



**HALF YEARLY COMPLIANCE REPORT**  
(Period from 01.04.2016 to 30.10.2016)

**OF**

**Ferro Alloys Plant, Joda**  
**Tata Steel Limited**

P.O- Joda, Dist. Keonjhar  
Odisha- 758034

**ENVIRONMENTAL CLEARANCE GRANTED**  
**VIDE LETTER NO. - J-11011/03/2012-IA.II(I) DATED- 05<sup>th</sup> November 2015**  
**ISSUED BY**  
**GOVT. OF INDIA, MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, NEW DELHI.**



**Additional Principal Chief Conservator of Forests (C),  
Ministry of Environment, Forest and Climate Change,  
Regional Office (EZ),  
A/3, Chandrasekharpur,  
Bhubaneswar – 751023**

Ref. No- FAPJ/ 4636 /2016

Date: 19-11-2016

**Sub- Submission of six monthly compliance report on implementation of environmental safe guards of Ferro Alloys Plant, Joda for the period from April'16 to October'16.**

**Ref- Ministry of Environment & Forests Letter No.J-11011/03/2012-IA .II (I) dated 5th November 2015.**

Dear Sir,

As per EIA Notification, We are herewith submitting six monthly compliance report in respect of stipulated environmental clearance condition of Ferro Alloys Plant, Joda for the period from April'16 to October'16.

We are also sending you softcopy of the report to your good office on mail: [roez.bsr-mef@nic.in](mailto:roez.bsr-mef@nic.in) for your perusal.

We trust that measures taken towards environmental safe guards comply with the stipulated environmental clearance condition. 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,  
For: TATA STEEL LTD

\* Head,  
Ferro Manganese Plant

Encl: as above  
Copy to MoEF, New Delhi  
“ “ CPCB, Zonal Office Kolkata  
“ “ OSPCB, Bhubaneswar  
“ “ Regional office, Keonjhar

*Received.*  
*M. Tammil*  
*21/11/16*  
M. Tammil  
Private Secretary  
Govt. of India  
Ministry of Env., Forests & CC  
ERO, Bhubaneswar-751023

**TATA STEEL**  
Ferro Alloys & Minerals Division  
Ferro Alloys Plant, Joda – 758034, Orissa, India  
Tel : 09238100945, e-mail –head.office@tatasteel.com  
Regd. Office : Bombay House, 24 Homi Mody Street, Mumbai – 400 001  
Corporate Identity Number L27100MH1907PLC000260 , Website : www.tatasteel.com

## A. SPECIFIC CONDITIONS:

- i. The project proponent should install 24x7 air monitoring devices to monitor air emission, as provided by CPCB and submit report to Ministry and its Regional Office.
  - **It will be strictly adhered after commissioning of plant. Presently we have been installed four nos. ambient air monitoring stations for monitoring air emission and the reports are submitted on monthly basis to SPCB, Odisha. Monitoring results for last six months i.e April' 2016 to Sept' 2016 is enclosed as Annexure-I**
- ii. Stack of adequate height & diameter with continuous stack monitoring facilities for all the stacks shall be provided and sufficient air pollution control devices viz, Electrostatic precipitator (ESP), bag house, bag filters etc. shall be provided to keep the emission levels below 50 mg/Nm<sup>3</sup> and installing energy efficient technology.
  - **There are four nos. of stacks in existing plant and all having adequate height and diameter. Online stack monitoring system installation is under commissioning And it will be commissioned by 30<sup>th</sup> December 2016 for all four stacks of existing plant. At present four nos. of Gas cleaning plants are operational among two of them are in operation and two are kept for stand-by to ensure emission level within the norms prescribed by CPCB. Same facility will be provided to forthcoming project. Stack Monitoring results for last six months i.e April' 2016 to Sept' 2016 is enclosed as Annexure-II.**
- iii. The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826 ( E ) dated 16<sup>th</sup> November, 2009 shall be followed.
  - **Existing plant emissions are within the specified limit prescribed by national ambient air quality emission standards; also the same will be followed after commissioning of forthcoming Plant. Ambient Air quality Monitoring results for last six months i. April' 2016 to Sept' 2016 is enclosed as Annexure-I**
- iv. Gaseous emission levels including secondary fugitive emissions from all the sources shall be controlled within the latest permissible limits issued by the Ministry and regularly monitored. Guidelines/Code of Practice issued by the CPCB should be followed. New standards for the sponge iron plant issued by the Ministry vide G.S.R. 414 ( E ) dated 30<sup>th</sup> May, 2008 should be followed.
  - **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. Monitoring results of Gaseous emission levels including secondary fugitive emissions from all the sources for last six months i.e April' 2016 to Sept' 2016 is enclosed as Annexure-I**

- v. water sprinkling arrangements as well as dry fog system to control fugitive emission shall be undertaken.
- **For dry fogging one Mobile water sprinkler cum mist canon is in operation. 9 Nos. of Water sprinkling system was installed at all critical location for existing plant same will be installed after project execution. (Include photographs as Annexure III)**
- vi. Tap hole emissions shall be taken to GCP system by providing proper hood and suction system.
- **Two nos. of Fume extraction system is in place for existing plant and same system will be provided to forthcoming project. (Include photographs as Annexure IV)**
- vii. Efforts should further be made to use maximum water from the rain water harvesting sources. If needed, capacity of the reservoir shall be enhanced to meet the maximum water requirement. Only balance water requirement shall be met from other sources. Use of air cooled condensers shall be explored and closed circuit cooling system should be provided to reduce water consumption and water requirement shall be modified accordingly.
- **It will be complied. For Existing Plant close circuit cooling system is in operation & same will be followed for forthcoming plant.**
- viii. All the effluent should be treated and used for ash handling, dust suppression and green belt development. No effluent shall be discharged and 'zero' discharge shall be adopted. Sanitary sewage should be treated in septic tank followed by the soak pit.
- **Now the existing plant is a zero effluent discharge plant. STP is in operation for Sewage treatment, and the recycled water is being utilised for gardening purpose. Photograph is included in Annexure V)**
- ix. Regular monitoring of surface, sub-surface and ground water should be ensured and treated waste water should meet the norms prescribed by the State Pollution Control Board or described under the E (P) Act 1986 whichever are more stringent. Leachate study for the effluent generated and analysis shall also be regularly carried out and report submitted to the Ministry's Regional Office at Bhubaneswar, SPEB and CPCB.
- **Monitoring of ground water and surface water is been carry out on regular basis. Leachate study for effluent generated will be carried out soon. (details of monitoring results are given in Annexure VI)**



- x. Slag produced in Ferro Manganese (Fe-Mn) production should be used in manufacture of Silico Manganese (Si-Mn). All the other Ferro alloy slag should be used in the preparation of building materials.
- **Slag produced from existing FeMn plant are, Partly used in the process as a raw material for FeMn production and rest are sold to the Ferro Alloys Industry.**
- xi. Risk and Disaster Management Plan along with the mitigation measures should be prepared and a copy submitted to the Ministry's Regional Office at Bhubaneswar, SPCB and CPCB within 3 months of issue of environment clearance letter.
- **Risk and disaster management plan along with the mitigation measures was submitted vide Letter no. FAPJ/4249/2016, dtd. 01.02.2016 to the central Pollution control board, New Delhi, Vide letter no. FAP(J)/4250/2016, dtd. 01.02.2016, to the Ministry of Environment & Forest, Eastern Regional Office, Bhubaneswar and vide letter no. FAP(J)/4251/2016, dtd. 01.02.2016 to State Pollution Control Board, Bhubaneswar. Copy of the letter is enclosed as Annexure-VII.**
- xii. Green belt shall be developed in 33% of plant area. Selection of plant species shall be as per the CPCB guidelines in consultation with the DFO.
- **Plantation programme is regularly done. Plant species are selected as per CPCB guidelines. In the Year 2016-17 till date total 1000 nos. of Plantation done & 2130 nos. of seeding distributed.**
- xiii. All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Steel Plants shall be implemented.
- **It will be followed.**
- xiv. At least 5% of the total cost of the project shall be earmarked towards the Enterprise Social Commitment (ESC) based on locals need and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office at Chennai. Implementation of such program shall be ensured accordingly in a time bound manner.
- **It will be done. The details of expenditure towards CSR activity done along with details are given in Annexure XI.**
- xv. Provisions shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking mobile toilets, mobile STP, Safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project
- **It has been complied. There is no labour camp within the Site.**

## **B. GENERAL CONDITIONS :**

- i. The project authorities must strictly adhere to the stipulations made by the Odisha Pollution Control Board and the State Government.
  - **It will be strictly followed. We have applied for CTE vide letter no. FAPJ/3976/2014, dtd. 16.07.2014. Once the expansion work starts conditions shall be adhered to.**
- ii. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEFCC).
  - **No expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEFCC).**
- iii. At least four ambient air quality monitoring stations should be established in the downward direction as well as where maximum ground level concentration of PM10, PM2.5, SO2 and NOx are anticipated in consultation with the SPCB. Data on ambient air quality and stack emission shall be regularly submitted to this Ministry including its Regional Office at Bhubaneswar and the SPCB/CPCB once in six months.
  - **At present four ambient air quality monitoring stations are installed at the downward direction in consultation with the SPCB. . Ambient air quality report and stack emission reports are submitted monthly to Ministry including its Regional Office at Bhubaneswar and SPCB, Bhubaneswar. Monitoring results for last six months i.e April' 2016 to Sept' 2016 is enclosed as Annexure-I**
- iv. Industrial waste water shall be properly collected, treated so as to conform to the standard prescribed under GSR 422 ( E ) dated 19<sup>th</sup> May, 1993 and 31<sup>st</sup> December 1993 or as amended from time to time. The treated waste water shall be utilized for plantation purpose.
  - **It has been followed .Treated waste water is utilised for plantation/gardening purpose.**
- v. 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 levels should conform to the standards prescribed under EPA Rules, 1989 viz 75 dBA (day time) and 70 dBA (night time).
  - **It has been strictly adhered. Acoustic enclosures are provided for DG sets. Monitoring results for last six months i.e Oct' 2015 to March' 2016 is enclosed as Annexure-VIII**

- vi. Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.
- **Periodic medical check-ups were conducted yearly. Last medical check-up was done on December'2015 and 528 nos. of employees are examined including contractual employees. Records were maintained as per Orissa factory rule it is shown in Annexure IX.**
- vii. 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.
- **It will be followed.**
- viii. 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 social-economic development activities in the surrounding villages like community development programmes, educational programmes, drinking water supply and health care etc.
- **Complied to environmental protection measures and safeguards recommended in the EIA/EMP report. Social-economic development activities in the surrounding villages were carried out with Tata Steel Rural Development Society. Details of Expenditure made towards CSR activities are given in Annexure XI.**
- ix. Requisite funds shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures to implement the conditions stipulated by the Ministry of Environment, Forest and Climate Change (MoEFCC) as well as the State Government. An implementation schedule for implementing all the conditions stipulated herein shall be submitted to the Regional Office of the Ministry at Bhubaneswar. The funds so provided shall not be diverted for any other purpose.
- **It will be adhered.**
- x. A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad/Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the web site of the company by the proponent.

**Already Complied. Intimation of obtaining Environmental Clearance is given to Zila Parishad vide letter No. FAPJ/4136/2015. Copy of Letter is given in Annexure-X.**

- xii. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MoEFCC at Bhubaneswar. The respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; PM10, SO2, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.

**Status of compliance will be uploaded in the website along with the monitored data. It will be sent to regional office of MoEFCC at Bhubaneswar, SPCB, Bhubaneswar & regional office, Keonjhar.**

**The criteria pollutant levels PM 10, PM 2.5, SO2, NOX, CO, Ambient air parameters along with stack emission parameters are displayed at the company's main gate. Photograph is given in the Annexure XII.**

- xiii. The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MoEFCC, the respective Zonal Office of CPCB and the SPCB. The Regional Office of the Ministry at Bhubaneswar/CPCB/SPVCB shall monitor the stipulated conditions.

- **It has been complied.**

- xiv. The environmental statement for each financial year ending 31<sup>st</sup> March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental conditions and shall also be sent to the respective Regional Office of the MoEFCC at Bhubaneswar by e-mail.

- **The Environment statement in Form V was submitted for the year 2015-16 on 23<sup>rd</sup> september'2016 vide letter no.- FAPJ/4652/20156 to SPCB, Bhubaneswar and Regional office, Keonjhar. And the compliance of environmental conditions is uploaded on the website.**

xiv. 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 SPCB and may also be seen at Website of the Ministry of Environment, Forests and Climate Change (MoEFCC) 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 should be forwarded to the Regional Office at Bhubaneswar.

- **Information regarding Environmental clearance issued is published on Sambad Oriya news paper of 13<sup>th</sup> November issue. And on The statesman English News paper of 12<sup>th</sup> November issue. Details of Publication is given in Annexure XIV.**

xv. 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.

