



To
The Additional Principal Chief Conservator of Forest
Eastern Central Zone
Ministry of Environment, Forests & Climate Change, Govt. of India
Bungalow no. A-2, Shyamali Colony
Ranchi-834002, Jharkhand
Email: ro.ranchi-mef@gov.in

WBD/EMC/4071/050/18

Date: 29.05.2018

Ref: Environmental Clearance letter no. J-11015/108/2016-IA.II(M) dated: 17.05.2007

Sub: **Half-yearly EC Compliance Report for the period October'17 - March'18 in respect of West Bokaro Open Cast Mine of Tata Steel Limited**

Dear Sir,

Environmental Clearance was accorded to West Bokaro Open Cast Mine of Tata Steel Limited vide Letter No. J-11015/108/2006-IA.II(M), dated: 17.05.2007. We are herewith submitting the half yearly EC Compliance Report for the period from **October'17 - March'18** as per EIA Notification, 2006 and sending the soft copy of the report to your good office on email: ro.ranchi-mef@gov.in for your ready reference.

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

Thanking you,
Yours faithfully,

Head (Environment & Forest)
West Bokaro Division
TATA Steel Limited

Copy to : The Chairman, Central Pollution Control Board, Southernd Conclave, Block 502, 5th & 6th Floors, 1582 Rajdanga Main Road, Kolkata - 700107 (W. B.)
: The Member Secretary, State Pollution Control Board, T.A. Division (Ground Floor), H.E.C. Dhurva, Ranchi - 834004 (Jharkhand)
: The Regional Officer, State Pollution Control Board, PTC Chowk, Matwari, Hazaribagh - 825301 (Jharkhand)

TATA STEEL LIMITED

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Tel 91 22 66658282 Fax 91 22 66657724

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Specific Conditions:

- (i) **No mining operations shall be undertaken in the forestland until clearance has been obtained under the provisions of FC Act, 1980.**

Compliance:

Being complied with.

- (ii) **The embankment along the River Bokaro shall be designed taking into account the highest flood level, based on past data, along the quarry area at the mine boundary along the River Bokaro so as to guard against mine inundation. The slope of the embankment shall at least 2:1 towards the ML and shall be stabilized by plantation. The height of the embankment shall be at least 5 m higher than the HFL.**

Compliance:

The existing height of the natural solid surface along the Bokaro River is more than 5 m higher than the HFL. The HFL observed was 336 meters while the lower most level of quarry boundary or natural solid surface is 346 meters. At the same time 30 meters wide solid surface has also been left from river to avoid any ingress of water in the mine pit. Further, plantation by seed spray was done on the slope surface for stabilization.

- (iii) **Topsoil should be stacked properly with proper slope at earmarked site(s) and should not be kept active and shall be used for reclamation and development of green belt.**

Compliance:

Currently, mining operation is being carried out laterally only so there is no top soil generation. Further, if there'll be any top soil generation during excavation of coal, it shall be removed and stacked separately in designated area, which'll be subsequently used for plantation and greenbelt development.

- (iv) **No new external OB dumps shall be created for storing OB. Monitoring and management of existing reclaimed dump sites should continue until the vegetation becomes self sustaining. Compliance status should be submitted to the Ministry of Environment & Forests and its Regional office located at Bhubaneswar on and yearly basis.**

Compliance:

No new external OB dumps shall be created for storing of OB. Mined-out area and existing OB dumps are available in the operating mining area, which are being used for OB dumping. The existing reclaimed dump site is being monitored & maintained to sustain vegetation. All the external OB dumps have been stabilized over the years. Abandoned dump area has been identified and taken up for reclamation.



Plantation on OB Dump

- (v) **Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The water so collected should be utilized for watering the mine area, roads, green belt development, etc. The drains should be regularly de silted and maintained properly.**

Garland drains (size, gradient and length) and sump capacity should be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity should also be provided adequate retention period to allow proper settling of silt material.

Compliance:

To arrest the silt and sediment flow from soil & OB dumps; catch drains with inward slope towards mine quarry which act as big natural sediment collection pit and no water is goes outside the mine. The water collected in the mine quarry, is reused in dust suppression in mines area. Construction of garland drain is a regular practice to take care of run-off water in the mining operation. The mine quarry act as a big sump with approx. sump capacity 50 - 120 million gallons considering maximum rainfall depending upon the catchment area. Further, accumulated mine pit water is being used in industrial and domestic purpose after necessary treatment. One of the de coaled area of Query - E site was converted into Rain Water Harvesting Structure.



Abandoned mine pit as RWH pond



Garland Drain

- (vi) **Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and siltation should be based on the rainfall data.**

Compliance:

Complied with. All the dumps are covered with toe wall and garland drains. All the drains are regularly being maintained for silt removal.



Toe wall & garland drain in the area

- (vii) Crushers at the CHP should be operated with high efficiency bag filters, water sprinkling system should be provided to check fugitive emissions from crushing operations, conveyor system, haulage roads, transfer points, etc.**

Compliance:

Crusher houses and CHP areas are equipped with dry fog dust suppression system, fixed type dust suppression system are installed at all conveyor networks, haulage roads & various mineral transfer points. Conventional coal stock yards are replaced with concrete silos for dust controls. Mobile & fixed water sprinklers (pressurized water tankers) are used in mine haul roads.



Use of Fixed & mobile water sprinklers in area

- (viii) Drills should be wet operated.**

Compliance:

All the drills are wet operated and interlocked with drill operations.

- (ix) Controlled blasting should be practiced only during day time with use of delay detonators. The mitigative measures for control of ground vibrations and to arrest the fly rocks and boulders should be implemented.**

Compliance:

Blasting in mines area is regularly being practiced in day time only. Controlled blasting is practiced in the close proximity of structure, continuous monitoring along with data collection is being practiced. Delay detonators are used to minimize vibration, dust & formation of fly rocks. However, at regular intervals scientific study is also been conducted from reputed & recognized organizations.

- (x) **Area brought under afforestation shall not be less than 1260 ha which includes reclaimed external OB dump (85 ha), backfilled area (974 ha), along ML boundary, along roads, green belt (201 ha), in undisturbed areas and in colony within the mine lease area by planting native species in consultation with the local DFO/ Agriculture Department. The density of the trees should be around 2500 plants per ha.**

Compliance:

Progressive afforestation is practiced as per plan in the area. Last year about 83000 saplings have been planted. This year a thrust has been given for green belt development along the safety zone in the area, local and native species was planted, including OB dumps, lease boundary, residential colonies, and coal dispatch area. Voluntary afforestation in & around villages is also being done with local communities.

TATA Steel is committed to conserve, enhance & restore the biodiversity in its areas of operations and made a biodiversity policy to achieve no net loss of biodiversity over a period of time. Various initiatives are taken to conserve and restore the bio-diversity in the area in consultation with IUCN & forest officials. Niche nesting project, an artificial nest of wooden boxes are being placed in & around areas for birds to enhance the population in the area is done along with water feeders.



Plantation activities



Biodiversity Initiatives

- (xi) **A Progressive Closure Plan shall be implemented by reclamation of quarry area of 974 ha which shall be backfilled and afforested by planting native plant species in consultation with the local DFO/ Agriculture Department. The density of the trees should be around 2500 plants per ha. The balance 20 ha of de-coaled area being converted into a water reservoir shall gently slope along the upper benches and stabilized and reclaimed with plantation.**

Compliance:

Mine plan & mine closure plan was approved by Ministry of Coal, which includes all plantation details. Afforestation & reclamation of de-coaled area shall be done by planting native species in consultation with DFO / Agriculture departments as per prevailing guidelines. As per approved mine plan, all dumps will be re-handled as the mine progress, however to stabilize the dumps, this year reclamation by lemon grass & mulberry plantation is done with additional area.

Lemon grass plantation in Overburden dump

One of the out pit dump area is taken up for lemon grass plantation for stabilization.



Lemon grass in the dump

Mulberry plantation in OB dump

In one of the OB dump area, mulberry plantation is done for development of greenery & stabilization of dumps.



Plantation of mulberry in dump for stabilization & reclamation

- (xii) **A Conservation Plan for endangered species found in and around the project area shall be formulated and for the medicinal plants (in-situ and ex-situ) shall be prepared and implemented in consultation with the State Forest and Wildlife Departments. Separate funds shall be earmarked for implementation of the various activities there under and the status thereof shall be regularly reported to this Ministry and the MoEF Regional Office, Bhubaneswar.**

Compliance:

The project area doesn't have any endangered species found in and around area. However, some of the plants of having medicinal values are conserved by developing an area. Separate fund has been earmarked for implementation of conservation plan along with State Forest and Wildlife Department (if any). Some of the species of medicinal importance are as:



Datura (*Datura stramonium*)



Sarpagandha (*Rauwolfia serpentina*)



Tulsi (*Ocimum sanctum*)



Periwinkle (*Catharanthus roseus*)



Ghrith Kumari (*Aloe vera*)



Coleus aromaticus (*Plectranthus amboinicus*)



Ginger (*Zingiber officinalis*)



Adosa (*Adhatoda vasica*)



Kadi patta (*Murraya koenigii*)

To conserve, restore and enhance the medicinal plants in the area, a separate medicinal garden also being prepared at one of the OB dump. Besides above several medicinal plants such as Bael (*Aegle marmelos*), Neem (*Azadirachta indica*), Avla (*Phyllanthus emblica*), Karanj (*Millettia pinnata*), Ber (*Ziziphus mauritiana*), Sarifa (*Annona squamosa*) were also planted in the area.

- (xiii) **No groundwater shall be used for the mining/project activities. Additional water required, if any, shall be met by recycling/reuse of the water from the existing activities and from rainwater harvesting measures.**

Compliance:

It is being complied and regularly practiced; no ground water is used for mining & other project activities. All the plants are operated at Zero Liquid Discharge (ZLD) and entire processed water is recycled and reused. An abandoned mine pit is converted into rain water harvesting (RWH) pond. Check dams, rain water harvesting structures are also being constructed in surrounding villages. A separate RWH cum drinking water project is constructed in the area and about 7500 villagers were benefited through pipeline drinking water at doorstep in village.



CHECK DAM WITH SHUTTERING ARRANGEMENT TO MAXIMISE THE RECHARGE OF AQUIFER



RWH cum drinking water project at Duni village



Rainwater harvesting structures

- (xiv) **Regular monitoring of groundwater level and quality should be carried out by establishing a network of existing wells and construction of new peizometers. The monitoring for quantity should be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality in May. Data thus collected should be submitted to the Ministry of Environment & Forests and to the Central Pollution Control Board quarterly within one month of monitoring.**

Compliance:

Regular ground water level monitoring of existing well is being carried out. Nov'17 and Jan'18 data area as follows:

Sl. No.	LOCATION	Depth from Surface	
		Nov-17	Jan-18
01.	Rajiv Nagar	3'4"	3'8"
02.	Jairam Hotel	4'11"	5'5"
03.	Shoping Complex	5'5"	5'7"
04.	Jagarnath Gope	8'2"	9'1"
05.	Housing	5'2"	7'1"
06.	Mukund Bera	9'3"	15'0"
07.	Driver Hut	8'0"	8'6"
08.	2 No Well	5'2"	5'2"
09.	Pundi	15'7"	31'0"
10.	Duni	5'10"	6'2"
11.	Kedla Road	11'10"	12'6"
12.	Jharna Basti	5'0"	5'2"
13.	Birhor Village	6'7"	14'2"
14.	Belgadha Village	2'5"	3'4"
15.	Chainpur Well No.1	15'10"	21'0"
16.	Chainpur Well No.2	8'3"	10'8"

- (xv) **The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource. The project authorities should meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.**

Compliance:

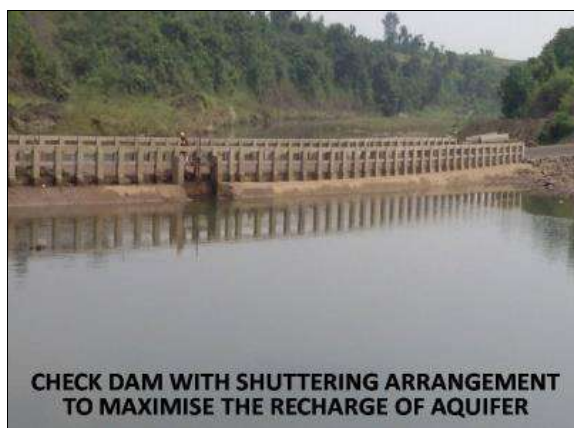
The ground water recharge measures are continuously being taken up and thrust has already been put up to streamline drinking water projects, which includes construction of ponds, bore well, check dams etc. in and around our leasehold areas. The projects also include construction of Rain Water Harvesting structures, installation of water filtration plant, in surrounding villages.



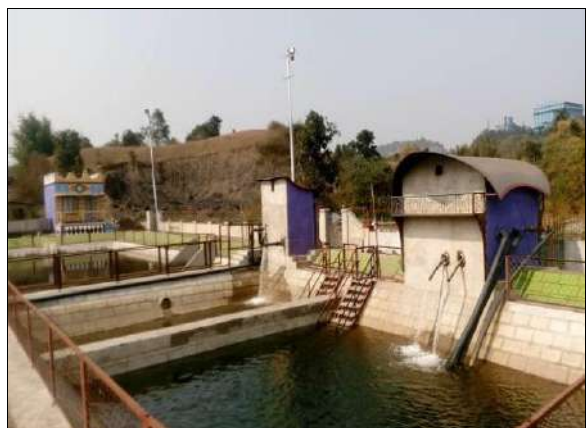
Artificial ground water recharge pit (Bore well) in Birlor village



Drinking Water system at Atna village



**CHECK DAM WITH SHUTTERING ARRANGEMENT
TO MAXIMISE THE RECHARGE OF AQUIFER**



RWH cum drinking water project at Duni village

- (xvi) **ETP should also be provided for workshop, coal washery and CHP. There shall be zero discharge of wastewater from CHP and the coal washeries. Effluents from the tailings pond shall be treated to conform to prescribed standards in case of discharge into any water course outside the lease.**

Compliance:

Zero liquid discharge (ZLD) is being maintained at Coal Washery, CHP, workshops & power plant; the effluent generated is completely recycled & reused. In addition to above, mechanical tailing dewatering system is installed for Washery & CHP area. Oil traps are also installed for workshops. The water from tailing pond after proper de-silting of tailings is recycled back to washeries to maintain zero discharge. The quality of water is being analyzed regularly. The tailing slurry is handled through high frequency screen and belt press to produce dry tailings and recover water for recycling. To address the undulated topography and to recover & recycle water a detailed study is under progress from external agency.



Coal transport by conveyor belt



Effluent recycling in washery



Mechanical tailings de-watering system



- (xvii) **A STP shall be provided for the township/colony to treat the domestic effluents to prescribed standards and for their reuse in project activities.**

Compliance:

A Sewage Treatment Plant (STP) of 240 KLD is already installed in the residential block and treated water is being reused in dust suppression of road. Further, a detailed feasibility study has been done by ISM Dhanbad for the STP requirement for the remaining areas and a STP of 300 KLD is being installed in colony area.

- (xviii) **R&R shall be based on norms laid down by the State Government and shall not be inferior than that in the National R&R Policy and shall be completed within a specified time - frame.**

Compliance:

Relocation has been done for some houses and religious structure. Glimpse of same are shown below:



Relocated Infrastructure

- (xix) **For monitoring land use pattern and for post mining land use, a time series of land use maps, based on satellite imagery (on a scale of 1: 5000) of the core zone and buffer zone, from the start of the project until end of mine life shall be prepared once in 3 years (for any one particular season which is consistent in the time series), and the report submitted to MoEF and its Regional office at Bhubaneswar.**

Compliance:

A Land use maps was prepared for core and buffer zone with a detailed study report and the same was submitted to Regional office of Ministry of Environment, Forest & Climate change.

- (xx) **A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests for approval 5 years in advance of final mine closure for approval.**

Compliance:

It will be complied five years in advance of final mine closure plan for approval. An adequate fund has been provided separately for final mine closure activity.

- (xxi) **Consent to operate shall be obtained before expanding mining operations.**

Compliance:

Consent to operate is being obtained regularly.

General Conditions:

- (i) **No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment and Forests.**

Compliance:

No change in mining technology shall be made without prior approval of the Ministry of Environment, Forests & Climate Change.

