



Ref. No. FAMD/FAPJ/ 403 /2019

Date : 27/11/2019

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

**Sub: Submission of six monthly compliance report on implementation of environmental safe guards of Ferro Alloys Plant, Joda for the period from Apr-19 to Oct-19.**

Ref. Ministry of Environment & Forests Letter No.J-11011/03/2012-IA.II (I) Dated 5<sup>th</sup> 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 Alloy Plant, Joda for the period from Apr-19 to Oct-19.

We are also sending you softcopy of the report to your good office on Email: [roez.bsr-mef@nic.in](mailto:roez.bsr-mef@nic.in) for your kind 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 endeavour for further improve upon our Environmental Management Practices.

Thanking You

Your's Faithfully  
For: TATA STEEL LTD.

Head,  
Ferro Manganese Plant

Encl: Six Monthly Compliance Report (with Annexures) for Apr-19 to Oct-19

Copy to MoEF, New Delhi

“ “ CPCB, Zonal Office Kolkata

“ “ OSPCB, Bhubaneswar

“ “ Regional Office, Keonjhar

Ferro Alloys & Minerals Division

Ferro Alloys Plant, Joda

Joda – 758034, Orissa, India

Tel : 09238100945, e-mail – [head.office@tatasteel.com](mailto:head.office@tatasteel.com)

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Corporate Identity Number L27100MH1907PLC000260 , Website : [www.tatasteel.com](http://www.tatasteel.com)



# **Half -Yearly Compliance Report**

**On**

## **Environmental Clearance Conditions**

(MoEF Letter No. J-11011/03/2012-IA. II (I) Dated 5<sup>th</sup> November 2015)

**Period: Apr'2019 – Oct'2019**

**Submitted By:**

**Ferro Alloys Plant,  
M/s TATA STEEL LIMITED**

At/Po – Joda, District – Keonjhar,  
Odisha - 758034

**A. SPECIFIC CONDITION:**

Sl. No.	Specific Condition	Compliance Status (Apr'19 to Oct'19)
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.	<p align="center"><b>Complied.</b></p> <p>Presently four nos. ambient air monitoring stations have been installed for manually monitoring air emission and the reports are submitted on monthly basis to SPCB, Odisha.</p> <p><b>Monitoring results for last six months i.e. Apr'19 to Oct'19 is enclosed as Annexure-I</b></p>
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.	<p align="center"><b>Complied.</b></p> <p>There are four nos. of stacks in existing plant and all having adequate height and diameter. Online stack monitoring system installation has been completed.</p> <p>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.</p> <p><b>Stack Monitoring results for last six months i.e. Apr'19 to Oct'19 is enclosed as Annexure-II.</b></p>
III	The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826( E) dated 16th November, 2009 shall be followed.	<p align="center"><b>Complied.</b></p> <p>Existing plant emissions are within the specified limit prescribed by national ambient air quality emission standards; also, the same will be followed commissioning of forthcoming Plant.</p> <p><b>Ambient Air quality Monitoring results for last six months i.e. Apr'19 to Oct'19 is enclosed as Annexure-I.</b></p>
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 30th May, 2008 should be followed.	<p align="center"><b>Complied.</b></p> <p>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.</p> <p><b>Monitoring results of Gaseous emission levels including secondary fugitive emissions from all the sources for last</b></p>

		<b>six months i.e. Apr'19 to Oct'19 is enclosed as Annexure-I.</b>
<b>Sl. No.</b>	<b>Specific Condition</b>	<b>Compliance Status ( Apr'19 to Oct'19)</b>
V	Water sprinkling arrangements as well as dry fog system to control fugitive emission shall be undertaken.	<p><b>Complied.</b></p> <p>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.</p> <p><b>[Photographs enclosed as Annexure III]</b></p>
VI	Tap hole emissions shall be taken to GCP system by providing proper hood and suction system.	<p><b>Complied.</b></p> <p>Two nos. of Fume extraction system are in place for existing plant and same system will be provided to forthcoming project.</p> <p><b>[Photographs enclosed as Annexure IV]</b></p>
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.	<p><b>Being Complied.</b></p> <p>Rain water harvesting measures shall be implemented as required under the NOC from the Central Ground Water Authority wherein inputs from Regional Director, Central Ground Water Board have been incorporated.</p> <p>Presently, a fully functional roof top rain water harvesting project at the Administrative office in is in working stage.</p> <p>For Existing Plant, close circuit cooling system is in operation &amp; same will be followed for forthcoming plant.</p> <p><b>[Refer Annexure III]</b></p>
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	<p><b>Complied.</b></p> <p>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.</p>

	treated in septic tank followed by the soak pit.	<b>[Photograph is included in Annexure V]</b>
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.	<p style="text-align: center;"><b>Being Complied.</b></p> <p>Monitoring of ground water and surface water is being carried out on regular basis. Leachate study for effluent generated will be carried out soon.</p> <p><b>[Details of monitoring results are given as Annexure VI]</b></p>
<b>Sl. No.</b>	<b>Specific Condition</b>	<b>Compliance Status ( Apr'19 to Oct'19)</b>
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.	<p style="text-align: center;"><b>Complied.</b></p> <p>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.</p>
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.	<p style="text-align: center;"><b>Complied.</b></p> <p>Risk and disaster management plan along with the mitigation measures was submitted vide</p> <ol style="list-style-type: none"> <li>a. Letter no. FAPJ/4249/2016, dated. 01.02.2016 to the central Pollution control board, New Delhi,</li> <li>b. Letter no. FAP(J)/4250/2016, dated. 01.02.2016, to the Ministry of Environment &amp; Forest, Eastern Regional Office, Bhubaneswar</li> <li>c. Letter no. FAP(J)/4251/2016, dated. 01.02.2016 to State Pollution Control Board, Bhubaneswar.</li> </ol> <p><b>[Copy of the letter is enclosed as Annexure-VII].</b></p>
XII	Green belt shall be developed in 33% of plant area. Selection of plant species shall be as per the CPCB guidelines in	<p style="text-align: center;"><b>Complied.</b></p> <p>Plantation programme is regularly done. Plant species are selected as per CPCB</p>

	consultation with the DFO.	guidelines. In the FY-19 till date total 1676 No. of Plantation done & 4357 No. 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.	<b>Being Followed.</b> All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) are being 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.	<b>Complied.</b> CSR is done by TSRDS wing of TATA Steel. The details of expenditure towards CSR activity done along with details are given in <b>Annexure XI.</b>
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	<b>Complied.</b> It has been complied. There are no labour camps within the Site. However, employees are provided with all necessary infrastructure and facilities such as fuel for cooking mobile toilets, mobile STP, Safe drinking water, medical health care, crèche etc outside the plant premises.

**B. General Conditions**

<b>Sl. No.</b>	<b>General Condition</b>	<b>Compliance Status (Apr'19 to Oct'19)</b>
I	The project authorities must strictly adhere to the stipulations made by the Odisha Pollution Control Board and the State Government.	<b>Complied.</b> All the stipulations made by the Odisha Pollution Control Board and the State Government are strictly followed for existing facility.
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).	<b>Complied.</b> No expansion or modifications in the plant is 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.	<b>Complied.</b> 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. <b>[Monitoring results for last six months i.e. Apr'19 to Oct'19 is enclosed as Annexure-I]</b>
IV	Industrial waste water shall be properly collected, treated so as to conform to the standard prescribed under GSR 422 ( E ) dated 19th May, 1993 and 31st December1993 or as amended from time to time. The treated waste water shall be utilized for plantation purpose.	<b>Complied.</b> 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).	<b>Complied.</b> It has been strictly adhered. Acoustic enclosures are provided for DG sets. <b>[Monitoring results for last six months i.e. Apr'19 to Oct'19 is enclosed as Annexure-VIII.]</b>
VI	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories	<b>Complied.</b> Periodic medical check-ups were conducted yearly. Last medical check-up

Sl. No.	General Condition	Compliance Status (Apr'19 to Oct'19)																																		
	Act	<p>was done on Oct-Dec 2018 and 513 nos. of employees are examined including contractual employees. For this year the Periodic medical check-up is in continuation. Records were maintained as per Orissa factory rule.</p> <p><b>[Record is enclosed as Annexure IX]</b></p>																																		
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.	<p><b>Being Complied.</b> Construction of Roof Rain water harvesting system is in progress. First Phase of construction has been completed and rest is in progress.</p> <table border="1"> <thead> <tr> <th>S. No.</th> <th>Facility Description</th> <th>Total (Area in Acres)</th> <th>Catchment type</th> <th>Runoff coefficient</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Admin &amp; other buildings</td> <td>0.500</td> <td rowspan="4">Roof-top catchment</td> <td rowspan="4">0.9</td> </tr> <tr> <td>2.</td> <td>Raw Material Storage</td> <td>7.533</td> </tr> <tr> <td>3.</td> <td>Product Storage</td> <td>0.230</td> </tr> <tr> <td></td> <td><b>Total</b></td> <td>8.263</td> </tr> <tr> <td>4</td> <td>Road &amp; drainage</td> <td>1.482</td> <td>Roads and pavements</td> <td>0.8</td> </tr> <tr> <td>5.</td> <td>Truck Parking Area</td> <td>0.33</td> <td>Open area</td> <td>0.75</td> </tr> <tr> <td>6.</td> <td>Green Belt</td> <td>15.6</td> <td>Green area</td> <td>0.7</td> </tr> </tbody> </table>	S. No.	Facility Description	Total (Area in Acres)	Catchment type	Runoff coefficient	1.	Admin & other buildings	0.500	Roof-top catchment	0.9	2.	Raw Material Storage	7.533	3.	Product Storage	0.230		<b>Total</b>	8.263	4	Road & drainage	1.482	Roads and pavements	0.8	5.	Truck Parking Area	0.33	Open area	0.75	6.	Green Belt	15.6	Green area	0.7
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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.	<p><b>Complied.</b> 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.</p> <p><b>[Details of Expenditure made towards CSR activities are given in Annexure XI]</b></p>																																		
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	<p><b>Complied.</b> It will be adhered.</p>																																		

Sl. No.	General Condition	Compliance Status (Apr'19 to Oct'19)
	Bhubaneswar. The funds so provided shall not be diverted for any other purpose.	
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.	<p align="center"><b>Complied.</b></p> <p>Already Complied. Intimation of obtaining Environmental Clearance is given to Zila Parishad vide letter No. FAPJ/4136/2015.</p> <p><b>[Copy of Letter is given in Annexure-X]</b></p>
XI	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.	<p align="center"><b>Complied.</b></p> <p>Status of compliance is uploaded in the website along with the monitored data. It will be sent to regional office of MoEFCC at Bhubaneswar, SPCB, Bhubaneswar &amp; regional office, Keonjhar.</p> <p>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.</p> <p><b>[Photograph is given in the Annexure XII]</b></p>
XII	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.	<p align="center"><b>Complied.</b></p> <p>It has been complied.</p>
XIII	The environmental statement for each financial year ending 31st 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	<p align="center"><b>Complied.</b></p> <p>The Environment statement in Form V was submitted for the year 2018-19 on 28<sup>th</sup> Sep, 2019 vide letter no.-FAMD/FAPJ/339/2019 to SPCB, Bhubaneswar and Regional office, <b>Annexure-XIII</b></p>

## Six Monthly Compliance Report to EC – Ferro Alloys Plant, Joda, M/s Tata Steel Limited for Apr'19 to Oct'19

Sl. No.	General Condition	Compliance Status (Apr'19 to Oct'19)
	Regional Office of the MoEFCC) at Bhubaneswar by e-mail.	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 clearnces letter are available with SPCB and may also be seen at website of the Ministry of Environment, Forests and Climate Change (MoEPCC) at <a href="https://envfor.nic.in">https://envfor.nic.in</a> . This shall be advertise within seven days from the date of issue of the clearance letter, at least in two local newspaper 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.	<b>Complied.</b> Information regarding Environmental clearance issued is published on Sambad oriya newspaper on 13 <sup>th</sup> November issue and on the statesman English Newspaper of 1th November issue. <b>[Details of publication are given in Annexure XIV.]</b>
XV	Project authorities shall inform the Regional Office as well as 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	<b>Being Followed.</b> It will be strictly followed



## Environmental Clearance Letter

(MoEF Letter No. J-11011/03/2012-IA. II (I) Dated 5<sup>th</sup> November 2015)

**F. No. J-11011/03/2012-IA II (I)**  
Government of India  
Ministry of Environment, Forest and Climate Change  
(I.A. Division)

Indira Paryavaran Bhawan  
Jor Bagh Road, Ali Ganj,  
New Delhi - 110003  
E-mail: [satish.garkoti@nic.in](mailto:satish.garkoti@nic.in)  
Tele ph.: 011: 24695316

Dated: 5<sup>th</sup> November, 2015

To

✓ Mr. Ajay Sahay (Chief Resident Executive, Delhi)  
M/s Tata Steel Limited  
Jeevan Bharati Building Tower 1,  
10<sup>th</sup> Floor 124 Connaught Circus  
New Delhi-110001

Fax No. – 91 11 23326265

**Subject: Expansion of high carbon Fe-Mn alloy Plant (from 0.0504 MTPA to 0.06 MTPA) and addition of 0.06 MTPA Silico-Manganese Plant and 0.05 MTPA Manganese Sinter Plant in existing Ferro Alloys Plant by M/s Tata Steel Limited at Joda, Keonjhar District, Environmental Clearance regarding.**

Sir,

This has reference to your letter No. TSLDEL/602/2015, dated 10<sup>th</sup> March 2015 along with copies of EIA/EMP report and subsequent report and letter No. SLDEL/60/2015, 22<sup>nd</sup> May, 2015 seeking Environmental Clearance under the provisions of the EIA Notification, 2006 regarding project mentioned above. The ToR to the project was awarded by MoEFCC vide letter No. J-11011/03/2012-IA.II (I) dated 14<sup>th</sup> February, 2012 for preparation of EIA/EMP report. Additional ToRs were issued vide letter of even number dated 14<sup>th</sup> March 2013. Further, the validity of ToRs were extended vide letter dated 8<sup>th</sup> April, 2015 for a period of 1 year. The proposed project activity is listed at S.No. 3(a), in primary metallurgical industry under category 'A' of the Schedule of EIA notification 2006 and appraised by the Expert Appraisal Committee (Industry-I) of MoEFCC.