- **It will be strictly followed.**



Head

Ferro Alloys Plant, Joda  
Tata Steel Limited

**Annexure # 1**  
**Ambient Air quality Report From 01-04-2016 To 30-09-2016**



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

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

Plot No-361/2314 "Sustenance Tower"  
 At: Patrapada, P.O: Dumuduma, Dist: Khurda, Bhubaneswar-751 019, Odisha  
 Tele Fax: 0674-2471574, E-mail : emails@ssevironics.com

Ref No: SSE/15/R-0142

Date: 04.04.2016

## AMBIENT AIR QUALITY RESULTS

Name of the Industry : FAP JODA - Tata Steel Ltd.  
 Name of the Sampling Location : Near GATE No-2

Date	Time weighted Average	PM <sub>10</sub> (Particulate Matter size <10µm) µg/m <sup>3</sup>	PM <sub>2.5</sub> (Particulate Matter size <2.5µm) µg/m <sup>3</sup>	SO <sub>2</sub> Sulfur Dioxide µg/m <sup>3</sup>	NO <sub>x</sub> Oxides of Nitrogen µg/m <sup>3</sup>	CO Carbon monoxide mg/m <sup>3</sup>	O <sub>3</sub> Ozone µg/m <sup>3</sup>	Pb Lead µg/m <sup>3</sup>	NH <sub>3</sub> Ammonia µg/m <sup>3</sup>	C <sub>6</sub> H <sub>6</sub> Benzene µg/m <sup>3</sup>	Benz(a) Pyrene ng/m <sup>3</sup>	As Arsenic ng/m <sup>3</sup>	Ni Nickel ng/m <sup>3</sup>
03.03.2016	24hrly	58.00	32.50	4.50	12.20	0.19	6.50	BDL	BDL	0.79	BDL	BDL	BDL
07.03.2016	24hrly	64.00	37.10	5.20	12.90	0.22	7.20	BDL	BDL	0.85	BDL	BDL	BDL
10.03.2016	24hrly	49.00	28.50	BDL	11.10	0.15	5.80	BDL	BDL	0.70	BDL	BDL	BDL
14.03.2016	24hrly	72.00	40.80	6.30	13.80	0.31	8.20	BDL	BDL	0.96	BDL	BDL	BDL
17.03.2016	24hrly	53.00	29.60	BDL	11.90	0.16	5.90	BDL	BDL	0.72	BDL	BDL	BDL
21.03.2016	24hrly	67.00	38.20	5.40	12.70	0.24	7.10	BDL	BDL	0.85	BDL	BDL	BDL
24.03.2016	24hrly	51.00	29.20	BDL	11.60	0.12	5.70	BDL	BDL	0.69	BDL	BDL	BDL
28.03.2016	24hrly	56.00	31.80	4.40	12.00	0.11	6.30	BDL	BDL	0.76	BDL	BDL	BDL
31.03.2016	24hrly	62.00	35.60	4.90	12.80	0.22	7.10	BDL	BDL	0.88	BDL	BDL	BDL
Monthly Average		59.11	33.70	4.74	12.33	0.19	6.64	BDL	BDL	0.80	BDL	BDL	BDL
CPCB Standard	24hrly	100	60	80	80	4 (1 hr)	180 (1hr)	1.0	400	..	..	..	..
Method of Analysis & Code of Method		Gravimetric Method IS: 5182,Part-23	Gravimetric Method IS: 5182,Part-23	Improved West-Gaeke Method IS: 5182,Part-2	Modified Jacob & Hochheiser (Na. Arsenite) IS: 5182 Part-6	Non Dispersive Infrared Spectroscopy (NDIR) IS: 5182 Part-10	1. Chemiluminescence 2. Chemical Method IS: 5182 Part-9	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. IS: 5182 Part-22	1. Chemiluminescence 2. Indophenol Blue Method APHA-401	Gas Chromatography IS: 5182 Part-11	Solvent extraction followed by GC analysis IS: 5182 Part-12	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2

BDL Values:

PM-10 :- 5 µg/m<sup>3</sup>; PM-2.5:- 2.0 µg/m<sup>3</sup>; SO<sub>2</sub> :- 4 µg/m<sup>3</sup>; NO<sub>x</sub>- 9µg/m<sup>3</sup>; CO:- 0.1 mg/m<sup>3</sup>; Ozone:- 5µg/m<sup>3</sup>; Ni:- 0.05 ng/m<sup>3</sup>; Pb:- 0.00005 µg/m<sup>3</sup>; As :- 0.05ng/m<sup>3</sup>; NH<sub>3</sub>- 20µm<sup>3</sup>; B(a)P :- 2 ng/m<sup>3</sup>; Benzene:- 0.1 µg/m<sup>3</sup>



*A Group concerned with Environmental Pollution*





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

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

Plot No-361/2314 "Sustenance Tower"

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

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

Ref No: SSE/15/R-0143

Date: 04. 04. 2016

## AMBIENT AIR QUALITY RESULTS

Name of the Industry

: FAP JODA - Tata Steel Ltd.

Name of the Sampling Location

: Near MAIN GATE

Date	Time weighted Average	PM <sub>10</sub> (Particulate Matter size <10µm) µg/m <sup>3</sup>	PM <sub>2.5</sub> (Particulate Matter size <2.5µm) µg/m <sup>3</sup>	SO <sub>2</sub> Sulfur Dioxide µg/m <sup>3</sup>	NO <sub>x</sub> Oxides of Nitrogen µg/m <sup>3</sup>	CO Carbon monoxide mg/m <sup>3</sup>	O <sub>3</sub> Ozone µg/m <sup>3</sup>	Pb Lead µg/m <sup>3</sup>	NH <sub>3</sub> Ammonia µg/m <sup>3</sup>	C <sub>6</sub> H <sub>6</sub> Benzene µg/m <sup>3</sup>	Benzof(a) Pyrene ng/m <sup>3</sup>	As Arsenic ng/m <sup>3</sup>	Ni Nickel ng/m <sup>3</sup>
03.03.2016	24hrly	62.00	35.20	4.90	12.60	0.24	6.90	BDL	BDL	0.85	BDL	BDL	BDL
07.03.2016	24hrly	69.00	38.40	5.60	13.40	0.28	7.70	BDL	BDL	0.93	BDL	BDL	BDL
10.03.2016	24hrly	54.00	29.80	4.20	11.70	0.17	6.20	BDL	BDL	0.76	BDL	BDL	BDL
14.03.2016	24hrly	79.00	46.20	6.80	14.30	0.36	8.60	BDL	BDL	1.12	BDL	BDL	BDL
17.03.2016	24hrly	57.00	31.80	4.40	12.20	0.19	6.50	BDL	BDL	0.79	BDL	BDL	BDL
21.03.2016	24hrly	71.00	39.50	5.90	13.40	0.29	7.80	BDL	BDL	0.94	BDL	BDL	BDL
24.03.2016	24hrly	55.00	30.20	4.20	11.90	0.16	6.30	BDL	BDL	0.76	BDL	BDL	BDL
28.03.2016	24hrly	61.00	34.90	4.70	12.50	0.23	6.80	BDL	BDL	0.83	BDL	BDL	BDL
31.03.2016	24hrly	68.00	38.30	5.50	13.20	0.27	7.70	BDL	BDL	0.91	BDL	BDL	BDL
Monthly Average		64.00	36.03	5.13	12.80	0.24	7.17	BDL	BDL	0.88	BDL	BDL	BDL
CPCB Standard	24hrly	100	60	80	80	4 (1 hr)	180 (1hr)	1.0	400	...	...	...	...
Method of Analysis & Code of Method		Gravimetric Method IS: 5182,Part-23	Gravimetric Method IS: 5182,Part-23	Improved West-Gaeke Method IS: 5182,Part-2	Modified Jacob & Hochheiser (Na. Arsenite) IS: 5182 Part-6	Non Dispersive Infrared Spectroscopy (NDIR) IS: 5182 Part-10	1. Chemiluminescence 2. Chemical Method IS: 5182 Part-9	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. IS: 5182 Part-22	1. Chemiluminescence 2. Indophenol Blue Method APHA-401	Gas Chromatography IS: 5182 Part-11	Solvent extraction followed by GC analysis IS: 5182 Part-12	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2

BDL Values: PM-10 :- 5 µg/m<sup>3</sup>; PM-2.5 :- 2.0 µg/m<sup>3</sup>; SO<sub>2</sub> :- 4 µg/m<sup>3</sup>; NO<sub>x</sub> :- 9 µg/m<sup>3</sup>; CO :- 0.1 mg/m<sup>3</sup>; Ozone :- 5 µg/m<sup>3</sup>; Ni :- 0.05 ng/m<sup>3</sup>; Pb :- 0.00005 µg/m<sup>3</sup>; As :- 0.05 ng/m<sup>3</sup>; NH<sub>3</sub> :- 20 µg/m<sup>3</sup>; B(a)P :- 2 ng/m<sup>3</sup>; Benzene :- 0.1 µg/m<sup>3</sup>



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

Plot No-361/2314 "Sustenance Tower"

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

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

Ref No: SSE/15/R-0144

Date: 03.04.2016

## AMBIENT AIR QUALITY RESULTS

Name of the Industry

: FAP JODA - Tata Steel Ltd.

Name of the Sampling Location

: Ore Stack Yard Area (Near Well Pump)

Date	Time weighted Average	PM <sub>10</sub> (Particulate Matter size <10µm) µg/m <sup>3</sup>	PM <sub>2.5</sub> (Particulate Matter size <2.5µm) µg/m <sup>3</sup>	SO <sub>2</sub> Sulfur Dioxide µg/m <sup>3</sup>	NO <sub>x</sub> Oxides of Nitrogen µg/m <sup>3</sup>	CO Carbon monoxide mg/m <sup>3</sup>	O <sub>3</sub> Ozone µg/m <sup>3</sup>	Pb Lead µg/m <sup>3</sup>	NH <sub>3</sub> Ammonia µg/m <sup>3</sup>	C <sub>6</sub> H <sub>6</sub> Benzene µg/m <sup>3</sup>	Benz(a) Pyrene ng/m <sup>3</sup>	As Arsenic ng/m <sup>3</sup>	Ni Nickel ng/m <sup>3</sup>
03.03.2016	24hrly	55.00	30.10	BDL	11.90	0.16	5.90	BDL	BDL	0.72	BDL	BDL	BDL
07.03.2016	24hrly	59.00	38.90	4.80	12.20	0.18	6.80	BDL	BDL	0.79	BDL	BDL	BDL
10.03.2016	24hrly	44.00	26.90	BDL	10.80	0.13	5.20	BDL	BDL	0.63	BDL	BDL	BDL
14.03.2016	24hrly	68.00	37.90	5.70	13.40	0.26	7.40	BDL	BDL	0.85	BDL	BDL	BDL
17.03.2016	24hrly	48.00	28.10	BDL	11.20	0.14	5.30	BDL	BDL	0.66	BDL	BDL	BDL
21.03.2016	24hrly	62.00	35.60	4.90	12.10	0.21	6.50	BDL	BDL	0.79	BDL	BDL	BDL
24.03.2016	24hrly	47.00	26.90	BDL	11.10	0.11	5.20	BDL	BDL	0.61	BDL	BDL	BDL
28.03.2016	24hrly	52.00	29.10	BDL	11.60	0.12	5.90	BDL	BDL	0.68	BDL	BDL	BDL
31.03.2016	24hrly	58.00	32.40	4.60	12.30	0.19	6.60	BDL	BDL	0.81	BDL	BDL	BDL
Monthly Average		54.78	31.77	4.44	11.84	0.16	6.09	BDL	BDL	0.73	BDL	BDL	BDL
CPCB Standard	24hrly	100	60	80	80	4 (1 hr)	180 (1hr)	1.0	400	...	...	...	...
Method of Analysis & Code of Method		Gravimetric Method IS: 5182,Part-23	Gravimetric Method IS: 5182,Part-23	Improved West-Gaeke Method IS: 5182,Part-2	Modified Jacob & Hochheiser (Na. Arsenite) IS: 5182 Part-6	Non Dispersive Infrared Spectroscopy (NDIR) IS 5182 Part-10	1. Chemiluminescence 2. Chemical Method IS: 5182 Part-9	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. IS: 5182 Part-22	1. Chemiluminescence 2. Indophenol Blue Method APHA-401	Gas Chromatography IS: 5182 Part-11	Solvent extraction followed by GC analysis IS: 5182 Part-12	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2

BDL Values:

PM-10 :- 5 µg/m<sup>3</sup>; PM-2.5:- 2.0 µg/m<sup>3</sup>; SO<sub>2</sub> :- 4 µg/m<sup>3</sup>; NO<sub>x</sub>:- 9µg/m<sup>3</sup>; CO:- 0.1 mg/m<sup>3</sup>; Ozone:- 5µg/m<sup>3</sup>; Ni :- 0.05 ng/m<sup>3</sup>; Pb:- 0.00005 µg/m<sup>3</sup>; As :- 0.05ng/m<sup>3</sup>; NH<sub>3</sub>:- 20µm<sup>3</sup>; B(a)P :- 2 ng/m<sup>3</sup>; Benzene:- 0.1 µg/m<sup>3</sup>



*A Group concerned with Environmental Pollution*



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

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

Plot No-361/2314 "Sustenance Tower"

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

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

Ref No: SSE/16/R-0186

Date: 02. 05. 2016

## AMBIENT AIR QUALITY RESULTS

Name of the Industry : FAP JODA - Tata Steel Ltd.  
 Name of the Sampling Location : Near GATE No-2

Date	Time weighted Average	PM <sub>10</sub> (Particulate Matter size <10µm) µg/m <sup>3</sup>	PM <sub>2.5</sub> (Particulate Matter size <2.5µm) µg/m <sup>3</sup>	SO <sub>2</sub> Sulfur Dioxide µg/m <sup>3</sup>	NO <sub>x</sub> Oxides of Nitrogen µg/m <sup>3</sup>	CO Carbon monoxide mg/m <sup>3</sup>	O <sub>3</sub> Ozone µg/m <sup>3</sup>	Pb Lead µg/m <sup>3</sup>	NH <sub>3</sub> Ammonia µg/m <sup>3</sup>	C <sub>6</sub> H <sub>6</sub> Benzene µg/m <sup>3</sup>	Benz(a) Pyrene ng/m <sup>3</sup>	As Arsenic ng/m <sup>3</sup>	Ni Nickel ng/m <sup>3</sup>
04.04.2016	24hrly	62.00	35.20	4.80	12.40	0.21	6.80	BDL	BDL	0.82	BDL	BDL	BDL
07.04.2016	24hrly	54.00	30.20	4.20	11.80	0.17	5.90	BDL	BDL	0.76	BDL	BDL	BDL
11.04.2016	24hrly	68.00	38.40	5.60	13.10	0.26	7.40	BDL	BDL	0.89	BDL	BDL	BDL
14.04.2016	24hrly	59.00	33.70	4.40	12.00	0.20	6.80	BDL	BDL	0.81	BDL	BDL	BDL
18.04.2016	24hrly	51.00	29.20	BDL	11.40	0.15	5.90	BDL	BDL	0.74	BDL	BDL	BDL
21.04.2016	24hrly	63.00	35.60	5.20	12.90	0.21	7.20	BDL	BDL	0.84	BDL	BDL	BDL
25.04.2016	24hrly	56.00	31.20	4.40	12.10	0.17	6.40	BDL	BDL	0.82	BDL	BDL	BDL
28.04.2016	24hrly	51.00	29.30	BDL	11.30	0.15	5.90	BDL	BDL	0.74	BDL	BDL	BDL
Monthly Average		58.00	32.85	4.58	12.13	0.19	6.54	BDL	BDL	0.80	BDL	BDL	BDL
CPCB Standard	24hrly	100	60	80	80	4 (1 hr)	180 (1hr)	1.0	400	...	...	...	...
Method of Analysis & Code of Method		Gravimetric Method IS: 5182,Part-23	Gravimetric Method IS: 5182,Part-23	Improved West-Gaeke Method IS: 5182,Part-2	Modified Jacob & Hochheiser (Na. Arsenite) IS: 5182 Part-6	Non Dispersive Infrared Spectroscopy (NDIR) IS: 5182 Part-10	1. Chemiluminescence 2. Chemical Method IS: 5182 Part-9	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. IS: 5182 Part-22	1. Chemiluminescence 2. Indophenol Blue Method APHA-401	Gas Chromatography IS: 5182 Part-11	Solvent extraction followed by GC analysis IS: 5182 Part-12	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2

BDL Values: PM-10 :- 5 µg/m<sup>3</sup>; PM-2.5:- 2.0 µg/m<sup>3</sup>; SO<sub>2</sub> :- 4 µg/m<sup>3</sup>; NO<sub>x</sub>:- 9µg/m<sup>3</sup>; CO:- 0.1 mg/m<sup>3</sup>; Ozone:- 5µg/m<sup>3</sup>; Ni :- 0.05 ng/m<sup>3</sup>; Pb:- 0.00005 µg/m<sup>3</sup>; As :- 0.05ng/m<sup>3</sup>; NH<sub>3</sub>:- 20µm<sup>3</sup>; B(a)P :- 2 ng/m<sup>3</sup>; Benzene:- 0.1 µg/m<sup>3</sup>