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

Compliance:

Complied with

- (iii) **Four ambient air quality monitoring stations should be established in the core zone as well as in the buffer zone for SPM, RPM, SO₂ and NO_x monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the SPCB.**

Compliance:

Consulted with Regional Officer of State Pollution Control Board, by considering the predominate wind direction, base line study and Air modeling 4 station in buffer zone and 4 stations in core zone has been established

- (iv) **Fugitive dust emissions (SPM and RPM) from all the sources should be controlled regularly monitored and data recorded properly. Water spraying arrangement on haul roads, wagon loading, dump trucks (loading and unloading) points should be provided and properly maintained.**

Compliance:

All the strategic locations of operating plants where the possibilities of fugitive dust emissions, has been provided with adequate enclosures, side skirt, chute, seal plate, sealing of transfer points along with adequate dust suppression system. All the sites are monitored regularly and data is kept for record. The haul road, loading and unloading points are provided with pressurized water tanker for water spraying along with chemical dosing, wagon loading does not require any water spraying since the coal is in moist condition.



Fixed and mobile water suppression system

- (v) **Data on ambient air quality (SPM, RPM, SO₂ and NO_x) should be regularly submitted to the Ministry including its Regional Office at Bhubneshwar and to the State Pollution Control Board and to the Central Pollution Control Board once in six months.**

Compliance:

Being complied with, All monitoring details are attached as **Annexure-I**.

Further, Continuous online ambient air quality monitoring system (CAAQMS) is installed at division and being operational. All the parameters such as PM₁₀, PM_{2.5}, NO, NO₂, NO_x, CO, SO₂, Wind Speed (in m/s), and Wind Direction (in degree) are recorded on every 15 minutes interval, all parameters were measured by analyzers equipped in mobile van. A displayed unit is also, installed at main entrance of division. All the instruments including mobile van is supplied by CPCB authorized agency & approved from USEPA. The data connectivity with CPCB server & transmission facility is being installed.



Continuous Ambient Air Quality machine (CAAQMS) for data monitoring system

Environmental monitoring data is attached as an **Annexure-I** & external monitoring report from NABL accredited laboratory is also attached as **Annexure-II**.

Online emission monitoring for FBC based 2x10MW captive power plant is installed at for PM, SO₂ & NO_x monitoring in stack and continuously being transmitted to JSPCB server. Electro Static Precipitator (ESP) is attached with the power plant and is regularly being maintained. The quality & quantity of emission is maintained well within limit as per standard. The approval for data connectivity permission to CPCB is recently granted to vendor. All the data of PM, SO_x & NO_x are working smoothly.



Continuous Emission Monitoring for Power House for PM, Sox & NOx data

- (vi) **Adequate measures should be taken for control of noise levels below 85 db(A) in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc should be provided with ear plugs/ muffs.**

Compliance:

Control measures are being taken up to keep noise level well within limit in working environment by providing adequate enclosure/ separation to the various high noise sources, proper maintenance, provision of control room, operator's a/c cabin etc. In addition, all the persons are provided with PPEs such as ear plug/ muff during work. Warning signs in local language are also displayed at various areas in mines & plant. An adequate green belt is also maintained in the area.



Noise control measures in the area

- (vii) **Industrial wastewater (workshop and wastewater 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 before discharge. Oil and grease trap should be installed before discharge of workshop effluents.**

Compliance:

The Industrial wastewaters generated from various operations are handled through effluent management system provided in all operational dept. with the objective to treat the effluent and recycle the clear water. The HEMM maintenance shops have been provided with oil trap arrangement to recover the oil during washing of equipments. The recovered used oil during washing is sold to authorized recycler as per guideline and the effluent generated is checked for quality and recycled -reused in the system.



Oil trap in mines

Zero Effluent Discharge (ZLD) being maintained at all units including captive power plant (2x10MW FBC). A web camera (ip: 117.244.160.6) along with flow meter is installed at discharge end and all data being regularly submitted to state pollution control board.



Live web camera footage installed at discharge point



Online Effluent Monitoring System installed at site (Power Plant)

- (viii) **Vehicular emissions should be kept under control and regularly monitored Vehicles used for transporting the mineral should be covered with tarpaulins and optimally loaded.**

Compliance:

Vehicular emission is kept under control by regularly monitoring & maintenance of vehicles. Overloading of vehicles is avoided during mineral transport. All the vehicles during transport of material covered with tarpaulin sheet. In future, the mineral transportation will be done by Pipe conveyor.



Transportation of mineral

- (ix) **Environmental laboratory should be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board.**

Compliance:

A full-fledged Environmental laboratory is functioning with adequate number of pollution monitoring and analysis instruments. Accreditation of laboratory from State Pollution Control Board & NABL is under process.

- (x) **Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance programme of the workers should be undertaken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed.**

Compliance:

All dusty areas such as crushers etc. are provided with dry fog system and fixed dust sprinklers so as to eliminate dust from source. All haul roads, are equipped with fixed and mobile dust sprinklers. All drill operations are wet only. The operators of various HEMM being operated inside the mines are provided with air-condition cabins. In addition, dust mask has been provided to the personnel working in dusty area. The persons have been imparted necessary training on safe work practices and appraised the adverse consequences on health in case of any violation of the practices. Occupation health surveillance programme is being conducted on regular basis in our Hospital for health check up as per the coal mines rule. The health awareness programme is also being conducted regularly in all the departments.

- (xi) **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 company.**

Compliance:

A separate Environment Management Cell is in place with qualified person reporting to Top management.

- (xii) **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 at Bhubaneswar.**

Compliance:

The Environmental Management Cell of West Bokaro Division having separate fund for environmental protection measures / compliance to legal requirements. Besides above, all other departments are also maintaining expenditure details for environmental protection measures in their working area. The expenditure occurred during the financial year 2017-18 is more than Rs. 3650.00 Lakh.

- (xiii) **The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/ information/monitoring reports.**

Compliance:

Being complied with.

- (xiv) **A copy of the clearance letter will be marked to concerned Panchayat/ local NGO, if any, from whom any suggestion/representation has been received while processing the proposal.**

Compliance:

Complied with.

- (xv) **State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Centre and Collector's Office/ Tehsildar's Office for 30 days.**

Compliance:

Complied with.

- (xvi) **The Project authorities should advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days 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 may also be seen at the website of the ministry of Environment & Forests at <http://envfor.nic.in>.**

Compliance:

Complied with.

AMBIENT AIR QUALITY REPORT

(As National Ambient air quality monitoring standard dated 18th November, 2009)
Oct'17 - Dec'17

Industry Name: West Bokaro Division, Tata Steel Limited

Date of Sampling	Near Banji				Near Pundi				Near Mukundbeda				Near Duni				Near Chainpur Mandap							
	PM ₁₀	PM _{2.5}	SO ₂	NO _x	Date of Sampling	PM ₁₀	PM _{2.5}	SO ₂	NO _x	Date of Sampling	PM ₁₀	PM _{2.5}	SO ₂	NO _x	Date of Sampling	PM ₁₀	PM _{2.5}	SO ₂	NO _x	Date of Sampling	PM ₁₀	PM _{2.5}	SO ₂	NO _x
03-Oct-17	49	23	11	18	03-Oct-17	41	21	14	27	04-Oct-17	64	45	10	35	03-Oct-17	41	25	18	33	04-Oct-17	66	41	16	25
05-Oct-17	53	35	13	29	05-Oct-17	49	23	14	25	10-Oct-17	72	43	12	23	05-Oct-17	45	27	14	23	10-Oct-17	55	29	10	35
09-Oct-17	51	27	13	23	09-Oct-17	43	25	16	29	12-Oct-17	68	33	18	33	09-Oct-17	45	27	16	29	12-Oct-17	57	25	10	31
16-Oct-17	43	21	14	25	16-Oct-17	45	29	14	25	18-Oct-17	59	29	14	23	16-Oct-17	50	29	14	27	18-Oct-17	53	23	12	29
23-Oct-17	43	23	12	29	23-Oct-17	41	23	14	27	25-Oct-17	45	23	16	25	23-Oct-17	43	27	12	29	25-Oct-17	47	25	12	27
26-Oct-17	41	21	16	27	26-Oct-17	41	21	12	29	30-Oct-17	55	29	16	33	26-Oct-17	41	27	14	31	30-Oct-17	59	29	23	33
01-Nov-17	57	37	14	27	01-Nov-17	53	25	16	23	06-Nov-17	74	45	14	29	01-Nov-17	47	27	16	23	06-Nov-17	57	27	14	38
08-Nov-17	51	29	12	31	08-Nov-17	53	27	14	31	09-Nov-17	70	33	16	31	08-Nov-17	53	29	16	35	09-Nov-17	74	45	14	29
13-Nov-17	45	31	12	21	13-Nov-17	49	25	16	39	15-Nov-17	57	29	14	29	13-Nov-17	49	27	12	31	15-Nov-17	55	27	18	30
20-Nov-17	43	25	14	27	20-Nov-17	43	23	14	23	22-Nov-17	70	35	14	33	20-Nov-17	45	29	10	29	22-Nov-17	49	25	10	28
23-Nov-17	41	23	16	31	23-Nov-17	45	25	12	21	27-Nov-17	74	33	18	37	23-Nov-17	45	27	12	27	27-Nov-17	64	33	18	33
28-Nov-17	53	37	16	37	28-Nov-17	53	29	18	33	02-Nov-17	64	39	22	41	28-Nov-17	53	35	23	39	02-Nov-17	57	29	18	33
04-Dec-17	53	29	14	29	04-Dec-17	49	27	14	25	06-Dec-17	70	43	23	39	04-Dec-17	43	33	16	33	06-Dec-17	70	43	23	39
07-Dec-17	51	29	16	31	07-Dec-17	53	29	21	21	11-Dec-17	74	33	12	27	07-Dec-17	49	29	10	31	11-Dec-17	64	33	14	31
13-Dec-17	45	25	16	29	13-Dec-17	47	27	12	23	18-Dec-17	57	27	10	29	13-Dec-17	45	27	12	29	18-Dec-17	53	27	12	29
20-Dec-17	43	23	14	35	20-Dec-17	45	25	16	29	21-Dec-17	53	27	16	31	20-Dec-17	41	27	16	37	21-Dec-17	57	25	12	27
25-Dec-17	49	29	16	33	25-Dec-17	49	28	12	23	27-Dec-17	57	33	14	33	25-Dec-17	55	33	12	30	27-Dec-17	53	29	10	29
28-Dec-17	45	27	12	27	28-Dec-17	45	23	14	29	29-Dec-17	53	29	16	29	28-Dec-17	45	29	16	33	29-Dec-17	49	23	14	33
Minimum	41	21	11	18	Minimum	41	21	12	21	Minimum	45	23	10	23	Minimum	41	25	10	23	Minimum	47	23	10	25
Maximum	57	37	16	37	Maximum	53	29	21	39	Maximum	74	45	23	41	Maximum	55	35	23	39	Maximum	74	45	23	39
Average	48	27	14	28	Average	47	25	15	26	Average	63	34	16	31	Average	47	28	15	30	Average	58	30	15	31
Limit (µg/m3)	100	60	80	80	Limit (µg/m3)	100	60	80	80	Limit (µg/m3)	100	60	80	80	Limit (µg/m3)	100	60	80	80	Limit (µg/m3)	100	60	80	80

Sr. Mgr. (Env. & Forest)
West Bokaro Division
Tata Steel Limited

AIR QUALITY REPORT AT WORK PLACE

(As per GSR 742 (E), dated 25th Sept 2009)

Oct'17 - Dec'17

Industry Name: West Bokaro Colliery

Date of Sampling	CMC			FRS			FMS				
	SO ₂	NO _x	SPM	Date of Sampling	SO ₂	NO _x	SPM	Date of Sampling	SO ₂	NO _x	SPM
03 Oct-17	14	45	171	03 Oct-17	12	27	161	05 Oct-17	23	26	113
11-Oct-17	16	39	156	11-Oct-17	16	23	166	19-Oct-17	16	23	113
02 Nov-17	16	46	172	02 Nov-17	14	26	171	06 Nov-17	21	23	121
23-Nov-17	12	47	146	23-Nov-17	16	23	156	16-Nov-17	18	27	123
04 Dec-17	18	45	174	05 Dec-17	11	23	172	06 Dec-17	18	25	125
25-Dec-17	14	43	166	25-Dec-17	12	25	156	26-Dec-17	16	27	121
Minimum	12	39	146	Minimum	11	23	156	Minimum	16	23	113
Maximum	18	47	174	Maximum	16	27	172	Maximum	23	27	125
Average	15	44	164	Average	14	24	164	Average	19	25	119
Limit (µg/m ³)	120	120	300	Limit (µg/m ³)	120	120	300	Limit (µg/m ³)	120	120	300

MINE WATER QUALITY REPORT

Oct'17 - Dec'17

Industry Name: West Bokaro Colliery

Date of Sampling	Q-SE			Q-ACD			Q-E				
	pH	TSS	OH & Grease	Date of Sampling	pH	TSS	OH & Grease	Date of Sampling	pH	TSS	OH & Grease
03-Oct-17	7.57	20	64	04-Oct-17	7.74	18	64	05-Oct-17	8.0	16	32
01-Nov-17	8.0	18	32	02-Nov-17	8.2	16	32	06-Nov-17	8.2	16	32
04-Dec-17	7.8	18	32	05-Dec-17	7.74	16	32	06-Dec-17	7.62	14	32
Minimum	7.6	18	32	Minimum	7.74	16	32	Minimum	7.6	14	32
Maximum	8	20	64	Maximum	8.2	18	64	Maximum	8.2	16	32
Average	7.8	19	43	Average	8	17	42.6667	Average	7.9	15	32
Limit	5.5-9.0	100	250	Limit	5.5-9.0	100	250	Limit	5.5-9.0	100	250

AMBIENT NOISE MONITORING REPORT

Oct'17 - Dec'17

Industry Name: West Bokaro Colliery

Date of Sampling	Q-SE		Q-ACD		Q-E	
	Day Time Limit	Night Time Level	Day Time Limit	Night Time Level	Day Time Limit	Night Time Level
03-Oct-17	75	66	75	68	75	56
01-Nov-17	75	68	75	66	75	55
04-Dec-17	75	66	75	68	75	55
Minimum	75	66	75	66	75	55
Maximum	75	68	75	68	75	56
Average	75	66	75	67	75	56

(Signature)

Sr. Mgr. (Env. & Forest)
West Bokaro Division
Tata Steel Limited

AIR QUALITY REPORT AT WORK PLACE

(As per GSR 742 (E), dated 25th Sept 2009)

Period: Oct'17 - Dec'17

Industry Name: Washey Complex (W-II)

Date of Sampling	SO ₂	NO _x	RPM	SPM
09 Oct.17	16	43	159	428
24 Oct.17	14	45	166	474
07 Nov.17	18	45	172	480
21 Nov.17	16	47	178	484
07 Dec.17	27	45	176	496
28 Dec.17	23	43	166	474
Minimum	14	43	159	428
Maximum	27	47	178	496
Average	19	45	170	473
Limit (µg/m³)	120	120	300	700

EFFLUENT QUALITY REPORT

Period: Oct'17 - Dec'17

Industry Name: Washey Complex -TP-08

Date of Sampling	pH	TSS	COD	BOD	Oil & Grease	Phenolics
09-Oct-17	7.96	20	128	7.4	<1.0	<1.0
07-Nov-17	8.0	14	64	7.8	<1.0	<1.0
07-Dec-17	7.98	28	96	7.8	<1.0	<1.0
Minimum	7.96	14	64	7.4	<1.0	<1.0
Maximum	8.0	28	128	7.8	<1.0	<1.0
Average	7.98	21	96	7.7	<1.0	<1.0
Limit	5.5-9.0	100 mg/L	250 mg/L	30 mg/L	5 mg/L	1 mg/L

Note:

1. Zero liquid discharge (ZLD) is being maintained at Washery. Effluent generated is 100% recycled and reused.
2. All values are well within limits.

