



Ref. No.: FAMD/FAPJ/782/FY24

Date: 22.11.2023

To,

**The Additional Director,
Ministry of Environment and Forest & Climate Change,
Eastern Region Office,
A/3, Chandrasekharpur,
Bhubaneswar-751023**

Subject: Submission of half-yearly compliance report on the stipulated environmental clearance terms and conditions in respect of Ferro Alloys Plant, Joda of M/s TATA Steel Ltd., for the period from April'2023 to September'2023.

Reference:

1) MoEF File No: J-11011/03/2012-IA II (I) DATED 5th Nov 2015.

2) MoEF&CC's notification vide S.O-5845 (E), dt. 28th Nov 2018.

Respected Sir,

We are herewith submitting the six-monthly compliance report on the status of the implementation of the conditions stipulated in environmental clearance awarded to us vide MoEF File No: **J-11011/03/2012-IA II (I) DATED 5th Nov 2015** in respect of Ferro Alloys Plant, Joda of M/s TATA Steel Ltd. for the period from April'2023 to September'2023 for your kind perusal.

This is in reference to the MoEF&CC's notification vide S.O-5845, dt. 28th Nov 2018, the six-monthly compliance report is being submitted only in soft copy mode, shared with your good office at e-mail @ roez.bsr-mef@nic.in.

We believe the above submission is in order.

Thanking you,

Yours faithfully,

F: TATA STEEL LTD.

Head
Ferro Alloys Plant, Joda

Encl: As above.

Copy To:

1) The Member Secretary, State Pollution Control Board, A/118, Nilakantha Nagar, Bhubaneswar, Odisha-751012

2) The Regional Officer, State Pollution Control Board, Baniapat, DD College Road, Keonjhar, Odisha-758001.

TATA STEEL LTD.

Ferro Alloys & Minerals Division, Ferro Alloys Plant, JodaAt/P.O.: Joda,
Dist: Keonjhar Odisha – 758 034 Tel.: 9238101370, e-mail : mnminesadmin@tatasteel.com
Regd. Office: Bombay House, 24 Homi Modi Street, Mumbai – 400 001 Tel 912266658282, Fax 912266657724
Corporate Identity Number L27100MH1907PLC000260 website: www.tatasteel.com



Half -Yearly Compliance Report

On

Environmental Clearance Conditions

(MoEF File No. J-11011/03/2012-IA. II (I) Dated 5th November 2015)

Period: April'2023 – September'2023

Submitted By:

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

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

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Six Monthly Compliance Report to the Terms of Conditions of Environmental Clearance granted in favor of Ferro Alloys Plant, Joda, M/s Tata Steel Limited for April'23 to September'2023

A. SPECIFIC CONDITION:

Sl. No.	Specific Condition	Compliance Status (April'2023 to September'2023)
I	<p>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>	<p align="center"><u>Complied.</u></p> <p>Presently four nos. ambient air monitoring stations have been developed for the monitoring of Ambient Air Quality Parameters as per National Ambient Air Quality Standard 2009.</p> <p>Monitoring and analysis is carried out by engaging an MoEF&CC as well as NABL Accredited laboratory. Reports are submitted to State Pollution Control Board Odisha on monthly basis.</p> <p>Photographs of Monitoring Station as well as Abstract of monitoring results for the past six months are enclosed as Annexure-1.</p> <p>Detailed Monitoring Reports for the period from April'2023 to September'2023 is enclosed as Annexure-2.</p>
II	<p>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 100 mg/Nm³ and installing energy efficient technology.</p>	<p align="center"><u>Complied.</u></p> <p>Presently, the plant is operated with two semi closed electric arc furnaces, each provided with two Gas Cleaning Plants (one in working and one as standby) comprising wet scrubbing arrangements.</p> <p>Thus, Total 04 Nos of Gas Cleaning Plants have been installed. Each Gas Cleaning Plant (GCP) has one stack of height around 36.57 mtr above ground level with internal diameter of 0.4 mtr.</p> <p>The pollution control measures such as Gas Cleaning plant with venturi scrubbers are also provided with online Continuous Emission Monitoring System (CEMS) having SPECTROLYSERS for real time surveillance of Emission parameters such as Particulate Matter (PM), Carbon Monoxide (CO), Oxides of Sulphur (SO_x), Oxides of Nitrogen (NO_x). The Emission monitoring system has been integrated with the online server of Odisha Pollution Control Board (OSPCB).</p> <p>The results for emission parameters in the flue gas are observed to be well within the OSPCB prescribe limits.</p> <p>The stack emission parameter testing is also carried out by engaging an NABL Accredited laboratory on monthly basis. The report indicates that the emission parameters conform to the applicable permissible standards.</p> <p>Photographs of Pollution Control Measures (GCP) and Continuous Emission Monitoring System enclosed as Annexure-3.</p> <p>Abstract of Stack Emission Monitoring Results (Detailed Reports) are enclosed as Annexure-4.</p>

Six Monthly Compliance Report to the Terms of Conditions of Environmental Clearance granted in favor of Ferro Alloys Plant, Joda, M/s Tata Steel Limited for April'23 to September'2023

Sl. No.	Specific Condition	Compliance Status (April'2023 to September'2023)
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"><u>Complied.</u></p> <p>Presently, ambient Air Quality Standard notified vide G.S.R. No. 826(E) dated 16th November 2009 is followed. For this purpose, four (04) nos. of ambient air monitoring stations have been developed for the monitoring of Ambient Air Quality Parameters as per NAAQS-2009 with a frequency of twice per week.</p> <p align="center">Pl. Refer to Annexure-1 & Annexure-2.</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 30 th May, 2008 should be followed.	<p align="center"><u>Complied.</u></p> <p>Following the standards notified by the Ministry vide G.S.R. 414 (E) dated 30th May 2008, fugitive dust emission is monitored at strategic locations such as Slag Crusher Area, Raw Material Storage Yard, Feed hopper on quarterly basis for Particulate Matter. Sampling and Analysis is carried out by an MoEF&CC recognised laboratory.</p> <p>The results confirm that fugitive dust emission is well within the permissible limit of 2000 µg/m³. Monitoring Results of past two quarters is enclosed as Annexure-5.</p>
V	Water sprinkling arrangements as well as dry fog system to control fugitive emission shall be undertaken.	<p align="center"><u>Complied.</u></p> <p>For containing fugitive dust generation from the internal roads within plant premises are bitumen or RCC.</p> <p>Apart from this, One Mobile mist canon is in operation round the clock to arrest fugitive emission. Fixed Sprinkling arrangement has also been installed to take care of fugitive emission for the haul roads (internal) over a stretch of 500mtrs.</p> <p>A mobile tanker mounted with mist canon and with road sprinkling provision also available round the clock.</p> <p>Photographs of RCC roads and Fixed Sprinkling arrangements are enclosed as Annexure-6.</p>
VI	Tap hole emissions shall be taken to GCP system by providing proper hood and suction system.	<p align="center"><u>Complied.</u></p> <p>Dedicated fume extraction system has been installed with bag filters for tap hole emission. Photographs enclosed Annexure 7.</p>
VII	Efforts should further be made to use maximum water from the rainwater 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 align="center"><u>Complied.</u></p> <p>Presently, a fully functional roof top rainwater harvesting cum recharging project at the administrative office with potential of rainwater harvesting is around 1500 cu.m/year.</p> <p>New rainwater harvesting recharge pit made near furnace building.</p> <p>A surface impoundment at the back side of the plant premises has been developed over around 1Acre area for harvesting of rainwater. This project has been dedicated to the community</p>

Six Monthly Compliance Report to the Terms of Conditions of Environmental Clearance granted in favor of Ferro Alloys Plant, Joda, M/s Tata Steel Limited for April'23 to September'2023

Sl. No.	Specific Condition	Compliance Status (April'2023 to September'2023)
		<p>in vicinity. The harvesting potential of the same is around 1200 cum/year.</p> <p>To reduce water consumption, close circuit cooling system is in operation.</p> <p>Photographs of Rainwater Harvesting Project is enclosed as Annexure-8.</p>
VIII	<p>All the effluent should be treated and used for ash handling, dust suppression and green belt development. No effluent shall be discharged, and 'zero' discharge shall be adopted. Sanitary sewage should be treated in septic tank followed by the soak pit.</p>	<p align="center"><u>Complied.</u></p> <p>There are neither any potential sources for generation of ash nor any activity as such handling ash inside plant premises. The plant is maintained with "Zero Discharge Standard". The plant has two operational aspects with water usage demand i.e., Furnace Cooling system and Gas Cleaning plant. For furnace cooling system complete close circuit-based recirculation system has been provided however makeup water is required to cater to the same. Whereas the effluents generated from the cleaning of GCP plant is passed through Solid-Liquid Separation system and the underflow is recirculated via thickener. There is no wastewater getting generated from the processes.</p> <p>The plant has an operational STP of 10KLD to take care of the domestic effluent generated from the office premises, canteen areas and others, etc.</p> <p>The plant has an operational 720 KLD ETP Effluent samples from the STP are getting analysed on monthly basis.</p> <p>Photographs and Monitoring Reports are enclosed as Annexure-9.</p>
IX	<p>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, SPEB and CPCB.</p>	<p align="center"><u>Complied.</u></p> <p>Monitoring of surface water (from Kundra nala/Sona River) is carried out on monthly basis. Similarly, ground water and subsurface water samples are also collected from the borewells as well as nearby peripheral areas on monthly basis. Sampling and analysis are carried out by an NABL Accredited laboratory. The analysis reports are also submitted to the Odisha State Pollution Control Board on monthly basis. Abstract of water Quality (wastewater, ground water and surface water) for the period of Apr'23 to Sep'23 is enclosed as Annexure-10.</p>
X	<p>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>	<p align="center"><u>Complied.</u></p> <p>Slag produced from existing Fe-Mn plant are, partly used in the process as a raw material for Fe-Mn production and rest are sold to the Ferro Alloys Industry for making Si-Mn.</p> <p>During FY 2023-24, (Apr-Sep) the total, slag generated 16987 MT approx. and 12829 MT approx. is sold to the Ferro Alloys Industry for making Si-Mn and rest used inhouse.</p>

Six Monthly Compliance Report to the Terms of Conditions of Environmental Clearance granted in favor of Ferro Alloys Plant, Joda, M/s Tata Steel Limited for April'23 to September'2023

Sl. No.	Specific Condition	Compliance Status (April'2023 to September'2023)
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 align="center"><u>Complied.</u></p> <p>Risk and disaster management plan along with the mitigation measures was submitted. Reference to our communication in this regard are as follows:</p> <ol style="list-style-type: none"> Letter no. FAPJ/4249/2016, dated. 01.02.2016 for Central Pollution Control Board, New Delhi, Letter no. FAP(J)/4250/2016, dated. 01.02.2016, for the erstwhile Ministry of Environment & Forest, Eastern Regional Office, Bhubaneswar Letter no. FAP(J)/4251/2016, dated. 01.02.2016 to State Pollution Control Board, Bhubaneswar. <p>[Copy of the letters is enclosed as Annexure-11</p>
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.	<p align="center"><u>Complied.</u></p> <p>The plant is established over an area of 47.135 Acre, out of which the existing project work (Fe-Mn Plant with Two Furnace units) is established over 33.4 Acres and 13. 735 Acres has been earmarked for the proposed expansion project (Si-Mn Plant & Sinter Plant) in respect of which the subject EC has been granted.</p> <p>The said proposed expansion project has been initiated however it is envisaged that there would be significant delay to establish and commission the upcoming plants/projects for the purpose of which, an application for extension of the validity of prevailing Environmental Clearance is sought from the Ministry.</p> <p>Accordingly, we are required to develop our greenbelt over 15.55 Acres (33% of 47.135Acres). Presently, greenbelt has been developed over an area of around 16 Acres with self-sustained plantation of around 16740 Nos.</p> <p>Photographs of greenbelt developed inside plant premises is enclosed as Annexure- 12.</p>
XIII	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Steel Plants shall be implemented.	<p align="center"><u>Complied.</u></p> <p>All the applicable recommendations of CREP have been implemented.</p>
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.	<p align="center"><u>Complied.</u></p> <p>All the CSR measures are carried out by the CSR wing of the company under the banner of Tata Steel Foundation. During FY 23-24 (Apr'23 to Sep'23), the company has spent around Rs. 4.69 Crore on the strengthening of social welfare infrastructure of the Joda valley region.</p> <p>Details of expenditure is provided as Annexure- 13.</p>

Six Monthly Compliance Report to the Terms of Conditions of Environmental Clearance granted in favor of Ferro Alloys Plant, Joda, M/s Tata Steel Limited for April'23 to September'2023

Sl. No.	Specific Condition	Compliance Status (April'2023 to September'2023)
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	<u>Complied.</u> There are no labour camps within the Site. However, workers are provided with all necessary infrastructure and facilities such as fuel for cooking mobile toilets, STP, Safe drinking water, medical, crèche etc.