FOR S.S. ENVIRONICS (INDIA) PVT. LTD

*A Group concerned with Environmental Pollution*





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

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

Plot No-361/2314 "Sustenance Tower"  
 At: Patrapada, P.O: Dumuduma, Dist: Khurda, Bhubaneswar-751 019, Odisha  
 Tele Fax: 0674-2471574, E-mail : emails@ssevironics.com

Ref No: SSE/16/R-0187

Date: 02. 05. 2016

## AMBIENT AIR QUALITY RESULTS

Name of the Industry : FAP JODA - Tata Steel Ltd.  
 Name of the Sampling Location : Near MAIN GATE

Date	Time weighted Average	PM <sub>10</sub> (Particulate Matter size <10µm) µg/m <sup>3</sup>	PM <sub>2.5</sub> (Particulate Matter size <2.5µm) µg/m <sup>3</sup>	SO <sub>2</sub> Sulphur Dioxide µg/m <sup>3</sup>	NO <sub>x</sub> Oxides of Nitrogen µg/m <sup>3</sup>	CO Carbon monoxide mg/m <sup>3</sup>	O <sub>3</sub> Ozone µg/m <sup>3</sup>	Pb Lead µg/m <sup>3</sup>	NH <sub>3</sub> Ammonia µg/m <sup>3</sup>	C <sub>6</sub> H <sub>6</sub> Benzene µg/m <sup>3</sup>	Benzo(a) Pyrene ng/m <sup>3</sup>	As Arsenic ng/m <sup>3</sup>	Ni Nickel ng/m <sup>3</sup>
04.04.2016	24hrly	66.00	37.40	5.20	12.90	0.25	7.30	BDL	BDL	0.89	BDL	BDL	BDL
07.04.2016	24hrly	58.00	32.10	4.60	12.20	0.20	6.50	BDL	BDL	0.81	BDL	BDL	BDL
11.04.2016	24hrly	73.00	41.50	6.10	13.50	0.31	8.10	BDL	BDL	0.95	BDL	BDL	BDL
14.04.2016	24hrly	63.00	35.90	4.90	12.70	0.22	7.20	BDL	BDL	0.87	BDL	BDL	BDL
18.04.2016	24hrly	55.00	30.20	BDL	11.90	0.17	6.30	BDL	BDL	0.79	BDL	BDL	BDL
21.04.2016	24hrly	69.00	38.40	5.80	13.30	0.27	7.60	BDL	BDL	0.92	BDL	BDL	BDL
25.04.2016	24hrly	62.00	34.70	4.70	12.50	0.23	6.90	BDL	BDL	0.86	BDL	BDL	BDL
28.04.2016	24hrly	57.00	31.20	4.30	11.90	0.19	6.50	BDL	BDL	0.79	BDL	BDL	BDL
Monthly Average		62.88	35.18	4.95	12.61	0.23	7.05	BDL	20.63	0.86	BDL	BDL	BDL
CPCB Standard	24hrly	100	60	80	80	4 (1 hr)	180 (1hr)	1.0	400	...	...	...	...
Method of Analysis & Code of Method		Gravimetric Method IS: 5182,Part-23	Gravimetric Method IS: 5182,Part-23	Improved West-Gaeke Method IS: 5182,Part-2	Modified Jacob & Hochheiser (Na. Arsenite) IS: 5182 Part-6	Non Dispersive Infrared Spectroscopy (NDIR) IS 5182 Part-10	1.Chemiluminescence 2. Chemical Method IS: 5182 Part-9	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. IS: 5182 Part-22	1.Chemiluminescence 2. Indophenol Blue Method APHA-401	Gas Chromatography IS: 5182 Part-11	Solvent extraction followed by GC analysis IS: 5182 Part-12	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2

BDL Values: PM-10 :- 5 µg/m<sup>3</sup>; PM-2.5:- 2.0 µg/m<sup>3</sup>; SO<sub>2</sub> :- 4 µg/m<sup>3</sup>; NO<sub>x</sub>:- 9µg/m<sup>3</sup>; CO:- 0.1 mg/m<sup>3</sup>; Ozone:- 5µg/m<sup>3</sup>; Ni :- 0.05 ng/m<sup>3</sup>; Pb:- 0.00005 µg/m<sup>3</sup>; As :- 0.05ng/m<sup>3</sup>; NH<sub>3</sub>:- 20µm<sup>3</sup>; B(a)P :- 2 ng/m<sup>3</sup>; Benzene:- 0.1 µg/m<sup>3</sup>

FOR S&ENVIROCONS(INDIA)PVT.LTD  
 S.S. Environics (India) Pvt. Ltd.  
 H. Chakrabarty

A Group concerned with Environmental Pollution



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

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

Plot No-361/2314 "Sustenance Tower"  
 At: Patrapada, P.O: Dumuduma, Dist: Khurda, Bhubaneswar-751 019, Odisha  
 Tele Fax: 0674-2471574, E-mail : emails@ssenvironics.com

Ref No: SSE/16/R-0188

Date: 02. 05. 2016

## AMBIENT AIR QUALITY RESULTS

Name of the Industry

: FAP JODA - Tata Steel Ltd.

Name of the Sampling Location : Ore Stack Yard Area (Near Well Pump)

Date	Time weighted Average	PM <sub>10</sub> (Particulate Matter size <10µm) µg/m <sup>3</sup>	PM <sub>2.5</sub> (Particulate Matter size <2.5µm) µg/m <sup>3</sup>	SO <sub>2</sub> Sulfur Dioxide µg/m <sup>3</sup>	NO <sub>x</sub> Oxides of Nitrogen µg/m <sup>3</sup>	CO Carbon monoxide mg/m <sup>3</sup>	O <sub>3</sub> Ozone µg/m <sup>3</sup>	Pb Lead µg/m <sup>3</sup>	NH <sub>3</sub> Ammonia µg/m <sup>3</sup>	C <sub>6</sub> H <sub>6</sub> Benzene µg/m <sup>3</sup>	Benzo(a) Pyrene ng/m <sup>3</sup>	As Arsenic ng/m <sup>3</sup>	Ni Nickel ng/m <sup>3</sup>
04.04.2016	24hrly	58.00	32.50	4.40	11.90	0.18	6.20	BDL	BDL	0.78	BDL	BDL	BDL
07.04.2016	24hrly	49.00	28.70	BDL	11.20	0.15	5.40	BDL	BDL	0.71	BDL	BDL	BDL
11.04.2016	24hrly	63.00	35.20	5.10	12.60	0.22	6.90	BDL	BDL	0.83	BDL	BDL	BDL
14.04.2016	24hrly	54.00	29.90	BDL	11.30	0.17	6.20	BDL	BDL	0.76	BDL	BDL	BDL
18.04.2016	24hrly	46.00	27.40	BDL	10.90	0.13	5.40	BDL	BDL	0.69	BDL	BDL	BDL
21.04.2016	24hrly	59.00	34.50	4.80	12.40	0.19	6.90	BDL	BDL	0.77	BDL	BDL	BDL
25.04.2016	24hrly	52.00	29.20	BDL	11.70	0.14	5.80	BDL	BDL	0.78	BDL	BDL	BDL
28.04.2016	24hrly	45.00	27.40	BDL	10.90	0.12	BDL	BDL	BDL	0.69	BDL	BDL	BDL
Monthly Average		53.25	30.60	4.29	11.61	0.16	6.00	BDL	20.15	0.75	BDL	BDL	BDL
CPCB Standard	24hrly	100	60	80	80	4 (1 hr)	180 (1hr)	1.0	400	...	...	...	...
Method of Analysis & Code of Method		Gravimetric Method IS: 5182,Part-23	Gravimetric Method IS: 5182,Part-23	Improved West-Gaeke Method IS: 5182,Part-2	Modified Jacob & Hochheiser (Na. Arsenite) IS: 5182 Part-6	Non Dispersive Infrared Spectroscopy (NDIR) IS: 5182 Part-10	1. Chemiluminescence 2. Chemical Method IS: 5182 Part-9	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. IS: 5182 Part-22	1. Chemiluminescence 2. Indophenol Blue Method APHA-401	Gas Chromatography IS: 5182 Part-11	Solvent extraction followed by GC analysis IS: 5182 Part-12	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2

BDL Values: PM<sub>10</sub> :- 5 µg/m<sup>3</sup>; PM<sub>2.5</sub> :- 2.0 µg/m<sup>3</sup>; SO<sub>2</sub> :- 4 µg/m<sup>3</sup>; NO<sub>x</sub> :- 9 µg/m<sup>3</sup>; CO :- 0.1 mg/m<sup>3</sup>; Ozone :- 5 µg/m<sup>3</sup>; Ni :- 0.05 ng/m<sup>3</sup>; Pb :- 0.00005 µg/m<sup>3</sup>; As :- 0.05 ng/m<sup>3</sup>; NH<sub>3</sub> :- 20 µg/m<sup>3</sup>; B(a)P :- 2 ng/m<sup>3</sup>; Benzene :- 0.1 µg/m<sup>3</sup>

FOR S.S. ENVIRONICS (INDIA) PVT. LTD



*A Group concerned with Environmental Pollution*





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

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

Plot No-361/2314 "Sustenance Tower"  
 At: Patrapada, P.O: Dumuduma, Dist: Khurda, Bhubaneswar-751 019, Odisha  
 Tele Fax: 0674-2471574, E-mail : emails@ssenvironics.com

Ref No: SSE/16/R-0645

Date: 03.06.2016

## AMBIENT AIR QUALITY RESULTS

Name of the Industry : F&P JODA - Tata Steel Ltd.  
 Name of the Sampling Location : Near GATE No-2

Date	Time weighed Average	PM <sub>10</sub> (Particulate Matter size <10µm) µg/m <sup>3</sup>	PM <sub>2.5</sub> (Particulate Matter size <2.5µm) µg/m <sup>3</sup>	SO <sub>2</sub> Sulfur Dioxide µg/m <sup>3</sup>	NO <sub>x</sub> Oxides of Nitrogen µg/m <sup>3</sup>	CO Carbon monoxide mg/m <sup>3</sup>	O <sub>3</sub> Ozone µg/m <sup>3</sup>	Pb Lead µg/m <sup>3</sup>	NH <sub>3</sub> Ammonia µg/m <sup>3</sup>	C <sub>6</sub> H <sub>6</sub> Benzene µg/m <sup>3</sup>	Benz(a) Pyrene ng/m <sup>3</sup>	As Arsenic ng/m <sup>3</sup>	Ni Nickel ng/m <sup>3</sup>
02.05.2016	24hrly	69.00	38.50	5.80	13.20	0.28	7.80	BDL	BDL	0.89	BDL	BDL	BDL
05.05.2016	24hrly	57.00	31.20	4.40	12.10	0.19	6.40	BDL	BDL	0.77	BDL	BDL	BDL
09.05.2016	24hrly	49.00	28.60	BDL	11.20	0.15	5.70	BDL	BDL	0.69	BDL	BDL	BDL
12.05.2016	24hrly	62.00	35.50	5.10	12.40	0.20	7.10	BDL	BDL	0.82	BDL	BDL	BDL
16.05.2016	24hrly	40.00	23.80	BDL	10.30	0.12	BDL	BDL	BDL	0.69	BDL	BDL	BDL
19.05.2016	24hrly	48.00	27.60	BDL	11.10	0.16	5.60	BDL	BDL	0.70	BDL	BDL	BDL
23.05.2016	24hrly	56.00	31.20	4.50	11.90	0.17	6.20	BDL	BDL	0.74	BDL	BDL	BDL
26.05.2016	24hrly	47.00	28.50	BDL	11.20	0.13	5.40	BDL	BDL	0.66	BDL	BDL	BDL
30.05.2016	24hrly	54.00	30.20	4.20	11.90	0.16	6.20	BDL	BDL	0.73	BDL	BDL	BDL
Monthly Average		51.63	29.58	4.28	11.51	0.16	5.95	BDL	BDL	0.73	BDL	BDL	BDL
CPCB Standard	24hrly	100	60	80	80	4 (1 hr)	180 (1hr)	1.0	400	...	...	...	...
Method of Analysis & Code of Method		Gravimetric Method IS: 5182,Part-23	Gravimetric Method IS: 5182,Part-23	Improved West-Gaeke Method IS: 5182,Part-2	Modified Jacob & Hochheiser (Na. Arsenite) IS: 5182 Part-6	Non Dispersive Infrared Spectroscopy (NDIR) IS 5182 Part-10	1. Chemiluminescence 2. Chemical Method IS: 5182 Part-9	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. IS: 5182 Part-22	1. Chemiluminescence 2. Indophenol Blue Method APHA-401	Gas Chromatography IS: 5182 Part-11	Solvent extraction followed by GC analysis IS: 5182 Part-12	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2

BDL Values: PM-10 :- 5 µg/m<sup>3</sup>; PM-2.5:- 2.0 µg/m<sup>3</sup>; SO<sub>2</sub> :- 4 µg/m<sup>3</sup>; NO<sub>x</sub> :- 9 µg/m<sup>3</sup>; CO :- 0.1 mg/m<sup>3</sup>; Ozone :- 5 µg/m<sup>3</sup>; Ni :- 0.05 ng/m<sup>3</sup>; Pb :- 0.00005 µg/m<sup>3</sup>; As :- 0.05 ng/m<sup>3</sup>; NH<sub>3</sub> :- 20 µg/m<sup>3</sup>; Ba(P) :- 2 ng/m<sup>3</sup>; Benzene :- 0.1 µg/m<sup>3</sup>



*A Group concerned with Environmental Pollution*



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

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

Plot No-361/2314 "Sustenance Tower"  
At: Patrapada, P.O: Dumuduma, Dist: Khurda, Bhubaneswar-751 019, Odisha  
Tele Fax: 0674-2471574, E-mail : emails@ssenvironics.com

Ref No: SSE/16/R-0646

Date: 03.06.2016

## AMBIENT AIR QUALITY RESULTS

Name of the Industry

: FAP JODA - Tata Steel Ltd.

