



Additional Principal Chief Conservator of Forests (C),
MOEFCC, Regional Office (EZ),
A/3, Chandrasekharpur,
Bhubaneswar – 751023

Ref No. - JMB/115/ 000885 /2017

May, 26, 2017

SUB: Half Yearly Compliance Report of the conditions of EC issued by MoEFCC, New Delhi, to Preamsingdih Sand Lease, Tata Steel Limited, Dhanbad for the period December'16 to March'17.

Dear Sir,

We are enclosing herewith compliance report for the period October'16 to March'17 for the EC granted vide letter no.- J-11015/422/2012-IA.II(M), Dated-05.11.2015 (amended on 30.11.2015) issued by Ministry of Environment, Forest and Climate Change, New Delhi. This is for your kind perusal.

Thanking you,

Yours faithfully,

General Manager (Jharia)

Email I.D.- sanjay.rajoria@tatasteel.com

Encl: As above.

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

Copy to: Member Secretary, WBPCB, Paribesh Bhavan, 10A, Block-L.A., Sector III, Salt Lake City, Kolkata - 700 098

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HALF YEARLY COMPLIANCE REPORT

(PERIOD: OCTOBER'16 – MARCH'17)

PREMSINGHDIH SAND LEASE

**(CAPACITY: 0.2 MTPA SAND FROM RIVERBED OF GOWAI)
TEHSIL: RAGHUNATHPUR II, DIST: PURULIA, WEST BENGAL**



TATA STEEL LIMITED, JHARIA DIVISION

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

**ENVIRONMENTAL CLEARANCE GRANTED VIDE LETTER NO.- J-11015/422/2012-
IA.II(M) DATED- 05.11.2015 (AMENDED ON 30.11.2015) ISSUED BY GOVT. OF INDIA,
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, NEW DELHI**

A. SPECIFIC CONDITIONS:

- (i) Environmental Clearance is granted subject to final outcome of Hon'ble Supreme Court of India, Hon'ble High Court of West Bengal and any other Court of Law, if any, as may be applicable to this project.
 - **All the judgements applicable to this project will 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 for this Mining Project.
 - **It is not applicable for this mining project.**

- (iii) No mining activities will be allowed in forest areas, if any, for which the Forest Clearance is not available.
 - **There is no forest area involved.**

- (iv) The Project Proponent shall obtain Consent to Operate from the State Pollution Control Board, West Bengal and effectively implement all the conditions stipulated therein.
 - **The Consent to Establish has been granted by WBPCB vide letter no. 1055-2N-02/2015(E) dated 17.12.2015 and the Consent to Operate (CTO) vide letter no. 216_AS_CO_O/16/0003 dated 21.03.2016. The mining has been started after the grant of CTO and all the conditions stipulated therein are being effectively implemented.**

- (v) Excavation will be carried out up to a maximum depth of 3 meters from surface of mineral deposit and not less than one meter from the water level of the River channel whichever is reached earlier.
 - **Excavation is being done as per the above guideline.**

- (vi) Project Proponent shall appoint an Occupational Health Specialist for Regular and Periodical medical checkup and once in six months and necessary medical care/ preventive measures under taken accordingly. Recommendations of National Institute for Labour for ensuring good occupational environment for mine workers would also be adopted; Project Proponent shall appoint a Monitoring Committee to monitor the replenishment study, traffic management, levels of production, River Bank erosion and maintenance of Road, etc.

- a. Our central hospital located at Jamadoba, already has an Occupational Health Specialist to cater to the medical checkups/ medical care of the workers. The workers involved in this project will also be provided medical care in our central hospital.
 - b. A Monitoring Committee has been appointed to monitor the replenishment study, traffic management, levels of production, River Bank erosion, maintenance of Road, etc on regular basis. The committee comprises officials from the Mine Planning, Survey, Environment and CSR Departments. Feedback from the Panchayat officials of nearby villages is also considered.
- (vii) Transport of minerals shall be done either by dedicated road or it should be ensured that the trucks/ dumpers carrying the mineral should not be allowed to pass through the villages.
- Transportation of sand is done by a dedicated Pucca road starting from the riverbed till the colliery sand bunker. The trucks/ dumpers will not pass through the village roads.
- (viii) Project Proponent shall ensure that the road may not be damaged due to transportation of the mineral and transport of minerals will be as per IRC Guidelines with respect to complying with traffic congestion and density.
- The transportation road is pucca throughout and it will be ensured that the road is not damaged. In case small repairs are required, it will be done by the company. Last year, we had conducted a study on traffic congestion and density on the sand transportation road as per IRC guidelines which were submitted to MOEFCC, New Delhi during the appraisal of the project.

Sl	Road	Road Condition	Suggested Design Service Volume in PCU/day as per IRC: 64-1990	Studied Existing Volume in PCU per day Taking higher side	Remarks
1	Gowai river to Manpur more (8km)	Two lane Pucca Road	6000	418	20 ft. wide road
2	Manpur more to CIMFR, Digwadih (8km)	Two lane Pucca Road	15000	2400	30 ft wide road
3	CIMFR, Digwadih to Tata Collieries (4 km)	Two lane Pucca Road	15000	11000	30ft wide road

This shows that the traffic is underutilized and the capacity is much higher than that of the existing traffic conditions. In the above road, only 60 trips (120 to and fro) will be added. Moreover, this traffic will only exist during non-monsoon season, as no collection of sand will be taken up during monsoon season.

