.35 lakhs. The details are given as annexure- VI.
I. Statutory Obligations		
(i)	Environment clearance is granted subject to final outcome of Hon'ble Supreme Court of India, High Court, NGT and any other Court of Law, if any, as may be applicable to the project.	It shall be strictly followed.
(ii)	This Environmental Clearance is subject to obtaining requisite NBWL Clearance from the Standing Committee of National Board for Wildlife , if any , applicable to the project	Not applicable.
(iii)	The project proponent shall obtain Consent to Establish and Consent to Operate from the concerned State Pollution Control Board prior to increase in capacity of washery and	The consent to establish has been granted by JSPCB (Ref no.- JSPCB/HO/RNC/CTE-342731/2017/686 dt. 20.11.2017). The CTO for expansion capacity has been applied in May' 18. The conditions of CTE and

Compliance status of Environmental Clearance of Expansion of Bhelatand A. Colliery (0.38 MTPA to 0.41 MTPA of raw coal production) and Bhelatand Coal Washery (Expansion from 0.96 MTPA to 1.5 MTPA raw coal throughput) of M/s Tata Steel Ltd., District- Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/29/2012-IA.II (M) dated April 28, 2017

	effectively implement all the conditions stipulated therein.	existing CTO are being complied with.
(iv)	Project proponent shall obtain the necessary prior permission from the Central Ground Water Authority (CGWA) for drawl of water (surface and ground water).	No Objection Certificate for withdrawal of mine water has already been applied for to Central Ground Water Board in March '17 and it is under consideration at CGWA, Delhi.
J. Monitoring of Project		
(i)	Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring shall be carried out four times in a year pre – monsoon (April-May) , monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground water Authority and Regional Director , Central Ground Water Board.	The monitoring of groundwater level and quality is done four times a year. The groundwater quality report & groundwater level for post-monsoon (November) and winter season (January) are provided in Annexure-I.
(ii)	The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment, Forest and Climate Change, its Regional Office, central Pollution Control Board and State Pollution Control Board.	It shall be complied with. We are submitting the six-monthly compliance reports to MoEF, its regional office, CPCB and SPCB twice a year.
(iii)	The Regional Office of this Ministry 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.	It shall be complied with.

Compliance status of Environmental Clearance of Expansion of Bhelatand A. Colliery (0.38 MTPA to 0.41 MTPA of raw coal production) and Bhelatand Coal Washery (Expansion from 0.96 MTPA to 1.5 MTPA raw coal throughput) of M/s Tata Steel Ltd., District- Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/29/2012-IA.II (M) dated April 28, 2017

(iv)	The activities pertaining to development of green belt/horticulture shall be reported to concerned Regional Office of MoEF&CC on six monthly basis from the data of commencement of mining operation.	In our leasehold area, every year 5000 Nos of sapling plantation is being done. ₹40/per sapling is incurred as cost of sapling, pit digging, manure mixing and plantation. Total cost of sapling plantation is ₹2 lakh/year. Cost incurred for maintenance of sapling is ₹1 lakh/year. Around 2000 saplings are distributed every year at cost of 1.4 lakhs outside the leasehold area. In addition to above, we have a budget of Rs. 25 lakhs per year which includes maintenance of old saplings (converted into plants) and developing green area of the region. The greenbelt development plan has been submitted to MoEFCC, regional office on 28.11.2017.
(v)	For half yearly monitoring reports. The data should be monitored for period of April to September and October to March of the financial years and submitted to the concerned authorities Within 2 months of the completion of periodicity of monitoring.	The cycle of April to September and October to March of every financial year shall be followed for submission of compliance and monitoring reports.
K. Miscellaneous		
(i)	A copy of clearance letter will be marked to concerned panchayat/local NGO, if any, from whom suggestion / representation has been received while processing the proposal.	The copy of Clearance letter has been sent to District Commissioner and other government offices on 11 th May, 2017.
(ii)	An electronic copy of the EC letter shall be marked to the concerned State Pollution Control Board, Regional office , District Industry Sector and Collector's Office / Tehsildar Office for information in public domain within 30 days.	The electronic copy of EC letter has been forwarded to DC office, JSPCB Dhanbad office, JSPCB Ranchi office via mail on 11 th May, 2017. Details are provided in Annexure-VII
(iii)	The EC letter shall be uploaded on the company's website. The compliance status of the stipulated EC conditions shall also be uploaded by the project authorities on their website and updated at least once every six months so as to bring the same in public domain. The monitoring data	The EC letter is already uploaded in company's website. The compliance reports shall also be uploaded once in six months in company's website with all monitoring reports. Details are provided in Annexure-VII. The display board at entrance of mine and washery covers all environment quality parameters and applicable statutory requirements as per the guideline.

Compliance status of Environmental Clearance of Expansion of Bhelatand A. Colliery (0.38 MTPA to 0.41 MTPA of raw coal production) and Bhelatand Coal Washery (Expansion from 0.96 MTPA to 1.5 MTPA raw coal throughput) of M/s Tata Steel Ltd., District- Dhanbad, Jharkhand vide MoEFCC Letter no J-11015/29/2012-IA.II (M) dated April 28, 2017

	of environmental quality parameter (air, water, noise and soil) and critical pollutant such as PM10,PM2.5,SO2 and Nox (ambient) and critical sectoral parameters shall also be displayed at the entrance of the project premises and mine office and in corporate office and on company's website.	
(iv)	The project authorities 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 SPCB and also at web site of the Ministry of Environment, Forest and Climate Change at www.environmentclearance.nic.in and a copy of the same should be forwarded to the Regional Office .	The Notice has been advertised in two local newspapers viz. Prabhat Khabar (Hindi) and Hindustan (Hindi) on May 05, 2017. Details are provided in Annexure- VII.
(v)	The Environmental Statement for each financial year ending 31 March in Form-V is mandated to be submitted by the PP for the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently ,shall also be uploaded on the Company's website along with the status of compliance of EC conditions and shall be sent to the respective Regional Office of the MoEF&CC by e-mail.	It shall be complied with.