2.0 It has been noted that the proposal is for enhancement of High Carbon Ferro Manganese (HC Fe-Mn) production capacity from 0.0504 MTPA to 0.06 MTPA by design modifications in the existing 1x9 MVA furnace and with addition of 0.06 MTPA Si-Mn plant and 0.05 MTPA manganese sinter plant. About 47.135 acres of land acquired originally is in possession of M/s TSL for Ferro Alloys Plant at Joda, out of which the existing plant is established over an area of 33.4 acres and the proposed expansion will be carried out in the remaining 13.735 acres. The project site is located at 22° 01' 01.181" N to 22° 01' 25.922" N latitude and 85° 25' 32.409" E to 85° 25' 46.601" E longitudes and is at an elevation of about 468 m above Mean Sea Level (aMSL). There are no ecologically sensitive areas, national parks or wildlife sanctuaries within the buffer zone i.e. 10 km radius of the study area. Five reserved forests exist within the study area. It is proposed to invest about Rs 700 Lakhs on pollution prevention, pollution control, treatment and monitoring systems. The recurring cost of environmental measures will be Rs 70 Lakhs, out of which, Rs 8 Lakhs per

annum will be used in development of green belt around the project site. The total project cost will be about Rs. 185.58 Crores. The project would provide employment to about 1500-2000 persons during construction stage and for about 156 persons during operation stage. About 108.41 Crores has been allocated towards Enterprise Social Commitment for the next five years. Following table shows details of existing and proposed units:

Sr. No.	Products	Existing Facilities	Existing Production Capacity (MTPA)	Proposed Facilities	Proposed Production Capacity (MTPA)
1	Fe-Mn	1X9MVA 1X15 MVA	0.0504	1 X 12 MVA Furnace 1X 15 MVA Furnace	0.060
2	Mn-Sinter	---	---	Sinter Plant	0.050
3	Si-Mn	---	---	2X18 MVA furnace	0.060

3.0 The total water requirement will be about 65 m<sup>3</sup>/hr (including expansion), which will be met from Kundru nahal. The power requirement will be 63.95 MVA, which will be sourced from Odisha Power Transmission Corporation Limited (OPTCL). An area of 1.235 acres has been earmarked to store temporarily and process the slag and dust. The slag dump area will be lined and provided with garland drain connecting to a collection cum settling tank for removal of solids.

4.0 Public hearing for the project was conducted by State Pollution Control Board, Odisha on 12<sup>th</sup> November 2014 in the presence of Additional District Magistrate, Keonjhar district. The issues raised during public consultation inter alia include peripheral development, medical facility, education and employment, etc.

5.0 The aforesaid proposal was considered by the Expert Appraisal Committee (Industry-I) during its 35<sup>th</sup> meeting held on 26<sup>th</sup> -27<sup>th</sup> March, 2015 and 43<sup>rd</sup> meeting held on 2<sup>nd</sup> -3<sup>rd</sup> July, 2015. The issues raised during public hearing were discussed during the meeting. After detailed deliberations, the EAC (I) recommended the project for Environmental Clearance and stipulated Specific Conditions along with other environmental conditions while considering for accord of Environmental Clearance.

6.0 The Ministry of Environment, Forest and Climate Change has considered the application based on the recommendation of the Expert appraisal Committee (Industry-I) and, hereby decided to grant Environmental Clearance to the above mentioned proposal for expansion of Fe-Mn alloy Plant (from 0.0504 MTPA to 0.06 MTPA) and addition of 0.06 MTPA Silico-Manganese Plant and 0.05 MTPA Manganese Sinter Plant in existing Ferro Alloys Plant by M/s Tata Steel Limited under the provisions of EIA Notification dated 14<sup>th</sup> September 2006, as amended subject to strict compliance of the following Specific and General conditions:

**A. SPECIFIC CONDITION:**

- 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.

- 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.
- iii. The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16th November, 2009 shall be followed.
- 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 30th May, 2008 should be followed.
- v. Water sprinkling arrangements as well as dry fog system to control fugitive emission shall be undertaken.
- vi. Tap hole emissions shall be taken to GCP system by providing proper hood and suction system.
- 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.
- 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 soak pit.
- ix. Regular monitoring of surface, sub-surface and ground water should be ensured and treated wastewater 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, SPCB and CPCB.
- 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.
- 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.
- 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.
- xiii. All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Steel Plants shall be implemented. 

- 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.
- 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.

**B. GENERAL CONDITIONS:**

- i. The project authorities must strictly adhere to the stipulations made by the Odisha Pollution Control Board and the State Government.
- 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).
- 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 PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>x</sub> 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.
- iv. Industrial wastewater shall be properly collected, treated so as to conform to the standards 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 wastewater shall be utilized for plantation purpose.
- v. The overall noise levels in and around the plant area shall be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (nighttime).
- vi. Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.
- 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.
- 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 socio-economic development activities in the surrounding villages like community development programmes, educational programmes, drinking water supply and health care etc.

- 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.
- 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.
- xi. 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; PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub> (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.
- xii. 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 this Ministry at Bhubaneswar / CPCB / SPCB shall monitor the stipulated conditions.
- xiii. 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.
- 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.
- 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.

7.0 The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

8.0 The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.

9.0 The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 and the Public (Insurance) Liability Act, 1991 along with their amendments and rules.

  
05/11/2019  
**(Dr. Satish C. Garkoti)**  
Scientist 'F'

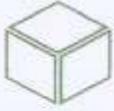
**Copy to:-**

1. The Secretary, Department of Environment, Govt. of Odisha, Bhubneswar.
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, New Delhi, 110 032.
3. The Chairman, Orissa Pollution Control Board, "Paribesh Bhawan, A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012.
4. The Additional Principal Chief Conservator of Forests (C) Ministry of Env. And Forests Regional Office (EZ), A/3, Chandersekharpur, Bhubaneswar-751023. Orissa.
5. Guard File / Record File/Monitoring file.

  
**(Dr. Satish C. Garkoti)**  
Scientist 'F'



**Ambient Air Quality Monitoring Report – Apr, 19**



**Visiontek Consultancy Services Pvt. Ltd.**

(An Enviro Engineering Consulting Cell)



ISO 9001 : 2008

ISO 14001 : 2004

OHSAS 18001 : 2007

Ref: *Enviro/19/R-104*

**AMBIENT AIR QUALITY MONITORING REPORT FOR APRIL-2019 ( CORE ZONE)**

- Name of Industry : **FAP, JODA ( M/s TATA Steel Limited)**
- Monitoring Instruments : **RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer.**
- Sample collected by : **VCSPL Representative in presence of TATA Representative**

Monitoring Date	PM <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>x</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	AAQMS-1: Gate No 1				Pb (µg/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )
							NH <sub>3</sub> (µg/m <sup>3</sup> )	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	Ben (ng/m <sup>3</sup> )	THP (ng/m <sup>3</sup> )			
02.04.2019	81.2	34.8	8.1	11.8	0.61	<4.0	<20.0	<0.001	<0.002	<0.001	<0.001	<0.01	<0.001
05.04.2019	80.6	35.2	7.9	11.6	0.58	<4.0	<20.0	<0.001	<0.002	<0.001	<0.001	<0.01	<0.001
09.04.2019	78.8	35.6	7.6	12.1	0.56	<4.0	<20.0	<0.001	<0.002	<0.001	<0.001	<0.01	<0.001
12.04.2019	72.6	30.8	7.2	12.4	0.52	<4.0	<20.0	<0.001	<0.002	<0.001	<0.001	<0.01	<0.001
16.04.2019	70.4	31.2	7.8	11.4	0.54	<4.0	<20.0	<0.001	<0.002	<0.001	<0.001	<0.01	<0.001
19.04.2019	68.8	32.2	8.1	12.9	0.52	<4.0	<20.0	<0.001	<0.002	<0.001	<0.001	<0.01	<0.001
23.04.2019	70.2	34.8	7.6	13.2	0.64	<4.0	<20.0	<0.001	<0.002	<0.001	<0.001	<0.01	<0.001
26.04.2019	74.6	35.6	7.4	12.6	0.62	<4.0	<20.0	<0.001	<0.002	<0.001	<0.001	<0.01	<0.001
30.04.2019	75.2	35.1	7.8	11.9	0.58	<4.0	<20.0	<0.001	<0.002	<0.001	<0.001	<0.01	<0.001
Monthly Average	73.90	33.48	7.68	12.21	0.57	<4.0	<20.0	<0.001	<0.002	<0.001	<0.001	<0.01	<0.001
Monitoring Date	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>x</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	AAQMS-2: General Office				Pb (µg/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )
02.04.2019	46.8	20.8	8.1	10.8	0.42	<4.0	<20.0	<0.001	<0.002	<0.001	<0.001	<0.01	<0.001
05.04.2019	48.8	21.8	8.4	11.6	0.46	<4.0	<20.0	<0.001	<0.002	<0.001	<0.001	<0.01	<0.001
09.04.2019	50.2	22.6	7.9	11.8	0.48	<4.0	<20.0	<0.001	<0.002	<0.001	<0.001	<0.01	<0.001
12.04.2019	50.8	22.8	8.2	12.2	0.51	<4.0	<20.0	<0.001	<0.002	<0.001	<0.001	<0.01	<0.001
16.04.2019	49.6	24.8	7.6	12.6	0.49	<4.0	<20.0	<0.001	<0.002	<0.001	<0.001	<0.01	<0.001
19.04.2019	49.1	25.6	7.8	11.9	0.42	<4.0	<20.0	<0.001	<0.002	<0.001	<0.001	<0.01	<0.001
23.04.2019	48.4	25.2	9.0	12.8	0.41	<4.0	<20.0	<0.001	<0.002	<0.001	<0.001	<0.01	<0.001
26.04.2019	47.80	24.6	8.8	12.4	0.44	<4.0	<20.0	<0.001	<0.002	<0.001	<0.001	<0.01	<0.001
30.04.2019	48.20	22.47	8.4	11.6	0.46	<4.0	<20.0	<0.001	<0.002	<0.001	<0.001	<0.01	<0.001
Monthly Average	48.86	23.41	8.24	11.97	0.45	<4.0	<20.0	<0.001	<0.002	<0.001	<0.001	<0.01	<0.001
NAAQ Standard	100	60	80	80	4	-	100	60	80	80	80	4	-
Testing Method	Gravimetric	Gravimetric	Impromed Wet and Goble method	Modified Jacob & Hochheiser (Pre-Absorb)	NIR Spectrometry	Gas Chromatography	Gravimetric	Gravimetric	Impromed Wet and Goble method	Modified Jacob & Hochheiser (Pre-Absorb)	NIR Spectrometry	Gas Chromatography	

Date: *01/05/2019*



For Visiontek Consultancy Services Pvt. Ltd.

