



o/c

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/4071/112/18
Date: 26.11.2018

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 April'18 - September'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 April'18 - September'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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Registered Office Bombay House 24 Homi Mody Street Fort Mumbai 400 001
Tel 91 22 66658282 Fax 91 22 66657724
Corporate Identity Number L27100MH1907PLC000260 Website www.tatasteel.com

(Track on www.indiapost.gov.in)
<Dial 1800 266 6868>

भारतीय डाक



India Post

RJ153849996IN IVR:8274153849996
RL BHATOTAND S.O (825314)

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PIN:700107, Madurdaha SO
From:HEAD (INNA&,BHATOTAND)

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RL BHATOTAND S.O (825314)

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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:

There is natural solid surface along the quarry area at the mine boundary along the River Bokaro to guard against mine inundation. 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:

Top soil generated during excavation of coal is being stacked separately at designated area and 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 on regular basis and gap filling plantation is being done against the mortality of the plantation. All the external OB dumps have been stabilized over the years. Further, old dump area has been identified and taken up for reclamation. Soil spreading followed by grass seed spreading and native species plantation is on going.



Soil & grass Spreading on dump slope



Plantation on dump slope



Plantation on dump slope

- (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 desilted 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:

OB dumps have been created with inward slope so no water flows outside the dump to prevent soil erosion and siltation. Further, we have made catch drains to channelize the water. The water collected in the mine quarry, is reused in dust suppression. Catch drains were desilted before the monsoon and maintained thereafter. Construction of garland drain is a regular practice to take care of run-off water. 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 also being used in industrial and domestic purpose after necessary treatment. One of the abandoned quarry is being used as Rain Water Harvesting Structure.



Abandoned mine pit as RWH pond



Catch Drains



- (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:

Dumps have been created with inward slope so that maximum runoff water in monsoon comes into the mine pits and no runoff water goes outside the mining lease. Further, toe wall and garland drains have been made to channelize the water inside the mine pit. Damaged toe walls are being repaired on regular basis.



Toe walls on dumps



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:

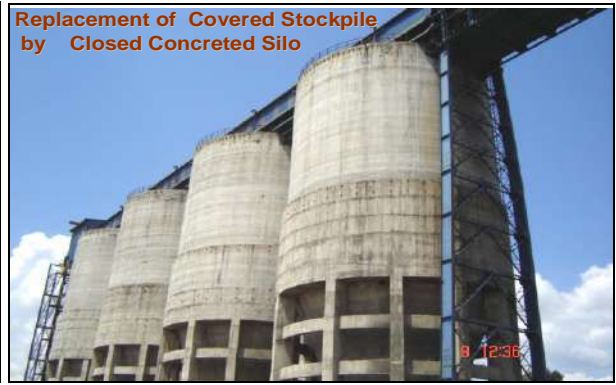
Crusher houses and CHP areas are equipped with dry fog dust suppression system, fixed type dust suppression system is installed at all conveyor networks & various mineral transfer points. Conventional coal stock yards are replaced with concrete silos for dust controls. Mobile water sprinklers (pressurized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



Use of fixed & mobile water sprinklers



Dry fog system



Replacement of Covered Stockpile by Closed Concreted Silo

concrete silos for material storage

(viii) Drills should be wet operated.

Compliance:

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



Wet Drilling

(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.

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Compliance:

Progressive afforestation is practiced as per plan in the area. Last year about 55000 native trees, shrubs and grass saplings have been planted and the thrust has been given for green belt development along the safety zone in the area and mined out 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 company employees and local communities.



Plantation activities

TATA Steel is committed to conserve, enhance & restore the biodiversity in it's 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. To enhance the bio diversity of the area, a butterfly park is made. Further, to enhance the medicinal and hibiscus habitat hibiscus and medicinal park was also made at the same place.



Biodiversity Initiatives



Butterfly park development on mined out area



Hibiscus and Medicinal park development on mined out area

- (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, plantation was done by lemon grass, native trees, native shrubs and we have also done the soil spreading on dump slopes followed by grass seed spreading and native tree plantation.



Lemon grass in the dump



Soil & grass Spreading on dump slope

Plantation on dump slope

- (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.

Some of the species of medicinal importance are as:



Datura



Sarpagandha



Tulsi



Periwinkle



Ghrith Kumari



Coleus aromaticus



Ginger



Adosa



Kadi patta

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.



Hibiscus and Medicinal park development on mined out 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 Effluent Discharge (ZED) and entire processed water is recycled and reused. An abandoned mine pit is converted into rain water harvesting (RWH) pond which is being used for industrial and domestic purpose after proper treatment. 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.



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**

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submitted to the Ministry of Environment & Forests and to the Central Pollution Control Board quarterly within one month of monitoring.

Compliance:

We have constructed 5 nos. of bore holes inside the mining lease for regular ground water level monitoring.



Ground water level of the entire area is being monitored by existing well is being carried out. Details of ground water level monitoring in May'18 and Aug'18 are as follows:

Sl. No.	Location	Depth from Surface level	
		May'18	Aug'18
01.	RAJIV NAGAR	3'3"	1'8"
02.	JAIRAM HOTEL	5'5"	3'2"
03.	SHOPING COMPLEX	6'3"	3'0"
04.	JAGARNATH GOPE	8'8"	7'6"
05.	HOUSING	15'2"	4'0"
06.	MUKUND BERA	23'0"	4'2"
07.	DRIVER HUT	8'10"	6'4"
08.	2 NO WELL	6'7"	3'1"
09.	PUNDI	31'10"	4'8"
10.	DUNI	11'5"	6'8"
11.	KEDLA ROAD	15'3"	8'0"
12.	JHARNA BASTI	7'3"	2'6"
13.	BIRHOR VILLAGE	32'4"	2'2"
14.	BELGADHA VILLAGE	5'8"	1'0"
15.	CHAINPUR WELL NO.1	27'3"	16'8"
16.	CHAINPUR WELL NO.2 (Atna QLC)	17'1"	7'7"

- (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.



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

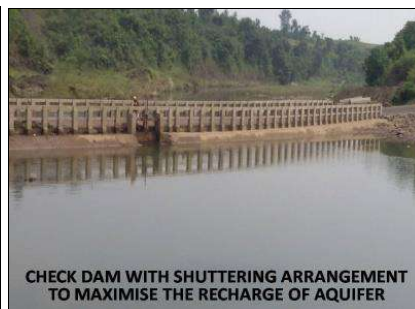


Drinking Water system at Atna village

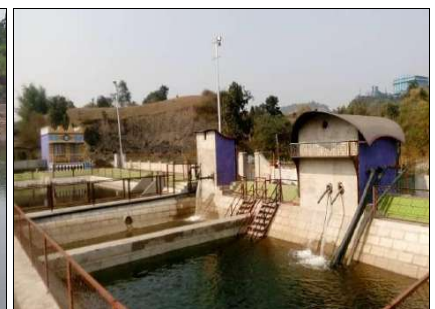
Further, we have converted mined out pit near pundi area as a large water reservoir which helps to increase the water level. The projects also include construction of Rain Water Harvesting structures, installation of water filtration plant, in surrounding villages.



Abandoned mine as RWH pond



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 Effluent Discharge (ZED) 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 by which the tailing slurry is

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handled through high frequency screen and belt press to produce dry tailings and recover water for recycling. The quality of water is being analyzed regularly.



Mechanical tailings de-watering system



Output of HFC at tailing dewatering plant

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.



Oil & Grease trap at mines

- (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.



Sewage Treatment Plant (0.24 MLD) at West Bokaro

- (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 with 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. 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. All the sites are monitored regularly and data is kept for record.



Fixed and mobile water suppression system

Dry fog

HALF YEARLY EC COMPLIANCE REPORT FOR PERIOD: APRIL'2018 - SEPTEMBER'2018

- (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.**

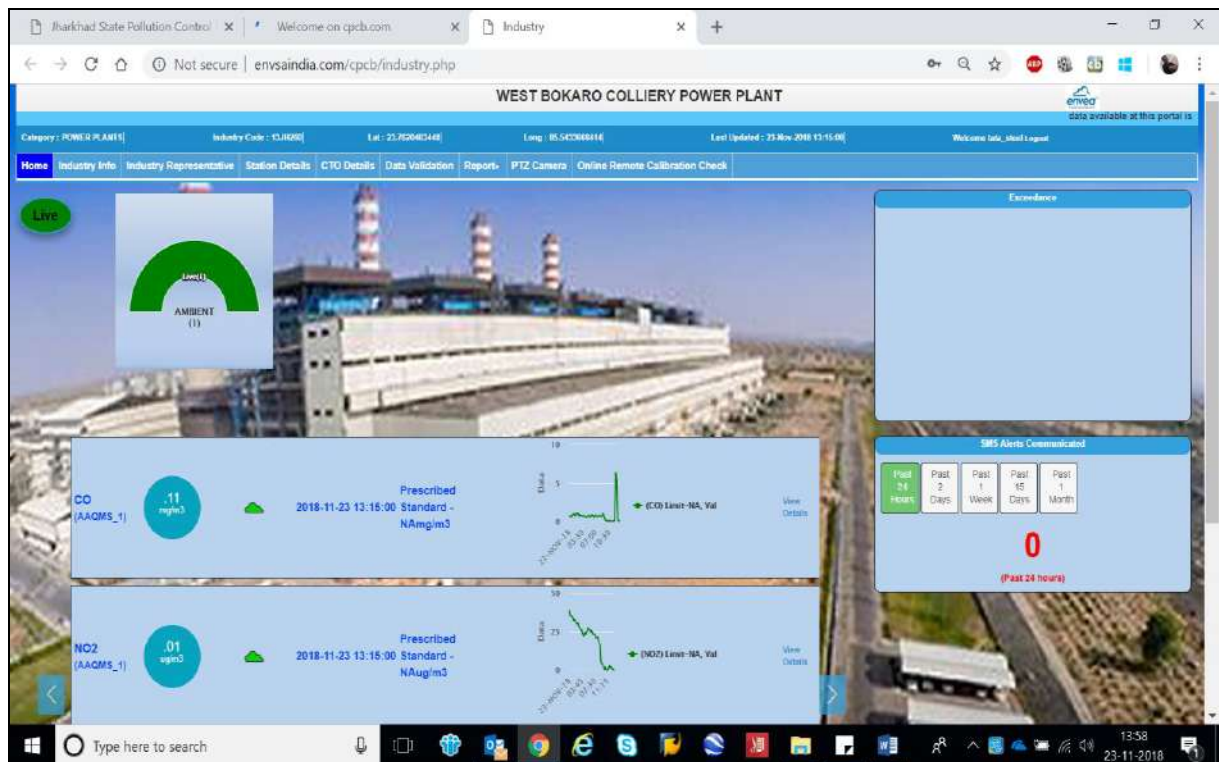
Compliance:

Being complied with, All environmental monitoring data is attached as an **Annexure-I** & external monitoring report from NABL accredited laboratory is also attached as **Annexure-II**.