AIR QUALITY REPORT

Core zone & Buffer zone

Period- October'17 to December'17

No. of sampling points: 4

Core zone (as per Air quality standards for coal mines in EPA Notification, 1988)									
Location	Latitude/ Longitude	Date	Weather Condition	SPM 24 Hourly Limit- 700 µg/m ³	RSPM 24 Hourly Limit- 300 µg/m ³	SO ₂ 24 Hourly Limit-120 µg/m ³	NO _x 24 Hourly Limit-120 µg/m ³		
Sijua Mine Office Area	23°46'33.2" N/ 86°19'51" E	20.10.17	Rainy	143.9	62.3	10.4	11.4		
		10.11.17	Clear	158.0	78.0	14.5	13.8		
		14.12.17	Clear	167.7	83.4	13.7	12.8		
Bhelatand Office Area	23°46' 11" N/ 86°18'51" E	12.10.17	Clear	156.7	74.4	12.1	11.0		
		08.11.17	Clear	167.9	84.4	18.2	12.0		
		07.12.17	Clear	182.0	95.0	12.1	10.3		
Buffer zone (as per NAAQS 2009 for ambient air quality standards)									
Location	Latitude/ Longitude	Date	Weather Condition	PM10 24 Hourly Limit- 100µg/m ³	PM2.5 24 Hourly Limit- 60µg/m ³	SO ₂ 24 Hourly Limit- 80µg/m ³	NO ₂ 24 Hourly Limit- 80µg/m ³		
Sijua Russi Vihar Colony	23°46'45.8" N/ 86°20'18.6" E	27.10.17	Clear	88.9	52.0	9.0	11.0		
		16.11.17	Cloudy	92.7	54.0	10.1	4.5		
		20.12.17	Clear	89.9	58.0	9.7	8.6		
Malkera Colony	23°47'10" N/ 86°17'39" E	03.10.17	Rainy	84.5	52.3	9.5	10.2		
		21.11.17	Clear	94.4	58.3	12.1	9.8		
Bhelatand Colony	23°46'10.7" N/ 86°18'49" E	25.12.17	Clear	93.1	53.8	12.2	8.9		
		16.10.17	Clear	94.4	49.9	10.1	8.0		
		27.11.17	Clear	88.0	47.0	9.7	11.5		
		28.12.17	Clear	77.2	42.0	7.7	11.1		

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Sr. Manager (Environment)

AIR QUALITY REPORT

Core zone & Buffer zone

Period- January'18 to March'18

No. of sampling points: 4

Core zone (as per Air quality standards for coal mines in EPA Notification, 1988)										
Location	Latitude/ Longitude	Date	Weather Condition	SPM 24 Hourly Limit- 700 µg/m ³	RSPM 24 Hourly Limit- 300 µg/m ³	SO ₂ 24 Hourly Limit- 120 µg/m ³	NO _x 24 Hourly Limit- 120 µg/m ³			
Sijua Mine Office Area	23°46'33.2" N/ 86°19'51" E	19.01.18	Clear	156.5	74.4	12.5	11.0			
		07.02.18	Clear	150.5	70.0	12.0	10.5			
		08.03.18	Clear	167.0	81.0	13.4	17.8			
Bhelatand Office Area	23°46' 11" N/ 86°18'51" E	17.01.18	Clear	189.0	97.7	13.3	12.4			
		01.02.18	Clear	190.0	98.0	13.5	11.7			
		28.03.18	Clear	172.3	96.3	12.2	7.8			
Buffer zone (as per NAAQS 2009 for ambient air quality standards)										
Location	Latitude/ Longitude	Date	Weather Condition	PM10 24 Hourly Limit- 100µg/m ³	PM2.5 24 Hourly Limit- 60µg/m ³	SO ₂ 24 Hourly Limit- 80µg/m ³	NO ₂ 24 Hourly Limit- 80µg/m ³			
Sijua Russi Vihar Colony	23°46'45.8" N/ 86°20'18.6" E	22.01.18	Clear	92.5	54.4	8.5	7.8			
		05.02.18	Clear	85.0	48.5	8.0	10.0			
		21.03.18	Clear	92.7	46.2	9.3	12.2			
Malquera Colony	23°47'10" N/ 86°17'39" E	24.01.18	Clear	97.7	52.3	11.1	10.2			
		09.02.18	Clear	92.5	50.0	10.8	9.7			
		23.03.18	Clear	93.0	49.5	12.0	15.5			
Bhelatand Colony	23°46'10.7" N/ 86°18'49"E	29.01.18	Clear	82.4	41.5	10.2	9.4			
		12.02.18	Clear	85.5	45.0	11.0	10.5			
		14.03.18	Clear	92.3	52.2	10.7	9.6			

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Sr. Manager (Environment)

**Ground Water Quality Analysis (Hand Pump & Dugwell)
Post Monsoon Season- November 2017**

S.No	Date	Location	Time	Sample Parameter			
				Depth in meter (m)	pH	Electrical Conductivity, $\mu\text{S/m}$	Total Hardness (as CaCO_3), mg/l
1	16.11.17	Ruddi Basti	11.40AM	0.78	7.4	690	564
2	09.11.17	Rampur Basti	09.50AM	3.62	7.7	630	516
3	09.11.17	Malkera Trigunait Basti	10.30AM	1.43	7.2	1100	628
4	07.11.17	Sijua 6 No	10.05AM	1.63	7.3	860	496
5	07.11.17	Sijua 12 No	10.40AM	1.36	7.7	790	502
6	09.11.17	Rampur Basti, (Road Side)	12.10PM	3.16	7.7	630	466
7	16.11.17	Bansh Kapuria	12.15PM	3.26	7.5	720	512
8	09.11.17	Pasitand Basti	11.20AM	2.14	7.2	590	478
9	07.11.17	Bhelatand Basti (Near Old Kalimandir)	11.15AM	0.18	7.3	780	612



Sr. Manager (Environment)

**Ground Water Quality Analysis (Hand Pump & Dugwell)
Winter Season- January 2018**

S.No	Date	Location	Time	Sample Parameter			
				Depth in meter (m)	pH	Electrical Conductivity, $\mu\text{S/m}$	Total Hardness (as CaCO_3), mg/l
1	29.01.18	Ruddi Basti	12:40PM	1.35	7.4	632	504
2	29.01.18	Rampur Basti	10:20AM	6.23	7.6	604	488
3	29.01.18	Malkera Trigunait Basti	09:40AM	4.03	7.4	948	612
4	29.01.18	Sijua 6 No	11:20AM	6.28	7.2	762	436
5	29.01.18	Sijua 12 No	11:00AM	5.16	7.4	616	488
6	29.01.18	Rampur Basti, (Road Side)	10:05AM	4.26	7.6	576	492
7	29.01.18	Bansh Kapuria	12:15PM	4.75	7.3	688	504
8	29.01.18	Pasitand Basti	10:35AM	3.25	7.2	528	464
9	29.01.18	Bhelatand Basti (Near Old Kalimandir)	11:55AM	1.24	7.3	692	578