### Ambient Air Quality Monitoring Report – May, 19

FAP Plant Joda (TATA Steel Ltd)													
AMBIENT AIR QUALITY MONITORING REPORT (CORE ZONE)													
	Sampling Location							May-19					
AAQMS-1	Gate No.1	NAAQ Standard	Monitoring Date	03.05.2019	07.05.2019	10.05.2019	14.05.2019	17.05.2019	21.05.2019	24.05.2019	28.05.2019	31.05.2019	Monthly Average
Parameters	Method of Measurement												
PM <sub>10</sub>	Gravimetric method	100(µg/m <sup>3</sup> )		78.8	84.6	83.6	82.9	82.6	81.8	80.9	81.10	83.40	82.61
PM <sub>2.5</sub>	Gravimetric method	60 (µg/m <sup>3</sup> )		35.6	38.8	39.4	36.8	36.2	35.8	34.4	38.20	39.10	37.14
SO <sub>2</sub>	Improved West Gaeke method.	80 (µg/m <sup>3</sup> )		8.4	8.8	8.2	8.8	8.6	8.4	8.2	8.40	9.10	8.56
NO <sub>x</sub>	Jacob & Hochhelsler modified (Na-Arsenite) method	80(µg/m <sup>3</sup> )		14.2	13.6	14.1	14.8	13.6	14.5	13.89	13.80	14.60	14.12
CO	NDIR Spectroscopy method	4(mg/m <sup>3</sup> )		0.66	0.71	0.68	0.62	0.72	0.73	0.66	0.69	0.65	0.68
O <sub>3</sub>	Chemical Method	100(µg/m <sup>3</sup> )		<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
NH <sub>3</sub>	Indo Phenol Blue Method	400(µg/m <sup>3</sup> )		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
C <sub>6</sub> H <sub>6</sub>	Gas Chromatography	5(µg/m <sup>3</sup> )		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
BaP	Solvent Extraction Method followed by GC	1(ng/m <sup>3</sup> )		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Pb	AAS Method	1(µg/m <sup>3</sup> )		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ni	AAS Method	20(ng/m <sup>3</sup> )		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
As	AAS Method	6(ng/m <sup>3</sup> )		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

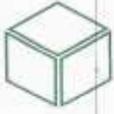
AAQMS-2	General Office	NAAQ Standard	Monitoring Date	03.05.2019	07.05.2019	10.05.2019	14.05.2019	17.05.2019	21.05.2019	24.05.2019	28.05.2019	31.05.2019	Monthly Average
Parameters	Method of Measurement												
PM <sub>10</sub>	Gravimetric method	100(µg/m <sup>3</sup> )		50.8	51.6	52.8	53.4	53.8	50.6	51.2	54.20	53.80	52.47
PM <sub>2.5</sub>	Gravimetric method	60 (µg/m <sup>3</sup> )		24.4	25.2	26.8	27.4	26.6	27.1	28.8	28.60	29.20	27.12
SO <sub>2</sub>	Improved West Gaeke method.	80 (µg/m <sup>3</sup> )		8.8	8.6	9.1	9.4	8.9	9.6	9.2	10.40	10.20	9.36
NO <sub>x</sub>	Jacob & Hochhelsler modified (Na-Arsenite) method	80 (µg/m <sup>3</sup> )		12.2	11.8	12.6	12.8	11.2	11.4	12.4	11.90	12.20	12.06
CO	NDIR Spectroscopy method	100(µg/m <sup>3</sup> )		0.44	0.48	0.52	0.56	0.58	0.61	0.62	0.66	0.61	0.56
O <sub>3</sub>	Chemical Method	100(µg/m <sup>3</sup> )		<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
NH <sub>3</sub>	Indo Phenol Blue Method	400(µg/m <sup>3</sup> )		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
C <sub>6</sub> H <sub>6</sub>	Gas Chromatography	5(µg/m <sup>3</sup> )		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
BaP	Solvent Extraction Method followed by GC	1(ng/m <sup>3</sup> )		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Pb	AAS Method	1(µg/m <sup>3</sup> )		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ni	AAS Method	20(ng/m <sup>3</sup> )		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
As	AAS Method	6(ng/m <sup>3</sup> )		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

**Ambient Air Quality Monitoring Report – May, 19**

AAQMS-3	Near Ore Yard	NAAQ Standard	Monitoring Date	03.05.2019	07.05.2019	10.05.2019	14.05.2019	17.05.2019	21.05.2019	24.05.2019	28.05.2019	31.05.2019	Monthly Average
Parameters	Method of Measurement												
PM <sub>10</sub>	Gravimetric method	100 (µg/m <sup>3</sup> )		72.8	73.8	74.4	69.9	69.8	72.8	68.8	70.80	72.60	71.74
PM <sub>2.5</sub>	Gravimetric method	60 (µg/m <sup>3</sup> )		24.2	22.8	22.9	23.8	25.6	25.9	26.1	26.60	25.80	24.86
SO <sub>2</sub>	Improved West Gaeke method.	80 (µg/m <sup>3</sup> )		7.7	7.8	7.2	7.1	8.1	7.8	8.4	8.20	7.80	7.79
NO <sub>x</sub>	Jacob & Hochhelsler modified (Na-Arsenite) method	80 (µg/m <sup>3</sup> )		10.6	10.8	11.6	11.2	12.2	12.8	13.4	12.60	13.80	12.11
CO	NDIR Spectroscopy method	100(µgm <sup>3</sup> )		0.46	0.41	0.44	0.46	0.44	0.49	0.51	0.48	0.52	0.47
O <sub>3</sub>	Chemical Method	100(µg/m <sup>3</sup> )		<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
NH <sub>3</sub>	Indo Phenol Blue Method	400(µg/m <sup>3</sup> )		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
C <sub>6</sub> H <sub>6</sub>	Gas Chromatography	5(µg/m <sup>3</sup> )		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
BaP	Solvent Extraction Method followed by GC	1(ng/m <sup>3</sup> )		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Pb	AAS Method	1(µg/m <sup>3</sup> )		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ni	AAS Method	20(ng/m <sup>3</sup> )		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
As	AAS Method	6(ng/m <sup>3</sup> )		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

AAQMS-4	Gate No-2	NAAQ Standard	Monitoring Date	03.05.2019	07.05.2019	10.05.2019	14.05.2019	17.05.2019	21.05.2019	24.05.2019	28.05.2019	31.05.2019	Monthly Average
Parameters	Method of Measurement												
PM <sub>10</sub>	Gravimetric method	100 (µg/m <sup>3</sup> )		68.2	68.8	69.9	71.2	72.8	73.4	74.8	75.5	75.60	72.24
PM <sub>2.5</sub>	Gravimetric method	60 (µg/m <sup>3</sup> )		42.8	43.8	43.2	44.2	45.8	45.6	44.7	41.80	40.90	43.64
SO <sub>2</sub>	Improved West Gaeke method.	80 (µg/m <sup>3</sup> )		8.1	7.8	7.2	7	6.9	7.2	6.9	7.40	7.80	7.37
NO <sub>x</sub>	Jacob & Hochhelsler modified (Na-Arsenite) method	80 (µg/m <sup>3</sup> )		12.1	12.6	11.6	11.2	12.8	12.6	11.8	11.20	12.60	12.06
CO	NDIR Spectroscopy method	100(µgm <sup>3</sup> )		0.44	0.48	0.51	0.49	0.46	0.44	0.48	0.51	0.55	0.48
O <sub>3</sub>	Chemical Method	100(µg/m <sup>3</sup> )		<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
NH <sub>3</sub>	Indo Phenol Blue Method	400(µg/m <sup>3</sup> )		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
C <sub>6</sub> H <sub>6</sub>	Gas Chromatography	5(µg/m <sup>3</sup> )		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
BaP	Solvent Extraction Method followed by GC	1(ng/m <sup>3</sup> )		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Pb	AAS Method	1(µg/m <sup>3</sup> )		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ni	AAS Method	20(ng/m <sup>3</sup> )		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
As	AAS Method	6(ng/m <sup>3</sup> )		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

**Ambient Air Quality Monitoring Report – Jun, 19**



**Visiontek Consultancy Services Pvt. Ltd.**

(An Enviro Engineering Consulting Cell)



ISO 9001 : 2008

ISO 14001 : 2004

OHSAS 18001 : 2007

Ref: ENVlab/19/R-1123

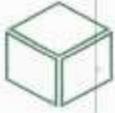
**AMBIENT AIR QUALITY MONITORING REPORT FOR JUNE-2019 ( CORE ZONE)**

- Name of Industry : FAP, JODA ( M/s TATA Steel Limited)
- Monitoring Instruments : RDS (APM 460 BL), PPS (APM 550) Envirotech, CO Analyzer.
- Sample collected by : VCSPL Representative in presence of TATA Representative

Monitoring Date	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>x</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	AAQMS-I-Gate No 1				As (ng/m <sup>3</sup> )	
							NH <sub>3</sub> (µg/m <sup>3</sup> )	CaH <sub>2</sub> (µg/m <sup>3</sup> )	Bsp (ng/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )		
04.06.2019	87.2	40.9	9.1	14.8	0.68	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
07.06.2019	86.2	41.4	8.9	14.2	0.74	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
11.06.2019	85.4	42.6	9.6	15.1	0.71	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
14.06.2019	85.1	43.2	9.4	15.6	0.69	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
18.06.2019	84.8	44.8	9.2	16.4	0.77	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
21.06.2019	83.6	42.8	8.2	16.8	0.78	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
25.06.2019	82.4	40.6	9.6	17.2	0.81	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
28.06.2019	82.60	42.40	9.20	18.10	0.82	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
<b>Monthly Average</b>	<b>84.66</b>	<b>42.34</b>	<b>9.15</b>	<b>16.03</b>	<b>0.75</b>	<b>&lt;4</b>	<b>&lt;20</b>	<b>&lt;0.001</b>	<b>&lt;0.002</b>	<b>&lt;0.001</b>	<b>&lt;0.01</b>	<b>&lt;0.001</b>
AAQMS-2-General Office												
Monitoring Date	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>x</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	CaH <sub>2</sub> (µg/m <sup>3</sup> )	Bsp (ng/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )
04.06.2019	52.8	26.8	9.2	14.2	0.46	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
07.06.2019	54.8	31.2	9.6	13.4	0.54	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
11.06.2019	55.2	30.2	9.2	12.6	0.56	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
14.06.2019	58.8	31.4	8.9	11.2	0.61	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
18.06.2019	60.2	32.8	8.8	11.6	0.66	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
21.06.2019	56.1	36.6	9.42	12.1	0.68	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
25.06.2019	55.8	36.2	8.6	13.2	0.71	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
28.06.2019	56.80	32.80	9.80	13.60	0.72	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
<b>Monthly Average</b>	<b>56.31</b>	<b>32.25</b>	<b>9.19</b>	<b>12.74</b>	<b>0.62</b>	<b>&lt;4</b>	<b>&lt;20</b>	<b>&lt;0.001</b>	<b>&lt;0.002</b>	<b>&lt;0.001</b>	<b>&lt;0.01</b>	<b>&lt;0.001</b>
NAAQ Standard	100	60	80	80	4	100	400	Absorption & Interference followed by GC	Solvent Extraction followed by GC	AAS Method	AAS Method	AAS Method

Date: 3/7/19  
 For Visiontek Consultancy Services Pvt. Ltd.

**Ambient Air Quality Monitoring Report - Jun, 19**



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



ISO 9001 : 2008  
ISO 14001 : 2004  
OHSAS 18001 : 2007

Ref.: ENV Lab/19/R - 1124

**AMBIENT AIR QUALITY MONITORING REPORT FOR JUNE-2019 ( CORE ZONE)**

- Name of Industry : FAP, JODA ( M/s TATA Steel Limited)
- Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer.
- Sample collected by : VCSPL Representative in presence of TATA Representative

Monitoring Date	PM <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>x</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	C.H <sub>4</sub> (µg/m <sup>3</sup> )	Bsp (mg/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )	AAQMS-3:Near Ore Yard		
													CO (mg/m <sup>3</sup> )	NO <sub>x</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )
04.06.2019	74.2	26.6	8.1	11.2	0.48	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001
07.06.2019	76.4	28.2	8.2	11.6	0.56	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001
11.06.2019	77.8	29.6	7.8	12.6	0.51	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001
14.06.2019	72.2	28.8	7.6	13.4	0.56	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001
18.06.2019	70.8	31.2	8.4	13.6	0.62	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001
21.06.2019	71.2	30.8	8.2	13.2	0.64	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001
25.06.2019	72.8	29.2	8.2	12.9	0.66	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001
28.06.2019	70.80	31.80	7.90	13.20	0.68	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001
Monthly Average	73.28	29.53	8.05	12.71	0.59	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001
Monitoring Date	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>x</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	C.H <sub>4</sub> (µg/m <sup>3</sup> )	Bsp (mg/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )	AAQMS-2:Gate No.2		
04.06.2019	74.6	40.08	9.6	12.6	0.48	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001
07.06.2019	75.2	41.2	9.2	13.2	0.51	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001
11.06.2019	75.8	42.6	8.8	13.8	0.53	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001
14.06.2019	76.2	42.8	8.2	14.2	0.54	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001
18.06.2019	76.4	43.8	8.1	14.6	0.56	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001
21.06.2019	72.8	44.6	9.1	13.2	0.55	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001
25.06.2019	73.6	45.8	9.2	12.8	0.52	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001
28.06.2019	72.4	46.80	8.60	13.60	0.54	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001
Monthly Average	74.63	43.46	8.85	13.50	0.53	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001
NAAQ Standard	100	60	80	80	4	100	400	5	01	91	29	06	Absorption & Desorption followed by GC		
Testing Method	Gravimetric	Gravimetric	Improved Wet and Grabe method	Modified Inorb & Fluoride (No-Arsenite)	NDIR Spectroscopy	Chemical Method	Indo Phenol Blue Method	GC	Solvent Extraction Followed by GC	AAS Method	AAS Method	AAS Method	AAS Method		

Date: 3/7/19  
For Visiontek Consultancy Services Pvt. Ltd.

