



HALF YEARLY COMPLIANCE REPORT
(Period from 01.10.2019 to 31.03.2020)

OF

Ferro Alloys Plant, Bamnival
Tata Steel Limited

P.O- Bamnival, Dist. Keonjhar
Odisha- 758082

ENVIRONMENTAL CLEARANCE GRANTED
VIDE LETTER NO. - J-11011/10/2007-IA.II(I) DATED- 07th May 2017
ISSUED BY
GOVT. OF INDIA, MINISTRY OF ENVIRONMENT & FOREST, NEW DELHI.



Ref. No. : FAMD/FAPB/553 /FY21

Date: 26.05.2020

To
Director(s)
Ministry of Environment and Forests
Eastern Regional Office,
A/3, Chandrasekharpur,
Bhubaneswar-751023

Sub: Submission of Six-monthly compliance report on Implementation of Environmental safeguard of Ferro Alloy Plant, Bamnival, for the period from Oct'2019 to Mar'2020

Ref: Ministry of Environment and Forests Letter NO: J-1101/10/2007-IAII (I), dated 07.05.2007

Dear Sir,

We are herewith submitting the six-monthly compliance report in respect of the stipulated environmental clearance conditions of Ferro Alloy Plant, Bamnival, for the period from Oct'2019 to Mar'2020 as per EIA Notification, 2006.

We have sent the soft copy of the report to your good office on email: roez.bsr-mef@nic.in for your ready reference.

We trust that the measures taken towards environmental safe guards comply with the stipulated environmental conditions. We look forward to your further guidance which shall certainly help us in our endeavour for further improve upon our environmental management practices.

Thanking You,

Yours Faithfully

HEAD (FA Production)
FAP, Bamnival
M/s Tata Steel Ltd.

Encl: As above

CC to: Member Secretary, SPCB, Odisha, Bhubaneswar-751012.
Regional Officer, SPCB, Odisha, Baniapat, College Road, Keonjhar-758001, Orissa.

TATA STEEL LTD

Ferro Alloys Plant, Bamnival-758082, Dist.Keonjhar,Odisha,India

Tel : 09238118601,9238118603

Regd. Office : Bombay House, 24 Homi Mody Street, Mumbai – 400 001

Tel. 91 22 66658282, FAX 91 22 666577724

Corporate Identity No - L27100MH1907PLC000260, Website : www.tatasteel.com

COMPLIANCE STATUS PERIOD: OCTOBER'19 to MARCH'20 FOR

ENVIRONMENTAL CLEARANCE OF FERRO ALLOYS PLANT, BAMNIPAL OF TATA STEEL LIMITED VIDE MOEF's LETTER NO. No.: J-11011/10/2007-IA. II (I), Dated 07.05.2007

A. SPECIFIC CONDITIONS

- i) The gaseous emissions from various process units shall conform to the load/mass based standards notified by this Ministry on 19th May, 1993 and standards prescribed from time to time. The State Board may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location. At no time, the emission level shall go beyond the prescribed standards. Interlocking facilities shall be provided so that process can be automatically stopped in case emission level exceeds the limit.

Status of Compliance:

Existing plant emission level is within the permissible limit. Guidelines/codes of practice issued by CPCB are followed. Monthly reports are sent to SPCB, Bhubaneswar and Regional office, Keonjhar.

- ii) Continuous stack monitoring facilities for all the major stacks and adequate air pollution control systems shall be provided to keep emission levels below 50 mg/Nm³ and reports submitted to the OSPCB & CPCB.

Status of Compliance:

The proposed expansion project construction not yet started & it is realized that the construction of proposed project activity have not been carried out during the validity period (as per the EIA notification J-11011/10/2007-IA II(I) dated 07.05.2007) thus we shall obtain fresh approval from the ministry as per the provision EPA 1986 if the management envisages to undertake the said expansion in future.

Monthly stack monitoring report of existing plant is submitted to OSPCB, BBSR and RO, OSPCB, Keonjhar, Orissa, every month. Monthly stack analysis report is attached as Annexure-III From Oct'19 to mar'20.

As per the OSPCB consent order the prescribed emission standard for stack attached to Arc furnace and GFPS is only for PM i.e. 100 mg/ Nm³.

		Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20
	Standard (mg/Nm ³)	Avg. during the month (mg/Nm ³)					
PM	100	45.2	48.8	41.8	42.8	46	50.6

- iii) In-plant control measures for checking fugitive emissions from all the vulnerable sources shall be provided. Fume and dust extraction system with bag filters shall be provided at the transfer and discharge points to control fugitive emissions. Pneumatic ash conveying system and storage silos shall be used for dust transfer to silos. ESP shall be provided to the Captive

Power Plant (CPP) to control air emissions to 100mg/Nm³. Further, specific measures like water sprinkling around the coal stockpiles and asphaltting or concreting of the roads shall be done to control fugitive emissions.

Status of Compliance:

The proposed expansion project construction not yet started & it is realized that the construction of proposed project activity have not been carried out during the validity period (as per the EIA notification J-11011/10/2007-IA II(I) dated 07.05.2007) thus we shall obtain fresh approval from the ministry as per the provision EPA 1986 if the management envisages to undertake the said expansion in future.

However for the existing control of ferro-chrome plant for the dust and fugitive emission, the dust extraction system with bag filters have been provided at GFPS (Grinding, Filtering, pelletizing and sintering) transfer and discharge points to control fugitive emissions. Water spraying arrangement in haul road and auto water sprinkling system installed at raw material store yard and weigh bridge area. DFDS (Dry Fog Dust Suppression) System & 3 Nos high velocity mist canon have been installed at dust generating sources like conveyor belt, skip hoist, pellet screen, vibrating feeder. In existing plant control measures for checking fugitive emissions from all the vulnerable sources have been installed.

- iv) Secondary fugitive emissions shall be controlled within the prescribed limits, regularly monitored and records maintained. Guideline / Code of practice issued by the CPCB in this regard shall be followed.

Status of Compliance:

In existing plant we have three air quality monitoring stations (Two in the work zone, one in residential area). Monitoring of the ambient air quality was being conducted twice in a week as per CPCB guidelines. Likewise monthly monitoring is done in 3 buffer zone locations. PM₁₀, PM_{2.5}, SO₂, NO_x, CO, NH₃, C₆H₆, BaP, Ni, Pb, As parameters in the air quality is monitored as per Gazette Notification 826(E), dated 16.11.2009. The data on ambient air quality of core zone as well as buffer zone for the period Oct'19 to Mar'20 is attached as Annexure-I. The ambient air quality analysis report is submitted to OSPCB, BBSR and RO, OSPCB Keonjhar, Orissa every month.

- v) Total requirement of the water from Remal Dam and Kusei River shall not exceed 4416 m³/day and 7584 m³/day respectively as per the permission accorded by the Department of Water Resources, Govt. of Orissa. All the 3640 m³/day treated effluent shall be used for dust suppression and green belt development after treatment for total suspended solids (TSS) and pH. Domestic wastewater shall be treated in Sewage Treatment Plant (STP). No waste water shall be discharged outside the factory premises and 'Zero' discharge shall be adopted.

Status of Compliance:

The proposed expansion project construction not yet started & it is realized that the construction of proposed project activity have not been carried out during the validity period (as per the EIA notification J-11011/10/2007-IA II(I) dated 07.05.2007) thus we shall obtain fresh approval from the ministry as per the provision EPA 1986 if the management envisages to undertake the said expansion in future. The water

requirement for existing plant is 1750 KLD, and is well below the above permissible limit and we have adopted 'Zero' discharge.

- vi) All the solid waste including process slag, SAF flue dust, raw material fines, product fines, ash, raw water treatment slurry and ETP sludge shall be properly disposed off. Fly ash and granulated slag shall be provided to the cement manufacturing units for further use. Hexavalent Chromium present in the slag shall be converted to trivalent chromium. Ferro-chrome shall be stored in secured landfill as per the CPCB guidelines. Bottom ash shall be disposed off in a suitably designed landfill as per CPCB guide line to prevent leaching to the sub-oil and underground aquifer. STP sludge after drying shall be used as fertilizer for green belt development. Used oil shall be sold to recyclers and preprocessors.

Status of Compliance:

The proposed expansion project construction not yet started & it is realized that the construction of proposed project activity have not been carried out during the validity period (as per the EIA notification J-11011/10/2007-IA II(I) dated 07.05.2007) thus we shall obtain fresh approval from the ministry as per the provision EPA 1986 if the management envisages to undertake the said expansion in future. However, for the existing plant we are complying with the OSPCB norms for the disposal of all solid wastes.