Name of the Sampling Location : Near MAIN GATE

Date	Time weighted Average	PM <sub>10</sub> (Particulate Matter size <10µm) µg/m <sup>3</sup>	PM <sub>2.5</sub> (Particulate Matter size <2.5µm) µg/m <sup>3</sup>	SO <sub>2</sub> Sulfur Dioxide µg/m <sup>3</sup>	NO <sub>x</sub> Oxides of Nitrogen µg/m <sup>3</sup>	CO Carbon monoxide mg/m <sup>3</sup>	O <sub>3</sub> Ozone µg/m <sup>3</sup>	Pb Lead µg/m <sup>3</sup>	NH <sub>3</sub> Ammonia µg/m <sup>3</sup>	C <sub>6</sub> H <sub>6</sub> Benzene µg/m <sup>3</sup>	Benz(a) Pyrene ng/m <sup>3</sup>	As Arsenic ng/m <sup>3</sup>	Ni Nickel ng/m <sup>3</sup>
02.05.2016	24hrly	74.00	41.80	6.20	13.70	0.32	8.20	BDL	BDL	0.97	BDL	BDL	BDL
05.05.2016	24hrly	61.00	34.50	4.80	12.40	0.23	6.90	BDL	BDL	0.84	BDL	BDL	BDL
09.05.2016	24hrly	53.00	29.80	BDL	11.60	0.17	6.10	BDL	BDL	0.75	BDL	BDL	BDL
12.05.2016	24hrly	67.00	38.10	5.50	12.90	0.25	7.50	BDL	BDL	0.89	BDL	BDL	BDL
16.05.2016	24hrly	45.00	27.20	BDL	10.70	0.13	5.20	BDL	BDL	0.77	BDL	BDL	BDL
19.05.2016	24hrly	54.00	30.20	4.20	11.50	0.18	6.10	BDL	BDL	0.75	BDL	BDL	BDL
23.05.2016	24hrly	60.00	33.90	4.90	12.30	0.21	6.80	BDL	BDL	0.82	BDL	BDL	BDL
26.05.2016	24hrly	52.00	30.20	BDL	11.70	0.15	5.90	BDL	BDL	0.75	BDL	BDL	BDL
30.05.2016	24hrly	59.00	34.70	4.60	12.40	0.19	6.60	BDL	BDL	0.81	BDL	BDL	BDL
Monthly Average		56.38	32.33	4.50	11.94	0.19	6.39	BDL	BDL	0.80	BDL	BDL	BDL
CPCB Standard	24hrly	100	60	80	80	4 (1 hr)	180 (1hr)	1.0	400	...	...	...	...
Method of Analysis & Code of Method		Gravimetric Method IS: 5182,Part-23	Gravimetric Method IS: 5182,Part-23	Improved West-Gaeke Method IS: 5182,Part-2	Modified Jacob & Hochheiser (Na. Arsenite) IS: 5182 Part-6	Non Dispersive Infrared Spectroscopy (NDIR) IS: 5182 Part-10	1. Chemiluminescence 2. Chemical Method IS: 5182 Part-9	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. IS: 5182 Part-22	1. Chemiluminescence 2. Indophenol Blue Method APHA-401	Gas Chromatography IS: 5182 Part-11	Solvent extraction followed by GC analysis IS: 5182 Part-12	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2

BDL Values: PM-10 :- 5 µg/m<sup>3</sup>; PM-2.5:- 2.0 µg/m<sup>3</sup>; SO<sub>2</sub> :- 4 µg/m<sup>3</sup>; NO<sub>x</sub>:- 9µg/m<sup>3</sup>; CO:- 0.1 mg/m<sup>3</sup>; Ozone:- 5µg/m<sup>3</sup>; Ni :- 0.05 ng/m<sup>3</sup>; Pb:- 0.00005 µg/m<sup>3</sup>; As :- 0.05ng/m<sup>3</sup>; NH<sub>3</sub>:- 20µm<sup>3</sup>; B(a)P :- 2 ng/m<sup>3</sup>; Benzene:- 0.1 µg/m<sup>3</sup>



*A Group concerned with Environmental Pollution*





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

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

Plot No-361/2314 "Sustenance Tower"

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

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

RefNo: SSE/16/R-0647

Date: 03.06.2016

## AMBIENT AIR QUALITY RESULTS

Name of the Industry

: FAP JODA - Tata Steel Ltd.

Name of the Sampling Location : Ore Stack Yard Area (Near Well Pump)

Date	Time weighted Average	PM <sub>10</sub> (Particulate Matter size <10µm) µg/m <sup>3</sup>	PM <sub>2.5</sub> (Particulate Matter size <2.5µm) µg/m <sup>3</sup>	SO <sub>2</sub> Sulfur Dioxide µg/m <sup>3</sup>	NO <sub>x</sub> Oxides of Nitrogen µg/m <sup>3</sup>	CO Carbon monoxide mg/m <sup>3</sup>	O <sub>3</sub> Ozone µg/m <sup>3</sup>	Pb Lead µg/m <sup>3</sup>	NH <sub>3</sub> Ammonia µg/m <sup>3</sup>	C <sub>6</sub> H <sub>6</sub> Benzene µg/m <sup>3</sup>	Benz(a) Pyrene ng/m <sup>3</sup>	As Arsenic ng/m <sup>3</sup>	Ni Nickel ng/m <sup>3</sup>
02.05.2016	24hrly	64.00	37.90	5.20	12.80	0.22	7.20	BDL	BDL	0.79	BDL	BDL	BDL
05.05.2016	24hrly	52.00	29.60	BDL	11.60	0.16	5.80	BDL	BDL	0.71	BDL	BDL	BDL
09.05.2016	24hrly	45.00	27.10	BDL	10.60	0.13	5.20	BDL	BDL	0.64	BDL	BDL	BDL
12.05.2016	24hrly	58.00	32.40	4.70	11.90	0.17	6.50	BDL	BDL	0.78	BDL	BDL	BDL
16.05.2016	24hrly	37.00	21.50	BDL	9.90	0.11	BDL	BDL	BDL	0.63	BDL	BDL	BDL
19.05.2016	24hrly	44.00	26.90	BDL	10.50	0.13	BDL	BDL	BDL	0.65	BDL	BDL	BDL
23.05.2016	24hrly	52.00	29.40	BDL	11.30	0.15	5.70	BDL	BDL	0.69	BDL	BDL	BDL
26.05.2016	24hrly	43.00	25.60	BDL	10.80	0.11	BDL	BDL	BDL	0.62	BDL	BDL	BDL
30.05.2016	24hrly	49.00	28.30	BDL	11.40	0.14	5.80	BDL	BDL	0.65	BDL	BDL	BDL
Monthly Average		47.50	27.60	4.09	11.00	0.14	5.50	BDL	BDL	0.67	BDL	BDL	BDL
CPCB Standard	24hrly	100	60	80	80	4 (1 hr)	180 (1hr)	1.0	400	...	...	...	...
Method of Analysis & Code of Method		Gravimetric Method IS: 5182,Part-23	Gravimetric Method IS: 5182,Part-23	Improved West-Gaeke Method IS: 5182,Part-2	Modified Jacob & Hochheiser (Na. Arsenite) IS: 5182 Part-6	Non Dispersive Infrared Spectroscopy (NDIR) IS: 5182 Part-10	1. Chemiluminescence 2. Chemical Method IS: 5182 Part-9	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. IS: 5182 Part-22	1. Chemiluminescence 2. Indophenol Blue Method APHA-401	Gas Chromatography IS: 5182 Part-11	Solvent extraction followed by GC analysis IS: 5182 Part-12	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2

BDL Values: PM-10 :- 5 µg/m<sup>3</sup>; PM-2.5:- 2.0 µg/m<sup>3</sup>; SO<sub>2</sub> :- 4 µg/m<sup>3</sup>; NO<sub>x</sub>:- 9µg/m<sup>3</sup>; CO:- 0.1 mg/m<sup>3</sup>; Ozone:- 5µg/m<sup>3</sup>; Ni:- 0.05 ng/m<sup>3</sup>; Pb:- 0.00005 µg/m<sup>3</sup>; As :- 0.05ng/m<sup>3</sup>; NH<sub>3</sub>:- 20µm<sup>3</sup>; Ba(P)-:- 2 ng/m<sup>3</sup>; Benzene:- 0.1 µg/m<sup>3</sup>

FOR S.S. ENVIRONICS (INDIA) PVT. LTD



A Group concerned with Environmental Pollution



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

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

Plot No-361/2314 "Sustenance Tower"  
 At: Patrapada, P.O: Dumuduma, Dist: Khurda, Bhubaneswar-751 019, Odisha  
 Tele Fax: 0674-2471574, E-mail : emails@ssevironics.com

Ref No: SSE/16/R-0947

Date: 04.07.2016

## AMBIENT AIR QUALITY RESULTS

Name of the Industry : FAP JODA - Tata Steel Ltd.  
 Name of the Sampling Location : Near GATE No-2

Date	Time weighted Average	PM <sub>10</sub> (Particulate Matter size <10µm) µg/m <sup>3</sup>	PM <sub>2.5</sub> (Particulate Matter size <2.5µm) µg/m <sup>3</sup>	SO <sub>2</sub> Sulfur Dioxide µg/m <sup>3</sup>	NO <sub>x</sub> Oxides of Nitrogen µg/m <sup>3</sup>	CO Carbon monoxide mg/m <sup>3</sup>	O <sub>3</sub> Ozone µg/m <sup>3</sup>	Pb Lead µg/m <sup>3</sup>	NH <sub>3</sub> Ammonia µg/m <sup>3</sup>	CaH <sub>6</sub> Benzene µg/m <sup>3</sup>	Benz(a)P Pyrene ng/m <sup>3</sup>	As Arsenic ng/m <sup>3</sup>	Ni Nickel ng/m <sup>3</sup>
02.06.2016	24hrly	38.00	22.10	BDL	10.30	0.11	BDL	BDL	BDL	0.59	BDL	BDL	BDL
06.06.2016	24hrly	56.00	31.50	4.40	11.90	0.19	6.20	BDL	BDL	0.76	BDL	BDL	BDL
09.06.2016	24hrly	32.00	18.40	BDL	9.40	BDL	BDL	BDL	BDL	0.51	BDL	BDL	BDL
13.06.2016	24hrly	51.00	29.20	BDL	11.20	0.16	5.70	BDL	BDL	0.68	BDL	BDL	BDL
16.06.2016	24hrly	43.00	25.80	BDL	10.70	0.13	BDL	BDL	BDL	0.62	BDL	BDL	BDL
20.06.2016	24hrly	54.00	30.10	4.20	11.80	0.18	6.20	BDL	BDL	0.75	BDL	BDL	BDL
23.06.2016	24hrly	33.00	19.40	BDL	9.60	0.11	BDL	BDL	BDL	0.57	BDL	BDL	BDL
27.06.2016	24hrly	47.00	28.60	BDL	10.70	0.14	5.40	BDL	BDL	0.69	BDL	BDL	BDL
30.06.2016	24hrly	41.00	23.90	BDL	10.20	0.11	BDL	BDL	BDL	0.60	BDL	BDL	BDL
Monthly Average		43.89	25.44	4.07	10.64	0.14	5.39	BDL	BDL	0.64	BDL	BDL	BDL
CPCB Standard	24hrly	100	60	80	80	4 (1 hr)	180 (1hr)	1.0	400	...	...	...	...
Method of Analysis & Code of Method		Gravimetric Method IS: 5182,Part-23	Gravimetric Method IS: 5182,Part-23	Improved West-Gaeke Method IS: 5182,Part-2	Modified Jacob & Hochheiser (Na. Arsenite) IS: 5182 Part-6	Non Dispersive Infrared Spectroscopy (NDIR) IS: 5182 Part-10	1. Chemiluminescence 2. Chemical Method IS: 5182 Part-9	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. IS: 5182 Part-22	1. Chemiluminescence 2. Indophenol Blue Method APHA-401	Gas Chromatography IS: 5182 Part-11	Solvent extraction followed by GC analysis IS: 5182 Part-12	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2

BDL Values: PM-10 :- 5 µg/m<sup>3</sup>; PM-2.5 :- 2.0 µg/m<sup>3</sup>; SO<sub>2</sub> :- 4 µg/m<sup>3</sup>; NO<sub>x</sub> :- 9 µg/m<sup>3</sup>; CO :- 0.1 mg/m<sup>3</sup>; Ozone :- 5 µg/m<sup>3</sup>; Ni :- 0.05 ng/m<sup>3</sup>; Pb :- 0.00005 µg/m<sup>3</sup>; As :- 0.05 ng/m<sup>3</sup>; NH<sub>3</sub> :- 20 µg/m<sup>3</sup>; Ba(a)P :- 2 ng/m<sup>3</sup>; Benzene :- 0.1 µg/m<sup>3</sup>



FOR: S.S. ENVIRONICS (INDIA) PVT. LTD

*A Group concerned with Environmental Pollution*





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

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

Plot No-361/2314 "Sustenance Tower"

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

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

Ref No: SSE/16/R-0948

Date: 04. 07. 2016

## AMBIENT AIR QUALITY RESULTS

Name of the Industry : FAP JODA - Tata Steel Ltd.  
Name of the Sampling Location : Near MAIN GATE

Date	Time weighted Average	PM <sub>10</sub> (Particulate Matter size <10µm) µg/m <sup>3</sup>	PM <sub>2.5</sub> (Particulate Matter size <2.5µm) µg/m <sup>3</sup>	SO <sub>2</sub> Sulfur Dioxide µg/m <sup>3</sup>	NO <sub>x</sub> Oxides of Nitrogen µg/m <sup>3</sup>	CO Carbon monoxide mg/m <sup>3</sup>	O <sub>3</sub> Ozone µg/m <sup>3</sup>	Pb Lead µg/m <sup>3</sup>	NH <sub>3</sub> Ammonia µg/m <sup>3</sup>	C <sub>6</sub> H <sub>6</sub> Benzene µg/m <sup>3</sup>	Benz(a)P Pyrene ng/m <sup>3</sup>	As Arsenic ng/m <sup>3</sup>	Ni Nickel ng/m <sup>3</sup>	CPCB Standard	24hrly	Method of Analysis & Code of Method	BDL Values:
																	PM-10 :- 5 µg/m <sup>3</sup> ; PM-2.5 :- 2.0 µg/m <sup>3</sup> ; SO <sub>2</sub> :- 4 µg/m <sup>3</sup> ; NO <sub>x</sub> :- 9 µg/m <sup>3</sup> ; CO :- 0.1 mg/m <sup>3</sup> ; Ozone :- 5 µg/m <sup>3</sup> ; Ni :- 0.05 ng/m <sup>3</sup> ; Pb :- 0.00005 µg/m <sup>3</sup> ; As :- 0.05 ng/m <sup>3</sup> ; NH <sub>3</sub> :- 20 µg/m <sup>3</sup> ; Ba(P) :- 2 ng/m <sup>3</sup> ; Benzene :- 0.1 µg/m <sup>3</sup>
02.06.2016	24hrly	43.00	25.80	BDL	10.90	0.12	BDL	BDL	BDL	0.65	BDL	BDL	BDL	100	Gravimetric Method IS: 5182,Part-23	48.22	
06.06.2016	24hrly	61.00	34.10	4.90	12.40	0.23	6.80	BDL	BDL	0.83	BDL	BDL	BDL	60	Gravimetric Method IS: 5182,Part-23	28.39	
09.06.2016	24hrly	36.00	21.80	BDL	9.90	0.11	BDL	BDL	BDL	0.59	BDL	BDL	BDL	80	Improved West-Gaeke Method IS: 5182,Part-2	4.24	
13.06.2016	24hrly	54.00	30.20	4.20	11.80	0.18	6.20	BDL	BDL	0.77	BDL	BDL	BDL	80	Modified Jacob & Hochheiser (Na. Arsenite) IS: 5182 Part-6	11.24	
16.06.2016	24hrly	47.00	28.90	BDL	11.20	0.14	5.40	BDL	BDL	0.69	BDL	BDL	BDL	4 (1 hr)	Non Dispersive Infrared Spectroscopy (NDIR) IS: 5182 Part-10	0.16	
20.06.2016	24hrly	59.00	34.10	4.70	12.30	0.21	6.70	BDL	BDL	0.82	BDL	BDL	BDL	180 (1hr)	1. Chemiluminescence 2. Chemical Method IS: 5182 Part-9	5.69	
23.06.2016	24hrly	38.00	23.80	BDL	10.30	0.12	BDL	BDL	BDL	0.61	BDL	BDL	BDL	1.0	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. IS: 5182 Part-22	BDL	
27.06.2016	24hrly	51.00	29.20	BDL	11.50	0.16	5.90	BDL	BDL	0.74	BDL	BDL	BDL	400	1. Chemiluminescence 2. Indophenol Blue Method APHA-401	BDL	
30.06.2016	24hrly	45.00	27.60	4.40	10.90	0.13	5.20	BDL	BDL	0.68	BDL	BDL	BDL	...	Gas Chromatography IS: 5182 Part-11	0.71	
Monthly Average		48.22	28.39	4.24	11.24	0.16	5.69	BDL	BDL	0.71	BDL	BDL	BDL	...	Solvent extraction followed by GC analysis IS: 5182 Part-12	BDL	
														...	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2	BDL	
														...	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2	BDL	