Continuous 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 & JSPCB server and transmission facility is being installed.



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



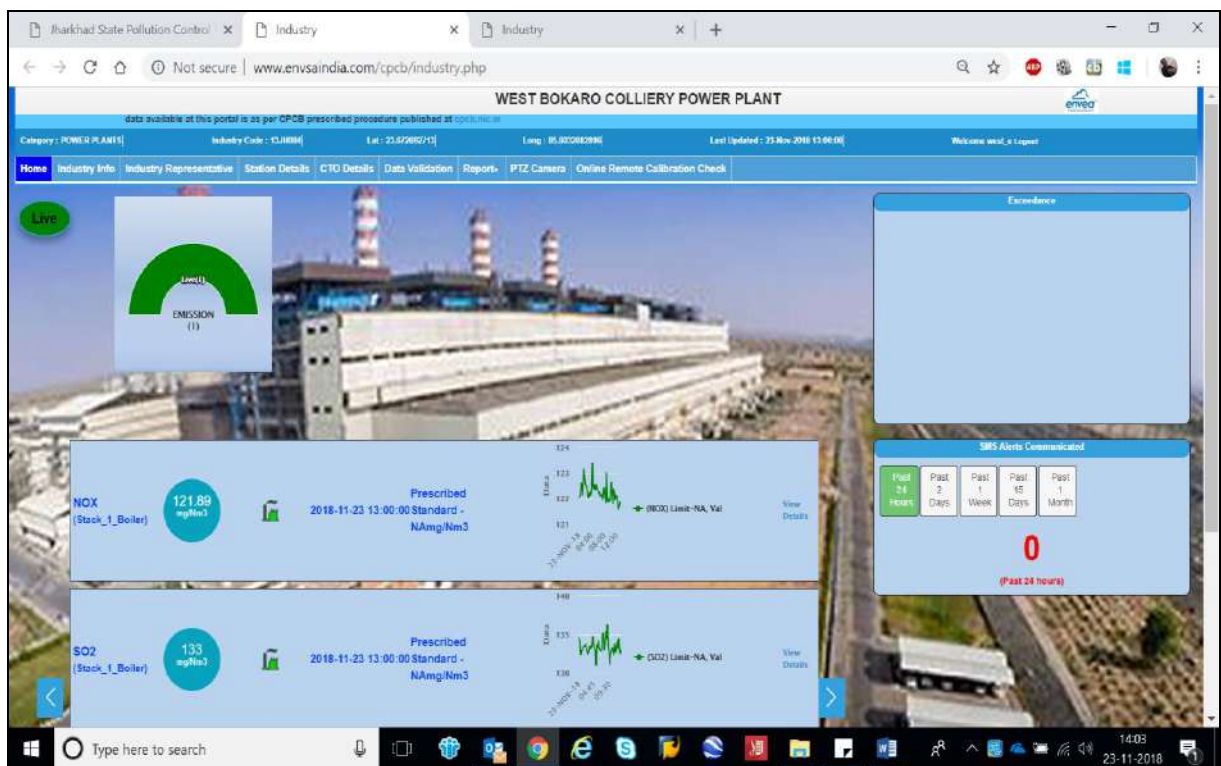
Online CAAQMS data transmission to CPCB and JSPCB server

HALF YEARLY EC COMPLIANCE REPORT FOR PERIOD: APRIL'2018 - SEPTEMBER'2018

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. All the data of PM, SO_x & NO_x are working smoothly. The data connectivity with CPCB & JSPCB server and transmission facility is being installed.



Continuous Emission Monitoring for Power House for PM, SO₂ & NO_x data



Online CEMS data transmission to CPCB and JSPCB server

- (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

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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 (ZED) 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.



Introduced upgraded mode of transportation- Pipe conveyor to eliminate spillage/dust/unsafe condition



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)
Apr'18 to Jun'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-Apr-18	61	37	18	31	02-Apr-18	56	33	15	38	05-Apr-18	84	61	20	31	02-Apr-18	65	37	16	36	05-Apr-18	77	54	18	29
04-Apr-18	63	41	15	32	04-Apr-18	60	29	16	27	11-Apr-18	88	51	14	25	04-Apr-18	53	32	16	25	11-Apr-18	76	36	11	39
09-Apr-18	61	32	15	25	09-Apr-18	55	32	18	32	18-Apr-18	88	39	21	37	09-Apr-18	53	32	18	32	18-Apr-18	79	31	11	34
12-Apr-18	51	24	16	27	12-Apr-18	58	37	16	27	23-Apr-18	83	34	16	25	12-Apr-18	59	34	16	30	23-Apr-18	74	28	14	32
16-Apr-18	51	27	14	32	16-Apr-18	53	29	16	30	25-Apr-18	63	30	18	27	16-Apr-18	51	32	14	32	25-Apr-18	65	31	14	30
03-May-18	53	32	16	28	03-May-18	49	28	18	34	09-May-18	74	53	18	28	03-May-18	57	32	14	32	09-May-18	68	47	22	26
07-May-18	68	44	16	30	07-May-18	57	32	18	25	14-May-18	87	53	16	32	07-May-18	56	32	18	25	14-May-18	79	33	16	42
10-May-18	61	34	14	34	10-May-18	68	34	16	34	23-May-18	89	39	18	34	10-May-18	63	34	18	39	23-May-18	91	57	16	32
16-May-18	53	36	14	23	16-May-18	63	32	18	44	28-May-18	80	34	16	32	16-May-18	58	32	14	34	28-May-18	76	33	21	33
21-May-18	51	29	16	30	21-May-18	55	29	16	25	30-May-18	89	41	16	37	21-May-18	53	34	11	32	30-May-18	68	31	11	31
01-Jun-18	51	31	14	28	01-Jun-18	47	27	22	32	06-Jun-18	71	51	34	16	01-Jun-18	55	31	18	26	06-Jun-18	66	45	16	28
04-Jun-18	63	44	18	41	04-Jun-18	68	37	21	37	11-Jun-18	89	46	24	46	04-Jun-18	63	41	25	44	11-Jun-18	79	36	21	37
13-Jun-18	63	34	16	32	13-Jun-18	63	34	16	27	20-Jun-18	90	51	25	44	13-Jun-18	51	39	18	37	20-Jun-18	88	54	25	44
18-Jun-18	58	36	18	22	18-Jun-18	58	34	18	32	25-Jun-18	88	48	28	38	18-Jun-18	48	36	17	34	25-Jun-18	86	52	26	38
26-Jun-18	61	34	18	34	26-Jun-18	68	37	23	23	28-Jun-18	89	39	14	30	26-Jun-18	58	34	11	34	28-Jun-18	88	41	16	34
Minimum	51	24	14	22	Minimum	47	27	15	23	Minimum	63	30	14	16	Minimum	48	31	11	25	Minimum	65	28	11	26
Maximum	68	44	18	41	Maximum	68	37	23	44	Maximum	90	61	34	46	Maximum	65	41	25	44	Maximum	91	57	26	44
Average	58	34	16	30	Average	59	32	18	31	Average	83	45	20	32	Average	56	34	16	33	Average	77	41	17	34
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

Ujjwal Kishor

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)

Apr'18 to Jun'18

Industry Name: West Bokaro Colliery									
CMC					FRS				
Date of Sampling	SO ₂	NO _x	RPM	SPM	Date of Sampling	SO ₂	NO _x	RPM	SPM
04-Apr-18	20	56	204	521	02-Apr-18	25	51	209	518
19-Apr-18	22	54	214	547	17-Apr-18	29	59	240	544
03-May-18	17	53	194	511	01-May-18	21	49	199	507
22-May-18	18	58	223	588	17-May-18	24	56	229	532
06-Jun-18	18	52	187	493	04-Jun-18	17	47	192	490
21-Jun-18	20	48	249	557	19-Jun-18	19	53	215	549
Minimum	17	48	187	493	Minimum	17	47	192	490
Maximum	22	58	249	588	Maximum	29	59	240	549
Average	19	54	212	536	Average	22	52	214	523
Limit (µg/m³)	120	120	300	700	Limit (µg/m³)	120	120	300	700

MINE WATER QUALITY REPORT

Apr'18 to Jun'18

Industry Name: West Bokaro Colliery									
Q-SE					Q-AB				
Date of Sampling	pH	TSS	COD	Oil & Grease	Date of Sampling	pH	TSS	COD	Oil & Grease
04-Apr-18	8.4	16	32	<1.0	02-Apr-18	8.6	18	32	<1.0
03-May-18	8.3	22	32	<1.0	01-May-18	8.4	24	32	<1.0
06-Jun-18	8.5	24	32	<1.0	04-Jun-18	8.4	26	32	<1.0
Minimum	8.3	16	32	<1.0	Minimum	8.4	18	32	<1.0
Maximum	8.5	24	32	<1.0	Maximum	8.6	26	32	<1.0
Average	8.4	21	32	<1.0	Average	8	23	32	<1.0
Limit	5.5-9.0	100 mg/L	250 mg/L	05 mg/L	Limit	5.5-9.0	100 mg/L	250 mg/L	05 mg/L

AMBIENT NOISE MONITORING REPORT

Apr'18 to Jun'18

Industry Name: West Bokaro Colliery									
Q-SE					Q-AB				
Date of Sampling	Day Time		Night Time		Date of Sampling	Day Time		Night Time	
	Limit	Level	Limit	Level		Limit	Level	Limit	Level
04-Apr-18	75	64	70	56	02-Apr-18	75	66	70	58
03-May-18	75	70	70	58	01-May-18	75	68	70	
06-Jun-18	75	62	70	59	04-Jun-18	75	71	70	
Minimum	75	62	70	56	Minimum	75	66	70	58
Maximum	75	70	70	59	Maximum	75	71	70	58
Average	75	65	70	58	Average	75	68	70	58