B. General Conditions

Sl. No.	General Condition	Compliance Status (April'2023 to September'2023)
I	The project authorities must strictly adhere to the stipulations made by the Odisha Pollution Control Board and the State Government.	<u>Complied.</u> 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 (MoEF&CC).	<u>Noted.</u>
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.	<u>Complied.</u> Presently four nos. ambient air monitoring stations have been developed for the monitoring of Ambient Air Quality Parameters as per National Ambient Air Quality Standard 2009. Monitoring and analysis is carried out by engaging an MoEF&CC as well as NABL Accredited laboratory. Reports are submitted to State Pollution Control Board Odisha on monthly basis.
IV	Industrial wastewater shall be properly collected, treated so as to conform to the standard prescribed under GSR 422 (E) dated 19th May 1993 and 31st December 1993 or as amended from time to time. The treated wastewater shall be utilized for plantation purpose.	<u>Complied.</u> It has been followed. Treated wastewater is utilised for plantation/gardening and road water sprinkling 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 (daytime) and 70 dBA (night-time).	<u>Complied.</u> All the Noise generating sources have been provided with requisite acoustic enclosures. Ambient Noise level is also monitored at several places inside plant premises. Abstract of the Ambient Noise level Monitoring Result is enclosed as Annexure-15.

Six Monthly Compliance Report to the Terms of Conditions of Environmental Clearance granted in favor of Ferro Alloys Plant, Joda, M/s Tata Steel Limited for April'23 to September'2023

Sl. No.	General Condition	Compliance Status (April'2023 to September'2023)
VI	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act	Complied. Periodic medical check-ups were conducted yearly. Last medical check-up was done in November 2023 and 783 nos. of employees were examined including contractual employees. Records were maintained as per Orissa factory rule. Reports awaiting. [PME record sample of 2022 is enclosed as Annexure 16]
VII	The company shall develop rainwater harvesting structures to harvest the rainwater for utilization in the lean season besides recharging the ground water table.	Complied. Presently, a fully functional roof top rainwater harvesting cum recharging project at the administrative office with potential of rainwater harvesting is around 1500 cu.m/year . New rainwater harvesting recharge pit made near furnace building. A surface impoundment at the back side of the plant premises has been developed over around 1Acre area for harvesting of rainwater. This project has been dedicated to the community in vicinity. The harvesting potential of the same is around 1200 cum/year . To reduce water consumption, close circuit cooling system is in operation. Photographs of Rainwater Harvesting Project is enclosed as Annexure-7 .
VIII	The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA/EMP report. Further, the company must undertake social- economic development activities in the surrounding villages like community development programmes, educational programmes, drinking water supply and health care etc.	Complied. Necessary Environmental Protection Measures are implemented in line with the provision of EIA/EMP report. During FY 2023-24, the company kept a budget of Rs. 37 lakhs (recurring expenses) for the Environmental Protection Measures. Details of Environmental Expenditure for FY 2023-24 is enclosed as Annexure-17. All the CSR measures are carried out by the CSR wing of the company under the banner of Tata Steel Foundation. During FY 23-24, the company has spent around Rs. 4.69 crore on the strengthening of social welfare infrastructure of the Joda valley region. Details of expenditure is provided as Annexure- 13.
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	Complied. During FY 2023-24, the company kept a budget of Rs. 37 lakhs (recurring expenses) for the Environmental Protection Measures Details of Environmental Expenditure for FY 2023-24 is enclosed as Annexure-17.

**Six Monthly Compliance Report to the Terms of Conditions of Environmental Clearance granted in favor of Ferro Alloys Plant,
Joda, M/s Tata Steel Limited for April'23 to September'2023**

Sl. No.	General Condition	Compliance Status (April'2023 to September'2023)
	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 concern 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"><u>Complied.</u></p> <p>Already Complied. Intimation of obtaining Environmental Clearance is given to Zila Parishad vide letter No. FAPJ/4136/2015. Copy of Letter is given in Annexure-18</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"><u>Complied.</u></p> <p>The six-monthly compliance reports along with the monitoring results are uploaded in Tata Steel's website www.tatasteel.com for public view and updated periodically.</p> <p>Photograph is given in the Annexure - 19</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"><u>Complied.</u></p> <p>Six monthly compliance reports are being submitted regularly to the MoEF, its Regional Office Bhubaneswar, Central Pollution Control Board Kolkata and State Pollution Control Board. Last six-monthly compliance report was sent vide letter No FAMD/FAPJ/592/FY23 dt.24.05.2023 for the period from Oct-2022 to March-2023.</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 Regional Office of the MoEFCC) at Bhubaneswar by e-	<p align="center"><u>Complied.</u></p> <p>The Environment statement in Form V was submitted for the year 2022-23 on 23rd Sep 2023 vide letter no.- Ref. No. FAMD/FAPJ/716/FY24 to SPCB, Bhubaneswar and Regional office, Keonjhar and the compliance of environmental conditions is uploaded on the website. [Copy of Letter is given in Annexure-20]</p>

**Six Monthly Compliance Report to the Terms of Conditions of Environmental Clearance granted in favor of Ferro Alloys Plant,
Joda, M/s Tata Steel Limited for April'23 to September'2023**

Sl. No.	General Condition	Compliance Status (April'2023 to September'2023)
	mail.	
XIV	The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearances letter are available with SPCB and may also be seen at website of the Ministry of Environment, Forests and Climate Change (MoEFCC) at https://envfor.nic.in . This shall be advertised 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.	<u>Complied.</u> Information regarding Environmental clearance issued is published on Sambad oriya newspaper on 13 th November issue and on the statesman English Newspaper of 13 th November issue. [Details of publication are given in Annexure -21
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	Being Followed with. It will be strictly followed



**Head,
Ferro Alloys Plant, Joda
Tata Steel Ltd.**

Six Monthly Compliance Report to the Terms of Conditions of Environmental Clearance granted in favor of Ferro Alloys Plant, Joda, M/s Tata Steel Limited for April'23 to September'2023

ANNEXURE-1


ENVIRONMENTAL MONITORING RESULTS (APRIL'23 to SEPTEMBER'23)



Location	Main gate						
Parameters	NAAQ Standard	Apr-23	May-23	June-23	July-23	Aug-23	Sep-23
PM10	100($\mu\text{g}/\text{m}^3$)	57.9	60.5	58.6	53.8	54.5	56.5
PM2.5	60 ($\mu\text{g}/\text{m}^3$)	21.7	23.1	23.4	20.6	22.9	26.3
SO2	80 ($\mu\text{g}/\text{m}^3$)	10.3	10.6	10	10.2	10.3	11.1
NO2	80($\mu\text{g}/\text{m}^3$)	20.5	22.2	21.2	20.5	22.2	23.4
Location	General Office						
Parameters	NAAQ Standard	Apr-23	May-23	June-23	July-23	Aug-23	Sep-23
PM10	100($\mu\text{g}/\text{m}^3$)	54.3	55.2	52.3	50.6	50.4	50.8
PM2.5	60 ($\mu\text{g}/\text{m}^3$)	18.6	19.2	19.3	18.1	18	20
SO2	80 ($\mu\text{g}/\text{m}^3$)	9.2	8.9	9.3	9.4	8.8	9.8
NO2	80($\mu\text{g}/\text{m}^3$)	18.4	18.1	18.4	17.5	16.9	19.3
Location	Near ETP						
Parameters	NAAQ Standard	Apr-23	May-23	June-23	July-23	Aug-23	Sep-23
PM10	100($\mu\text{g}/\text{m}^3$)	50	50.1	51.5	49.6	52.5	51.7
PM2.5	60 ($\mu\text{g}/\text{m}^3$)	18.6	18.2	18.9	19.5	20.5	20.6
SO2	80 ($\mu\text{g}/\text{m}^3$)	8	6.1	7.3	8.3	9.8	9.6
NO2	80($\mu\text{g}/\text{m}^3$)	16.5	16.7	18.8	19.5	19.1	20.8
Location	Back gate						
Parameters	NAAQ Standard	Apr-23	May-23	June-23	July-23	Aug-23	Sep-23
PM10	100($\mu\text{g}/\text{m}^3$)	50.9	52.7	51.9	50.9	51.8	54.4
PM2.5	60 ($\mu\text{g}/\text{m}^3$)	18.3	19.2	20.9	19.8	19.7	22.6
SO2	80 ($\mu\text{g}/\text{m}^3$)	9.5	9.2	8.6	9.2	9.5	11.4
NO2	80($\mu\text{g}/\text{m}^3$)	18.6	20.2	18.8	20.1	18.4	20.3



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Annexure - 2
Ambient Air quality Report Samples From 01.04.2023 To 30-09-2023



Anacon Laboratories

Test Report

TC 5458

ULR No.- TCS4582300000927F

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Ambient Air Quality Monitoring Report-April-2023

Report No.: AN/AAQ/TSL-F/2023/1-1		Date: 29/04/2023	
Name and Address of Industry:- TATA STEEL LIMITED FAP JODA, Keonjhar, FAMD, ODISHA-758034 (India)		W. O. No.:	3000144107/056
		W. O. date:	19/04/2022
Sample Description/ Type	Ambient Air Quality (Core Zone)	Sample Ref. No.:-	ALPL/24042023/Mon-1/38-TSLFAP-CZ/AAQMS-1 ALPL/24042023/Mon-1/38-TSLFAP-CZ/AAQMS-2
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	10,17,24,29 April-2023
Test Started On:-	11,18,24,29 April-2023	Test Completed On:-	11,18,24,29 April-2023
Sampling Procedure	ANd/7.2/Mon-01		