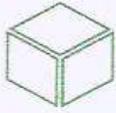
## Ambient Air Quality Monitoring Report - Jul, 19

FAP Plant Joda (TATA Steel Ltd)													
AMBIENT AIR QUALITY MONITORING REPORT (CORE ZONE)													
Parameters	Sampling Location	NAAQ Standard	Monitoring Date	Jul-19							Monthly Average		
				02.07.2019	05.07.2019	09.07.2019	12.07.2019	16.07.2019	19.07.2019	23.07.2019		26.07.2019	30.07.2019
AAQMS-1	Gate No.1												
PM <sub>10</sub>	Gravimetric method	100(µg/m <sup>3</sup> )		78.2	76.4	75.2	74.8	73.2	72.6	78.1	78.40	79.4	76.26
PM <sub>2.5</sub>	Gravimetric method	60 (µg/m <sup>3</sup> )		41.2	40.6	40.8	41.6	42.4	43.6	44.2	45.80	44.8	42.78
SO <sub>2</sub>	Improved West Gaeke method.	80 (µg/m <sup>3</sup> )		9.2	8.6	10.2	11.6	11.4	12.8	12.2	13.20	12.6	11.31
NO <sub>x</sub>	Jacob & Hochhelsler modified (Na-Arsenite) method	80(µg/m <sup>3</sup> )		14.6	15.2	16.4	14.6	13.8	15.4	16.2	18.80	16.8	15.76
CO	NDR Spectroscopy method	4(mg/m <sup>3</sup> )		0.66	0.71	0.72	0.73	0.72	0.71	0.68	0.66	0.68	0.70
O <sub>3</sub>	Chemical Method	100(µg/m <sup>3</sup> )		<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
NH <sub>3</sub>	Indo Phenol Blue Method	400(µg/m <sup>3</sup> )		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
C6H6	Gas Chromatography	5(µg/m <sup>3</sup> )		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
BaP	Solvent Extraction Method followed by GC	1(ng/m <sup>3</sup> )		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Pb	AAS Method	1(µg/m <sup>3</sup> )		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ni	AAS Method	20(ng/m <sup>3</sup> )		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
As	AAS Method	6(ng/m <sup>3</sup> )		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
AAQMS-2	General Office												
PM <sub>10</sub>	Gravimetric method	100(µg/m <sup>3</sup> )		56.2	58.8	60.2	61.4	58.2	56.8	60.8	61.20	64.2	59.76
PM <sub>2.5</sub>	Gravimetric method	60 (µg/m <sup>3</sup> )		31.2	30.8	32.2	34.4	36.2	36.8	38.1	34.60	32.8	34.12
SO <sub>2</sub>	Improved West Gaeke method.	80 (µg/m <sup>3</sup> )		8.1	8.8	9.4	8.6	9.2	10.2	11.4	11.80	10.6	9.79
NO <sub>x</sub>	Jacob & Hochhelsler modified (Na-Arsenite) method	80 (µg/m <sup>3</sup> )		13.8	14.2	14.8	12.6	13.4	14.1	12.8	13.60	14.4	13.74
CO	NDR Spectroscopy method	100(µg/m <sup>3</sup> )		0.42	0.48	0.46	0.52	0.56	0.61	0.58	0.66	0.62	0.55
O <sub>3</sub>	Chemical Method	100(µg/m <sup>3</sup> )		<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
NH <sub>3</sub>	Indo Phenol Blue Method	400(µg/m <sup>3</sup> )		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
C6H6	Gas Chromatography	5(µg/m <sup>3</sup> )		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
BaP	Solvent Extraction Method followed by GC	1(ng/m <sup>3</sup> )		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Pb	AAS Method	1(µg/m <sup>3</sup> )		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ni	AAS Method	20(ng/m <sup>3</sup> )		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
As	AAS Method	6(ng/m <sup>3</sup> )		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

## Ambient Air Quality Monitoring Report - Jul, 19

AAQMS-3	Near Ore Yard	NAAQ Standard	Monitoring Date	02.07.2019	05.07.2019	09.07.2019	12.07.2019	16.07.2019	19.07.2019	23.07.2019	26.07.2019	30.07.2019	Monthly Average
Parameters	Method of Measurement												
PM <sub>10</sub>	Gravimetric method	100 (µg/m <sup>3</sup> )		71.8	72.2	73.8	73.6	72.4	71.4	70.6	71.40	72.8	72.22
PM <sub>2.5</sub>	Gravimetric method	60 (µg/m <sup>3</sup> )		24.6	26.8	31.2	30.6	31.8	32.4	36.8	32.80	30.6	30.84
SO <sub>2</sub>	Improved West Gaeke method.	80 (µg/m <sup>3</sup> )		7.8	8.1	8.4	8.2	9.1	9.6	8.8	7.60	8.4	8.44
NO <sub>x</sub>	Jacob & Hochhelsler modified (Na-Arsenite) method	80 (µg/m <sup>3</sup> )		11.8	12.4	12.8	13.6	14.2	15.6	15.8	14.40	13.8	13.82
CO	NDIR Spectroscopy method	100(µgm <sup>3</sup> )		0.48	0.56	0.51	0.56	0.62	0.64	0.66	0.68	0.64	0.59
O <sub>3</sub>	Chemical Method	100(µg/m <sup>3</sup> )		<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
NH <sub>3</sub>	Indo Phenol Blue Method	400(µg/m <sup>3</sup> )		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
C <sub>6</sub> H <sub>6</sub>	Gas Chromatography	5(µg/m <sup>3</sup> )		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
BaP	Solvent Extraction Method followed by GC	1(ng/m <sup>3</sup> )		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Pb	AAS Method	1(µg/m <sup>3</sup> )		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ni	AAS Method	20(ng/m <sup>3</sup> )		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
As	AAS Method	6(ng/m <sup>3</sup> )		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
AAQMS-4	Gate No-2	NAAQ Standard	Monitoring Date	02.07.2019	05.07.2019	09.07.2019	12.07.2019	16.07.2019	19.07.2019	23.07.2019	26.07.2019	30.07.2019	Monthly Average
Parameters	Method of Measurement												
PM <sub>10</sub>	Gravimetric method	100 (µg/m <sup>3</sup> )		76.8	81.2	80.6	81.8	82	78.8	78.2	80.2	82.8	80.27
PM <sub>2.5</sub>	Gravimetric method	60 (µg/m <sup>3</sup> )		41.2	40.6	40.8	44.6	43.2	44.6	45.2	46.80	46.2	43.69
SO <sub>2</sub>	Improved West Gaeke method.	80 (µg/m <sup>3</sup> )		9.8	9.6	8.6	9.1	8.8	9.4	9.6	10.20	10.8	9.54
NO <sub>x</sub>	Jacob & Hochhelsler modified (Na-Arsenite) method	80 (µg/m <sup>3</sup> )		12.8	13.6	14.2	14.6	15.2	16.8	16.2	18.10	16.8	15.37
CO	NDIR Spectroscopy method	100(µgm <sup>3</sup> )		0.42	0.51	0.56	0.58	0.52	0.61	0.66	0.68	0.62	0.57
O <sub>3</sub>	Chemical Method	100(µg/m <sup>3</sup> )		<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
NH <sub>3</sub>	Indo Phenol Blue Method	400(µg/m <sup>3</sup> )		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
C <sub>6</sub> H <sub>6</sub>	Gas Chromatography	5(µg/m <sup>3</sup> )		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
BaP	Solvent Extraction Method followed by GC	1(ng/m <sup>3</sup> )		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Pb	AAS Method	1(µg/m <sup>3</sup> )		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ni	AAS Method	20(ng/m <sup>3</sup> )		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
As	AAS Method	6(ng/m <sup>3</sup> )		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

**Ambient Air Quality Monitoring Report - Aug, 19**



**Visiontek Consultancy Services Pvt. Ltd.**

(An Enviro Engineering Consulting Cell)



ISO 9001 : 2008

ISO 14001 : 2015  
OHSAS 18001 : 2007

Ref: ENV/lab/19/IR/3180

Date: 03.09.19

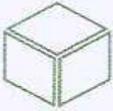
**AMBIENT AIR QUALITY MONITORING REPORT FOR AUG-2019 ( CORE ZONE)**

- Name of Industry : FAP, JODA (M/S TATA STEEL LIMITED)
- Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer.
- Sample collected by : VCSPL Representative in presence of TATA Representative

Monitoring Date	PM <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>x</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	AAQMS-1: Gate No 1					Pb (µg/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )
							NH <sub>3</sub> (µg/m <sup>3</sup> )	C <sub>2</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	Bap (ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )			
02.08.2019	51.2	32.8	8.8	13.8	0.62	<4	<20	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	
06.08.2019	52.8	34.6	8.2	14.2	0.68	<4	<20	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	
09.08.2019	50.6	35.2	7.8	14.8	0.41	<4	<20	<0.001	<0.001	<0.002	<0.001	<0.01	<0.001	
13.08.2019	44.8	34.8	8.1	15.2	0.64	<4	<20	<0.001	<0.001	<0.002	<0.001	<0.01	<0.001	
16.08.2019	52.6	35.2	8.4	13.6	0.62	<4	<20	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	
20.08.2019	53.4	30.8	9.2	14.8	0.66	<4	<20	<0.001	<0.001	<0.002	<0.001	<0.01	<0.001	
23.08.2019	48.2	31.8	10.2	15.6	0.56	<4	<20	<0.001	<0.001	<0.002	<0.001	<0.01	<0.001	
27.08.2019	50.8	32.6	9.6	16.8	0.58	<4	<20	<0.001	<0.001	<0.002	<0.001	<0.01	<0.001	
30.08.2019	48.8	34.2	9.4	15.4	0.62	<4	<20	<0.001	<0.001	<0.002	<0.001	<0.01	<0.001	
Monthly Average	50.4	33.6	8.9	14.9	0.6	<4	<20	<0.001	<0.001	<0.002	<0.001	<0.01	<0.001	
Monitoring Date	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>x</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	AAQMS-2: General Office					Pb (µg/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )
02.08.2019	46.2	30.6	8.4	10.8	0.44	<4	<20	<0.001	<0.001	<0.002	<0.001	<0.01	<0.001	
06.08.2019	48.8	28.6	9.1	11.2	0.42	<4	<20	<0.001	<0.001	<0.002	<0.001	<0.01	<0.001	
09.08.2019	40.2	32.4	9.6	11.8	0.51	<4	<20	<0.001	<0.001	<0.002	<0.001	<0.01	<0.001	
13.08.2019	41.8	28.8	10.2	12.2	0.44	<4	<20	<0.001	<0.001	<0.002	<0.001	<0.01	<0.001	
16.08.2019	42.6	30.2	8.2	10.4	0.42	<4	<20	<0.001	<0.001	<0.002	<0.001	<0.01	<0.001	
20.08.2019	43.8	32.8	8.6	11.6	0.46	<4	<20	<0.001	<0.001	<0.002	<0.001	<0.01	<0.001	
23.08.2019	44.6	23.4	9.4	12.8	0.52	<4	<20	<0.001	<0.001	<0.002	<0.001	<0.01	<0.001	
27.08.2019	44.80	30.20	10.40	13.20	0.54	<4	<20	<0.001	<0.001	<0.002	<0.001	<0.01	<0.001	
30.08.2019	45.4	33.8	9.8	13.8	0.48	<4	<20	<0.001	<0.001	<0.002	<0.001	<0.01	<0.001	
Monthly Average	44.24	30.09	9.30	11.98	0.47	<4	<20	<0.001	<0.001	<0.002	<0.001	<0.01	<0.001	
NAAQ Standard	100	60	80	80	4	100	400	5	01	01	20	06		
Testing Method	Gravimetric	Gravimetric	Improved Westgard Grabe method	Modified Jacob & Helber's (Na-Arsenite)	NDIR Spectroscopy	Chemical Method	Indo Phanal Blue Method	Absorption & Description followed by GC	Solvent Extraction Followed by GC	AAS Method	AAS Method	AAS Method		