- (ix) Implementation of Action Plan on the issues raised during the Public Hearing. The Proponent shall complete all the tasks as per the Action Plan submitted with the budgetary provisions during the Public Hearing.
- **All the points mentioned in the action plan have been implemented. They are related to environmental protection measures like water spraying, tree plantation and road repairing activities. Remaining points related to CSR like health care facilities have also been taken up by our CSR wing TSRDS.**
- (x) The pollution due to transportation load on the environment will be effectively controlled & water sprinkling will also be done regularly. Vehicles with PUC only will be allowed to ply. The mineral transportation shall be carried out through covered trucks only and the vehicles carrying the mineral shall not be overloaded. Project should obtain 'PUC' certificate for all the vehicles from authorized pollution testing center; Washing of all transport vehicle should be done inside the mining lease.
- **Water sprinkling on the transportation road is being done regularly to minimize the pollution. The vehicles used will be regularly checked and maintained. Only vehicles having valid PUC certificates will be allowed to ply. Transportation of sand is always done via tarpaulin-covered trucks which are optimally loaded. The washing of trucks will be done in garages/ workshop located away from the riverbed as this is a river-bed sand mining project and washing of trucks near the river may degrade the river water quality.**
- (xi) Permanent pillars has to be constructed to demarcate width of extraction of ROM leaving 25% of River width from the bank with depth of 1.5m below the ground and 1.2m above the ground to observe its stability.
- **Pillars have been erected marking the boundary of the mine lease area.**
- (xii) The Project Proponent shall also take all precautionary measures during mining operation for conservation and protection of endangered flora/fauna, if any, spotted in the study area. Further, the Project Proponent shall implement the Conservation Plan for the Schedule I species, if any, reported in the Study area. The implementation Report shall be sent regularly to Regional Office of the MOEFCC located at Bhubaneswar.
- **All precautionary measures will be taken during mining operation to protect the flora and fauna. As per the last study done, there were no endangered species near to the mining lease area.**
- (xiii) The illumination and sound at night at project site disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. Project Proponent must ensure that the biological clock of the villages is

not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day light/ night hours.

- **There will be no floodlights erected due to the project. Noise levels will be kept well within the prescribed limits.**
- (xiv) Main haulage road in the mine should be provided with permanent water sprinklers and other roads should be regularly wetted with water tankers fitted with sprinklers.
- **There will be no haulage road since it is a river-bed sand excavation project. Only temporary access roads are made on the sand lumps. Further, water spraying activity on transportation roads is being done with the help of water tankers.**
- (xv) Transportation of the minerals by road passing through the village shall not be allowed. A 'bypass' road should be constructed (say, leaving a gap of at least 200 meters) for the purpose of transportation of the minerals so that the impact of sound, dust and accidents could be mitigated. The Project Proponent shall bear the cost towards the widening and strengthening of existing public road network in case the same is proposed to be used for the Project. No road movement should be allowed on existing village road network without appropriately increasing the carrying capacity of such roads.
- **The transportation will not be done through the village roads. A dedicated 'pucca' road network is available which is being used for the sand transportation activity. The width of these roads is mentioned earlier along with the carrying capacity.**
- (xvi) Likewise, Alteration or re-routing of foot paths, pagdandies, cart roads, and village infrastructure/ public utilities or roads (for purposes of land acquisition for mining) shall be avoided to the extent possible and in case such acquisition is inevitable, alternate arrangements shall be made first and then only the area acquired. In these types of cases, Inspection Reports by site visit by experts may be insisted upon which should be done through reputed Institutes.
- **There will be no such acquisition required for this project.**
- (xvii) CSR activities by Companies including the Mining Establishments have become mandatory up to 2% of their financial Turn-over. Socio Economic Development of the neighborhood Habitats could be planned and executed by the Project Proponent more systematically based on the 'Need based door to door survey' by established Social Institutes/ Workers. The report shall be submitted to the Ministry of Environment and Forest and its Regional Office located at Bhubaneswar on six monthly basis.
- **The CSR activities are being done and the 2% mandate is being fulfilled at the company level. The CSR report (FY17) of our division will be sent along with the next compliance report.**

- (xviii) Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche, etc. The housing may be in the form of temporary structures to be removed after the completion of the Project.
- **Since all the workers are being engaged from the nearby villages, there is no requirement of separate housing for this project.**
- (xix) A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the MOEFCC 5 years in advance of final mine closure for approval.
- **The Mine Plan along with MCP has been approved in 2014. This is a river-bed sand mining project and the sand gets replenished every year so there is no requirement for any mine closure activity except for the removal of temporary infrastructure or machinery available on the site.**

B 1: SPECIAL CONDITIONS:

Impact Category: Stakeholder Engagement

- (1) In the case of private land not owned by the lease holder an affidavit should be obtained regarding consent of the concerned land owner(s) for carrying out the mining operation.
- **Not applicable as no private land is involved in this project.**
- (2) Stakeholder awareness and ability to raise concerns and getting it to be addressed.
- **All stakeholders are given opportunity to raise their concerns with General Manager, Jharia on weekly basis.**
- (3) Implementation of Action Plan on the issues raised during the Public Hearing. The Proponent shall complete all the tasks as per the Action Plan submitted with the budgetary provisions during the Public Hearing.
- **Already mentioned in Section A Point ix.**
- (4) Having valid lease and all the permits is very much needed.
- **The project has valid lease as well as all necessary permits required from the statutory authorities.**

- (5) To establish a Monitoring Committee including Local Panchayat, to check on traffic due to transportation and submit an annual report on the same.
- **A Monitoring Committee has been appointed to monitor the replenishment study, traffic management, levels of production, River Bank erosion, maintenance of Road, etc on regular basis. The committee comprises officials from the Mine Planning, Survey, Environment and CSR Departments. Feedback from the Panchayat officials of nearby villages is also considered. The report will be submitted along with next compliance report.**
- (6) The directions given by the Hon'ble Supreme Court of India vide order dated 27.02.2012 in Deepak Kumar case [SLP(C) Nos.19628-19629 of 2009] and order dated 05.08.2013 of the Hon'ble National Green Tribunal in application No. 171/2013 may be strictly followed.
- **All the directions in the above cases will be strictly followed.**
- (7) All the provisions made and restrictions imposed as covered in the Minor Mineral Rule, shall be complied with, particularly regarding Environment Management Practices and its fund management and Payment of compensation to the land owners.
- **This is not applicable as sand used for stowing is a major mineral.**

Impact Category: Sustainable Mining Practices

- (8) District level Survey Report should be prepared and area suitable for mining and area prohibited for mining be identified.
- **This is a major mineral hence this survey report is not required.**
- (9) The depth of mining in Riverbed shall not exceed one meter or water level whichever is less, provided that where the Joint Inspection Committee certifies about excessive deposit or over accumulation of mineral in certain reaches requiring channelization, it can go up to 3 meters on defined reaches of the River.
- **The depth of mining will not exceed 3 meters.**
- (10) No River sand mining be allowed in rainy season.
- **Sand mining does not take place during rainy season. Mining activity is suspended during the monsoon period.**

(11) To submit annual replenishment report certified by an authorized agency. In case the replenishment is lower than the approved rate of production, then the mining activity/ production levels shall be decreased/ stopped accordingly till the replenishment is completed.