Sr. No.	LOCATION	Date of sampling	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	CO mg/m ³		
Method Reference									
			IS 5182 (Part 2)	USEPA-40 (Part 50)	IS 5182 (Part-2)	IS 5182 (Part-4)	IS 5182 (Part-10)		
AAQMS-1	Near Main Gate	03/04/2023	62.9	26.1	12.9	28.1	BDL (DL - 0.5)		
		06/04/2023	61.7	24.3	11.6	21.7	BDL (DL - 0.5)		
		10/04/2023	57.3	18.3	9.2	19.6	BDL (DL - 0.5)		
		13/04/2023	64.7	28.1	12.4	21.4	BDL (DL - 0.5)		
		17/04/2023	56.2	21.7	9.7	18.2	BDL (DL - 0.5)		
		20/04/2023	54.9	17.3	8.2	16.8	BDL (DL - 0.5)		
		24/04/2023	48.3	16.1	6.8	16.2	BDL (DL - 0.5)		
		27/04/2023	37.1	21.9	11.4	21.6	BDL (DL - 0.5)		
		Monthly Average Value			57.9	21.7	10.3	20.5	BDL (DL - 0.5)
		AAQMS-2	General Office	03/04/2023	56.2	38.7	9.1	17.2	BDL (DL - 0.5)
06/04/2023	52.8			36.9	8.4	16.4	BDL (DL - 0.5)		
10/04/2023	47.3			36.2	8.7	16.1	BDL (DL - 0.5)		
13/04/2023	54.9			21.6	9.8	18.3	BDL (DL - 0.5)		
17/04/2023	61.7			23.4	11.3	21.8	BDL (DL - 0.5)		
20/04/2023	38.3			19.2	9.7	19.2	BDL (DL - 0.5)		
24/04/2023	47.1			15.8	7.3	18.4	BDL (DL - 0.5)		
27/04/2023	56.2			16.9	9.1	19.7	BDL (DL - 0.5)		
Monthly Average Value					51.3	18.6	9.2	18.4	BDL (DL - 0.5)


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Remark: - All Results are within Limit as per CPCB Standards.

Verified by



Snehal Raut
Deputy Technical Manager


Authorized Signatory



Dr. (Mrs.) S. D. Garway
Quality Manager



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Test Report

TC 5458

ULR No.- TCS4582300000927F

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Ambient Air Quality Monitoring Report-April-2023

Report No.: AN/AAQ/TSL-F/2023/1-2		Date: 29/04/2023	
Name and Address of Industry:- TATA STEEL LIMITED FAP JODA, Keonjhar, FAMD, ODISHA-758034 (India)		W. O. No.:	3000144107/056
		W. O. date:	19/04/2022
Sample Description/ Type	Ambient Air Quality (Core Zone)	Sample Ref. No.:-	ALPL/24042023/Mon-1/38-TSLFAP-CZ/AAQMS-3 ALPL/24042023/Mon-1/38-TSLFAP-CZ/AAQMS-4
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	10,17,24,29 April-2023
Test Started On:-	11,18,24,29 April-2023	Test Completed On:-	11,18,24,29 April-2023
Sampling Procedure	ANd/7.2/Mon-01		

Sr. No.	LOCATION	Date of sampling	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	CO mg/m ³		
Method Reference									
			IS 5182 (Part 2)	USEPA-40 (Part 50)	IS 5182 (Part-2)	IS 5182 (Part-6)	IS 5182 (Part-10)		
AAQMS-3	Near Well Zone	03/04/2023	46.2	16.1	7.5	15.8	BDL (DL - 0.5)		
		06/04/2023	51.7	18.3	6.8	16.2	BDL (DL - 0.5)		
		10/04/2023	46.3	16.9	7.2	17.4	BDL (DL - 0.5)		
		13/04/2023	52.6	21.7	9.3	18.1	BDL (DL - 0.5)		
		17/04/2023	54.9	23.4	9.7	16.3	BDL (DL - 0.5)		
		20/04/2023	46.3	18.3	8.4	15.9	BDL (DL - 0.5)		
		24/04/2023	51.7	16.8	9.1	16.7	BDL (DL - 0.5)		
		27/04/2023	48.3	17.2	6.2	15.3	BDL (DL - 0.5)		
		Monthly Average Value			50.0	18.6	8.0	16.5	BDL (DL - 0.5)
		AAQMS-4	Near Back Gate	03/04/2023	54.7	38.3	11.7	21.9	BDL (DL - 0.5)
06/04/2023	53.6			17.4	9.2	18.7	BDL (DL - 0.5)		
10/04/2023	47.3			16.1	7.6	16.4	BDL (DL - 0.5)		
13/04/2023	51.9			21.6	9.7	21.3	BDL (DL - 0.5)		
17/04/2023	48.2			18.7	8.4	18.1	BDL (DL - 0.5)		
20/04/2023	52.8			19.3	9.2	17.6	BDL (DL - 0.5)		
24/04/2023	47.3			18.2	8.1	16.9	BDL (DL - 0.5)		
27/04/2023	51.6			16.8	11.7	18.2	BDL (DL - 0.5)		
Monthly Average Value					50.9	18.3	9.5	18.6	BDL (DL - 0.5)

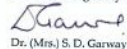
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Remark: - All Results are within Limit as per CPCB Standards.

Verified by



Snehal Raut
Deputy Technical Manager

Authorized Signatory




Dr. (Mrs.) S. D. Garway
Quality Manager

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Six Monthly Compliance Report to the Terms of Conditions of Environmental Clearance granted in favor of Ferro Alloys Plant, Joda, M/s Tata Steel Limited for April'23 to September'2023



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Test Report

TC 5458

ULR No.- TC54582300001718F

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Ambient Air Quality Monitoring Report-June-2023


Report No.: AN/AAQ/TSL-F/2023/1-1		Date: 30/06/2023	
Name and Address of Industry:-		W. O. No.	3000144107/056
		W. O. date:	19/04/2022
Sample Description/ Type	Ambient Air Quality (Core Zone)	Sample Ref. No.:-	ALPL/22062023/Mon-6/39-TSLFAP-CZ/AAQMS-1
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	12, 19, 27 June-2023
Test Started On:-	12, 19, 28 June-2023	Test Completed On:-	13, 20, 29 June-2023
Sampling Procedure	ANtd/7.2/Mon-01		

Sr. No.	LOCATION	Date of sampling	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	CO mg/m ³
Method Reference			IS 5182 (Part 23)	USEPA-40 (Part 50)	IS 5182 (Part-2)	IS 5182 (Part-6)	IS 5182 (Part-10)
AAQMS-1	Near Main Gate	02/06/2023	62.8	28.4	11.6	23.9	BDL (DL - 0.5)
		03/06/2023	57.3	24.7	9.2	21.6	BDL (DL - 0.5)
		07/06/2023	64.7	29.1	12.8	26.1	BDL (DL - 0.5)
		09/06/2023	54.9	18.3	8.7	16.4	BDL (DL - 0.5)
		14/06/2023	56.3	21.9	9.2	18.6	BDL (DL - 0.5)
		15/06/2023	61.7	23.8	11.4	23.8	BDL (DL - 0.5)
		22/06/2023	54.9	19.2	7.6	17.3	BDL (DL - 0.5)
		24/06/2023	56.2	21.8	9.2	21.7	BDL (DL - 0.5)
		Monthly Average Value			58.6	23.4	10.0
AAQMS-2	General Office	02/06/2023	56.1	21.6	9.3	17.4	BDL (DL - 0.5)
		03/06/2023	49.2	18.3	8.4	16.2	BDL (DL - 0.5)
		07/06/2023	54.7	19.1	9.1	16.8	BDL (DL - 0.5)
		09/06/2023	51.2	16.9	7.2	17.3	BDL (DL - 0.5)
		14/06/2023	57.6	23.6	11.4	21.9	BDL (DL - 0.5)
		15/06/2023	49.3	18.2	9.2	19.1	BDL (DL - 0.5)
		22/06/2023	52.8	19.7	11.3	21.4	BDL (DL - 0.5)
		24/06/2023	47.2	16.9	8.1	17.2	BDL (DL - 0.5)
		Monthly Average Value			52.3	19.3	9.3

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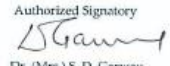
Remark: - All Results are within Limit as per CPCB Standards.

Verified by



Snehal Raut
Deputy Technical Manager

Authorized Signatory




Dr. (Mrs.) S. D. Garway
Quality Manager

----End of Report----



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Test Report

TC 5458

ULR No.- TC54582300001718F

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Ambient Air Quality Monitoring Report-June-2023


Report No.: AN/AAQ/TSL-F/2023/1-2		Date: 30/06/2023	
Name and Address of Industry:-		W. O. No.	3000144107/056
		W. O. date:	19/04/2022
Sample Description/ Type	Ambient Air Quality (Core Zone)	Sample Ref. No.:-	ALPL/22062023/Mon-6/39-TSLFAP-CZ/AAQMS-3
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	12, 19, 27 June-2023
Test Started On:-	12, 19, 28 June-2023	Test Completed On:-	13, 20, 29 June-2023
Sampling Procedure	ANtd/7.2/Mon-01		

Sr. No.	LOCATION	Date of sampling	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	CO mg/m ³
Method Reference			IS 5182 (Part 23)	USEPA-40 (Part 50)	IS 5182 (Part-2)	IS 5182 (Part-6)	IS 5182 (Part-10)
AAQMS-3	Near Well Zone	02/06/2023	51.6	19.3	7.2	18.4	BDL (DL - 0.5)
		03/06/2023	48.3	16.9	6.4	17.2	BDL (DL - 0.5)
		07/06/2023	53.9	21.6	8.1	19.7	BDL (DL - 0.5)
		09/06/2023	47.2	16.4	6.2	17.1	BDL (DL - 0.5)
		14/06/2023	52.6	18.7	7.9	19.2	BDL (DL - 0.5)
		15/06/2023	56.3	21.8	9.4	23.6	BDL (DL - 0.5)
		22/06/2023	54.9	19.2	6.8	18.3	BDL (DL - 0.5)
		24/06/2023	47.2	16.9	6.2	17.1	BDL (DL - 0.5)
		Monthly Average Value			51.5	18.9	7.3
AAQMS-4	Near Back Gate	02/06/2023	54.7	24.9	9.7	21.8	BDL (DL - 0.5)
		03/06/2023	52.1	19.3	8.4	18.2	BDL (DL - 0.5)
		07/06/2023	57.3	26.1	11.3	23.9	BDL (DL - 0.5)
		09/06/2023	47.8	16.8	7.6	18.2	BDL (DL - 0.5)
		14/06/2023	51.9	21.6	8.4	16.7	BDL (DL - 0.5)
		15/06/2023	53.1	23.4	7.9	16.1	BDL (DL - 0.5)
		22/06/2023	46.3	16.7	6.4	16.4	BDL (DL - 0.5)
		24/06/2023	51.9	18.3	9.1	18.7	BDL (DL - 0.5)
		Monthly Average Value			51.9	20.9	8.6

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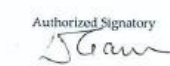
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Verified by



Snehal Raut
Deputy Technical Manager

Authorized Signatory




Dr. (Mrs.) S. D. Garway
Quality Manager



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Six Monthly Compliance Report to the Terms of Conditions of Environmental Clearance granted in favor of Ferro Alloys Plant, Joda, M/s Tata Steel Limited for April'23 to September'2023