- vii) SAF slag shall not be dumped but reused as per the alternate action plan submitted to the Ministry. Product fines and flue dust shall not be dumped anywhere but reused in the process.

Status of Compliance:

SAF hard slag is used for civil construction. Rainwater harvesting structure was constructed using SAF hard slag replacing granite boulders. CPP project and plant expansion activity have not been carried out during the validity period of EC.

- viii) The company shall develop rain water harvesting structures to harvest the rain water for utilization in the lean season besides recharging the ground water table.

Status of Compliance:

Rain water harvesting pond has been developed and feasibility test has been undergone for ground water recharging and strengthening rain water harvesting.

- ix) Out of total 71.719 ha. Green belt shall be developed in 40 ha within and around the plant premises as per the CPCB guidelines in consultation with DFO besides compensatory afforestation in 39.72 ha in lieu of forest land acquired.

Status of Compliance:

It will be adhered. Green belt will be developed in 40 ha area in lieu of 39.72 ha forest land proposed to be acquired for the said project. However green belt has been developed within and around the existing ferro-chrome plant premises.

- x) Occupational Health Surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.

Status of Compliance:

Periodic medical check-ups were conducted yearly. Last medical check-up was done on December'2019 and 744 nos. of employees are examined including contractual employees.

- xi) Recommendations made in the CREP guidelines issued for Ferro chrome plants shall be implemented.

Status of Compliance:

CREP (Corporate Responsibility for Environmental Protection) recommendations have been implemented

- xii) No construction activities at the 39.72 ha forest land shall start without prior approval under Forest (Conservation) Act, 1980 and subsequent amendments.

Status of Compliance:

The proposed expansion project construction not yet started & it is realized that the construction of proposed project activity have not been carried out during the validity period (as per the EIA notification J-11011/10/2007-IA II(I) dated 07.05.2007) thus we shall obtain fresh approval from the ministry as per the provision EPA 1986 if the management envisages to undertake the said expansion in future . Before starting the construction activity at 39.72 forest lands (proposed to be acquired for the project), prior approval will be taken.

- xiii) Comments/observations of the Chief Wildlife Warden/State Forest Department shall be obtained regarding impact of the proposed expansion plant on the Rebana RF, Daitari RF, Tamka RF, Mahagiri RF which are located around the project site and all the recommendations should be implemented in time bound manner.

Status of Compliance:

The proposed expansion project construction not yet started & it is realized that the construction of proposed project activity have not been carried out during the validity period (as per the EIA notification J-11011/10/2007-IA II(I) dated 07.05.2007) thus we shall obtain fresh approval from the ministry as per the provision EPA 1986 if the management envisages to undertake the said expansion in future.

Comments/observations of the Chief Wildlife Warden/State Forest Department will be made available and will be implemented in time.

B. GENERAL CONDITIONS:

- i. The project authorities must strictly adhere to the stipulations made by the Orissa Pollution Control Board (OSPCB) and the State Government.

Status of Compliance:

It has been complied.

- ii. No further expansion or modification in the plant should be carried out without prior approval of the Ministry of Environment and Forests.

Status of Compliance:

It will be followed.

- iii. At least four ambient air quality monitoring stations shall be established in the downward direction as well as where maximum ground level concentration of SPM, SO₂ and NO_x are anticipated in consultation with the OSPCB. Data on ambient air quality and stack emission should be regularly submitted to this Ministry including its Regional Office at Bhubaneswar and the OSPCB/CPCB once in six months.

Status of Compliance:

The proposed expansion project construction not yet started & it is realized that the construction of proposed project activity have not been carried out during the validity period (as per the EIA notification J-11011/10/2007-IA II(I) dated 07.05.2007) thus we shall obtain fresh approval from the ministry as per the provision EPA 1986 if the management envisages to undertake the said expansion in future

For existing plant there are three air quality monitoring stations (two in the work zone, one in residential area). Monitoring of the air quality has been conducted twice in a week as per CPCB guidelines. Likewise monthly monitoring has been done in 3 buffer zone locations. The air quality analysis report submitted to OSPCB BBSR and Regional Office, OSPCB, Keonjhar, Orissa every month. Air quality analysis report is attached as Annexure-I.

- iv. Industrial wastewater shall 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. The treated wastewater shall be utilized for plantation purpose.

Status of Compliance:

For existing process industrial wastewater is being collected in settling pond. After two stages of settlement the overflow water is being recycled completely without discharging outside. The waste water generated from ventury scrubber is being treated in the thickener and the sludge is being conveyed to an impervious lined pond in the form of slurry for settlement. The overflow water of the sludge pond is being recycled back to the process without discharging outside.

- v. The overall noise levels in and around the plant area shall be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise level should conform to the standards prescribed under EPA Rules, 1989 viz 75 dBA (daytime) and 70 dBA (nighttime).

Status of Compliance:

It has been strictly adhered. Monitoring results for last six months i.e Oct'19 to Mar'20 is enclosed as Annexure-II

- vi. The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA/EMP report. Further, the company must undertake socio-economic development activities in the surrounding villages like community development programmes, educational programmes, drinking water supply and health care etc.

Status of Compliance:

The proposed expansion project construction not yet started & it is realized that the construction of proposed project activity have not been carried out during the validity period (as per the EIA notification J-11011/10/2007-IA II(I) dated 07.05.2007) thus we shall obtain fresh approval from the ministry as per the provision EPA 1986 if the management envisages to undertake the said expansion in future. For existing ferro-chrome plant the socio-economic, development activities in the surrounding villages like community development programmes, educational programmes, drinking water supply and health care etc. are being taken care of by our TSRDS team (CSR team). Total

- vii. As mentioned in the EIA/EMP, Rs.25.44 Crores and Rs.3.26 Crores shall be earmarked towards capital cost and recurring cost/annum to control pollution and shall be judiciously utilized to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government. The funds so provided shall not be diverted for any other purpose.

Status of Compliance:

The proposed expansion project construction not yet started & it is realized that the construction of proposed project activity have not been carried out during the validity period (as per the EIA notification J-11011/10/2007-IA II(I) dated 07.05.2007) thus we shall obtain fresh approval from the ministry as per the provision EPA 1986 if the management envisages to undertake the said expansion in future & Will strictly adhere the EIA/EMP report.

- viii. The Regional Office of this Ministry at Bhubaneswar/CPCB/OSPCB shall monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.

Status of Compliance:

The proposed expansion project construction not yet started. A six monthly compliance report and the monitored data along with statistical interpretation have been submitted to MoEF Bhubaneswar & CPCB/OSPCB.

- ix. The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the OSPCB/Committee and may also be seen at Website of the Ministry of Environment and Forests at <http://envfor.nic.in>. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the Regional Office at Bhubaneswar.

Status of Compliance:

The project proponent had been informed to the public in two local newspapers (The Samaja, The Indian Express) that are widely circulated in the region of locality concerned in the vernacular language, a copy of the same forwarded to the Regional Office at Bhubaneswar. Attached As Annexure-V

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- x. Project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.

Status of Compliance:

The proposed expansion project construction not yet started & it is realized that the construction of proposed project activity have not been carried out during the validity period (as per the EIA notification J-11011/10/2007-IA II(I) dated 07.05.2007) thus we shall obtain fresh approval from the ministry as per the provision EPA 1986 if the management envisages to undertake the said expansion in future


Head (Ferro Alloys Production)
TATA STEEL Limited
Ferro Alloy Plant, Barnipal
Keonjhar, Odisha, PIN : 758082

ANNEXURE-I AAQ REPORT

AAQ MONITORING REPORT FOR THE MONTH OF OCTOBER -2019

1. Name of Industry : Ferro Alloys Plant Bamnibal, (M/s TATA Steel Limited); Keonjhar.
2. Sampling Location : Monitoring Station ID: AAQMS-1 (Near Admin Building).
3. Monitoring Instruments : RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by : VCSPL Representative in presence of TATA Representative.