Uday Kumar

**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: Apr'18 to Jun'18

Industry Name: Washey Complex (W-II)

Date of Sampling	SO ₂	NO _x	RPM	SPM
09-Apr-18	25	47	159	512
24-Apr-18	29	54	167	522
07-May-18	21	44	151	501
24-May-18	24	51	159	526
11-Jun-18	24	43	146	484
26-Jun-18	28	49	153	508
Minimum	21	43	146	484
Maximum	29	54	167	526
Average	25	48	156	509
Limit (µg/m3)	120	120	300	700

EFFLUENT QUALITY REPORT

Period: Apr'18 to Jun'18

Industry Name: Washey Complex -TP-08

Date of Sampling	pH	TSS	COD	BOD	Oil & Grease	Phenolics
06-Apr-18	8.7	22	96	8.0	<1.0	<1.0
04-May-18	8.5	28	128	7.8	<1.0	<1.0
08-Jun-18	8.4	20	96	8.0	<1.0	<1.0
Minimum	8.4	20	96	7.8	<1.0	<1.0
Maximum	8.7	28	128	8.0	<1.0	<1.0
Average	8.5	23	107	7.9	<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: Apr'18 to Jun'18

Industry Name: Washey Complex (W-II)

Date of Sampling	Day Time		Night Time	
	Limit	Level	Limit	Level
03-Apr-18	75	56	70	54
02-May-18	75	58	70	56
05-Jun-18	75	58	70	54
Minimum	75	56	70	54
Maximum	75	58	70	56
Average	75	57	70	55

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: Apr'18 to Jun'18

Industry Name: Washey Complex (W-III)

Date of Sampling	SO ₂	NO _x	RPM	SPM
09-Apr-18	25	47	159	512
24-Apr-18	29	54	167	522
07-May-18	21	44	151	501
24-May-18	24	51	159	526
11-Jun-18	24	43	146	484
26-Jun-18	28	49	153	508
Minimum	21	43	146	484
Maximum	29	54	167	526
Average	25	48	156	509
Limit (µg/m ³)	120	120	300	700

EFFLUENT QUALITY REPORT

Period: Apr'18 to Jun'18

Industry Name: Washey Complex -TP-08

Date of Sampling	pH	TSS	COD	BOD	Oil & Grease	Phenolics
06-Apr-18	8.7	22	96	8.0	<1.0	<1.0
04-May-18	8.5	28	128	7.8	<1.0	<1.0
08-Jun-18	8.4	20	96	8.0	<1.0	<1.0
Minimum	8.4	20	96	7.8	<1.0	<1.0
Maximum	8.7	28	128	8	<1.0	<1.0
Average	8.5	23	107	7.9	<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: Apr'18 to Jun'18

Industry Name: Washey Complex (W-III)

Date of Sampling	Day Time		Night Time	
	Limit	Level	Limit	Level
05-Apr-18	75	62	70	58
09-May-18	75	58	70	56
07-Jun-18	75	61	70	58
Minimum	75	58	70	56
Maximum	75	62	70	58
Average	75	60	70	57

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: Apr'18 to Jun'18

Industry Name: Power House

Date of Sampling	SO ₂	NO _x	RPM	SPM
09-Apr-18	25	47	159	512
24-Apr-18	29	54	167	522
07-May-18	21	44	151	501
24-May-18	24	51	159	526
11-Jun-18	24	43	146	484
26-Jun-18	28	49	153	508
Minimum	21	43	146	484
Maximum	29	54	167	526
Average	25	48	156	509
8	120	120	300	700

AMBIENT NOISE MONITORING REPORT

Period: Apr'18 to Jun'18

Industry Name: Power House

Date of Sampling	Day Time		Night Time	
	Limit	Level	Limit	Level
06-Apr-18	75	68	70	55
11-May-18	75	64	70	58
08-Jun-18	75	62	70	55
Minimum	75	62	70	55
Maximum	75	68	70	58
Average	75	65	70	56

EFFLUENT QUALITY REPORT

Period: Apr'18 to Jun'18

Industry Name: Power House (SEB Ash Pond)

Date of Sampling	Temp in C	Color	pH	TSS	TS	COD	BOD	Oil & Grease
12-Apr-18		Colorless	8.1	16	526	32	7.8	<1.0
15-May-18		Colorless	8.20	18	548	32	7.8	<1.0
14-Jun-18		Colorless	8.3	16	556	32	8.0	<1.0
Minimum	0	Colorless	8.1	16	526	32	7.8	<1.0
Maximum	0	Colorless	8.30	18	556	32	8.0	<1.0
Average	#DIV/0!	Colorless	8.2	17	543	32	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 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	05.05.2018	
4	Weather condition	Normal dry	
5	Stack No if any	Boiler No. 02	
6	Stack height from ground meter	30	
7	Stack dia at sampling point (m)	2	
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)	132	
12	Velocity of gas (m/s)	12.8	
14	Dust concentration (mg/Nm ³)	67.87	
15	Concentration of SO ₂ (mg/Nm ³)	235.57	100
16	Concentration of NO _x (mg/Nm ³)	147.17	600
17	Details of Pollution Control Device attached with stack	Electro Static Precipitator (ESP)	600
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.

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: Apr'18 to Jun'18

Industry Name: Logistics (Dispatch)

Date of Sampling	SO ₂	NO _x	RPM	SPM
11-Apr-18	27	59	147	548
26-Apr-18	28	60	154	559
10-May-18	23	56	140	537
28-May-18	17	42	147	548
13-Jun-18	22	54	135	519
28-Jun-18	21	51	142	529
Minimum	17	42	135	519
Maximum	28	60	154	559
Average	23	54	144	540
Limit (µg/m ³)	120	120	300	700

EFFLUENT QUALITY REPORT

Period: Apr'18 to Jun'18

Industry Name: Logistics (Dispatch)

Date of Sampling	pH	TSS	COD	BOD	Oil & Grease	Phenolics
11-Apr-18	8.3	18	32	7.8	<1.0	<1.0
10-May-18	8.6	20	32	8.0	<1.0	<1.0
13-Jun-18	8.3	18	32	7.8	<1.0	<1.0
Minimum	8.3	18	32	7.8	<1.0	<1.0
Maximum	8.6	20	32	8.0	<1.0	<1.0
Average	8.4	18.7	32	7.9	<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: Apr'18 to Jun'18

Industry Name: Logistics (Dispatch)

Date of Sampling	Day Time		Night Time	
	Limit	Level	Limit	Level
11-Apr-18	75	62	70	58
10-May-18	75	56	70	54
13-Jun-18	75	58	70	54
Minimum	75	56	70	54
Maximum	75	62	70	58
Average	75	59	70	55

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: Apr'18 to Jun'18

Industry Name: Tata Central Hospital- West Bokaro

Date of Sampling	SO ₂	NO _x	RPM	SPM
09-Apr-18	21	49	161	246
24-Apr-18	25	51	170	243
07-May-18	24	51	182	258
24-May-18	22	54	185	254
11-Jun-18	21	51	177	248
26-Jun-18	19	49	163	254
Minimum	19	49	161	243
Maximum	25	54	185	258
Average	22	51	173	250
Limit (µg/m3)	120	120	300	700

EFFLUENT QUALITY REPORT

Period: Apr'18 to Jun'18

Industry Name: Neutralization Tank

Date of Sampling	pH	TSS	COD	BOD	Oil & Grease	Phenolics
12-Apr-18	7.2	20	45	10	<1.0	<1.0
15-May-18	6.8	26	52	12	<1.0	<1.0
14-Jun-18	6.7	27	49	14	<1.0	<1.0
Minimum	6.7	20	45	10	<1.0	<1.0
Maximum	7.2	27	52	14	<1.0	<1.0
Average	6.9	24	49	12.0	<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 Effluent Discharge (ZED) is being maintained at the division.

AMBIENT NOISE MONITORING REPORT

Period: Apr'18 to Jun'18

Industry Name: Tata Central Hospital- West Bokaro

Date of Sampling	Day Time		Night Time	
	Limit	Level	Limit	Level
06-Apr-18	50	41	40	24
11-May-18	50	38	40	21
08-Jun-18	50	36	40	16
Minimum	50	36	40	16
Maximum	50	41	40	24
Average	50	38	40	20



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)
Jul'18 to Sep'18

Industry Name: West Bokaro Division, Tata Steel Limited

Near Banji					Near Pundi					Near Mukundbeda					Near Duni					Near Chainpur Mandap				
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	Date of Sampling	PM ₁₀	PM _{2.5}	SO ₂	NO _x
02-Jul-18	54	28	25	42	02-Jul-18	48	28	15	52	04-Jul-18	72	52	20	38	04-Jul-18	56	37	14	36	04-Jul-18	74	54	22	38
06-Jul-18	59	38	23	44	06-Jul-18	54	25	16	38	09-Jul-18	79	48	16	28	09-Jul-18	50	29	16	23	09-Jul-18	61	34	19	32
11-Jul-18	57	29	20	35	11-Jul-18	48	27	18	44	12-Jul-18	75	44	19	32	12-Jul-18	50	27	11	29	12-Jul-18	63	30	23	39
16-Jul-18	48	26	22	38	16-Jul-18	50	31	16	38	18-Jul-18	66	51	22	22	18-Jul-18	55	33	16	27	18-Jul-18	59	32	14	26
23-Jul-18	48	25	19	44	23-Jul-18	45	25	16	41	25-Jul-18	76	48	24	38	25-Jul-18	48	29	13	29	25-Jul-18	52	30	19	32
01-Aug-18	53	28	23	38	01-Aug-18	49	28	18	47	06-Aug-18	78	44	14	32	06-Aug-18	46	28	18	32	06-Aug-18	56	36	26	42
08-Aug-18	63	40	26	41	08-Aug-18	59	27	18	35	13-Aug-18	82	53	18	22	13-Aug-18	52	26	21	23	13-Aug-18	63	32	18	26
16-Aug-18	57	31	22	47	16-Aug-18	59	29	16	47	20-Aug-18	77	48	16	19	20-Aug-18	59	31	16	36	20-Aug-18	82	54	22	38
22-Aug-18	50	33	19	31	22-Aug-18	54	27	18	60	24-Aug-18	63	54	19	42	24-Aug-18	54	34	19	31	24-Aug-18	61	32	19	34
27-Aug-18	48	27	23	41	27-Aug-18	48	25	16	35	30-Aug-18	77	42	22	34	30-Aug-18	50	31	14	29	30-Aug-18	54	30	17	44
03-Sep-18	56	32	19	38	03-Sep-18	52	28	22	44	05-Sep-18	68	52	18	18	05-Sep-18	52	36	24	36	05-Sep-18	62	38	14	37
10-Sep-18	59	40	25	56	10-Sep-18	59	31	21	50	12-Sep-18	70	46	24	36	12-Sep-18	59	29	17	40	12-Sep-18	63	34	21	32
17-Sep-18	59	31	26	44	17-Sep-18	54	29	16	38	20-Sep-18	77	56	25	44	20-Sep-18	48	27	22	33	20-Sep-18	77	41	16	28
24-Sep-18	57	31	21	30	24-Sep-18	59	31	18	44	25-Sep-18	82	48	24	38	25-Sep-18	54	31	14	31	25-Sep-18	70	39	19	31
26-Sep-18	58	28	19	47	26-Sep-18	58	34	23	31	27-Sep-18	76	53	19	30	27-Sep-18	48	33	18	28	27-Sep-18	64	36	22	39
Minimum	48	25	19	30	Minimum	45	25	15	31	Minimum	63	42	14	18	Minimum	46	26	11	23	Minimum	52	30	14	26
Maximum	63	40	26	56	Maximum	59	34	23	60	Maximum	82	56	25	44	Maximum	59	37	24	40	Maximum	82	54	26	44
Average	55	31	22	41	Average	53	28	18	43	Average	75	49	20	31	Average	52	31	17	31	Average	64	37	19	35
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