TC 5458

Anacon Laboratories
Test Report

ULR No.- TC545823000002498F Page 1 of 1

Ambient Air Quality Monitoring Report-August-2023

Report No.: AN/AAQ/TSL-F/2023/1-1		Date: 31/08/2023	
Name and Address of Industry:- TATA STEEL LIMITED FAP JODA, Koorjhar, FAMD, ODISHA-758034 (India)		W. O. No.	3000144107/056
		W. O. date:	19/04/2022
Sample Description/ Type	Ambient Air Quality (Core Zone)	Sample Ref. No.-	ALPL/07082023/Mon-2/8-TSLFAP-CZ/AAQMS-1,2 ALPL/24082023/Mon-3/20-TSLFAP-CZ/AAQMS-1,2 ALPL/30082023/Mon-2/14-TSLFAP-CZ/AAQMS-1,2
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	7, 14, 21, 28, 31 August-2023
Test Started On:-	7, 14, 21, 28, 31 August-2023	Test Completed On:-	8, 16, 22, 29, 31 August-2023
Sampling Procedure	ANtd/7.2/Mon-01		

Sr. No.	LOCATION	Date of sampling	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	CO mg/m ³
Method Reference							
			IS 5182 (Part 23)	USEPA-40 (Part 50)	IS 5182 (Part-2)	IS 5182 (Part-6)	IS 5182 (Part-10)
AAQMS-1	Near Main Gate	02/08/2023	48.3	17.3	8.2	21.7	BDL (DL - 0.5)
		04/08/2023	57.3	24.9	11.6	27.3	BDL (DL - 0.5)
		07/08/2023	61.4	31.6	12.9	28.1	BDL (DL - 0.5)
		16/08/2023	56.1	26.7	9.3	24.7	BDL (DL - 0.5)
		19/08/2023	54.9	24.3	8.7	18.3	BDL (DL - 0.5)
		21/08/2023	48.3	16.7	8.2	17.9	BDL (DL - 0.5)
		25/08/2023	58.1	21.6	11.4	23.8	BDL (DL - 0.5)
		29/08/2023	56.7	23.9	12.6	21.4	BDL (DL - 0.5)
		30/08/2023	49.2	19.3	9.7	16.7	BDL (DL - 0.5)
		Monthly Average Value			54.5	22.9	10.3
AAQMS-2	General Office	02/08/2023	46.1	16.4	8.4	16.2	BDL (DL - 0.5)
		04/08/2023	52.9	17.3	9.3	18.4	BDL (DL - 0.5)
		07/08/2023	56.3	21.9	12.6	16.9	BDL (DL - 0.5)
		16/08/2023	51.6	16.2	7.1	17.3	BDL (DL - 0.5)
		19/08/2023	47.2	15.8	6.4	15.7	BDL (DL - 0.5)
		21/08/2023	52.9	18.6	9.3	17.1	BDL (DL - 0.5)
		25/08/2023	46.3	16.2	8.7	16.8	BDL (DL - 0.5)
		29/08/2023	52.1	21.6	9.8	17.9	BDL (DL - 0.5)
		30/08/2023	48.2	18.4	7.3	15.6	BDL (DL - 0.5)
		Monthly Average Value			50.4	18.0	8.8

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Verified by
Snehal Raut
Deputy Technical Manager



Authorized Signatory
Dr. (Mrs.) S. D. Garway
Dr. (Mrs.) S. D. Garway
Quality Manager

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ULR No.- TC545823000002498F Page 1 of 1

Ambient Air Quality Monitoring Report-August-2023

Report No.: AN/AAQ/TSL-F/2023/1-2		Date: 31/08/2023	
Name and Address of Industry:- TATA STEEL LIMITED FAP JODA, Koorjhar, FAMD, ODISHA-758034 (India)		W. O. No.	3000144107/056
		W. O. date:	19/04/2022
Sample Description/ Type	Ambient Air Quality (Core Zone)	Sample Ref. No.-	ALPL/07082023/Mon-2/8-TSLFAP-CZ/AAQMS-3,4 ALPL/24082023/Mon-3/20-TSLFAP-CZ/AAQMS-3,4 ALPL/30082023/Mon-2/14-TSLFAP-CZ/AAQMS-3,4
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	7, 14, 21, 28, 31 August-2023
Test Started On:-	7, 14, 21, 28, 31 August-2023	Test Completed On:-	8, 16, 22, 29, 31 August-2023
Sampling Procedure	ANtd/7.2/Mon-01		

Sr. No.	LOCATION	Date of sampling	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	CO mg/m ³
Method Reference							
			IS 5182 (Part 23)	USEPA-40 (Part 50)	IS 5182 (Part-2)	IS 5182 (Part-6)	IS 5182 (Part-10)
AAQMS-3	Near Well Zone	02/08/2023	53.6	21.6	7.9	18.4	BDL (DL - 0.5)
		04/08/2023	56.1	24.7	9.2	17.3	BDL (DL - 0.5)
		07/08/2023	49.3	16.4	8.4	17.6	BDL (DL - 0.5)
		16/08/2023	52.6	18.9	11.3	21.7	BDL (DL - 0.5)
		19/08/2023	56.1	21.6	9.7	18.3	BDL (DL - 0.5)
		21/08/2023	49.7	19.2	8.4	17.1	BDL (DL - 0.5)
		25/08/2023	54.6	23.8	12.6	23.9	BDL (DL - 0.5)
		29/08/2023	48.1	18.3	11.2	18.7	BDL (DL - 0.5)
		30/08/2023	52.7	19.6	9.1	19.3	BDL (DL - 0.5)
		Monthly Average Value			52.5	20.5	9.8
AAQMS-4	Near Back Gate	02/08/2023	48.2	16.4	9.2	17.6	BDL (DL - 0.5)
		04/08/2023	57.2	21.6	12.4	19.3	BDL (DL - 0.5)
		07/08/2023	49.7	18.3	8.1	16.7	BDL (DL - 0.5)
		16/08/2023	56.3	23.7	11.6	21.9	BDL (DL - 0.5)
		19/08/2023	54.6	19.2	9.7	18.3	BDL (DL - 0.5)
		21/08/2023	48.2	18.4	8.4	17.2	BDL (DL - 0.5)
		25/08/2023	52.8	21.6	9.2	18.7	BDL (DL - 0.5)
		29/08/2023	47.3	19.2	7.6	16.4	BDL (DL - 0.5)
		30/08/2023	51.7	18.6	9.1	19.2	BDL (DL - 0.5)
		Monthly Average Value			51.8	19.7	9.5

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Remark: - All Results are within Limit as per CPCB Standards.

Verified by
Snehal Raut
Deputy Technical Manager


Authorized Signatory
Dr. (Mrs.) S. D. Garway
Dr. (Mrs.) S. D. Garway
Quality Manager



---End of Report---

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TC 5458

Test Report

ULR No.- TC545823000002997F Page 1 of 1

Ambient Air Quality Monitoring Report-September-2023


Report No.: AN/AAQ/TSL-F/2023/2-1		Date: 30/09/2023	
Name and Address of Industry:-	TATA STEEL LIMITED FAP JODA, Keonjhar, FAMD, ODISHA-758034 (India)	W. O. No.	3000144107/056
		W. O. date:	19/04/2022
Sample Description/ Type	Ambient Air Quality (Core Zone)	Sample Ref. No.-	ALPL/11092023/Mon-2/12-TSLFAP-CZ/AAQMS-1.2 ALPL/18092023/Mon-2/8-TSLFAP-CZ/AAQMS-1.2 ALPL/25092023/Mon-3/21-TSLFAP-CZ/AAQMS-1.2
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	11, 18, 25, 30 September-2023
Test Started On:-	11, 18, 25, 30 September-2023	Test Completed On:-	12, 18, 26, 30 September-2023
Sampling Procedure	ANtd/7.2/Mon-01		

Sr. No.	LOCATION	Date of sampling	PM ₁₀ µg/m ³ IS 5182 (Part 23)	PM _{2.5} µg/m ³ USEPA-40 (Part 50)	SO ₂ µg/m ³ IS-5182 (Part-2)	NO ₂ µg/m ³ IS-5182 (Part-6)	CO mg/m ³ IS-5182 (Part-10)
AAQMS-1	Near Main Gate	01/09/2023	57.6	26.1	13.8	28.1	BDL (DL - 0.5)
		04/09/2023	63.9	31.6	14.1	29.7	BDL (DL - 0.5)
		07/09/2023	54.6	24.3	9.2	21.8	BDL (DL - 0.5)
		12/09/2023	56.3	26.1	11.7	23.4	BDL (DL - 0.5)
		15/09/2023	49.1	19.7	8.4	18.3	BDL (DL - 0.5)
		18/09/2023	54.7	24.3	11.9	26.8	BDL (DL - 0.5)
		21/09/2023	62.8	31.9	12.7	28.1	BDL (DL - 0.5)
		26/09/2023	57.3	28.1	9.3	17.6	BDL (DL - 0.5)
		29/09/2023	52.1	24.6	8.4	16.9	BDL (DL - 0.5)
		Monthly Average Value			56.5	26.3	11.1
AAQMS-2	General Office	01/09/2023	48.3	17.2	9.1	18.4	BDL (DL - 0.5)
		04/09/2023	51.6	18.7	11.6	21.9	BDL (DL - 0.5)
		07/09/2023	46.2	16.9	8.4	17.2	BDL (DL - 0.5)
		12/09/2023	47.9	17.3	9.3	18.1	BDL (DL - 0.5)
		15/09/2023	53.8	21.6	11.4	23.9	BDL (DL - 0.5)
		18/09/2023	48.2	19.2	8.7	16.4	BDL (DL - 0.5)
		21/09/2023	51.7	23.7	9.6	18.1	BDL (DL - 0.5)
		26/09/2023	53.4	21.6	8.4	17.9	BDL (DL - 0.5)
		29/09/2023	56.2	24.1	11.8	21.6	BDL (DL - 0.5)
		Monthly Average Value			50.8	20.0	9.8

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Verified by



Snehal Raut
Deputy Technical Manager

Authorized Signatory






Dr. (Mrs.) S. D. Garway
Quality Manager

---End of Report---

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TC 5458

Test Report

ULR No.- TC545823000002997F Page 1 of 1

Ambient Air Quality Monitoring Report-September-2023


Report No.: AN/AAQ/TSL-F/2023/2-2		Date: 30/09/2023	
Name and Address of Industry:-	TATA STEEL LIMITED FAP JODA, Keonjhar, FAMD, ODISHA-758034 (India)	W. O. No.	3000144107/056
		W. O. date:	19/04/2022
Sample Description/ Type	Ambient Air Quality (Core Zone)	Sample Ref. No.-	ALPL/11092023/Mon-2/12-TSLFAP-CZ/AAQMS-3.4 ALPL/18092023/Mon-2/8-TSLFAP-CZ/AAQMS-3.4 ALPL/25092023/Mon-3/21-TSLFAP-CZ/AAQMS-3.4
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	11, 18, 25, 30 September-2023
Test Started On:-	11, 18, 25, 30 September-2023	Test Completed On:-	12, 18, 26, 30 September-2023
Sampling Procedure	ANtd/7.2/Mon-01		