**Ambient Air Quality Monitoring Report - Aug, 19**



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



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

Ref: ENV/lab/19/R/3181

Date 03.09.19

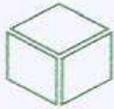
**AMBIENT AIR QUALITY MONITORING REPORT FOR JULY-2019 ( CORE ZONE)**

- Name of Industry : FAP, JODA ( M/s TATA Steel Limited)
- Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer.
- Sample collected by : VCSPL Representative in presence of TATA Representative

Monitoring Date	PM <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>x</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	Bap (ng/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )	AAQMS-3-Near Ore Yard			
													CO (mg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )
02.08.2019	52.6	25.2	7.2	11.2	0.41	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001
06.08.2019	53.2	26.4	7.8	11.8	0.48	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001
09.08.2019	53.8	26.8	8.1	12.2	0.54	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001
13.08.2019	53.6	27.2	7.6	12.6	0.61	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001
16.08.2019	54.8	28.8	7.8	12.8	0.64	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001
20.08.2019	52.6	29.6	8.8	13.6	0.56	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001
23.08.2019	51.8	29.2	9.2	13.8	0.58	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001
27.08.2019	55.20	30.20	9.10	14.20	0.48	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001
30.08.2019	54.6	29.2	8.4	13.2	0.52	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001
Monthly Average	53.58	28.07	8.22	12.82	0.54	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001
Monitoring Date	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>x</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	Bap (ng/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )	AAQMS-4-Gate No 2			
02.08.2019	58.8	38.8	10.23	13.2	0.44	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001
06.08.2019	54.6	36.2	10.6	14.2	0.52	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001
09.08.2019	52.8	36.8	9.2	14.6	0.58	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001
13.08.2019	52.6	37.2	9.4	15.2	0.61	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001
16.08.2019	54.8	38.2	10.8	14.8	0.62	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001
20.08.2019	56.8	36.6	11.2	13.8	0.59	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001
23.08.2019	56.2	37.4	10.2	14.2	0.55	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001
27.08.2019	53.6	38.23	9.80	15.60	0.56	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001
30.08.2019	52.8	40.6	9.4	16.2	0.52	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001
Monthly Average	54.78	37.78	10.09	14.64	0.55	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001
NAAQ Standard	100	60	80	80	4	100	400	Absorption & Desorption followed by GC	Solvent Extraction Followed by GC	AAS Method	AAS Method	AAS Method				



**Ambient Air Quality Monitoring Report – Sep, 19**



**Visiontek Consultancy Services Pvt. Ltd.**

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ISO 9001 : 2008  
ISO 14001 : 2004  
OHSAS 18001 : 2007

Ref: EN/ah/19/R-0936

Date: 01.10.19

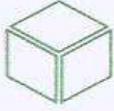
**AMBIENT AIR QUALITY MONITORING REPORT FOR SEPTEMBER-2019 ( CORE\_ZONE)**

- Name of Industry : FAP, JODA (M/s TATA Steel Limited)
- Monitoring Instruments : RDS (APM 460 BI), FPS (APM 550) Envirotech, CO Analyzer.
- Sample collected by : VCSPL Representative in presence of TATA Representative

Monitoring Date	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>x</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	AAQMS-1: Gate No 1			Pb (µg/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )
							NH <sub>3</sub> (µg/m <sup>3</sup> )	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	Bap (ng/m <sup>3</sup> )			
03.09.2019	45.2	25.31	8.8	12.6	0.44	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
06.09.2019	48.2	26.99	9.2	13.8	0.44	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
10.09.2019	32.6	18.26	9.4	13.6	0.46	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
13.09.2019	41.2	23.07	9.6	13.2	0.52	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
17.09.2019	40.6	22.74	9.2	12.4	0.48	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
20.09.2019	42.8	23.97	8.9	11.6	0.41	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
24.09.2019	36.8	20.61	9.8	12.1	0.42	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
27.09.2019	39.20	20.60	9.10	10.80	0.39	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
Monthly Average	40.83	22.69	9.25	12.51	0.45	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
NAAQ Standard	100	60	80	80	4	100	400	5	01	01	20	06
Monitoring Date	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>x</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	Bap (ng/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )
AAQMS-2: General Office												
03.09.2019	32.6	18.26	4.6	9.6	0.33	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
06.09.2019	39.2	21.95	4.8	9.8	0.36	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
10.09.2019	26.8	15.01	5.2	9.4	0.32	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
13.09.2019	34.2	19.15	5.1	10.2	0.34	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
17.09.2019	31.8	17.81	5.4	11.2	0.41	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
20.09.2019	30.6	17.14	4.9	11.4	0.32	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
24.09.2019	36.9	20.66	4.6	10.6	0.28	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
27.09.2019	37.20	20.83	5.40	9.20	0.36	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
Monthly Average	33.66	18.85	5.00	10.18	0.34	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
NAAQ Standard	100	60	80	80	4	100	400	5	01	01	20	06
Testing Method	Gravimetric	Gravimetric	Improved West and Grate method	Modified Jacob & Hochler (Na-Arsenite)	NDIR Spectroscopy	Chemical Method	Bale Piccol Blue Method	Absorption & Dispersion followed by GC	Solvent Extraction followed by GC	AAS Method	AAS Method	AAS Method



**Ambient Air Quality Monitoring Report - Sep, 19**



**Visiontek Consultancy Services Pvt. Ltd.**  
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ISO 9001 : 2008  
ISO 14001 : 2004  
OHSAS 18001 : 2007

Ref.: ENV/lab/19/R-4937

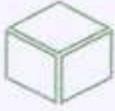
**AMBIENT AIR QUALITY MONITORING REPORT FOR SEPTEMBER ( CORE ZONE)**

- Name of Industry : FAP, JODA ( M/s TATA Steel Limited)
- Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer.
- Sample collected by : VCSPL Representative in presence of TATA Representative

Monitoring Date	PM <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>x</sub> (µg/m <sup>3</sup> )	CO (ppm/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	Bap (ng/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )
03.09.2019	36.8	20.61	6.9	12.1	0.41	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
06.09.2019	44.8	25.09	8.9	11.8	0.44	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
10.09.2019	32.6	18.26	9.4	11.6	0.48	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
13.09.2019	33.9	18.98	9.6	12.4	0.51	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
17.09.2019	44.8	25.09	6.9	12.2	0.52	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
20.09.2019	45.2	25.31	7.8	10.8	0.56	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
24.09.2019	32.6	18.26	8.1	11.8	0.58	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
27.09.2019	42.00	23.52	8.40	10.90	0.49	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
Monthly Average	39.09	21.89	8.25	11.70	0.50	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
NAAQ Standard	100	60	80	80	4	100	400	5	01	01	20	06
Monitoring Date	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>x</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	Bap (ng/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )
AAQMS-4:Gate No 2												
03.09.2019	28.8	16.13	4.8	10.6	0.48	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
06.09.2019	39.8	22.29	5.1	11.6	0.51	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
10.09.2019	26.2	14.67	5.2	11.8	0.53	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
13.09.2019	27.4	15.34	5.6	12.1	0.54	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
17.09.2019	41.2	23.07	5.8	12.6	0.56	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
20.09.2019	41.6	23.30	4.9	13.4	0.55	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
24.09.2019	26.9	15.06	5.2	12.2	0.52	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
27.09.2019	36.2	20.27	4.80	10.90	0.54	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
Monthly Average	33.51	18.77	5.18	11.90	0.53	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
NAAQ Standard	100	60	80	80	4	100	400	5	01	01	20	06
Testing Method	Gravimetric	Gravimetric	Improved West and Gaeke, Grabe, method	Modified Jacobs & Hoehner (Na-Arsenite)	NDIR Spectrometry	Chemical Method	Indo Phase Blue Method	Absorption & Desorption followed by GC	Solvent Extraction Followed by GC	AAS Method	AAS Method	AAS Method



**Ambient Air Quality Monitoring Report – Oct, 19**



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



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

Ref: Emvlab/191R - 5146

Date: 2.11.19

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

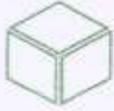
1. Name of Industry : FAP, JODA ( M/s TATA Steel Limited)  
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer,  
3. Sample collected by : VCSPL representative in presence of TATA representative.

Monitoring Date	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>x</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	C <sub>2</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	HAP (µg/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )	Ni (µg/m <sup>3</sup> )	As (µg/m <sup>3</sup> )
						AAQMS-1:Gate No-1						
01.10.2019	32.8	29.57	9.2	13.8	0.41	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
04.10.2019	54.2	30.35	9.6	14.6	0.42	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
08.10.2019	53.6	29.46	10.2	15.2	0.44	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
11.10.2019	53.8	30.13	10.2	16.4	0.46	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
15.10.2019	51.8	29.01	11.6	15.8	0.51	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
18.10.2019	50.6	28.34	10.8	15.4	0.52	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
22.10.2019	48.8	27.33	12.4	14.8	0.44	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
25.10.2019	52.69	29.46	12.30	16.20	0.41	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
29.10.2019	54.80	30.69	11.40	18.10	0.45	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
Monthly Average	52.44	29.37	10.96	15.59	0.44	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
NAAQ Standard	100	60	80	80	4	100	400	5	1	1	20	6
Testing Method	Gravimetric method	Gravimetric method	Improved West Gaeke method	Jacob & Hochheiser modified	NDIR Spectrometry method	Chemical Method	Indo Phenol Blue Method	Gas Chromatography	Solvent Extraction Method followed by GC	AAS Method	AAS Method	AAS Method

Monitoring Date	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>x</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	C <sub>2</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	HAP (µg/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )	Ni (µg/m <sup>3</sup> )	As (µg/m <sup>3</sup> )
						AAQMS-2:General Office						
01.10.2019	60.6	33.94	6.8	10.2	0.41	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
04.10.2019	61.2	34.27	8.4	10.8	0.46	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
08.10.2019	66.2	37.07	10.6	13.4	0.42	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
11.10.2019	58.2	32.99	11.2	14.1	0.36	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
15.10.2019	58.1	32.34	12.4	13.2	0.41	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
18.10.2019	56.2	31.47	10.8	16.2	0.44	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
22.10.2019	60.4	33.82	11.6	16.8	0.38	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
25.10.2019	56.80	31.81	12.10	17.40	0.32	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
29.10.2019	65.20	36.51	11.40	18.20	0.31	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
Monthly Average	60.32	33.78	10.59	14.70	0.39	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
NAAQ Standard	100	60	80	80	4	100	400	5	1	1	20	6
Testing Method	Gravimetric method	Gravimetric method	Improved West Gaeke method	Jacob & Hochheiser modified	NDIR Spectrometry method	Chemical Method	Indo Phenol Blue Method	Gas Chromatography	Solvent Extraction Method followed by GC	AAS Method	AAS Method	AAS Method



**Ambient Air Quality Monitoring Report – Oct, 19**



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



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

Ref: Envlab/1912-5147

Date: 1.11.19

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

- Name of Industry : FAP, JODA ( M/s TATA Steel Limited)
- Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer.
- Sample collected by : VCSPL representative in presence of TATA representative.