Uday Kishore

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)

Jul'18 to Sep'18

Industry Name: West Bokaro Colliery									
CMC					FRS				
Date of Sampling	SO ₂	NO _x	RPM	SPM	Date of Sampling	SO ₂	NO _x	RPM	SPM
02-Jul-08	13	36	131	345	03-Jul-18	12	33	134	343
23-Jul-18	17	42	142	415	25-Jul-18	14	28	136	385
01-Aug-18	11	30	118	311	02-Aug-18	11	30	121	308
20-Aug-18	14	36	122	348	22-Aug-18	18	42	117	328
03-Sep-18	16	42	180	430	05-Sep-18	14	36	172	410
24-Sep-18	16	38	169	428	26-Sep-18	13	32	162	415
Minimum	11	30	118	311	Minimum	11	28	117	308
Maximum	17	42	180	430	Maximum	18	42	172	415
Average	15	37	144	380	Average	14	34	140	365
Limit (µg/m3)	120	120	300	700	Limit (µg/m3)	120	120	300	700

MINE WATER QUALITY REPORT

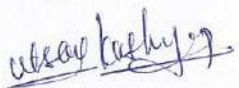
Jul'18 to Sep'18

Industry Name: West Bokaro Colliery									
Q-SE					Q-AB				
Date of Sampling	pH	TSS	COD	Oil & Grease	Date of Sampling	pH	TSS	COD	Oil & Grease
02-Jul-08	8.32	26	32	<1.0	03-Jul-18	8.22	26	64	<1.0
01-Aug-18	8.4	28	32	<1.0	02-Aug-18	8.34	24	64	<1.0
03-Sep-18	8.5	24	32	<1.0	05-Sep-18	8.39	22	32	<1.0
Minimum	8.3	24	32	<1.0	Minimum	8.22	22	32	<1.0
Maximum	8.48	28	32	<1.0	Maximum	8.39	26	64	<1.0
Average	8.4	26	32	<1.0	Average	8	24	53.3333	<1.0
Limit	5.5-9.0	100 mg/L	250 mg/L	05 mg/L	Limit	5.5-9.0	100 mg/L	250 mg/L	05 mg/L

AMBIENT NOISE MONITORING REPORT

Jul'18 to Sep'18

Industry Name: West Bokaro Colliery									
Q-SE					Q-AB				
Date of Sampling	Day Time		Night Time		Date of Sampling	Day Time		Night Time	
	Limit	Level	Limit	Level		Limit	Level	Limit	Level
02-Jul-08	75	68	70	58	03-Jul-18	75	64	70	58
01-Aug-18	75	66	70	56	02-Aug-18	75	66	70	56
03-Sep-18	75	64	70	59	05-Sep-18	75	68	70	55
Minimum	75	64	70	56	Minimum	75	64	70	58
Maximum	75	68	70	59	Maximum	75	68	70	58
Average	75	66	70	58	Average	75	66	70	56


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: Jul'18 to Sep'18

Industry Name: Washey Complex (W-II)

Date of Sampling	SO ₂	NO _x	RPM	SPM
04-Jul-18	17	30	102	339
26-Jul-18	14	28	112	358
06-Aug-18	15	27	92	305
27-Aug-18	13	24	110	342
10-Sep-18	24	48	182	494
20-Sep-18	19	26	138	468
Minimum	13	24	92	305
Maximum	24	48	182	494
Average	17	31	123	384
Limit (µg/m ³)	120	120	300	700

EFFLUENT QUALITY REPORT

Period: Jul'18 to Sep'18

Industry Name: Washey Complex -TP-08

Date of Sampling	pH	TSS	COD	BOD	Oil & Grease	Phenolics
04-Jul-18	8.3	18	128	7.8	<1.0	<1.0
06-Aug-18	8.1	20	96	8	<1.0	<1.0
10-Sep-18	8.34	24	128	8.0	<1.0	<1.0
Minimum	8.1	18	96	7.8	<1.0	<1.0
Maximum	8.3	24	128	8.0	<1.0	<1.0
Average	8.3	21	117	7.9	<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: Jul'18 to Sep'18

Industry Name: Washey Complex (W-II)

Date of Sampling	Day Time		Night Time	
	Limit	Level	Limit	Level
04-Jul-18	75	62	70	56
06-Aug-18	75	58	70	52
10-Sep-18	75	61	70	58
Minimum	75	58	70	52
Maximum	75	62	70	58
Average	75	60	70	55

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: Jul'18 to Sep'18

Industry Name: Washey Complex (W-III)

Date of Sampling	SO ₂	NO _x	RPM	SPM
04-Jul-18	17	30	102	339
26-Jul-18	14	28	112	358
06-Aug-18	15	27	92	305
27-Aug-18	13	24	110	342
10-Sep-18	24	48	182	494
20-Sep-18	19	26	138	468
Minimum	13	24	92	305
Maximum	24	48	182	494
Average	17	31	123	384
Limit (µg/m ³)	120	120	300	700

EFFLUENT QUALITY REPORT

Period: Jul'18 to Sep'18

Industry Name: Washey Complex -TP-08

Date of Sampling	pH	TSS	COD	BOD	Oil & Grease	Phenolics
04-Jul-18	8.3	18	128	7.8	<1.0	<1.0
06-Aug-18	8.1	20	96	8.0	<1.0	<1.0
10-Sep-18	8.3	24	128	8.0	<1.0	<1.0
Minimum	8.12	18	96	7.8	<1.0	<1.0
Maximum	8.3	24	128	8	<1.0	<1.0
Average	8.3	21	117	7.9	<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: Jul'18 to Sep'18

Industry Name: Washey Complex (W-III)

Date of Sampling	Day Time		Night Time	
	Limit	Level	Limit	Level
04-Jul-18	75	61	70	54
06-Aug-18	75	56	70	56
10-Sep-18	75	58	70	58
Minimum	75	56	70	54
Maximum	75	61	70	58
Average	75	58	70	56

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: Jul'18 to Sep'18

Industry Name: Power House

Date of Sampling	SO ₂	NO _x	RPM	SPM
04-Jul-18	17	30	102	339
26-Jul-18	14	28	112	358
06-Aug-18	15	27	92	305
27-Aug-18	13	24	110	342
10-Sep-18	24	48	182	494
20-Sep-18	19	26	138	468
Minimum	13	24	92	305
Maximum	24	48	182	494
Average	17	31	123	384
8	120	120	300	700

AMBIENT NOISE MONITORING REPORT

Period: Jul'18 to Sep'18

Industry Name: Power House

Date of Sampling	Day Time		Night Time	
	Limit	Level	Limit	Level
04-Jul-18	75	66	70	56
06-Aug-18	75	58	70	54
10-Sep-18	75	64	70	56
Minimum	75	58	70	54
Maximum	75	66	70	56
Average	75	63	70	55

EFFLUENT QUALITY REPORT

Period: Jul'18 to Sep'18

Industry Name: Power House (SEB Ash Pond)

Date of Sampling	Temp in C	Color	pH	TSS	TS	COD	BOD	Oil & Grease
04-Jul-18		Colorless	8.36	16	596	32	7.8	<1.0
06-Aug-18		Colorless	8.48	14	634	32	7.8	<1.0
10-Sep-18		Colorless	8.38	16	656	32	7.8	<1.0
Minimum	0	Colorless	8.36	14	596	32	7.8	<1.0
Maximum	0	Colorless	8.48	16	656	32	7.8	<1.0
Average	#DIV/0!	Colorless	8.4	15	629	32	7.8	<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 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: Jul'18 to Sep'18

Industry Name: Logistics (Dispatch)

Date of Sampling	SO ₂	NO _x	RPM	SPM
05-Jul-18	15	38	94	363
30-Jul-18	19	26	98	393
07-Aug-18	14	34	85	327
29-Aug-18	11	22	110	398
12-Sep-18	22	38	146	460
22-Sep-18	17	26	138	448
Minimum	11	22	85	327
Maximum	22	38	146	460
Average	16	31	112	398
Limit (µg/m³)	120	120	300	700

EFFLUENT QUALITY REPORT

Period: Jul'18 to Sep'18

Industry Name: Logistics (Dispatch)

Date of Sampling	pH	TSS	COD	BOD	Oil & Grease	Phenolics
05-Jul-18	8.12	16	32	7.6	<1.0	<1.0
07-Aug-18	8.2	18	32	7.8	<1.0	<1.0
12-Sep-18	8.32	16	32	8	<1.0	<1.0
Minimum	8.12	16	32	7.6	<1.0	<1.0
Maximum	8.3	18	32	8.0	<1.0	<1.0
Average	8.2	16.7	32	7.8	<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: Jul'18 to Sep'18

Industry Name: Logistics (Dispatch)

Date of Sampling	Day Time		Night Time	
	Limit	Level	Limit	Level
05-Jul-18	75	62	70	54
07-Aug-18	75	59	70	58
12-Sep-18	75	63	70	52
Minimum	75	59	70	52
Maximum	75	63	70	58
Average	75	61	70	55

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: Jul'18 to Sep'18

Industry Name: Tata Central Hospital- West Bokaro

Date of Sampling	SO ₂	NO _x	RPM	SPM
10-Jul-18	17	36	152	248
20-Jul-18	19	42	148	255
11-Aug-18	22	36	162	268
24-Aug-18	26	48	171	252
11-Sep-18	18	39	166	247
27-Sep-18	14	33	158	238
Minimum	14	33	148	238
Maximum	26	48	171	268
Average	19	39	160	251
Limit (µg/m3)	120	120	300	700

EFFLUENT QUALITY REPORT

Period: Apr'18 to Jun'18

Industry Name: Neutralization Tank

Date of Sampling	pH	TSS	COD	BOD	Oil & Grease	Phenolics
10-Jul-18	7.4	22	44	18	<1.0	<1.0
11-Aug-18	6.9	26	52	14	<1.0	<1.0
11-Sep-18	8.1	24	48	16	<1.0	<1.0
Minimum	6.9	22	44	14	<1.0	<1.0
Maximum	8.1	26	52	18	<1.0	<1.0
Average	7.5	24	48	16.0	<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 Effluent Discharge (ZED) is being maintained at the division.