Sr. No.	LOCATION	Date of sampling	PM ₁₀ µg/m ³ IS 5182 (Part 23)	PM _{2.5} µg/m ³ USEPA-40 (Part 50)	SO ₂ µg/m ³ IS-5182 (Part-2)	NO ₂ µg/m ³ IS-5182 (Part-6)	CO mg/m ³ IS-5182 (Part-10)		
AAQMS-3	Near Well Zone	01/09/2023	54.7	23.7	9.2	21.6	BDL (DL - 0.5)		
		04/09/2023	56.2	24.6	11.7	23.8	BDL (DL - 0.5)		
		07/09/2023	49.7	18.3	8.4	18.2	BDL (DL - 0.5)		
		12/09/2023	51.9	21.4	9.6	21.7	BDL (DL - 0.5)		
		15/09/2023	54.1	23.6	11.3	19.1	BDL (DL - 0.5)		
		18/09/2023	46.3	16.2	7.4	18.6	BDL (DL - 0.5)		
		21/09/2023	51.9	18.7	9.2	21.4	BDL (DL - 0.5)		
		26/09/2023	47.3	16.9	7.9	19.2	BDL (DL - 0.5)		
		29/09/2023	52.8	21.6	11.7	23.8	BDL (DL - 0.5)		
		Monthly Average Value			51.7	20.6	9.6	20.8	BDL (DL - 0.5)
AAQMS-4	Near Back Gate	01/09/2023	54.9	24.9	12.4	21.9	BDL (DL - 0.5)		
		04/09/2023	61.4	28.1	13.9	24.7	BDL (DL - 0.5)		
		07/09/2023	56.3	21.6	11.7	18.2	BDL (DL - 0.5)		
		12/09/2023	54.7	18.6	8.7	16.9	BDL (DL - 0.5)		
		15/09/2023	48.6	19.2	9.1	17.3	BDL (DL - 0.5)		
		18/09/2023	53.9	24.1	12.8	23.6	BDL (DL - 0.5)		
		21/09/2023	51.2	21.9	11.4	19.2	BDL (DL - 0.5)		
		Monthly Average Value			54.4	22.6	11.4	20.3	BDL (DL - 0.5)

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Verified by



Snehal Raut
Deputy Technical Manager

Authorized Signatory



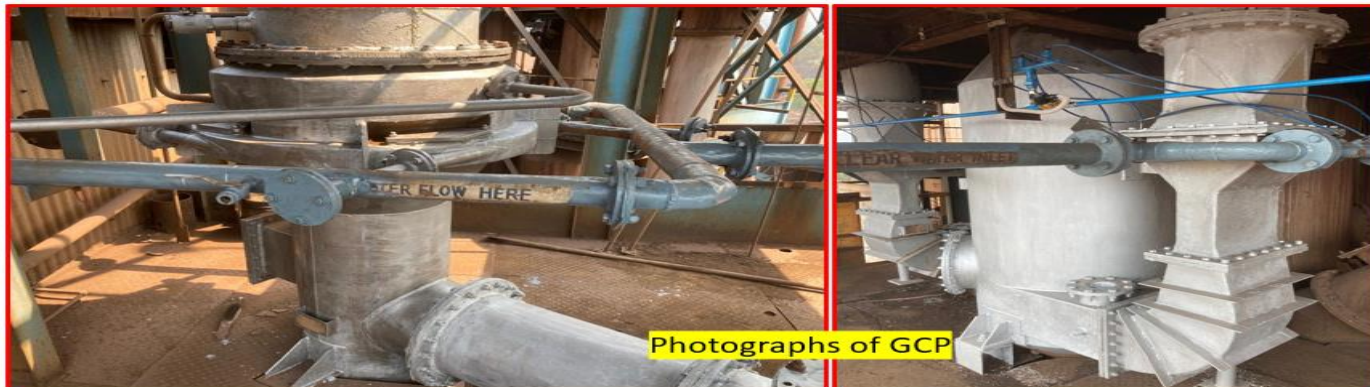
Dr. (Mrs.) S. D. Garway
Quality Manager

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Annexure -3



Continious Emission Monitoring System


STACK EMISSION MONITORING RESULTS (APRIL'23 to SEPTEMBER'23)

Location	ARC FURANCE-1						
Parameters	UNIT	Apr-23	May-23	June-23	July-23	Aug-23	Sep-23
PM	(mg/Nm3)	54	62	58	62	64.3	57.2
SOX	(mg/Nm3)	268	304	316	304	328	294
NOX	(mg/Nm3)	121	139	164	173	192	187

Location	ARC FURNACE-2						
Parameters	NAAQ Standard	May-23	June-23	July-23	Aug-23	Sep-23	Oct-23
PM	(mg/Nm3)	54	56	53	58.2	52.8	54.9
SOX	(mg/Nm3)	287	291	287	291	281	276
NOX	(mg/Nm3)	141	152	163	176	164	148



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Annexure - 4
Stack Monitoring Report



Anacon Laboratories

Test Report

TC 5458

ULR No.- TC54582300000927F


Stack Emission Monitoring Report

Report No.: ALPL/29042023/1-8		Date: 29/04/2023	
Issued to		P. O. No.	
TATA STEEL LIMITED FAP JODA, Keonjhar, FAMD, ODISHA-758034 (India)		3000144107/056-19.04.2022	
Sample Description/Type	Stack Emission Monitoring	Sample Collected by	Anacon Laboratory
Sampling Location	Furnace-1	Sample Quantity/Packing	Thimble 1 X 1 No. SO: 30 mL X 1 No. PVC Bottle NOx: 30 mL X 1 No. PVC Bottle
Sample Ref. No.:	ALPL/24042023/Mon-1/38-SI	Date of Sampling	29/04/2023
Sampling Procedure	ANtd/7.2/Mon-01	Date of Receipt of Sample	29/04/2023
Date of Start of Analysis	29/04/2023	Date of Completion of Analysis	29/04/2023

Stack Details			
Stack Name		Furnace	
Ambient Temperature	26	°C	
Ambient Relative Humidity	83	%	
Stack height above ground level	10	Meter	
Stack diameter	0.35	Meter	
Type of Fuel	Coal	---	
Parameter	Unit	Results	Method Reference
Flue gas temperature	°C	87	IS:11255 (Part 3)
Flue gas velocity	m/s	9.30	IS:11255 (Part 3)
Total gas quantity at STP	m ³ /h	3218.69	IS:11255 (Part 3)
Total gas quantity at NTP	Nm ³ /h	2664.36	IS:11255 (Part 3)
Particulate Matter (PM)	mg/Nm ³	54	IS:11255 (Part 1)
Sulphur Dioxide (SO ₂)	mg/Nm ³	268	IS:11255 (Part 2)
Oxide of Nitrogen (NO _x)	mg/Nm ³	121	IS:11255 (Part 7)

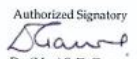
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Deputy Technical Manager


Authorized Signatory



Dr. (Mrs.) S. D. Garway
Quality Manager



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Test Report

TC 5458

ULR No.- TC545823000001718F


Stack Emission Monitoring Report

Report No.: ALPL/30062023/1-3		Date: 30/06/2023	
Issued to		P. O. No.	
TATA STEEL LIMITED FAP JODA, Keonjhar, FAMD, ODISHA-758034 (India)		3000144107/056-19.04.2022	
Sample Description/Type	Stack Emission Monitoring	Sample Collected by	Anacon Laboratory
Sampling Location	Furnace-IV	Sample Quantity/Packing	Thimble 1 X 1 No. SO: 30 mL X 1 No. PVC Bottle NOx: 30 mL X 1 No. PVC Bottle
Sample Ref. No.:	ALPL/22062023/Mon-6/39-SI	Date of Sampling	22/06/2023
Sampling Procedure	ANtd/7.2/Mon-01	Date of Receipt of Sample	26/06/2023
Date of Start of Analysis	26/06/2023	Date of Completion of Analysis	27/06/2023

Stack Details			
Stack Name		Furnace	
Ambient Temperature	26	°C	
Ambient Relative Humidity	83	%	
Stack height above ground level	10	Meter	
Stack diameter	0.35	Meter	
Type of Fuel	Coal	---	
Parameter	Unit	Results	Method Reference
Flue gas temperature	°C	102	IS:11255 (Part 3)
Flue gas velocity	m/s	9.19	IS:11255 (Part 3)
Total gas quantity at STP	m ³ /h	3180.75	IS:11255 (Part 3)
Total gas quantity at NTP	Nm ³ /h	2527.63	IS:11255 (Part 3)
Particulate Matter (PM)	mg/Nm ³	58	IS:11255 (Part 1)
Sulphur Dioxide (SO ₂)	mg/Nm ³	316	IS:11255 (Part 2)
Oxide of Nitrogen (NO _x)	mg/Nm ³	164	IS:11255 (Part 7)

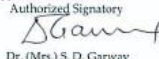
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Quality Manager

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TC 5458

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Test Report


ULR No.- TC545823000001718F

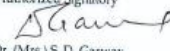
Stack Emission Monitoring Report

Report No.: ALPL/30062023/1-4		Date: 30/06/2023	
Issued to		P. O. No.	
TATA STEEL LIMITED FAP JODA, Keonjhar, FAMD, ODISHA-758034 (India)		3000144107/056-19.04.2022	
Sample Description/Type	Stack Emission Monitoring	Sample Collected by	Anacon Laboratory
Sampling Location	Furnace-II	Sample Quantity/Packing	Thimble: 1 X 1 No. SO ₂ : 30 mL X 1 No. PVC Bottle NO _x : 30 mL X 1 No. PVC Bottle
Sample Ref. No.:	ALPL/22062023/Mon-6/39-S2	Date of Sampling	22/06/2023
Sampling Procedure	ANtd/7.2/Mon-01	Date of Receipt of Sample	26/06/2023
Date of Start of Analysis	26/06/2023	Date of Completion of Analysis	27/06/2023

Stack Details			
Stack Name		Furnace	
Ambient Temperature	26		°C
Ambient Relative Humidity	83		%
Stack height above ground level	10		Meter
Stack diameter	0.35		Meter
Type of Fuel	Coal		---
Parameter	Unit	Results	Method Reference
Flue gas temperature	°C	94	IS:11255 (Part 3)
Flue gas velocity	m/s	8.94	IS:11255 (Part 3)
Total gas quantity at STP	m ³ /h	3093.75	IS:11255 (Part 3)
Total gas quantity at NTP	Nm ³ /h	2512.09	IS:11255 (Part 3)
Particulate Matter (PM)	mg/Nm ³	56	IS:11255 (Part 1)
Sulphur Dioxide (SO ₂)	mg/Nm ³	291	IS 11255 (Part 2)
Oxide of Nitrogen (NO _x)	mg/Nm ³	152	IS 11255 (Part 7)

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Verified by

Snehal Raut
Deputy Technical Manager



Authorized Signatory

Dr. (Mrs.) S. D. Garway
Quality Manager

End of Report

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
ULR No.- TC545823000002498F

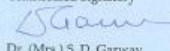
Stack Emission Monitoring Report

Report No.: ALPL/31082023/1-4		Date: 31/08/2023	
Issued to		P. O. No.	
TATA STEEL LIMITED FAP JODA, Keonjhar, FAMD, ODISHA-758034 (India)		3000144107/056-19.04.2022	
Sample Description/Type	Stack Emission Monitoring	Sample Collected by	Anacon Laboratory
Sampling Location	Furnace-II	Sample Quantity/Packing	Thimble: 1 X 1 No. SO ₂ : 30 mL X 1 No. PVC Bottle NO _x : 30 mL X 1 No. PVC Bottle
Sample Ref. No.:	ALPL/30082023/Mon-2/2-S2	Date of Sampling	28/08/2023
Sampling Procedure	ANtd/7.2/Mon-01	Date of Receipt of Sample	30/08/2023
Date of Start of Analysis	30/08/2023	Date of Completion of Analysis	31/08/2023