AMBIENT NOISE MONITORING REPORT

Period: Oct'17 - Dec'17

Industry Name: Washey Complex (W-II)

Date of Sampling	Day Time		Night Time	
	Limit	Level	Limit	Level
09-Oct-17	75	55	70	53
07-Nov-17	75	56	70	54
07-Dec-17	75	58	70	55
Minimum	75	55	70	53
Maximum	75	58	70	55
Average	75	56	70	54

Washey Complex

Sr. Mgr.(Env. & Forest)
West Bokaro Division
Tata Steel Limited

AIR QUALITY REPORT AT WORK PLACE

(As per GSR 742 (E), dated 25th Sept 2009)

Period: Oct'17 - Dec'17**Industry Name: Washey Complex (W-III)**

Date of Sampling	SO ₂	NO _x	RPM	SPM
09 Oct.17	16	43	159	428
24 Oct.17	14	45	166	474
07 Nov.17	18	45	172	480
21 Nov.17	16	47	178	484
07 Dec.17	27	45	176	496
28 Dec.17	23	43	166	474
Minimum	14	43	159	428
Maximum	27	47	178	496
Average	19	45	170	473
Limit (µg/m³)	120	120	300	700

EFFLUENT QUALITY REPORT**Period: Oct'17 - Dec'17****Industry Name: Washey Complex -TP-08**

Date of Sampling	pH	TSS	COD	BOD	Oil & Grease	Phenolics
09-Oct-17	7.96	20	128	7.4	<1.0	<1.0
07-Nov-17	8.0	14	64	7.8	<1.0	<1.0
07-Dec-17	7.98	28	96	7.8	<1.0	<1.0
Minimum	7.96	14	64	7.4	<1.0	<1.0
Maximum	8.0	28	128	7.8	<1.0	<1.0
Average	7.98	21	96	7.7	<1.0	<1.0
Limit	5.5-9.0	100 mg/L	250 mg/L	30 mg/L	5 mg/L	1 mg/L

Note:

1. Zero liquid discharge (ZLD) is being maintained at Washery. Effluent generated is 100% recycled and reused.
2. All values are well within limits.

AMBIENT NOISE MONITORING REPORT**Period: Oct'17 - Dec'17****Industry Name: Washey Complex (W-III)**

Date of Sampling	Day Time		Night Time	
	Limit	Level	Limit	Level
09-Oct-17	75	55	70	53
07-Nov-17	75	56	70	54
07-Dec-17	75	58	70	55
Minimum	75	55	70	53
Maximum	75	58	70	55
Average	75	56	70	54

Washey Kashyap

Sr. Mgr.(Env. & Forest)
West Bokaro Division
Tata Steel Limited

AIR QUALITY REPORT AT WORK PLACE

(As per GSR 742 (E), dated 25th Sept 2009)

Period: Oct'17 - Dec'17

Industry Name: Power House

Date of Sampling	SO ₂	NO _x	RPM	SPM
09 Oct.17	16	43	159	428
24 Oct.17	14	45	166	474
07 Nov.17	18	45	172	480
21 Nov.17	16	47	178	484
07 Dec.17	27	45	176	496
28 Dec.17	23	43	166	474
Minimum	14	43	159	428
Maximum	27	47	178	496
Average	19	45	170	473
Limit (µg/m3)	120	120	300	700

AMBIENT NOISE MONITORING REPORT

Period: Oct'17 - Dec'17

Industry Name: Power House

Date of Sampling	Day Time		Night Time	
	Limit	Level	Limit	Level
09-Oct-17	75	55	70	53
07-Nov-17	75	56	70	54
07-Dec-17	75	58	70	55
Minimum	75	55	70	53
Maximum	75	58	70	55
Average	75	56	70	54

EFFLUENT QUALITY REPORT

Period: Oct'17 - Dec'17

Industry Name: Power House (SEB Ash Pond)

Date of Sampling	Temp in C	Color	pH	TSS	TDS	TS	COD	BOD	Oil & Grease
12-Oct-17		Colorless	7.67	14	460	474	64	7.6	<1.0
13-Nov-17		Colorless	8.00	14	470	484	32	7.8	<1.0
13-Dec-17		Colorless	7.68	16	490	506	64	7.6	<1.0
Minimum	0	Colorless	7.67	14	460	474	32	7.6	<1.0
Maximum	0	Colorless	8.00	16	490	506	64	7.8	<1.0
Average	#DIV/0!	Colorless	7.8	15	473	488	53	7.7	<1.0
Limit	5 C difference	Colorless	6.5-8.5	100 mg/L	2100 mg/L	2200 mg/L	250 mg/L	30 mg/L	5 mg/L

Note:

Atsaya Kashyap

Sr. Mgr.(Env. & Forest)
West Bokaro Division
Tata Steel Limited

Stack Emission Monitoring Report
(2 x 10 MW FBC Power Plant and 5 MWA DG set unit of, West Bokaro Division, TATA Steel Ltd)

Sl. No.	PARAMETERS	DETAILS	CPCB Limit:
1	Name of industry	Power House	
2	Production capacity	2x10 MW	
3	Date of sampling	20.12.2017	
4	Weather condition	Normal dry	
5	Stack No if any	Boiler No. 02	
6	Stack height from ground meter	38	
7	Stack dia at sampling point (m)	2.28	
8	Area of stack (m ²)	4.085	
9	Height of sampling port (meter)	18.3	
10	Atmospheric temperature (deg C)	28	
11	Stack gas temperature (deg C)	105	
12	Velocity of gas (m/s)	24.53	
13	Quantity of gas flow (Nm ³ /hr)	231049	
14	Dust concentration (mg/Nm ³)	60	100
15	Concentration of SO ₂ (mg/Nm ³)	110	600
16	Concentration of NO _x (mg/Nm ³)	164	600
17	Details of Pollution Control Device attached with stack	Electro Static Precipitator (ESP)	
18	Name of fuel & quantity used	Rejects coal 700 T/Day	

Note:

1. Online stack monitoring system (PM, Sox & NOx) is installed for both chimneys / stack of Power plant.
2. Continuous monitoring of stack (every 15 min) data is uploaded at JSPCB/CPCB server.
3. All the values are within limit.

Uday Kashyap

Sr. Mgr.(Env. & Forest)
West Bokaro Division
Tata Steel Limited

AIR QUALITY REPORT AT WORK PLACE

(As per GSR 742 (E), dated 25th Sept 2009)

Period: Oct'17 - Dec'17**Industry Name: Logistics (Dispatch)**

Date of Sampling	SO ₂	NO _x	RPM	SPM
10 Oct.17	12	27	113	384
26-Oct-17	18	25	135	371
08 Nov.17	16	29	125	390
28-Nov-17	14	27	131	381
11 Dec.17	21	33	129	420
21-Dec-17	14	25	127	381
Minimum	12	25	113	371
Maximum	21	33	135	420
Average	16	27	127	388
Limit (µg/m³)	120	120	300	700

EFFLUENT QUALITY REPORT**Period: Oct'17 - Dec'17****Industry Name: Logistics (Dispatch)**

Date of Sampling	pH	TSS	COD	BOD	Oil & Grease	Phenolics
10-Oct-17	7.33	14	32	7.8	<1.0	<1.0
08-Nov-17	8.2	16	32	7.9	<1.0	<1.0
11-Dec-17	7.42	16	32	7.4	<1.0	<1.0
Minimum	7.33	14	32	7.4	<1.0	<1.0
Maximum	8.2	16	32	7.9	<1.0	<1.0
Average	7.7	15.3	32	7.7	<1.0	<1.0
Limit	5.5-9.0	100 mg/L	250 mg/L	30 mg/L	5 mg/L	1 mg/L

Note:

1. Zero liquid discharge (ZLD) is being maintained at Dispatch / Logistic (Railway siding).
2. Oil tarp is installed at HEMM washing area.
3. All values are well within limits.

AMBIENT NOISE MONITORING REPORT**Period: Oct'17 - Dec'17****Industry Name: Logistics (Dispatch)**

Date of Sampling	Day Time		Night Time	
	Limit	Level	Limit	Level
10-Oct-17	75	54	70	53
08-Nov-17	75	54	70	52
11-Dec-17	75	56	70	53
Minimum	75	54	70	52
Maximum	75	56	70	53
Average	75	55	70	53

Waseem Kashyap

Sr. Mgr.(Env. & Forest)
West Bokaro Division
Tata Steel Limited

AIR QUALITY REPORT AT WORK PLACE

(As per GSR 742 (E), dated 25th Sept 2009)

Period: Oct'17 - Dec'17

Industry Name: Tata Central Hospital- West Bokaro

Date of Sampling	SO ₂	NO _x	RPM	SPM
09 Oct.17	11	30	109	223
24 Oct.17	10	32	115	220
07 Nov.17	13	32	123	234
21 Nov.17	11	33	125	230
07 Dec.17	19	32	120	225
28 Dec.17	16	30	110	230
Minimum	10	30	109	220
Maximum	19	33	125	234
Average	13	31	117	227
Limit (µg/m ³)	120	120	300	700

EFFLUENT QUALITY REPORT

Period: Oct'17 - Dec'17

Industry Name: Neutralization Tank

Date of Sampling	pH	TSS	COD	BOD	Oil & Grease	Phenolics
09-Oct-17	7.96	19	130	7.4	<1.0	<1.0
07-Nov-17	8.0	11	65	7.8	<1.0	<1.0
07-Dec-17	7.98	25	100	7.8	<1.0	<1.0
Minimum	7.96	11	65	7.4	<1.0	<1.0
Maximum	8.0	25	130	7.8	<1.0	<1.0
Average	7.98	18	98	7.7	<1.0	<1.0
Limit	5.5-9.0	100 mg/L	250 mg/L	30 mg/L	5 mg/L	1 mg/L

Note:

1. Zero liquid discharge (ZLD) is being maintained at the division.
2. All values are well within limits.

AMBIENT NOISE MONITORING REPORT

Period: Oct'17 - Dec'17

Industry Name: Tata Central Hospital- West Bokaro

Date of Sampling	Day Time		Night Time	
	Limit	Level	Limit	Level
09-Oct-17	50	30	40	10
07-Nov-17	50	35	40	15
07-Dec-17	50	33	40	12
Minimum	50	30	40	10
Maximum	50	35	40	15
Average	50	33	40	12

Sr. Mgr.(Env. & Forest)
West Bokaro Division
Tata Steel Limited

AMBIENT AIR QUALITY REPORT

(As National Ambient air quality monitoring standard dated 18th November, 2009)
Jan'18 to Mar'18

Industry Name: West Bokaro Division, Tata Steel Limited

Date of Sampling	Near Banji				Near Pundi				Near Mukundbeda				Near Duni				Near Chainpur Mandap							
	PM ₁₀	PM _{2.5}	SO ₂	NO _x	Date of Sampling	PM ₁₀	PM _{2.5}	SO ₂	NO _x	Date of Sampling	PM ₁₀	PM _{2.5}	SO ₂	NO _x	Date of Sampling	PM ₁₀	PM _{2.5}	SO ₂	NO _x	Date of Sampling	PM ₁₀	PM _{2.5}	SO ₂	NO _x
02-Jan-18	56	25	11	19	02-Jan-18	50	21	15	27	04-Jan-18	95	50	10	36	02-Jan-18	50	25	19	33	04-Jan-18	86	53	17	25
08-Jan-18	61	39	14	29	08-Jan-18	60	23	15	25	10-Jan-18	98	48	13	23	08-Jan-18	55	27	15	23	10-Jan-18	73	37	10	36
15-Jan-18	58	30	14	23	15-Jan-18	52	25	17	29	17-Jan-18	94	37	19	33	15-Jan-18	55	27	17	29	17-Jan-18	75	32	10	31
22-Jan-18	49	23	15	25	22-Jan-18	55	29	15	25	24-Jan-18	88	32	15	23	22-Jan-18	61	29	15	27	24-Jan-18	70	29	13	29
29-Jan-18	49	25	13	29	29-Jan-18	50	23	15	27	31-Jan-18	67	25	17	25	29-Jan-18	52	27	13	29	31-Jan-18	62	32	13	27
05-Feb-18	47	23	17	27	05-Feb-18	50	21	13	29	07-Feb-18	82	32	17	33	05-Feb-18	50	27	15	31	07-Feb-18	78	37	23	33
12-Feb-18	65	41	15	27	12-Feb-18	65	25	17	23	14-Feb-18	95	50	15	29	12-Feb-18	57	27	17	23	14-Feb-18	75	34	15	39
19-Feb-18	58	32	13	31	19-Feb-18	65	27	15	31	21-Feb-18	90	37	17	31	19-Feb-18	65	29	17	36	21-Feb-18	97	58	15	29
23-Feb-18	51	34	13	21	23-Feb-18	60	25	17	40	26-Feb-18	85	32	15	29	23-Feb-18	60	27	13	31	26-Feb-18	73	34	19	30
01-Mar-18	49	27	15	27	01-Mar-18	52	23	15	23	05-Mar-18	97	39	15	33	01-Mar-18	55	29	10	29	05-Mar-18	65	32	10	28
07-Mar-18	47	25	17	31	07-Mar-18	55	25	13	21	12-Mar-18	95	37	19	38	07-Mar-18	55	27	13	27	12-Mar-18	83	42	19	33
14-Mar-18	61	41	17	38	14-Mar-18	65	29	19	33	19-Mar-18	95	44	22	42	14-Mar-18	65	36	23	40	19-Mar-18	75	37	19	33
21-Mar-18	61	32	15	29	21-Mar-18	60	27	15	25	26-Mar-18	97	48	23	40	21-Mar-18	52	33	17	33	26-Mar-18	91	56	23	40
28-Mar-18	58	32	17	31	28-Mar-18	65	29	21	21	30-Mar-18	95	37	13	27	28-Mar-18	60	29	10	31	30-Mar-18	83	42	15	31
Minimum	47	23	11	19	Minimum	50	21	13	21	Minimum	67	25	10	23	Minimum	50	25	10	23	Minimum	62	29	10	25
Maximum	65	41	17	38	Maximum	65	29	21	40	Maximum	98	50	23	42	Maximum	65	36	23	40	Maximum	97	58	23	40
Average	55	31	14	28	Average	57	25	16	27	Average	91	39	16	32	Average	56	29	15	30	Average	78	40	16	32
Limit (µg/m ³)	100	60	80	80	Limit (µg/m ³)	100	60	80	80	Limit (µg/m ³)	100	60	80	80	Limit (µg/m ³)	100	60	80	80	Limit (µg/m ³)	100	60	80	80

W. K. Singh

Sr. Mgr. (Env. & Forest)
West Bokaro Division
Tata Steel Limited

AIR QUALITY REPORT AT WORK PLACE
(As per GSR 712 (E), dated 25th Sept 2009)
Jan'18 to Mar'18

Industry Name: West Bokaro Colliery															
CMC				FRS				FMS							
Date of Sampling	SO ₂	NO _x	SPM	RPM	SPM	Date of Sampling	SO ₂	NO _x	SPM	RPM	SPM				
01-Jan-18	16	44	164	418	18	02-Jan-18	18	48	168	415	03-Jan-18	22	42	126	275
17-Jan-18	18	51	189	481	21	18-Jan-18	21	55	193	477	22-Jan-18	25	48	145	316
01-Feb-18	18	46	167	426	22	05-Feb-18	22	42	171	423	06-Feb-18	16	42	128	280
21-Feb-18	21	53	192	490	25	22-Feb-18	25	48	197	486	26-Feb-18	18	48	147	322
05-Mar-18	18	47	170	435	23	06-Mar-18	23	43	174	431	07-Mar-18	17	44	131	286
22-Mar-18	22	54	196	500	26	26-Mar-18	26	49	200	496	27-Mar-18	20	51	151	329
Minimum	16	44	164	418	18	Minimum	18	42	168	415	Minimum	16	42	126	275
Maximum	22	54	196	500	26	Maximum	26	55	200	496	Maximum	25	51	151	329
Average	19	49	180	458	23	Average	23	48	184	455	Average	20	46	138	301
Limit (µg/m ³)	120	120	300	700	700	Limit (µg/m ³)	120	120	300	700	Limit (µg/m ³)	120	120	300	700

MINE WATER QUALITY REPORT
Jan'18 to Mar'18

Industry Name: West Bokaro Colliery														
Q-5E				Q-ACD				Q-E						
Date of Sampling	pH	TSS	COD	OH & Grease	Date of Sampling	pH	TSS	COD	OH & Grease	Date of Sampling	pH	TSS	COD	OH & Grease
01-Jan-18	8.1	16	64	<1.0	02-Jan-18	7.9	14	64	<1.0	03-Jan-18	7.6	12	32	<1.0
01-Feb-18	8.3	18	32	<1.0	05-Feb-18	8.5	20	32	<1.0	06-Feb-18	8.2	16	32	<1.0
05-Mar-18	8.0	16	64	<1.0	06-Mar-18	8.2	18	64	<1.0	07-Mar-18	8.4	14	32	<1.0
Minimum	8.0	16	32	<1.0	Minimum	7.9	14	32	<1.0	Minimum	7.6	12	32	<1.0
Maximum	8.3	18	64	<1.0	Maximum	8.5	20	64	<1.0	Maximum	8.4	16	32	<1.0
Average	8.1	17	53	<1.0	Average	8	17	53.3333	<1.0	Average	8.1	14	32	<1.0
Limit	5.5-9.0	100	250	05 mg/L	Limit	5.5-9.0	100	250	05 mg/L	Limit	5.5-9.0	100	250	05 mg/L