Date	PARAMETERS											
	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (ng/m ³)
01.10.2019	38.9	21.78	8.9	12.2	7.8	0.28	22.6	BDL	BDL	BDL	BDL	BDL
04.10.2019	46.6	26.10	10.6	13.8	7.2	0.37	23.8	BDL	BDL	BDL	BDL	BDL
08.10.2019	32.8	18.37	11.2	14.6	8.4	0.26	24.4	BDL	BDL	BDL	BDL	BDL
11.10.2019	30.6	17.14	11.6	15.2	8.8	0.24	25.6	BDL	BDL	BDL	BDL	BDL
15.10.2019	51.2	28.67	12.4	16.8	9.1	0.41	28.2	BDL	BDL	BDL	BDL	BDL
18.10.2019	48.8	27.33	11.8	15.4	8.6	0.39	20.6	BDL	BDL	BDL	BDL	BDL
22.10.2019	47.6	26.66	10.2	13.8	8.4	0.38	21.4	BDL	BDL	BDL	BDL	BDL
25.10.2019	49.2	27.55	9.4	13.2	8.2	0.38	22.2	BDL	BDL	BDL	BDL	BDL
29.10.2019	54.2	30.35	10.4	15.1	9.6	0.44	22.6	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	180	4	400	05	01	20	1.0	06
Monthly Average	44.43	24.88	10.72	14.46	8.46	0.35	23.49	BDL	BDL	BDL	BDL	BDL
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling

BDL Values : SO₂ < 4 µg/m³, NO_x < 9 µg/m³, O₃ < 4 µg/m³, CO < 0.1 mg/m³, NH₃ < 20 µg/m³, C₆H₆ < 0.001 µg/m³, BaP < 0.002 ng/m³, Ni < 0.01 ng/m³, Pb < 0.001 µg/m³, As < 0.001 ng/m³.



Ref: Emlab/19/R-5152

Date: 04

AAQ MONITORING REPORT FOR THE MONTH OF OCTOBER-2019

1. Name of Industry : Ferro Alloys Plant Bamnibal, (M/s TATA Steel Limited); Keonjhar.
2. Sampling Location : Monitoring Station ID: AAQMS-2 (Near Kusei Club)
3. Monitoring Instruments : RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by : VCSPL representative in presence of TATA representative.

Date	PARAMETERS											
	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (ng/m ³)
01.10.2019	39.6	22.18	9.2	13.1	8.4	0.38	24.1	BDL	BDL	BDL	BDL	BDL
04.10.2019	45.2	25.31	13.8	16.1	8.6	0.44	23.6	BDL	BDL	BDL	BDL	BDL
08.10.2019	36.2	20.27	8.6	12.1	9.2	0.46	23.8	BDL	BDL	BDL	BDL	BDL
11.10.2019	34.1	19.10	8.4	12.8	9.4	0.42	22.9	BDL	BDL	BDL	BDL	BDL
15.10.2019	56.1	31.42	14.6	18.8	10.2	0.51	25.8	BDL	BDL	BDL	BDL	BDL
18.10.2019	46.6	26.10	13.8	15.6	10.4	0.48	25.2	BDL	BDL	BDL	BDL	BDL
22.10.2019	45.6	25.54	13.2	16.1	11.2	0.46	26.1	BDL	BDL	BDL	BDL	BDL
25.10.2019	48.8	27.33	14.1	18.2	11.6	0.44	24.6	BDL	BDL	BDL	BDL	BDL
29.10.2019	56.1	31.42	15.4	19.1	12.1	0.49	25.2	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	180	4	400	05	01	20	1.0	06
Monthly Average	45.37	25.41	12.34	15.77	10.12	0.45	24.59	BDL	BDL	BDL	BDL	BDL
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling

BDL Values : SO₂ < 4 µg/m³, NO_x < 9 µg/m³, O₃ < 4 µg/m³, CO < 0.1 mg/m³, NH₃ < 20 µg/m³, C₆H₆ < 0.001 µg/m³, BaP < 0.002 ng/m³, Ni < 0.01 ng/m³, Pb < 0.001 µg/m³, As < 0.001 ng/m³.



Ref: Emlab/19/R-5153

Date:

AAQ MONITORING REPORT FOR THE MONTH OF OCTOBER-2019

- Name of Industry : Ferro Alloys Plant Bamnival, (M/s TATA Steel Limited); Keonjhar.
- Sampling Location : Monitoring Station ID:AAQMS-3 (Near Helipad)
- Monitoring Instruments : RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
- Sample collected by : VCSPL representative in presence of TATA representative.

Date	PARAMETERS											
	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (ng/m ³)
01.10.2019	42.8	23.97	8.6	13.1	9.6	0.28	22.1	BDL	BDL	BDL	BDL	BDL
04.10.2019	50.6	28.34	10.6	14.2	9.2	0.33	23.6	BDL	BDL	BDL	BDL	BDL
08.10.2019	33.8	18.93	11.2	15.2	9.4	0.34	24.8	BDL	BDL	BDL	BDL	BDL
11.10.2019	38.6	21.62	11.8	16.1	10.2	0.32	25.4	BDL	BDL	BDL	BDL	BDL
15.10.2019	56.2	31.47	12.9	16.8	9.8	0.44	26.6	BDL	BDL	BDL	BDL	BDL
18.10.2019	51.2	28.67	11.4	15.8	9.4	0.36	26.8	BDL	BDL	BDL	BDL	BDL
22.10.2019	48.2	26.99	12.6	16.2	9.1	0.33	27.4	BDL	BDL	BDL	BDL	BDL
25.10.2019	49.2	27.55	13.1	18.8	10.1	0.32	28.2	BDL	BDL	BDL	BDL	BDL
29.10.2019	54.2	30.35	14.6	21.2	10.1	0.31	28.8	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	180	4	400	05	01	20	1.0	06
Monthly Average	47.20	26.43	11.87	16.38	9.66	0.34	25.97	BDL	BDL	BDL	BDL	BDL
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling

BDL Values :SO₂<4 µg/m³, NO_x<9 µg/m³, O₃<4 µg/m³, CO<0.1 mg/m³, NH₃<20 µg/m³, C₆H₆<0.001 µg/m³, BaP<0.002 ng/m³, Ni<0.01 ng/m³, Pb<0.001 µg/m³, As <0.001 ng/m³.



Date: 01-11-19

Form No-19/R-51519

AMBIENT AIR QUALITY MONITORING REPORT FOR OCTOBER-2019 (BUFFER ZONE)

- Name of Industry : Ferro Alloys Plant Bamnival, (M/s TATA Steel Limited); Keonjhar
- Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer
- Sample collected by : VCSPL Representative in presence of TATA Representative

Monitoring Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (ng/m ³)
BZ-1: Rugudipunga Village												
20.10.2019	56.6	31.6	8.6	13.6	BDL	0.46	BDL	BDL	BDL	BDL	BDL	BDL
Monitoring Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (ng/m ³)
BZ-2: Samarpetta Village												
20.10.2019	54.2	30.8	8.2	14.2	BDL	0.54	BDL	BDL	BDL	BDL	BDL	BDL
Monitoring Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (ng/m ³)
BZ-3: Near Rashol Village												
20.10.2019	57.4	34.6	9.1	15.1	BDL	0.48	BDL	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	4	--	100	60	80	80	4	--
Testing Method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	NDIR Spectroscopy	Gas Chromatography	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	NDIR Spectroscopy	Gas Chromatography

BDL Values :SO₂<4 µg/m³, NO_x<9 µg/m³, O₃<4 µg/m³, CO<0.1 mg/m³, NH₃<20 µg/m³, C₆H₆<0.001 µg/m³, BaP<0.002 ng/m³, Ni<0.01 ng/m³, Pb<0.001 µg/m³, As <0.001 ng/m³.



Date: 01-11-19

Form No-19/R-51519

En/106/19/R-5964

Date: 02.12.19

AAQ MONITORING REPORT FOR THE MONTH OF NOVEMBER -2019

- Name of Industry : Ferro Alloys Plant Bamnival, (M/s TATA Steel Limited); Keonjhar.
- Sampling Location : Monitoring Station ID: AAQMS-1 (Near Admin Building).
- Monitoring Instruments : RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
- Sample collected by : VCSPL Representative in presence of TATA Representative.

Date	PARAMETERS											
	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (ng/m ³)
04.11.2019	38.9	21.78	8.9	12.2	7.8	0.28	22.6	BDL	BDL	BDL	BDL	BDL
07.11.2019	46.6	26.10	10.6	13.8	7.2	0.37	23.8	BDL	BDL	BDL	BDL	BDL
11.11.2019	32.8	18.37	11.2	14.6	8.4	0.26	24.4	BDL	BDL	BDL	BDL	BDL
14.11.2019	30.6	17.14	11.6	15.2	8.8	0.24	25.6	BDL	BDL	BDL	BDL	BDL
18.11.2019	51.2	28.67	12.4	16.8	9.1	0.41	28.2	BDL	BDL	BDL	BDL	BDL
21.11.2019	48.8	27.33	11.8	15.4	8.6	0.39	20.6	BDL	BDL	BDL	BDL	BDL
25.11.2019	47.6	26.66	10.2	13.8	8.4	0.38	21.4	BDL	BDL	BDL	BDL	BDL
28.11.2019	49.2	27.55	9.4	13.2	8.2	0.38	22.2	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	180	4	400	05	01	20	1.0	06
Monthly Average	42.60	23.86	11.33	16.31	8.38	0.32	24.81	BDL	BDL	BDL	BDL	BDL
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling

BDL Values : SO₂<4 µg/m³, NO_x<9 µg/m³, O₃<4 µg/m³, CO<0.1 mg/m³, NH₃<20 µg/m³, C₆H₆<0.001 µg/m³, BaP<0.002 ng/m³, Ni<0.01 ng/m³, Pb<0.001 µg/m³, As<0.001 ng/m³.