Sr. Manager (Environment)

NOISE SURVEY REPORT- Bhelatand A. Colliery

Date- 19.01.2018

S.No.	Unit / Place	Equipment / Location	Distance (meter)	Leq (dB 'A')	Exposure Hours
1	14 Seam (West)	Pit Bottom	-	68.1	8 hrs./shift
2		Switch Room No – 1, '0'D/ 2 Pit – 1 Pit	-	65.2	6 hrs./shift
3		Compressor Room, O L / 0 D	10m.	71.5	6 hrs./shift
4		Conveyor 1414 discharge to Conveyor 1413 at Operator Seat, 20 th R / 1 st 'W'L	3m.	69.4	6 hrs./shift
5		Conveyor 1416 discharge to Conveyor 1415 at Operator Seat, 20 th R / 1 st 'W'L	3m.	71.3	6 hrs./shift
6		Conveyor 1417 discharge to Conveyor 1416 at Operator Seat, 20 th R / 1 st 'W'L	3m.	74.1	6 hrs./shift
7		Transformer Room 19 th R / 1 st 'W' L	3m.	65.1	6 hrs./shift
8	Surface	Pit Top	-	76.4	8 hrs./shift
9		MMV Fan at operator's seat	-	80.2	8 hrs./shift
10		Pit Top Air lock Room	-	66.9	8 hrs./shift

NOISE SURVEY REPORT- Bhelatand Coal Washery

Date- 16.02.18

S.No.	Unit / Place	Equipment / Location	Distance (meter)	Leq (dB 'A')	Exposure Hours
1		Control Room	-	51.3	8 hrs./shift
2	Main Plant	Primary Pump House Floor	-	73.5	4 hrs./shift
3		Secondary Pump House Floor	-	72.8	4 hrs./shift
4		SCBC Floor	-	69.0	4 hrs./shift
5		Screen Floor	-	69.8	4 hrs./shift
6		Cyclone Floor	-	70.4	4 hrs./shift
7		Compressors Room	-	80.4	4 hrs./shift
8		Redial Blender	-	70.6	8 hrs./shift
9	Electrical Room	Sub Station	-	57.9	8 hrs./shift
10		MCC - I	-	62.7	8 hrs./shift
11		MCC - II	-	63.7	8 hrs./shift
12		MCC - III	-	60.3	8 hrs./shift
13		Clarified Water Pump House	-	72.4	4 hrs./shift
14	NRD	NRD Sample preparation Room	-	68.7	8 hrs./shift

The warning limit is 85dB "A" and the danger limit is 90 dB "A" for 8 (Eight) hours of working. All the values are within permissible limit.


Sr. Manager (Environment)

NOISE SURVEY REPORT- Bhelatand A. Colliery

Date- 19.01.2018

S.No.	Unit / Place	Equipment / Location	Distance (meter)	Leq (dB 'A')	Exposure Hours
1	14 Seam (West)	Pit Bottom	-	68.1	8 hrs./shift
2		Switch Room No – 1, '0'D/ 2 Pit – 1 Pit	-	65.2	6 hrs./shift
3		Compressor Room, O L / 0 D	10m.	71.5	6 hrs./shift
4		Conveyor 1414 discharge to Conveyor 1413 at Operator Seat, 20 th R / 1 st 'W'L	3m.	69.4	6 hrs./shift
5		Conveyor 1416 discharge to Conveyor 1415 at Operator Seat, 20 th R / 1 st 'W'L	3m.	71.3	6 hrs./shift
6		Conveyor 1417 discharge to Conveyor 1416 at Operator Seat, 20 th R / 1 st 'W'L	3m.	74.1	6 hrs./shift
7		Transformer Room 19 th R / 1 st 'W' L	3m.	65.1	6 hrs./shift
8	Surface	Pit Top	-	76.4	8 hrs./shift
9		MMV Fan at operator's seat	-	80.2	8 hrs./shift
10		Pit Top Air lock Room	-	66.9	8 hrs./shift

NOISE SURVEY REPORT- Bhelatand Coal Washery

Date- 16.02.18

S.No.	Unit / Place	Equipment / Location	Distance (meter)	Leq (dB 'A')	Exposure Hours
1		Control Room	-	51.3	8 hrs./shift
2	Main Plant	Primary Pump House Floor	-	73.5	4 hrs./shift
3		Secondary Pump House Floor	-	72.8	4 hrs./shift
4		SCBC Floor	-	69.0	4 hrs./shift
5		Screen Floor	-	69.8	4 hrs./shift
6		Cyclone Floor	-	70.4	4 hrs./shift
7		Compressors Room	-	80.4	4 hrs./shift
8		Redial Blender	-	70.6	8 hrs./shift
9		Electrical Room	Sub Station	-	57.9
10	MCC - I		-	62.7	8 hrs./shift
11	MCC - II		-	63.7	8 hrs./shift
12	MCC - III		-	60.3	8 hrs./shift
13	Clarified Water Pump House		-	72.4	4 hrs./shift
14	NRD	NRD Sample preparation Room	-	68.7	8 hrs./shift

The warning limit is 85dB "A" and the danger limit is 90 dB "A" for 8 (Eight) hours of working. All the values are within permissible limit.

Sr. Manager (Environment)



S.S. Enviro-nics (India) Pvt. Ltd.

(An ISO 9001:2015, ISO 14001:2015 & OHSAS 18001:2007 Company)

Plot No-361/2314 "Sustenance Tower"

At: Patrapada, P.O: Dumuduma, Dist: Khurda, Bhubaneswar-751 019, Odisha
 Tele Fax: 0674-2471574, E-mail : emails@ssevenironics.com

Ref. No: SSE/17/R-1298

Date: 15.12.2017

AMBIENT AIR QUALITY REPORTS

Name of Industry : M/s. Tata Steel Ltd, Sijua Group, Jharkhand
 Month of Monitoring : 29.11.2017