- **The annual sand replenishment study has already been completed for the project by a reputed institution, Indian School of Mines Dhanbad. The report was submitted along with the EIA/EMP report to MOEFCC for the grant of EC. The findings are provided here-**

Replenishment Calculation per Km stretch of Damodar in JCF

Sl	Estimation /Assessment	Values
i)	Per km stretch of Damodar the silt load per year	4,78,260m ³ /km/yr
ii)	Bulk density of sand	1.6 T/m ³
iii)	Tonnage of sedimentation per km stretch per year	7,65,216 T/km/yr
iv)	In a 2.6 Km stretch of the Core the sedimentation	≈19.9 Lakh Ton/yr
v)	In South Bank only (ML) = SI No (iv)/2	≈9.95Lakh Tonne

So therefore, there is potential for safe excavation of around 9.95 LT of riverbed sand, while the capacity of our project is only 2 LT.

(12) Ultimate working depth shall be up to 3m from the Riverbed level and not less than one meter from the water level of the River channel whichever is reached earlier. In hilly terrain this depth be preferably restricted to one meter.

- **The depth of mining will not exceed 3 meters and not less than one meter from the water level of the River channel if it is reached earlier.**

(13) In River flood plain mining a buffer of 3 meters to be left from the River bank for mining.

- **This is not applicable.**

(14) In mining from agricultural field a buffer of 3 meters to be left from the adjacent field.

- **This is not applicable.**

(15) Mining shall be done in layers of 1 m depth to avoid ponding effect and after first layer is excavated, the process will be repeated for the next layers.

- **Sand excavation activity is being done as per these guidelines to avoid ponding effect.**

(16) To maintain safety and stability of Riverbanks i.e. 3 meters or 10% of the width of the River whichever is more will be left intact as no mining zone.

- **10% of the width has been left intact as no mining zone.**

- (17) No stream should be diverted for the purpose of sand mining. No natural water course and/ or water resources are obstructed due to mining operations.
- **It will be strictly followed.**
- (18) No blasting shall be resorted to in river mining and without permission at any other place.
- **No blasting is involved.**
- (19) Depending upon the location, thickness of sand, deposition, agricultural land/river bed, the method of mining may be manual, semi-mechanized or mechanized; however, manual method of mining shall be preferred over any other method.
- **Semi-mechanized method of mining is used for excavation of sand.**

Impact Category: Identification and Preparation of Mining Site

- (20) Mining should be done only in area/ stretch identified in the District Level Survey Report suitable for mining and so certified by the Sub-Divisional Level Committee after site visit.
- **The District survey report is not applicable for major mineral projects.**
- (21) Mining should begin only after pucca pillar marking the boundary of lease area is erected at the cost of the lease holder after certification by the mining official and its geo coordinates are made available to the District Level Committee.
- **Pillars have been erected marking the boundary of the mine lease area. Authentication by DGPS survey of the lease area has been completed in January' 2017. The SHAPE file generated has been sent to the Regional Office of MOEFCC vide letter no. JMB/115/233A/2017 dt. 31.01.17 and soft copy has also been mailed on 31.01.17.**
- (22) The top soil in case of surface land mining shall be stored temporarily in an earmarked site and concurrently used for land reclamation.
- **This is not applicable as no top soil generation is involved.**
- (23) The EC holder shall keep a correct account of quantity of mineral mined out, dispatched from the mine, mode of transport, registration number of vehicle, person in-charge of vehicle and mine plan. This should be produced before officers of Central Government and State for inspection.

- All records of quantity of sand mined out and dispatched from the mine are available with our Mine Planning Department. Mode of transport of sand is truck. A copy of challan issued to truck also exists with us in which the registration number and person-in-charge of vehicle are mentioned. These documents are being properly maintained and shall be produced during any inspection.
- (24) For each mining lease site, the access should be controlled in a way that vehicles carrying mineral from that area are tracked and accounted for.
- It is being strictly followed. The entire mineral being transported is accounted for. All trucks carry valid mining challans issued by the office of the Chief Mining Officer.
- (25) The State/ District Level Environment Committee should use technology like Bar Coding, Information and Communications Technology (ICT), Web based and ICT enabled services, mobile SMS App etc. to account for weight of mineral being taken out of the lease area and the number of trucks moving out with the mineral.
- Regulation of sand transport from our lease area is being done by Chief Mining Officer, Asansol. Manual permits are being issued as online facility for issuing the permit has not been implemented yet in West Bengal.
- (26) There should be regular monitoring of the mining activities in the State to ensure effective compliance of stipulated EC conditions and of the provisions under the Minor Mineral Concessions Rules framed by the State Government.
- We will effectively comply with all the applicable EC conditions.

Impact Category: Noise Management

- (27) Noise arising out of mining and processing shall be abated and controlled at source to keep within permissible limit.
- Noise generation is expected only during the operation of shovel and dumpers and during transportation. We will ensure that the machinery are kept in good conditions and are regularly maintained so that noise from their engines is minimized. Every care possible is being taken to keep noise level within permissible limit.
- (28) Restricted working hours. Sand mining operation has to be carried out between 6 am to 7 pm.
- Our sand excavation activity takes place only during above mentioned hours.