AMBIENT NOISE MONITORING REPORT
Jan'18 to Mar'18

Industry Name: West Bokaro Colliery											
Q-5E				Q-ACD				Q-E			
Date of Sampling	Day Time Limit	Night Time Limit	Level	Date of Sampling	Day Time Limit	Night Time Limit	Level	Date of Sampling	Day Time Limit	Night Time Limit	Level
01-Jan-18	75	64	70	02-Jan-18	75	66	70	03-Jan-18	75	55	70
01-Feb-18	75	70	58	05-Feb-18	75	68	70	06-Feb-18	75	53	70
05-Mar-18	75	62	70	06-Mar-18	75	71	70	07-Mar-18	75	56	70
Minimum	75	62	70	Minimum	75	66	70	Minimum	75	53	70
Maximum	75	70	59	Maximum	75	71	70	Maximum	75	56	70
Average	75	65	70	Average	75	68	70	Average	75	55	70

Wilson Babbar
Sr. Mgr. (Env. & Forest)
West Bokaro Division
Tata Steel Limited

AIR QUALITY REPORT AT WORK PLACE

(As per GSR 742 (E), dated 25th Sept 2009)

Period: Jan'18 to Mar'18

Industry Name: Washey Complex (W-II)

Date of Sampling	SO ₂	NO _x	RPM	SPM
04-Jan-18	24	46	128	410
30-Jan-18	30	58	160	513
07-Feb-18	22	38	130	418
27-Feb-18	28	48	163	523
08-Mar-18	23	39	133	426
28-Mar-18	29	49	166	533
Minimum	22	38	128	410
Maximum	30	58	166	533
Average	26	46	147	470
Limit (µg/m³)	120	120	300	700

EFFLUENT QUALITY REPORT

Period: Jan'18 to Mar'18

Industry Name: Washey Complex -TP-08

Date of Sampling	pH	TSS	COD	BOD	Oil & Grease	Phenolics
04-Jan-18	8.0	26	128	8.0	<1.0	<1.0
07-Feb-18	8.3	18	64	8.2	<1.0	<1.0
08-Mar-18	8.2	16	96	8.1	<1.0	<1.0
Minimum	8.0	16	64	8.0	<1.0	<1.0
Maximum	8.3	26	128	8.2	<1.0	<1.0
Average	8.166666667	20	96	8.1	<1.0	<1.0
Limit	5.5-9.0	100 mg/L	250 mg/L	30 mg/L	5 mg/L	1 mg/L

Note:

1. Zero liquid discharge (ZLD) is being maintained at Washery. Effluent generated is 100% recycled and reused.
2. All values are well within limits.

AMBIENT NOISE MONITORING REPORT

Period: Jan'18 to Mar'18

Industry Name: Washey Complex (W-II)

Date of Sampling	Day Time		Night Time	
	Limit	Level	Limit	Level
04-Jan-18	75	58	70	55
07-Feb-18	75	54	70	56
08-Mar-18	75	62	70	52
Minimum	75	54	70	52
Maximum	75	62	70	56
Average	75	58	70	54

Washey Kashyap

Sr. Mgr.(Env. & Forest)
West Bokaro Division
Tata Steel Limited

AIR QUALITY REPORT AT WORK PLACE

(As per GSR 742 (E), dated 25th Sept 2009)

Period: Jan'18 to Mar'18

Industry Name: Washey Complex (W-III)

Date of Sampling	SO ₂	NO _x	RPM	SPM
04-Jan-18	24	46	128	410
30-Jan-18	30	58	160	513
07-Feb-18	22	38	130	418
27-Feb-18	28	48	163	523
08-Mar-18	23	39	133	426
28-Mar-18	29	49	166	533
Minimum	22	38	128	410
Maximum	30	58	166	533
Average	26	46	147	470
Limit (µg/m ³)	120	120	300	700

EFFLUENT QUALITY REPORT

Period: Jan'18 to Mar'18

Industry Name: Washey Complex -TP-08

Date of Sampling	pH	TSS	COD	BOD	Oil & Grease	Phenolics
04-Jan-18	8.0	26	128	8.0	<1.0	<1.0
07-Feb-18	8.3	18	64	8.2	<1.0	<1.0
08-Mar-18	8.2	16	96	8.1	<1.0	<1.0
Minimum	8	16	64	8	<1.0	<1.0
Maximum	8.3	26	128	8.2	<1.0	<1.0
Average	8.2	20	96	8.1	<1.0	<1.0
Limit	5.5-9.0	100 mg/L	250 mg/L	30 mg/L	5 mg/L	1 mg/L

Note:

1. Zero liquid discharge (ZLD) is being maintained at Washery. Effluent generated is 100% recycled and reused.
2. All values are well within limits.

AMBIENT NOISE MONITORING REPORT

Period: Jan'18 to Mar'18

Industry Name: Washey Complex (W-III)

Date of Sampling	Day Time		Night Time	
	Limit	Level	Limit	Level
04-Jan-18	75	58	70	55
07-Feb-18	75	62	70	52
08-Mar-18	75	60	70	56
Minimum	75	58	70	52
Maximum	75	62	70	56
Average	75	60	70	54



Sr. Mgr.(Env. & Forest)
West Bokaro Division
Tata Steel Limited

AIR QUALITY REPORT AT WORK PLACE

(As per GSR 742 (E), dated 25th Sept 2009)

Period: Jan'18 to Mar'18

Industry Name: Power House

Date of Sampling	SO ₂	NO _x	RPM	SPM
04-Jan-18	24	46	128	410
30-Jan-18	30	58	160	513
07-Feb-18	22	38	130	418
27-Feb-18	28	48	163	523
08-Mar-18	23	39	133	426
28-Mar-18	29	49	166	533
Minimum	22	38	128	410
Maximum	30	58	166	533
Average	26	46	147	470
Limit (µg/m³)	120	120	300	700

AMBIENT NOISE MONITORING REPORT

Period: Jan'18 to Mar'18

Industry Name: Power House

Date of Sampling	Day Time		Night Time	
	Limit	Level	Limit	Level
04-Jan-18	75	68	70	55
07-Feb-18	75	64	70	58
08-Mar-18	75	62	70	55
Minimum	75	62	70	55
Maximum	75	68	70	58
Average	75	65	70	56

EFFLUENT QUALITY REPORT

Period: Jan'18 to Mar'18

Industry Name: Power House (SEB Ash Pond)

Date of Sampling	Temp in C	Color	pH	TSS	TS	COD	BOD	Oil & Grease
10-Jan-18		Colorless	7.8	18	528	96	7.8	<1.0
13-Feb-18		Colorless	8.20	18	508	32	8.0	<1.0
14-Mar-18		Colorless	8.3	16	526	32	7.8	<1.0
Minimum	0	Colorless	7.8	16	508	32	7.8	<1.0
Maximum	0	Colorless	8.30	18	528	96	8.0	<1.0
Average	#DIV/0!	Colorless	8.1	17	521	53	7.9	<1.0
Limit	5 C difference	Colorless	6.5-8.5	100 mg/L	2200 mg/L	250 mg/L	30 mg/L	5 mg/L

Note:

Uday Kishore

Sr. Mgr.(Env. & Forest)
West Bokaro Division
Tata Steel Limited

Stack Emission Monitoring Report
(2 x 10 MW FBC Power Plant and 5 MWA DG set unit of, West Bokaro Division, TATA Steel Ltd)

Sl. No.	PARAMETERS	DETAILS	CPCB Limit:
1	Name of industry	Power House	
2	Production capacity	2x10 MW	
3	Date of sampling	20.12.2017	
4	Weather condition	Normal dry	
5	Stack No if any	Boiler No. 02	
6	Stack height from ground meter	38	
7	Stack dia at sampling point (m)	2.28	
8	Area of stack (m ²)	4.085	
9	Height of sampling port (meter)	18.3	
10	Atmospheric temperature (deg C)	28	
11	Stack gas temperature (deg C)	105	
12	Velocity of gas (m/s)	24.53	
13	Quantity of gas flow (Nm ³ /hr)	231049	
14	Dust concentration (mg/Nm ³)	68	100
15	Concentration of SO ₂ (mg/Nm ³)	142	600
16	Concentration of NO _x (mg/Nm ³)	138	600
17	Details of Pollution Control Device attached with stack	Electro Static Precipitator (ESP)	
18	Name of fuel & quantity used	Rejects coal 700 T/Day	

Note:

1. Online stack monitoring system (PM, Sox & NO_x) is installed for both chimneys / stack of Power plant.
2. Continuous monitoring of stack (every 15 min) data is uploaded at JSPCB/CPCB server.
3. All the values are within limit.

W. S. Kashyap

Sr. Mgr.(Env. & Forest)
West Bokaro Division
Tata Steel Limited

AIR QUALITY REPORT AT WORK PLACE

(As per GSR 742 (E), dated 25th Sept 2009)

Period: Jan'18 to Mar'18

Industry Name: Logistics (Dispatch)

Date of Sampling	SO ₂	NO _x	RPM	SPM
08-Jan-18	18	42	118	440
31-Jan-18	23	53	148	550
08-Feb-18	24	48	120	448
28-Feb-18	30	60	150	560
12-Mar-18	26	50	122	457
29-Mar-18	33	63	153	571
Minimum	18	42	118	440
Maximum	33	63	153	571
Average	26	53	135	504
Limit (µg/m³)	120	120	300	700

EFFLUENT QUALITY REPORT

Period: Jan'18 to Mar'18

Industry Name: Logistics (Dispatch)

Date of Sampling	pH	TSS	COD	BOD	Oil & Grease	Phenolics
08-Jan-18	7.9	14	32	7.6	<1.0	<1.0
08-Feb-18	8.2	16	32	7.8	<1.0	<1.0
12-Mar-18	8.2	14	32	7.8	<1.0	<1.0
Minimum	7.9	14	32	7.6	<1.0	<1.0
Maximum	8.2	16	32	7.8	<1.0	<1.0
Average	8.1	14.7	32	7.7	<1.0	<1.0
Limit	5.5-9.0	100 mg/L	250 mg/L	30 mg/L	5 mg/L	1 mg/L

Note:

1. Zero liquid discharge (ZLD) is being maintained at Dispatch / Logistic (Railway siding).
2. Oil tarp is installed at HEMM washing area.
3. All values are well within limits.

AMBIENT NOISE MONITORING REPORT

Period: Jan'18 to Mar'18

Industry Name: Logistics (Dispatch)

Date of Sampling	Day Time		Night Time	
	Limit	Level	Limit	Level
08-Jan-18	75	58	70	53
08-Feb-18	75	62	70	56
12-Mar-18	75	60	70	53
Minimum	75	58	70	53
Maximum	75	62	70	56
Average	75	60	70	54

Sr. Mgr. (Env. & Forest)
West Bokaro Division
Tata Steel Limited

AIR QUALITY REPORT AT WORK PLACE

(As per GSR 742 (E), dated 25th Sept 2009)

Period: Jan'18 to Mar'18

Industry Name: Tata Central Hospital- West Bokaro

Date of Sampling	SO ₂	NO _x	RPM	SPM
09 Oct.17	18	44	158	234
24 Oct.17	22	46	167	231
07 Nov.17	21	46	178	246
21 Nov.17	19	48	181	242
07 Dec.17	18	46	174	236
28 Dec.17	17	44	160	242
Minimum	17	44	158	231
Maximum	22	48	181	246
Average	19	45	170	238
Limit (µg/m³)	120	120	300	700

EFFLUENT QUALITY REPORT

Period: Jan'18 to Mar'18

Industry Name: Neutralization Tank

Date of Sampling	pH	TSS	COD	BOD	Oil & Grease	Phenolics
25-Jan-18	7.9	22	128	7.6	<1.0	<1.0
26-Feb-18	8.2	17	96	7.4	<1.0	<1.0
29-Mar-18	8.1	25	100	7.6	<1.0	<1.0
Minimum	7.9	17	96	7.4	<1.0	<1.0
Maximum	8.2	25	128	7.6	<1.0	<1.0
Average	8.1	21	108	7.5	<1.0	<1.0
Limit	5.5-9.0	100 mg/L	250 mg/L	30 mg/L	5 mg/L	1 mg/L

Note:

1. Zero liquid discharge (ZLD) is being maintained at the division.
2. All values are well within limits.

AMBIENT NOISE MONITORING REPORT

Period: Jan'18 to Mar'18

Industry Name: Tata Central Hospital- West Bokaro

Date of Sampling	Day Time		Night Time	
	Limit	Level	Limit	Level
25-Jan-18	50	38	40	18
26-Feb-18	50	36	40	22
29-Mar-18	50	34	40	14
Minimum	50	34	40	14
Maximum	50	38	40	22
Average	50	36	40	18

Sr. Mgr.(Env. & Forest)
West Bokaro Division
Tata Steel Limited



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TEST REPORT

Name & Address of the Customer : Tata Steel Limited, West Bokaro Division, Ghatotand, Jharkhand, Pin No-825314.	Report No. : C/ENV/A/17-18/1009 Date : 24.03.18 Sample No. : MSK/KOL/ENV/A/17-18/1009 Date of receipt of sample : 18.03.18 Date(s) of performance : 18.03.18-24.03.18 Ref. No. & Date : NA
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
We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:

1	Description of sample (As declared by customer)	: Ambient Air
2	Sample Mark (if any, given by the customer)	: NA
3	Date of sampling	: 15/16.03.2018 (12.00 hr-12.00 hr.)
4	Place of sampling	: Mukandabada Village
5	Environmental conditions during sampling	: 1) Temperature : 26-37 °C 2) Barometric Pressure: 757 mm of Hg 3) Rain Fall : Nil
6	Sampling Done by	: Raju Ghoshal/Amar Mallick
7	Sampling Plan & Procedures used	: IS/CPCB Guidelines (Volume-1)

Report prepared by:

Signature : 
Name : Shatakshi Nan
Designation : Jr. Executive QA

for **Mitra S. K. Private Limited**

Signature : 
Name : Pradip Bag
Designation : Executive Chemist
Authorized Signatory

- The results relate only to the item(s) tested.
- This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.
- The reserved part of sample(s), except perishable sample(s), shall be retained for 15 days & 1 year (Air) from the date of issue of the Test Report.
- Microbiological sealed pack water sample(s) shall be retained for 15 days & food sample(s) shall be retained for 10 days after analysis.



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Report No. : C/ENV/A/17-18/1009
Sample No. : MSK/KOL/ENV/A/17-18/1009

Analysis Result

Location : Mukandabada Village				Date of sampling: 15/16.03.2018 (12.00 hr-12.00 hr.)	
Sampling Done by: Raju Ghoshal/Amar Mallick				Sampling done as per : IS/CPCB Guidelines (Volume-1)	
Environmental Condition :				1) Temperature : 26-37 °C 2) Barometric Pressure: 757 mm of Hg 3) Rain Fall : Nil	
Sl. No.	POLLUTANT	Unit	RESULT	LIMIT	METHOD OF TEST REFERENCE
1	Particulate matter (<10 µm)	µg/m ³	167	100	IS: 5182 (Part-23)-2006 Reff: 2014
2	Particulate matter (<2.5 µm)	µg/m ³	58	60	TPM/MSK/E/5/C based on USEPA CFR-40, Part-50, Appendix-L, 2006
3	Sulphur dioxide as SO ₂	µg/m ³	9.5	80	IS: 5182 (Part-2)-2001 Reff: 2012
4	Nitrogen dioxide as NO ₂	µg/m ³	36.5	80	IS: 5182 (Part-6)-2006, Reff: 2012
5	Carbon monoxide as CO	mg/m ³	0.87	2	IS: 5182 (Part-10)-1999, Reff: 2014 (NDIR)
6	Ozone (O ₃)	µg/m ³	22.4	180	TPM/MSK/E/9/G(II) Issued on 01.10.2013 based on Air Sampling, 3 rd Edn. By James P. Lodge (Method-411)
7	Ammonia (NH ₃)	µg/m ³	18.3	400	TPM/MSK/E/9/G(I) Issued on 01.10.2013 based on Air Sampling, 3 rd Edn. By James P. Lodge (Method-401)
8	Lead (Pb)	µg/m ³	<0.02	1	EPA IO-3.2, June-1999
9	Nickel (Ni)	ng/m ³	<4.0	20	EPA IO-3.2, June-1999
10	Arsenic (As)	ng/m ³	<1.0	6	TPM/MSK/E/4/L based on APHA 22 nd 2012-3114C
11	Total Chromium (Cr)	µg/m ³	<0.06	---	EPA IO-3.2, June-1999
12	Cadmium (Cd)	µg/m ³	<0.01	---	EPA IO-3.2, June-1999

NOTE: Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Remarks : The above sampling is done by using the following Machines

Sr no.	Calibration Validity	Model/ Make No./ID
223-DTJ-2016, 421-DTJ-2016	25.07.2018	APM-860 /LES-411 (Lata Envirotech)/RDS-04
02-DTF-2016	25.07.2018	APM-154(Lata Envirotech)/FDS-02

Report prepared by:

Signature : *S. Nan*

Name : Shatakshi Nan
Designation : Jr. Executive QA

for Mitra S. K. Private Limited

Signature : *Pradip Bag*
Name : Pradip Bag
Designation : Executive Chemist
Authorized Signatory

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TEST REPORT

Name & Address of the Customer :
Tata Steel Limited,
West Bokaro Division, Ghatotand,
Jharkhand, Pin No-825314.