AMBIENT NOISE MONITORING REPORT

Period: Apr'18 to Jun'18

Industry Name: Tata Central Hospital- West Bokaro

Date of Sampling	Day Time		Night Time	
	Limit	Level	Limit	Level
10-Jul-18	50	44	40	36
11-Aug-18	50	39	40	22
11-Sep-18	50	42	40	28
Minimum	50	39	40	22
Maximum	50	44	40	36
Average	50	42	40	29

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



TC-6950

TEST REPORT

Name & Address of the Customer :


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


Report No. : C/ENV/A/18-19/433
Date : 14.07.18
Sample No. : MSK/KOL/ENV/A/18-19/433
Date of receipt of sample : 09.07.18
Date(s) of performance : 09.07.18-14.07.18
Ref. No. & Date : Not Applicable

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	: 07.07.18-08.07.18
4	Place of sampling	: Pundi Village
5	Environmental conditions during sampling	: 1) Temperature : 25-35°C, 2) Barometric Pressure: 750mm of Hg, 3) Rain Fall : Nil.
6	Sampling Done by	: Amar Mallick
7	Sampling Plan & Procedures used	: IS/CPCB Guidelines (Volume-1)

Report prepared by:

Signature : 
Name : Shatakshi Nan
Designation : 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.

3, Pagladanga Road, P-48,
Udayan Industrial Estate,
Kolkata 700015.

Tel. : 91 33 23230072. Fax : 91 33 23230078.

Email : mitrasklab@yahoo.com

Web : www.mitrask.com

Report No. : C/ENV/A/18-19/433
Sample No. : MSK/KOL/ENV/A/18-19/433



Analysis Result

Location : Pundi Village				Date of sampling : 07/08.07.2018 (11.30 hr-11.30 hr.)	
Sampling Done by: Amar Mallick				Sampling done as per : IS/CPCB Guidelines (Volume-1)	
Environmental Condition :				1) Temperature : 25-35°C, 2) Barometric Pressure: 750mm of Hg, 3) Rain Fall : Nil.	
Sl. No.	POLLUTANT	Unit	RESULT	LIMIT	METHOD OF TEST REFERENCE
1	Particulate matter (<10 µm)	µg/m ³	58	100	IS: 5182 (Part-23)-2006 Reff: 2014
2	Particulate matter (<2.5µm)	µg/m ³	23	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	4.7	80	IS: 5182 (Part-2)-2001 Reff: 2012
4	Nitrogen dioxide as NO ₂	µg/m ³	22.8	80	IS: 5182 (Part- 6)-2006, Reff: 2012
5	Carbon monoxide as CO	mg/m ³	0.45	2	IS: 5182 (Part- 10)-1999, Reff: 2014 (NDIR)
6	Ozone (O ₃)	µg/m ³	<10.0	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	<10.0	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.	Instrument No.	Calibration Validity	Model/ Make No./ID
1	222-DTJ-2016,420-DTJ-2016	30.07.2018	APM-860 /LES-411 (Lata Envirotech)/RDS-03
2	07-DTF-2016	30.07.2018	APM-154(Lata Envirotech)/FDS-04

Report prepared by:

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

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

3, Pagladanga Road, P-48,
Udayan Industrial Estate,
Kolkata 700015.

Tel. : 91 33 23230072. Fax : 91 33 23230078.

Email : mitrasklab@yahoo.com

Web : www.mitrask.com



TC-6950

TEST REPORT

Name & Address of the Customer :

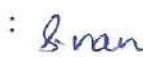
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West Bokaro Division, Ghatotand,
Jharkhand, Pin No-825314.


Report No. : C/ENV/A/18-19/432
Date : 14.07.18
Sample No. : MSK/KOL/ENV/A/18-19/432
Date of receipt of sample : 09.07.18
Date(s) of performance : 09.07.18-14.07.18
Ref. No. & Date : Not Applicable

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	: 07.07.18-08.07.18
4	Place of sampling	: EMC Office
5	Environmental conditions during sampling	: 1) Temperature : 25-35°C, 2) Barometric Pressure: 750mm of Hg, 3) Rain Fall : Nil.
6	Sampling Done by	: Amar Mallick
7	Sampling Plan & Procedures used	: IS/CPCB Guidelines (Volume-1)

Report prepared by:

Signature : 
Name : Shatakshi Nan
Designation : 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.
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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.



TC-6950

Report No. : C/ENV/A/18-19/432
Sample No. : MSK/KOL/ENV/A/18-19/432

Analysis Result

Location : EMC Office				Date of sampling : 07/08.07.2018 (11.00 hr-11.00 hr.)	
Sampling Done by: Amar Mallick				Sampling done as per : IS/CPCB Guidelines (Volume-1)	
Environmental Condition :				1) Temperature : 25-35°C, 2) Barometric Pressure: 750mm of Hg, 3) Rain Fall : Nil.	
Sl. No.	POLLUTANT	Unit	RESULT	LIMIT	METHOD OF TEST REFERENCE
1	Particulate matter (<10 µm)	µg/m ³	65	100	IS: 5182 (Part-23)-2006 Reff: 2014
2	Particulate matter (<2.5µm)	µg/m ³	37	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 Reff: 2012
4	Nitrogen dioxide as NO ₂	µg/m ³	26.4	80	IS: 5182 (Part- 6)-2006, Reff: 2012
5	Carbon monoxide as CO	mg/m ³	0.62	2	IS: 5182 (Part- 10)-1999, Reff: 2014 (NDR)
6	Ozone as (O ₃)	µg/m ³	22.7	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 as (NH ₃)	µg/m ³	12.8	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	8.16	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.	Instrument No.	Calibration Validity	Model/ Make No./ID
1	223-DTJ-2016, 421-DTJ-2016	25.07.2018	APM-860 /LES-411 (Lata Envirotech)/RDS-04
2	02-DTF-2016	25.07.2018	APM-154(Lata Envirotech)/FDS-02


Report prepared by:

Signature : 

Name : Shatakshi Nan

Designation : Executive QA

for Mitra S. K. Private Limited

Signature : 
Name : Pradip Bag

Designation : Executive Chemist

Authorized Signatory

3, Pagladanga Road, P-48,
Udayan Industrial Estate,
Kolkata 700015.

Tel. : 91 33 23230072. Fax : 91 33 23230078.

Email : mitrasklab@yahoo.com

Web : www.mitrask.com



TC-6950

TEST REPORT

Name & Address of the Customer :

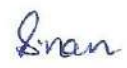
Tata Steel Limited,
West Bokaro Division, Ghatotand,
Jharkhand, Pin No-825314.


Report No. : C/ENV/A/18-19/431
Date : 14.07.18
Sample No. : MSK/KOL/ENV/A/18-19/431
Date of receipt of sample : 09.07.18
Date(s) of performance : 09.07.18-14.07.18
Ref. No. & Date : Not Applicable

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	: 06.07.18-07.07.18
4	Place of sampling	: Bunji Village
5	Environmental conditions during sampling	: 1) Temperature : 23-35°C, 2) Barometric Pressure: 749 mm of Hg, 3) Rain Fall : Nil.
6	Sampling Done by	: Amar Mallick
7	Sampling Plan & Procedures used	: IS/CPCB Guidelines (Volume-1)

Report prepared by:

Signature : 
Name : Shatakshi Nan
Designation : 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.

3, Pagladanga Road, P-48,
Udayan Industrial Estate,
Kolkata 700015.

Tel. : 91 33 23230072. Fax : 91 33 23230078.

Email : mitrasklab@yahoo.com

Web : www.mitrask.com

Report No. : C/ENV/A/18-19/431
Sample No. : MSK/KOL/ENV/A/18-19/431



TC-6950

Analysis Result

Location : Bunji Village				Date of sampling : 06/07.07.2018 (11.00 hr-11.00 hr.)	
Sampling Done by: Amar Mallick				Sampling done as per : IS/CPCB Guidelines (Volume-1)	
Environmental Condition :				1) Temperature : 23-35°C, 2) Barometric Pressure: 749 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 Reff: 2014
2	Particulate matter (<2.5µm)	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	6.5	80	IS: 5182 (Part-2)-2001 Reff: 2012
4	Nitrogen dioxide as NO ₂	µg/m ³	33.6	80	IS: 5182 (Part- 6)-2006, Reff: 2012
5	Carbon monoxide as CO	mg/m ³	0.98	2	IS: 5182 (Part- 10)-1999, Reff: 2014 (NDIR)
6	Ozone (O ₃)	µg/m ³	27.4	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	15.8	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	<4.0	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.	Instrument No.	Calibration Validity	Model/ Make No./ID
1	222-DTJ-2016, 420-DTJ-2016	30.07.2018	APM-860 /LES-411 (Lata Envirotech)/RDS-03
2	07-DTF-2016	30.07.2018	APM-154 (Lata Envirotech)/FDS-04

Report prepared by:

Signature

: *S. Nan*

Name

: Shatakshi Nan

Designation

: Executive QA

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

Signature

: *P. Bag*

Name

: Pradip Bag

Designation

: Executive Chemist

Authorized Signatory



TC-6950

TEST REPORT

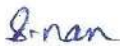
Name & Address of the Customer :
Tata Steel Limited,
West Bokaro Division, Ghatotand,
Jharkhand, Pin No-825314.