Impact Category: Air Pollution and Dust Management

- (29) The pollution due to transportation load on the environment will be effectively controlled & water sprinkling will also be done regularly.
- **Water sprinkling on the transportation road is being done regularly to minimize the pollution load on the environment.**
- (30) Air Pollution due to dust, exhaust emission or fumes during mining and processing phase should be controlled and kept in permissible limits specified under environmental laws.
- **Ambient Air monitoring is being done to monitor the dust & gaseous pollution due to operation of shovel and dumpers. It will be kept under the permissible limits. The ambient air analysis reports are attached as Annexure-I.**
- (31) The mineral transportation shall be carried out through covered trucks only and the vehicles carrying the mineral shall not be overloaded. Wheel washing facility should be installed and used.
- **Transportation of sand is always done via tarpaulin-covered trucks which are optimally loaded.**

Impact Category: Management of Visual Impact

- (32) The mining operations are to be done in a systematic manner so that the operations shall create a major visual impact on the site.
- **Mining is being done in a systematic manner. The biodiversity and aesthetic beauty of the area will be maintained always.**
- (33) Restoration of flora affected by mining should be done immediately. Twice the number of trees destroyed by mining to be planted preferably of indigenous species. Each EC holder should plant and maintain for lease period at least 2500 trees per hectare in area near lease.
- **It will be ensured that flora is not affected or damaged by the sand mining operations. 850 nos. of tree saplings have been distributed to nearby villagers. Since almost all the area near lease is private land, we will undertake plantation activity in consultation with the land-owners.**
- (34) No mining lease shall be granted in the forest area without forest clearance in accordance with the provisions of the Forest Conservation Act, 1980 and the rules made thereunder.
- **Not applicable as no forest area is involved.**

(35) Protection of turtle and bird habitats shall be ensured.

➤ **Not applicable as no such habitat exists near our lease area.**

(36) No felling of tree near quarry is allowed. For mining lease within 10km of the National Park/ Sanctuary or in Eco-Sensitive Zone of the Protected Area, recommendation of Standing Committee of National Board of Wildlife (NBWL) have to be obtained as per the Hon'ble Supreme Court order in I.A. No. 460 of 2004.

➤ **It is not applicable.**

(37) Spring sources should not be affected due to mining activities. Necessary Protection measures are to be incorporated.

➤ **It is not applicable.**

Impact Category: Management of Instability and Erosion

(38) Removal, stacking and utilization of top soil in mining should be ensured. Where top soil cannot be used concurrently, it shall be stored separately for future use keeping in view that the bacterial organism should not die and should be spread nearby area.

➤ **It is not applicable as no top soil will be generated.**

(39) The EC should stipulate conditions for adequate steps to check soil erosion and control debris flow etc. by constructing engineering structures.

➤ **It is not applicable.**

(40) Use of oversize material to control erosion and movement of sediments.

➤ **It is not applicable.**

(41) No overhangs shall be allowed to be formed due to mining and mining shall not be allowed in area where subsidence of rocks is likely to occur due to steep angle of slope.

➤ **It will be strictly followed.**

(42) No extraction of stone/ boulder/ sand in landslide prone areas.

➤ **There are no landslide prone areas near our lease.**

(43) Controlled clearance of riparian vegetation to be undertaken.

➤ **No riparian vegetation is proposed to be disturbed.**

Impact Category: Waste Management

- (44) Site clearance and tidiness is very much needed to have less visual impact of mining.
- **Housekeeping and tidiness of the area will always be maintained.**
- (45) Dumping of waste shall be done in earmarked places as approved in Mining Plan.
- **No waste will be generated.**
- (46) Rubbish burial shall not be done in the Rivers.
- **No such burial will be done in the river.**

Impact Category: Pollution Prevention

- (47) The EC holder shall take all possible precautions for the protection of environment and control of pollution.
- **All necessary precautions will be taken as mentioned in earlier points.**
- (48) Effluent discharge should be kept to the minimum and it should meet the standards prescribed.
- **No water for industrial purpose is required for the sand excavation activity. Further there will be no township as all manpower will be from the nearby villages. Hence, no generation of effluent is envisaged.**

Impact Category: Protection of Infrastructure

- (49) Mining shall not be undertaken in a mining lease located in 200-500 meter of bridge, 200 meter upstream and downstream of water supply/ irrigation scheme, 100 meters from the edge of National Highway and railway line, 50 meters from a reservoir, canal or building, 25 meter from the edge of State Highway and 10 meters from the edge of other roads except on special exemption by the Sub-Divisional level Joint Inspection Committee.
- **It is being strictly followed.**
- (50) For carrying out mining in proximity to any bridge or embankment, appropriate safety zone (not less than 200 meters) should be worked out on case to case basis, taking into account the structural parameters, location aspects and flow rate, and no mining should be carried out in the safety zone so worked out.
- **It is being strictly followed.**

(51) Mining activities shall not be done for mine lease where mining can cause danger to site of flood protection works, places of cultural, religious, historical and archeological importance.

➤ **No such danger is posed by our mining lease.**

Impact Category: Enhancement of Road Safety

(52) Vehicles used for transportation of sand are to be permitted only with fitness and PUC Certificates.

➤ **Only vehicles having valid PUC and fitness certificates will be allowed to ply.**

(53) Junction at takeoff point of approach road with main road be properly developed with proper width and geometry required for safe movement of traffic by concession holder at his own cost.

➤ **The approach roads are of adequate width and there is no risk of traffic congestion in the area. This has been validated in the traffic density study conducted last year.**

(54) Project Proponent shall ensure that the road may not be damaged due to transportation of the mineral; and transport of minerals will be as per IRC Guidelines with respect to complying with traffic congestion and density.

➤ **Already mentioned in Section A Point viii.**

(55) No stacking allowed on road side along National Highways.

➤ **No stacking will be done. The sand will be taken directly to the sand yards of our underground mines.**

Impact Category: Closure and Reclamation of Mined Out Area

(56) The Project Proponent shall undertake phased restoration, reclamation and rehabilitation of land affected by mining and completes this work before abandonment of mine.

➤ **No land will be affected due to the project.**

(57) Restoration, reclamation and rehabilitation in cluster should be done systematically and jointly by each EC holder in that cluster. This should be appropriately reflected as EC condition in each EC in cluster.

➤ **This is not applicable as this is a single mine lease and not part of any EC cluster.**

(58) Site specific plan with eco-restoration should be in place and implemented.

- **Tree plantation activities will be done in the area as part of eco-restoration.**

Impact Category: Health and Safety

(59) Health and safety of workers should be taken care of.

- **All the safety procedures will be implemented including safe driving checks and over-speeding checks. Health care to workers will be provided at our Hospital.**

(60) Transport of mineral will not be done through villages/ habitations.

- **It will not be done through any village or habitation.**

(61) The Project Proponent shall make arrangement for drinking water, first aid facility (along with species specific anti-venom provisioning) in case of emergency for the workers.

- **All the above arrangements will be done at the mining site.**

(62) Project Proponent shall implement the Disaster Management Plan if the mine lease area is located in Seismic Zone-IV. Project Proponent shall appoint a Committee to have a check over any disaster to warn workers well before for the safety of the workers. Emergency helpline number will be displayed at all levels.