Report No. : C/ENV/A/17-18/1010
Date : 24.03.18
Sample No. : MSK/KOL/ENV/A/17-18/1010
Date of receipt of sample : 18.03.18
Date(s) of performance : 18.03.18-24.03.18
Ref. No. & Date : NA

We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:

1	Description of sample (As declared by customer)	: Ambient Air
2	Sample Mark (if any, given by the customer)	: NA
3	Date of sampling	: 15/16.03.2018 (12.30 hr-12.30 hr.)
4	Place of sampling	: EMC Office.
5	Environmental conditions during sampling	: 1) Temperature : 27-38 °C 2) Barometric Pressure: 758 mm of Hg 3) Rain Fall : Nil.
6	Sampling Done by	: Raju Ghoshal/Amar Mallick
7	Sampling Plan & Procedures used	: IS/CPCB Guidelines (Volume-1)

Report prepared by:

Signature : *S. Nan*
Name : Shatakshi Nan
Designation : Jr. Executive QA

for Mitra S. K. Private Limited

Signature : *Pradip Bag*
Name : Pradip Bag
Designation : Executive Chemist
Authorized Signatory

- The results relate only to the item(s) tested.
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
Report No. : C/ENV/A/17-18/1010
Sample No. : MSK/KOL/ENV/A/17-18/1010



Analysis Result

Location: EMC Office.		Date of sampling: 15/16.03.2018 (12.30 hr-12.30 hr.)			
Sampling Done by: Raju Ghoshal/Amar Mallick		Sampling done as per : IS/CPCB Guidelines (Volume-1)			
Environmental Condition : 1) Temperature : 27-38 °C 2) Barometric Pressure: 758 mm of Hg 3) Rain Fall : Nil.					
Sl No.	POLLUTANT	Unit	RESULT	LIMIT	METHOD OF TEST REFERENCE
1	Particulate matter (<10 µm)	µg/m ³	117	100	IS: 5182 (Part-23)-2006 Ref: 2014
2	Particulate matter (<2.5µm)	µg/m ³	51	60	TPM/MSK/E/5/C based on USEPA CFR-40, Part-50, Appendix-L, 2006
3	Sulphur dioxide as SO ₂	µg/m ³	9.3	80	IS: 5182 (Part-2)-2001 Ref: 2012
4	Nitrogen dioxide as NO ₂	µg/m ³	37.8	80	IS: 5182 (Part- 6)-2006, Ref: 2012
5	Carbon monoxide as CO	mg/m ³	0.98	2	IS: 5182 (Part- 10)-1999, Ref: 2014 (NDIR)
6	Ozone as (O ₃)	µg/m ³	25.4	180	TPM/MSK/E/9/G(II) Issued on 01.10.2013 based on Air Sampling, 3 rd Edn. By James P. Lodge (Method-411)
7	Ammonia as (NH ₃)	µg/m ³	18.6	400	TPM/MSK/E/9/G(T) Issued on 01.10.2013 based on Air Sampling, 3 rd Edn. By James P. Lodge (Method-401)
8	Lead (Pb)	µg/m ³	<0.02	1	EPA IO-3.2, June-1999
9	Nickel (Ni)	ng/m ³	<4.0	20	EPA IO-3.2, June-1999
10	Arsenic (As)	ng/m ³	<1.0	6	TPM/MSK/E/4/L based on APHA 22 nd 2012- 3114C
11	Total Chromium (Cr)	µg/m ³	<0.06	---	EPA IO-3.2, June-1999
12	Cadmium (Cd)	µg/m ³	<0.01	---	
NOTE: Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality					
Remarks : The above sampling is done by using the following Machines					
Sr no.	Calibration Validity	Model/ Make No./ID			
222-DTJ-2016, 420-DTJ-2016	30.07.2018	APM-860 /LES-411 (Lata Envirotech)/RDS-03			
07-DTF-2016	30.07.2018	APM-154(Lata Envirotech)/FDS-04			

Report prepared by:
Signature : 
Name : Shatakshi Nan
Designation : Jr. Executive QA

for Mitra S. K. Private Limited
Signature : 
Name : Pradip Bag
Designation : Executive Chemist
Authorized Signatory



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T-2303

TEST REPORT


Name & Address of the Customer :
 Tata Steel Limited,
 West Bokaro Division, Ghatotand,
 Jharkhand, Pin No-825314.

Report No. : C/ENV/A/17-18/1011
Date : 24.03.18
Sample No. : MSK/KOL/ENV/A/17-18/1011
Date of receipt of sample : 18.03.18
Date(s) of performance : 18.03.18-24.03.18
Ref. No. & Date : NA


We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:

1	Description of sample (As declared by customer)	: Ambient Air
2	Sample Mark (if any, given by the customer)	: NA
3	Date of sampling	: 17/18.03.2018 (13.00 hr-13.00 hr.)
4	Place of sampling	: Jharna Basti.
5	Environmental conditions during sampling	: 1) Temperature : 27-38 ^o C 2) Barometric Pressure: 758 mm of Hg 3) Rain Fall : Nil.
6	Sampling Done by	: Raju Ghoshal/Amar Mallick
7	Sampling Plan & Procedures used	: IS/CPCB Guidelines (Volume-1)

Report prepared by:

Signature : 
 Name : Shatakshi Nan
 Designation : Jr. Executive QA

for Mitra S. K. Private Limited

Signature : 
 Name : Pradip Bag
 Designation : Executive Chemist
Authorized Signatory

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- Microbiological sealed pack water sample(s) shall be retained for 15 days & food sample(s) shall be retained for 10 days after analysis.



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Report No. : C/ENV/A/17-18/1011
Sample No. : MSK/KOL/ENV/A/17-18/1011

Analysis Result

Location: Jharna Basti.			Date of sampling: 17/18.03.2018 (13.00 hr-13.00 hr.)		
Sampling Done by: Raju Ghoshal/Amar Mallick			Sampling done as per : IS/CPCB Guidelines (Volume-1)		
Environmental Condition : 1) Temperature : 27-38 ^o C 2) Barometric Pressure: 758 mm of Hg 3) Rain Fall : Nil.					
Sl. No.	POLLUTANT	Unit	RESULT	LIMIT	METHOD OF TEST REFERENCE
1	Particulate matter (<10 µm)	µg/m ³	128	100	IS: 5182 (Part-23)-2006 Ref: 2014
2	Particulate matter (<2.5µm)	µg/m ³	54	60	TPM/MSK/E/5/C based on USEPA CFR-40, Part-50, Appendix-L, 2006
3	Sulphur dioxide as SO ₂	µg/m ³	8.8	80	IS: 5182 (Part-2)-2001 Ref: 2012
4	Nitrogen dioxide as NO ₂	µg/m ³	33.4	80	IS: 5182 (Part- 6)-2006, Ref: 2012
5	Carbon monoxide as CO	mg/m ³	0.56	2	IS: 5182 (Part- 10)-1999, Ref: 2014 (NDIR)
6	Ozone (O ₃)	µg/m ³	14.5	180	TPM/MSK/E/9/G(II) Issued on 01.10.2013 based on Air Sampling, 3 rd Edn. By James P. Lodge (Method-411)
7	Ammonia (NH ₃)	µg/m ³	23.6	400	TPM/MSK/E/9/G(I) Issued on 01.10.2013 based on Air Sampling, 3 rd Edn. By James P. Lodge (Method-401)
8	Lead (Pb)	µg/m ³	<0.02	1	EPA IO-3.2, June-1999
9	Nickel (Ni)	ng/m ³	<4.0	20	EPA IO-3.2, June-1999
10	Arsenic (As)	ng/m ³	<1.0	6	TPM/MSK/E/4/L based on APHA 22 nd 2012- 3114C
11	Total Chromium (Cr)	µg/m ³	<0.06	---	EPA IO-3.2, June-1999
12	Cadmium (Cd)	µg/m ³	<0.01	---	EPA IO-3.2, June-1999
NOTE: Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality					
Remarks : The above sampling is done by using the following Machines					
Sr no.	Calibration Validity		Model/ Make No./ID		
223-DIJ-2016,421-DIJ-2016	25.07.2018		APM-860 /LES-411 (Lata Envirotech)/RDS-04		
02-DTF-2016	25.07.2018		APM-154(Lata Envirotech)/FDS-02		

Report prepared by:

Signature

S. Nan

Name

: Shatakshi Nan

Designation

: Jr. Executive QA

for Mitra S. K. Private Limited

Signature

Pradip Bag

Name

: Pradip Bag

Designation

: Executive Chemist

Authorized Signatory

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Udayan Industrial Estate,
Kolkata 700015.
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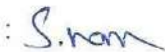
TEST REPORT

Name & Address of the Customer : Tata Steel Limited, West Bokaro Division, Ghatotand, Jharkhand, Pin No-825314.	Report No. Date Sample No. Date of receipt of sample Date(s) of performance Ref. No. & Date	: C/ENV/A/17-18/1012 : 24.03.18 : MSK/KOL/ENV/A/17-18/1012 : 18.03.18 : 18.03.18-24.03.18 : NA
---	--	---


We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:

1	Description of sample (As declared by customer)	: Ambient Air
2	Sample Mark (if any, given by the customer)	: NA
3	Date of sampling	: 16/17.03.2018 (12.30 hr-12.30 hr.)
4	Place of sampling	: Pundi Village
5	Environmental conditions during sampling	: 1) Temperature : 26-37 °C 2) Barometric Pressure: 758 mm of Hg 3) Rain Fall : Nil.
6	Sampling Done by	: Raju Ghoshal/Amar Mallick
7	Sampling Plan & Procedures used	: IS/CPCB Guidelines (Volume-1)

Report prepared by:

Signature : 
Name : Shatakshi Nan
Designation : Jr. Executive QA

for **Mitra S. K. Private Limited**

Signature : 
Name : Pradip Bag
Designation : Executive Chemist
Authorized Signatory

- The results relate only to the item(s) tested.
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- Microbiological sealed pack water sample(s) shall be retained for 15 days & food sample(s) shall be retained for 10 days after analysis.

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 Web : www.mitrask.com



Report No. : C/ENV/A/17-18/1012
Sample No. : MSK/KOL/ENV/A/17-18/1012

Analysis Result

Location: Pundi Village Date of sampling: 16/17.03.2018 (12.30 hr-12.30 hr.)
 Sampling Done by: Raju Ghoshal/Amar Mallick Sampling done as per : IS/CPCB Guidelines (Volume-1)
 Environmental Condition : 1) Temperature : 26-37 °C 2) Barometric Pressure: 758 mm of Hg 3) Rain Fall : Nil.

Sl No.	POLLUTANT	Unit	RESULT	LIMIT	METHOD OF TEST REFERENCE
1	Particulate matter (<10 µm)	µg/m ³	97	100	IS: 5182 (Part-23)-2006 Ref: 2014
2	Particulate matter (<2.5µm)	µg/m ³	49	60	TPM/MSK/E/5/C based on USEPA CFR-40, Part-50, Appendix-L, 2006
3	Sulphur dioxide as SO ₂	µg/m ³	8.4	80	IS: 5182 (Part-2)-2001 Ref: 2012
4	Nitrogen dioxide as NO ₂	µg/m ³	34.5	80	IS: 5182 (Part- 6)-2006, Ref: 2012
5	Carbon monoxide as CO	mg/m ³	0.84	2	IS: 5182 (Part- 10)-1999, Ref: 2014 (NDIR)
6	Ozone (O ₃)	µg/m ³	23.2	180	TPM/MSK/E/9/G(II) Issued on 01.10.2013 based on Air Sampling, 3 rd Edn. By James P. Lodge (Method-411)
7	Ammonia (NH ₃)	µg/m ³	15.3	400	TPM/MSK/E/9/G(I) Issued on 01.10.2013 based on Air Sampling, 3 rd Edn. By James P. Lodge (Method-401)
8	Lead (Pb)	µg/m ³	<0.02	1	EPA IO-3.2, June-1999
9	Nickel (Ni)	ng/m ³	<4.0	20	EPA IO-3.2, June-1999
10	Arsenic (As)	ng/m ³	<1.0	6	TPM/MSK/E/4/L based on APHA 22 nd 2012- 3114C
11	Total Chromium (Cr)	µg/m ³	<0.06	---	EPA IO-3.2, June-1999
12	Cadmium (Cd)	µg/m ³	<0.01	---	EPA IO-3.2, June-1999

NOTE: Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality
 Remarks : The above sampling is done by using the following Machines

Sr no.	Calibration Validity	Model/ Make No./ID
222-DTJ-2016,420-DTJ-2016	30.07.2018	APM-860 /LES-411 (Lata Envirotech)/RDS-03
07-DTF-2016	30.07.2018	APM-154(Lata Envirotech)/FDS-04

Report prepared by:

Signature : *S. Nan*
 Name : Shatakshi Nan
 Designation : Jr. Executive QA

for Mitra S. K. Private Limited
 Signature : *Pradip Bag*
 Name : Pradip Bag
 Designation : Executive Chemist
Authorized Signatory

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 Kolkata 700015.
 Tel. : 91 33 23230072. Fax : 91 33 23230078.
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 Web : www.mitrask.com



TEST REPORT

Name & Address of the Customer :
 Tata Steel Limited,
 West Bokaro Division, Ghatotand,
 Jharkhand, Pin No-825314.

Report No. : C/ENV/A/17-18/1013
Date : 24.03.18
Sample No. : MSK/KOL/ENV/A/17-18/1013
Date of receipt of sample : 18.03.18
Date(s) of performance : 18.03.18-24.03.18
Ref. No. & Date : NA

We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:

1	Description of sample (As declared by customer)	: Ambient Air
2	Sample Mark (if any, given by the customer)	: NA
3	Date of sampling	: 16/17.03.2018 (13.00 hr-13.00 hr.)
4	Place of sampling	: Bunji Village
5	Environmental conditions during sampling	: 1) Temperature : 27-38 °C 2) Barometric Pressure: 758 mm of Hg 3) Rain Fall : Nil.
6	Sampling Done by	: Raju Ghoshal/Amar Mallick
7	Sampling Plan & Procedures used	: IS/CPCB Guidelines (Volume-1)

Report prepared by:

Signature : *S. Nan*
 Name : Shatakshi Nan
 Designation : Jr. Executive QA

for **Mitra S. K. Private Limited**
 Signature : *[Signature]*
 Name : Pradip Bag
 Designation : Executive Chemist
Authorized Signatory

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- Microbiological sealed pack water sample(s) shall be retained for 15 days & food sample(s) shall be retained for 10 days after analysis.