Report No. : C/ENV/A/18-19/430
Date : 14.07.18
Sample No. : MSK/KOL/ENV/A/18-19/430
Date of receipt of sample : 09.07.18
Date(s) of performance : 09.07.18-14.07.18
Ref. No. & Date : Not Applicable

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	: 06.07.18-07.07.18
4	Place of sampling	: Parsabeda Village
5	Environmental conditions during sampling	: 1) Temperature : 23-35°C, 2) Barometric Pressure: 749 mm of Hg, 3) Rain Fall : Nil.
6	Sampling Done by	: Amar Mallick
7	Sampling Plan & Procedures used	: IS/CPCB Guidelines (Volume-1)

Report prepared by:

Signature : 
Name : Shatakshi Nan
Designation : Executive QA

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

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- 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.

3, Pagladanga Road, P-48,
Udayan Industrial Estate,
Kolkata 700015.

Tel. : 91 33 23230072. Fax : 91 33 23230078.

Email : mitrasklab@yahoo.com

Web : www.mitrask.com

Report No. : C/ENV/A/18-19/430
Sample No. : MSK/KOL/ENV/A/18-19/430



TC-6950

Analysis Result

Location : Parsabeda Village				Date of sampling : 06/07.07.2018 (10.30 hr-10.30 hr.)	
Sampling Done by: Amar Mallick				Sampling done as per : IS/CPCB Guidelines (Volume-1)	
Environmental Condition :				1) Temperature : 23-35°C, 2) Barometric Pressure: 749 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	63	100	IS: 5182 (Part-23)-2006 Ref: 2014
2	Particulate matter (<2.5µm)	µg/m ³	35	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	5.6	80	IS: 5182 (Part-2)-2001 Ref: 2012
4	Nitrogen dioxide as NO ₂	µg/m ³	25.5	80	IS: 5182 (Part- 6)-2006, Ref: 2012
5	Carbon monoxide as CO	mg/m ³	0.65	2	IS: 5182 (Part- 10)-1999, Ref: 2014 (NDIR)
6	Ozone (O ₃)	µg/m ³	15.7	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	14.2	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.	Instrument No.	Calibration Validity	Model/ Make No./ID
1	223-DTJ-2016, 421-DTJ-2016	25.07.2018	APM-860 /LES-411 (Lata Envirotech)/RDS-04
2	02-DTF-2016	25.07.2018	APM-154(Lata Envirotech)/FDS-02

Report prepared by:

Signature

S. Nan

Name

: Shatakshi Nan

Designation

: Executive QA

for Mitra S. K. Private Limited

Signature

P. Bag

Name

: Pradip Bag

Designation

: Executive Chemist

Authorized Signatory

3, Pagladanga Road, P-48,
Udayan Industrial Estate,
Kolkata 700015.

Tel. : 91 33 23230072. Fax : 91 33 23230078.

Email : mitrasklab@yahoo.com

Web : www.mitrask.com



TC-6950

TEST REPORT

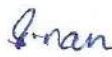
Name & Address of the Customer :
Tata Steel Limited,
West Bokaro Division, Ghatotand,
Jharkhand, Pin No-825314.


Report No. : C/ENV/A/18-19/429
Date : 14.07.18
Sample No. : MSK/KOL/ENV/A/18-19/429
Date of receipt of sample : 09.07.18
Date(s) of performance : 09.07.18-14.07.18
Ref. No. & Date : Not Applicable

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	: 05.07.18-06.07.18
4	Place of sampling	: Duni Village
5	Environmental conditions during sampling	: 1) Temperature : 24-35 °C, 2) Barometric Pressure: 748 mm of Hg, 3) Rain Fall : Nil.
6	Sampling Done by	: Amar Mullick
7	Sampling Plan & Procedures used	: IS/CPCB Guidelines (Volume-1)

Report prepared by:

Signature : 
Name : Shatakshi Nan
Designation : Executive QA

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

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Kolkata 700015.
Tel. : 91 33 23230072. Fax : 91 33 23230078.
Email : mitrasklab@yahoo.com
Web : www.mitrask.com

Report No. : C/ENV/A/18-19/429
Sample No. : MSK/KOL/ENV/A/18-19/429





TC-6950

Analysis Result

Location : Duni Village				Date of sampling : 05/06.07.2018 (10.00 hr-10.00 hr.)	
Sampling Done by: Amar Mallick				Sampling done as per : IS/CPCB Guidelines (Volume-1)	
Environmental Condition :				1) Temperature : 24-35 °C, 2) Barometric Pressure: 748 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	58	100	IS: 5182 (Part-23)-2006 Reff: 2014
2	Particulate matter (<2.5µm)	µg/m ³	32	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	5.7	80	IS: 5182 (Part-2)-2001 Reff: 2012
4	Nitrogen dioxide as NO ₂	µg/m ³	24.5	80	IS: 5182 (Part- 6)-2006, Reff: 2012
5	Carbon monoxide as CO	mg/m ³	0.54	2	IS: 5182 (Part- 10)-1999, Reff: 2014 (NDIR)
6	Ozone (O ₃)	µg/m ³	19.6	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	15.2	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	4.96	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.	Instrument No.	Calibration Validity	Model/ Make No./ID		
1	222-DTJ-2016,420-DTJ-2016	30.07.2018	APM-860 /LES-411 (Lata Envirotech)/RDS-03		
2	07-DTF-2016	30.07.2018	APM-154(Lata Envirotech)/FDS-04		

Report prepared by:

Signature : 
Name : Shatakshi Nan
Designation : Executive QA

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



TC-6950

TEST REPORT

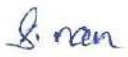
Name & Address of the Customer :
Tata Steel Limited,
West Bokaro Division, Ghatotand,
Jharkhand, Pin No-825314.


Report No. : C/ENV/A/18-19/428
Date : 14.07.18
Sample No. : MSK/KOL/ENV/A/18-19/428
Date of receipt of sample : 09.07.18
Date(s) of performance : 09.07.18-14.07.18
Ref. No. & Date : Not Applicable

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	: 05.07.18-06.07.18
4	Place of sampling	: Jharna Village
5	Environmental conditions during sampling	: 1) Temperature : 25-34 °C, 2) Barometric Pressure: 747 mm of Hg, 3) Rain Fall : Nil
6	Sampling Done by	: Amar Mallick
7	Sampling Plan & Procedures used	: IS/CPCB Guidelines (Volume-1)

Report prepared by:

Signature : 
Name : Shatakshi Nan
Designation : Executive QA

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

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Kolkata 700015.

Tel. : 91 33 23230072. Fax : 91 33 23230078.

Email : mitrasklab@yahoo.com

Web : www.mitrask.com

Report No. : C/ENV/A/18-19/428
Sample No. : MSK/KOL/ENV/A/18-19/428



TC-6950

Analysis Result

Location : Jhama Village				Date of sampling : 05/06.07.2018 (10.30 hr-10.30 hr.)	
Sampling Done by : Amar Mallick				Sampling done as per : IS/CPCB Guidelines (Volume-1)	
Environmental Condition :				1) Temperature : 25-34 °C, 2) Barometric Pressure: 747 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	68	100	IS: 5182 (Part-23)-2006 Reff: 2014
2	Particulate matter (<2.5µm)	µg/m ³	37	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	5.3	80	IS: 5182 (Part-2)-2001 Reff: 2012
4	Nitrogen dioxide as NO ₂	µg/m ³	25.4	80	IS: 5182 (Part- 6)-2006, Reff: 2012
5	Carbon monoxide as CO	mg/m ³	0.62	2	IS: 5182 (Part- 10)-1999, Reff: 2014 (NDR)
6	Ozone (O ₃)	µg/m ³	17.4	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	<10.0	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	5.64	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.	Instrument No.	Calibration Validity	Model/ Make No./ID
1	223-DTJ-2016, 421-DTJ-2016	25.07.2018	APM-860 /LES-411 (Lata Envirotech)/RDS-04
2	02-DTF-2016	25.07.2018	APM-154(Lata Envirotech)/FDS-02

Report prepared by:

Signature

: *S. Nan*

Name

: Shatakshi Nan

Designation

: Executive QA

for Mitra S. K. Private Limited

Signature

: *Pradip Bag*

Name

: Pradip Bag

Designation

: Executive Chemist

Authorized Signatory



TC-6950

TEST REPORT

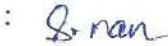
Name & Address of the Customer :
Tata Steel Limited,
West Bokaro Division, Ghatotand,
Jharkhand, Pin No-825314.

Report No. : C/ENV/A/18-19/427
Date : 14.07.18
Sample No. : MSK/KOL/ENV/A/18-19/427
Date of receipt of sample : 09.07.18
Date(s) of performance : 09.07.18-14.07.18
Ref. No. & Date : Not Applicable


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	: 04.07.18-05.07.18
4	Place of sampling	: Mukundabeda village
5	Environmental conditions during sampling	: 1) Temperature : 22-32°C, 2) Barometric Pressure: 746 mm of Hg, 3) Rain Fall : YES.
6	Sampling Done by	: Amar Mallick
7	Sampling Plan & Procedures used	: IS/CPCB Guidelines (Volume-1)

Report prepared by:

Signature : 
Name : Shatakshi Nan
Designation : Executive QA

for Mitra S. K. Private Limited

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

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 Udayan Industrial Estate,
 Kolkata 700015.

Tel. : 91 33 23230072. Fax : 91 33 23230078.