- **The mine lease area lies in Seismic Zone-III so it is not applicable.**

(63) Project Proponent shall appoint an Occupational Health Specialist for Regular and Periodical medical examination of the workers engaged in the Project and records maintained; also Occupational health check-ups for workers having some ailments like BP, diabetes, habitual smokers etc. shall be undertaken once in six months and necessary remedial/ preventive measures taken accordingly. Recommendations of National Institute for Labour for ensuring good occupational environment for mine workers would also be adopted.

- **Our central hospital located at Jamadoba, already has an Occupational Health Specialist to cater to the medical checkups/ medical care of the workers. The workers involved in this project will also be provided medical care in our central hospital.**

Impact Category: Monitoring the Impact of Mining and Mineral Conservation

(64) The Project Proponent shall report monitoring data on replenishment, traffic management, levels of production, River Bank erosion and maintenance of Road etc.

- **The information has been provided in earlier points.**

(65) Use of alternate material such as M-sand in place of natural River sand shall be encouraged in order to reduce stress on natural eco-system.

➤ **We are exploring the use of BF Slag and LD Slag as replacement for sand.**

B 2: PROCEDURE FOR MONITORING OF SAND MINING:

(i) Project Proponent must ensure that the security features of Transport Permission viz. (a) Printed on Indian Bank Association (IBA) approved Magnetic Ink Character Recognition Code (MICR) paper; (b) Unique Barcode; (c) Unique Quick Response Code (QR); (d) Fugitive Ink Background; (e) Invisible Ink Mark; (f) Void Pantograph; (g) Watermark.

➤ **Online facility for transport permission has not been implemented yet in West Bengal. Manual permits are being issued by Chief Mining Officer, Asansol.**

(ii) Project proponent must ensure that the CCTV camera, Personal Computer (PC), Internet Connection, Power Back up, access control of mine lease site; and arrangement for weight or approximation of weight of mined out mineral on basis of volume of the trailer of vehicle used at mine lease site are available.

➤ **Online facility for transport permission has not been implemented yet in West Bengal. Manual permits are being issued by Chief Mining Officer, Asansol.**

(iii) Project Proponent must ensure the Scanning of Transport Permit or Receipt and Uploading on Server.

➤ **Online facility for transport permission has not been implemented yet in West Bengal. Manual permits are being issued by Chief Mining Officer, Asansol.**

(iv) The State Mines and Geology Department should print the Transport Permits/ Receipt with security features enumerated at Paragraph (i) above and issue them to the mine lease holder through the District Collector. Once these Transport Permits or Receipts are issued, they would be uploaded on the server against that mine lease area. Each receipt should be preferably with pre-fixed quantity, so the total quantity gets determined for the receipts issued. When the Transport Permit or Receipt barcode gets scanned and invoice is generated, that particular barcode gets used and its validity time is recorded on the server. So all the details of transporting of mined out material can be captured on the server and the Transport Permit or Receipt cannot be reused.

➤ **Online facility for transport permission has not been implemented yet in West Bengal. Manual permits are being issued by Chief Mining Officer, Asansol.**

- (v) The staff deployed for the purpose of checking of vehicles carrying mined mineral should be in a position to check the validity of Transport permit or Receipt by scanning them using website, Android Application and SMS.
- **Online facility for transport permission has not been implemented yet in West Bengal. Manual permits are being issued by Chief Mining Officer, Asansol.**
- (vi) In case the Vehicle breakdown, the validity of Transport Permit or Receipt shall be extended by sending SMS by driver in specific format to report breakdown of vehicle. The server will register this information and register the breakdown. The State can also establish a call centre, which can register breakdowns of such vehicles and extend the validity period. The subsequent restart of the vehicle also should be similarly reported to the server/ call centre.
- **Online facility for transport permission has not been implemented yet in West Bengal. Manual permits are being issued by Chief Mining Officer, Asansol.**
- (vii) The route of vehicle from source to destination shall be tracked through the system using check points, Radio-frequency identification (RFID) Tags and Global Positioning System (GPS) tracking.
- **GPS tracking is being done for every vehicle used for sand transportation from source to destination.**
- (viii) The system shall enable the authorities to develop periodic report on different parameters like daily lifting report, vehicle log/history, lifting against allocation and total lifting. The system can be used to generate auto mails/SMS. This will enable the District Collector/ Magistrate to get all the relevant details and will enable the authority to block the scanning facility of any site found to be indulged in irregularity. Whenever any authority intercepts any vehicle transporting illegal sand, it shall get registered on the server and shall be mandatory for the officer to fill in the report on action taken. Every intercepted vehicle should be tracked.
- **Online facility for transport permission has not been implemented yet in West Bengal. Manual permits are being issued by Chief Mining Officer, Asansol.**

C: GENERAL CONDITIONS:

- (i) No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment, Forests and Climate Change.
- **It will be complied with.**

- (ii) No change in the calendar plan including excavation, quantum of mineral and waste should be made.
 - **It will be complied with.**

- (iii) The Project Proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water and ground water for the project.
 - **This is not applicable as there will be no drawl of surface water or ground water.**

- (iv) Regular monitoring of ground water table to be carried out at the upstream and depth of water available in the dug well is to be measured. Monitoring to be done by establishing a network of existing wells and constructing new piezometers.
 - **The ground water table monitoring is being done on regular basis for pre-monsoon (May), Monsoon (July), post-monsoon (November) and winter season (January). The water level (below the ground level) and quality analysis has been done and reports are attached as Annexure-II.**

- (v) Monitoring of Ambient Air Quality to be carried out based on the 2009 Notification, as amended from time to time by the CPCB. Water sprinkling should be increased at places loading and unloading points & transfer point to reduce fugitive emissions.
 - **The Ambient Air Quality monitoring is being done as per NAAQS 2009 Notification and reports are attached as Annexure-I. Water spraying by tankers will take place on the transportation roads.**

- (vi) The upliftment of SC/ ST population, specific programmes have been taken in to consideration specially with respect to education, health care, livelihood generation, infrastructure development & promotion of sports & culture for SC/ST population and that these will be intensified in future.
 - **CSR activities by TSRDS are taking place in all the villages located nearby to the mine lease. The above points have been taken into consideration by TSRDS.**