Stack Details			
Stack Name		Furnace	
Ambient Temperature	26		°C
Ambient Relative Humidity	83		%
Stack height above ground level	10		Meter
Stack diameter	0.35		Meter
Type of Fuel	Coal		---
Parameter	Unit	Results	Method Reference
Flue gas temperature	°C	94	IS:11255 (Part 3)
Flue gas velocity	m/s	8.21	IS:11255 (Part 3)
Total gas quantity at STP	m ³ /h	2843.60	IS:11255 (Part 3)
Total gas quantity at NTP	Nm ³ /h	2308.97	IS:11255 (Part 3)
Particulate Matter (PM)	mg/Nm ³	58.2	IS:11255 (Part 1)
Sulphur Dioxide (SO ₂)	mg/Nm ³	291	IS 11255 (Part 2)
Oxide of Nitrogen (NO _x)	mg/Nm ³	176	IS 11255 (Part 7)

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Quality Manager

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Anacon Laboratories

Test Report

TC 5458

ULR No.- TC545823000003001F


Stack Emission Monitoring Report

Report No.: ALPL/30092023/2-4		Date: 30/09/2023	
Issued to	TATA STEEL LIMITED FAP JODA, Keonjhar, FAMD, ODISHA-758034 (India)		P. O. No. 3000144107/056-19.04.2022
Sample Description/Type	Stack Emission Monitoring	Sample Collected by	Anacon Laboratory
Sampling Location	Furnace-IV	Sample Quantity/Packing	Thimble: 1 X 1 No. SO ₂ : 30 mL X 1No. PVC Bottle NO _x : 30 mL X 1No. PVC Bottle
Sample Ref. No.:	ALPL/25092023/Mon-3/21-S1	Date of Sampling	27/09/2023
Sampling Procedure	ANtd/7.2/Mon-01	Date of Receipt of Sample	29/09/2023
Date of Start of Analysis	29/09/2023	Date of Completion of Analysis	30/09/2023

Stack Details			
Stack Name		Furnace	
Ambient Temperature	26	°C	
Ambient Relative Humidity	83	%	
Stack height above ground level	10	Meter	
Stack diameter	0.35	Meter	
Type of Fuel	Coal	---	
Parameter	Unit	Results	Method Reference
Flue gas temperature	°C	113	IS:11255 (Part 3)
Flue gas velocity	m/s	8.59	IS:11255 (Part 3)
Total gas quantity at STP	m ³ /h	2975.20	IS:11255 (Part 3)
Total gas quantity at NTP	Nm ³ /h	2296.92	IS:11255 (Part 3)
Particulate Matter (PM)	mg/Nm ³	57.2	IS:11255 (Part 1)
Sulphur Dioxide (SO ₂)	mg/Nm ³	294	IS 11255 (Part 2)
Oxide of Nitrogen (NO _x)	mg/Nm ³	187	IS 11255 (Part 7)


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Verified by



Snehal Raut
Deputy Technical Manager

Authorized Signatory



Dr. (Mrs.) S. D. Garway
Quality Manager

----End of Report----


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Anacon Laboratories Pvt. Ltd. Nagpur Lab

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☎ + 91 8045685558 ✉ Email : info@anacon.in



🌐 <https://www.anaconlaboratories.com>





Anacon Laboratories

Test Report

TC 5458

ULR No.- TC545823000003001F


Stack Emission Monitoring Report

Report No.: ALPL/30092023/2-5		Date: 30/09/2023	
Issued to	TATA STEEL LIMITED FAP JODA, Keonjhar, FAMD, ODISHA-758034 (India)		P. O. No. 3000144107/056-19.04.2022
Sample Description/Type	Stack Emission Monitoring	Sample Collected by	Anacon Laboratory
Sampling Location	Furnace-II	Sample Quantity/Packing	Thimble: 1 X 1 No. SO ₂ : 30 mL X 1No. PVC Bottle NO _x : 30 mL X 1No. PVC Bottle
Sample Ref. No.:	ALPL/25092023/Mon-3/21-S2	Date of Sampling	27/09/2023
Sampling Procedure	ANtd/7.2/Mon-01	Date of Receipt of Sample	29/09/2023
Date of Start of Analysis	29/09/2023	Date of Completion of Analysis	30/09/2023

Stack Details			
Stack Name		Furnace	
Ambient Temperature	26	°C	
Ambient Relative Humidity	83	%	
Stack height above ground level	10	Meter	
Stack diameter	0.35	Meter	
Type of Fuel	Coal	---	
Parameter	Unit	Results	Method Reference
Flue gas temperature	°C	97	IS:11255 (Part 3)
Flue gas velocity	m/s	7.90	IS:11255 (Part 3)
Total gas quantity at STP	m ³ /h	2736.18	IS:11255 (Part 3)
Total gas quantity at NTP	Nm ³ /h	2203.74	IS:11255 (Part 3)
Particulate Matter (PM)	mg/Nm ³	52.8	IS:11255 (Part 1)
Sulphur Dioxide (SO ₂)	mg/Nm ³	281	IS 11255 (Part 2)
Oxide of Nitrogen (NO _x)	mg/Nm ³	164	IS 11255 (Part 7)


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Verified by



Snehal Raut
Deputy Technical Manager

Authorized Signatory



Dr. (Mrs.) S. D. Garway
Quality Manager

----End of Report----


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Page 19 of 40

Six Monthly Compliance Report to the Terms of Conditions of Environmental Clearance granted in favor of Ferro Alloys Plant, Joda, M/s Tata Steel Limited for April'23 to September'2023

Annexure - 5

Fugitive dust emission monitoring Report



Anacon Laboratories Pvt. Ltd.

Test Report

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 MIDC Butibori, Nagpur, Maharashtra, India - 441 122
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Fugitive Emission Monitoring Report-October-2022

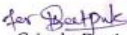
Report No.: AN/FE/TS-JEIM/2022/1		Date: 31/10/2022	
Name and Address of Industry:-	TATA STEEL LIMITED FAP JODA, Keonjhar, FAMD, ODISHA-758034 (India)		W. O. No.
			3000144107/056-19/04/2022
Sample Description/Type	Fugitive Emission	Sample Ref. No.:-	ALPL/17102022/ENV-173/TSLFAP/FE-1 to 2
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	17/10/2022
Test Started On:-	18/10/2022	Test Completed On:-	18/10/2022
Sampling Procedure	ANtd/7.2/Mon-01		

Sl. No.	Location Name	Date of sampling	TSPM $\mu\text{g}/\text{m}^3$
Method Reference			IS 5182 (Part 23)
FE-1	Near Main Gate	12/10/2022	837
FE-2	Near Back Gate	12/10/2022	521
MoEF & CC Norms:			1200 $\mu\text{g}/\text{m}^3$

NOTES: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs.

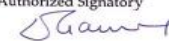
Remark: - All Results are within Limit as per Norms.

Verified by




Gajendra Desai
(Technical Manager)

Authorized Signatory




Dr. (Mrs.) S.D. Garway
(Quality Manager)

-----End of Report-----



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Anacon Laboratories Pvt. Ltd.

Test Report

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Fugitive Emission Monitoring Report-January-2023

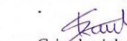
Report No.: AN/FE/TS-JEIM/2022/1-7		Date: 31/01/2023	
Name and Address of Industry:-	TATA STEEL LIMITED FAP JODA, Keonjhar, FAMD, ODISHA-758034 (India)		W. O. No.
			3000144107/056-19/04/2022
Sample Description/Type	Fugitive Emission	Sample Ref. No.:-	ALPL/25012023/ENV-06/TSLFAP/FE-1 to 2
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	30/01/2023
Test Started On:-	30/01/2023	Test Completed On:-	30/01/2023
Sampling Procedure	ANtd/7.2/Mon-01		

Sl. No.	Location Name	Date of sampling	TSPM $\mu\text{g}/\text{m}^3$
Method Reference			IS 5182 (Part 23)
FE-1	Near Main Gate	25/01/2023	853
FE-2	Near Back Gate	25/01/2023	631
MoEF & CC Norms:			1200 $\mu\text{g}/\text{m}^3$

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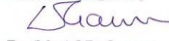
Remark: - All Results are within Limit as per Norms.

Verified by




Gajendra Desai
(Technical Manager)

Authorized Signatory



Dr. (Mrs.) S.D. Garway
(Quality Manager)

-----End of Report-----



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Annexure-6

Photographs of RCC roads and Fixed Sprinkling arrangements



Mobile High Velocity Water Sprinkler cum Mist Canon



Dry Fogging System for Fugitive dust suppression



RCC roads and water sprinklers



Constructed RCC roads

Annexure-7



Fume extraction system with bag filter for Tap Hole Emission

Annexure-8

RAINWATER HARVESTING



Annexure- 9

INSTALLATION OF 10 KLD SEWAGE TREATMENT PLANT (STP)



EFFLUENT TREATMENT PLANT (ETP)-30 M3/HR




Six Monthly Compliance Report to the Terms of Conditions of Environmental Clearance granted in favor of Ferro Alloys Plant, Joda, M/s Tata Steel Limited for April'23 to September'2023

Annexure - 10
(Water Sample Collections from Different Location)





Sample Water Analysis Reports



Anacon Laboratories

Test Report

TC 5458

ULR No. - TC5458230000927F
Test Report No. : ALPL/29042023/1-10A dated 29/04/2023 Page 1 of 2

Issued To: TATA STEEL LIMITED FAP JODA, Koojhar, FAMD, ODISHA-758034 (India)	Sample Inward No. ALPL/24042023/Mon-1/38-DW-2 Inward Date 24/04/2023 Reference W.O.- 3000144107/056-19.04.2022	Analysis Start 24/04/2023 Analysis End 29/04/2023 Report Issue Date 29/04/2023 Sample Category Water
--	---	---


Sample Name	Sample Source	Sample Particulars	Quantity Received
Drinking Water	R.O Water	DW-2 Drinking Water	5 L & 250ml
Sample Collected By Anacon Representative		Sampling Date 21/04/2023	Sampling Location Rest Shelter
		Sampling Time 1:20 pm	

Tests Required: Total coliform, pH, Turbidity, Total dissolved solids, Total Alkalinity, Total hardness, Calcium, Magnesium, Sulphate, Nitrate, Chloride, Fluoride, Phenolic compounds.