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(Consulted For Water Environment)

En/106/19/R-5965

Date: 02.12.19

AAQ MONITORING REPORT FOR THE MONTH OF NOVEMBER -2019

- Name of Industry : Ferro Alloys Plant Bamnival, (M/s TATA Steel Limited); Keonjhar.
- Sampling Location : Monitoring Station ID: AAQMS-2 (Near Kusei Club)
- Monitoring Instruments : RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
- Sample collected by : VCSPL representative in presence of TATA representative.

Date	PARAMETERS											
	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (ng/m ³)
04.11.2019	46.8	26.208	10.8	14.1	8.2	0.31	24.8	BDL	BDL	BDL	BDL	BDL
07.11.2019	48.2	26.992	11.2	15.6	8.4	0.36	25.6	BDL	BDL	BDL	BDL	BDL
11.11.2019	50.2	28.112	11.8	15.8	9.1	0.41	25.2	BDL	BDL	BDL	BDL	BDL
14.11.2019	51.8	29.008	12.6	16.4	9.6	0.39	25.8	BDL	BDL	BDL	BDL	BDL
18.11.2019	52.6	29.456	13.8	16.8	9.2	0.32	26.2	BDL	BDL	BDL	BDL	BDL
21.11.2019	50.8	28.448	14.1	18.2	9.4	0.34	26.6	BDL	BDL	BDL	BDL	BDL
25.11.2019	48.8	27.328	14.6	19.2	9.2	0.38	28.2	BDL	BDL	BDL	BDL	BDL
28.11.2019	48.2	26.992	13.2	18.8	9.4	0.42	28.8	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	180	4	400	05	01	20	1.0	06
Monthly Average	49.68	27.82	12.76	16.86	9.06	0.37	26.40	BDL	BDL	BDL	BDL	BDL
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling

BDL Values : SO₂<4 µg/m³, NO_x<9 µg/m³, O₃<4 µg/m³, CO<0.1 mg/m³, NH₃<20 µg/m³, C₆H₆<0.001 µg/m³, BaP<0.002 ng/m³, Ni<0.01 ng/m³, Pb<0.001 µg/m³, As<0.001 ng/m³.



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AAQ MONITORING REPORT FOR THE MONTH OF NOVEMBER -2019

- Name of Industry : Ferro Alloys Plant Bamnipal, (M/s TATA Steel Limited); Keonjhar.
- Sampling Location : Monitoring Station ID:AAQMS-3 (Near Hellpad)
- Monitoring Instruments : RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
- Sample collected by : VCSPL representative in presence of TATA representative.

Envi/19/11/R-5966

Date	PARAMETERS											
	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (ng/m ³)
04.11.2019	51.2	28.672	9.2	13.8	9.4	0.22	22.8	BDL	BDL	BDL	BDL	BDL
07.11.2019	52.8	29.568	9.6	13.6	9.4	0.26	23.6	BDL	BDL	BDL	BDL	BDL
11.11.2019	53.2	29.792	9.8	14.8	9.2	0.31	24.2	BDL	BDL	BDL	BDL	BDL
14.11.2019	53.8	30.128	10.8	15.2	9.6	0.28	25.8	BDL	BDL	BDL	BDL	BDL
18.11.2019	54.6	30.576	11.2	15.6	9.8	0.26	25.2	BDL	BDL	BDL	BDL	BDL
21.11.2019	55.2	30.912	11.6	16.2	9.2	0.28	26.1	BDL	BDL	BDL	BDL	BDL
25.11.2019	55.4	31.024	11.8	16.8	10.2	0.31	26.6	BDL	BDL	BDL	BDL	BDL
28.11.2019	54.2	30.352	12.6	16.2	10.6	0.26	25.8	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	180	4	400	05	01	20	1.0	06
Monthly Average	53.80	30.13	10.83	15.28	9.68	0.27	25.01	BDL	BDL	BDL	BDL	BDL
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling

BDL Values :SO₂< 4 µg/m³, NO_x< 9 µg/m³, O₃<4 µg/m³, CO<0.1 mg/m³, NH₃<20 µg/m³, C₆H₆<0.001 µg/m³, BaP<0.002 ng/m³, Ni<0.01 ng/m³, Pb<0.001 µg/m³, As < 0.001 ng/m³.



Date: 02.12.19

Plot No.-M-22&23, Chandaka Industrial Estate, Patna, Bhubaneswar-751024, Dist-Khurda, Odisha Tel.: 7752017905.
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AMBIENT AIR QUALITY MONITORING REPORT FOR NOVEMBER -2019 (BUFFER ZONE)

- Name of Industry : Ferro Alloys Plant Bamnipal, (M/s TATA Steel Limited); Keonjhar
- Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer
- Sample collected by : VCSPL Representative in presence of TATA Representative

Monitoring Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (ng/m ³)
BZ-1: Rugudipunga Village												
21.11.2019	52.8	32.6	9.1	14.1	BDL	0.51	BDL	BDL	BDL	BDL	BDL	BDL
BZ-2:Samarpeta Village												
21.11.2019	54.6	31.2	9.6	14.6	BDL	0.52	BDL	BDL	BDL	BDL	BDL	BDL
BZ-3:Near Rashol Village												
21.11.2019	58.0	31.8	8.8	14.8	BDL	0.56	BDL	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	4	--	100	60	80	80	4	--
Testing Method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	NDIR Spectroscopy	Gas Chromatography	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	NDIR Spectroscopy	Gas Chromatography

BDL Values :SO₂< 4 µg/m³, NO_x< 9 µg/m³, O₃<4 µg/m³, CO<0.1 mg/m³, NH₃<20 µg/m³, C₆H₆<0.001 µg/m³, BaP<0.002 ng/m³, Ni<0.01 ng/m³, Pb<0.001 µg/m³, As < 0.001 ng/m³.



Date:

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Enlab/19/R-6627

Date: 02.01.20

AAQ MONITORING REPORT FOR THE MONTH OF DECEMBER-2019

- Name of Industry : Ferro Alloys Plant Bannipal, (M/s TATA Steel Limited); Keonjhar.
- Sampling Location : Monitoring Station ID: AAQMS-1 (Near Admin Building).
- Monitoring Instruments : RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
- Sample collected by : VCSPL representative in presence of TATA representative.

Date	PARAMETERS											
	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (ng/m ³)
03.12.2019	58.9	35.34	7.6	12.2	6.6	0.44	23.6	BDL	BDL	BDL	BDL	BDL
06.12.2019	60.4	36.24	8.1	12.6	6.8	0.46	23.2	BDL	BDL	BDL	BDL	BDL
10.12.2019	56.8	34.08	8.4	13.2	6.2	0.42	24.2	BDL	BDL	BDL	BDL	BDL
13.12.2019	66.4	39.84	8.8	13.8	7.1	0.44	24.8	BDL	BDL	BDL	BDL	BDL
17.12.2019	62.8	37.68	9.6	14.2	7.4	0.51	25.2	BDL	BDL	BDL	BDL	BDL
20.12.2019	66.2	39.72	10.2	14.1	6.2	0.56	25.6	BDL	BDL	BDL	BDL	BDL
24.12.2019	67.2	40.32	10.6	13.6	6.6	0.48	24.4	BDL	BDL	BDL	BDL	BDL
27.12.2019	66.2	39.72	9.8	13.2	6.4	0.42	24.2	BDL	BDL	BDL	BDL	BDL
31.12.2019	62.8	37.68	9.2	13.4	6.2	0.51	26.1	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	180	4	400	05	01	20	1.0	06
Monthly Average	63.08	37.85	9.14	13.37	6.61	0.47	24.59	BDL	BDL	BDL	BDL	BDL
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling

BDL Values : SO₂ < 4 µg/m³, NO_x < 9 µg/m³, O₃ < 4 µg/m³, CO < 0.1 mg/m³, NH₃ < 20 µg/m³, C₆H₆ < 0.001 µg/m³, BaP < 0.002 ng/m³, Ni < 0.01 ng/m³, Pb < 0.001 µg/m³, As < 0.001 ng/m³.