- (vii) Plantation shall be raised in a 7.5m wide green belt in the safety zone around the mining lease, backfilled and reclaimed area, around water body, along the roads etc. by planting the native species in consultation with the local DFO/ Agriculture Department. The density of the trees should be around 2500 plants per Ha. Greenbelt shall be developed all along the mine lease area in a phased manner and shall be completed within first five years.
 - **As our lease area is located on the riverbed, tree plantation will be taken up in consultation with the village land owners. We have approached the schools and community places to provide space for tree plantation.**

- (viii) Dimension of the retaining wall at the toe of over burden dumps and OB benches within the mine to check run-off and siltation shall be based on the rain fall data.
- **This is not applicable as there will be no OB dumps.**
- (ix) Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of PM10 and PM2.5 such as haul road, loading and unloading point and transfer points. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the CPCB in this regard.
- **Emissions are envisaged during the movement of trucks from the sand lease till the colliery site. There will be no emissions during sand mining activity. Water spraying will be done on the transport roads to minimize the dust generated during transportation of sand and ultimately maintain the ambient air quality of the area below the CPCB norm.**
- (x) Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintained. Regular monitoring of water quality upstream and downstream of water bodies shall be carried out and record of monitoring data should be maintained and submitted to the Ministry of Environment, Forest and Climate Change, its Regional Office, Bhubaneswar, Central Groundwater Authority, Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board.
- **The surface water quality analysis (upstream and downstream) is being attached as Annexure-II.**
- (xi) Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and 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 & Climate Change and its Regional Office, Bhubaneswar, Central Ground Water Authority and Regional Director, Central Ground Water Board.
- **The ground water table monitoring is being done on regular basis for pre-monsoon (May), Monsoon (July), post-monsoon (October) and winter season (January). The water level (below the ground level) and quality analysis has been done and reports are attached as Annexure-II.**
- (xii) The critical parameters such as PM₁₀, PM_{2.5}, NO_x, SO_x & CO 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, DO, PH and Total Suspended Solids (TSS)]. The monitored data shall be uploaded on the website of the company as well as displayed 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, Forest and Climate Change, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance.

- **The ambient air quality analysis reports are attached as Annexure-I. There is no water discharge due to mining operation as it is sand excavation project only. The compliance report is being uploaded on company's website every time (Annexure-III).**

- (xiii) Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for PM₁₀, PM_{2.5}, NO_x, SO_x & CO 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. Data on ambient air quality should be regularly submitted to this Ministry including its regional office located at Bhubaneswar and the State Pollution Control Board/ Central Pollution Control Board once in six months.
 - **The monitoring stations have been established and monitoring job is being done on regular basis. Data on ambient quality are being sent along with EC and consent compliance reports.**

- (xiv) 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.
 - **Sand, being coarse in nature and having high moisture content, does not get air borne during gathering & transportation. However, dust control measures while transporting of sand will be in place through water tanker, coverage of trucks and optimal loading.**

- (xv) Measures should be taken for control of noise levels below 85 dBA in work Environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.
 - **Proper PPE's will be provided to all the workers.**

- (xvi) 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.
 - **No waste water generation will take place.**

- (xvii) Personnel working in dusty area should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspect.
- **It will be complied with.**
- (xviii) 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.
- **We have an established Environmental Management Cell, with qualified personnel who report directly to the General Manager of the Division.**
- (xix) 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 this ministry and its regional office located at Bhubaneswar.
- **Expenditure on Environmental Protection measures is monitored separately. Approx. 10 lakhs rupees have been incurred annually for water spraying activities on transportation roads.**
- (xx) The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
- **The CTE and CTO of the project have been granted by WBPCB. The permission for lifting of sand from the river bed has also been granted by Chief Mining Officer, Asansol.**
- (xxi) The regional office of this ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities should extend full co-operation to the officer (s) of the regional office by furnishing the requisite Data/ information/ monitoring reports.
- **It will be complied with.**
- (xxii) The Project Proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the MoEFCC, its Regional Office Bhubaneswar, CPCB and SPCB.
- **It is being complied with.**
- (xxiii) A copy of clearance letter will be marked to concerned Panchayat, local NGO, if any, from whom suggestions/ representations has been received while processing the proposal.
- **It has been done.**

(xxiv) 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.

➤ **It has been complied with.**

(xxv) 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 State Pollution Control Board and also at website 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.

➤ **It has been done and copies sent to regional office at Bhubaneshwar.**



General Manager (Jharia)



Annexure- I Ambient Air & Groundwater Analysis Report

Period- October'2016 to December'2016

Ambient Air Quality Report

Name of Industry : Premsinghdih Sand Mining Project

No. of sampling points : 4

Sampling Location	Date of Sampling/ Weather Condition		
	OCTOBER'16	NOVEMBER'16	DECEMBER'2016
Icchar High School, Kamargora, Icchar, Purulia	19.10.2016/ Clear	24.11.2016/ Clear	24.12.2016/ Clear
Near Kali Mandir, Railway Colony, Bhojudih	19.10.2016/ Clear	24.11.2016/ Clear	24.12.2016/ Clear
Utkramit Madhya Vidyalaya, Manpur, Chandankyari, Bokaro	20.10.2016/ Clear	25.11.2016/ Clear	25.12.2016/ Clear
Santaldih Thermal Power Station, Santaldih	20.10.2016/ Clear	25.11.2016/ Clear	25.12.2016/ Clear