Sl. No.	Name of the Location	Time Weighted Average	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	As (ng/m ³)	Ni (ng/m ³)	Cd (ng/m ³)	Cr (ng/m ³)
1.	Bhelatanda Officer Colony	24hrly	78.0	36.2	7.5	8.1	0.18	8.0	2.4	BDL	1.3	BDL	BDL
2.	WTP, Malkera	24hrly	82.0	39.0	11.0	7.0	0.24	4.0	2.9	BDL	2.0	BDL	BDL
3.	Sijua Colliery, 15 Pit	24hrly	94.0	53.5	15.3	11.9	0.22	7.0	2.5	BDL	1.8	BDL	BDL
4.	Russi Vihar Colony	24hrly	93.0	54.0	10.1	9.1	0.25	5.4	3.1	BDL	2.1	BDL	BDL
CPCB Standard		24hrly	100	60	80	80	4(1hr)	400	180 (1hr)	06 (Annual)	20 (Annual)	-	-
Method of Analysis & Code of Method			Gravimetric Method IS: 5182,Part-23	Gravimetric Method IS: 5182,Part-23	Improved West-Gaeke Method IS: 5182,Part-2	Modified Jacob & Hochheiser (Na. Arsenite) IS: 5182,Part-6	Non Dispersive Infrared Spectroscopy (NDIR) IS: 5182,Part-10	1.Chemiluminescence 2.Idophenol Blue Method APHA-401	1.Chemiluminescence 2.Chemical Method IS: 5182,Part-9	ICP Method After Sampling on EPM 2000 OR Equivalent Filter Paper.			

BDL Values: PM-10:-5µg/m³, PM-2.5:- 2.0µg/m³, SO₂:- 4µg/m³, NO_x:- 9µg/m³, CO:- 0.1mg/m³, Ozone:- 5µg/m³, Ni:- 0.05ng/m³, As:- 0.05ng/m³, NH₃:- 20µg/m³

For S.S. Enviro-nics (India) Pvt. Ltd.

A Group concerned with Environmental Pollution



S.S. Environics (India) Pvt. Ltd.

(An ISO 9001:2015, ISO 14001:2015 & OHSAS 18001:2007 Company)

Plot No-361/2314 "Sustenance Tower"

At: Patrapada, P.O: Dumuduma, Dist: Khurda, Bhubaneswar-751 019, Odisha

Tele Fax: 0674-2471574, E-mail : emails@ssevenironics.com

Ref. No: SSE/17/R-1299

Date: 15.12.2017

WASTE WATER ANALYSIS REPORT

Name of Industry : M/s. Tata Steel Ltd, Sijua Group, Jharkhand

Name of Location : WW 1: Bhelatand A. Colliery

Date of Sampling : 28.11.2017

Date of analysis : 02.12.2017 to 08.12.2017

Sl. No.	PARAMETER	Method of Testing	UNIT	Schedule-VI of E (P) Act (Discharge to Inland Surface Water	WW 1
1.	pH	IS 3025 Part 11	--	6.5-9.0	7.8
2.	Total Suspended Solids	APHA 2540 D	mg/l	100	21.0
3.	BOD	IS 3025 Part 44	mg/l	30	18.0
4.	COD	IS 3025 Part 58	mg/l	250	82.0
5.	Oil & Grease	IS 3025 Part 39	mg/l	10	2.8

N.B.: ND- Not Detectable

For S.S. Environics (India) Pvt. Ltd.





S.S. Environics (India) Pvt. Ltd.

(An ISO 9001:2015, ISO 14001:2015 & OHSAS 18001:2007 Company)

Plot No-361/2314 "Sustenance Tower"

At: Patrapada, P.O: Dumuduma, Dist: Khurda, Bhubaneswar-751 019, Odisha

Tele Fax: 0674-2471574, E-mail : emails@ssevenironics.com

Ref. No: SSE/17/R-1304

Date: 15.12.2017

WASTE WATER ANALYSIS REPORT

Name of Industry : M/s. Tata Steel Ltd, Sijua Group, Jharkhand
Name of Location : WW 7: BCPP (Final Settling Pond)
Date of Sampling : 28.11.2017
Date of analysis : 02.12.2017 to 08.12.2017

Sl. No.	PARAMETER	Method Of Testing	UNIT	Schedule-VI of E (P) Act (Discharge to Inland Surface Water)	WW 7
1.	pH	IS 3025 Part 11	--	6.5-9.0	7.7
2.	Total Suspended Solids	APHA 2540 D	mg/l	100	23.0
3.	BOD	IS 3025 Part 44	mg/l	30	16.0
4.	COD	IS 3025 Part 58	mg/l	250	68.0
5.	Oil & Grease	IS 3025 Part 39	mg/l	10	3.2

N.B.: ND- Not Detectable

For S.S. Environics (India) Pvt. Ltd.





S.S. Environics (India) Pvt. Ltd.

(An ISO 9001:2015, ISO 14001:2015 & OHSAS 18001:2007 Company)

Plot No-361/2314 "Sustenance Tower"

At: Patrapada, P.O: Dumuduma, Dist: Khurda, Bhubaneswar-751 019, Odisha

Tele Fax: 0674-2471574, E-mail : emails@ssenvironics.com

Ref. No: SSE/17/R-1305

Date: 15.12.2017

SURFACE WATER QUALITY REPORT

Name of the Industry : M/s. Tata Steel Ltd, Sijua Group, Jharkhand
Location of Sampling : SW1: Katri River (Up Stream)
: SW2: Katri River (Down Stream)
Date of Sampling : 29.11.2017
Date of Analysis : 02.12.2017 to 09.12.2017

Sl. No.	Parameters	Method of Testing	Standards as Per IS:2296	Unit of measurement	Analysis Results	
					SW1	SW2
1	pH	IS 3025, Part 11/2002	6.5-8.5	--	7.48	7.5
2	Turbidity	IS 3025, Part 10	Not specified	NTU	3.0	5.1
3	Total Dissolved Solids	IS 3025, Part 15/2000	1500	mg/l	186	175
4	DO	IS: 3025, Part-38 (4.1)	4 (min)	mg/l	7.5	8.1
5	BOD (3) days at 27°C	IS: 3025, Part-44	3.0	mg/l	2.1	1.8
6	Chloride	IS 3025, Part 32/2003	600	mg/l	41.98	36.98
7	Fluoride as F	IS 3025, Part 60/2008	1.5	mg/l	0.31	0.35
8	Sulphates (SO ₄)	IS 3025, Part 24/2003	400	mg/l	7.0	7.2

For S.S. Environics (India) Pvt. Ltd.





S.S. Environics (India) Pvt. Ltd.