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Web : www.mitrask.com

Report No. : C/ENV/A/17-18/1013
Sample No. : MSK/KOL/ENV/A/17-18/1013



Analysis Result

Location: Bunji Village					Date of sampling: 16/17.03.2018 (13.00 hr-13.00 hr.)
Sampling Done by: Raju Ghoshal/Amar Mallick					Sampling done as per : IS/CPCB Guidelines (Volume-1)
Environmental Condition: 1) Temperature : 27-38 °C 2) Barometric Pressure: 758 mm of Hg 3) Rain Fall : Nil.					
Sl. No.	POLLUTANT	Unit	RESULT	LIMIT	METHOD OF TEST REFERENCE
1	Particulate matter (<10 µm)	µg/m ³	92	100	IS: 5182 (Part-23)-2006 Ref: 2014
2	Particulate matter (<2.5µm)	µg/m ³	57	60	TPM/MSK/E/5/C based on USEPA CFR-40, Part-50, Appendix-L, 2006
3	Sulphur dioxide as SO ₂	µg/m ³	7.5	80	IS: 5182 (Part-2)-2001 Ref: 2012
4	Nitrogen dioxide as NO ₂	µg/m ³	32.7	80	IS: 5182 (Part- 6)-2006, Ref: 2012
5	Carbon monoxide as CO	mg/m ³	0.78	2	IS: 5182 (Part- 10)-1999, Ref: 2014 (NDIR)
6	Ozone (O ₃)	µg/m ³	18.6	180	TPM/MSK/E/9/G(II) Issued on 01.10.2013 based on Air Sampling, 3 rd Edn. By James P. Lodge (Method-411)
7	Ammonia (NH ₃)	µg/m ³	16.3	400	TPM/MSK/E/9/G(I) Issued on 01.10.2013 based on Air Sampling, 3 rd Edn. By James P. Lodge (Method-401)
8	Lead (Pb)	µg/m ³	<0.02	1	EPA IO-3.2, June-1999
9	Nickel (Ni)	ng/m ³	<4.0	20	EPA IO-3.2, June-1999
10	Arsenic (As)	ng/m ³	<1.0	6	TPM/MSK/E/4/L based on APHA 22 nd 2012- 3114C
11	Total Chromium (Cr)	µg/m ³	<0.06	---	EPA IO-3.2, June-1999
12	Cadmium (Cd)	µg/m ³	<0.01	---	EPA IO-3.2, June-1999
NOTE: Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality					
Remarks : The above sampling is done by using the following Machines					
Sr no.	Calibration Validity	Model/ Make No./ID			
223-DTJ-2016, 421-DTJ-2016	25.07.2018	APM-860 /LES-411 (Lata Envirotech)/RDS-04			
02-DTF-2016	25.07.2018	APM-154(Lata Envirotech)/FDS-02			

Report prepared by:

Signature : 

Name : Shatakshi Nan

Designation : Jr. Executive QA

for Mitra S. K. Private Limited

Signature : 

Name : Pradip Bag

Designation : Executive Chemist

Authorized Signatory



TEST REPORT


Name & Address of the Customer :
Tata Steel Limited,
West Bokaro Division, Ghatotand,
Jharkhand, Pin No-825314.

Report No. : C/ENV/A/17-18/1014
Date : 24.03.18
Sample No. : MSK/KOL/ENV/A/17-18/1014
Date of receipt of sample : 18.03.18
Date(s) of performance : 18.03.18-24.03.18
Ref. No. & Date : NA


We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:

1	Description of sample (As declared by customer)	: Ambient Air
2	Sample Mark (if any, given by the customer)	: NA
3	Date of sampling	: 17/18.03.2018 (13.30 hr-13.30 hr.)
4	Place of sampling	: Atana Village
5	Environmental conditions during sampling	: 1) Temperature : 28-38 °C 2) Barometric Pressure: 758 mm of Hg 3) Rain Fall : Nil
6	Sampling Done by	: Raju Ghoshal/Amar Mallick
7	Sampling Plan & Procedures used	: IS/CPCB Guidelines (Volume-1)

Report prepared by:

Signature : 
Name : Shatakshi Nan
Designation : Jr. Executive QA

for **Mitra S. K. Private Limited**

Signature : 
Name : Pradip Bag
Designation : Executive Chemist
Authorized Signatory

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- The reserved part of sample(s), except perishable sample(s), shall be retained for 15 days & 1 year (Air) from the date of issue of the Test Report.
- Microbiological sealed pack water sample(s) shall be retained for 15 days & food sample(s) shall be retained for 10 days after analysis.

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Web : www.mitrask.com




Report No. : C/ENV/A/17-18/1014
Sample No. : MSK/KOL/ENV/A/17-18/1014


Analysis Result

Location: Atana Village			Date of sampling: 17/18.03.2018 (13.30 hr-13.30 hr.)		
Sampling Done by: Raju Ghoshal/Amar Mallick			Sampling done as per : IS/CPCB Guidelines (Volume-I)		
Environmental Condition : 1) Temperature : 28.38 °C			2) Barometric Pressure: 758 mm of Hg		3) Rain Fall : Nil
Sl. No.	POLLUTANT	Unit	RESULT	LIMIT	METHOD OF TEST REFERENCE
1	Particulate matter (<10 µm)	µg/m ³	64	100	IS: 5182 (Part-23)-2006 Ref: 2014
2	Particulate matter (<2.5µm)	µg/m ³	39	60	TPM/MSK/E/5/C based on USEPA CFR-40, Part-50, Appendix-L, 2006
3	Sulphur dioxide as SO ₂	µg/m ³	6.7	80	IS: 5182 (Part-2)-2001 Ref: 2012
4	Nitrogen dioxide as NO ₂	µg/m ³	34.5	80	IS: 5182 (Part-6)-2006, Ref: 2012
5	Carbon monoxide as CO	mg/m ³	0.56	2	IS: 5182 (Part-10)-1999, Ref: 2014 (NDIR)
6	Ozone (O ₃)	µg/m ³	18.7	180	TPM/MSK/E/9/G(II) Issued on 01.10.2013 based on Air Sampling, 3 rd Edn. By James P. Lodge (Method-411)
7	Ammonia (NH ₃)	µg/m ³	21.8	400	TPM/MSK/E/9/G(I) Issued on 01.10.2013 based on Air Sampling, 3 rd Edn. By James P. Lodge (Method-401)
8	Lead (Pb)	µg/m ³	0.02	1	EPA IO-3.2, June-1999
9	Nickel (Ni)	ng/m ³	4.25	20	EPA IO-3.2, June-1999
10	Arsenic (As)	ng/m ³	<1.0	6	TPM/MSK/E/4/L based on APHA 22 nd 2012- 3114C
11	Total Chromium (Cr)	µg/m ³	<0.06	---	EPA IO-3.2, June-1999
12	Cadmium (Cd)	µg/m ³	<0.01	---	EPA IO-3.2, June-1999
NOTE: Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality					
Remarks : The above sampling is done by using the following Machines					
Sr no.	Calibration Validity		Model/ Make No./ID		
222-DTJ-2016, 420-DTJ-2016	30.07.2018		APM-860 /LES-411 (Lata Envirotech)/RDS-03		
07-DTF-2016	30.07.2018		APM-154(Lata Envirotech)/FDS-04		

Report prepared by:

Signature : 
Name : Shatakshi Nan
Designation : Jr. Executive QA

for **Mitra S. K. Private Limited**

Signature : 
Name : Pradip Bag
Designation : Executive Chemist
Authorized Signatory

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 Web : www.mitrask.com



TEST REPORT

Name & Address of the Customer :	Report No.	: C/ENV/A/17-18/1015
Tata Steel Limited,	Date	: 24.03.18
West Bokaro Division, Ghatotand,	Sample No.	: MSK/KOL/ENV/A/17-18/1015
Jharkhand, Pin No-825314.	Date of receipt of sample	: 18.03.18
	Date(s) of performance	: 18.03.18-24.03.18
	Ref. No. & Date	: NA

We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:

1	Description of sample <i>(As declared by customer)</i>	: Ambient Air
2	Sample Mark <i>(if any, given by the customer)</i>	: NA
3	Date of sampling	: 18/19.03.2018 (14.00 hr-14.00 hr.)
4	Place of sampling	: Duni Village
5	Environmental conditions during sampling	: 1) Temperature : 27-38 °C 2) Barometric Pressure: 758 mm of Hg 3) Rain Fall : Nil.
6	Sampling Done by	: Raju Ghoshal/Amar Mallick
7	Sampling Plan & Procedures used	: IS/CPCB Guidelines (Volume-1)

Report prepared by:

Signature

S. Nam

Name

: Shatakshi Nan

Designation

: Jr. Executive QA

for **Mitra S. K. Private Limited**

Signature

Pradip Bag

Name

: Pradip Bag

Designation

: Executive Chemist

Authorized Signatory

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 Web : www.mitrask.com



Report No. : C/ENV/A/17-18/1015
Sample No. : MSK/KOL/ENV/A/17-18/1015

Analysis Result

Location: Duni Village				Date of sampling: 18/19.03.2018 (14.00 hr-14.00 hr.)	
Sampling Done by: Raju Ghoshal/Amar Mallick				Sampling done as per : IS/CPCB Guidelines (Volume-1)	
Environmental Condition : 1) Temperature : 27-38 °C 2) Barometric Pressure: 758 mm of Hg 3) Rain Fall : Nil.					
Sl. No.	POLLUTANT	Unit	RESULT	LIMIT	METHOD OF TEST REFERENCE
1	Particulate matter (<10 µm)	µg/m ³	67	100	IS: 5182 (Part-23)-2006 Ref: 2014
2	Particulate matter (<2.5µm)	µg/m ³	38	60	TPM/MSK/E/5/C based on USEPA CFR-40, Part-50, Appendix-L, 2006
3	Sulphur dioxide as SO ₂	µg/m ³	5.8	80	IS: 5182 (Part-2)-2001 Ref: 2012
4	Nitrogen dioxide as NO ₂	µg/m ³	29.5	80	IS: 5182 (Part- 6)-2006, Ref: 2012
5	Carbon monoxide as CO	mg/m ³	0.72	2	IS: 5182 (Part- 10)-1999, Ref: 2014 (NDIR)
6	Ozone (O ₃)	µg/m ³	17.6	180	TPM/MSK/E/9/G(II) Issued on 01.10.2013 based on Air Sampling , 3 rd Edn. By James P. Lodge (Method-411)
7	Ammonia (NH ₃)	µg/m ³	19.4	400	TPM/MSK/E/9/G(I) Issued on 01.10.2013 based on Air Sampling , 3 rd Edn. By James P. Lodge (Method-401)
8	Lead (Pb)	µg/m ³	<0.02	1	EPA IO-3.2, June-1999
9	Nickel (Ni)	ng/m ³	4.88	20	EPA IO-3.2, June-1999
10	Arsenic (As)	ng/m ³	<1.0	6	TPM/MSK/E/4/L based on APHA 22 nd 2012- 3114C
11	Total Chromium (Cr)	µg/m ³	<0.06	---	EPA IO-3.2, June-1999
12	Cadmium (Cd)	µg/m ³	<0.01	---	EPA IO-3.2, June-1999
NOTE: Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality					
Remarks : The above sampling is done by using the following Machines					
Sr no.		Calibration Validity		Model/ Make No./ID	
223-DTJ-2016, 421-DTJ-2016		25.07.2018		APM-860 /LES-411 (Lata Envirotech)/RDS-04	
02-DTF-2016		25.07.2018		APM-154(Lata Envirotech)/FDS-02	

Report prepared by:

Signature



Name

: Shatakshi Nan

Designation

: Jr. Executive QA

for Mitra S. K. Private Limited

Signature



Name

: Pradip Bag

Designation

: Executive Chemist

Authorized Signatory

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TEST REPORT

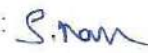
Name & Address of the Customer :
 Tata Steel Limited,
 West Bokaro Division, Ghatotand,
 Jharkhand, Pin No-825314.

Report No. : C/ENV/A/17-18/1016
Date : 24.03.18
Sample No. : MSK/KOL/ENV/A/17-18/1016
Date of receipt of sample : 18.03.18
Date(s) of performance : 18.03.18-24.03.18
Ref. No. & Date : NA


We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:

1	Description of sample (As declared by customer)	: Ambient Air
2	Sample Mark (if any, given by the customer)	: NA
3	Date of sampling	: 18/19.03.2018 (14.30 hr-14.30 hr.)
4	Place of sampling	: Parsabeda Village
5	Environmental conditions during sampling	: 1) Temperature : 27-38 °C 2) Barometric Pressure: 758 mm of Hg 3) Rain Fall : Nil.
6	Sampling Done by	: Raju Ghoshal/Amar Mallick
7	Sampling Plan & Procedures used	: IS/CPCB Guidelines (Volume-1)

Report prepared by:

Signature : 
 Name : Shatakshi Nan
 Designation : Jr. Executive QA

for **Mitra S. K. Private Limited**

Signature : 
 Name : Pradip Bag
 Designation : Executive Chemist
Authorized Signatory

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Report No. : C/ENV/A/17-18/1016
Sample No. : MSK/KOL/ENV/A/17-18/1016

Analysis Result

Location: Parsabeda Village			Date of sampling: 18/19.03.2018 (14.30 hr-14.30 hr.)		
Sampling Done by: Raju Ghoshal/Amar Mallick			Sampling done as per : IS/CPCB Guidelines (Volume-1)		
Environmental Condition : 1) Temperature : 27-38 °C 2) Barometric Pressure: 758 mm of Hg 3) Rain Fall : Nil.					
Sl. No.	POLLUTANT	Unit	RESULT	LIMIT	METHOD OF TEST REFERENCE
1	Particulate matter (<10 µm)	µg/m ³	86	100	IS: 5182 (Part-23)-2006 Ref: 2014
2	Particulate matter (<2.5 µm)	µg/m ³	47	60	TPM/MSK/E/5/C based on USEPA CFR-40, Part-50, Appendix-L, 2006
3	Sulphur dioxide as SO ₂	µg/m ³	8.2	80	IS: 5182 (Part-2)-2001 Ref: 2012
4	Nitrogen dioxide as NO ₂	µg/m ³	38.7	80	IS: 5182 (Part- 6)-2006, Ref: 2012
5	Carbon monoxide as CO	mg/m ³	0.85	2	IS: 5182 (Part- 10)-1999, Ref: 2014 (NDIR)
6	Ozone (O ₃)	µg/m ³	25.3	180	TPM/MSK/E/9/G(II) Issued on 01.10.2013 based on Air Sampling, 3 rd Edn. By James P. Lodge (Method-411)
7	Ammonia (NH ₃)	µg/m ³	21.5	400	TPM/MSK/E/9/G(I) Issued on 01.10.2013 based on Air Sampling, 3 rd Edn. By James P. Lodge (Method-401)
8	Lead (Pb)	µg/m ³	<0.02	1	EPA IO-3.2, June-1999
9	Nickel (Ni)	ng/m ³	12.30	20	EPA IO-3.2, June-1999
10	Arsenic (As)	ng/m ³	<1.0	6	TPM/MSK/E/4/L based on APHA 22 nd 2012- 3114C
11	Total Chromium (Cr)	µg/m ³	<0.06	---	EPA IO-3.2, June-1999
12	Cadmium (Cd)	µg/m ³	<0.01	---	EPA IO-3.2, June-1999
NOTE: Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality					
Remarks : The above sampling is done by using the following Machines					
Sr no.	Calibration Validity		Model/ Make No./ID		
222-DTJ-2016, 420-DTJ-2016	30.07.2018		APM-860 /LES-411 (Lata Envirotech)/RDS-03		
07-DTF-2016	30.07.2018		APM-154(Lata Envirotech)/FDS-04		

Report prepared by:

Signature : 

Name : Shatakshi Nan

Designation : Jr. Executive QA

for Mitra S. K. Private Limited

Signature : 

Name : Pradip Bag

Designation : Executive Chemist
Authorized Signatory

Mitra S. K. Private Limited

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Web : www.mitrask.com

**TEST REPORT**

Name & Address of the Customer :	Report No.	: C/ENV/P&E/17-18/369
Tata Steel Limited,	Date	: 02.04.18
West Bokaro Division, Ghatotand,	Sample No.	: MSK/KOL/ENV/P&E/17-18/369
Jharkhand, Pin No-825314.	Date of receipt of sample	: 22.03.18
	Date(s) of performance	: 22.03.18-02.04.18
	Ref. No. & Date	: Mail dt: 22.03.18

We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:


1	Description of sample (As declared by customer)	: Effluent Water
2	Sample Mark (if any, given by the customer)	: NA
3	Date of sampling	: 19.03.18
4	Place of sampling	: EW-5 Tailing Pond
5	Environmental conditions during sampling	: NA
6	Sampling Plan & Procedures used	: APHA 22 nd Edition, 2012, 1060 B,C


Analysis Result

SL. No.	Test Parameter	Test Method	Result
1.	pH at 25°C	APHA 22 nd edition, 2012, 4500-H+B	6.30
2.	TSS in mg/l	APHA 22 nd edition, 2012, 2540D	60
3.	TDS in mg/l	APHA 22 nd edition, 2012, 2540C	4300
4.	BOD in mg/l	APHA 22 nd edition, 2012, 5210B	8.2
5.	COD in mg/l	APHA 22 nd edition, 2012, 5220B	40
6.	Oil & Grease in mg/l	APHA 22 nd edition, 2012, 5520B	<1.4
*7.	MLSS in mg/l	APHA 22 nd edition, 2012, 2540E	60
*8.	MLVSS in mg/l	APHA 22 nd edition, 2012, 2540E	6
9.	Temperature in °C	IS:3025(Part-9) 1984, Reaf-2006	25

* This parameter not in our NABL scope

Report prepared by:

Signature : 
Name : Asim Kumar Jana
Designation : Office Assistant

for **Mitra S. K. Private Limited**
Signature : 
Name : Bodhisatta Maiti
Designation : Technical In Charge
Authorized Signatory

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- Microbiological sealed pack water sample(s) shall be retained for 15 days & food sample(s) shall be retained for 10 days after analysis.