Location	Latitude/ Longitude	Date	PM ₁₀	PM _{2.5}	SO ₂	NO ₂
			PM ₁₀ Level : 24 Hourly Limit- 100µg/m ³	PM _{2.5} Level : 24 Hourly Limit- 60µg/m ³	SO ₂ Level: 24 Hourly Limit- 80µg/m ³	NO ₂ Level: 24 Hourly Limit- 80µg/m ³
Icchar High School, Kamargora, Icchar, Purulia	23°37'21.6"N 86°29'25.1"E	19.10.16	53.5	28.0	6.5	9.0
		24.11.16	54.0	29.5	7.0	10.0
		25.12.16	56.0	31.5	7.5	10.5
Near Kali Mandir, Railway Colony, Bhojudih	23°38'20.7"N 86°26'46.3"E	19.10.16	54.5	29.5	7.5	10.5
		24.11.16	55.5	30.0	7.0	11.0
		25.12.16	58.5	31.0	7.7	12.0
Utkramit Madhya Vidyalaya, Manpur, Chandankyari, Bokaro	23°39'00.9"N 86°23'44.4"E	20.10.16	56.5	30.5	7.5	11.5
		25.11.16	58.5	31.5	7.6	12.5
		25.12.16	57.0	31.0	7.5	11.8
Santaldih Thermal Power Station, Santaldih	23°36'01.5"N 86°28'20.6"E	20.10.16	62.5	34.5	8.7	13.0
		25.11.16	63.0	34.0	9.5	13.5
		25.12.16	65.0	35.5	10.5	14.5
Minimum			53.50	28.00	6.50	9.00
Maximum			65.00	35.50	10.50	14.50
Average			57.88	31.38	7.88	11.65

(Signature)
Manager (Environment)



Annexure- I Ambient Air & Groundwater Analysis Report

Period- January'2017 to March'2017

Ambient Air Quality Report

Name of Industry : Premsinghdih Sand Mining Project

No. of sampling points : 4

Sampling Location	Date of Sampling/ Weather Condition		
	JANUARY'17	FEBRUARY'17	MARCH'17
Icchar High School, Kamargora, Icchar, Purulia	13.01.2017/ Clear	13.02.2017/ Clear	17.03.2017/ Clear
Near Kali Mandir, Railway Colony, Bhojudih	13.01.2017/ Clear	13.02.2017/ Clear	17.03.2017/ Clear
Utkramit Madhya Vidyalaya, Manpur, Chandankyari, Bokaro	14.01.2017/ Clear	14.02.2017/ Clear	18.03.2017/ Clear
Santaldih Thermal Power Station, Santaldih	14.01.2017/ Clear	14.02.2017/ Clear	18.03.2017/ Clear

Location	Latitude/ Longitude	Date	PM ₁₀	PM _{2.5}	SO ₂	NO ₂
			PM ₁₀ Level : 24 Hourly Limit- 100µg/m ³	PM _{2.5} Level : 24 Hourly Limit- 60µg/m ³	SO ₂ Level: 24 Hourly Limit- 80µg/m ³	NO ₂ Level: 24 Hourly Limit- 80µg/m ³
Icchar High School, Kamargora, Icchar, Purulia	23°37'21.6"N 86°29'25.1"E	13.01.17	51.5	26.5	6.0	8.5
		13.02.17	53.5	28.5	6.5	9.5
		17.03.17	55.0	30.6	7.2	9.8
Near Kali Mandir, Railway Colony, Bhojudih	23°38'20.7"N 86°26'46.3"E	13.01.17	53.5	29.0	7.0	10.0
		13.02.17	54.0	29.5	7.2	10.8
		17.03.17	56.5	30.0	7.5	11.6
Utkramit Madhya Vidyalaya, Manpur, Chandankyari, Bokaro	23°39'00.9"N 86°23'44.4"E	14.01.17	55.0	30.0	6.8	11.0
		14.02.17	57.0	30.5	7.8	12.0
		18.03.17	59.0	32.0	8.0	12.5
Santaldih Thermal Power Station, Santaldih	23°36'01.5"N 86°28'20.6"E	14.01.17	62.0	35.5	9.0	13.5
		14.02.17	65.0	36.0	10.2	14.5
		18.03.17	68.0	37.5	11.5	14.7
Minimum			51.50	26.50	6.00	8.50
Maximum			68.00	37.50	11.50	14.70
Average			57.50	31.30	7.89	11.53

Ankit
Manager (Environment)



Annexure-II

Ground Water Quality Analysis

**Ground water level fluctuation in and around Core & Buffer zone area of sand mining lease
Post-Monsoon Season- November'16**

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	23.11.2016	Prem Singhdih	11:10AM	3.8	7.3	865	670
2	23.11.2016	Lagla	09:50AM	3.5	7.0	630	550
3	23.11.2016	Alakdih	01:30PM	3.2	7.1	680	585
4	23.11.2016	Joradih	11:55AM	3.0	7.2	500	350
5	23.11.2016	SEB Quarters	10:50AM	3.2	7.0	850	630
6	23.11.2016	Kargali	12:10PM	3.0	7.2	720	575
7	23.11.2016	Kumargora	12:40PM	3.5	7.1	830	510
8	23.11.2016	Bhojudih	12:50PM	4.0	7.0	710	525
9	23.11.2016	Mahal	01:15PM	3.5	7.0	620	430
10	23.11.2016	Sudamdih	10:20AM	3.5	7.2	895	755

Winter Season- January'17

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	14.01.2017	Prem Singhdih	09:45AM	6.0	7.2	730	421
2	14.01.2017	Lagla	11:10AM	5.5	7.0	570	350
3	14.01.2017	Alakdih	10:25AM	5.7	7.0	550	375
4	14.01.2017	Joradih	11:55AM	5.5	7.2	480	410
5	14.01.2017	SEB Quarters	10:10AM	5.8	7.0	780	330
6	14.01.2017	Kargali	01:10PM	6.0	7.2	620	315
7	14.01.2017	Kumargora	12:30PM	6.5	7.1	595	395
8	14.01.2017	Bhojudih	12:45PM	5.5	7.0	620	430
9	14.01.2017	Mahal	11:40AM	5.5	7.0	485	320
10	14.01.2017	Sudamdih	11:25AM	5.2	7.2	730	350


Manager (Environment)



Annexure-II

Surface Water Quality Analysis

Sl. No.	Location	Sampling Date	Sampling Time	Temp	pH	TSS	BOD	Oil & Grease
				< 40°C	5.5 - 9.0	100 mg/l	30 mg/l	10 mg/l
1.	River Gowai Up Stream	18.03.17	12:20 PM	29.0	7.5	12.7	3.0	0.30
2.	River Damodar Down Stream	18.03.17	12:05 PM	29.1	7.9	12.0	2.2	0.25
3.	Laghla (Pond)	18.03.17	12:35 PM	31.0	7.5	65	2.5	0.25
4.	Alakhdihi(Pond)	18.03.17	01:05 PM	31.0	7.8	68	2.7	0.27
5.	Joradihi (Pond)	18.03.17	10:30 AM	30.0	7.4	75	2.0	0.35
6.	SEB Quarters (Pond)	18.03.17	10:55 AM	30.0	7.7	60	1.5	0.42
7.	Kargali (Pond)	18.03.17	11:10 AM	30.0	8.0	65	2.5	0.25
8.	Kumargora (Pond)	18.03.17	11:25 AM	30.0	7.9	62	2.0	0.20
9.	Bhojudih (Pond)	18.03.17	11:40 AM	30.0	7.5	55	2.5	0.29