(An ISO 9001:2015, ISO 14001:2015 & OHSAS 18001:2007 Company)

Plot No-361/2314 "Sustenance Tower"

At: Patrapada, P.O: Dumuduma, Dist: Khurda, Bhubaneswar-751 019, Odisha
Tele Fax: 0674-2471574, E-mail : emails@ssenvironics.com

Ref. No: SSE/17/R-1306

Date: 15.12.2017

GROUND WATER QUALITY REPORT

Name of the Industry : M/s. Tata Steel Ltd, Sijua Group, Jharkhand
Location of Sampling : DW1: Bhelatand Officer's Club
Date of Sampling : 29.11.2017
Date of Analysis : 02.12.2017 to 11.12.2017

Sl. No	Parameter		Unit of measurement	Standard as per IS: 10500	DW 1
1	Colour	IS 3025, Part 4/2002	Hazen	5	CL
2	Odour	IS 3025, Part 5/2002	-	U/O	U/O
3	Taste	IS 3025, Part 7 & 8/1984	-	Agreeable	Agreeable
4	Turbidity	IS 3025, Part 10/2002	NTU	5	0.3
5	pH Value	IS 3025, Part 11/2002	\$	6.5-8.5	7.08
6	Total Hardness (as CaCO ₃)	IS 3025, Part 21/1996	mg/l	300	44.0
7	Iron (as Fe)	IS 3025, Part 53/2003	mg/l	0.3	0.1
8	Chloride (as Cl)	IS 3025, Part 32/2003	mg/l	250	12.99
9	Residual, free Chlorine	IS 3025, Part 26/2004	mg/l	0.2	ND
10	Dissolved Solids	IS 3025, Part 15/2000	mg/l	500	95.0
11	Calcium (as Ca)	IS 3025, Part 40/2004	mg/l	75	12.1
12	Copper (as Cu)	IS 3025, Part 42/1992	mg/l	0.05	0.006
13	Manganese (as Mn)	IS 3025, Part 59/2006	mg/l	0.1	0.012
14	Sulphate (as SO ₄)	IS 3025, Part 24/2003	mg/l	200	1.1
15	Nitrate (as NO ₃)	IS 3025, Part 34/2003	mg/l	45	0.31
16	Fluoride (as F)	IS 3025, Part 60/2008	mg/l	1.0	0.05
17	Phenolic Compounds (as C ₆ H ₅ OH)	IS 3025, Part 43/1992	mg/l	0.001	BDL
18	Mercury (as Hg)	IS 3025, Part 48/1994	mg/l	0.001	BDL
19	Cadmium (as Cd)	IS 3025, Part 41/1992	mg/l	0.01	BDL
20	Arsenic (as As)	IS 3025, Part 37/2003	mg/l	0.01	BDL
21	Cyanide (as CN)	IS 3025, Part 27/2003	mg/l	0.05	BDL
22	Lead (as Pb)	IS 3025, Part 47/2003	mg/l	0.05	BDL
23	Zinc (as Zn)	IS 3025, Part 49/2003	mg/l	5	0.24
24	Chromium (as Cr ⁺⁶)	IS 3025, Part 52/2003	mg/l	0.05	BDL
25	Total Coliform	9221B (APHA)	MPN/100ml	\$	NIL
26	Mineral Oil	GC Method	mg/l	0.01	ND
27	Alkalinity	IS 3025, Part 23/1986	mg/l	200	15.0
28	Aluminium as Al	IS 3025, Part 55/2003	mg/l	0.03	BDL
29	Boron	4500B (APHA)	mg/l	1.0	0.04

N.B.: BDL- Below detection limit, ND- Not Detectable, CL- Colour Less, \$- Not specified.

BDL Values :-Arsenic-0.001 mg/l, Lead-0.001 mg/l, Cadmium- 0.0001 mg/l, Cr⁶⁺- 0.002 mg/l, Copper- 0.001mg/l, Cyanide- 0.002 mg/l, Phenolic Compound-0.0007mg/l.

For S.S. Environics (India) Pvt. Ltd.



A Group concerned with Environmental Pollution



S.S. Environics (India) Pvt. Ltd.

(An ISO 9001:2015, ISO 14001:2015 & OHSAS 18001:2007 Company)

Plot No-361/2314 "Sustenance Tower"

At: Patrapada, P.O: Dumuduma, Dist: Khurda, Bhubaneswar-751 019, Odisha
Tele Fax: 0674-2471574, E-mail : emails@ssenvironics.com

Ref. No: SSE/17/R-1307

Date: 15.12.2017

NOISE MONITORING REPORT

Name of the industry

: M/s. Tata Steel Ltd, Sijua Group, Jharkhand

Sl. No.	Noise Monitoring Locations	Date of Monitoring	Results in dB(A) Leq Day Time (6.00 am to 10.00 pm)	Results in dB(A) Leq Night Time (10.00 pm to 6.00 am)
1.	Bhelatanda Officer Colony	29.11.2017	34.8	34.0
2.	WTP, Malkera	29.11.2017	34.2	31.5
3.	Sijua Colliery, 15 Pit	29.11.2017	72.1	66.4
4.	Russi Vihar Colony	29.11.2017	46.3	42.0
Ambient Noise Standards (Industrial)			75.0	70.0

For S.S. Environics Pvt. Ltd.



TEST ANALYSIS OF CHARACTERISTIC OF COAL

Control Fuel Research Institute
This is not a certificate and not
valid for purposes of contracts
and cannot be produced in
court of law.

RESERVED HALF OF YOUR SAMPLE
WILL BE DESTROYED AFTER (THIRTY)
DAYS FROM DATE.

केंद्रीय खनन एवं ईंधन अनुसंधान संस्थान
पूर्ववर्ती केंद्रीय ईंधन अनुसंधान संस्थान, डिगवाडीह परिसर
(वैज्ञानिक एवं औद्योगिक अनुसंधान परिषद्)
विज्ञान एवं प्रौद्योगिकी मंत्रालय, भारत सरकार

CIMFR

SIR - CENTRAL INSTITUTE OF MINING AND FUEL RESEARCH
ERSTWHILE CENTRAL FUEL RESEARCH INSTITUTE, Digwadih Campus
(Council of Scientific & Industrial Research)
Ministry of Science & Technology, Govt. of India

II/TR/12-13/RJ4/390

Ref.No.: G/JMB/0045/25/12
Date - 19.04.2012.
Source:-S.K. Pandey
Regional Geologist
NRD, Jharia
P.O. Jamadoba
Dist. Dhanbad
Pin-828112,
Jharkhand