Monitoring Date	PM <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>x</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	BaP (µg/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )	Ni (µg/m <sup>3</sup> )	As (µg/m <sup>3</sup> )
01.10.2019	56.8	31.81	8.6	13.6	0.48	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
04.10.2019	60.2	33.71	8.1	14.2	0.46	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
08.10.2019	61.4	34.38	9.6	14.8	0.42	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
11.10.2019	61.6	34.50	10.2	15.2	0.51	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
15.10.2019	55.4	31.02	10.8	15.6	0.58	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
18.10.2019	52.8	29.57	9.2	14.4	0.52	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
22.10.2019	53.2	29.79	8.4	13.8	0.44	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
25.10.2019	56.40	31.58	11.20	15.60	0.46	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
29.10.2019	60.80	34.05	11.60	16.10	0.61	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
Monthly Average	57.62	32.27	9.74	14.81	0.50	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
NAAQ Standard	100	60	80	80	4	100	400	5	1	1	20	6
Testing Method	Gravimetric method	Gravimetric method	Improved West Gaeke method	Jacob & Hochheiser modified	NDIR Spectroscopy method	Chemical Method	Indo Phenol Blue Method	Gas Chromatography	Solvent Extraction Method followed by GC	AAS Method	AAS Method	AAS Method

Monitoring Date	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>x</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	BaP (µg/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )	Ni (µg/m <sup>3</sup> )	As (µg/m <sup>3</sup> )
01.10.2019	48.8	27.33	6.2	10.8	0.44	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
04.10.2019	46.2	25.87	6.8	11.2	0.46	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
08.10.2019	30.8	28.45	7.2	12.1	0.44	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
11.10.2019	51.2	28.67	8.1	12.6	0.51	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
15.10.2019	56.8	31.81	9.9	13.1	0.52	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
18.10.2019	60.8	34.05	10.2	13.6	0.55	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
22.10.2019	62.2	34.83	10.8	12.4	0.52	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
25.10.2019	55.4	31.02	9.80	15.20	0.46	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
29.10.2019	56.80	31.81	11.20	14.80	0.48	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
Monthly Average	54.33	30.63	8.88	12.87	0.49	<4	<20	<0.001	<0.002	<0.001	<0.01	<0.001
NAAQ Standard	100	60	80	80	4	100	400	5	1	1	20	6
Testing Method	Gravimetric method	Gravimetric method	Improved West Gaeke method	Jacob & Hochheiser modified	NDIR Spectroscopy method	Chemical Method	Indo Phenol Blue Method	Gas Chromatography	Solvent Extraction Method followed by GC	AAS Method	AAS Method	AAS Method



## Annexure- II

### Stack Emission Monitoring Report from 01-04-2019 To 31-10-2019

Stack Emission Monitoring Report – Apr, 19



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



ISO 9001 : 2008  
ISO 14001 : 2004  
OHSAS 18001 : 2007

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Ref: *Envlab/19/R-105* Date: *01/05/2019*

**STACK ANALYSIS REPORT FOR THE MONTH OF APRIL-2019**

1. Name of Industry : **FAP, JODA ( M/s TATA Steel Limited)**  
 2. Sampling location : **ST-1: Furnance-1  
ST-2: Furnance-2**  
 3. Date of analysis : **18.04.2019 TO 22.04.2019**  
 4. Sample collected by : **VCSPL Representative in presence of TATA Representative**

Date of Sampling	17.04.2019 at 10.30 am		17.04.2019 at 12.05 pm	
<b>A General Information about Stack</b>	Stack Connected to			
<b>B Results of Sampling &amp; Analysis of Gaseous Emission</b>	Furnance-1		Furnance-2	
	Analysis Results	CPCB Limit	Analysis Results	CPCB Limit
1. Temperature of emission (°C)	88.0		74.0	
2. Barometric pressure (mm of Hg)	714.0		714.0	
3. Velocity of gas (m/sec.)	12.4		13.6	
4. Quantity of gas flow (Nm <sup>3</sup> /hr.)	1248.0		1169.0	
5. Concentration of Carbon monoxide (mg/Nm <sup>3</sup> )	41.2	150	38.0	150
6. Concentration of Sulphur dioxide (mg/Nm <sup>3</sup> )	70.8		81.2	
7. Concentration of Nitrogen dioxide (mg/Nm <sup>3</sup> )	82.0	2255(1100 ppbv)	86.2	2255(1100 ppbv)
8. Concentration of particulate Matters (mg/Nm <sup>3</sup> )	38.0	75	46.0	75
<b>C Pollution control Device</b>	Nil		Nil	
Details of pollution control				
Device attached with the stack				



For Visiontek Consultancy Services Pvt. Ltd.

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Plot No.-M-22&23, Chandika Industrial Estate, Patia, Bhubaneswar-751024, Dist-Khorda, Odisha Tel. :91-674-6451781, 7752017905  
 E-mail : visiontekinc@yahoo.co.in, visiontekinc@gmail.com. Visit us at: www.visiontek.com  
 Committed For Better Environment

### Stack Emission Monitoring Report – May, 19

1. Name of Industry		<b>FAP, Joda (M/s TATA Steel Limited)</b>			
		<b>22.05.2019 at 11.45 AM</b>		<b>22.05.2019 at 12.30 PM</b>	
<b>A General Information about Stack</b>		<b>Furnance-1</b>		<b>Furnance-2</b>	
1 Stack Connected to					
<b>B Results of Sampling &amp; Analysis of Gaseous Emission</b>		<u>Analysis Results</u>	<u>CPCB Limit</u>	<u>Analysis Results</u>	<u>CPCB Limit</u>
1	Temperature of emission (°C)	80		78	
2	Barometric pressure (mm of Hg)	714		714	
3	Velocity of gas (m/sec.)	12.8		14.1	
4	Quantity of gas flow (Nm <sup>3</sup> /hr.)	1230		1182	
5	Concentration of Carbon monoxide (mg/Nm <sup>3</sup> )	44.6	<b>150</b>	40.6	<b>150</b>
6	Concentration of Sulphur dioxide (mg/Nm <sup>3</sup> )	72		82.8	
7	Concentration of Nitrogen dioxide (mg/Nm <sup>3</sup> )	84	<b>2255(1100 ppmv)</b>	90	<b>2255(1100 ppmv)</b>
8	Concentration of particulate Matters (mg/Nm <sup>3</sup> )	42	<b>75</b>	48	<b>75</b>
<b>C Pollution control Device</b>					
Details of pollution control		Nil		Nil	
Device attached with the stack					
<b>D Remarks</b>					

### Stack Emission Monitoring Report –Jun, 19



## Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)



Ref.: ENV Lab/19/R - 1126

Date: 3/7/19

#### STACK ANALYSIS REPORT FOR THE MONTH OF JUNE-2019

1. Name of Industry : FAP, JODA (M/s TATA Steel Limited)  
 2. Sampling location : ST-1: Furnance-1  
 ST-2: Furnance-2  
 3. Date of analysis : 27.06.2019 TO 01.07.2019  
 4. Sample collected by : VCSPL Representative in presence of TATA Representative

<b>Date of Sampling</b>		<b>26.06.2019 at 12.00 PM</b>		<b>26.06.2019 at 1.30 PM</b>	
<b>A General Information about Stack</b>		<b>Furnance-1</b>		<b>Furnance-2</b>	
1 Stack Connected to					
<b>B Results of Sampling &amp; Analysis of Gaseous Emission</b>		<u>Analysis Results</u>	<u>CPCB Limit</u>	<u>Analysis Results</u>	<u>CPCB Limit</u>
1	Temperature of emission (°C)	84.0		80.0	
2	Barometric pressure (mm of Hg)	714.0		714.0	
3	Velocity of gas (m/sec.)	14.6		15.2	
4	Quantity of gas flow (Nm <sup>3</sup> /hr.)	1416.88		1214.8	
5	Concentration of Carbon monoxide (mg/Nm <sup>3</sup> )	51.2	<b>150</b>	48.2	<b>150</b>
6	Concentration of Sulphur dioxide (mg/Nm <sup>3</sup> )	69.6		80.2	
7	Concentration of Nitrogen dioxide (mg/Nm <sup>3</sup> )	86.8	<b>2255(1100 ppmv)</b>	82.6	<b>2255(1100 ppmv)</b>
8	Concentration of particulate Matters (mg/Nm <sup>3</sup> )	51.2	<b>75</b>	56.8	<b>75</b>
<b>C Pollution control Device</b>					
Details of pollution control		Nil		Nil	
Device attached with the stack					

For Visiontek Consultancy Services Pvt. Ltd.

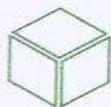
### Stack Emission Monitoring Report –Jul, 19

1. Name of Industry	<b>FAP, Joda (M/s TATA Steel Limited)</b>					
	<b>Date of Sampling</b>	:	<b>24.07.2019 at 12.00 PM</b>		<b>24.07.2019 at 2.00 PM</b>	
	<b>A General Information about Stack</b>		<b>Furnance-1</b>		<b>Furnance-2</b>	
	1 Stack Connected to	:				
	<b>B Results of Sampling &amp; Analysis of Gaseous Emission</b>		<u>Analysis Results</u>		<u>CPCB Limit</u>	
	1 Temperature of emission (°C)	:	82		80	
	2 Barometric pressure (mm of Hg)	:	714		714	
	3 Velocity of gas (m/sec.)	:	14.8		15.6	
	4 Quantity of gas flow (Nm <sup>3</sup> /hr.)	:	1426.6		1311.2	
	5 Concentration of Carbon monoxide (mg/Nm <sup>3</sup> )	:	56.2	<b>150</b>	50.6	<b>150</b>
	6 Concentration of Sulphur dioxide (mg/Nm <sup>3</sup> )	:	74.2		82.8	
	7 Concentration of Nitrogen dioxide (mg/Nm <sup>3</sup> )	:	91.6	<b>2255(1100 ppmv)</b>	94.2	<b>2255(1100 ppmv)</b>
	8 Concentration of particulate Matters	:	50.8	<b>75</b>	58.8	<b>75</b>
	<b>C Pollution control Device</b>					
	Details of pollution control	:	Nil		Nil	
	Device attached with the stack	:				
	<b>D Remarks</b>	:				

### Stack Emission Monitoring Report –Aug, 19

	<b>Name of the Industry</b>	:	<b>FAP, Joda (M/s TATA Steel Limited)</b>			
	<b>Date of Sampling</b>	:	<b>26.08.2019 at 11.15 AM</b>		<b>26.08.2019 at 12.00 PM</b>	
	<b>A General Information about Stack</b>		<b>Furnance-1</b>		<b>Furnance-2</b>	
	1 Stack Connected to	:				
	<b>B Results of Sampling &amp; Analysis of Gaseous Emission</b>		<u>Analysis Results</u>		<u>CPCB Limit</u>	
	1 Temperature of emission (°C)	:	88		90	
	2 Barometric pressure (mm of Hg)	:	714		714	
	3 Velocity of gas (m/sec.)	:	15.2		16.1	
	4 Quantity of gas flow (Nm <sup>3</sup> /hr.)	:	1511.2		1420.8	
	5 Concentration of Carbon monoxide (mg/Nm <sup>3</sup> )	:	61.2	<b>150</b>	52.6	<b>150</b>
	6 Concentration of Sulphur dioxide (mg/Nm <sup>3</sup> )	:	71.2		78.6	
	7 Concentration of Nitrogen dioxide (mg/Nm <sup>3</sup> )	:	88.6	<b>2255(1100 ppmv)</b>	90.8	<b>2255(1100 ppmv)</b>
	8 Concentration of particulate Matters (mg/Nm <sup>3</sup> )	:	46.2	<b>75</b>	52.6	<b>75</b>
	<b>C Pollution control Device</b>					
	Details of pollution control	:	Nil		Nil	
	Device attached with the stack	:				
	<b>D Remarks</b>	:				

## Stack Emission Monitoring Report –Sep, 19



# Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)



ISO 9001 : 2008  
ISO 14001 : 2004  
OHSAS 18001 : 2007

Ref.: ENV/lab/19/R-4439

Date: 01.10.19

### STACK ANALYSIS REPORT FOR THE MONTH OF SEPTEMBER-2019

1. Name of Industry : FAP, JODA ( M/s TATA Steel Limited)  
 2. Sampling Location : ST-1: Furnance-1  
 ST-2: Furnance-2  
 3. Date of Analysis : 26.09.2019 TO 30.09.2019  
 4. Sample Collected by : VCSPL Representative in presence of TATA Representative

Date of Sampling	25.09.2019 at 10.30 AM	25.09.2019 at 12.00 PM	
<b>A General Information about Stack</b>			
1 Stack Connected to	Furnance-1	Furnance-2	
<b>B Results of Sampling &amp; Analysis of Gaseous Emission</b>	<u>Analysis Results</u>	<u>CPCB Limit</u>	<u>Analysis Results</u>
1 Temperature of Emission (°C)	66		74
2 Barometric Pressure (mm of Hg)	714		714
3 Velocity of Gas (m/sec.)	13.8		14.6
4 Quantity of Gas Flow (Nm <sup>3</sup> /hr.)	1368.9		1164.8
5 Concentration of Carbon monoxide (mg/Nm <sup>3</sup> )	46.8	150	47.4
6 Concentration of Sulphur Dioxide (mg/Nm <sup>3</sup> )	61.6		66.4
7 Concentration of Nitrogen Dioxide (mg/Nm <sup>3</sup> )	82.8	2255(1100 ppmv)	80.6
8 Concentration of Particulate Matters (mg/Nm <sup>3</sup> )	46.8	75	42.6
<b>C Pollution control Device</b>			
Details of pollution control	Nil		Nil
Device attached with the stack			



## Stack Emission Monitoring Report –Oct, 19



# Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)



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

Ref: ENV/ab/19/R- 5148

Date: 1.11.19

## STACK ANALYSIS REPORT FOR THE MONTH OF OCTOBER-2019

1. Name of Industry : FAP, JODA ( M/s TATA Steel Limited)  
2. Monitoring Instruments : ST1: Furnace-1  
ST2 : Furnace-2  
3. Sample collected by : VCSPL representative in presence of TATA representative.