FOR S.S. ENVIRONICS (INDIA) PVT. LTD



A Group concerned with Environmental Pollution



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

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

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

Ref No: SSE/16/R-0949

Date: 04. 07. 2016

## AMBIENT AIR QUALITY RESULTS

Name of the Industry : FAP JODA - Tata Steel Ltd.  
 Name of the Sampling Location : Ore Stack Yard Area (Near Well Pump)

Date	Time weighted Average	PM <sub>10</sub> (Particulate Matter size <10µm) µg/m <sup>3</sup>	PM <sub>2.5</sub> (Particulate Matter size <2.5µm) µg/m <sup>3</sup>	SO <sub>2</sub> Sulphur Dioxide µg/m <sup>3</sup>	NO <sub>x</sub> Oxides of Nitrogen µg/m <sup>3</sup>	CO Carbon monoxide mg/m <sup>3</sup>	O <sub>3</sub> Ozone µg/m <sup>3</sup>	Pb Lead µg/m <sup>3</sup>	NH <sub>3</sub> Ammonia µg/m <sup>3</sup>	C <sub>6</sub> H <sub>6</sub> Benzene µg/m <sup>3</sup>	Benz(a)P Pyrene ng/m <sup>3</sup>	As Arsenic ng/m <sup>3</sup>	Ni Nickel ng/m <sup>3</sup>	Method of Analysis & Code of Method	CPCB Standard	24hrly
02.06.2016	24hrly	32.00	17.90	BDL	9.90	BDL	BDL	BDL	BDL	0.52	BDL	BDL	BDL	Gravimetric Method IS: 5182,Part-23	100	
06.06.2016	24hrly	49.00	28.60	BDL	11.40	0.16	5.80	BDL	BDL	0.69	BDL	BDL	BDL	Gravimetric Method IS: 5182,Part-23	60	
09.06.2016	24hrly	27.00	16.50	BDL	BDL	BDL	BDL	BDL	BDL	0.47	BDL	BDL	BDL	Improved West-Gaeke Method IS: 5182,Part-2	80	
13.06.2016	24hrly	46.00	27.40	BDL	10.80	0.14	5.30	BDL	BDL	0.60	BDL	BDL	BDL	Modified Jacob & Hochheiser (Na. Arsenite) IS: 5182 Part-6	80	
16.06.2016	24hrly	39.00	23.40	BDL	10.20	0.12	BDL	BDL	BDL	0.58	BDL	BDL	BDL	Non Dispersive Infrared Spectroscopy (NDIR) IS: 5182 Part-10	4 (1 hr)	
20.06.2016	24hrly	51.00	29.10	4.30	11.40	0.16	5.70	BDL	BDL	0.70	BDL	BDL	BDL	1. Chemiluminescence 2. Chemical Method IS: 5182 Part-9	180 (1hr)	
23.06.2016	24hrly	28.00	17.20	BDL	9.30	BDL	BDL	BDL	BDL	0.52	BDL	BDL	BDL	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. IS: 5182 Part-22	1.0	
27.06.2016	24hrly	42.00	25.60	BDL	10.10	0.13	BDL	BDL	BDL	0.64	BDL	BDL	BDL	1. Chemiluminescence 2. Indophenol Blue Method APHA-401	400	
30.06.2016	24hrly	36.00	21.30	BDL	9.80	BDL	BDL	BDL	BDL	0.56	BDL	BDL	BDL	Gas Chromatography IS: 5182 Part-11	...	
Monthly Average		38.89	23.00	4.03	10.21	0.12	5.20	BDL	BDL	0.59	BDL	BDL	BDL	Solvent extraction followed by GC analysis IS: 5182 Part-12	...	
														AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2	...	
														AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2	...	

BDL Values: PM<sub>10</sub> :- 5 µg/m<sup>3</sup>; PM<sub>2.5</sub> :- 2.0 µg/m<sup>3</sup>; SO<sub>2</sub> :- 4 µg/m<sup>3</sup>; NO<sub>x</sub> :- 9 µg/m<sup>3</sup>; CO :- 0.1 mg/m<sup>3</sup>; Ozone :- 5 µg/m<sup>3</sup>; Ni :- 0.05 ng/m<sup>3</sup>; Pb :- 0.00005 µg/m<sup>3</sup>; As :- 0.05 ng/m<sup>3</sup>; NH<sub>3</sub> :- 20 µg/m<sup>3</sup>; Ba(P) :- 2 ng/m<sup>3</sup>; Benzene :- 0.1 µg/m<sup>3</sup>

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

A Group concerned with Environmental Pollution





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

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

Plot No-361/2314 "Sustenance Tower"  
 At: Patrapada, P.O: Dumuduma, Dist: Khurda, Bhubaneswar-751 019, Odisha  
 Tele Fax: 0674-2471574, E-mail : emails@ssevenironics.com

Date: 02.08.2016

Ref No: SSE/16/R-1127

## AMBIENT AIR QUALITY RESULTS

Name of the Industry

: FAP JODA - Tata Steel Ltd.

Name of the Sampling Location : Near GATE No-2

Date	Time weighted Average	PM <sub>10</sub> (Particulate Matter size <10µm) µg/m <sup>3</sup>	PM <sub>2.5</sub> (Particulate Matter size <2.5µm) µg/m <sup>3</sup>	SO <sub>2</sub> Sulphur Dioxide µg/m <sup>3</sup>	NO <sub>x</sub> Oxides of Nitrogen µg/m <sup>3</sup>	CO Carbon monoxide mg/m <sup>3</sup>	O <sub>3</sub> Ozone µg/m <sup>3</sup>	Pb Lead µg/m <sup>3</sup>	NH <sub>3</sub> Ammonia µg/m <sup>3</sup>	C <sub>6</sub> H <sub>6</sub> Benzene µg/m <sup>3</sup>	Benz(a) Pyrene ng/m <sup>3</sup>	As Arsenic ng/m <sup>3</sup>	Ni Nickel ng/m <sup>3</sup>
04.07.2016	24hrly	44.00	26.90	BDL	11.00	0.12	BDL	BDL	BDL	0.68	BDL	BDL	BDL
07.07.2016	24hrly	31.00	17.70	BDL	10.70	0.13	BDL	BDL	BDL	0.57	BDL	BDL	BDL
11.07.2016	24hrly	37.00	21.50	BDL	9.90	0.11	BDL	BDL	BDL	0.60	BDL	BDL	BDL
15.07.2016	24hrly	29.00	17.30	BDL	9.20	BDL	BDL	BDL	BDL	0.53	BDL	BDL	BDL
18.07.2016	24hrly	38.00	22.40	BDL	9.70	0.12	BDL	BDL	BDL	0.66	BDL	BDL	BDL
21.07.2016	24hrly	44.00	25.70	BDL	10.90	0.12	BDL	BDL	BDL	0.53	BDL	BDL	BDL
25.07.2016	24hrly	31.00	18.20	BDL	9.60	BDL	BDL	BDL	BDL	0.71	BDL	BDL	BDL
28.07.2016	24hrly	53.00	29.80	4.40	11.80	0.16	5.90	BDL	BDL	0.61	BDL	BDL	BDL
Monthly Average		38.67	22.60	4.04	10.33	0.12	5.10	BDL	400	0.61	BDL	BDL	BDL
CPCB Standard	24hrly	100	60	80	80	4 (1 hr)	180 (1hr)	1.0	400	...	...	...	...
Method of Analysis & Code of Method		Gravimetric Method IS: 5182,Part-23	Gravimetric Method IS: 5182,Part-23	Improved West-Gaeke Method IS: 5182,Part-2	Modified Jacob & Hochheiser (Na. Arsenite) IS: 5182 Part-6	Non Dispersive Infrared Spectroscopy (NDIR) IS 5182 Part-10	1. Chemiluminescence 2. Chemical Method IS: 5182 Part-9	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. IS: 5182 Part-22	1. Chemiluminescence 2. Indophenol Blue Method APHA-401	Gas Chromatography IS: 5182 Part-11	Solvent extraction followed by GC analysis IS: 5182 Part-12	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2

BDL Values: PM<sub>10</sub> :- 5 µg/m<sup>3</sup>; PM<sub>2.5</sub> :- 2.0 µg/m<sup>3</sup>; SO<sub>2</sub> :- 4 µg/m<sup>3</sup>; NO<sub>x</sub> :- 9 µg/m<sup>3</sup>; CO :- 0.1 mg/m<sup>3</sup>; Ozone :- 5 µg/m<sup>3</sup>; Ni :- 0.05 ng/m<sup>3</sup>; Pb :- 0.00005 µg/m<sup>3</sup>; As :- 0.05 ng/m<sup>3</sup>; NH<sub>3</sub> :- 20 µg/m<sup>3</sup>; B(a)P :- 2 ng/m<sup>3</sup>; Benzene :- 0.1 µg/m<sup>3</sup>

FOR S.S. Environics (India) Pvt. Ltd.  
 S.S. Environics (India) Pvt. Ltd.  
 Khurda, Bhubaneswar, Odisha

A Group concerned with Environmental Pollution



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

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

Plot No-361/2314 "Sustenance Tower"  
 At: Patrapada, P.O: Dumuduma, Dist: Khurda, Bhubaneswar-751 019, Odisha  
 Tele Fax: 0674-2471574, E-mail : emails@ssevenironics.com

Date: 02.08.2016

Ref No: SSE/16/R-1128

## AMBIENT AIR QUALITY RESULTS

Name of the Industry : FAP JODA - Tata Steel Ltd.

Name of the Sampling Location : Near MAIN GATE

Date	Time weighted Average	PM <sub>10</sub> (Particulate Matter size <10µm) µg/m <sup>3</sup>	PM <sub>2.5</sub> (Particulate Matter size <2.5µm) µg/m <sup>3</sup>	SO <sub>2</sub> Sulfur Dioxide µg/m <sup>3</sup>	NO <sub>x</sub> Oxides of Nitrogen µg/m <sup>3</sup>	CO Carbon monoxide mg/m <sup>3</sup>	O <sub>3</sub> Ozone µg/m <sup>3</sup>	Pb Lead µg/m <sup>3</sup>	NH <sub>3</sub> Ammonia µg/m <sup>3</sup>	C <sub>6</sub> H <sub>6</sub> Benzene µg/m <sup>3</sup>	Benz(a) Pyrene ng/m <sup>3</sup>	As Arsenic ng/m <sup>3</sup>	Ni Nickel ng/m <sup>3</sup>
04.07.2016	24hrly	49.00	28.60	4.40	11.50	0.14	BDL	BDL	BDL	0.74	BDL	BDL	BDL
07.07.2016	24hrly	39.00	23.40	BDL	11.10	0.15	BDL	BDL	BDL	0.61	BDL	BDL	BDL
11.07.2016	24hrly	40.00	23.40	BDL	10.40	0.13	BDL	BDL	BDL	0.65	BDL	BDL	BDL
15.07.2016	24hrly	34.00	18.20	BDL	9.70	0.11	BDL	BDL	BDL	0.57	BDL	BDL	BDL
18.07.2016	24hrly	42.00	25.60	BDL	10.50	0.13	BDL	BDL	BDL	0.66	BDL	BDL	BDL
21.07.2016	24hrly	48.00	27.90	4.40	11.30	0.14	5.50	BDL	BDL	0.71	BDL	BDL	BDL
25.07.2016	24hrly	37.00	21.20	BDL	10.10	0.12	BDL	BDL	BDL	0.59	BDL	BDL	BDL
28.07.2016	24hrly	56.00	31.40	4.90	12.20	0.19	6.40	BDL	BDL	0.78	BDL	BDL	BDL
Monthly Average		43.33	25.26	4.23	10.86	0.14	5.23	BDL	BDL	0.67	BDL	BDL	BDL
CPCB Standard	24hrly	100	60	80	80	4 (1 hr)	180 (1hr)	1.0	400	...	...	...	...
Method of Analysis & Code of Method		Gravimetric Method IS: 5182,Part-23	Gravimetric Method IS: 5182,Part-23	Improved West-Gaeke Method IS: 5182,Part-2	Modified Jacob & Hochheiser (Na. Arsenite) IS: 5182 Part-6	Non Dispersive Infrared Spectroscopy (NDIR) IS 5182 Part-10	1. Chemiluminescence 2. Chemical Method IS: 5182 Part-9	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. IS: 5182 Part-22	1. Chemiluminescence 2. Indophenol Blue Method APHA-401	Gas Chromatography IS: 5182 Part-11	Solvent extraction followed by GC analysis IS: 5182 Part-12	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2

BDL Values: PM-10 :- 5 µg/m<sup>3</sup>; PM-2.5:- 2.0 µg/m<sup>3</sup>; SO<sub>2</sub> :- 4 µg/m<sup>3</sup>; NO<sub>x</sub>:- 9µg/m<sup>3</sup>; CO:- 0.1 mg/m<sup>3</sup>; Ozone:- 5µg/m<sup>3</sup>; Ni :- 0.05 ng/m<sup>3</sup>; Pb:- 0.00005 µg/m<sup>3</sup>; As :- 0.05ng/m<sup>3</sup>; NH<sub>3</sub>:- 20µm<sup>3</sup>; B(a)P :- 2 ng/m<sup>3</sup>; Benzene:- 0.1 µg/m<sup>3</sup>



FOR S.S. ENVIRONICS (INDIA) PVT. LTD

*A Group concerned with Environmental Pollution*





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

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

Plot No-361/2314 "Sustenance Tower"

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

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Ref No: SSE/16/R-1129

Date: 02. 08. 2016

## AMBIENT AIR QUALITY RESULTS

Name of the Industry

: FAP JODA - Tata Steel Ltd.