Date: 15.06.2012

INDUSTRY INTERFACE
CIMFR
Test Report
RPBDME

Sl No.	Sample Particulars (As Stated)	CIMFR Sample No RQA/2012/T	wt (kg)	size (mm)	Air Dried Basis		C% (dmf)	H% (dmf)
					M%	Total Sulphur%		
1	JCPP-1) Raw Coal	505	5.000	×3-0	0.9	0.49	91.15	4.34
2	JCPP-2) Clean Coal	506	5.000	×3-0	1.0	0.52	90.65	4.53
3	JCPP-3) Tailings	507	5.000	×3-0	0.6	0.34	91.98	4.03
4	JCPP-4) Rejects	508	5.000	×3-0	0.9	0.32	92.15	3.79
5	BCPP-1) Raw Coal	509	7.000	×3-0	0.9	0.59	88.90	4.38
6	BCPP-2) Clean Coal	510	10.000	×3-0	0.9	0.50	89.71	4.51
7	BCPP-3) Middlings	511	1.000	×3-0	0.7	0.32	91.26	4.20
8	BCPP-4) Tailings	512	11.000	×3-0	0.7	0.49	91.98	4.20
9	BCPP-5) Rejects	513	10.000	×3-0	0.7	0.16	* 67.70	* 5.04

Remark:- Sampling not done by CIMFR Digwadih Campus.
* N.B. The Carbon% and Hydrogen% Value of Sample No.-513 on **daf** basis

For Analysis:-
IS : 1350 (Part-I) 1984 (Reaffirmed 2001)
IS : 1350 (Part-III) 1969 (Reaffirmed 2000)
IS : 1350 : (Part-IV / Sec.-1) 1974 (Reaffirmed 2000) Were followed.

प्रधान / HEAD
इन्टरफेस / INDUSTRY INTERFACE
आर.पी.बी.डी.एम.ई / RPBDME
सी.आइ.एम.एफ.आर. / CIMFR

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email : dnb_dcfri@sancharnet.in
website : http://www.cfriindia.nic.in

TOWARDS AN ENERGY EFFICIENT NATION

Central Institute of Mining & Fuel Research
This is not a certificate and not valid for
purpose of contracts and can not be produced
in a court of law.

केंद्रीय खनन एवं ईंधन अनुसंधान संस्थान

पूर्ववर्ती केंद्रीय ईंधन अनुसंधान संस्थान, डिगवाडीह परिसर
(वैज्ञानिक एवं औद्योगिक अनुसंधान परिषद)
विज्ञान एवं प्रौद्योगिकी मंत्रालय, भारत सरकार



CIMFR

CENTRAL INSTITUTE OF MINING AND FUEL RESEARCH

ERSTWHILE CENTRAL FUEL RESEARCH INSTITUTE, Digwadih Campus
(Council of Scientific & Industrial Research)
Ministry of Science & Technology, Govt. of India

II/TP/12-13/104/930

REPORT ON ANALYSIS



Dated:21.06.2012

To
S. K. Pandey
Regional Geologist,
NRD, Jharia
P.O. Jamadoba
Dist: Dhanbad, Jharkhand, Pin- 828112
Ref. No. : G/JMB/0045/25/12 dated: 19.04.2012

sampling not done by CIMFR

CIMFR Sample No.	Details of Sample (As Stated)	Hg (ppm)	As (ppm)	Pb (ppm)	Cr (ppm)
Inor 108/12	Coal Sample	0.05	0.07	151	23
Inor 109/12	Coal Sample	0.04	0.04	166	20
Inor 110/12	Coal Sample	0.05	0.08	171	26
Inor 111/12	Coal Sample	0.09	0.10	147	30
Inor 112/12	Coal Sample	0.08	0.09	176	33
Inor 113/12	Coal Sample	0.05	0.10	24	26
Inor 114/12	Coal Sample	0.08	0.10	02	25
Inor 115/12	Coal Sample	0.08	0.11	24	30
Inor 116/12	Coal Sample	0.12	0.08	26	32

For Analysis:
IS : 1150 (Part-3) 1984 (Reaffirmed 2001)
IS : 1150 (Part-4) 1984 (Reaffirmed 2001)
IS : 1386 (Part-IV) Sec. 4:1974 (Reaffirmed 2001) Were followed.

(Signature)
21/6/12

प्रधान/HEAD

इन्डस्ट्री इन्टरफेस/INDUSTRY INTERFACE

आर.पी.वी.डी.एम.ई./RPBDME

सी.आइ.एम.एफ.आर./CIMFR

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F A X :+91-0326-2381113, 2381385, 2381490, 2381210

email : dnb_dcfri@sanchamet.in
website : http://www.cfriindia.nic.in

TOWARDS AN ENERGY EFFICIENT NATION

FOOD BASKET SURVEY

Food basket survey was conducted for 181 respondents of the neighbouring villages of Jamadoba and Bhelatand Group. The survey was conducted across 24 hamlets and wards nearby our operations area with the following objectives:-

1. To know the living conditions of the people.
2. To know the minimum wage of the people.
3. Develop an action plan to improve the living conditions by identifying gaps.

The following hamlets and municipal wards (24 villages) were surveyed:-

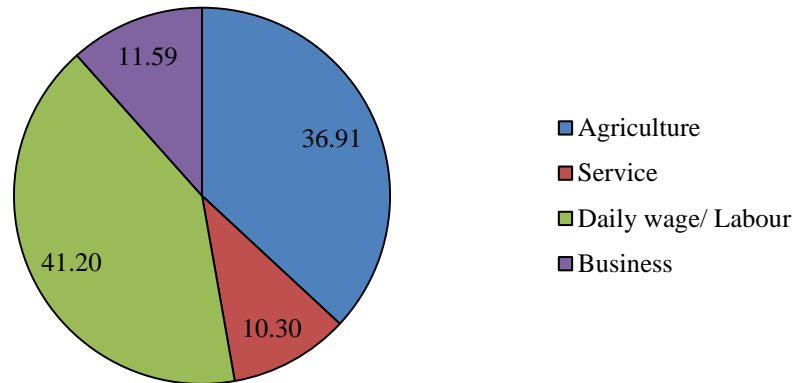
Baidnawadih, Banskapuria, Belubakhar, Bhelatand, Birajdih, Bustar, Chhatand, Debogram, Digwadih-10 no., Dukhidih, Dumri-4 no., Jahajtand, Jorapokhar, Kalimela, Kasiatand, Kushtand, Lalbunglow, Noonudih, Patia, Purnadih, Suyakanali, Tata Sijua-12 no, Tata Sijua 6 no., Upper Dungri.