 Email : mitrasklab@yahoo.com

 Web : www.mitrask.com

Report No. : C/ENV/A/18-19/427
Sample No. : MSK/KOL/ENV/A/18-19/427



TC-6950

Analysis Result

Location : Mukundabeda village		Date of sampling : 04/05.07.2018 (11.30.00 hr-11.30 hr.)			
Sampling Done by : Amar Mallick		Sampling done as per : IS/CPCB Guidelines (Volume-1)			
Environmental Condition :		1) Temperature : 22-32°C, 2) Barometric Pressure: 746 mm of Hg, 3) Rain Fall : YES.			
Sl. No.	POLLUTANT	Unit	RESULT	LIMIT	METHOD OF TEST REFERENCE
1	Particulate matter (<10 µm)	µg/m ³	57	100	IS: 5182 (Part-23)-2006 Reff: 2014
2	Particulate matter (<2.5µm)	µg/m ³	24	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	4.2	80	IS: 5182 (Part-2)-2001 Reff: 2012
4	Nitrogen dioxide as NO ₂	µg/m ³	22.7	80	IS: 5182 (Part- 6)-2006, Reff: 2012
5	Carbon monoxide as CO	mg/m ³	0.35	2	IS: 5182 (Part- 10)-1999, Reff: 2014 (NDIR)
6	Ozone (O ₃)	µg/m ³	<10.0	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	<10.0	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	9.52	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.	Instrument No.	Calibration Validity		Model/ Make No./ID	
1	222-DTJ-2016.420-DTJ-2016	30.07.2018		APM-860 /LES-411 (Lata Envirotech)/RDS-03	
2	07-DTF-2016	30.07.2018		APM-154(Lata Envirotech)/FDS-04	

Report prepared by:

Signature

 : *S. Nan*

Name

: Shatakshi Nan

Designation

: Executive QA

for Mitra S. K. Private Limited

Signature

 : *Pradip Bag*

Name

: Pradip Bag

Designation

: Executive Chemist

Authorized Signatory



TC-6950

TEST REPORT


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

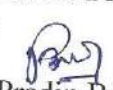
Report No. : C/ENV/A/18-19/426
Date : 14.07.18
Sample No. : MSK/KOL/ENV/A/18-19/426
Date of receipt of sample : 09.07.18
Date(s) of performance : 09.07.18-14.07.18
Ref. No. & Date : Not Applicable

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	: 04.07.18-05.07.18
4	Place of sampling	: Atana Village
5	Environmental conditions during sampling	: 1) Temperature : 22-32°C , 2) Barometric Pressure: 748 mm of Hg, 3) Rain Fall : Yes
6	Sampling Done by	: Amar Mallick
7	Sampling Plan & Procedures used	: IS/CPCB Guidelines (Volume-1)

Report prepared by:

Signature : 
Name : Shatakshi Nan
Designation : Executive QA

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

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Udayan Industrial Estate,
Kolkata 700015.
Tel. : 91 33 23230072. Fax : 91 33 23230078.
Email : mitrasklab@yahoo.com
Web : www.mitrask.com

Report No. : C/ENV/A/18-19/426
Sample No. : MSK/KOL/ENV/A/18-19/426



TC-6950

Analysis Result

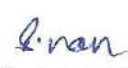
Location : Atana Village				Date of sampling : 04/05.07.2018 (11.00 hr-11.00 hr.)	
Sampling Done by : Amar Mallick				Sampling done as per : IS/CPCB Guidelines (Volume-1)	
Environmental Condition :				1) Temperature : 22-32°C, 2) Barometric Pressure: 748 mm of Hg, 3) Rain Fall : Yes	
Sl. No.	POLLUTANT	Unit	RESULT	LIMIT	METHOD OF TEST REFERENCE
1	Particulate matter (<10 µm)	µg/m ³	43	100	IS: 5182 (Part-23)-2006 Reff: 2014
2	Particulate matter (<2.5µm)	µg/m ³	19	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	4.0	80	IS: 5182 (Part-2)-2001 Reff: 2012
4	Nitrogen dioxide as NO ₂	µg/m ³	19.5	80	IS: 5182 (Part- 6)-2006, Reff: 2012
5	Carbon monoxide as CO	mg/m ³	0.38	2	IS: 5182 (Part- 10)-1999, Reff: 2014 (NDIR)
6	Ozone (O ₃)	µg/m ³	<10.0	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	<10.0	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

Sl. No.	Instrument No.	Calibration Validity	Model/ Make No./ID
1	223-DTJ-2016, 421-DTJ-2016	25.07.2018	APM-860 /LES-411 (Lata Envirotech)/RDS-04
2	02-DTF-2016	25.07.2018	APM-154(Lata Envirotech)/FDS-02

Report prepared by:

Signature : 
Name : Shatakshi Nan
Designation : 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,
 Jharkhand, Pin - 825314

Report No.: WB/ED-5634**Date:** :17.08.2018**Sample No. :** MSKGL/ED/2018-19/07/00864**Sample Description:** Ambient Dust**Reference No.& Date:** 3000107151/902, dtd – 21.10.2016

ANALYSIS RESULT

Location :		:QAB		
Date of sampling :		:08.07.2018 – 09.07.2018		
<u>Sl. No.</u>	<u>Parameters</u>	<u>Unit</u>	<u>Result</u>	<u>Method</u>
1	Alumina (Al ₂ O ₃)	%	1.2	Lab Method
2	Calcium Oxide	%	2.7	Lab Method
3	Carbon Content	%	3.89	Carbon Analyser
4	Fe ₂ O ₃	%	3.27	Lab Method
5	Free Silica	%	2.2	Lab Method
6	Magnesium Oxide	%	0.30	Lab Method
7	MnO	%	0.032	Lab Method
8	P ₂ O ₅	%	0.08	Lab Method
9	Potassium Oxide	%	0.09	Lab Method
10	SO ₃	%	0.04	Lab Method
11	Sodium Oxide	%	0.05	Lab Method
12	TiO ₃	%	<0.004	Lab Method
13	Total Silica	%	32	Lab Method

Report Prepared By 

For Mitra S. K. Private Limited


 Authorised Signatory

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Mitra S. K. Private Limited



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Web : www.mitrask.com



TC-6950

TEST REPORT

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

Report No. : C/ENV/P&E/18-19/142
Date : 16.07.18
Sample No. : MSK/KOL/ENV/P&E/18-19/142
Date of receipt of sample : 09.07.18
Date(s) of performance : 09.07.18-16.07.18
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)	:Effluent Water
2	Sample Mark (if any, given by the customer)	:NA
3	Date of sampling	:08.07.18
4	Place of sampling	:W-4 STP Outlet
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	7.05
2.	TSS in mg/l	APHA 22 nd edition,2012, 2540D	76
3.	TDS in mg/l	APHA22 nd edition,2012,2540C	580
4.	BOD in mg/l	APHA 22 nd edition,2012, 5210B	90
5.	COD in mg/l	APHA 22 nd edition,2012, 5220B	274
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	76
*8.	MLVSS in mg/l	APHA 22 nd edition,2012,2540E	61
9.	Temperature in °C	IS:3025(Part-9) 1984, Reaf-2006	30

* This parameter not in our NABL scope

Report prepared by:

Signature : *Sinan*
Name : Shatakshi Nan
Designation : QA Executive

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

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Web : www.mitrask.com



TC-6950

TEST REPORT

Name & Address of the Customer :	Report No.	: C/ENV/P&E/18-19/143
Tata Steel Limited,	Date	: 16.07.18
West Bokaro Division, Ghatotand,	Sample No.	: MSK/KOL/ENV/P&E/18-19/143
Jharkhand, Pin No-825314.	Date of receipt of sample	: 09.07.18
	Date(s) of performance	: 09.07.18-16.07.18
	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)	: Effluent Water
2	Sample Mark (if any, given by the customer)	: NA
3	Date of sampling	: 08.07.18
4	Place of sampling	: W-5 Near 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	6.74
2.	TSS in mg/l	APHA 22 nd edition, 2012, 2540D	25
3.	TDS in mg/l	APHA 22 nd edition, 2012, 2540C	330
4.	BOD in mg/l	APHA 22 nd edition, 2012, 5210B	12
5.	COD in mg/l	APHA 22 nd edition, 2012, 5220B	51
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	25
*8.	MLVSS in mg/l	APHA 22 nd edition, 2012, 2540E	23
9.	Temperature in °C	IS:3025(Part-9) 1984, Reaf-2006	30

* This parameter not in our NABL scope

Report prepared by:

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

for Mitra S. K. Private Limited
Signature : *Beel*
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/18-19/144
Date : 16.07.18
Sample No. : MSK/KOL/ENV/P&E/18-19/144
Date of receipt of sample : 09.07.18
Date(s) of performance : 09.07.18-16.07.18
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)	: Effluent Water
2	Sample Mark (if any, given by the customer)	: NA
3	Date of sampling	: 08.07.18
4	Place of sampling	: 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°C	APHA 22 nd edition, 2012, 4500-H+B	6.07
2.	TSS in mg/l	APHA 22 nd edition, 2012, 2540D	3.2
3.	TDS in mg/l	APHA 22 nd edition, 2012, 2540C	124
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	3.2
*8.	MLVSS in mg/l	APHA 22 nd edition, 2012, 2540E	1.6
9.	Temperature in °C	IS:3025(Part-9) 1984, Reaf-2006	30

* This parameter not in our NABL scope

Report prepared by:

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

for Mitra S. K. Private Limited

Signature : *Blal*
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/18-19/145
Date : 16.07.18
Sample No. : MSK/KOL/ENV/P&E/18-19/145
Date of receipt of sample : 09.07.18
Date(s) of performance : 09.07.18-16.07.18
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)	: Surface Water
2	Sample Mark (if any, given by the customer)	: NA
3	Date of sampling	: 08.07.18
4	Place of sampling	: W-2 QE Reservoir
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	7.04
2.	TSS in mg/l	APHA 22 nd edition, 2012, 2540D	8.4
3.	TDS in mg/l	APHA 22 nd edition, 2012, 2540C	836
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	8.4
*8.	MLVSS in mg/l	APHA 22 nd edition, 2012, 2540E	3.6
9.	Temperature in °C	IS:3025(Part-9) 1984, Reaf-2006	30

* This parameter not in our NABL scope

Report prepared by:

Signature : 
Name : Shatakshi Nan
Designation : QA Executive

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

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TC-6950

TEST REPORT

Name & Address of the Customer :

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

Report No. :

C/ENV/P&E/18-19/146

Date :

16.07.18

Sample No. :

MSK/KOL/ENV/P&E/18-19/146

Date of receipt of sample :

09.07.18

Date(s) of performance :

09.07.18-16.07.18

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)	:Surface Water
2	Sample Mark (if any, given by the customer)	:NA
3	Date of sampling	:08.07.18
4	Place of sampling	:W-3 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	7.57
2.	TSS in mg/l	APHA 22 nd edition,2012, 2540D	10.8
3.	TDS in mg/l	APHA22 nd edition,2012,2540C	1456
4.	BOD in mg/l	APHA 22 nd edition,2012, 5210B	4.3
5.	COD in mg/l	APHA 22 nd edition,2012, 5220B	24
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	10.8
*8.	MLVSS in mg/l	APHA 22 nd edition,2012,2540E	9.2
9.	Temperature in °C	IS:3025(Part-9) 1984, Reaf-2006	31