Date Of Sampling	24.10.2019 at 10.20 AM		24.10.2019 at 11.30 AM	
<b>A. General Information about Stack</b>				
Stack Connected to	Furnace-1		Furnace-2	
<b>B. Results of Sampling &amp; Analysis of Gaseous Emission:</b>	Results	CPCB Limit	Results	CPCB Limit
1. Temperature of emission (°C)	68	--	76	--
2. Barometric pressure (mm of Hg)	714	--	714	--
3. Velocity of gas (m/sec.)	14.2	--	15.6	--
4. Quantity of gas flow (Nm <sup>3</sup> /hr.)	1412.9	--	1218.8	--
5. Concentration of Carbon monoxide (mg/Nm <sup>3</sup> )	48.2	150	51.2	150
6. Concentration of Sulphur dioxide (mg/Nm <sup>3</sup> )	62.2	--	68.2	--
7. Concentration of Nitrogen dioxide (mg/Nm <sup>3</sup> )	84.1	2255( 1100 ppmv)	82.4	2255( 1100 ppmv)
8. Concentration of particulate Matters (mg/Nm <sup>3</sup> )	48.8	75	46.6	75
Pollution Control Device				
Details of pollution control	:			
Device attached with the stack	: Nil			
Remarks				



### **Annexure-III**



**Mobile High Velocity Water Sprinkler cum Mist Canon**



**Dry Fogging System for Fugitive dust suppression**

## **RAIN WATER HARVESTING**

S. No.	Facility Description	Total (Area in Acres)	Catchment type	Runoff coefficient
1.	Admin & other buildings	0.500	Roof-top catchment	0.9
2.	Raw Material Storage	7.533		
3.	Product Storage	0.230		
	<b>Total</b>	<b>8.263</b>		
4	Road & drainage	1.482	Roads and pavements	0.8
5.	Truck Parking Area	0.33	Open area	0.75
6.	Green Belt	15.6	Green area	0.7



Location – General Office



## **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****Ground Water Quality Analysis – Jun, 19**

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



ISO 9001 : 2008  
ISO 14001 : 2004  
OHSAS 18001 : 2007

Ref.: ENVlab/19/R-1133

Date: 3/7/19

**GROUND WATER TEST WELL ANALYSIS REPORT FOR THE MONTH OF JUNE-2019**

1. Name of Industry : FAP, JODA ( M/s TATA Steel Limited)
2. Sampling location : GW-1: Upstream Ground Water From Test Well  
GW-2: Downstream Ground Water From Test Well
3. Date of sampling : 15.06.2019
4. Date of analysis : 17.06.2019 to 24.06.2019
5. Sample collected by : VCSPL Representative in presence of TATA Representative

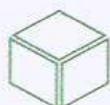
Sl. No	Parameter	Testing Methods	Unit	Standard as per IS -10500:2012	Analysis Results	
					GW-1	GW-2
<b>Essential Characteristics</b>						
1	Colour	APHA 2120 B, C	Hazen	5	1	1
2	Odour	APHA 2150 B	--	Agreeable	Agreeable	Agreeable
3	Taste	APHA 2160 C	--	Agreeable	Agreeable	Agreeable
4	Turbidity	APHA 2130 B	NTU	1	<1	<1
5	pH Value	APHA 4500H <sup>+</sup> B	--	6.5-8.5	7.12	7.62
6	Total Hardness (as CaCO <sub>3</sub> )	APHA 2340 C	mg/l	200	71.2	80.8
7	Iron (as Fe)	APHA 3500Fe, B	mg/l	0.3	0.22	0.29
8	Chloride (as Cl <sup>-</sup> )	APHA 4500Cl B	mg/l	250	56	72
9	Residual, free Chlorine	APHA 4500Cl, B	mg/l	0.2	ND	ND
<b>Desirable Characteristics</b>						
10	Dissolved Solids	APHA 2540 C	mg/l	500	220.0	246.0
11	Calcium (as Ca)	APHA 3500Ca B	mg/l	75	28.8	32.6
12	Magnesium (as Mg)	APHA 3500Mg B	mg/l	30	19.6	21.2
13	Copper (as Cu)	APHA 3111 B,C	mg/l	0.05	<0.05	<0.05
14	Manganese (as Mn)	APHA 3500Mn B	mg/l	0.1	0.021	0.026
15	Sulphate (as SO <sub>4</sub> )	APHA 4500 SO <sub>4</sub> <sup>2-</sup> E	mg/l	200	6.8	7.6
16	Nitrate (as NO <sub>3</sub> )	APHA 4500 NO <sub>3</sub> E	mg/l	45	3.1	3.6
17	Fluoride (as F)	APHA 4500F C	mg/l	1	0.016	0.021
18	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	APHA 5530 B,D	mg/l	0.001	<0.001	<0.001
19	Mercury (as Hg)	APHA 3500 Hg	mg/l	0.001	<0.001	<0.001
20	Cadmium (as Cd)	APHA 3111 B,C	mg/l	0.003	<0.001	<0.001
21	Selenium (as Se)	APHA 3114 B	mg/l	0.01	<0.001	<0.001
22	Arsenic (as As)	APHA 3114 B	mg/l	0.01	<0.001	<0.001
23	Cyanide (as CN)	APHA 4500 CN <sup>-</sup> C,D	mg/l	0.05	ND	ND
24	Lead (as Pb)	APHA 3111 B,C	mg/l	0.01	<0.001	<0.001
25	Zinc (as Zn)	APHA 3111 B,C	mg/l	5	<0.05	<0.05
26	Anionic Detergents (as MBAS)	APHA 5540 C	mg/l	0.2	<0.2	<0.2
27	Chromium (as Cr <sup>VI</sup> )	APHA 3500Cr B	mg/l	<0.05	<0.05	<0.05
28	Mineral Oil	APHA 5220 B	mg/l	0.5	<0.01	<0.01
29	Alkalinity	APHA 2320 B	mg/l	200	124	152
30	Aluminium as( Al)	APHA 3500Al B	mg/l	0.03	<0.001	<0.001
31	Boron (as B)	APHA 4500B, B	mg/l	0.05	<0.01	<0.01
32	Poly Aromatic Hydrocarbon as PAH	APHA 6440 B	µg/l	--	<0.001	<0.001
33	Pesticide	APHA 6630 B,C	mg/l	Absent	Absent	Absent

Note: CL: Colourless, ND: Not Detected.

For Visiontek Consultancy Services Pvt. Ltd.

Plot No.-M-22&23, Chandka Industrial Estate, Patia, Bhubaneswar-751024, Dist-Khurda, Odisha Tel. : 91-674-6451781, 7752017905  
E-mail : visiontekin@yahoo.co.in, visiontek@gmail.com, Visit us at: [www.vcspl.org](http://www.vcspl.org)  
Committed For Better Environment

## Ground Water Quality Analysis – Sep, 19



# Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)



ISO 9001 : 2008  
ISO 14001 : 2004  
OHSAS 18001 : 2007

Ref.: ENV/lab/19/R-4443

Date: 01.10.19

### GROUND WATER QUALITY ANALYSIS REPORT FOR THE MONTH OF SEPTEMBER-2019

- |    |                     |   |  |
|----|---------------------|---|--|
| 1. | Name of Industry    | : | FAP, JODA ( M/s TATA Steel Limited)  |
| 2. | Sampling location   | : | GW-1: Upstream Ground Water From Test Well<br>GW-2: Downstream Ground Water From Test Well |
| 3. | Date of sampling    | : | 20.09.2019   |
| 4. | Date of analysis    | : | 21.09.2019 TO 27.09.2019   |
| 5. | Sample collected by | : | VCSPL Representative in presence of TATA Representative                                    |

Sl No	Parameter	Testing Methods	Unit	Standard as per IS-10500:2012 Amended on 2015 & 2018		Analysis Results	
				Acceptable Limit	Permissible Limit	GW-1	GW-2
<b>Essential Characteristics</b>							
1	Colour	APHA 2120 B, C	Hazen	5	15	1	1
2	Odour	APHA 2150 B	--	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	APHA 2160 C	--	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	APHA 2130 B	NTU	1	5	<1	<1
5	pH Value	APHA 4500H <sup>+</sup> B	--	6.5-8.5	No Relaxation	7.18	7.34
6	Total Hardness (as CaCO <sub>3</sub> )	APHA 2340 C	mg/l	200	600	66	76.2
7	Iron (as Fe)	APHA 3500Fe, B	mg/l	0.3	1.0	0.21	0.24
8	Chloride (as Cl <sup>-</sup> )	APHA 4500Cl <sup>-</sup> B	mg/l	250	1000	60	66
9	Residual, free Chlorine	APHA 4500Cl <sub>2</sub> B	mg/l	0.2	1	ND	ND
<b>Desirable Characteristics</b>							
10	Dissolved Solids	APHA 2540 C	mg/l	500	2000	210	228
11	Calcium (as Ca)	APHA 3500Ca B	mg/l	75	200	26.2	30.8
12	Magnesium (as Mg)	APHA 3500Mg B	mg/l	30	100	13.8	19.6
13	Copper (as Cu)	APHA 3111 B,C	mg/l	0.05	1.5	<0.02	<0.02
14	Manganese (as Mn)	APHA 3500Mn B	mg/l	0.1	0.3	0.018	0.021
15	Sulphate (as SO <sub>4</sub> <sup>2-</sup> )	APHA 4500 SO <sub>4</sub> <sup>2-</sup> E	mg/l	200	400	6.4	7.2
16	Nitrate (as NO <sub>3</sub> <sup>-</sup> )	APHA 4500 NO <sub>3</sub> <sup>-</sup> E	mg/l	45	No Relaxation	2.8	3.4
17	Fluoride (as F)	APHA 4500F <sup>-</sup> C	mg/l	1.0	1.5	0.011	0.019
18	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	APHA 5530 B,D	mg/l	0.001	0.002	<0.05	<0.05
19	Mercury (as Hg)	APHA 3500 Hg	mg/l	0.001	No Relaxation	<0.004	<0.004
20	Cadmium (as Cd)	APHA 3111 B,C	mg/l	0.003	No Relaxation	<0.03	<0.03
21	Selenium (as Se)	APHA 3114 B	mg/l	0.01	No Relaxation	<0.005	<0.005
22	Arsenic (as As)	APHA 3114 B	mg/l	0.01	No Relaxation	<0.005	<0.005
23	Cyanide (as CN)	APHA 4500 CN <sup>-</sup> C,D	mg/l	0.05	No Relaxation	ND	ND
24	Lead (as Pb)	APHA 3111 B,C	mg/l	0.01	No Relaxation	<0.01	<0.01
25	Zinc (as Zn)	APHA 3111 B,C	mg/l	5	15	<0.03	<0.03
26	Anionic Detergents (as MBAS)	APHA 5540 C	mg/l	0.2	1.0	<0.2	<0.2
27	Chromium (as Cr <sup>6+</sup> )	APHA 3500Cr B	mg/l	--	--	<0.05	<0.05
28	Mineral Oil	APHA 5220 B	mg/l	0.5	No Relaxation	<0.01	<0.01
29	Alkalinity	APHA 2320 B	mg/l	200	600	112	138
30	Aluminium as( Al)	APHA 3500Al B	mg/l	0.03	0.2	<0.01	<0.01
31	Boron (as B)	APHA 4500B, B	mg/l	0.5	2.4	<0.1	<0.1
32	Poly Aromatic Hydrocarbon as PAH	APHA 6440 B	mg/l	0.0001	No Relaxation	<0.0001	<0.0001
33	Pesticide	APHA 6630 B,C	µg/l	--	No Relaxation	Absent	Absent

Note: CL : Colourless, AL: Agreeable, U/O : Unobjectionable, ND: Not Detected



Plot No.-M-22&23, Chandaka Industrial Estate, Patia, Bhubaneswar-751024, Dist-Khurda, Odisha Tel. : 7752017905  
E-mail : visiontek@vcspl.org, visiontekin@gmail.com, visiontekin@yahoo.co.in, Visit us at: www.vcspl.org

Committed For Better Environment

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

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



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.