Observations: -

- It was observed that there was a great skewedness in economic well among the population. The average income per Family is Rs. 8823.00 (181 beneficiaries).
- Out of 181 Households, 295 were earning members.
- The minimum earnings per day in unorganised sector and casual workers is approx. Rs208.00 (Total earning / total no. of earning members)
- No. of members per family is $991/181 = 5.47$
- Average Working persons per family is $295/181 = 1.63$
- The major demands that have come up is ameliorating unemployment and Drinking water and combating social evils like Alcoholism, Dowry and Domestic Violence. Unemployment is especially to the new generation who may not be having adequate number of jobs.
- The major livelihood is wage labour and also a substantial number of Population is engaged in Agriculture. Only a few are unemployed.

Livelihood	Numbers	Percentage (%)
Agriculture	86	36.90
Service	24	10.30
Daily wage/ Labour	96	41.20
Business	27	11.59
TOTAL	233	100%

LIVELIHOOD PATTERN %



Expenditure in (Rs) Per Family Per Month

S.No.	Expenditure Item	Expenditure in Rupees	Expenditure per family per month in Rupees
1	Transportation	49376	272
2	House	0	0
3	Electricity	24005	132.62
4	Water	3003	17.00
5	Education	65426	361.46
6	Medical	84259	465.37
7	Clothing	88034	486.37
8	Soc. Oblg.	25581.31	141.33
9	Food	3598.16	3598.16
10	Fuel	37851	209.12
	Total	381133.5	5683.43

- Total Expenditure per month- Rs 3,81,133.5
- Average expenditure per family per month- Rs 5683.58
- Average expenditure per member- (5683.58/5.4)= Rs 1052.4
- Income per family- Rs 8823
- Income per month per individual Earning member= Rs 208.00 x 26= Rs 5,408.00
- Expenditure Per person on food per month= Rs 3598.16/5.4= Rs 719.63
- % of Expenditure Spent on food by per person per month= 719.63/1052.40*100=68.37%

BASIC NEED WAGE:

Basic food expense per person X 100/% expense on food X 1/Avg working persons per family X Avg Family Size X 1.1

$$=719.63 \times 100/68.37 \times 1/1.63 \times 5.4 \times 1.1 = \text{Rs}3835.68$$

So, The Basic Need Wage is Rs 3835.68

TATA STEEL

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 : November 1, 2013

A handwritten signature in black ink, appearing to read 'T V Narendran', written over a horizontal line.

T V Narendran
Managing Director



Bhelatand A. Colliery-

S. No.	Environment Management Activity	Expenditure in Lakhs
1	Stowing activities i.e filling of U/G voids for surface protection and prevention of subsidence	496.33
2	Fire Control measures (Fire/Isolation Stopping and Nitrogen plant)	1.12
3	Goaf Filling activities, drain repairing and maintenance, settling tank maintenance jobs	9.99
4	Making potable water in Water Treatment Plant & Supply to colonies	33.39
5	Horticultural activities including green belt development and regular lawn and garden maintenance	9.20
6	Plantation of saplings and maintenance	1.66
	Total Cost incurred	551.69

Bhelatand Coal Washery-

S.No.	Environment Management Activity	Expenditure in Lakhs
1	Tailings Management System including recycling	35.8
2	Dust suppression system (Dry fog system)	7.2
3	Dust extraction system	0.2
4	Housekeeping measures includes removing spillage, improvement of roads	34.6
5	Mechanical dewatering system	8.5
6	Fixing of Hosch Scraper and tru track idler for spillage control of conveyor belt	8.2
7	Water spraying on roads for dust control	5.2
8	Horticultural activities including green belt development and regular lawn and garden maintenance	9.2
9	Plantation of saplings and maintenance	1.66
10	Replacement of reciprocating type air compressor by screw compressor for noise reduction	2.6
11	Any additional expenditure incurred such as constructing the rainwater harvesting structure	1.5
	Total Cost incurred	114.66

Total annual expenditure incurred towards environmental protection is **Rs. 666.35 lakhs.**

Upload of copy of Environment Clearance in website

The screenshot shows a web browser window displaying the Tata Steel website. The URL is www.tatasteelindia.com/corporate-citizen/environment-compliance-reports.asp. The page features the Tata Steel logo and navigation menu. A sidebar on the left lists various categories, including 'Environment Compliance Reports'. The main content area displays a list of reports, with the first item, 'Environmental Clearance for expansion of Bhelatand A. Colliery and Bhelatand Washery', highlighted with a red rectangular box. The browser's taskbar at the bottom shows the system tray with the date 20-05-2017 and time 11:27.

Communication to government offices regarding grant of EC

The screenshot shows an email client window displaying an email from ANKIT AGRAHARI. The subject line is 'Environment Clearance granted for expansion of Bhelatand A. Colliery and Bhelatand Washery of M/s Tata Steel, Jharia Division'. The email body contains the following text:

Dear Sir,

This is to inform you that Ministry of Environment, Forest and Climate change (MoEFCC), Delhi has granted Environment Clearance for expansion of Bhelatand A. Colliery (0.38 MTPA to 0.41 MTPA) and Bhelatand Washery (0.96 MTPA to 1.5 MTPA) of M/s Tata Steel Limited vide its letter no. J-11015/29/2012-IA.II(M) on 28th April, 2017. The copy of the same is attached herewith.

[EC for expansion of BAC and BCPP.pdf](#)

This is for your information purpose only.