AAQ MONITORING REPORT FOR THE MONTH OF DECEMBER-2019

- Name of Industry : Ferro Alloys Plant Bannipal, (M/s TATA Steel Limited); Keonjhar.
- Sampling Location : Monitoring Station ID: AAQMS-2 (Near Kusei Club)
- Monitoring Instruments : RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
- Sample collected by : VCSPL representative in presence of TATA representative.

Date	PARAMETERS											
	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (ng/m ³)
03.12.2019	61.2	36.72	8.1	11.2	6.4	0.38	22.6	BDL	BDL	BDL	BDL	BDL
06.12.2019	64.4	38.64	8.6	11.6	6.6	0.33	23.2	BDL	BDL	BDL	BDL	BDL
10.12.2019	66.2	39.72	8.8	11.8	6.8	0.34	23.8	BDL	BDL	BDL	BDL	BDL
13.12.2019	68.2	40.92	8.9	12.2	7.1	0.36	24.2	BDL	BDL	BDL	BDL	BDL
17.12.2019	69.2	41.52	9.1	13.2	7.2	0.33	25.1	BDL	BDL	BDL	BDL	BDL
20.12.2019	68.2	40.92	9.2	13.8	8.4	0.32	25.6	BDL	BDL	BDL	BDL	BDL
24.12.2019	68.4	41.04	9.6	13.2	8.1	0.34	24.8	BDL	BDL	BDL	BDL	BDL
27.12.2019	66.8	40.08	9.2	12.6	7.6	0.32	24.2	BDL	BDL	BDL	BDL	BDL
31.12.2019	65.2	39.12	9.4	12.2	7.4	0.31	24.4	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	180	4	400	05	01	20	1.0	06
Monthly Average	66.42	39.85	8.99	12.42	7.29	0.34	24.21	BDL	BDL	BDL	BDL	BDL
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling

BDL Values : SO₂ < 4 µg/m³, NO_x < 9 µg/m³, O₃ < 4 µg/m³, CO < 0.1 mg/m³, NH₃ < 20 µg/m³, C₆H₆ < 0.001 µg/m³, BaP < 0.002 ng/m³, Ni < 0.01 ng/m³, Pb < 0.001 µg/m³, As < 0.001 ng/m³.



Enlab/19/R-6628

Date: 02.01.20

19/19/R-6629

AAQ MONITORING REPORT FOR THE MONTH OF DECEMBER-2019

- Name of Industry : Ferro Alloys Plant Bamnibal, (M/s TATA Steel Limited); Keonjhar.
- Sampling Location : Monitoring Station ID: AAQMS-3 (Near Helipad)
- Monitoring Instruments : RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
- Sample collected by : VCSPL representative in presence of TATA representative.

Date	PARAMETERS											
	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (ng/m ³)
03.12.2019	63.8	38.28	9.6	14.6	7.4	0.44	25.2	BDL	BDL	BDL	BDL	BDL
06.12.2019	65.2	39.12	9.8	15.2	7.6	0.43	25.8	BDL	BDL	BDL	BDL	BDL
10.12.2019	66.2	39.72	10.2	15.8	7.8	0.41	26.2	BDL	BDL	BDL	BDL	BDL
13.12.2019	68.1	40.86	10.8	16.1	6.9	0.38	26.8	BDL	BDL	BDL	BDL	BDL
17.12.2019	70.2	42.12	11.6	15.2	8.2	0.42	25.4	BDL	BDL	BDL	BDL	BDL
20.12.2019	71.2	42.72	12.2	15.4	9.1	0.44	23.8	BDL	BDL	BDL	BDL	BDL
24.12.2019	74.6	44.76	12.8	15.8	9.6	0.45	24.6	BDL	BDL	BDL	BDL	BDL
27.12.2019	74.8	44.88	13.2	14.8	10.2	0.44	24.2	BDL	BDL	BDL	BDL	BDL
31.12.2019	72.6	43.56	13.6	16.2	10.8	0.42	25.4	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	180	4	400	05	01	20	1.0	06
Monthly Average	69.63	41.78	11.53	15.46	8.62	0.43	25.27	BDL	BDL	BDL	BDL	BDL
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling

BDL Values :SO₂< 4 µg/m³, NO_x< 9 µg/m³, O₃< 4 µg/m³, CO<0.1 mg/m³, NH₃<20 µg/m³, C₆H₆<0.001 µg/m³, BaP<0.002 ng/m³, Ni<0.01 ng/m³, Pb<0.001 µg/m³, As < 0.001 ng/m³



Date: 02.01.20

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AAQ MONITORING REPORT FOR THE MONTH OF JANUARY-2020

- Name of Industry : Ferro Alloys Plant Bamnibal, (M/s TATA Steel Limited); Keonjhar.
- Sampling Location : Monitoring Station ID: AAQMS-1 (Near Admin Building).
- Monitoring Instruments : RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
- Sample collected by : VCSPL representative in presence of TATA representative.

Date	PARAMETERS											
	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (ng/m ³)
01.01.2020	66.2	39.72	11.6	13.6	6.8	0.46	24.6	BDL	BDL	BDL	BDL	BDL
04.01.2020	68.8	41.28	9.6	13.2	7.6	0.51	25.2	BDL	BDL	BDL	BDL	BDL
08.01.2020	70.2	42.12	9.2	12.8	8.1	0.42	25.8	BDL	BDL	BDL	BDL	BDL
11.01.2020	68.4	41.04	10.4	14.1	8.4	0.44	26.2	BDL	BDL	BDL	BDL	BDL
15.01.2020	71.6	42.96	10.6	14.6	8.6	0.41	26.4	BDL	BDL	BDL	BDL	BDL
18.01.2020	72.8	43.68	9.8	13.4	8.2	0.44	27.1	BDL	BDL	BDL	BDL	BDL
22.01.2020	69.6	41.76	10.2	14.2	7.9	0.42	26.8	BDL	BDL	BDL	BDL	BDL
25.01.2020	68.8	41.28	10.4	14.1	8.4	0.44	27.4	BDL	BDL	BDL	BDL	BDL
29.01.2020	70.4	42.24	11.2	13.6	8.6	0.48	27.2	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	180	4	400	05	01	20	1.0	06
Monthly Average	69.64	41.79	10.33	13.73	8.07	0.45	26.30	BDL	BDL	BDL	BDL	BDL
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling

BDL Values :SO₂< 4 µg/m³, NO_x< 9 µg/m³, O₃< 4 µg/m³, CO<0.1 mg/m³, NH₃<20 µg/m³, C₆H₆<0.001 µg/m³, BaP<0.002 ng/m³, Ni<0.01 ng/m³, Pb<0.001 µg/m³, As < 0.001 ng/m³



Date: 01/02

19/19/R-7361

AAQ MONITORING REPORT FOR THE MONTH OF JANUARY-2020

1. Name of Industry : Ferro Alloys Plant Bamnival, (M/s TATA Steel Limited); Keonjhar.
 2. Sampling Location : Monitoring Station ID:AAQMS-2 (Near Kusei Club)
 3. Monitoring Instruments : RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
 4. Sample collected by : VCSPL representative in presence of TATA representative.

Date	PARAMETERS											
	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (ng/m ³)
01.01.2020	66.4	39.84	8.6	12.1	7.2	0.41	23.2	BDL	BDL	BDL	BDL	BDL
04.01.2020	65.8	39.48	8.4	12.4	7.4	0.44	23.8	BDL	BDL	BDL	BDL	BDL
08.01.2020	66.2	39.72	9.1	12.6	7.6	0.46	24.4	BDL	BDL	BDL	BDL	BDL
11.01.2020	66.8	40.08	9.2	13.1	8.1	0.51	24.6	BDL	BDL	BDL	BDL	BDL
15.01.2020	67.4	40.44	9.6	12.4	7.8	0.52	25.2	BDL	BDL	BDL	BDL	BDL
18.01.2020	70.2	42.12	10.2	11.6	8.2	0.56	25.8	BDL	BDL	BDL	BDL	BDL
22.01.2020	68.2	40.92	11.4	11.8	8.6	0.54	24.8	BDL	BDL	BDL	BDL	BDL
25.01.2020	69.6	41.76	10.8	10.6	8.4	0.46	25.1	BDL	BDL	BDL	BDL	BDL
29.01.2020	68.8	41.28	9.7	11.4	7.4	0.48	24.6	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	180	4	400	05	01	20	1.0	06
Monthly Average	67.71	40.63	9.67	12.00	7.86	0.49	24.61	BDL	BDL	BDL	BDL	BDL
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling

BDL Values : SO₂ < 4 µg/m³, NO_x < 9 µg/m³, O₃ < 4 µg/m³, CO < 0.1 mg/m³, NH₃ < 20 µg/m³, C₆H₆ < 0.001 µg/m³, BaP < 0.002 ng/m³, Ni < 0.01 ng/m³, Pb < 0.001 µg/m³, As < 0.001 ng/m³.