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500: 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I Biological Testing I. Water						
1	Coliform	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
2	Escherichia Coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II Chemical Testing I. Water						
3	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.97 at 25°C
4	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.6
5	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	500	2000	181.46
6	Total Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	112.59
7	Total Hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	107.86
8	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	27.43
9	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	9.57
10	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 2022	200	400	5.16
11	Nitrate (as NO ₃)	mg/l	APHA Method 23 rd Edition	45	No relaxation	BDL (DL-2)
12	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	23.47
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.14
14	Phenolic compounds (as C ₁₂ H ₁₀ O ₂)	mg/l	IS 3025 (Part 43) : 1992	0.001	0.002	BDL (DL - 0.001)


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Verified By




Snehal Raut
Deputy Technical Manager

Authorized Signatories




Pooja Kishore
Technical Manager



Dr. (Mrs.) S.D. Garway
Quality Manager



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Test Report

TC 5458

ULR No. - TC5458230000927F
Test Report No. : ALPL/29042023/1-10A dated 29/04/2023 Page 2 of 2

Issued To: TATA STEEL LIMITED FAP JODA, Koojhar, FAMD, ODISHA-758034 (India)	Sample Inward No. ALPL/24042023/Mon-1/38-DW-2 Inward Date 24/04/2023 Reference W.O.- 3000144107/056-19.04.2022	Analysis Start 24/04/2023 Analysis End 29/04/2023 Report Issue Date 29/04/2023 Sample Category Water
--	---	---


Sample Name	Sample Source	Sample Particulars	Quantity Received
Drinking Water	R.O Water	DW-2 Drinking Water	5 L & 250ml
Sample Collected By Anacon Representative		Sampling Date 21/04/2023	Sampling Location Rest Shelter
		Sampling Time 1:20 pm	

Tests Required: Aluminium, Boron, Mercury, Iron, Copper, Manganese, Lead, Zinc, Nickel, Total Chromium,

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500: 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II Chemical Testing 2. Residues In Water						
15	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL (DL - 0.01)
16	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
17	Mercury (as Hg)	mg/l	IS 3025 (Part 48) : 1994	0.001	No relaxation	BDL (DL - 0.0005)
18	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.08
19	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL-0.03)
20	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL-0.05)
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL-0.001)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL-0.1)
23	Nickel (as Ni)	mg/l	IS-13428 : 2005(Annexure L)	0.02	No relaxation	BDL (DL-0.01)
24	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL-0.03)


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Verified By



Pooja Kishore
Technical Manager

Authorized Signatory




Dr. (Mrs.) S.D. Garway
Quality Manager

-----End of Report-----

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Annexure - 11
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

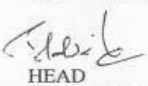
Sub : Submission of Risk & Disaster Management Plan along with the mitigation measures
for expansion of Ferro Manganese Plant, Joda.

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 5th 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-750034, Dist. Keonjhar, Odisha, India
Tel. : 09238100945, e-mail : headoffice.fapj@tatasteel.com
Registered Office : Bombay House, 24, Horni Mody Street, Fort, Mumbai-400001, India
Tel. 91 22 66658282, Fax 91 22 66657724
Corporate Identity Number L27100MH1907PLC000260, Website : www.tatasteel.com

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 5th 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
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Registered Office : Bombay House, 24, Horni Mody Street, Fort, Mumbai-400001, India
Tel. 91 22 66658282, Fax 91 22 66657724
Corporate Identity Number L27100MH1907PLC000260, Website : www.tatasteel.com

Annexure - 12
Photographs of Greenbelt developed



Annexure- 13

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 CSR activities (Joda region)
2018-19	10.21 Cr.	9.50 Cr.	Health, Drinking Water, Education, Rural Infra, Roads & Drains, Livelihood (Agriculture & Enterprise Dev.), Skill Development, Disability Screening Camp- 82 patients were provided with Prosthetics and orthopaedic aids and appliances, Support of School Infrastructure- SSVM, Joda, Support of School Infrastructure- Joda Valley Girls School, Construction of drain at Kundrunala, Awareness on flora and fauna
2019-20	13.02 Cr	12.8 Cr	Health, Education, Livelihood, Rural Infrastructure, Major Project Like Kalyan Mandap in Joda
2020-21	18.84 Cr.	16.61 Cr.	Construction of Three bathing Ghat & two change room, Construction & renovation of Community Resource Centre (CRC) for their cultural & community needs, 115 toilets constructed in Kundrupani village, mobile medical units and ambulances, waiver for free treatment at Tata Steel Hospital, Joda, School improvement project (1000 Schools project), Women Empowerment Programmes.
2021-22	17.59 Cr.	14.53 Cr	Health, Drinking Water, Education, Rural Infra, Roads & Drains, Livelihood (Agriculture & Enterprise Dev.), Skill Development, Support of School Infrastructure- SSVM, Joda, Construction of total 111 nos. of IHHL at Palsa Kha & Ka village, mobile medical units and ambulances, waiver for free treatment at Tata Steel Hospital, Joda, School improvement project (1000 Schools project), Community Resource Centre (CRC) for their cultural & community needs.
2022-23 (Apr-Sep)	13.80 Cr	5.83 Cr	Health, Drinking Water, Education, Rural Infra, Roads & Drains, Livelihood (Agriculture & Enterprise Dev.), Skill Development, Support of School Infrastructure- SSVM, Joda, Construction of total 111 nos. of IHHL at Palsa Kha & Ka village, mobile medical units and ambulances, waiver for free treatment at Tata Steel Hospital, Joda, School improvement project (1000 Schools project), Community Resource Centre (CRC) for their cultural & community needs.
2022-23 (Oct-Mar)		7.94 Cr	Health, Drinking Water, Education, Rural Infra, Roads & Drains, Livelihood (Agriculture & Enterprise Dev.), Skill Development, Support of School Infrastructure- SSVM, Joda, Sports & Sports Infra Development, Agriculture equipment support, mobile medical units and ambulances, waiver for free treatment at Tata Steel Hospital, Joda, School improvement project (1000 Schools project), Community Resource Centre (CRC) for their cultural & community needs.
2023-24 (April-Sep)	32.65	4.69	Health, Drinking Water, Education, Rural Infra, Roads & Drains, Livelihood (Agriculture & Enterprise Dev.), Skill Development, Support of School Infrastructure-Joda, mobile medical units and ambulances, waiver for free treatment at Tata Steel Hospital, Joda, School improvement project (1000 Schools project), Community Resource Centre (CRC) for their cultural & community needs

Annexure- 15 Noise Monitoring Report



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Laboratories**

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 ♀ FP-04, 35, Food Park, Five Star Industrial Estate,
 MIDC Bulburi, Nagpur, Maharashtra, India - 441 122
 ☎ + 91 8045665558 ✉ Email : info@anacon.in
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Test Report

Page 1 of 1

NOISE MONITORING REPORT

Report No.:	ALPL/29042023/1-6	Report Date:	29/04/2023
Issued to:	TATA STEEL LIMITED		
Address	FAP Joda, Keonjhar, FAMD, ODISHA-758034 (India).		
Type of Work:	Noise Monitoring (April-2023)	Sample Inward No.:	ALPL/24042023/ENV-80-N
Sample Drawn By:	Anacon Representative	Date Received Date:	24/04/2023
Monitoring Date	18/04/2023 to 21/04/2023	Method	IS 9989:1981(R2001)
Sampling Procedure	ANtd/7.2/Mon-01		

Sr. No.	Sampling Location	Results dB(A)	
		Day Time	Night Time
1	Gate No.1	71.2	64.9
2	General Office	58.1	43.7
3	Office Varanda	52.8	41.6
4	Canteen	54.9	38.7
5	Mechanical Workshop	71.6	57.3
6	Fabrication Area	73.1	64.2
7	RMPH Office	52.8	43.9
8	Packing Plot(2A)	61.7	51.2
9	Center Point	58.3	48.1
10	Weigh Bridge	72.9	64.7
11	Gate No.2	68.1	59.3
12	Ore Yard	71.3	57.1
13	Well Area	48.7	39.2
14	Outside Furnace	71.6	61.3
15	Inside Furnace	64.9	58.7
16	Furnace Control Room	67.3	52.4
17	Infront of DG Room	56.1	48.3
18	Infront of Fire Hydrant Room	62.9	51.7
19	132KV Electricity Substation Room	68.3	58.1
20	Work Area	62.7	53.8
21	CMDC Area	67.1	59.3
22	Play Ground	71.3	62.9
CPCB Standards			
Industrial Area		75	70

NOTES: A) Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs.

Remark: - All Results are within Limit as per CPCB Standards.

Verified by

Snehal Kaut

Deputy Technical Manager

Authorized Signatory

Dr. (Mrs.) S. D. Garway
Quality Manager

----End of Report----

Thanks for putting in your faith and trust in our services. We at Anacon Laboratories cherish our relationship. We put in a lot of hard work to ensure that you have a seamless experience at every step of our relationship. In order to ensure that your next experience will be significantly better, we welcome your feedback over email on feedback@anacon.in



Annexure- 16

Sample Periodic Medical Examination Record



Emp. Code : 097682

[Form No. 31- A]

Health Record

Pre-Employment/Periodical

[Prescribed Under Rule 62 - J]



Date : 15/11/22 Page 1 of 2

<p>1) Name of the Factory : TSL , FAP (JODA)</p> <p>2) Name of Employee : KARTABYA NANDA</p> <p>3) Employee distinguishing No:</p> <p>4) Age of the Employee : 41 Yrs. . Identification Mark : CUTMARK ON FOREHEAD . Nature of Job : CRANE OPERATOR</p> <p>5) Date of Employment : 01.02.2013</p> <p>6) Length of Service in Years : 09 YEARS</p> <p>7) General Survey . Health : GOOD . Height : 170 cm . Weight : 82 Kg . BMI : 28.3 Kg/m²</p> <p>8) Blood Group : "B" . Rh Typing : POSITIVE</p> <p>9) Eye vision : NORMAL . Use of glass : NO Distance Vision : RE: 6/6 LE: 6/6 Near Vision : RE: N/6 LE: N/6 Colour Vision : NORMAL</p> <p>10) Hearing : NORMAL . Audiometry : NORMAL Right Ear : NORMAL dB Left Ear : NORMAL dB</p> <p>11) Respiratory system and chest measurement . Inspiration : 110 cm . Expiration : 106 cm . Respirate rate/min : 16 /min . P.F.T : NORMAL . FVC : NORMAL % . FEV1/FVC : NORMAL % . X-Ray : Remark if any : GOOD</p>	<p>12) Cardiovascular system . Pulse rate : 82 /min . B.P. : 116/78 mmHg . Heart Sound : NORMAL . E.C.G. : NORMAL Remarks if any : GOOD</p> <p>13) Abdomen Tenderness : NO Liver : NORMAL Spleen : NORMAL</p> <p>14) Nervous system : NORMAL . History of fits : NO . Epilepsy : NO Remarks on Mental Health : GOOD</p> <p>15) Locomotor system : NORMAL</p> <p>16) Skin condition : NORMAL</p> <p>17) Hernia : ABSENT</p> <p>18) Hydrocele : ABSENT</p> <p>19) Present complain : NO if any</p>
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Annexure-17

Budget for Environment Management in FY-24			
Sl. No	Activity	A. Capital (Rs. In Lakhs)	B. Recurring (Rs. In Lakhs)
1.	Annual Operation & maintenance of all four the Gas Cleaning Plant	-	15
2.	Annual Operation & maintenance of High velocity mobile type rotary water sprinkler	-	2
3.	Maintenance of existing fixed water sprinkler	-	2
4.	Annual Maintenance of Fume Extraction System	-	1
5.	Extensive Plantation in and around the Plant	-	0.5
6.	Operation and Maintenance of dry fog system	-	2
7.	Operation and Maintenance of STP	-	4
8.	Maintenance of CAAQMS and spares	-	3
9.	Environmental Monitoring by third party	-	7.5
	Total	-	
	Total (A+B): In Lakhs		37

Annexure -18

Intimation Letter of EC to Zila Parishad



Ref: FAPJ/ 4136 /2015
Date : 9th Nov, 2015

To
President
Zilla Parisad
Keonjhar

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

Dear Sir/ Madam,

*Received
xerox copy
of Environmental
clearance
Rhm
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 Slico Manganese production at our Ferro Alloys Plant, Joda, Odisha vide letter No. F. No. J-11011/03/2012- IA II (I) dt 05.11.2015.