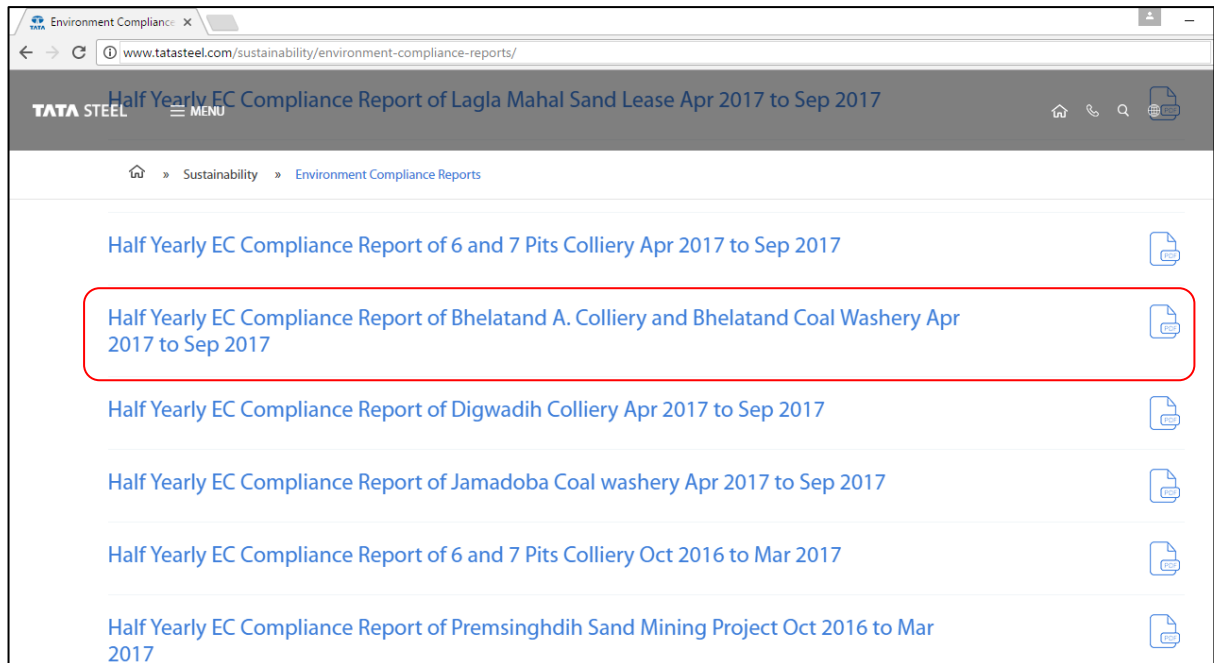
Thanks and best regards,

Ankit Agrahari
Manager Environment - Jharia Division

Tata Steel Limited
Environment Cell | Jamadoba 828112 | Jharkhand
Tel: 0326-6612306 Mob: 07766913530
ankit.agrahari@tatasteel.com | <http://www.tatasteel.com>

The email interface shows the sender's name, subject, and a 'Show Details' link. The system tray at the bottom indicates the date 11-05-2017 and time 15:31.

Upload of copy of EC Compliance report in website



Environment Compliance x

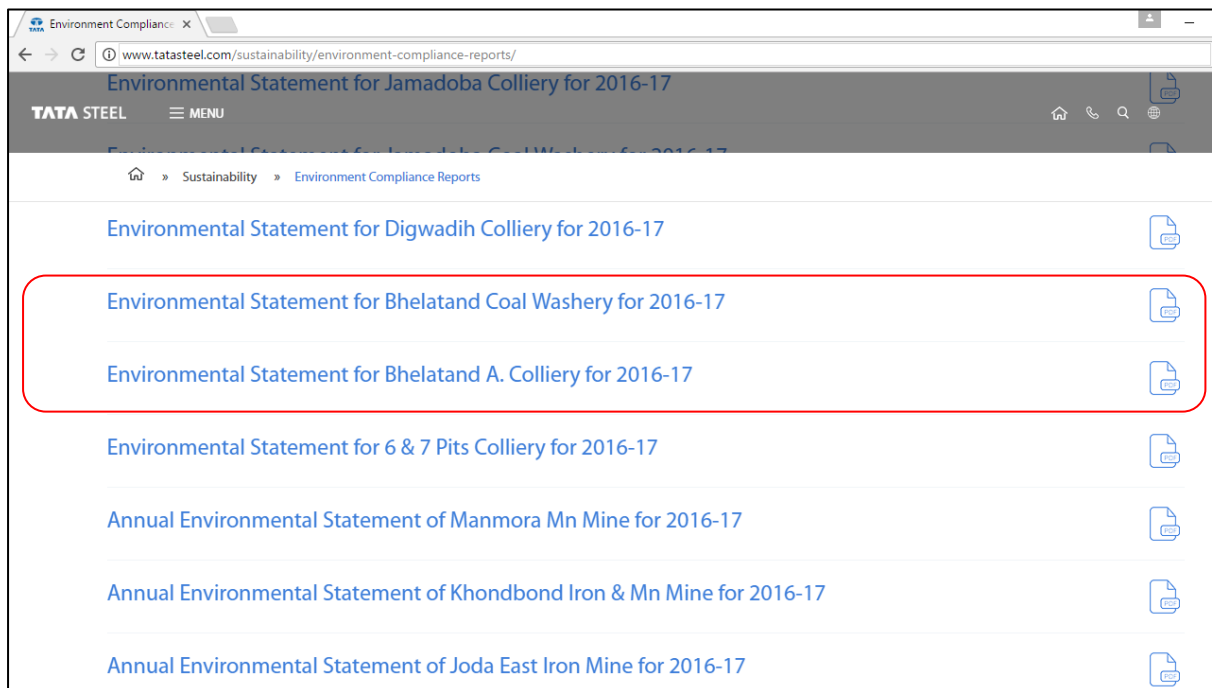
www.tatasteel.com/sustainability/environment-compliance-reports/

TATA STEEL MENU

Sustainability » Environment Compliance Reports

- Half Yearly EC Compliance Report of 6 and 7 Pits Colliery Apr 2017 to Sep 2017
- Half Yearly EC Compliance Report of Bhelatand A. Colliery and Bhelatand Coal Washery Apr 2017 to Sep 2017**
- Half Yearly EC Compliance Report of Digwadiah Colliery Apr 2017 to Sep 2017
- Half Yearly EC Compliance Report of Jamadoba Coal washery Apr 2017 to Sep 2017
- Half Yearly EC Compliance Report of 6 and 7 Pits Colliery Oct 2016 to Mar 2017
- Half Yearly EC Compliance Report of Preamsinghdih Sand Mining Project Oct 2016 to Mar 2017

Upload of copy of Environment Statement in website



Environment Compliance x

www.tatasteel.com/sustainability/environment-compliance-reports/

TATA STEEL MENU

Sustainability » Environment Compliance Reports

- Environmental Statement for Digwadiah Colliery for 2016-17
- Environmental Statement for Bhelatand Coal Washery for 2016-17**
- Environmental Statement for Bhelatand A. Colliery for 2016-17
- Environmental Statement for 6 & 7 Pits Colliery for 2016-17
- Annual Environmental Statement of Manmora Mn Mine for 2016-17
- Annual Environmental Statement of Khondbond Iron & Mn Mine for 2016-17
- Annual Environmental Statement of Joda East Iron Mine for 2016-17