* This parameter not in our NABL scope

Report prepared by:

Signature :

S. Nan

Name :

Shatakshi Nan

Designation :

QA Executive

for Mitra S. K. Private Limited

Signature :

B. Maiti

Name :

Bodhisatta Maiti

Designation :

Technical In Charge

Authorized Signatory

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Web : www.mitrask.com



TC-6950

TEST REPORT

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

Report No. : C/ENV/A/18-19/443
Date : 16.07.18
Sample No. : MSK/KOL/ENV/A/18-19/443
Date of receipt of sample : 09.07.18
Date(s) of performance : 09.07.18-16.07.18
Ref. No. & Date : Not Applicable

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	: 07.07.18
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: Bikash Kr. Thakur			Sampling done as per : IS : 9989:1981 (Reff.-2014)		
SL. NO.	Location	Date of Sampling	Area	Results in Leq dB(A)	
				Day time Leq dB(A)	Night time Leq dB(A)
443	ATANA VILLAGE	07.07.2018	Residential Area	54.1	44.8
Permissible limits as per CPCB				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 upto		Model & Make No./ID	
510028		20.06.2019		SLM-109 /Envirotech/SLM-01	

Report prepared by:

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

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

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TC-6950

TEST REPORT

Name & Address of the Customer :

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

Report No. : C/ENV/A/18-19/442
Date : 16.07.18
Sample No. : MSK/KOL/ENV/A/18-19/442
Date of receipt of sample : 09.07.18
Date(s) of performance : 09.07.18-16.07.18
Ref. No. & Date : Not Applicable

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	: 06.07.18
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: Bikash Kr. Thakur

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

SL. NO.	Location	Date of Sampling	Area	Results in Leq dB(A)	
				Day time Leq dB(A)	Night time Leq dB(A)
442	BUNJI VILLAGE	06.07.2018	Residential Area	53.6	44.5
Permissible limits as per CPCB				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 upto		Model & Make No./ID		
510028	20.06.2019		SLM-109 /Envirotech/SLM-01		

Report prepared by:

Signature : *[Signature]*
Name : Shatakshi Nan
Designation : Executive QA

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

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TC-6950

TEST REPORT

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

Report No. : C/ENV/A/18-19/441
Date : 16.07.18
Sample No. : MSK/KOL/ENV/A/18-19/441
Date of receipt of sample : 09.07.18
Date(s) of performance : 09.07.18-16.07.18
Ref. No. & Date : Not Applicable

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	: 06.07.18
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: Bikash Kr. Thakur

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

SL. NO.	Location	Date of Sampling	Area	Results in Leq dB(A)		
				Day time Leq dB(A)	Night time Leq dB(A)	
441	MINES AREA	06.07.2018	Industrial Area	63.9	52.6	
Note:				Industrial Area	75	70
Day time 06.00 hr-22.00 hr. Night time: 22.00 hr. - 6.00 hr.						
Machine Details						
Sr. No.	Calibration Validity upto		Model & Make No./ID			
Q636998	19.05.2019		4033SD/LUTRON/SLM-06			

Report prepared by:

Signature :
Name : Shatakshi Nan
Designation : Executive QA

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

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TC-6950

TEST REPORT

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

Report No. : C/ENV/A/18-19/440
Date : 16.07.18
Sample No. : MSK/KOL/ENV/A/18-19/440
Date of receipt of sample : 09.07.18
Date(s) of performance : 09.07.18-16.07.18
Ref. No. & Date : Not Applicable

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	: 05.07.18
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: Bikash Kr. Thakur			Sampling done as per : IS : 9989:1981 (Reff.-2014)		
SL. NO.	Location	Date of Sampling	Area	Results in Leq dB(A)	
				Day time Leq dB(A)	Night time Leq dB(A)
440	WASHERY AREA	05.07.2018	Industrial Area	61.2	51.7
Note:			Industrial Area	75	70
Day time 06.00 hr-22.00 hr. Night time: 22.00 hr. - 6.00 hr.					
Machine Details					
Sr. No.		Calibration Validity upto		Model & Make No./ID	
510028		20.06.2019		SLM-109 /Envirotech/SLM-01	

Report prepared by:

Signature :

Name : Shatakshi Nan
Designation : 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.

3, Pagladanga Road, P-48,
Udayan Industrial Estate,
Kolkata 700015.
Tel. : 91 33 23230072. Fax : 91 33 23230078.
Email : mitrasklab@yahoo.com
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/18-19/439
Date : 16.07.18
Sample No. : MSK/KOL/ENV/A/18-19/439
Date of receipt of sample : 09.07.18
Date(s) of performance : 09.07.18-16.07.18
Ref. No. & Date : Not Applicable

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	: 05.07.18
4	Place of sampling	: Mukunda Village
5	Environmental conditions during sampling	: NA
6	Sampling Plan & Procedures used	: IS : 9989:1981 (Reff.-2014)

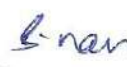
Analysis Result


Sampling Done by: Bikash Kr. Thakur

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

SL. NO.	Location	Date of Sampling	Area	Results in Leq dB(A)	
				Day time Leq dB(A)	Night time Leq dB(A)
439	MUKUNDA VILLAGE	05.07.2018	Residential Area	53.3	44.6
Permissible limits as per CPCB				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 upto		Model & Make No./ID	
Q636998		19.05.2019		4033SD/LUTRON/SLM-06	

Report prepared by:

Signature : 
Name : Shatakshi Nan
Designation : 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



TC-6950

TEST REPORT

Name & Address of the Customer :

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

Report No. : C/ENV/A/18-19/438
Date : 16.07.18
Sample No. : MSK/KOL/ENV/A/18-19/438
Date of receipt of sample : 09.07.18
Date(s) of performance : 09.07.18-16.07.18
Ref. No. & Date : Not Applicable

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	: 04.07.18
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: Bikash Kr. Thakur

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

SL. NO.	Location	Date of Sampling	Area	Results in Leq dB(A)	
				Day time Leq dB(A)	Night time Leq dB(A)
438	DUNI VILLAGE	04.07.2018	Residential Area	53.8	42.2
Permissible limits as per CPCB				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 upto		Model & Make No./ID		
510028	20.06.2019		SLM-109 /Envirotech/SLM-01		

Report prepared by:

Signature : *[Signature]*
Name : Shatakshi Nan
Designation : Executive QA

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

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TC-6950

TEST REPORT

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

Report No. : C/ENV/A/18-19/437
Date : 16.07.18
Sample No. : MSK/KOL/ENV/A/18-19/437
Date of receipt of sample : 09.07.18
Date(s) of performance : 09.07.18-16.07.18
Ref. No. & Date : Not Applicable

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	: 04.07.18
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: Bikash Kr. Thakur			Sampling done as per : IS : 9989:1981 (Reff.-2014)			
SL. NO.	Location	Date of Sampling	Area	Results in Leq dB(A)		
				Day time Leq dB(A)	Night time dB(A)	Leq
437	CHAINPUR VILLAGE	04.07.2018	Residential Area	54.2	42.8	
Permissible limits as per CPCB			Residential Area	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 upto		Model & Make No./ID		
Q636998		19.05.2019		4033SD/LUTRON/SLM-06		

Report prepared by:

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

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

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Manoj Talkies Basement, Kumarpur

ASANSOL-713304 (W.B.)

Format No. : EC/TR/42/FM/01

TEST REPORT

Report Release Date	: 28.08.2018	Sample Ref. No.(ARF)	: EC/ARF/29/180836
Test Report No	: EC/TR/42/08087	Source of Sample	: Power Plant
Type of Sample	: Dust & Gaseous Emission	Sampling Date	: 25.08.2018
Sample Collected by	: Mr. Sumit Sarkar & Team	Period of Analysis	: 27.08.2018
Sample Details	: Stack Emission	Sampling Location	: ESP Stack
Name & Address	: TISCO Ltd West Bokaro Tata Steel Ltd West Bokaro Division P.O. Ghatotand Dist. Ramgarh – 825314 Jharkhand	Sample Condition	: Preserved & Sealed
		Sample Stamped	: TH – 92
		Sample Drawn By	: ECO CARE
		Sampling Plan & Procedure	: EC/SOP/03/01
		Remarks	: ----
		Deviation if any	: None

GENERAL INFORMATION

1	Particular of the Plant	: Power Plant
2	Emission Due to	: Burning of Coal
3	Stack Connected to	: Boiler No. 2
4	Material of Construction	: M.S.
5	Stack Height from G.L.	: 30.0 m
6	Height of Sampling Port from G.L.	: 18.0 m
7	Height of Sampling Port from L.D.Z.	: ----
8	Dimension of Stack at Sampling Port	: 2.0 m
9	Shape of the Stack	: Circular
10	Working Load	: 10.5 MW

FUEL CHARACTERISTIC REPORT

1	Source of Energy	: Coal
2	Energy Consumption	: 12.1 MT/hr
3	Calorific Value (K-Cal/Kg)	: ----

RESULTS OF SAMPLING GASEOUS EMISSION ANALYSIS

		Method	
1	Flue Gas Temperature	129 °C	IS 11255 : Part 3
2	Barometric Pressure	746 mm Hg	IS 11255 : Part 3
3	Velocity of Flue Gas	11.98 m/sec	IS 11255 : Part 3
4	Flue Gas Quantity	93166 NM ³ /hr	IS 11255 : Part 3
5	Concentration of Particulate Matter	32.02 mg/NM ³	IS 11255 : Part 1
6	Concentration of Carbon Dioxide	10.2 %	IS 13270
7	Concentration of O ₂	9.6 %	IS 13270 : 1992
8	Concentration of Carbone Monoxide	< 0.4 %	IS 13270 : 1992
9	Concentration of SO ₂	228.19 mg/NM ³	IS 11255 : Part 2
10	Concentration of NO _x	132.90 mg/NM ³	IS 11255 : Part 7

1. Test values are reported based on the samples received.
2. Sample(s) will be destroyed after 7 days from date of issues of the Test Report subject to nature of Preservation. Sample will be preserved as per the standard method.
3. The Test report shall not be reproduced, without the written approval of laboratory


Authorised Signatory

Nupur Chatterjee
B. Sc. M. Sc. (Env. Sc.)
Dy Technical Manager