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

Yours Faithfully
F: Tata Steel Limited

HEAD
FERRO ALLOYS PLANT, JODA

Enclosed:

1. Xerox copy of Environmental Clearance

TATA STEEL LIMITED

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

Intimation Letter of EC to Chairman, Joda Municipality



Ref: FAPJ/ 4135 /2015
Date : 9th Nov, 2015

To
Chairman
Joda Municipality
Joda.

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

Dear Sir/ Madam,

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

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

Yours Faithfully
F: Tata Steel Limited


HEAD
FERRO ALLOYS PLANT, JODA



Enclosed:

1. Xerox copy of Environmental Clearance

TATA STEEL LIMITED

Ferro Alloys Plant, Joda-758034, Dist. Keonjhar, Odisha, India
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Tel. 91 22 66658282, Fax 91 22 66657724
Corporate Identity Number L27100MH1907PLC000260, Website : www.tatasteel.com

Annexure -19

Six-Monthly Compliance Reports Uploaded in Tata Steel's Website


<https://www.tatasteel.com/corporate/our-organisation/environment/environment-compliance-reports/>

The screenshot shows the Tata Steel website's environment compliance reports page. The page title is "Annual Environmental Statement – Year 2022-23 - FAP Joda_Tata Steel Limited". The navigation path is: Home » Corporate » Our Organisation » Environment » Environment Compliance Reports. The reports listed are:

- Joda June 15, 2023
- Online Half yearly EC compliance report of Joda East Iron Mine (Apr'22- Sept'22) Joda June 15, 2023
- Half Yearly EC Compliance_ Oct'22 to Mar'23_FAP Joda_Tata Steel Limited Joda May 30, 2023
- Half Yearly EC Compliance_April'22 to Sep'22_FAP Joda_Tata Steel Limited Joda December 02, 2022
- Annual Env. Statement 2020-21 - FAP Joda - Tata Steel Limited

5/26/23, 3:04 PM Compliance Report

EC Conditions Six Monthly Compliance Report
(by Project Proponent)



Proposal No : IA/OR/IND/4054/2012

1. **Name of the Entity / Corporate Office :**

2. **Proponent Details :**

Proponent Name :	Sabyasachy	Designation :	Head (Mine & Production Planning, FAMD)
Telephone No :	6726-268763	Mobile No :	+91 7752004290
Fax No :	6726-06726268734	Email Address :	sabyasachy_mishra@yahoo.co.in
Website :	www.tatasteel.com	Pin Code :	758082
State :	Orissa	District :	Keonjhar
Village/Town :			

3. **Compliance Letter/Report (Proponent):**

4. **Summary Status of Compliance :**

Total Condition :	29		
Complied :	29	Being Complied :	0
Not Complied :	0	Partially Complied :	0
Agreed to Comply :	0		

Annexure -20

Covering Letter of Form V, Environment statement submission



Ref. No. FAMD/FAPJ/716/FY24

Dated: 23/09/2022.

The Member Secretary
State Pollution Control Board, Odisha
Paribesh Bhavan
A/118, Nilakantha Nagar, Unit-VIII
Bhubaneswar-751012

Sub: Submission of Environmental Statement of Ferro Manganese Plant, Joda for the period of 2022-23.

Dear Sir,

We are submitting one set of Annual Environmental Statement in FORM-V dully filled in for the year 2022-2023 in respect of M/s Ferro Manganese Plant, Joda by Tata steel for your kind consideration.

We wish to maintain that necessary control measures have been installed and adopted to minimize the impact on environment.

We look forward to further your guidance which shall certainly help us in endeavoring further improvements in our Environmental Management Practices.

Thanking you,

Yours faithfully,
For: TATA STEEL LTD.

A handwritten signature in blue ink, appearing to read 'Hamsa'.

Head & Factory Manager
Ferro Manganese Plant,
Joda

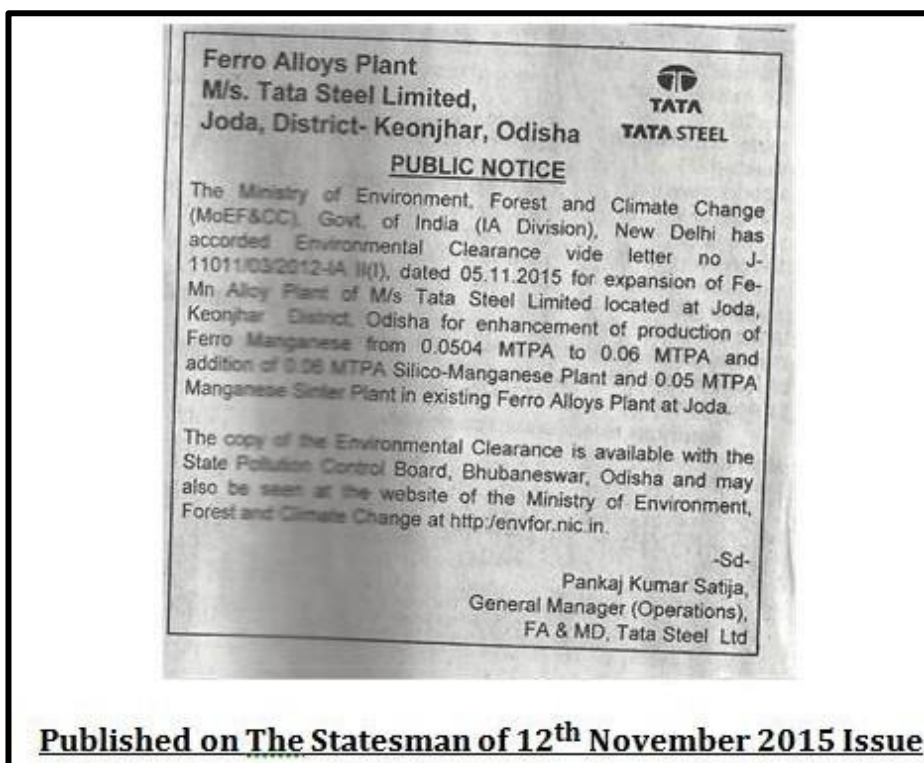
Encl: as above.

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

TATA STEEL LTD.
Ferro Alloys & Minerals Division
Ferro Manganese Plant, Joda
Joda - 758034, Odisha, India
Tel: 09238100945, e-mail -head.office@tatasteel.com
Regd. Office: Bombay House, 24 Homi Mody Street, Mumbai - 400 001

Annexure-21

Details of Publication on the Newspapers



Published on The Statesman of 12th November 2015 Issue

Six Monthly Compliance Report to the Terms of Conditions of Environmental Clearance granted in favor of Ferro Alloys Plant, Joda, M/s Tata Steel Limited for April'23 to September'2023



ନେଇ ସାଧାରଣରେ ଚର୍ଚ୍ଚା ଚାଲିଛି । ପଦ୍ମସୁର ପ୍ରଥମେ ବ୍ୟାପ୍ କରୁ ୧୫.୯
 ଶିଳ୍ପକର୍ମ ହରାଇ ୧୩୯ ରନ୍ କରିଥିଲା । ୯

ଫେରୋ ଆଲୟେଜ୍ ପ୍ଲାଣ୍ଟ
 ଟାଟା ଷ୍ଟିଲ ଲିମିଟେଡ୍,
 ଯୋଡ଼ା, ଜିଲ୍ଲା-କେନ୍ଦୁଝର, ଓଡ଼ିଶା



ସର୍ବସାଧାରଣ ବିଜ୍ଞପ୍ତି

ଭାରତ ସରକାରଙ୍କ ପରିବେଶ, ଜଙ୍ଗଲ ଓ ଜଳବାୟୁ ପରିବର୍ତ୍ତନ ମନ୍ତ୍ରାଳୟ (ଏମ୍ପାଏସ୍ ଏଫ୍ ଆଣ୍ଡ୍ ସିପି), (ଆରଏ ଚିଭିଜର୍), ନୂଆଦିଲ୍ଲୀ ପକ୍ଷରୁ ଜାରି କରାଯାଇଥିବା ତିନି ସଂଖ୍ୟା J-11011/03/2012-IA II(I), ତା ୫.୧୧.୨୦୧୫ରିଖ ଅନୁସାରେ ଓଡ଼ିଶାର କେନ୍ଦୁଝର ଜିଲ୍ଲାର ଯୋଡ଼ାଠାରେ ଅବସ୍ଥିତ ଟାଟା ଷ୍ଟିଲ ଲିମିଟେଡ୍‌ର ଫେରୋ ଆଲୟେଜ୍ ପ୍ଲାଣ୍ଟରୁ ମହାଲକ୍ଷ୍ୟ ଫେରୋ ମାଙ୍ଗାନିଜ୍ ଉତ୍ପାଦନ କ୍ଷମତା ବାର୍ଷିକ ୦.୦୫୦୪ ନିୟୁତ ଟନ୍ ୦.୦୬ ଟନ୍ ରୁ ବୃଦ୍ଧି ଓ ଏହାପରିତ ଯୋଡ଼ାଠାରେ ଥିବା ଫେରୋ ଆଲୟେଜ୍ ପ୍ଲାଣ୍ଟରେ ବାର୍ଷିକ ୦.୦୬ ନିୟୁତ ଟନ୍ କ୍ଷମତା ଉପରୁ ସିଲିକୋ-ମାଙ୍ଗାନିଜ୍ ପ୍ଲାଣ୍ଟ ଓ ବାର୍ଷିକ ୦.୦୫ ନିୟୁତ ଟନ୍ କ୍ଷମତା ସମ୍ପନ୍ନ ମାଙ୍ଗାନିଜ୍ ସିଣ୍ଡର ପ୍ଲାଣ୍ଟ ପାଇଁ ପରିବେଶ ମନ୍ତ୍ରାଳୟ ପ୍ରଦାନ କରିଛନ୍ତି ।

ପରିବେଶ ମନ୍ତ୍ରାଳୟ ନଜଲ ଓଡ଼ିଶାର ଭୁବନେଶ୍ୱରସ୍ଥିତ ରାଜ୍ୟ ପ୍ରତ୍ୟୁଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ୍ ନିକଟରେ ଉପଲବ୍ଧ ଏବଂ ଭାରତ ସରକାରଙ୍କ ପରିବେଶ, ଜଙ୍ଗଲ ଓ ଜଳବାୟୁ ପରିବର୍ତ୍ତନ ମନ୍ତ୍ରାଳୟ ଷ୍ଟେସାଇଟ୍ <http://envfor.nic.in> ରେ ମଧ୍ୟ ଦେଖାଯାଇପାରିବ ।

ପଙ୍କଜ କୁମାର ସତିକା,
 ମହା ପ୍ରବନ୍ଧକ (ଅପରେସନ୍ସ)
 ଏଫ୍ ଏ ଆଣ୍ଡ୍ ଏମ୍ ଟି, ଟାଟା ଷ୍ଟିଲ ଲିମିଟେଡ୍

Published on Sambad of 13th November 2015 Issue