Mitra S. K. Private Limited

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**TEST REPORT**

Name & Address of the Customer :	Report No.	: C/ENV/P&E/17-18/368
Tata Steel Limited,	Date	: 02.04.18
West Bokaro Division, Ghatotand,	Sample No.	: MSK/KOL/ENV/P&E/17-18/368
Jharkhand, Pin No-825314.	Date of receipt of sample	: 22.03.18
	Date(s) of performance	: 22.03.18-02.04.18
	Ref. No. & Date	: Mail dt: 22.03.18

We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:

1	Description of sample (As declared by customer)	: Effluent Water
2	Sample Mark (if any, given by the customer)	: NA
3	Date of sampling	: 19.03.18
4	Place of sampling	: EW-4 QAB
5	Environmental conditions during sampling	: NA
6	Sampling Plan & Procedures used	: APHA 22 nd Edition, 2012, 1060 B,C

Analysis Result

SL. No.	Test Parameter	Test Method	Result
1.	pH at 25°C	APHA 22 nd edition, 2012, 4500-H+B	7.69
2.	TSS in mg/l	APHA 22 nd edition, 2012, 2540D	14
3.	TDS in mg/l	APHA 22 nd edition, 2012, 2540C	987
4.	BOD in mg/l	APHA 22 nd edition, 2012, 5210B	<2.0
5.	COD in mg/l	APHA 22 nd edition, 2012, 5220B	<4.0
6.	Oil & Grease in mg/l	APHA 22 nd edition, 2012, 5520B	<1.4
*7.	MLSS in mg/l	APHA 22 nd edition, 2012, 2540E	14
*8.	MLVSS in mg/l	APHA 22 nd edition, 2012, 2540E	4
9.	Temperature in °C	IS:3025(Part-9) 1984, Reaf-2006	25

* This parameter not in our NABL scope

Report prepared by:

Signature : *Asim*
Name : Asim Kumar Jana
Designation : Office Assistant

for Mitra S. K. Private Limited
Signature : *Bodhisatta*
Name : Bodhisatta Maiti
Designation : Technical In Charge
Authorized Signatory

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TEST REPORT

Name & Address of the Customer :
Tata Steel Limited,
West Bokaro Division, Ghatotand,
Jharkhand, Pin No-825314.

Report No. : C/ENV/P&E/17-18/367
Date : 02.04.18
Sample No. : MSK/KOL/ENV/P&E/17-18/367
Date of receipt of sample : 22.03.18
Date(s) of performance : 22.03.18-02.04.18
Ref. No. & Date : Mail dt: 22.03.18

We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:

1	Description of sample (As declared by customer)	:Effluent Water
2	Sample Mark (if any, given by the customer)	:NA
3	Date of sampling	:19.03.18
4	Place of sampling	:EW-3 Ash pond
5	Environmental conditions during sampling	:NA
6	Sampling Plan & Procedures used	:APHA 22 nd Edition,2012, 1060 B,C

Analysis Result

SL. No.	Test Parameter	Test Method	Result
1.	pH at 25 ^o C	APHA 22 nd edition,2012, 4500-H+B	7.29
2.	TSS in mg/l	APHA 22 nd edition,2012, 2540D	28
3.	TDS in mg/l	APHA22 nd edition,2012,2540C	1625
4.	BOD in mg/l	APHA 22 nd edition,2012, 5210B	4.8
5.	COD in mg/l	APHA 22 nd edition,2012, 5220B	28
6.	Oil & Grease in mg/l	APHA 22 nd dition,2012, 5520B	<1.4
*7.	MLSS in mg/l	APHA 22 nd edition,2012,2540E	28
*8.	MLVSS in mg/l	APHA 22 nd edition,2012,2540E	10
9.	Temperature in ^o C	IS:3025(Part-9) 1984, Reaf-2006	24

* This parameter not in our NABL scope

Report prepared by:

Signature : *Asim*
Name : Asim Kumar Jana
Designation : Office Assistant

for Mitra S. K. Private Limited

Signature : *Bodhisatta*
Name : Bodhisatta Maiti
Designation : Technical In Charge
Authorized Signatory

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TEST REPORT

Name & Address of the Customer :
Tata Steel Limited,
West Bokaro Division, Ghatotand,
Jharkhand, Pin No-825314.

Report No. : C/ENV/P&E/17-18/366
Date : 02.04.18
Sample No. : MSK/KOL/ENV/P&E/17-18/366
Date of receipt of sample : 22.03.18
Date(s) of performance : 22.03.18-02.04.18
Ref. No. & Date : Mail dt: 22.03.18

We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:

1	Description of sample (As declared by customer)	:Effluent Water
2	Sample Mark (if any, given by the customer)	:NA
3	Date of sampling	:19.03.18
4	Place of sampling	:EW-2 QSEB
5	Environmental conditions during sampling	:NA
6	Sampling Plan & Procedures used	:APHA 22 nd Edition,2012, 1060 B,C

Analysis Result

SL. No.	Test Parameter	Test Method	Result
1.	pH at 25 ^o C	APHA 22 nd edition,2012, 4500-H+B	7.43
2.	TSS in mg/l	APHA 22 nd edition,2012, 2540D	17
3.	TDS in mg/l	APHA22 nd edition,2012,2540C	1235
4.	BOD in mg/l	APHA 22 nd edition,2012, 5210B	<2.0
5.	COD in mg/l	APHA 22 nd edition,2012, 5220B	<4.0
6.	Oil & Grease in mg/l	APHA 22 nd dition,2012, 5520B	<1.4
*7.	MLSS in mg/l	APHA 22 nd edition,2012,2540E	17
*8.	MLVSS in mg/l	APHA 22 nd edition,2012,2540E	8
9.	Temperature in ^o C	IS:3025(Part-9) 1984, Reaf-2006	26

* This parameter not in our NABL scope

Report prepared by:

Signature : *Alana*
Name : Asim Kumar Jana
Designation : Office Assistant

for **Mitra S. K. Private Limited**
Signature : *Bled*
Name : Bodhisatta Maiti
Designation : Technical In Charge
Authorized Signatory

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TEST REPORT

Name & Address of the Customer :	Report No.	: C/ENV/P&E/17-18/365
Tata Steel Limited,	Date	: 02.04.18
West Bokaro Division, Ghatotand,	Sample No.	: MSK/KOL/ENV/P&E/17-18/365
Jharkhand, Pin No-825314.	Date of receipt of sample	: 22.03.18
	Date(s) of performance	: 22.03.18-02.04.18
	Ref. No. & Date	: Mail dt: 22.03.18

We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:


1	Description of sample (As declared by customer)	: Effluent Water
2	Sample Mark (if any, given by the customer)	: NA
3	Date of sampling	: 19.03.18
4	Place of sampling	: EW-1 STP Outlet Near Makundabeda
5	Environmental conditions during sampling	: NA
6	Sampling Plan & Procedures used	: APHA 22 nd Edition, 2012, 1060 B,C


Analysis Result

SL. No.	Test Parameter	Test Method	Result
1.	pH at 25 ^o C	APHA 22 nd edition, 2012, 4500-H+B	7.07
2.	TSS in mg/l	APHA 22 nd edition, 2012, 2540D	20
3.	TDS in mg/l	APHA 22 nd edition, 2012, 2540C	1897
4.	BOD in mg/l	APHA 22 nd edition, 2012, 5210B	24
5.	COD in mg/l	APHA 22 nd edition, 2012, 5220B	127
6.	Oil & Grease in mg/l	APHA 22 nd edition, 2012, 5520B	<1.4
*7.	MLSS in mg/l	APHA 22 nd edition, 2012, 2540E	20
*8.	MLVSS in mg/l	APHA 22 nd edition, 2012, 2540E	14
9.	Temperature in ^o C	IS:3025(Part-9) 1984, Reaf-2006	25

* This parameter not in our NABL scope

Report prepared by:

Signature : 
Name : Asim Kumar Jana
Designation : Office Assistant

for Mitra S. K. Private Limited
Signature : 
Name : Bodhisatta Maiti
Designation : Technical In Charge
Authorized Signatory

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TEST REPORT

Name & Address of the Customer :
Tata Steel Limited,
West Bokaro Division, Ghatotand,
Jharkhand, Pin No-825314.

Report No. : C/ENV/P&E/17-18/370
Date : 02.04.18
Sample No. : MSK/KOL/ENV/P&E/17-18/370
Date of receipt of sample : 22.03.18
Date(s) of performance : 22.03.18-02.04.18
Ref. No. & Date : Mail dt: 22.03.18

We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:

1	Description of sample (As declared by customer)	:Effluent Water
2	Sample Mark (if any, given by the customer)	:NA
3	Date of sampling	:19.03.18
4	Place of sampling	:EW-7 Q E Reserver
5	Environmental conditions during sampling	:NA
6	Sampling Plan & Procedures used	:APHA 22 nd Edition,2012, 1060 B,C

Analysis Result

SL. No.	Test Parameter	Test Method	Result
1.	pH at 25 ^o C	APHA 22 nd edition,2012, 4500-H+B	7.83
2.	TSS in mg/l	APHA 22 nd edition,2012, 2540D	14
3.	TDS in mg/l	APHA22 nd edition,2012,2540C	995
4.	BOD in mg/l	APHA 22 nd edition,2012, 5210B	<2.0
5.	COD in mg/l	APHA 22 nd edition,2012, 5220B	<4.0
6.	Oil & Grease in mg/l	APHA 22 nd dition,2012, 5520B	<1.4
*7.	MLSS in mg/l	APHA 22 nd edition,2012,2540E	14
*8.	MLVSS in mg/l	APHA 22 nd edition,2012,2540E	<2.5
9.	Temperature in ^o C	IS:3025(Part-9) 1984, Reaf-2006	24

* This parameter not in our NABL scope

Report prepared by:

Signature : *Asim*
Name : Asim Kumar Jana
Designation : Office Assistant

for **Mitra S. K. Private Limited**
Signature : *Bodhisatta*
Name : Bodhisatta Maiti
Designation : Technical In Charge
Authorized Signatory

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TEST REPORT

Name & Address of the Customer :	Report No.	: C/ENV/P&E/17-18/371
Tata Steel Limited,	Date	: 02.04.18
West Bokaro Division, Ghatotand,	Sample No.	: MSK/KOL/ENV/P&E/17-18/371
Jharkhand, Pin No-825314.	Date of receipt of sample	: 22.03.18
	Date(s) of performance	: 22.03.18-02.04.18
	Ref. No. & Date	: Mail dt: 22.03.18

We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:

1	Description of sample (As declared by customer)	: Effluent Water
2	Sample Mark (if any, given by the customer)	: NA
3	Date of sampling	: 19.03.18
4	Place of sampling	: EW-9 Water Treatment Supply Water
5	Environmental conditions during sampling	: NA
6	Sampling Plan & Procedures used	: APHA 22 nd Edition, 2012, 1060 B,C

Analysis Result

SL. No.	Test Parameter	Test Method	Result
1.	pH at 25 ^o C	APHA 22 nd edition, 2012, 4500-H+B	7.83
2.	TSS in mg/l	APHA 22 nd edition, 2012, 2540D	<2.5
3.	TDS in mg/l	APHA 22 nd edition, 2012, 2540C	1031
4.	BOD in mg/l	APHA 22 nd edition, 2012, 5210B	<2.0
5.	COD in mg/l	APHA 22 nd edition, 2012, 5220B	11
6.	Oil & Grease in mg/l	APHA 22 nd edition, 2012, 5520B	<1.4
*7.	MLSS in mg/l	APHA 22 nd edition, 2012, 2540E	<2.5
*8.	MLVSS in mg/l	APHA 22 nd edition, 2012, 2540E	<2.5
9.	Temperature in ^o C	IS:3025(Part-9) 1984, Reaf-2006	25

* This parameter not in our NABL scope

Report prepared by:

Signature : *Asim*
Name : Asim Kumar Jana
Designation : Office Assistant

for **Mitra S. K. Private Limited**
Signature : *Bodhisatta*
Name : Bodhisatta Maiti
Designation : Technical In Charge
Authorized Signatory

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TEST REPORT

Name & Address of the Customer :	Report No.	: C/ENV/P&E/17-18/372
Tata Steel Limited,	Date	: 02.04.18
West Bokaro Division, Ghatotand,	Sample No.	: MSK/KOL/ENV/P&E/17-18/372
Jharkhand, Pin No-825314.	Date of receipt of sample	: 22.03.18
	Date(s) of performance	: 22.03.18-02.04.18
	Ref. No. & Date	: Mail dt: 22.03.18

We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:


1	Description of sample (As declared by customer)	: Effluent Water
2	Sample Mark (if any, given by the customer)	: NA
3	Date of sampling	: 19.03.18
4	Place of sampling	: EW-10 Hospital
5	Environmental conditions during sampling	: NA
6	Sampling Plan & Procedures used	: APHA 22 nd Edition, 2012, 1060 B,C


Analysis Result

SL. No.	Test Parameter	Test Method	Result
1.	pH at 25°C	APHA 22 nd edition, 2012, 4500-H+B	7.17
2.	TSS in mg/l	APHA 22 nd edition, 2012, 2540D	36
3.	TDS in mg/l	APHA 22 nd edition, 2012, 2540C	1231
4.	BOD in mg/l	APHA 22 nd edition, 2012, 5210B	132
5.	COD in mg/l	APHA 22 nd edition, 2012, 5220B	356
6.	Oil & Grease in mg/l	APHA 22 nd edition, 2012, 5520B	2.2
*7.	MLSS in mg/l	APHA 22 nd edition, 2012, 2540E	36
*8.	MLVSS in mg/l	APHA 22 nd edition, 2012, 2540E	14
9.	Temperature in °C	IS:3025(Part-9) 1984, Reaf-2006	25

* This parameter not in our NABL scope

Report prepared by:

Signature : 
Name : Asim Kumar Jana
Designation : Office Assistant

for Mitra S. K. Private Limited
Signature : 
Name : Bodhisatta Maiti
Designation : Technical In Charge
Authorized Signatory

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Mitra S. K. Private Limited



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**TEST REPORT**

Name & Address of the Customer :	Report No.	: C/ENV/P&E/17-18/374
Tata Steel Limited,	Date	: 02.04.18
West Bokaro Division, Ghatotand,	Sample No.	: MSK/KOL/ENV/P&E/17-18/374
Jharkhand, Pin No-825314.	Date of receipt of sample	: 22.03.18
	Date(s) of performance	: 22.03.18-02.04.18
	Ref. No. & Date	: Mail dt: 22.03.18

We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:

1	Description of sample (As declared by customer)	: Surface Water
2	Sample Mark (if any, given by the customer)	: NA
3	Date of sampling	: 20.03.18
4	Place of sampling	: W-8 Up stream bokaro river
5	Environmental conditions during sampling	: NA
6	Sampling Plan & Procedures used	: APHA 22 nd Edition, 2012, 1060 B,C

Analysis Result

SL. No.	Test Parameter	Test Method	Result
1.	pH at 25 ^o C	APHA 22 nd edition, 2012, 4500-H+B	7.30
2.	TSS in mg/l	APHA 22 nd edition, 2012, 2540D	13
3.	TDS in mg/l	APHA 22 nd edition, 2012, 2540C	790
4.	BOD in mg/l	APHA 22 nd edition, 2012, 5210B	3.4
5.	COD in mg/l	APHA 22 nd edition, 2012, 5220B	16
6.	Oil & Grease in mg/l	APHA 22 nd edition, 2012, 5520B	<1.4
*7.	MLSS in mg/l	APHA 22 nd edition, 2012, 2540E	13
*8.	MLVSS in mg/l	APHA 22 nd edition, 2012, 2540E	3.4
9.	Temperature in ^o C	IS:3025(Part-9) 1984, Reaf-2006	26

* This parameter not in our NABL scope

Report prepared by:

Signature :

Name : Asim Kumar Jana
Designation : Office Assistant

for Mitra S. K. Private Limited

Signature :

Name : Bodhisatta Maiti
Designation : Technical In Charge
Authorized Signatory

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**TEST REPORT**

Name & Address of the Customer :	Report No.	: C/ENV/P&E/17-18/373
Tata Steel Limited,	Date	: 02.04.18
West Bokaro Division, Ghatotand,	Sample No.	: MSK/KOL/ENV/P&E/17-18/373
Jharkhand, Pin No-825314.	Date of receipt of sample	: 22.03.18
	Date(s) of performance	: 22.03.18-02.04.18
	Ref. No. & Date	: Mail dt: 22.03.18

We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:

1	Description of sample (As declared by customer)	: Surface Water
2	Sample Mark (if any, given by the customer)	: NA
3	Date of sampling	: 20.03.18
4	Place of sampling	: W-6 Down Stream Bokaro River
5	Environmental conditions during sampling	: NA
6	Sampling Plan & Procedures used	: APHA 22 nd Edition, 2012, 1060 B,C

Analysis Result

SL. No.	Test Parameter	Test Method	Result
1.	pH at 25 ^o C	APHA 22 nd edition, 2012, 4500-H+B	7.66
2.	TSS in mg/l	APHA 22 nd edition, 2012, 2540D	10
3.	TDS in mg/l	APHA 22 nd edition, 2012, 2540C	1424
4.	BOD in mg/l	APHA 22 nd edition, 2012, 5210B	5.0
5.	COD in mg/l	APHA 22 nd edition, 2012, 5220B	24
6.	Oil & Grease in mg/l	APHA 22 nd edition, 2012, 5520B	<1.4
*7.	MLSS in mg/l	APHA 22 nd edition, 2012, 2540E	10
*8.	MLVSS in mg/l	APHA 22 nd edition, 2012, 2540E	2.8
9.	Temperature in ^o C	IS:3025(Part-9) 1984, Reaf-2006	26

* This parameter not in our NABL scope

Report prepared by:

Signature : *Asim*
Name : Asim Kumar Jana
Designation : Office Assistant

for Mitra S. K. Private Limited

Signature : *Bodhisatta*
Name : Bodhisatta Maiti
Designation : Technical In Charge
Authorized Signatory

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- Microbiological sealed pack water sample(s) shall be retained for 15 days & food sample(s) shall be retained for 10 days after analysis.