- F362

Date: 01/02/2020

VISIONTEK CONSULTANCY SERVICES PVT. LTD.
(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2015
OHSAS 18001 : 2007

AAQ MONITORING REPORT FOR THE MONTH OF JANUARY-2020

1. Name of Industry : Ferro Alloys Plant Bamnival, (M/s TATA Steel Limited); Keonjhar.
 2. Sampling Location : Monitoring Station ID:AAQMS-3 (Near Helipad)
 3. Monitoring Instruments : RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
 4. Sample collected by : VCSPL representative in presence of TATA representative.

Date	PARAMETERS											
	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (ng/m ³)
01.01.2020	60.8	36.48	11.2	13.6	7.7	0.46	25.8	BDL	BDL	BDL	BDL	BDL
04.01.2020	64.4	38.64	12.6	13.2	8.1	0.51	26.4	BDL	BDL	BDL	BDL	BDL
08.01.2020	63.2	37.92	12.8	13.1	8.2	0.53	26.2	BDL	BDL	BDL	BDL	BDL
11.01.2020	63.8	38.28	13.2	14.2	7.8	0.56	27.2	BDL	BDL	BDL	BDL	BDL
15.01.2020	64.2	38.52	13.1	14.1	7.7	0.61	27.8	BDL	BDL	BDL	BDL	BDL
18.01.2020	66.2	39.72	12.6	14.6	7.6	0.58	26.6	BDL	BDL	BDL	BDL	BDL
22.01.2020	65.4	39.24	12.4	14.8	7.2	0.52	26.4	BDL	BDL	BDL	BDL	BDL
25.01.2020	65.2	39.12	12.6	15.2	8.2	0.55	25.2	BDL	BDL	BDL	BDL	BDL
29.01.2020	66.2	39.72	12.2	15.6	8.6	0.54	25.8	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	180	4	400	05	01	20	1.0	06
Monthly Average	64.38	38.63	12.52	14.27	7.90	0.54	26.38	BDL	BDL	BDL	BDL	BDL
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling

BDL Values : SO₂ < 4 µg/m³, NO_x < 9 µg/m³, O₃ < 4 µg/m³, CO < 0.1 mg/m³, NH₃ < 20 µg/m³, C₆H₆ < 0.001 µg/m³, BaP < 0.002 ng/m³, Ni < 0.01 ng/m³, Pb < 0.001 µg/m³, As < 0.001 ng/m³.



- F363

Date: 01/02/2020

VISIONTEK CONSULTANCY SERVICES PVT. LTD.
(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2015
OHSAS 18001 : 2007

P/19/R-7364

AMBIENT AIR QUALITY MONITORING REPORT FOR JANUARY-2020 (BUFFER ZONE)

- Name of Industry : Ferro Alloys Plant Bamnival, (M/s TATA Steel Limited); Keonjhar
- Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer
- Sample collected by : VCSPL Representative in presence of TATA Representative

Monitoring Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (ng/m ³)
BZ-1: Rugudipunga Village												
16.01.2020	56.2	33.7	BDL	12.6	BDL	0.46	BDL	BDL	BDL	BDL	BDL	BDL
Monitoring Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (ng/m ³)
BZ-2: Samarpeta Village												
16.01.2020	58.4	35.04	6.1	13.2	BDL	0.38	BDL	BDL	BDL	BDL	BDL	BDL
Monitoring Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (ng/m ³)
BZ-3: Near Rashol Village												
16.01.2020	56.6	33.96	BDL	12.8	BDL	0.41	BDL	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	4	--	100	60	80	80	4	--
Testing Method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	NDIR Spectroscopy	Gas Chromatography	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	NDIR Spectroscopy	Gas Chromatography

BDL Values : SO₂ < 4 µg/m³, NO_x < 9 µg/m³, O₃ < 4 µg/m³, CO < 0.1 mg/m³, NH₃ < 20 µg/m³, C₆H₆ < 0.001 µg/m³, BaP < 0.002 ng/m³, Ni < 0.01 ng/m³, Pb < 0.001 µg/m³, As < 0.001 ng/m³.



Date:

AAQ MONITORING REPORT FOR THE MONTH OF FEBRUARY-2020

- Name of Industry : Ferro Alloys Plant Bamnival, (M/s TATA Steel Limited); Keonjhar.
- Sampling Location : Monitoring Station ID: AAQMS-1 (Near Admin Building).
- Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Monitor, VOC Sampler
- Sample collected by : VCSPL representative in presence of TATA representative.

Date	PARAMETERS											
	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (ng/m ³)
04.02.2020	71.4	42.84	12.8	14.6	7.2	0.42	23.8	BDL	BDL	BDL	BDL	BDL
07.02.2020	70.8	42.48	13.6	14.8	7.8	0.48	24.8	BDL	BDL	BDL	BDL	BDL
11.02.2020	69.6	41.76	13.2	15.2	8.4	0.52	24.9	BDL	BDL	BDL	BDL	BDL
14.02.2020	78.2	46.92	13.6	15.8	8.6	0.56	25.2	BDL	BDL	BDL	BDL	BDL
18.02.2020	76.8	46.08	14.2	16.2	8.8	0.58	25.8	BDL	BDL	BDL	BDL	BDL
21.02.2020	72.2	43.32	14.8	16.8	9.1	0.49	26.2	BDL	BDL	BDL	BDL	BDL
25.02.2020	70.8	42.48	15.1	17.2	8.9	0.52	25.9	BDL	BDL	BDL	BDL	BDL
28.02.2020	71.8	43.08	14.6	17.8	8.5	0.54	26.8	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	180	4	400	05	01	20	1.0	06
Monthly Average	72.70	43.62	13.99	16.05	8.41	0.51	25.43	BDL	BDL	BDL	BDL	BDL
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling

BDL Values : SO₂ < 4 µg/m³, NO_x < 9 µg/m³, O₃ < 4 µg/m³, CO < 0.1 mg/m³, NH₃ < 20 µg/m³, C₆H₆ < 0.001 µg/m³, BaP < 0.002 ng/m³, Ni < 0.01 ng/m³, Pb < 0.001 µg/m³, As < 0.001 ng/m³.



Date: 02/02/20

Date: 02/02/20

AAQ MONITORING REPORT FOR THE MONTH OF FEBRUARY-2020

1. Name of Industry : Ferro Alloys Plant Bannipal, (M/s TATA Steel Limited); Keonjhar.
2. Sampling Location : Monitoring Station ID:AAQMS-2 (Near Kusei Club)
3. Monitoring Instruments : RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by : VCSPL representative in presence of TATA representative.

Date	PARAMETERS											
	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (ng/m ³)
04.02.2020	66.4	39.84	10.06	13.6	7.6	0.44	24.6	BDL	BDL	BDL	BDL	BDL
07.02.2020	66.8	40.08	11.2	14.2	7.2	0.48	24.8	BDL	BDL	BDL	BDL	BDL
11.02.2020	70.6	42.36	11.8	14.8	6.9	0.49	23.8	BDL	BDL	BDL	BDL	BDL
14.02.2020	70.2	42.12	11.6	15.2	6.6	0.54	22.6	BDL	BDL	BDL	BDL	BDL
18.02.2020	71.4	42.84	12.4	15.6	7	0.56	22.8	BDL	BDL	BDL	BDL	BDL
21.02.2020	68.2	40.92	12.6	16.6	7.1	0.52	23.2	BDL	BDL	BDL	BDL	BDL
25.02.2020	69.6	41.76	11.9	16.8	7.2	0.48	24.6	BDL	BDL	BDL	BDL	BDL
28.02.2020	68.8	41.28	11.7	14.9	7.4	0.46	21.8	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	180	4	400	05	01	20	1.0	06
Monthly Average	69.00	41.40	11.66	15.21	7.13	0.50	23.53	BDL	BDL	BDL	BDL	BDL
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling

BDL Values :SO₂< 4 µg/m³, NO_x< 9 µg/m³, O₃< 4 µg/m³, CO<0.1 mg/m³, NH₃<20 µg/m³, C₆H₆<0.001 µg/m³, BaP<0.002 ng/m³, Ni<0.01 ng/m³, Pb<0.001 µg/m³, As < 0.001 ng/m³.



lab/19/R-8229 Date: 02.03.20

AAQ MONITORING REPORT FOR THE MONTH OF FEBRUARY-2020

1. Name of Industry : Ferro Alloys Plant Bannipal, (M/s TATA Steel Limited); Keonjhar.
2. Sampling Location : Monitoring Station ID:AAQMS-3 (Near Helipad)
3. Monitoring Instruments : RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by : VCSPL representative in presence of TATA representative.