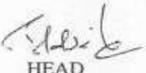
Sir,

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-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.

*Received*  
*24/2/16*



**TATA STEEL LIMITED**  
Ferro Alloys Plant, Joda-756034, Dist. Keonjhar, Odisha, India  
Tel. : 09236100945, 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

**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. : 06238100945, 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 VIII**

**Noise Monitoring Report from 01-04-2019 to 31-10-2019**



**Visiontek Consultancy Services Pvt. Ltd.**

*(An Enviro Engineering Consulting Cell)*



ISO 9001 : 2008  
ISO 14001 : 2004  
OHSAS 18001 : 2007

Ref: ENVlab /19/R-1131

Date: 3/7/19

**NOISE MONITORING REPORT FOR JUNE-2019**

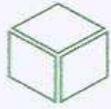
1. Name of Industry : FAP, JODA ( M/s TATA Steel Limited)
2. Date of Recording : 21.06.2019
3. Monitored by : VCSPL Representative in presence of TATA Representative

Sl.No	Sampling Location	Daytime dB ( A) Leq	Night Time dB ( A) Leq
1	Gate No-1	70.60	41.6
2	General Office	56.20	42.8
3	Office Varanda	55.20	38.8
4	Canteen	62.80	62.2
5	Mechanical Work Shop	70.60	68.8
6	Fabrication Area	78.80	71.2
7	RMPH Office	66.20	60.2
8	Packing Plot (2A)	62.20	58.8
9	Ceter Point	71.20	60.8
10	Weigh Bridge	68.20	61.2
11	Gate No-2	70.80	64.8
12	Ore Yard	72.20	70.2
13	well Area	62.20	58.8
14	Outside Furnace	74.20	60.2
15	Inside Furnace	88.60	81.8
16	Furnace Control Room	80.80	76.2
17	Infront Of DG Room	66.20	60.2
18	Infront of fire Hydrant Room	68.20	58.8
19	132 KV Electricity Substaion Room	72.60	69.2
20	Work Area	71.20	66.4
21	CMDC Area	78.80	71.2
22	Play Ground	80.60	78.2



For Visiontek Consultancy Services Pvt. Ltd.

## Noise Monitoring Report from 01-04-2019 to 31-10-2019



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



ISO 9001 : 2008  
ISO 14001 : 2004  
OHSAS 18001 : 2007

Ref.: ENV/lab/19/R-4447

Date: 01.10.19

**NOISE QUALITY ANALYSIS REPORT FOR THE MONTH OF SEPTEMBER-2019**

1. Name of Industry : FAP, JODA ( M/s TATA Steel Limited)
2. Date of sampling : 17.09.2019
3. Sample collected by : VCSPL Representative in presence of TATA Representative

Sl.No	Sampling Location	Day	Night
1	Gate No-1	71.20	44.8
2	General Office	58.00	40.6
3	Office Varanda	56.00	36.6
4	Canteen	60.60	40.8
5	Mechanical Work Shop	71.20	41.2
6	Fabrication Area	76.60	46.6
7	RMPH Office	62.80	45.6
8	Packing Plot (2A)	60.60	44.8
9	Ceter Point	69.60	56.6
10	Weigh Bridge	66.80	58.2
11	Gate No-2	70.20	56.8
12	Ore Yard	71.20	56.6
13	well Area	60.80	56.8
14	Outside Furnace	72.20	59.1
15	Inside Furnace	78.80	50.6
16	Furnace Control Room	79.70	51.8
17	Infront Of DG Room	62.20	55.6
18	Infront of fire Hydrant Room	66.60	58.2
19	132 KV Electricity Substaion Room	70.20	52.8
20	Work Area	70.80	56.4
21	CMDC Area	74.80	51.2
22	Play Ground	76.20	48.2



## Annexure IX

### Periodic Medical Examination Records

**Form No. 31-A, Health Record (Pre-employment/Periodical, Prescribed under Rule 62-J)**

**Date :** 31/10/18

**SI. No. :**

1. Name of the factory : FAP

2. Name of the employee : Samjy Singh

3. Employee Distinguishing No : 097652

4. Age of the employee : 40yr

Identification Mark : 4elmm of safe

Nature of the Job : C.Ro

5. Date of Employment : 15/10/2003

6. Length of the service in years : 15yr

7. General Survey :  
 Health : Good / Fair / Poor  
 Height (Cms) : 142  
 Weight (Kg) : 70

8. Blood Group : B+ve

9. Eye Vision : Normal / Abnormal

Use of Glass : Yes / No

10. Hearing : Normal / Abnormal

11. Respiratory System and Chest Measurement :  
 Inspiration : 116  
 Expiration : 110  
 Respiration Rate : 18  
 Remarks, if any :

12. Cardio Vascular System :  
 Pulse Rate : 78  
 B.P. : 120/80  
 Heart Sound : S<sub>1</sub>S<sub>2</sub>(R)

13. Abdomen Tenderness : Yes / No

14. Nervous System : Yes / No

15. Locomotor System : Normal / Abnormal

16. Skin Condition : Normal / Abnormal

Remarks on any skin Disease Noticed : Present / Absent

17. Hemias : Present / Absent

18. Hydrocele : Present / Absent

19. Present Complain, if any

20. Summary of findings :  
 Heart disease : NAD  
 Hypertension : NAD  
 Diabetes : Post (97), PP (105)  
 T.B. :  
 Epilepsy :  
 Poisoning : NAD  
 Other :  
 Occupational disease, if NAD  
 any :

21. Recommendation, if any for any further investigation

Signature of the Employee : *[Signature]*

Signature of the Medical Officer : *[Signature]*  
 DUGAL SINGH  
 TATA STEEL HOSPITAL  
 JODA

**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  
major copy  
of Environmental  
clearance*

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

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 Silico 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, Horni Mody Street, Fort, Mumbai-400001, India  
Tel. 91 22 69658282, Fax 91 22 69657724  
Corporate Identity Number L27100MH1907PLC000260, Website : www.tatasteel.com

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



Ref: FAPJ/ 4195 /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- 1A 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:

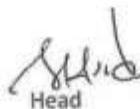
1. Xerox copy of Environmental Clearance

**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**

Details of CSR funds allocated and released Expenditure against CSR Activities				
Period	Year wise expenditure Planning in (Rs Cr.)	Actual Expenditure for C.S.R in Rs Cr.	Name Of the CSR activities	Wheather Completed or Not
2011-12	26.00 Cr	26.07 Cr.	Health,Education,Livelihood,Rural Infastructure,Major Project:Keonjhar Bus stand	Completed
2012-13	21.00 Cr	21.17 Cr.	Health,Education,Livelihood,Rural Infastructure,Major Project:Construction of khandband Joribar Road	Completed
2013-14	15.00 Cr	15.21 Cr.	Health,Education,Livelihood,Rural Infastructure,Major Project:Road resurfacing inside Joda municipality	Completed
2014-15	24.00 Cr	24.98 Cr.	Health,Education,Livelihood,Rural Infastructure,Major Project:Municipaity Drinking water Project	Completed
2015-16	19.00 Cr	18.97 Cr	Health,Education,Livelihood,Rural Infastructure,Major Project:Kalyan Mandap at Joda	Completed
2016-17	18.86 Cr	13.20 Cr	Health,Education,Livelihood,Rural Infastructure,Major Project:Sona river bank protection near Women's college.	Completed
1017-18	14.00 Cr	14.27 Cr	Construction of PCC Pathway,boundary, toilet and painting ,Procuring 2 Mobile Medical Units and ambulances,Waiver for free treatment at Tata Steel Hospital, Joda,Installation of piped drinking water supply system in Gurutuan, Kamalpur, Bandhuabeda, Deoghar & Kusumdi, School Improvement Project (1000 Schools and Hans Foundation),30 Model school project at Keonjhar,Women Empowerment Programmes	Completed



Head  
Ferro alloys Plant,Joda

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



**Annexure XIII**

**Covering Letter of Form V. Environment statement submission**



**Annexure XIV**

**Details of Publication on the Newspapers**



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



ନେଇ ସାଧାରଣରେ ଚର୍ଚ୍ଚା ବାରିଛି । ପଦ୍ମପୁର ପ୍ରଥମେ ବ୍ୟାଟିଂ କରି ୧୫.୬  
 ଟିକେଟ୍ ହରାଇ ୧୩୯ ରନ୍ କରିଥିଲା ।

**ଫେରୋ ଆଲୟେଜ ପ୍ଲାଣ୍ଟ  
 ଟାଟା ଷ୍ଟିଲ ଲିମିଟେଡ୍,  
 ଯୋଡ଼ା, ଜିଲ୍ଲା-କେନ୍ଦୁଝର, ଓଡ଼ିଶା**

**TATA  
 TATA STEEL**

**ସର୍ବସାଧାରଣ ବିଜ୍ଞାପ୍ତି**

ଭାରତ ସରକାରଙ୍କ ପରିଚେଷ୍ଟା, ଜଙ୍ଗଲ ଓ ଜଳବାୟୁ ପରିବର୍ତ୍ତନ ମନ୍ତ୍ରାଳୟ (ଏମ୍ପିଉଇଏପ୍  
 ଆଣ୍ଡ୍ ସିସି), (ଆରଏ ଟିଭିଜନ) , ନୂଆଦିଲ୍ଲୀ ପକ୍ଷରୁ ଜାରି କରାଯାଇଥିବା ବିଟି ସଂଖ୍ୟା  
 J-11011/03/2012-IA II(I), ତା ୫.୧୧.୨୦୧୫ତରିଖ ଅନୁସାରେ ଓଡ଼ିଶାର  
 କେନ୍ଦୁଝର ଜିଲ୍ଲାର ଯୋଡ଼ାଠାରେ ଅବସ୍ଥିତ ଟାଟା ଷ୍ଟିଲ ଲିମିଟେଡ୍‌ର ଫେରୋ ଆଲୟେଜ  
 ପ୍ଲାଣ୍ଟକୁ ମନ୍ତ୍ରାଳୟ ଫେରୋ ମାଙ୍ଗାନିଜ୍ ଉତ୍ପାଦନ କ୍ଷମତା ବାଣିଜ ୦.୦୫୦୪ ନିୟୁତ  
 ଟନରୁ ୦.୦୬ ଟନକୁ ବୃଦ୍ଧି ଓ ଏହାତହିତ ଯୋଡ଼ାଠାରେ ଥିବା ଫେରୋ ଆଲୟେଜ  
 ପ୍ଲାଣ୍ଟରେ ବାଣିଜ ୦.୦୬ ନିୟୁତ ଟନ କ୍ଷମତା ଓକ୍ଟୋ ସିଲିକୋନ-ମାଙ୍ଗାନିଜ୍ ପ୍ଲାଣ୍ଟ ଓ ବାଣିଜ  
 ୦.୦୫ ନିୟୁତ ଟନ କ୍ଷମତା ସମ୍ପନ୍ନ ମାଙ୍ଗାନିଜ୍ ସିଣ୍ଡିକେଟ୍ ପ୍ଲାଣ୍ଟ ପାଇଁ ପରିଚେଷ୍ଟା ମଞ୍ଜୁରୀ  
 ପ୍ରଦାନ କରିଛନ୍ତି ।  
 ପରିଚେଷ୍ଟା ମଞ୍ଜୁରୀର ଜଙ୍ଗଲ ଓଡ଼ିଶାର ଭୂବିଜ୍ଞାନଶାସ୍ତ୍ର ବିଭାଗ ପ୍ରତ୍ୟାକ୍ଷ ନିୟନ୍ତ୍ରଣ  
 ଦୋର୍ଟ ନିଜରେ ଉପଲବ୍ଧ ଏବଂ ଭାରତ ସରକାରଙ୍କ ପରିଚେଷ୍ଟା, ଜଙ୍ଗଲ ଓ  
 ଜଳବାୟୁ ପରିବର୍ତ୍ତନ ମନ୍ତ୍ରାଳୟ ଷ୍ଟେଟ୍‌ସାଇଟ୍ <http://envfor.nic.in> ରେ ମଧ୍ୟ  
 ଦେଖାଯାଇପାରିବ ।

ପଙ୍କଜ କୁମାର ସଚିନ,  
 ମହା ପ୍ରକାଶକ (ଅପରେସନ୍ସ)  
 ଏପ୍‌ଏ ଆଣ୍ଡ୍ ଏମ୍‌ଡି, ଟାଟା ଷ୍ଟିଲ ଲିମିଟେଡ୍

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