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TEST REPORT

Name & Address of the Customer :
Tata Steel Limited,
West Bokaro Division, Ghatotand,
Jharkhand, Pin No-825314.

Report No. : C/ENV/A/17-18/1017
Date : 31.03.18
Sample No. : MSK/KOL/ENV/A/17-18/1017
Date of receipt of sample : 21.03.18
Date(s) of performance : 21.03.18-31.03.18
Ref. No. & Date : NA

We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:

1	Description of sample (As declared by customer)	: Noise
2	Sample Mark (if any, given by the customer)	: NA
3	Date of sampling	: 15.03.2018
4	Place of sampling	: BUNJI VILLAGE
5	Environmental conditions during sampling	: NA
6	Sampling Plan & Procedures used	: IS : 9989:1981 (Reff.-2014)


Analysis Result


Sampling Done by: Amar Mullick				Sampling done as per: IS : 9989:1981 (Reff.-2014)			
Sample Code	Location Name	Date of Monitoring	Type of area	Day time Leq dB (A)	Night time Leq dB (A)	Permissible limits as per SPCB/ CPCB Standards	
						Day time Leq dB(A)	Night time Leq dB(A)
1017	BUNJI VILLAGE	15.03.2018	Residential Area	53.9	44.5	55	45

Note : Day time 06.00 Hr-22.00 Hr. Night time: 22.00 hr. - 6.00 hr.

Machine Details		
Sr. No.	Calibration Validity up to	Model & Make No./ID
Q634606	25.07.2018	LUTRON,SD-4033SD/SLM-05

Report prepared by:

Signature : 
Name : Asim Kumar Jana
Designation : Office Assistant

for **Mitra S. K. Private Limited**
Signature : 
Name : Pradip Bag
Designation : Executive Chemist
Authorized Signatory

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TEST REPORT

T-2303

Name & Address of the Customer :
 Tata Steel Limited,
 West Bokaro Division, Ghatotand,
 Jharkhand, Pin No-825314.

Report No. : C/ENV/A/17-18/1018
Date : 31.03.18
Sample No. : MSK/KOL/ENV/A/17-18/1018
Date of receipt of sample : 21.03.18
Date(s) of performance : 21.03.18-31.03.18
Ref. No. & Date : NA

We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:

1	Description of sample (As declared by customer)	: Noise
2	Sample Mark (if any, given by the customer)	: NA
3	Date of sampling	: 15.03.2018
4	Place of sampling	: MUKUNDA VILLAGE
5	Environmental conditions during sampling	: NA
6	Sampling Plan & Procedures used	: IS : 9989:1981 (Reff.-2014)

Analysis Result


Sampling Done by: Amar Mullick				Sampling done as per: IS : 9989:1981 (Reff.-2014)			
Sample Code	Location Name	Date of Monitoring	Type of area	Day time Leq dB (A)	Night time Leq dB (A)	Permissible limits as per SPCB/ CPCB Standards	
						Day time Leq dB(A)	Night time Leq dB(A)
1018	MUKUNDA VILLAGE	15.03.2018	Residential Area	54.2	44.5	55	45

Note : Day time 06.00 Hr-22.00 Hr. Night time: 22.00 hr. - 6.00 hr.


Machine Details

Sr. No.	Calibration Validity up to	Model & Make No./ID
Q634606	25.07.2018	LUTRON,SD-4033SD/SLM-05

Report prepared by:

Signature : 
 Name : Asim Kumar Jana
 Designation : Office Assistant

for Mitra S. K. Private Limited

Signature : 
 Name : Pradip Bag
 Designation : Executive Chemist
Authorized Signatory

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TEST REPORT

Name & Address of the Customer :
 Tata Steel Limited,
 West Bokaro Division, Ghatotand,
 Jharkhand, Pin No-825314.

Report No. : C/ENV/A/17-18/1019
Date : 31.03.18
Sample No. : MSK/KOL/ENV/A/17-18/1019
Date of receipt of sample : 21.03.18
Date(s) of performance : 21.03.18-31.03.18
Ref. No. & Date : NA

We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:

1	Description of sample (As declared by customer)	:Noise
2	Sample Mark (if any, given by the customer)	:NA
3	Date of sampling	:16.03.2018
4	Place of sampling	:CHAINPUR VILLAGE
5	Environmental conditions during sampling	:NA
6	Sampling Plan & Procedures used	: IS : 9989:1981 (Reff.-2014)

Analysis Result

Sampling Done by: Amar Mullick				Sampling done as per: IS : 9989:1981 (Reff.-2014)			
Sample Code	Location Name	Date of Monitoring	Type of area	Day time Leq dB (A)	Night time Leq dB (A)	Permissible limits as per SPCB/ CPCB Standards	
						Day time Leq dB(A)	Night time Leq dB(A)
1019	CHAINPUR VILLAGE	16.03.2018	Residential Area	54.2	44.2	55	45
Note : Day time 06.00 Hr-22.00 Hr. Night time: 22.00 hr. - 6.00 hr.							
Machine Details							
Sr. No.		Calibration Validity up to		Model & Make No./ID			
Q636998		21.05.2018		LUTRON, SD-4033SD/SLM-06			

Report prepared by:
 Signature : *Asim*
 Name :Asim Kumar Jana
 Designation :Office Assistant

for **Mitra S. K. Private Limited**
 Signature : *Pradip*
 Name :Pradip Bag
 Designation :Executive Chemist
Authorized Signatory

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T-2303

TEST REPORT

Name & Address of the Customer :

Tata Steel Limited,
West Bokaro Division, Ghatotand,
Jharkhand, Pin No-825314.

Report No.

: C/ENV/A/17-18/1020

Date

: 31.03.18

Sample No.

: MSK/KOL/ENV/A/17-18/1020

Date of receipt of sample

: 21.03.18

Date(s) of performance

: 21.03.18-31.03.18

Ref. No. & Date

: NA

We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:

1	Description of sample (As declared by customer)	: Noise
2	Sample Mark (if any, given by the customer)	: NA
3	Date of sampling	: 18.03.2018
4	Place of sampling	: ATANA VILLAGE
5	Environmental conditions during sampling	: NA
6	Sampling Plan & Procedures used	: IS : 9989:1981 (Reff.-2014)

Analysis Result

Sampling Done by: Amar Mullick

Sampling done as per: IS : 9989:1981 (Reff.-2014)

Sample Code	Location Name	Date of Monitoring	Type of area	Day time Leq dB (A)	Night time Leq dB (A)	Permissible limits as per SPCB/ CPCB Standards	
						Day time Leq dB(A)	Night time Leq dB(A)
1020	ATANA VILLAGE	18.03.2018	Residential Area	54.4	44.9	55	45

Note : Day time 06.00 Hr-22.00 Hr. Night time: 22.00 hr. - 6.00 hr.

Machine Details

Sr. No.	Calibration Validity up to	Model & Make No./ID
Q634606	25.07.2018	LUTRON,SD-4033SD/SLM-05

Report prepared by:

Signature

: *Asim*

Name

: Asim Kumar Jana

Designation

: Office Assistant

for **Mitra S. K. Private Limited**

Signature

: *Pradip*

Name

: Pradip Bag

Designation

: Executive Chemist

Authorized Signatory

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TEST REPORT

Name & Address of the Customer :
Tata Steel Limited,
West Bokaro Division, Ghatotand,
Jharkhand, Pin No-825314.

Report No. : C/ENV/A/17-18/1021
Date : 31.03.18
Sample No. : MSK/KOL/ENV/A/17-18/1021
Date of receipt of sample : 21.03.18
Date(s) of performance : 21.03.18-31.03.18
Ref. No. & Date : NA

We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:

1	Description of sample (As declared by customer)	:Noise
2	Sample Mark (if any, given by the customer)	:NA
3	Date of sampling	:18.03.2018
4	Place of sampling	:DUNI VILLAGE
5	Environmental conditions during sampling	:NA
6	Sampling Plan & Procedures used	: IS : 9989:1981 (Reff.-2014)

Analysis Result

Sampling Done by: Amar Mullick

Sampling done as per: IS : 9989:1981 (Reff.-2014)

Sample Code	Location Name	Date of Monitoring	Type of area	Day time Leq dB (A)	Night time Leq dB (A)	Permissible limits as per SPCB/ CPCB Standards	
						Day time Leq dB(A)	Night time Leq dB(A)
1021	DUNI VILLAGE	18.03.2018	Residential Area	54.6	43.2	55	45

Note: : Day time 06.00 Hr-22.00 Hr. Night time: 22.00 hr. - 6.00 hr.

Machine Details

Sr. No.	Calibration Validity up to	Model & Make No./ID
Q634606	25.07.2018	LUTRON,SD-4033SD/SLM-05

Report prepared by:

Signature

: 

Name

:Asim Kumar Jana

Designation

:Office Assistant

for **Mitra S. K. Private Limited**

Signature

: 

Name

:Pradip Bag

Designation

:Executive Chemist

Authorized Signatory

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TEST REPORT

Name & Address of the Customer :
Tata Steel Limited,
West Bokaro Division, Ghatotand,
Jharkhand, Pin No-825314.

Report No. : C/ENV/A/17-18/1022
Date : 31.03.18
Sample No. : MSK/KOL/ENV/A/17-18/1022
Date of receipt of sample : 21.03.18
Date(s) of performance : 21.03.18-31.03.18
Ref. No. & Date : NA


We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:

1	Description of sample (As declared by customer)	: Noise
2	Sample Mark (if any, given by the customer)	: NA
3	Date of sampling	: 19.03.2018
4	Place of sampling	: MINES AREA
5	Environmental conditions during sampling	: NA
6	Sampling Plan & Procedures used	: IS : 9989:1981 (Reff.-2014)

Analysis Result

Sampling Done by: Amar Mullick				Sampling done as per: IS : 9989:1981 (Reff.-2014)			
Sample Code	Location Name	Date of Monitoring	Type of area	Day time Leq dB (A)	Night time Leq dB (A)	Permissible limits as per SPCB/ CPCB Standards	
						Day time Leq dB(A)	Night time Leq dB(A)
1022	MINES AREA	19.03.2018	Industrial Area	67.1	55.0	75	70
Note : Day time 06.00 Hr-22.00 Hr. Night time: 22.00 hr. - 6.00 hr.							
<u>Machine Details</u>							
Sr. No.		Calibration Validity up to			Model & Make No./ID		
Q636998		21.05.2018			LUTRON,SD-4033SD/SLM-06		

Report prepared by:

Signature : 
Name : Asim Kumar Jana
Designation : Office Assistant

for **Mitra S. K. Private Limited**

Signature : 
Name : Pradip Bag
Designation : Executive Chemist
Authorized Signatory

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TEST REPORT

Name & Address of the Customer :
Tata Steel Limited,
West Bokaro Division, Ghatotand,
Jharkhand, Pin No-825314.

Report No. : C/ENV/A/17-18/1023
Date : 31.03.18
Sample No. : MSK/KOL/ENV/A/17-18/1023
Date of receipt of sample : 21.03.18
Date(s) of performance : 21.03.18-31.03.18
Ref. No. & Date : NA


We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:


1	Description of sample (As declared by customer)	: Noise
2	Sample Mark (if any, given by the customer)	: NA
3	Date of sampling	: 19.03.2018
4	Place of sampling	: WASHERY AREA
5	Environmental conditions during sampling	: NA
6	Sampling Plan & Procedures used	: IS : 9989:1981 (Reff.-2014)

Analysis Result

Sampling Done by: Amar Mullick				Sampling done as per: IS : 9989:1981 (Reff.-2014)			
Sample Code	Location Name	Date of Monitoring	Type of area	Day time Leq dB (A)	Night time Leq dB (A)	Permissible limits as per SPCB/ CPCB Standards	
						Day time Leq dB(A)	Night time Leq dB(A)
1023	WASHERY AREA	19.03.2018	Industrial Area	62.0	51.9	75	70
Note : Day time 06.00 Hr-22.00 Hr. Night time: 22.00 hr. - 6.00 hr.							
Machine Details							
Sr. No.		Calibration Validity up to		Model & Make No./ID			
Q636998		21.05.2018		LUTRON,SD-4033SD/SLM-06			

Report prepared by:

Signature : 
Name : Asim Kumar Jana
Designation : Office Assistant

for **Mitra S. K. Private Limited**
Signature : 
Name : Pradip Bag
Designation : Executive Chemist
Authorized Signatory

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T-2303

TEST REPORT

Name & Address of the Customer :
Tata Steel Limited,
West Bokaro Division, Ghatotand,
Jharkhand, Pin No-825314.

Report No. : C/ENV/A/17-18/1024
Date : 31.03.18
Sample No. : MSK/KOL/ENV/A/17-18/1024
Date of receipt of sample : 21.03.18
Date(s) of performance : 21.03.18-31.03.18
Ref. No. & Date : NA


We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:

1	Description of sample (As declared by customer)	: Noise
2	Sample Mark (if any, given by the customer)	: NA
3	Date of sampling	: 19.03.2018
4	Place of sampling	: POWER HOUSE AREA
5	Environmental conditions during sampling	: NA
6	Sampling Plan & Procedures used	: IS : 9989:1981 (Reff.-2014)


Analysis Result

Sampling Done by: Amar Mullick				Sampling done as per: IS : 9989:1981 (Reff.-2014)			
Sample Code	Location Name	Date of Monitoring	Type of area	Day time Leq dB (A)	Night time Leq dB (A)	Permissible limits as per SPCB/ CPCB Standards	
						Day time Leq dB(A)	Night time Leq dB(A)
1024	POWER HOUSE AREA	19.03.2018	Industrial Area	69.7	57.9	75	70
Note : Day time 06.00 Hr-22.00 Hr. Night time: 22.00 hr. - 6.00 hr.							
Machine Details							
Sr. No.	Calibration Validity up to			Model & Make No./ID			
Q636998	21.05.2018			LUTRON,SD-4033SD/SLM-06			

Report prepared by:

Signature : 
Name : Asim Kumar Jana
Designation : Office Assistant

for **Mitra S. K. Private Limited**

Signature : 
Name : Pradip Bag
Designation : Executive Chemist
Authorized Signatory

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