Date	PARAMETERS											
	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (ng/m ³)
04.02.2020	74.2	44.52	10.8	12.2	8.1	0.41	23.8	BDL	BDL	BDL	BDL	BDL
07.02.2020	70.6	42.36	9.6	12.4	8.4	0.39	22.6	BDL	BDL	BDL	BDL	BDL
11.02.2020	71.4	42.84	9.8	12.8	8.6	0.36	22.2	BDL	BDL	BDL	BDL	BDL
14.02.2020	71.6	42.96	11.2	13.2	7.9	0.42	23.2	BDL	BDL	BDL	BDL	BDL
18.02.2020	72.8	43.68	11.6	13.6	7.7	0.44	24.8	BDL	BDL	BDL	BDL	BDL
21.02.2020	68.2	40.92	12.2	14.8	7.6	0.48	25.2	BDL	BDL	BDL	BDL	BDL
25.02.2020	65.2	39.12	11.8	12.2	7.5	0.44	25.6	BDL	BDL	BDL	BDL	BDL
28.02.2020	70.2	42.12	10.2	11.8	7.8	0.38	24.2	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	180	4	400	05	01	20	1.0	06
Monthly Average	70.53	42.32	10.90	12.88	7.95	0.42	23.95	BDL	BDL	BDL	BDL	BDL
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling

BDL Values :SO₂< 4 µg/m³, NO_x< 9 µg/m³, O₃< 4 µg/m³, CO<0.1 mg/m³, NH₃<20 µg/m³, C₆H₆<0.001 µg/m³, BaP<0.002 ng/m³, Ni<0.01 ng/m³, Pb<0.001 µg/m³, As < 0.001 ng/m³.



env/19/R-8230 Date: 02.03.20



Ref No : Envlab/19/R-9013

Date : 26.03.2020

AMBIENT AIR QUALITY ANALYSIS REPORT – MARCH 2020

1. Name of Industry : **Ferro Alloys Plant Bannipal, (M/s TATA Steel Limited); Keonjhar.**
2. Sampling Location : **Monitoring Station ID: AAQMS-1 (Near Admin Building).**
3. Monitoring Instruments : **RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler**
4. Sample collected by : **VCSPL representative in presence of TATA representative.**

Date	PARAMETERS											
	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (µg/m ³)
02.03.2020	70.8	42.48	11.6	15.2	7.6	0.46	21.8	BDL	BDL	BDL	BDL	BDL
05.03.2020	66.2	39.72	10.8	12.6	6.8	0.38	20.9	BDL	BDL	BDL	BDL	BDL
09.03.2020	68.8	41.28	11.8	13.8	7.8	0.46	22.6	BDL	BDL	BDL	BDL	BDL
12.03.2020	74.2	44.52	12.4	14.6	8.4	0.42	24.8	BDL	BDL	BDL	BDL	BDL
16.03.2020	76.2	45.72	12.8	15.2	8.6	0.46	25.6	BDL	BDL	BDL	BDL	BDL
19.03.2020	78.8	47.28	13.6	15.6	9.4	0.44	25.8	BDL	BDL	BDL	BDL	BDL
23.03.2020	71.2	42.72	14.8	16.8	8.4	0.51	26.6	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	180	4	400	5	1	20	1	6
Monthly Average	72.31	43.39	12.54	14.83	8.14	0.45	24.01	BDL	BDL	BDL	BDL	BDL
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser Method	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by GC Analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling



For Visiontek Consultancy Services Pvt.Ltd.



Ref No : Envlab/19/R-9014

Date : 26.03.2020

AMBIENT AIR QUALITY ANALYSIS REPORT – MARCH 2020

1. Name of Industry : **Ferro Alloys Plant Bannipal, (M/s TATA Steel Limited); Keonjhar.**
2. Sampling Location : **Monitoring Station ID: AAQMS-2 (Near Kusei Club).**
3. Monitoring Instruments : **RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler**
4. Sample collected by : **VCSPL representative in presence of TATA representative.**

Date	PARAMETERS											
	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (µg/m ³)
02.03.2020	68.8	41.28	10.4	13.2	7.8	0.41	25.2	BDL	BDL	BDL	BDL	BDL
05.03.2020	65.4	39.24	10.2	12.4	7.1	0.39	24.1	BDL	BDL	BDL	BDL	BDL
09.03.2020	66.2	39.72	11.6	13.8	7.2	0.42	24.4	BDL	BDL	BDL	BDL	BDL
12.03.2020	70.8	42.48	11.2	13.6	7.4	0.44	23.6	BDL	BDL	BDL	BDL	BDL
16.03.2020	70.6	42.36	12.1	14.8	7.2	0.48	23.2	BDL	BDL	BDL	BDL	BDL
19.03.2020	66.8	40.08	12.4	15.2	7.3	0.51	22.8	BDL	BDL	BDL	BDL	BDL
23.03.2020	69.2	41.52	11.8	15.6	7.2	0.46	21.2	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	180	4	400	5	1	20	1	6
Monthly Average	68.26	40.95	11.39	14.09	7.31	0.44	23.50	BDL	BDL	BDL	BDL	BDL
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser Method	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by GC Analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling



For Visiontek Consultancy Services Pvt.Ltd.



Ref No : Envlab/19/R-9015

Date : 26.03.2020

AMBIENT AIR QUALITY ANALYSIS REPORT – MARCH 2020

1. Name of Industry : **Ferro Alloys Plant Bannipal, (M/s TATA Steel Limited); Keonjhar.**
2. Sampling Location : **Monitoring Station ID: AAQMS-3 (Near Helipad).**
3. Monitoring Instruments : **RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler**
4. Sample collected by : **VCSPL representative in presence of TATA representative.**

Date	PARAMETERS											
	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (ng/m ³)
02.03.2020	72.8	43.68	10.6	12.6	8.6	0.41	24.6	BDL	BDL	BDL	BDL	BDL
05.03.2020	70.2	42.12	10.2	11.8	7.8	0.39	23.8	BDL	BDL	BDL	BDL	BDL
09.03.2020	68.8	41.28	10.1	12.2	8.2	0.36	23.2	BDL	BDL	BDL	BDL	BDL
12.03.2020	66.2	39.72	9.8	12.4	8.1	0.41	22.8	BDL	BDL	BDL	BDL	BDL
16.03.2020	65.8	39.48	9.6	13.2	7.9	0.44	23.2	BDL	BDL	BDL	BDL	BDL
19.03.2020	64.6	38.76	10.8	13.6	7.8	0.49	23.6	BDL	BDL	BDL	BDL	BDL
23.03.2020	66.8	40.08	11.2	14.1	8	0.48	24.8	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	180	4	400	5	1	20	1	6
Monthly Average	67.89	40.73	10.33	12.84	8.06	0.43	23.71	BDL	BDL	BDL	BDL	BDL
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser Method	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by GC Analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling



For Visiontek Consultancy Services Pvt Ltd



Ref No : Envlab/19/R-9016

Date: 26.03.2020

AMBIENT AIR QUALITY ANALYSIS REPORT – MARCH 2020
(BUFFER ZONE)

1. Name of Industry : **Ferro Alloys Plant Bannipal, (M/s TATA Steel Limited); Keonjhar.**
2. Monitoring Instruments : **RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler**
3. Sample collected by : **VCSPL representative in presence of TATA representative.**

Date	PARAMETERS											
	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	O ₃ (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	BaP (ng/m ³)	Ni (ng/m ³)	Pb (µg/m ³)	As (ng/m ³)
BZ-1 : Rugudipunga Village												
12.03.2020	72.8	43.68	10.6	12.6	8.6	0.41	24.6	BDL	BDL	BDL	BDL	BDL
BZ-2 : Samarpeta Village												
12.03.2020	70.2	42.12	10.2	11.8	7.8	0.39	23.8	BDL	BDL	BDL	BDL	BDL
BZ-3 : Near Rashol Village												
12.03.2020	68.8	41.28	10.1	12.2	8.2	0.36	23.2	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	180	4	400	5	1	20	1	6
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser Method	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by GC Analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling



For Visiontek Consultancy Services Pvt Ltd

ANNEXURE-II

Noise Report



Visiontek Consultancy Services Pvt. Ltd.
(An Enviro Engineering Consulting Cell)



ISO 9001 : 2008
ISO 14001 : 2015
OHSAS 18001 : 2018

Ref: Envlab/191R-8238

Date: 02.03.20

NOISE QUALITY ANALYSIS REPORT- FEBRUARY -2020

Name of Industry : Ferro Alloys Plant Bamnival, (M/s TATA Steel Limited); Keonjhar.
Date of Sampling : 18.02.2020
Label measured by : VCSPL Representative in presence of TATA Representative