Manager (Environment)



Annexure-III

Upload of compliance report on company's website

Corporate Citizen | Environ x

www.tatasteelindia.com/corporate-citizen/environment-compliance-reports.asp

- Half Yearly EC Compliance Report of 6&7 Pits Colliery Apr'16 to Sep'16
- Half Yearly EC Compliance Report of Digwadth Colliery Apr'16 to Sep'16
- Half Yearly EC Compliance Report of OCP Kalimela Apr'16 to Sep'16
- Half Yearly EC Compliance Report of Jamadoba Coal Washery Apr'16 to Sep'16
- Half Yearly EC Compliance Report of Lagla Mahal Apr'16 to Sep'16
- Half Yearly EC Compliance Report of Mahal Saharjuri Apr'16 to Sep'16
- Half Yearly EC Compliance Report of Preamsinghdih Apr'16 to Sep'16**
- Environment Statement of Ferro Management Plant Joda, Keonjhar - for the year 2015-16
- Half Yearly Compliance Report (April'16 - Oct'16) : Ferro Alloy Plant, Joda, M/s Tata Steel Limited
- Six Monthly EC Compliance Report (April'16 - Sep'16) : Ferro Alloy Plant, Bamnupal, M/s Tata Steel Limited
- Ash percentage and Quantity-Jamadoba Washery Apr-Sep 2016
- Tailing Despatch Bhelatand Washery (Sep-Oct 2016)
- Tailing Despatch Bhelatand Washery (Jul-Aug 2016)



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

(An ISO 9001:2008, 14001:2004 and OHSAS 18001:2007 Certified 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

Date: 08.03.2017

AMBIENT AIR QUALITY REPORTS

M/s. Tata Steel Ltd, Jamadoba, TATA STEEL LTD., JAMADOBA Group Plant Jharkhand

Month of Monitoring : February 2017

Date of analysis : 18.02.2017 to 27.02.2017

Ref No: SSE/16/R- 2867

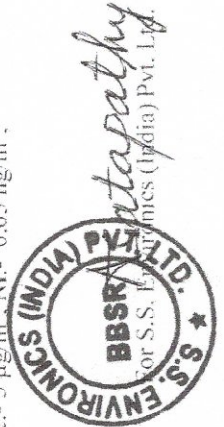
Name of Industry

Month of Monitoring

Date of analysis

Sl. No	Name of the Location	Date of Sampling	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.	Lagla gram panchayat	14.02.17	24hrly	89.12	42.25	7.6	15.2	0.16	24.2	5.1	BDL	BDL	ND	ND
2.	Saharjuri School	14.02.17	24hrly	85.18	46.32	6.4	15.8	0.12	23.8	5.0	BDL	BDL	ND	ND
3.	Ichhar High School, Purulia	15.02.17	24hrly	91.90	49.82	8.1	13.4	0.14	24.2	5.3	BDL	BDL	ND	ND
4.	Railway Colony, Bhojudih	15.02.17	24hrly	93.19	51.69	7.4	13.8	0.19	26.8	5.2	BDL	BDL	ND	ND
	CPCB Standard		24hrly	100	60	80	80	4(1hr)	400	180 (1hr)	--	--	--	--
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 & Hocheiser (Na. Arsenite) IS: 5182,Part-6	Non Dispersive Infrared Spectroscopy (NDIR) IS: 5182,Part-10	1.Chemiluminescence 2.Iodophenol Blue Method APHA-401	1.Chemiluminescence 2.Chemical Method IS: 5182,Part-9	ICP Method After Sampling on EPM 2000 OR Equivalent Filter Paper.	ICP Method After Sampling on EPM 2000 OR Equivalent Filter Paper.	ICP Method After Sampling on EPM 2000 OR Equivalent Filter Paper.	ICP Method After Sampling on EPM 2000 OR Equivalent Filter Paper.

BDL Values: PM-10:-5µg/m³, PM-2.5:- 2.0µg/m³, SO₂:- 4 µg/m³, NO_x:- 9 µg/m³, CO:- 0.1 mg/m³, Ozone:- 5 µg/m³, Ni:- 0.05 ng/m³, As:- 0.05 ng/m³, NH₃:- 20 µg/m³ ND: Not Detected





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

Ref No: SSE/16/R- 2868

Date: 08.03.2017

SURFACE WATER ANALYSIS REPORT

Name of Industry : M/s Tata Steel, Jamadoba, Tata Steel Limited, Jamadoba

Group Plant, Jharkhand

Sampling Location : SW1-Izri River (Up Stream)

: SW2- Izri River (Down Stream)

: SW3-Gowai River (Up Stream)

: SW4- Gowai River (Down Stream)

Date of Sampling : 17.02.2017

Date of Analysis : 18.02.2017 to 27.02.2017

Sl. No.	Parameters	Unit	IS: 2296, Class 'C' Standards	SW1	SW2	SW3	SW4
1	pH	--	6.5-8.5	6.85	6.83	7.27	7.44
2	Total Dissolved Solids	mg/l, Max	1500	361	365	336	273
3	Turbidity	NTU	\$	2.5	1.8	2	1.1
4	Dissolved Oxygen	mg/l	4 (min)	8.2	7.6	8	7.2
5	BOD (3 days) at 27°C	mg/l,Max	3	2.2	2.6	2.8	1.6
6	Chloride (as Cl)	mg/l, Max	600	90.47	91.97	79.97	64.92
7	Fluoride (as F)	mg/l, Max	1.5	1	0.9	0.8	0.8
8	Sulphate(as SO ₄)	mg/l, Max	400	7.8	8.2	6.2	5.7

NB: \$ - Not specified.



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

A Group concerned with Environmental Pollution