Name of the Sampling Location : Ore Stack Yard Area (Near Well Pump)

Date	Time weighted Average	PM <sub>10</sub> (Particulate Matter size <10µm) µg/m <sup>3</sup>	PM <sub>2.5</sub> (Particulate Matter size <2.5µm) µg/m <sup>3</sup>	SO <sub>2</sub> Sulphur Dioxide µg/m <sup>3</sup>	NO <sub>x</sub> Oxides of Nitrogen µg/m <sup>3</sup>	CO Carbon monoxide mg/m <sup>3</sup>	O <sub>3</sub> Ozone µg/m <sup>3</sup>	Pb Lead µg/m <sup>3</sup>	NH <sub>3</sub> Ammonia µg/m <sup>3</sup>	C <sub>6</sub> H <sub>6</sub> Benzene µg/m <sup>3</sup>	Benzo(a) Pyrene ng/m <sup>3</sup>	As Arsenic ng/m <sup>3</sup>	Ni Nickel ng/m <sup>3</sup>
04.07.2016	24hrly	38.00	22.40	BDL	10.80	0.11	BDL	BDL	BDL	0.62	BDL	BDL	BDL
07.07.2016	24hrly	27.00	16.90	BDL	10.20	0.12	BDL	BDL	BDL	0.49	BDL	BDL	BDL
11.07.2016	24hrly	33.00	19.20	BDL	9.60	BDL	BDL	BDL	BDL	0.57	BDL	BDL	BDL
15.07.2016	24hrly	26.00	16.80	BDL	BDL	BDL	BDL	BDL	BDL	0.46	BDL	BDL	BDL
18.07.2016	24hrly	34.00	19.70	BDL	9.30	0.11	BDL	BDL	BDL	0.55	BDL	BDL	BDL
21.07.2016	24hrly	41.00	24.30	BDL	10.40	BDL	BDL	BDL	BDL	0.62	BDL	BDL	BDL
25.07.2016	24hrly	25.00	14.90	BDL	9.20	BDL	BDL	BDL	BDL	0.49	BDL	BDL	BDL
28.07.2016	24hrly	49.00	28.60	BDL	11.40	0.13	5.40	BDL	BDL	0.65	BDL	BDL	BDL
Monthly Average		34.33	20.46	BDL	9.97	0.11	5.04	BDL	BDL	0.56	BDL	BDL	BDL
CPCB Standard	24hrly	100	60	80	80	4 (1 hr)	180 (1hr)	1.0	400	...	...	...	...
Method of Analysis & Code of Method		Gravimetric Method IS: 5182,Part-23	Gravimetric Method IS: 5182,Part-23	Improved West-Gaeke Method IS: 5182,Part-2	Modified Jacob & Hochheiser (Na. Arsenite) IS: 5182 Part-6	Non Dispersive Infrared Spectroscopy (NDIR) IS 5182 Part-10	1. Chemiluminescence 2. Chemical Method IS: 5182 Part-9	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. IS: 5182 Part-22	1. Chemiluminescence 2. Indophenol Blue Method APHA-401	Gas Chromatography IS: 5182 Part-11	Solvent extraction followed by GC analysis IS: 5182 Part-12	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2	AAS/ICP Method After Sampling on EPM 2000 or Equivalent Filter Paper. USEPA/IO3.2

BDL Values: PM-10:- 5 µg/m<sup>3</sup>; PM-2.5:- 2.0 µg/m<sup>3</sup>; SO<sub>2</sub>:- 4 µg/m<sup>3</sup>; NO<sub>x</sub>:- 9µg/m<sup>3</sup>; CO:-0.1 mg/m<sup>3</sup>; Ozone:- 5µg/m<sup>3</sup>; Ni:- 0.05 ng/m<sup>3</sup>; Pb:- 0.00005 µg/m<sup>3</sup>; As:- 0.05ng/m<sup>3</sup>; NH<sub>3</sub>:- 20µm<sup>3</sup>; B(a)P:- 2 ng/m<sup>3</sup>; Benzene:- 0.1 µg/m<sup>3</sup>



FOR S.S. ENVIROINCS (INDIA) PVT. LTD

A Group concerned with Environmental Pollution

# Mitra S. K. Private Limited

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Ref. No: BBL/ENV/1629

DATE: 02/09/2016

## AMBIENT AIR QUALITY MONITORING REPORT

Name of Client : TATA Steel Ltd.  
Address : FAP Joda Plant  
Location : Near Main Gate

### Concentration of Pollutants

Sl. No.	Date of Monitoring	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )	Benzene (µg/m <sup>3</sup> )	Benzo(a) pyrene (ng/m <sup>3</sup> )
1	05/06.08.2016	34	16	4.5	16.3	10.5	<19.62	0.14	<0.02	<4.0	<1.0	<2.08	<0.4
2	07/08.08.2016	41	19	4.0	14.2	<10.0	<19.62	0.10	<0.02	<4.0	<1.0	<2.08	<0.4
3	09/10.08.2016	39	18	5.7	21.6	<10.0	<19.62	0.13	<0.02	<4.0	<1.0	<2.08	<0.4
4	12/13.08.2016	37	17	5.6	25.3	12.7	<19.62	0.12	<0.02	<4.0	<1.0	<2.08	<0.4
5	15/16.08.2016	48	22	5.7	21.3	11.3	<19.62	0.15	0.02	<4.0	<1.0	<2.08	<0.4
6	18/19.08.2016	32	15	6.2	24.8	12.4	<19.62	0.11	<0.02	<4.0	<1.0	<2.08	<0.4
7	22/23.08.2016	55	25	5.1	22.7	<10.0	<19.62	0.19	0.02	<4.0	<1.0	<2.08	<0.4
8	25/26.08.2016	59	27	5.5	23.9	11.6	<19.62	0.21	0.02	<4.0	<1.0	<2.08	<0.4
9	29/30.08.2016	64	32	5.9	25.8	12.1	<19.62	0.23	0.03	<4.0	<1.0	<2.08	<0.4
	Avg. Monthly	45.4	21.2	5.4	21.8	11.8	19.62	0.2	0.0	4.0	1.0	2.1	0.4
	Limit as per CPCB notification, New Delhi, 18th Nov, 2009, for Ambient air quality	100	60	80	80	400	180	2	1	20	6	5	1

Checked by:-

*(Signature)*

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For Mitra S. K. Private Limited  
Authorised Signatory



# Mitra S. K. Private Limited

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Ref. No. BBL/ENV/1630

Name of Client : TATA Steel Ltd.  
Address : FAP Joda Plant  
Location : Ore Stack Yard Area (Near Well Pump)

## AMBIENT AIR QUALITY MONITORING REPORT

DATE: 02/09/2016

### Concentration of Pollutants

Sl. No.	Date of Monitoring	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )	Benzene (µg/m <sup>3</sup> )	Benzol(a) pyrene (ng/m <sup>3</sup> )
1	05/06/08, 2016	44	20	4.7	18.6	11.2	<19.62	0.19	0.08	<4.0	<1.0	<2.08	<0.4
2	07/08/08, 2016	47	23	4.4	14.5	10.5	<19.62	0.15	0.06	<4.0	<1.0	<2.08	<0.4
3	09/10/08, 2016	52	26	4.6	21.5	11.5	<19.62	0.21	0.03	7.4	<1.0	<2.08	<0.4
4	12/13/08, 2016	49	25	4.7	22.4	10.8	24.7	0.19	0.02	6.2	<1.0	<2.08	<0.4
5	15/16/08, 2016	58	29	5.7	21.6	11.4	22.8	0.21	0.02	5.4	<1.0	<2.08	<0.4
6	18/19/08, 2016	43	19	5.5	24.3	14.6	26.7	0.28	0.03	<4.0	<1.0	<2.08	<0.4
7	22/23/08, 2016	55	28	5.7	20.7	10.9	<19.62	0.29	0.09	6.3	<1.0	<2.08	<0.4
8	25/26/08, 2016	62	30	5.2	19.6	10.5	<19.62	0.17	0.05	5.7	<1.0	<2.08	<0.4
9	29/30/08, 2016	72	34	5.9	21.5	11.3	21.6	0.20	0.07	6.9	<1.0	<2.08	<0.4
	Avg. Monthly	53.6	26.0	5.2	20.5	11.4	24.0	0.2	0.1	6.3	1.0	2.1	0.4
	Limit as per CPCB notification, New Delhi, 18th Nov, 2009, for Ambient air quality	100	60	80	80	400	180	2	1	20	6	5	1
	Sampling and Analysis done according to	IS 5182: Part 23:2006 (Reaff. 2012)	TPM/MSK/E/S/CB ased on USEPA CFR 40, Part 50 Appendix I, 2016	IS 5182: Part 2:2001 (Reaff.2012)	IS 5182: Part 6:2006 (Reaff.2012)	Method of Air sampling, 3rd Edn. By James P. Lodge (Method-401)	Method of Air sampling, 3rd Edn. By James P. Lodge (Method-411)	IS 5182: Part 10-1:1999 (Reaff.2014) (NDR)	EPA-103.2 June, 1999	EPA-103.2- June, 1999	Lab Sop No. TPM/MSK/E/ 4/L Bassed on APHA 22nd Edition, 2012, 3114 C	IS:5182(Part-11)-2006 Reaff.2012	IS:5182(Part-1-12):2004 Reaff. 2014

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For Mitra S. K. Private Limited  
Authorised Signatory



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Ref. No. BBL/ENV/1631

DATE: 02/09/2016

## AMBIENT AIR QUALITY MONITORING REPORT

Name of Client : TATA Steel Ltd.  
 Address : FAP Joda Plant  
 Location : Near Gate No-2

Sl. No.	Date of Monitoring	Concentration of Pollutants											
		PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )	Ni (µg/m <sup>3</sup> )	As (µg/m <sup>3</sup> )	Benzene (µg/m <sup>3</sup> )	Benzof(a) pyrene (µg/m <sup>3</sup> )
1	05/06/08.2016	46	22	4.3	17.5	10.8	23.5	0.22	0.03	5.5	<1.0	<2.08	<0.4
2	07/08.08.2016	33	15	4.0	14.8	<10.0	<19.62	0.15	0.03	<4.0	<1.0	<2.08	<0.4
3	09/10.08.2016	37	18	5.6	23.5	11.8	25.7	0.28	0.03	5.0	<1.0	<2.08	<0.4
4	12/13.08.2016	60	31	4.6	19.5	10.7	22.4	0.17	0.02	4.7	<1.0	<2.08	<0.4
5	15/16.08.2016	49	23	5.2	22.5	11.2	21.4	0.26	0.02	5.3	<1.0	<2.08	<0.4
6	18/19.08.2016	52	27	5.6	24.3	13.5	23.5	0.32	0.03	6.8	<1.0	<2.08	<0.4
7	22/23.08.2016	57	29	4.9	21.7	<10.0	<19.62	0.18	0.02	<4.0	<1.0	<2.08	<0.4
8	25/26.08.2016	63	31	5.2	22.6	<10.0	<19.62	0.20	0.05	5.3	<1.0	<2.08	<0.4
9	29/30.08.2016	68	35	5.9	23.5	10.7	<19.62	0.25	0.08	6.2	<1.0	<2.08	<0.4
	Avg. Monthly	51.7	25.7	5.0	21.1	11.5	23.3	0.2	0.0	5.5	#DIV/0!	#DIV/0!	<0.4
Limit as per CPCB notification, New Delhi, 18th Nov, 2009, for Ambient air quality		100	60	80	80	400	180	2	1	20	6	5	1
Sampling and Analysis done according to		IS 5182: Part 23:2006 (Reaff. 2012)	Lab Sop No. TPM/MSK/E/S/CB based on USEPA CFR 40, Part 50 Appendix L, 2016	IS 5182: Part 2:2001 (Reaff.2012)	IS 5182: Part 6:2006 (Reaff.2012)	Method of Air sampling, 3rd Edn. By James P. Lodge (Method-401)	Method of Air sampling, 3rd Edn. By James P. Lodge (Method-411)	IS 5182: Part 10:1999 (Reaff.2014) (NDIR)	EPA-103.2 June,1999	EPA-103.2 June,1999	Lab Sop No.TPM/MSK/E/4/L Based on APHA 22nd Edition 2012, 3114 C	IS:5182/Part-11):2006 Reaff.2012	IS:5182/Part-12):2004 Reaff. 2014

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Ref. No. BBL/ENV/1632

DATE: 02/09/2016

## AMBIENT AIR QUALITY MONITORING REPORT

Name of Client : TATA Steel Ltd.  
Address : FAP Joda Plant  
Location : Near 132 KV

### Concentration of Pollutants

Sl. No.	Date of Monitoring	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )	Benzene (µg/m <sup>3</sup> )	Benzo(a) pyrene (ng/m <sup>3</sup> )
1	05/06.08.2016	36	16	5.2	19.6	<10.0	<19.62	0.11	<0.02	<4.0	<1.0	<2.08	<0.4
2	07/08.08.2016	41	20	5.9	22.7	<10.0	<19.62	0.13	<0.02	<4.0	<1.0	<2.08	<0.4
3	09/10.08.2016	46	22	5.8	27.6	12.4	<19.62	0.14	0.03	<4.0	<1.0	<2.08	<0.4
4	12/13.08.2016	42	21	5.4	21.5	11.4	<19.62	0.16	0.03	<4.0	<1.0	<2.08	<0.4
5	15/16.08.2016	48	23	4.0	17.6	11.2	<19.62	0.21	<0.02	<4.0	<1.0	<2.08	<0.4
6	18/19.08.2016	39	17	5.3	22.5	12.5	<19.62	0.14	0.03	<4.0	<1.0	<2.08	<0.4
7	22/23.08.2016	52	26	4.9	20.6	<10.0	<19.62	0.15	<0.02	<4.0	<1.0	<2.08	<0.4
8	25/26.08.2016	62	31	5.8	23.6	<10.0	22.6	0.19	<0.02	6.1	<1.0	<2.08	<0.4
9	29/30.08.2016	59	29	5.5	21.5	10.6	25.6	0.20	<0.02	<4.0	<1.0	<2.08	<0.4
	Avg. Monthly	47.2	22.8	5.3	21.9	11.6	24.1	0.2	0.0	6.1	1.0	2.1	0.4
	Limit as per CPCB notification, New Delhi, 18th Nov, 2009, for Ambient air quality	100	60	80	80	400	180	2	1	20	6	5	1

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For Mitra S. K. Private Limited  
Authorised Signatory

## Annexure- II

### Stack Emission Monitoring Report from 01-04-2016 To 30-09-2016



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

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

Plot No-361/2314 "Sustenance Tower"  
At: Patrapada, P.O: Dumuduma, Dist: Khurda, Bhubaneswar-751 019, Odisha  
Tele Fax: 0674-2471574, E-mail : emails@ssenvironics.com

RefNo: SSE/16/R-0140

Date: 04. 04. 2016

### **STACK EMISSION MONITORING REPORT** For the Month of March 2016

1. Name of the Industry : Ferro Alloys Plant-Joda, Tata Steel Ltd.
2. Date of Monitoring : 21.03.2016
3. Date of Analysis : 23.03.2016
4. Time of Monitoring :
  1. Furnace – I
  2. Furnace – II

Parameters	Method of Testing	Stack Connected to Reduction Arc Furnace – I	Stack Connected to Reduction Arc Furnace – II
Flue gas Temperature °C	CPCB Guidelines	59	60
Average Velocity mtr/sec	CPCB Guidelines	9.1	8.7
Average Sampling flow rate ltr/min	CPCB Guidelines	14	14
Particulate Matter (PM) in mg/Nm <sup>3</sup>	IS: 11255, Part-1	29	32
Sulfur dioxide (SO <sub>2</sub> ) mg/Nm <sup>3</sup>	IS: 11255, PART-2	13.4	15.8
Oxides Nitrogen (NOx) mg/Nm <sup>3</sup>	IS: 11255, PART-7	13.7	16.2

N.B: Permissible Limit for Particulate Matter is 100mg/Nm<sup>3</sup>.