Sl.No	Sampling Location	Day Time	Night Time
		Result in dB (A)	
1	Gate No-1	76.00	51.2
2	General Office	64.00	52.8
3	Office Varanda	66.00	56.0
4	Canteen	68.00	58.2
5	Mechanical Work Shop	72.00	61.2
6	Fabrication Area	76.00	64.8
7	RMPH Office	64.00	66.2
8	Packing Plot (2A)	62.00	65.2
9	Cater Point	68.00	60.8
10	Weigh Bridge	69.00	58.8
11	Gate No-2	69.00	56.6
12	Ore Yard	74.00	61.2
13	well Area	66.00	60.8
14	Outside Furnace	72.00	62.0
15	Inside Furnace	76.00	62.6
16	Furnace Control Room	78.00	64.0
17	In front Of DG Room	68.00	58.0
18	In front of fire Hydrant Room	69.00	60.2
19	132 KV Electricity Substation Room	70.00	64.2
20	Work Area	72.00	59.6
21	CMDC Area	74.00	59.0
22	Play Ground	78.00	60.8



Plot No.-M-22&23, Chandaka Industrial Estate, Patia, Bhubaneswar-751024, Dist-Khurda, Odisha Tel.: 7752017905

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Committed For Better Environment

ANNEXURE-III Stack Analysis Report



Visiontek Consultancy Services Pvt. Ltd.
(An Enviro Engineering Consulting Cell)



ISO 9001 : 2008
ISO 14001 : 2015
OHSAS 18001 : 2018

Ref.: Env/lab/19/R-8232

Date: 02.03.20

STATIONARY EMISSION MONITORING REPORT FOR FEBRUARY-2020

1. Name of Industry : M/s Ferro Alloys Plant Bamnival, (M/s TATA Steel Limited); Keonjhar .
2. Date of Sampling : 18.02.2020
3. Sampling Location : ST-I Stack attached to Arc Furnace
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative
6. Date of Analysis : 19.02.2020 TO 25.02.2020

Parameters	Unit of Measurement	Analysis Results	Standard MoEF & CPCB
		ST-I	
Stack Temperature	⁰ C	36.0	--
Velocity of Flue Gas	m/sec	5.22	--
Concentration of Particulate Matter as PM	mg/Nm ³	46.0	50
Sulphur dioxide as SO ₂	mg/Nm ³	13.6	600
Oxides of Nitrogen as NO _x	mg/Nm ³	18.6	300
Carbon Monoxide as CO	mg/Nm ³	80.8	--



Plot No.-M-22&23, Chandaka Industrial Estate, Patia, Bhubaneswar-751024, Dist-Khurda, Odisha Tel.: 7752017905

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Ref No: Envlab/19/R-9017

Date: 26.03.2020

STATIONARY EMISSION MONITORING REPORT FOR MARCH-2020

1. Name of Industry : M/s Ferro Alloys Plant Bamnipal, (M/s TATA Steel Limited); Keonjhar
2. Date of Sampling : 20.03.2020
3. Sampling Location : ST-I Stack attached to Arc Furnace
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative
6. Date of Analysis : 21.03.2020 TO 24.03.2020

Parameters	Unit of Measurement	Analysis Results	Standard MoEF & CPCB
		ST-I	
Stack Temperature	$^{\circ}\text{C}$	44.0	--
Velocity of Flue Gas	m/sec	6.2	--
Concentration of Particulate Matter as PM	mg/Nm ³	50.6	50
Sulphur dioxide as SO ₂	mg/Nm ³	14.8	600
Oxides of Nitrogen as NO _x	mg/Nm ³	21.2	300
Carbon Monoxide as CO	mg/Nm ³	80.8	--



For Visiontek Consultancy Services Pvt Ltd



Ref.: Env/ab/19/R - 7365

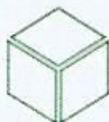
Date: 01/02/2020

STATIONARY EMISSION MONITORING REPORT FOR JANUARY-2020

1. Name of Industry : M/s Ferro Alloys Plant Bamnibal, (M/s TATA Steel Limited); Keonjhar .
2. Date of Sampling : 22.01.2020
3. Sampling Location : ST-I Stack attached to Arc Furnace
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative
6. Date of Analysis : 23.01.2020 TO 29.01.2020

Parameters	Unit of Measurement	Analysis Results	Standard MoEF & CPCB
		ST-I	
Stack Temperature	^o C	34.0	--
Velocity of Flue Gas	m/sec	4.90	--
Concentration of Particulate Matter as PM	mg/Nm ³	42.8	50
Sulphur dioxide as SO ₂	mg/Nm ³	14.8	600
Oxides of Nitrogen as NO _x	mg/Nm ³	20.6	300
Carbon Monoxide as CO	mg/Nm ³	87.2	--





Ref.: Envlab/19/R-6630

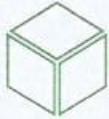
Date: 02.01.2020

STATIONARY EMISSION MONITORING REPORT FOR DECEMBER-2019

1. Name of Industry : Ferro Alloys Plant Bamniral, (M/s TATA Steel Limited); Keonjhar .
2. Date of Sampling : 18.12.2019
3. Sampling Location : ST-I Stack attached to Arc Furnace
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative
6. Date of Analysis : 19.12.2019 TO 24.12.2019

Parameters	Unit of Measurement	Analysis Results	Standard MoEF & CPCB
		ST-I	
Stack Temperature	$^{\circ}\text{C}$	34.0	--
Velocity of Flue Gas	m/sec	5.4	--
Concentration of Particulate Matter as PM	mg/Nm^3	41.8	50
Sulphur dioxide as SO_2	mg/Nm^3	12.6	600
Oxides of Nitrogen as NO_x	mg/Nm^3	16.4	- 300
Carbon Monoxide as CO	mg/Nm^3	82.1	--





Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)



ISO 9001 : 2008

ISO 14001 : 2004

OHSAS 18001 : 2007

Ref.: Em/lab/19/R-5972

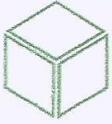
Date: 02.12.19

STATIONARY EMISSION MONITORING REPORT FOR NOVEMBER-2019

1. Name of Industry : Ferro Alloys Plant Bamnipal, (M/s TATA Steel Limited); Keonjhar.
2. Date of Sampling : 27.11.2019
3. Sampling Location : ST-I : Stack attached to Arc Furnace
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative
6. Date of Analysis : 28.11.2019 to 30.11.2019

Parameters	Unit of Measurement	Analysis Results	Standard MoEF & CPCB
		ST-I	
Stack Temperature	$^{\circ}\text{C}$	36.0	--
Velocity of Flue Gas	m/sec	5.37	--
Concentration of Particulate Matter as PM	mg/Nm^3	48.8	50
Sulphur dioxide as SO_2	mg/Nm^3	19.6	600
Oxides of Nitrogen as NOx	mg/Nm^3	21.8	300
Carbon Monoxide as CO	mg/Nm^3	112.0	--





Ref.: Enulabo/19/R-5159

Date: 01-11-19

STATIONARY EMISSION MONITORING REPORT FOR OCTOBER-2019

1. Name of Industry : Ferro Alloys Plant Bamnibal, (M/s TATA Steel Limited); Keonjhar.
2. Date of Sampling : 22.10.2019
3. Sampling Location : ST-I : Stack attached to Arc Furnace
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative
6. Date of Analysis : 23.10.2019 TO 26.10.2019

Parameters	Unit of Measurement	Analysis Results	Standard MoEF & CPCB
		ST-I	
Stack Temperature	⁰ C	38.0	--
Velocity of Flue Gas	m/sec	5.99	--
Concentration of Particulate Matter as PM	mg/Nm ³	45.2	50
Sulphur dioxide as SO ₂	mg/Nm ³	18.8	600
Oxides of Nitrogen as NO _x	mg/Nm ³	20.2	300
Carbon Monoxide as CO	mg/Nm ³	118.0	--



ANNEXURE-IV

Details of CSR funds allocated and released Expenditure against CSR Activities

Details of CSR funds allocated and released Expenditure against CSR Activities				
Period	expenditure Planning for a year in (Rs Cr.)	Actual Expenditure for C.S.R till date in Rs Cr.	Name Of the CSR activities	Whether Completed or Not
FY 2019-20	7.46 Cr	7.39 Cr	Health camps, Static Clinic, Mobile medical facilities, construction of deep bore well at different villages, School Improvement Project (1000 school and Hans foundation), Women Empowerment Programmes, Livelihood through Agriculture & Tasar cultivation	Completed

ANNEXURE-V