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

*A Group concerned with Environmental Pollution*



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

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

Plot No-361/2314 "Sustenance Tower"  
At: Patrapada, P.O: Dumuduma, Dist: Khurda, Bhubaneswar-751 019, Odisha  
Tele Fax: 0674-2471574, E-mail : emails@ssevironics.com

Ref No: SSE/16/R-0375

Date: 03.05.2016

## STACK EMISSION MONITORING REPORT

For the Month of April 2016

1. Name of the Industry : Ferro Alloys Plant-Joda, Tata Steel Ltd.
2. Date of Monitoring : 30.04.2016
3. Date of Analysis : 02.05.2016
4. Time of Monitoring :
  1. Furnace - I
  2. Furnace - II

Parameters	Method of Testing	Stack Connected to Reduction Arc Furnace - I	Stack Connected to Reduction Arc Furnace - II
Flue gas Temperature °C	CPCB Guidelines	55	59
Average Velocity mtr/sec	CPCB Guidelines	10.9	11.2
Average Sampling flow rate ltr/min	CPCB Guidelines	15	15
Particulate Matter (PM) in mg/Nm <sup>3</sup>	IS: 11255, Part-1	39	47
Sulfur dioxide (SO <sub>2</sub> ) mg/Nm <sup>3</sup>	IS: 11255, PART-2	12.4	13.1
Oxides Nitrogen (NO <sub>x</sub> ) mg/Nm <sup>3</sup>	IS: 11255, PART-7	14.2	16.3

N.B: Permissible Limit for Particulate Matter is 100mg/Nm<sup>3</sup>.



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

*A Group concerned with Environmental Pollution*



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

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

Plot No-361/2314 "Sustenance Tower"  
At: Patrapada, P.O: Dumuduma, Dist: Khurda, Bhubaneswar-751 019, Odisha  
Tele Fax: 0674-2471574, E-mail : emails@ssevironics.com

Ref No: SSE/16/R-0647

Date: 03.06.2016

## STACK EMISSION MONITORING REPORT

For the Month of May 2016

1. Name of the Industry : Ferro Alloys Plant-Joda, Tata Steel Ltd.
2. Date of Monitoring : 31.05.2016
3. Date of Analysis : 02.06.2016
4. Time of Monitoring :
  1. Furnace - I
  2. Furnace - II

Parameters	Method of Testing	Stack Connected to Reduction Arc Furnace - I	Stack Connected to Reduction Arc Furnace - II
Flue gas Temperature °C	CPCB Guidelines	61	58
Average Velocity mtr/sec	CPCB Guidelines	9.6	10.4
Average Sampling flow rate ltr/min	CPCB Guidelines	14	14
Particulate Matter (PM) in mg/Nm <sup>3</sup>	IS: 11255, Part-1	33	42
Sulfur dioxide (SO <sub>2</sub> ) mg/Nm <sup>3</sup>	IS: 11255, PART-2	11.6	12.2
Oxides Nitrogen (NO <sub>x</sub> ) mg/Nm <sup>3</sup>	IS: 11255, PART-7	13.4	15.5

N.B: Permissible Limit for Particulate Matter is 100mg/Nm<sup>3</sup>.



*A Group concerned with Environmental Pollution*





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

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

Plot No-361/2314 "Sustenance Tower"

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

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

Ref No: SSE/16/R-0952

Date: 04.07.2016

## STACK EMISSION MONITORING REPORT

For the Month of June 2016

1. Name of the Industry : Ferro Alloys Plant-Joda, Tata Steel Ltd.  
2. Date of Monitoring : 27.06.2016  
3. Date of Analysis : 30.06.2016  
4. Time of Monitoring : 1. Furnace – I  
2. Furnace – II

Parameters	Method of Testing	Stack Connected to Reduction Arc Furnace – I	Stack Connected to Reduction Arc Furnace – II
Flue gas Temperature °C	CPCB Guidelines	56	59
Average Velocity mtr/sec	CPCB Guidelines	10.2	11.1
Average Sampling flow rate ltr/min	CPCB Guidelines	15	15
Particulate Matter (PM) in mg/Nm <sup>3</sup>	IS: 11255, Part-1	29	37
Sulfur dioxide (SO <sub>2</sub> ) mg/Nm <sup>3</sup>	IS: 11255, PART-2	12.8	14.1
Oxides Nitrogen (NO <sub>x</sub> ) mg/Nm <sup>3</sup>	IS: 11255, PART-7	16.3	18.4

N.B: Permissible Limit for Particulate Matter is 100mg/Nm<sup>3</sup>.



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

*A Group concerned with Environmental Pollution*



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

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

Plot No-361/2314 "Sustenance Tower"

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

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

Ref No: SSE/16/R-1132

Date: 02. 08. 2016

## STACK EMISSION MONITORING REPORT

For the Month of July 2016

1. Name of the Industry : Ferro Alloys Plant-Joda, Tata Steel Ltd.
2. Date of Monitoring : 28.07.2016
3. Date of Analysis : 30.07.2016
4. Time of Monitoring :
  1. Furnace – I
  2. Furnace – II

Parameters	Method of Testing	Stack Connected to Reduction Arc Furnace – I	Stack Connected to Reduction Arc Furnace – II
Flue gas Temperature °C	CPCB Guidelines	63	61
Average Velocity mtr/sec	CPCB Guidelines	11.8	10.6
Average Sampling flow rate ltr/min	CPCB Guidelines	15	15
Particulate Matter (PM) in mg/Nm <sup>3</sup>	IS: 11255, Part-1	41	33
Sulfur dioxide (SO <sub>2</sub> ) mg/Nm <sup>3</sup>	IS: 11255, PART-2	13.2	11.9
Oxides Nitrogen (NOx) mg/Nm <sup>3</sup>	IS: 11255, PART-7	17.8	15.1

N.B: Permissible Limit for Particulate Matter is 100mg/Nm<sup>3</sup>.

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

*A Group concerned with Environmental Pollution*

## Mitra S. K. Private Limited

At/P.O.: BARBIL Ward No-6  
Dist.: Keonjhar, Odisha - 758035  
CIN: U51909WB1956PTC023037

T : +91 94370 09815,94370 09820,94370 75269  
E : barbil@mitrask.co.in  
W : www.mitrask.com



Ref. No. BBL/ENV/1627

DATE:30/08/2016

### ANALYSIS REPORT OF FLUE GAS

Name of the industry: Ferro Alloys Plant - Joda. Tata Steel Ltd

Date of Monitoring : 25.08.2016

Date of Analysis : 27.08.2016

Stack Connected | Reduction Arc Furnace - I & II

Sl.No.	Parameters	Method of Testing	Furnace - I	Furnace - II
1.	Temperature of emission (°C)	USEPA Part 2 - 25/09/1996	62	67
2.	Velocity of gas (m/sec.)	USEPA Part 2 - 25/09/1996	15.53	18.44
3.	Concentration of Sulphur dioxide (mg/Nm <sup>3</sup> )	USEPA Part 6 - 25/09/1996	173.2	196.9
4.	Concentration of Nitrogen dioxide (mg/Nm <sup>3</sup> )	USEPA Part 7 , Issue dt. 12/03/1996	102.5	114.4
5.	Concentration of particulate Matters (mg/Nm <sup>3</sup> )	USEPA Part 5 - 16/08/1996	34	38

Checked by :

For Mitra S.K. Private Limited

Authorised Signatory



### Annexure-III



Mobile High Velocity Water Sprinkler cum Mist Canon



Dry Fogging System for Fugitive dust suppression



## Annexure-IV

### Fume Extraction System



Fume Extraction System For existing Plant

**Annexure - V**



**Sewage Treatment Plant Installed at FAP, Joda**

## Annexure - VI

### Ground water Analysis Report



**S.S. Environics (India) Pvt. Ltd.**  
(An ISO 9001:2008, 14001:2004 and OHSAS 18001:2007 Certified Company)

Plot No-361/2314 "Sustenance Tower"  
At: Patrapada, P.O: Dumuduma, Dist: Khurda, Bhubaneswar-751 019, Odisha  
Tele Fax: 0674-2471574, E-mail : emails@ssenvironics.com

Date: 04.04.2016

Ref No.: SSE/15/R-0141

#### GROUND WATER QUALITY ANALYSIS REPORT

Name of the Industry : FAP Joda, Tata Steel Ltd.  
Sample collected by : M/s. S.S Environics (I) Pvt. Ltd  
Sampling location : TW1- Test well at Upstream of Sludge pit  
: TW2- Test well at Downstream of Sludge pit  
Date of Sampling : 21.03.2016  
Date of Analysis : 23.03.2016

Sl No.	Parameter	Unit	Standard as per IS-10500	Analysis Results	
				TW1	TW2
1	Calcium (as Ca)	mg/l	75	10.3	10.7
2	Magnesium (as Mg)	mg/l	-	7.4	7.8
3	Manganese (as Mn)	mg/l	0.1	0.019	0.023



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

*A Group concerned with Environmental Pollution*





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

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

Plot No-361/2314 "Sustenance Tower"  
At: Patrapada, P.O: Dumuduma, Dist: Khurda, Bhubaneswar-751 019, Odisha  
Tele Fax: 0674-2471574, E-mail : emails@ssenvironics.com

Date: 04.05.2016

Ref No: SSE/16/R-0421

## Ground Water Quality Report April-2016

Name of the Industry : FAP-Joda, Tata Steel Ltd.  
Location of the Sample : GW1: Bore well near canteen  
: GW2: Borewell near DG room  
Date of Sampling : 26.04.2016  
Date of Analysis : 28.04.2016 to 02.05.2016

Sl.No	Parameter	Standard as per IS: 10500	Sampling location	
			GW1	GW2
1	Colour	5	CL	CL
2	Odour	U/O	U/O	U/O
3	Taste	Agreeable	AL	AL
4	Turbidity (NTU)	<1	0.68	0.74
5	pH Value	6.5-8.5	7.3	7.2
6	Total Hardness (as CaCO <sub>3</sub> ), mg/l, max	300	55	58
7	Iron (as Fe), mg/l	0.3	0.13	0.12
8	Chloride (as Cl), mg/l	250	10.2	9.5
9	Residual, free Chlorine, mg/l	0.2	ND	ND
10	Dissolved Solids, mg/l	500	131	123
11	Calcium (as Ca), mg/l	75	9.9	9.4
12	Copper (as Cu), mg/l	0.05	BDL	BDL
13	Manganese (as Mn), mg/l	0.1	BDL	BDL
14	Sulphate (as SO <sub>4</sub> ), mg/l	200	13.4	12.1
15	Nitrate (as NO <sub>3</sub> ), mg/l	45	0.19	0.15
16	Fluoride (as F), mg/l	1.0	0.05	0.05
17	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH), mg/l	0.001	BDL	BDL
18	Mercury (as Hg), mg/l	0.001	BDL	BDL
19	Cadmium (as Cd), mg/l	0.01	BDL	BDL
20	Selenium (as Se), mg/l	0.01	BDL	BDL
21	Arsenic (as As), mg/l	0.05	BDL	BDL
22	Cyanide (as CN), mg/l	0.05	BDL	BDL
23	Lead (as Pb), mg/l	0.05	BDL	BDL
24	Zinc (as Zn), mg/l	5	0.16	0.13
25	Chromium (as Cr <sup>+6</sup> ), mg/l	0.05	BDL	BDL
26	Mineral Oil, mg/l	0.01	BDL	BDL
27	Alkalinity, mg/l	200	33	27
28	Aluminium as Al, mg/l	0.03	BDL	BDL
29	Boron mg/l	1	BDL	BDL

CL - Colourless, U/O - Unobjectionable, AL - Agreeable, ND - Not detectable.  
BDL Values: Copper-0.001 mg/l, Mercury- 0.0001 mg/l, Cadmium- 0.001 mg/l, Manganese-0.001 mg/l, Selenium- 0.001 mg/l, Arsenic- 0.001 mg/l, Cyanide- 0.001 mg/l, lead-0.001 mg/l, Zinc- 0.005 mg/l, Phenolic compound-0.001mg/l, Cr+6- 0.001 mg/l, Al-0.001 m

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

*A Group concerned with Environmental Pollution*





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

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

Plot No-361/2314 "Sustenance Tower"  
At: Patrapada, P.O: Dumuduma, Dist: Khurda, Bhubaneswar-751 019, Odisha  
Tele Fax: 0674-2471574, E-mail : emails@ssenvironics.com

RefNo: SSE/16/R-0422

Date: 04.05.2016

## GROUND WATER LEVEL MONITORING REPORT

Name of the Mines : FAP-Joda, Tata Steel Ltd.

Date of Monitoring : 26.04.2016

Sl.No.	Name of the Location	Water Level in mtrs
1	Bore well near Canteen	5.1
2	Borewell Near DG room (Near Pump House)	6.3

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

*A Group concerned with Environmental Pollution*



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

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

Plot No-361/2314 "Sustenance Tower"  
At: Patrapada, P.O: Dumuduma, Dist: Khurda, Bhubaneswar-751 019, Odisha  
Tele Fax: 0674-2471574, E-mail : emails@ssevironics.com

Ref No.: SSE/16/R-1003

Date: 04.07.2016

## GROUND WATER QUALITY ANALYSIS REPORT

Name of the Industry : FAP Joda, Tata Steel Ltd.  
Sample collected by : M/s. S.S Environics (I) Pvt. Ltd  
Sampling location : TW1- Test well at Upstream of Sludge pit  
: TW2- Test well at Downstream of Sludge pit  
Date of Sampling : 10.06.2016  
Date of Analysis : 12.06.2016

Sl No.	Parameter	Unit	Standard as per IS-10500	Analysis Results	
				TW1	TW2
1	Calcium (as Ca)	mg/l	75	9.4	9.9
2	Magnesium (as Mg)	mg/l	-	6.7	7.1
3	Manganese (as Mn)	mg/l	0.1	0.014	0.018



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

*A Group concerned with Environmental Pollution*

**Annexure - VII**  
**Risk & Disaster Mitigation Plan submission covering Letter**



Ref. No. FAPJ/ 4251 /2016 Dated : 01.02.2016

To  
The Chairman  
Orissa Pollution Control Board  
Paribesh Bhawan  
A/118, Nilkantha Nagar  
Unit-VIII, Bhubaneswar - 751012

Sub : Submission of Risk & Disaster Management Plan along with the mitigation measures for expansion of Ferro Manganese Plant, Joda.

Sir,

It may kindly be aware that with reference to Environment Clearance issued for expansion of Ferro Manganese Plant, Joda, vide F. No. J-11011/03/2012-LA.II (I) dated 5<sup>th</sup> November, 2015, there is a specific condition mentioned in clause (xi) for submission of Risk & Disaster Management Plan along with the mitigation measures.

As such, we hereby enclose the Risk & Disaster Management Plan along with the mitigation measures for expansion of Ferro Manganese Plant from 0.0504 MTPA to 0.06 MTPA, Silico Manganese Plant of 0.06 MTPA and Manganese Sinter Plant of 0.05 MTPA.

Thanking you,

Yours faithfully,  
For TATA STEEL Ltd.

  
HEAD  
FERRO ALLOYS PLANT, JODA

Encl : as above.

*Received  
By 24/2/16*



**TATA STEEL LIMITED**  
FerroAlloys Plant, Joda-758034, Dist. Keonjhar, Odisha, India  
Tel. : 06728100843, e-mail : head@fapj.tata@steelindia.com  
Registered Office : Bombay House, 24, High Street, Fort, Mumbai-400021, India  
Tel. 91 22 66582382, Fax 91 22 66587724  
Corporate Identity Number: L27105MN1907PL000250, Website: www.tatasteel.com

**Risk & Disaster Management Plan Submitted to OSCPCB, Bhubaneswar**



**Risk & Disaster Management Plan Submitted to MOEF, Regional Office, Bhubaneswar**



Ref. No. FAPJ/ 4250 /2016

Dated : 01.02.2016

To  
The Additional Principal Chief Conservator of Forests(C)  
Ministry of Environment & Forests  
Regional office (EZ)  
A/3, Chandersekharpur,  
Bhubaneswar - 751023

Sub : Submission of Risk & Disaster Management Plan along with the mitigation measures  
for expansion of Ferro Manganese Plant, Joda.

Sir,

It may kindly be aware that with reference to Environment Clearance issued for expansion of Ferro Manganese Plant, Joda, vide F. No. J-11011/03/2012-IA.II (I) dated 5<sup>th</sup> November, 2015, there is a specific condition mentioned in clause (xi) for submission of Risk & Disaster Management Plan along with the mitigation measures.

As such, we hereby enclose the Risk & Disaster Management Plan along with the mitigation measures for expansion of Ferro Manganese Plant from 0.0504 MTPA to 0.06 MTPA, Silico Manganese Plant of 0.06 MTPA and Manganese Sinter Plant of 0.05 MTPA.

Thanking you,

Yours faithfully,  
For TATA STEEL Ltd.

HEAD  
FERRO ALLOYS PLANT, JODA

Encl : as above.



**TATA STEEL LIMITED**

Ferro Alloys Plant, Joda-758034, Dist. Keonjhar, Odisha, India  
Tel. : 09238100945, e-mail : headoffice.fapj@tatasteel.com  
Registered Office : Bombay House, 24, Horni Mody Street, Fort, Mumbai-400001, India  
Tel. 91 22 66658282. Fax 91 22 66657724  
Corporate Identity Number L27100MH1907PLC000260, Website : www.tatasteel.com

**Annexure VIII**  
**Noise Monitoring Report from 01-04-2016 to 30-09-2016**

Mitra S. K. Private Limited



At/P.O.: BARBIL Ward No-6  
 Dist.: Keonjhar, Odisha - 758035  
 CIN: U51909WB1956PTC023037

T : +91 94370 09815, 94370 09820, 94370 75269  
 E : barbil@mitrask.co.in  
 W : www.mitrask.com

Ref. No. BBL/ENV/1744

Date: 02/11/2016

**NOISE LEVEL MONITORING REPORT**

This is to certify that a sample of "Noise Level" reading taken by our representative on 24/10/2016 at **FAP Joda Plant**; P.O: Joda, Dist: Keonjhar, Odisha in the Presence of a representative of and on account of **M/s. Tata Steel Ltd.**, has been analyzed with the following results:-

SL. NO.	Sampling Location	Results dB (A)	
		Maximum	Minimum
1.	In front of Store	62.8	49.7
2.	JCB 40X 1 mtr distance	74.0	62.1
3.	Near Weight Bridge	72.7	51.3
4.	Loader 2 mtr distance	92.3	84.1
5.	Crusher Area	89.7	81.6
6.	Near Back Gate	70.3	41.1
7.	Breaking Yard(During Work)	76.3	52.3
8.	Plot No. 4B	64.4	42.4
9.	Area Furnace Ground Floor	92.2	60.7
10.	Area Furnace Floor	94.3	67.3
11.	Pit Site Area	61.1	52.9
12.	Near Cooling Tower	78.3	62.2
13.	Pump House (Inside)	96.8	88.0
14.	Telphar Floor	79.4	57.4
15.	GCP Floor(1mtr away from blower)	79.3	71.2
16.	ACS Area	76.0	66.3
17.	CMDS Area	81.7	76.6
18.	Office Area	63.2	44.1
19.	Quality Control Analysis Lab	61.3	47.6
20.	Laboratory Crusher Room(During Work)	69.7	63.3
21.	Canteen Kitchen	64.7	42.5
22.	Near Main Gate	69.5	49.5
23.	D.G. Room	76.3	61.7
24.	Locomotive During Operation	69.7	60.5
<b>Noise Standard For Auto Mobiles, Equipment's &amp; Work Zone</b>		<b>In dBA</b>	
i.	Passenger or commercial vehicles up to 4tonns	70.6	
ii.	Passenger or commercial vehicles above 4tonns and up to 12 tons	83.7	
iii.	Passenger or commercial vehicles exceeding 12tonns	85.8	
iv.	Work Zone Standard	84.7	

Checked by:-



for Mitra S. K. Private Limited

Authorised Signatory

# Annexure IX

## Periodic Medical Examination Records

[FORM NO. 31-A]

### Health Record

Pre-Employment / Periodical

[Prescribed under Rule 62-J]



Date : 18/12/15

SI No : FJ-02

1. Name of the Factory: FAP,JODA TATA STEEL	12. Cardio Vascular System: Pulse rate : 69/min
2. Name of the Employee: SHYAM CHAMPIA	B.P: <b>160/90</b> mm of Hg Heart Sound: SIS2 NORMAL
3. Employee Distinguishing No: <b>97533</b>	ECG: NORMAL
4. Age of the employee: 60/M	Remarks if any: <b>OLD HYPERTENSION</b>
Identification Mark: SCAR MARK ON LT. CHEEK	13. Abdomen Tenderness: <b>Yes / No</b>
Nature of the job: HELPER(MAINT)	Liver: Normal / Abnormal
5. Date of Employment: 1978	Spleen: Normal / Abnormal
6. Length of the service in years: <b>37</b>	14. Nervous System: History of Fits: <b>Yes/ No</b>
7. General Survey: Health: Good / Fair / Poor	Epilepsy: <b>Yes / No</b>
Height: 162 Cms. Weight: 85 Kgs.	Remarks on Mental Health: <b>GOOD</b>
8. Blood Group: "A" Rh typing: <b>POSITIVE</b>	15. Locomotor System : Normal / Abnormal
9. Eye Vision: Normal / Abnormal	16. Skin Condition : Normal / Abnormal
Use of glass: Yes / No	Remarks on any skin disease noticed: <b>NIL</b>
10. Hearing: Normal / Abnormal	17. Hernia : Present / Absent
Audiometry: NORMAL	18. Hydrocele : Present / Absent / N/A
11. Respiratory Syatem & Chest Measurment:	19. Present Complaint if any : <b>NO</b>
Inspiration: 111 Cm. Expiration: 106 Cm.	
Respiration Rate: <b>24</b> / minute	
Chest x-Ray: <b>NORMAL</b>	
PFT: <b>NORMAL</b>	
Remarks if any: <b>NIL</b>	

20. Summary of abnormal finding:

i) Heart Disease :	<b>NO</b>
ii) Hypertension :	<b>PRESENT</b>
iii) Diabetes Mellitus :	<b>PRESENT- OLD CASE</b>
iv) T.B. :	<b>ABSENT</b>
v) Epilepsy :	<b>ABSENT</b>
vi) Poisoning :	<b>ABSENT</b>
vii) Others :	<b>NIL</b>
viii) Occupational disease(If any):	<b>NIL</b>

21. Recommendation if any : **FAT FREE SALT RESTRICTED DIET,REGULAR PHYSICAL EXERCISE,REGULAR TREATMENT AS ADVISED**  
For any further investigation:

*SHYAM CHAMPIA*

Signature of the Employee:

Signature of Medical officer :  
**DR. B. N. MOHAPATRA, MBBS, AFIH(Mumbai)**  
 Occupational Health Consultant  
 Trained in ILO Classification of Pneumoconiosis,  
 Trained in Cardiology  
 Regd. No. 7338 (Orissa), 219 (DGFASLI)



## Annexure X

### Intimation Letter of EC to Zila Parishad



Ref: FAPJ/ 4136 /2015  
Date : 9<sup>th</sup> Nov, 2015

To  
President  
Zilla Parishad  
Keonjhar

**Sub: Intimation of obtaining Environmental Clearance under EIA Notification-2006 for the expansion of Ferro Alloys Plant of TATA STEEL Ltd., Joda, Keonjhar District.**

Dear Sir/ Madam,

*Received  
xerox copy  
of Environment  
clearance*

We would like to inform you that Ministry of Environment Forests & Climate Change (MOEF&CC), Govt. Of India has granted Environmental Clearance for the expansion of capacity of our existing Ferro Manganese Plant from 0.0504 MTPA to 0.06 MTPA with 0.05 MTPA Sinter Plant & addition of 2\*18 MVA SAF for 0.06 MTPA Slico Manganese production at our Ferro Alloys Plant, Joda, Odisha vide letter No. F. No. J-11011/03/2012- IA II ( I ) dt 05.11.2015.

*Rhm  
12-11-15  
P.A. to President  
Zilla Parishad  
Keonjhar*

We therefore request your good-self to kindly acknowledge the receipt of above letter.

Yours Faithfully  
F: Tata Steel Limited

HEAD  
FERRO ALLOYS PLANT, JODA

Enclosed:

1. Xerox copy of Environmental Clearance

#### **TATA STEEL LIMITED**

FerroAlloys Plant, Joda-758034, Dist. Keonjhar, Odisha, India  
Tel. : 09238100945, e-mail : headoffice.fapj@tatasteel.com  
Registered Office : Bombay House, 24, Homi Mody Street, Fort, Mumbai-400001, India  
Tel. 91 22 66658282, Fax 91 22 66657724  
Corporate Identity Number L27100MH1907PLC000260, Website : www.tatasteel.com

## **Intimation Letter of EC to Chairman, Joda Municipality**



Ref : FAPJ/ 4135 /2015  
Date : 9<sup>th</sup> Nov, 2015

To  
Chairman  
Joda Municipality  
Joda.

**Sub: Intimation of obtaining Environmental Clearance under EIA Notification-2006 for the expansion of Ferro Alloys Plant of TATA STEEL Ltd., Joda, Keonjhar District.**

Dear Sir/ Madam,

We would like to inform you that Ministry of Environment Forests & Climate Change (MOEF&CC), Govt. Of India has granted Environmental Clearance for the expansion of capacity of our existing Ferro Manganese Plant from 0.0504 MTPA to 0.06 MTPA with 0.05 MTPA Sinter Plant & addition of 2\*18 MVA SAF for 0.06 MTPA Slico Manganese production at our Ferro Alloys Plant, Joda, Odisha vide letter No. F. No. J-11011/03/2012- IA II ( I) dt 05.11.2015.

We therefore request your good-self to kindly acknowledge the receipt of above letter.

Yours Faithfully  
F: Tata Steel Limited

  
HEAD  
FERRO ALLOYS PLANT, JODA



**Enclosed:**

1. Xerox copy of Environmental Clearance

### **TATA STEEL LIMITED**


Ferro Alloys Plant, Joda-758034, Dist. Keonjhar, Odisha, India  
Tel. : 09238100945, e-mail : headoffice.fapj@tatasteel.com  
Registered Office : Bombay House, 24, Homi Mody Street, Fort, Mumbai-400001, India  
Tel. 91 22 66658282, Fax 91 22 66657724  
Corporate Identity Number L27100MH1907PLC000260, Website : www.tatasteel.com

## Annexure XI

### Details of CSR funds allocated and released Expenditure against CSR Activities

ANNEXURE - II

DETAILS OF CSR funds allocated released and expenditure incurred				
Period	Year-wise Expenditure Planning (In Rs. Cr.)	Actual Expenditure for C.S.R. (In Rs.) (Year-wise)	Name of the C.S.R. Activities	Whether Completed or not
6	7	8	9	10
2010-11	8.50 Cr	8.40 Cr.	Health , Education, Livelihood. Rural Infrastructure. Major project: Road resurfacing inside Joda Municipalty from Ranasal Ghati to Banspani	completed
2011-12	26.00 Cr.	26.07 Cr	Health , Education, Livelihood. Rural Infrastructure. Major project: Keonjhar bus stand.	completed
2012-13	21.00 Cr	21.17 Cr.	Health , Education, Livelihood. Rural Infrastructure. Major project: Construction of Khandbondh Joribar Road.	completed
2013-14	15.00 Cr	15.21 Cr.	Health , Education, Livelihood. Rural Infrastructure. Major project: Road resurfacing inside Joda Municipalty.	completed
2014-15	24.00 Cr	24.98 Cr.	Health , Education, Livelihood. Rural Infrastructure. Major project: Municipality drinking water project and Kalyan Mandap.	Municipality drinking water project ongoing . All other projects completed.

  
HEAD  
FERRO ALLOYS PLANT, JODA  
HEAD  
FERRO ALLOYS PLANT  
TATA STEEL  
JODA



**Annexure XII**  
**Environmental Parameter Display board at Main Gate**

**Environmental Parameter Display board at Main Gate**



## Annexure XIII

### Covering Letter of Form V, Environment statement submission



**TATA STEEL LTD.**  
**FERRO MANGANESE PLANT, JODA**

Ref. No. FAPJ/4562 /

/2016

Dated : 23/09/2016

The Member Secretary  
Odisha Pollution Control Board  
A/118, Nilakantha Nagar  
Bhubaneswar

Sub: Submission of Environmental Statement.

Sir,

We are submitting one set of Annual Environmental Statement in respect of M/s Ferro Manganese Plant, Joda for the year ending 31<sup>st</sup> March, 2016.

This is for your kind perusal.

Thanking you,

Yours faithfully,  
For : TATA STEEL LTD.

  
HEAD  
FERRO MANGANESE PLANT,  
JODA

Encl : as above.

Copy to -Regional Officer, OPCB, At-Baniapatt, College Road, Keonjhar - with enclosure.

**TATA STEEL LTD.**  
Ferro Alloys & Minerals Division  
Ferro Managanese Plant, Joda  
Joda - 758034, Odisha, India

Tel : 09238100945, e-mail - head.office@tatasteel.com

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



## Annexure XIV

### **Details of Publication on the Newspapers**



**Published on The Statesman of 12<sup>th</sup> November 2015 Issue**



